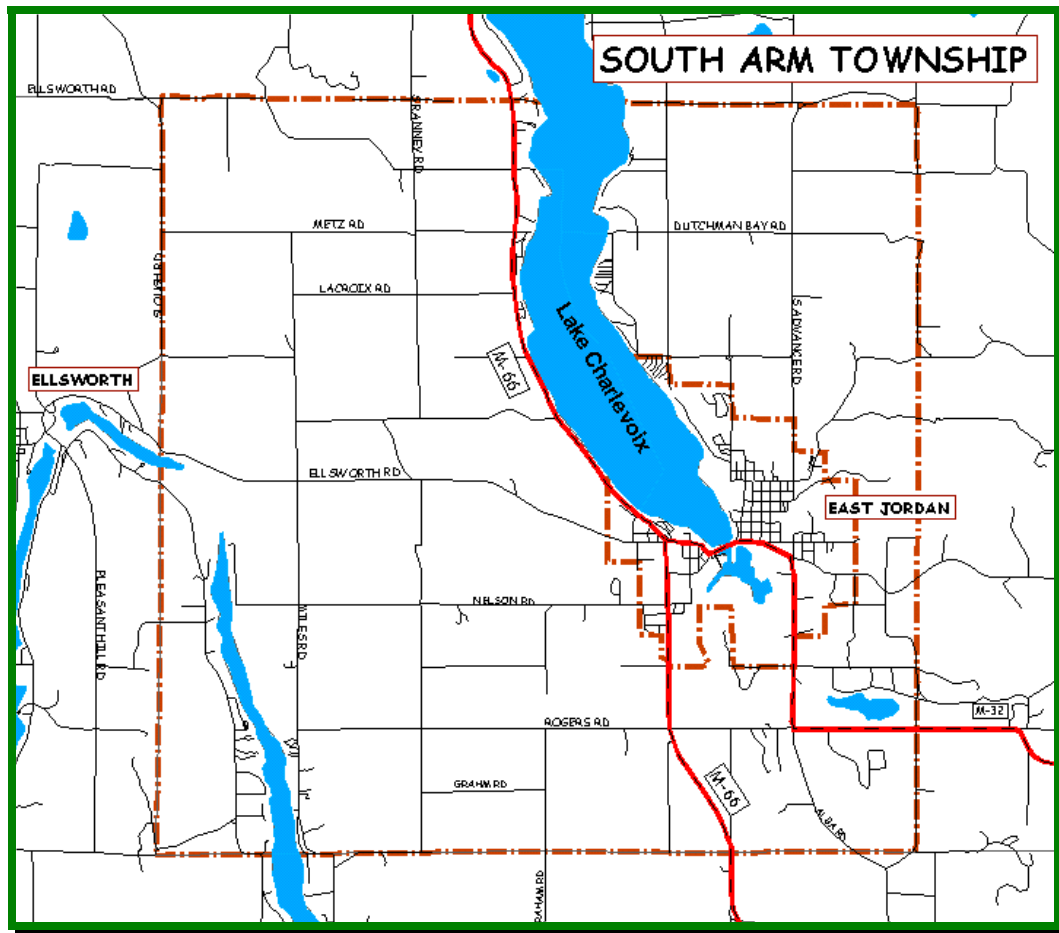


SOUTH ARM TOWNSHIP

TOWNSHIP MASTER PLAN UPDATE - 2011



PLANNING COMMISSION ADOPTED: JUNE 8, 2011
TOWNSHIP BOARD ADOPTED: JUNE 8, 2011

PREPARED BY:
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South Arm Township *Master Plan Update – 2011*

Charlevoix County, Michigan

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Update Adopted

Planning Commission: June 8, 2011

Township Board: June 8, 2011

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1.0 Introduction

1.1 Location and Regional Context

South Arm Township is located in the south-central part of Charlevoix County in the northwest region of Michigan's Lower Peninsula. South Arm Township is made up of one geographic township: T32N-R7W , excluding the City of East Jordan. The Township is bordered on the north by Eveline Township, on the east by Wilson Township, on the south by Antrim County's Echo Township, and on the west by Antrim County's Banks Township. A location map and base map are provided as **Figure 1.1**

South Arm Township has 31.1 square miles of land area with a population of 1,844, as of the 2000 U.S. Census. Charlevoix County as a whole has 416.9 square miles of land area with a population of 26,090.

1.2 Purpose of Planning Process

The purpose of the *South Arm Township Master Plan* is to provide guidelines for future physical development of the community, while protecting the water resources, other natural resources and rural township character. This plan presents extensive background information for the Township and the surrounding area, including social and economic data, description and mapping of natural resources, and inventory of existing community facilities. The background information is analyzed to identify important characteristics, changes and trends occurring in South Arm Township. Community concerns are identified based on Township Board and Zoning Board comments and citizen participation in planning workshop meetings. Community goals and policies are presented to guide future development based on these background studies, key land use trends and community issues. These goals, along with a detailed map of existing land use, provide the basis for the Future Land Use Map. The future land use map recommends locations for various types of future development within the Township. The Master Plan text also provides suggestions for implementation of the identified goals and policies.

1.3 The Status of Planning and Zoning in South Arm Township

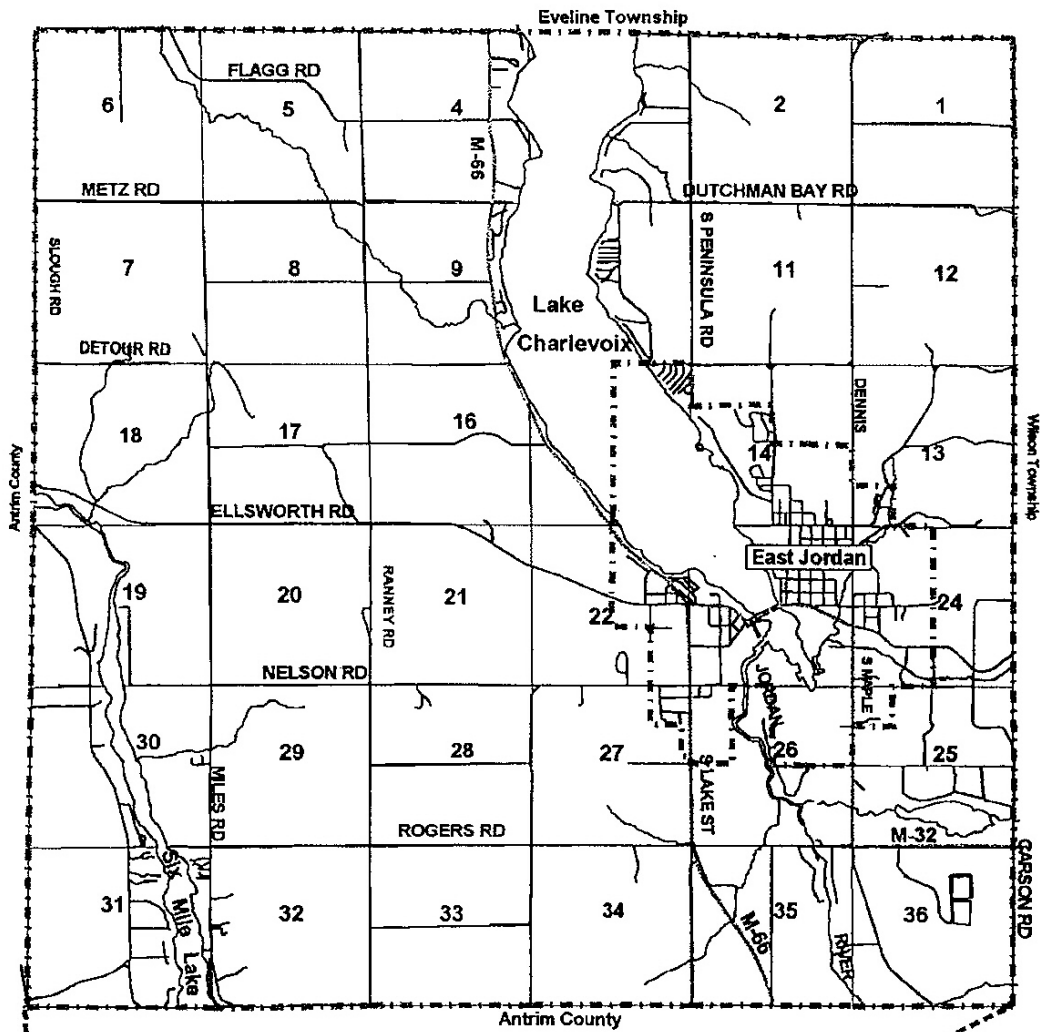
Township has exercised its legal right to establish and administer local zoning as previously authorized by the Township Rural Zoning Act (PA 184 of 1943), and currently authorized by the Michigan Zoning Enabling Act (PA 110 of 2006, as amended). A zoning ordinance regulating land use activities was enacted by the South Arm Township Board on March 4, 1981 and took effect on April 18, 1981. The ordinance has been amended several times since the March 1981 adoption date. For nearly 30 years, the Township zoning ordinance has regulated the location, density and standards for local development.

The South Arm Township Planning Commission initially adopted a Comprehensive Land Use Plan in the 1980's. The plan provided information on the environment, socio-economic data, communities services, transportation, recreation, and zoning districts. The Plan also, addressed goals and objectives and recommendations.

Since the adoption of the Township's initial land use plan, a number of social, economic and environmental changes have occurred which affect the use of land and development patterns. By documenting these socio-economic changes along with other community changes within a Master plan, the Township will be better able to formulate appropriate land use goals and policies to guide development, and serve as the basis for enforceable zoning. A thoroughly updated Master Plan was adopted 1999. The 1999 Master Plan was reviewed and updated again in 2010/2011 in accordance with the Michigan Planning Enabling Act. The revised and updated land use plan will in turn be used as a basis for re-examining the Township's zoning districts and land use development controls.

Updated zoning ordinances supported by up-to-date master plans are considered the main tool Michigan communities have at their command to control land use patterns and development pressures. To provide a strong legal foundation a zoning ordinance should correspond to an up-to-date adopted Master Plan to guide future development

**FIGURE 1.1
LOCATION MAP, SOUTH ARM TOWNSHIP**



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2.0 Socioeconomic Profile

An important component in the master planning process is understanding the community's social and economic characteristics. This chapter explores current and historical population changes, age distribution, household make-up, income, education and employment statistics, and housing characteristics for South Arm Township. Where significant, Township data is compared to Charlevoix County, the State of Michigan and the U.S. The purpose of this exercise is to identify factors that could influence future land use decisions and to assist policy makers with these decisions.

2.1 Population

At the time of the 2010 U.S. Census, the population of South Arm Township was 1,873 permanent residents (901 male – 972 female)

In discussing the population for South Arm Township, however, it is important to note that the figure presented by the 2010 Census does not reflect the actual number of persons residing in the Township during the summer months. This situation can be seen throughout much of northern Michigan.

The Census tally, taken on April first, does not count residents who winter elsewhere. Respondents are asked to declare a permanent residence different from their April location, if more than six months are spent at the alternate address. However, many fail to do so for reasons of misunderstanding or for tax purposes.

In reviewing the social and economic information derived from Census data, the figures presented for housing characteristics show that 291 out of the total 1,078 housing units are listed as seasonal, recreational or occasional use homes. With this in mind, it can be assumed that the Township's resident population can significantly increase during peak periods in the summer months. Using the 2.49 persons per household for the State of Michigan and the 291 seasonal homes, peak seasonal population could increase by approximately 725 persons or 38.7 percent. In addition, many summer visitors stay at private lodging places or at the homes of family and friends.

Population trends for permanent residents of South Arm Township from 1970 to 2010 are shown in **Table 2.1**. In 1970, the Township population was 995. By 2010, the population had

increased to 1,873, an 88 percent increase.

The 2010 Census shows a population density of 60.2 persons per square mile for South Arm Township's 31.1 square miles of land area. The township's population density is lower than the 62.2 persons per square mile for Charlevoix County

**TABLE 2.1
POPULATION TRENDS
SOUTH ARM TOWNSHIP, 1970 - 2010**

Year	Population	Change	
		#	%
1970	995	-	-
1980	1,237	242	24.3
1990	1,418	181	14.6
2000	1,844	426	30.0
2010	1,873	29	0.02

Source: U.S. Bureau of the Census

2.2 Age Distribution, Racial Make-Up and Disability Status

Information on age distribution within a population can assist the community in matching public services to community characteristics and in determining special needs of certain age groups. For example, a younger population tends to require more rental housing units or smaller homes, while an elderly population needs assisted care or nursing home facilities. Analysis of age distribution can be used by policy makers to identify current gaps in services and to project future service needs for housing, education, recreation and medical care.

Age distribution figures for South Arm Township, Charlevoix County and the State of Michigan from the 2010 Census are compared in **Table 2.2**. Analysis of the data indicates that the Township's population is older than that of the County and the State. Median age for Township residents is 1.7 years older than the median age of residents of the County, and over 8 years older than median age for State residents. Approximately 30 percent of the Township's Population is 60 years and older. Almost 26 percent of the County's and almost 20 percent of the State's population is 60 years and older.

**TABLE 2.2
AGE DISTRIBUTION
TOWNSHIP, COUNTY, AND STATE - 2010**

Age Range	South Arm Township		Charlevoix County		State
	#	%	#	%	%
Under 5	74	4.0	1,363	5.3	6.0
5-17	329	17.6	4,353	16.8	17.7
18-20	45	2.4	753	2.9	4.6
21-24	57	3.0	885	3.4	5.3
25-44	371	19.8	5,443	21.0	24.7
45-54	305	16.3	4,308	16.6	15.3
55-59	134	7.2	2,067	8.0	6.9
60-64	139	7.4	1,944	7.5	5.8
65+	419	22.4	4,833	18.6	13.8
TOTAL	1,873	100.1	25,949	100.1	100.1
Median Age	47.2		45.5		38.9

Source: U.S. Bureau of the Census

Note: Due to rounding totals may not equal 100%

Racial make up of South Arm Township population is relatively homogeneous. Of the 1,873 persons in the community in 2010, 1,796 were White, 25 were American Indian, Eskimo or Aleut, and four were of Asian descent. **Table 2.3** compares the Township's racial composition to that of the County and State.

For tracking disability status, the U.S. Census breaks the population into two different age categories: working age and post-working age. Of the civilian non-institutionalized population in the age group 21-64 years in South Arm Township in 2000, 195 persons or 20 percent were listed as having a disability, and of that group 66.2 percent were employed. Additionally, 1.4 percent of the population with a disability over the age of 5 had self-care limitations. Due to changes in the data and manner in which the U.S. Census Bureau collects specific data, this information was available with the 2010 Census.

**TABLE 2.3
RACIAL MAKE UP
TOWNSHIP, COUNTY, AND STATE - 2010**

Race	South Arm Twp.		Charlevoix Co.		State	
	#	%	#	%	#	%
White	1,796	95.9	24,806	95.6	7,803,120	78.9
Black	4	0.2	80	0.3	1,400,362	14.2
Native	25	1.3	382	1.5	62,007	0.6
Asian	4	0.2	103	0.4	238,199	2.4
Other	44	2.3	578	2.2	379,952	3.8
Total	1,873	99.9	25,949	100.0	9,883,640	99.9

Source: U.S. Bureau of the Census

Note: Due to rounding totals may not equal 100%

2.3 Households

Census data from 2010 shows that South Arm Township has an average household size of 2.49 persons per household, as compared to 2.36 persons per household for Charlevoix County, and 2.49 persons per household for the State.

Table 2.4 depicts household characteristics, showing that 63.4 percent of South Arm Township household are classified as married couple families, whereas married couple families make up 54.0 percent of County households, and married couple families account for 48.0 percent of households in Michigan.

2.4 Income and Wealth

Three measures of income (median household, median family and per capita) are illustrated in **Table 2.5** for the Township, County and State. The family income of South Arm Township residents is somewhat higher than that of the County, and lower than the State. Household income is higher than the County and State household income. The per capita income is less than the County and State per capita income.

**TABLE 2.4
COMPARATIVE HOUSEHOLD CHARACTERISTICS
TOWNSHIP, COUNTY, STATE, AND COUNTRY - 2010**

Household Type	South Arm Township		Charlevoix County		Michigan	
	Number	%	Number	%	Number	%
Married Couple Families	449	63.4	5,873	54.0	1,857,127	48.0
Single Male Families	27	3.8	508	4.7	185,363	4.8
Single Female Families	52	7.3	988	9.1	511,583	13.2
Single Person Non-Families	155	21.9	2,992	27.5	1,079,678	27.9
Other Non-Families	25	3.5	521	4.8	238,757	6.2
Total Households	708	99.9	10,882	100.1	3,872,508	100.1

Note: Due to rounding totals may not equal 100%

Source: U.S. Bureau of the Census

**TABLE 2.5
FAMILY HOUSEHOLD AND PER CAPITA INCOME
TOWNSHIP, COUNTY, AND STATE – 2009**

Place	Family Income	Household Income	Per Capita Income	% of Families Below Poverty Level
South Arm Township	\$56,359	\$49,528	\$23,658	10.5
Charlevoix Co.	\$54,571	\$47,472	\$29,579	7.8
State	\$59,180	\$47,642	\$24,724	10.3

Source: U.S. Bureau of the Census Factfinder 2007-2009

Table 2.5 also illustrates poverty statistics comparing South Arm Township to the other units of government. At 10.5 percent, the poverty rate for all persons in South Arm Township is higher than the County at 7.8 percent and about the same as the State at 10.3 percent.

2.5 Education

Education is an important factor in analyzing the capabilities of the local work force and in the economic vitality of a community. The U.S. Census Bureau tracks educational attainment.

Statistics from the 2009 Census Factfinder indicate that 83.5 percent of South Arm Township residents (25 years of age or older) are high school graduates or higher, as compared

to 90.2 percent for Charlevoix County and 87.4 percent for the State as a whole. Township residents with a bachelor's degree or higher amount to 16.4 percent of the population, while County and State have 23.3 and 24.5 percent college graduates, respectively. These statistics are illustrated below in **Table 2.6**.

**TABLE 2.6
EDUCATIONAL ATTAINMENT
TOWNSHIP, COUNTY, AND STATE - 2009**

Place	High School Graduate Or Higher %	Bachelors Degree or Higher %
South Arm Township	83.5	16.4
Charlevoix County	90.2	23.3
State	87.4	24.5

Source: U.S. Bureau of the Census Factfinder 2007-2009

2.6 Employment

The Office of Labor Market Information, Michigan Department of Energy, Labor and Economic Growth publishes monthly and annual employment data. Employment and unemployment data on the civilian labor force is presented in **Table 2.7**, comparing South Arm Township, Charlevoix County and the State of Michigan for the years 1995-1997. and **Table 2.7A** comparing Charlevoix County and the State of Michigan for years 2004-2010. It is important to note the information reflects place of residence not location of employment. The unemployment rate for South Arm Township and Charlevoix County has traditionally been higher than that of the State. As of the 2010 update, Township level data is no longer available so table 2.7A shows the County and State data for 2004, 2006, 2008, and 2010.

TABLE 2.7
CIVILIAN LABOR FORCE AND UNEMPLOYMENT RATE COMPARISONS
BY PLACE OF RESIDENCE
TOWNSHIP, COUNTY, AND STATE 1995-1997

	South Arm Township			Charlevoix County			State (in 1000s)		
	1995	1996	1997	1995	1996	1997	1995	1996	1997
Labor Force	750	775	800	12,775	13,375	13,875	4,745	4,807	4,986
Employment	650	700	750	11,700	12,475	13,100	4,491	4,572	4,776
Unemploy.	100	75	75	1,075	900	775	254	234	210
Unemploy. %	12.6	10.1	8.4	8.5	6.7	5.6	5.3	4.9	4.2

Note: Figures are rounded to the nearest 25
Source: Michigan Employment Security Commission

TABLE 2.7A
CIVILIAN LABOR FORCE AND UNEMPLOYMENT RATE COMPARISONS
BY PLACE OF RESIDENCE
COUNTY, AND STATE 2004-2010

	Charlevoix County				State (in 1000s)			
	2004	2006	2008	2010	2004	2006	2008	2010
Labor Force	14,144	14,308	13,987	13,368	5,043	5,068	4,936	4,790
Employment	13,054	13,217	12,554	11,445	4,687	4,719	4,519	4,193
Unemployment	1,090	1,091	1,433	1,923	356	350	416	597
Unemployment %	7.7	7.6	10.2	14.4	7.1	6.9	8.4	12.5

Source: Office of Labor Market Information, Michigan Dept. of Energy, Labor & Economic Growth

Table 2.8 shows employment by occupation for persons living in South Arm Township, Charlevoix County, and the State of Michigan.

**TABLE 2.8
EMPLOYMENT BY OCCUPATION
SOUTH ARM TOWNSHIP AND CHARLEVOIX COUNTY, 2009**

Occupation	South Arm Township		Charlevoix County		Michigan
	#	%	#	%	%
Management, professional and related occupations	269	29.4	3,363	27.3	32.9
Service Occupations	170	18.6	2,262	18.4	17.6
Sales and office occupations	183	20.0	3,051	24.8	25.3
Farming, fishing and forestry occupations	22	2.4	95	0.8	0.6
Construction, extraction and maintenance occupations	116	12.7	1,511	12.3	8.1
Production, transportation, and material moving occupations	155	16.9	2,019	16.4	15.5

Source: U.S. Bureau of the Census Factfinder 2007-2009

2.7 State Equalized Value

Other characteristics of the Township's property values and the local economy can be obtained by analysis of State Equalized Value (SEV) figures. By law the SEV, which constitutes a community's tax base, is equal to approximately one-half of the true market value of real property and certain taxable personal properties.

Table 2.9 shows the distribution of value among the different SEV categories for 2011, comparing South Arm Township to Charlevoix County as a whole. As the table demonstrates, the majority (86.2 percent) of the Township's taxable property is residential, and the County's taxable residential property also makes up 86.2 percent of the total SEV. These figures show that lakeshore residential and rural residential living is a significant characteristic of the County and the Township. Property classified as agricultural makes up 5.8 percent of South Arm Township, while total agricultural property for the County is only 2.1 percent. Still the agricultural SEV for the Township is greater than the combined commercial and industrial SEV, which indicates that farming is important to the economy of Township. Commercial property is 2.7 percent of the Township's SEV, and 1.6 percent of the Township's SEV is classified as industrial.

**TABLE 2.9
DISTRIBUTION OF STATE EQUALIZED VALUE (SEV)
SOUTH ARM TOWNSHIP AND CHARLEVOIX COUNTY - 2011**

Category	South Arm Township		Charlevoix County	
	Amount	% SEV	Amount	% SEV
Real Property:				
Agricultural	6,726,000	5.8	56,266,700	2.1
Commercial	3,164,300	2.7	165,683,271	6.3
Industrial	1,792,500	1.6	39,490,600	1.5
Residential	99,336,800	86.2	2,283,645,964	86.2
Timber Cut-over	0	0.0	766,200	0.03
Total Real:	111,019,600	96.3	2,545,852,735	96.1
Personal:	4,241,700	3.7	104,598,724	3.9
TOTAL SEV	115,261,300	100.0	2,650,451,459	100.0

Source: Charlevoix County Equalization Department

2.8 Total Housing Stock

An evaluation of the housing stock and property values can be very beneficial in determining community housing needs. Data from the 2007-2009 Census Factfinder shows a total of 1,221 housing units in South Arm Township: 1,062 single-family units, no multiple-family units and 159 mobile homes. **Table 2.10** illustrates the types of housing structures existing at the time of the 2005-2009 Census Factfinder, comparing South Arm Township and Charlevoix County. Single-family attached and detached dwelling units make up the majority (86.9 percent) of the housing stock. The percentage of single-family dwellings for the Township and County are similar.

2.9 Housing Tenure

According to the U.S. Census Bureau, the national rate of home ownership has grown from 55.0 percent in 1950 to 65.1 percent in 2010. In 2010, South Arm Township home ownership rate of 65.7 percent of occupied homes is slightly higher than the national rate. Housing occupancy characteristics are illustrated in **Table 2.11**.

**TABLE 2.10
TYPE OF HOUSING STRUCTURES
TOWNSHIP, AND COUNTY – 2009**

Unit Type	South Arm Township		Charlevoix County	
	#	%	#	%
1 unit structures - detached or attached	1,062	86.9	14,014	80.7
2-4 unit structures	0	0.0	811	4.7
5-9 unit structures	0	0.0	465	2.7
10 or more unit structures	0	0.0	713	4.1
Mobile home or trailer	159	13.0	1,356	7.8
Boat, RV, van, etc	0	0.0	3	0.0
Totals	1,221	99.9	17,362	100.0

Source: U.S. Bureau of the Census Factfinder 2005-2009

**TABLE 2.11
HOUSING OCCUPANCY CHARACTERISTICS
SOUTH ARM TOWNSHIP AND CHARLEVOIX COUNTY - 2010**

Category	South Arm Township				Charlevoix County			
	# of Total Units		% of Total Units		# of Total Units		% of Total Units	
Occupied Housing	708		65.7		10,882		63.1	
Owner-Occupied		627		58.2		8,643		50.1
Renter-Occupied		81		7.5		2,239		13.0
Vacant Units	370		34.3		6,367		36.9	
Vacant Seasonal		291		27.0		5,156		29.9
Vacant Other		79		7.3		1,211		7.0
Total Housing Units	1,078	1,078	100.0	100.0	17,249	17,249	100.0	100.0

Source: U.S. Bureau of the Census

2.10 Age and Equipment Characteristics of Structures

Generally, the economically useful age of residential structures is approximately 50 years. Beyond that age, repairs become expensive and the ability to modernize the structure to include amenities considered standard for today's life-styles is diminished. When a community's housing stock approaches that age, the need for housing rehabilitation, demolition and new construction will begin to increase.

Table 2.12 below compares residential structure age of South Arm Township, Charlevoix County and the State of Michigan. Generally speaking, the Township's housing stock is slightly older than that of the County and significantly newer than the State. Approximately 58% of the homes in South Arm Township were built between 1940 and 1989.

**TABLE 2.12
COMPARATIVE AGE OF STRUCTURES
TOWNSHIP, COUNTY, AND STATE**

Year Structure Built	South Arm Township	Charlevoix County	State
	%	%	%
1990- 2005 or later	28.5	29.4	21.5
1989- 1940	58.3	49.4	62.0
1939 or earlier	13.2	21.2	16.6
Totals	100.0	100.0	100.1

Source: U.S. Bureau of the Census 2005-2009 Factfinder
Note: Due to rounding totals may not equal 100%

The Census provides information on plumbing and kitchen facilities. Less than one percent of the structures were lacking complete plumbing or lacking complete kitchen facilities. Both of these characteristics indicate the housing stock is in good condition and have modern facilities.

2.11 Housing Values and Rent

One comparative measure of the local housing stock is housing value. The median value of owner-occupied year-round housing units for South Arm Township in 2009 was \$154,700. This is somewhat less than median housing value of \$166,200 for Charlevoix County, and slightly more than the median housing value of \$147,500 for the State as a whole, as indicated in **Table 2.13**. **Table 2.13** also illustrates comparative rental rates, showing that median rent for South Arm Township is \$782 and is \$624 for Charlevoix County. The median rent statewide in 2009 was \$709.

**TABLE 2.13
COMPARATIVE DISTRIBUTION OF HOUSING VALUES AND RENT
TOWNSHIP, COUNTY, AND STATE – 2009**

Financial Characteristics	South Arm Twp.		Charlevoix Co.		State	
	#	%	#	%	#	%
Value Specified Owner-Occupied Housing Units	771	99.9	9,372	100.0	2,879,917	100.1
Less than \$50,000	42	5.4	731	7.8	252,646	8.8
\$50,000 - \$99,999	129	16.7	1,294	13.8	546,677	19.0
\$100,000 - \$149,000	203	26.3	2,015	21.5	673,307	23.4
\$150,000- \$199,999	122	15.8	1,749	18.7	563,306	19.6
\$200,000 - \$299,999	120	15.6	1,568	16.7	480,021	16.7
\$300,000- \$499,999	111	14.4	1,036	11.1	265,752	9.2
\$500,000- \$999,999	37	4.8	629	6.7	80,096	2.8
\$1,000,000 or more	7	0.9	350	3.7	18,112	0.6
Median Value	\$154,700		\$166,200		\$147,500	
Contract Rent: Specified Renter-Occupied Housing Units	64	100.1	2,071	99.9	924,264	100.1
Less than \$200	0	0.0	202	9.8	30,109	3.3
\$200- \$299	5	7.8	123	5.9	36,734	4.0
\$300- \$499	12	18.8	322	15.5	120,974	13.1
\$500- \$749	8	12.5	702	33.9	327,434	35.4
\$750- \$999	17	26.6	558	26.9	232,834	25.2
\$1000- \$1499	22	34.4	158	7.6	139,137	15.1
\$1500 or more	0	0.0	6	0.3	37,042	4.0
Median Rent	\$782		\$624		\$709	

Source: U.S. Bureau of the Census 2005-2009 Factfinder

3.0 Community Services and Facilities

One of the primary contributors to the quality of life of a community is the type and variety of services available to both local residents and visitors to the area. In many cases, a smaller community does not have the financial resources to provide all or even most of the services which would normally be considered essential. The more populated the community, the greater the variety of public, semi-public and private services made available to residents.

This chapter of the Master Plan will identify the types and extent of services now available to residents and businesses in South Arm Township. Even though 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 the Township needs to maintain a satisfactory living environment in the future.

3.1 Water and Sewage Disposal

South Arm Township does not provide public water or sewage disposal systems for Township residents. However, the City of East Jordan does provide public water and sewer to a limited number of customers outside of the city limits. Those areas served include: 1) water and sanitary sewer service (expanded to include a pressure system) for several homes north of the city limits on M-66; 2) water service to several homes south of the city limits on M-66; and 3) water and sewer to the Grandvue Medical Care Facility located in Section 11. These Township users pay double City rates for water and sewer service. The current policy of East Jordan is that water and sewer services will only be extended if there is a contract 425 annexation or standard annexation of the property into the City. Water and sanitary sewer service is provided to the East Jordan Air Industrial Park located in Section 36. The City and Township have entered into a 425 agreement whereby the property has been annexed into the City, however, the Township will receive one mill taxes for a period of 50 years.

The City's wastewater treatment facility is located in the southeastern corner of the Township, in Section 36. The treatment is a two lagoon system, with effluent discharge through spray irrigation on airport property.

The majority of the residents and business owners must rely on on-site private wells for

domestic drinking water needs and private on-site septic systems for wastewater disposal. Health Department of Northwest Michigan regulates and maintains a permitting system for private wells and septic systems. Two important determinants for siting a septic system are soil suitability and depth to bedrock. Chapter 4 - Natural Resources discusses the geology and soils of the Township. Figure 4-1, Soils Constraints, shows steeply sloped area and areas with hydric soils that have septic system limitations.

3.2 Solid Waste

South Arm Township does not presently offer solid waste management or municipal waste disposal service. Residents rely on private waste haulers for pick up, who must dispose of the rubbish in a licensed landfill. American Waste and Waste Management pick up solid waste in the Township and residents can use East Jordan Plastics as a plastic recycling drop off center. There is a solid waste transfer site in East Jordan, which serves a wide geographic area, and serves as one of the six Charlevoix County recycling program drop-off locations.

3.3 Utility Services

Great Lakes Energy, formerly Top O' Michigan Electric Cooperative, and Consumers Energy supplies electric service to all areas of the Township.

Natural gas, where available, is provided by Michigan Consolidated Gas. Residents may also purchase propane gas or fuel oil from several suppliers throughout the area, while some residents elect to heat with wood.

AT & T provides local telephone service, while residents and commercial users have the option of choosing long distance service from several providers. Charter provides internet, telephone and cable television service in the more densely populated areas of the Township. Many residents not served by cable utilize individual satellite systems for increased television reception. Also, small local private companies supply internet.

3.4 Police, Fire and Ambulance Services

Law enforcement protection for South Arm Township is primarily the responsibility of the Charlevoix County Sheriff Department. The Michigan State Police from the Petoskey Post

provide assistance as necessary, but they regularly patrol only state highways, such as M-66 and M-32, in the Township. The City of East Jordan maintains a local police department for law enforcement protection within the city limits and acts as a back-up for emergency calls in the Township.

Fire protection and ambulance service for South Arm Township are available through joint agreements with the City of East Jordan and Banks Township, and are provided on a volunteer basis. Countywide enhanced 911 emergency service, operated by the Charlevoix, Cheboygan and Emmet 911 (CCE-9-1-1), is available for all county residents.

3.5 Transportation

Two state trunklines, M-66 and M-32, run through South Arm Township. M-66 runs north/south along the west side of Lake Charlevoix's South Arm. M-32 crosses the state from Alpena on the east side, enters the Township in the southeastern corner, and ends in the City of East Jordan. The Michigan Department of Transportation is responsible for maintenance of the state trunklines. Other local roads are under County or Township jurisdiction, and are maintained by the Charlevoix County Road Commission. Money for maintaining county roads is derived from state and local sources, including South Arm Township's general fund.

Local roads are classified as primary and secondary roads. The primary county roads are all paved and include the Advance-Boyne City Road, Peninsula Road, Miles Road (south of Ellsworth Road), Six Mile Lake Road, Rogers Road, Mt. Bliss Road, Boyne City -East Jordan Road (C-48) and Ellsworth Road (C-48). The secondary road network accounts for the greatest number and length of roadways. Road types range from paved, gravel and unimproved surfaces. Seasonal roads not maintained from October to May include Desjardin, Detour and Pettigrew Roads and portions of Metz, LaCroix, Dutchman's Bay, Behling, Lord, Ranney, Nelson, Predmore, S. Waterman, Cosier, Dennis, Lee, Crawford, and Slough Roads.

Public transit service in the local area is available on a limited basis from the Charlevoix County Transit. Regularly scheduled bus service transports residents to work and handicapped residents to health services. On-call service is also provided for medical appointments, shopping trips and entertainment activities within the County. The Transit also makes regularly scheduled trips to Traverse City.

Commercial air service to Detroit and Chicago with connections to major cities is provided by Northwest Airlines and United Express from Pellston Regional Airport in Emmet County, approximately 60 miles from South Arm Township. United Express, United Parcel Service and Federal Express provide air freight service from that airport. Local residents and business travelers may also fly out of the Cherry Capital Airport in Traverse City, approximately 70 miles away.

The East Jordan Municipal Airport, located in Section 36 of South Arm Township, does not offer scheduled commercial service but accommodates small private aircraft. The runway surfaces are paved and lighted. The east-west runway is 3200' long and the north-south runway is 1900' long. Gas and repair services are available through the local air club.

3.6 Library, Schools, Churches and Cemeteries

The Jordan Valley District Library, located in the City of East Jordan, provides full library services for Township residents.

South Arm Township is incorporated within the East Jordan School District and the Ellsworth Community School District, serving the K-12. Head Start and two other four-year old programs are available for pre-schoolers. Over the past several years, the school has experienced continued growth. Recent bond-funded improvements include a new middle school for grades 6-8, a completely renovated elementary school (grades K-5) and an expansion at the high school (grades 9-12) building. The school also houses northwest Michigan's only advanced learning center for math, science and technology.

North Central Michigan College (NCMC) in Petoskey, a two-year institution, serves the higher education needs for the region's population. NCMC offers several associate degree programs, career and technical training, liberal arts and transfer programs. In addition, NCMC has a joint agreement with Lake Superior State University offering a bachelor degree program in business administration, as well a masters in business administration program. NCMC also offers a number of classes locally at an off-campus location in East Jordan's former Dura facility. Post high school education is also available at Northwestern Michigan College in Traverse City, noted for its strong nursing and maritime programs. In addition, Northwestern Michigan College offers programs similar to NCMC, with higher-level degree programs through arrangements with

Ferris State University, Central Michigan University, Michigan State University, Eastern Michigan University, Michigan Technological University, University of Michigan, Wayne State University and Lake Superior State University.

Churches serving South Arm Township are listed below in no particular order:

St. John Nepomucene Catholic	Church of Christ
Church of Jesus Christ of Latter Day Saints	First Presbyterian Church
Full Gospel Truth Church	The Harvest Barn Church
East Jordan Baptist Church	Grace Bible Church
East Jordan United Methodist Church	Faith Evangelical Lutheran Church
Evangelical Lutheran Church ELCA	East Jordan Missionary Church
Reorganized Church of Jesus Christ of Latter Day Saints	St. Joseph Catholic Church
Jordan River Rising Church	

Two cemeteries are located in the Township. Lakeside Cemetery on M-66 and Jones Cemetery on Waterman Road are still used for burials. Sunset Cemetery and St. Joseph Cavalry Cemetery are located in East Jordan.

3.7 Medical Facilities

Because of South Township's central location in northwestern Michigan, residents and visitors needing medical treatment may access services at Northern Michigan Regional Hospital in Petoskey, Otsego Memorial Hospital, Munson Medical Center in Traverse City, Charlevoix Area Hospital and the East Jordan Family Health Care Center. Services offered by these hospitals include specialty and outpatient services, 24-hour fully staffed emergency rooms, emergency transportation, substance abuse treatment, mental health treatment and other specialty services.

Northwest Michigan Community Health Agency (commonly known as the Health Department) is often able to fill health care needs of the community, which are not available or affordable elsewhere. The Health Department service area includes Antrim, Charlevoix and Emmet Counties and is headed by a board made up of representatives from the participating County Boards of Commissioners. Programs offered by the Health Department fall under three categories: home health care services, environmental health services and personal health services.

Grandvue Medical Care Facility, is a county owned facility that serves residents of Charlevoix County. Grandvue is a long term care facility that provides basic and skilled nursing care. In addition, rehabilitation services and an Alzheimer's Unit are located in the facility.

3.8 Recreational Facilities

One important attraction sought by residents and visitors is the abundant recreational opportunities of the local area. South Arm of Lake Charlevoix, Six Mile Lake and the Jordan River are primary draws offering water recreational activities such as boating, fishing and swimming. With the exception of the Township Hall, which is used as a meeting room, the Township does not own or operate any recreational facilities.

The Department of Natural Resources (DNR) maintains two public access sites on the Jordan River in South Arm Township. Other DNR public boat launch facilities are located on Dutchman's Bay Road and Miles Road. The Lions Club Park is located on Lake Patricia. A Senior Citizens Center in East Jordan provides meals, entertainment and meeting space to area senior citizens aged 60 and over.

The City of East Jordan owns and operates several active recreation facilities that are often used by Township residents. Tourist Park, located on Lake Charlevoix, has a trailer park, small craft marina, beach, picnic area and playground. Located adjacent to Tourist Park, Murphy Park has little league and softball fields, tennis courts and basketball courts. Sportsman's Park, located at the mouth of the Jordan River and Whiskey Creek, has a picnic area and nature center. The City operates a boat launch facility on Lake Charlevoix adjacent to the M-32 bridge. The East Jordan Municipal Harbor, on Lake Charlevoix, rents seasonal and transient boat slips. The City has developed a 40 acre site located on the southeastern edge of the City into a multi-use recreational facility. Improvements include soccer fields, baseball fields, little league fields, a playground, and a picnic area. Elm Pointe on Lake Charlevoix is owned by the City, but located in the Township. The facility has a historical society museum, picnic area and a building that can be rented for receptions and parties.

Many of the East Jordan Public School's facilities are available for public use by special arrangement when not in use for school related activities. These facilities include the gymnasium, weight room, playground, track, auditorium, community swimming pool and meeting rooms.

4.0 Natural Resources

Without a doubt the greatest attractions for the residents and visitors to northern Michigan are the area's environment and the rural nature of this portion of the State. The rolling hills, forestlands, farmlands, open spaces and high quality water resources combined with scenic vistas make this area a desirable place to both live and visit. Lake Charlevoix, the Chain-of-Lakes and the Jordan River are strong focal points for the community and warrant special considerations when planning for future growth. Because of the abundant outdoor recreational activities, such as hunting, fishing, boating, golfing and snowmobiling, the natural environment is a major economic base and income generator.

At the same time, the environment places constraints upon human activities. Certain critical and sensitive parts of the natural landscape cannot be altered without creating problems that are not easily corrected. The filling of wetlands and soil erosion due to the clearing of land for construction are but two examples. It is essential that future development respect the different characteristics of the natural environment. This is important in preserving the attractiveness of this part of the State and preventing potential problems related to undue alteration of the land.

An analysis of South Arm Township's physical environment can assist government officials in planning for future land use. Natural resources addressed in this chapter include climate, geology, topography, soils, water, vegetation and wildlife.

4.1 Climate

The climate is one factor which contributes to South Arm Township's appeal as a recreational and residential community. The Township's climatic conditions are similar to those across northwestern lower Michigan: long cold winters, and moderate warm summers. Located in the northwestern part of the northern lower peninsula, the Township is approximately eight miles inland from Lake Michigan. This geographical location combined with the surrounding topography results in a lake moderating effect of weather conditions year round. Local topography can influence temperatures and associated frost conditions. For example, low areas and depressions will often experience earlier frosts than surrounding uplands. The frost free season is typically May 31st to September 28th, which provides for an average 121 day growing season. **Table 4-1** contains weather statistics for East Jordan.

Table 4-1 Average Annual Weather Statistics East Jordan Area	
January average minimum temperature	14.7° F
January average maximum temperature	29.0° F
July average minimum temperature	56.5° F
July average maximum temperature	81.7° F
Days below 0 degrees F.	12
Days above 90 degrees F.	10
Average annual precipitation (includes snowfall conversion to water)	31.7 in.
Average annual snowfall	79.2 in.
Source: Weather Station at East Jordan, Michigan	

Summers can be categorized as moderately warm with an average of ten days exceeding 90° F. Between November and March on the average some 93 percent of the days are 32° F or below, with typically 12 days per year experiencing below zero temperatures. The average annual precipitation, including snowfall, is 31.7 inches. Precipitation is heaviest during the summer months with 57 percent of the annual precipitation from April to September. The average annual snowfall is 79.2 inches, but varies greatly from over 130 inches to below 30 inches.

4.2 Geology

The geology of South Arm Township, as well as the entire northern lower peninsula of Michigan, will be described in terms of surface geology or quaternary geology (materials deposited by continental glaciers) and bedrock geology (sedimentary rocks underlying the glacial deposits).

The quaternary geology of the Township developed 10,000 to 12,000 years ago through continental glacial activity. Numerous advances and retreats by the glaciers resulted in complex patterns of erosion and deposition. Furthermore, many creeks and wetlands in the Township are associated with landforms created by the glaciers which once covered this region. South Arm Township is dominated by coarse textured glacial till deposits forming moraines and drumlins. Traces of former shorelines of glacial and post glacial stages of the great lakes can be found in the upland areas bordering Lake Charlevoix. During some periods the continental glacier's advance and retreat stagnated; that is to say, the ice at the face of the glacier melted as fast as it advanced south from the polar ice cap. The debris laden, glacial ice then deposited

large amounts of materials in one locale. The glacial till (sand, clay and boulders) deposits created landforms called ground moraines and till plains. These deposits of coarse-textured glacial till are composed of unsorted sand and gravel left by the glacier.

The Charlevoix-Antrim Drumlin Field is a ground moraine area that consists of scattered elliptically shaped streamlined hills, sculptured from thin glacial drift over bedrock. The drumlins trend southeastward direction and record the re-advance of the glacier. These cigar shaped, streamlined hills, up to a mile long, were molded by overriding ice.

Lacustrine sand and gravel deposits dominate the Jordan River valley. This area was once inundated by water during glacial stages of the great lakes. Material settled from the debris laden glacial floodwaters formed the relatively flat wide valley dominated by sand, gravel and clay deposits. Organic soils can also be found in certain areas. Upland areas adjacent to Lake Charlevoix and Six Mile Lake were former beaches of the glacial great lakes. These former shorelines are dominated by sand and gravel deposits.

The sub-surface or bedrock geology of South Arm Township consists of sedimentary rock that was laid down during the Late Mississippian ages of the Paleozoic Era. In South Arm Township, the bedrock is covered by glacial deposits. The bedrock was formed from ancient seas which covered the area some 250-600 million years ago. The shallow marine seas deposited layers of silt, clay, sediments, marine animals, plants, coral, and other calcareous materials. These deposits formed shale, limestone, and dolomite bedrock. The upper layers of bedrock underlying South Arm are Antrim shale, Ellsworth shale and Traverse Group. Antrim shale contains rich deposits of natural gas. In recent years, intensive exploration has resulted in numerous producing wells throughout the region.

4.3 Topography

Slope is an important development consideration associated with topographic features. Steep roadway grades, difficulty in locating septic fields, soil erosion and excavation costs are some of the difficulties associated with severe grades. Development in areas with severe slopes and ravines should be restricted. If development is permitted, sensitive site planning should be required along these steep slopes to prevent soil erosion. Steep slopes are depicted on the soils constraints map found later in this chapter.

According to the USGS 7.5 minute quadrangle maps, the highest point in the Township is located in Section 12 with an elevation of 1,033 feet above sea level. The southwestern part of the Township also has numerous hills approaching this elevation. By comparison, the lowest elevation noted on USGS 7.5 minute quadrangle maps is Lake Charlevoix at 580 feet above sea level. As would be expected, the lowest elevations are found adjacent to major lakes and rivers.

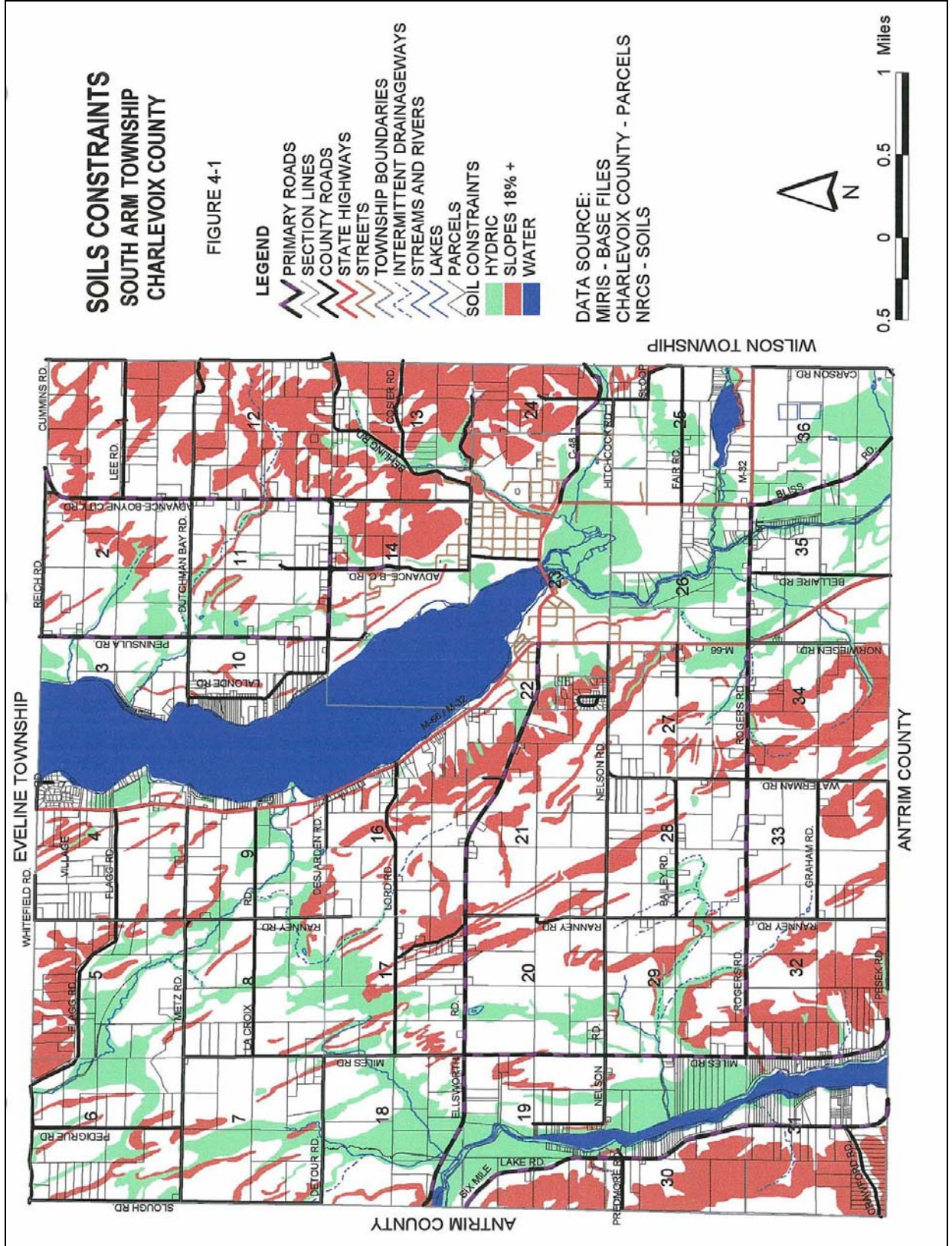
4.4 Soils

One important determinant of land use is the soil's suitability for development. Land uses must correspond to the capacity of the soils on which they occur, and soil suitability for each use should be determined before development occurs.

Residential land use is the most concentrated activity in South Arm Township, with the highest density occurring adjacent to Lake Charlevoix and Six Mile Lake. Since a public sanitary sewer system is not available, each development site must also contain a Health Department of Northwest Michigan approved waste disposal system. The ability of the soil to accommodate a septic system, as well as the suitability for building foundations, are key factors in determining the practicality and cost of development.

The U.S.D.A. Natural Resource Conservation Service has developed a detailed soil survey of Charlevoix County. A digital or computerized version of the soil survey maps was acquired from the Michigan Department of Natural Resources, MIRIS program. Using information contained within the published soil survey book, soils mapping units have been classified as hydric, slopes 18 percent and greater. **Figure 4-1** depicts these soils constraints within the Township. While farming in the Township does not have the same importance today as it did decades ago, it is still important to identify prime farmlands. In addition to helping support the local economy, farms are an important component of the rural landscape of the area.

Hydric soil is saturated, flooded or ponded during part of the growing season and is classified as poorly drained or very poorly drained. Hydric soils have poor potential for building site development and sanitary facilities. Wetness and frequent ponding are severe 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.



Areas with steep slopes, while often providing spectacular views of the landscape, are difficult and costly to develop. Areas with steep slopes have severe constraints for on-site septic systems. Erosion both during and after construction can be difficult to manage. Construction of new homes and roads on steep slopes can cause both short term and long term environmental impacts. Furthermore, construction and maintenance costs tends to be higher on steeply sloped terrain. Special design standards such as erosion control measures, limiting size of disturbed areas, retaining natural vegetation, revegetation, slope stabilization and on-site retention of water run-off from impervious surfaces would all serve to minimize resource impacts.

4.5 Water Resources

One of the most valuable natural resources of South Arm Township is water. Both groundwater and surface water are vital resources within the Township. As stated in the Services Chapter, several residences and Grandvue Medical Care Facility are served by the East Jordan public water system. However, most residents of the Township must rely upon individual wells for drinking water. Surface water resources in South Arm Township include the Jordan River, Briney Creek, Brown Creek, Chanda Creek, Deer Creek, Jones Creek, Lanway Creek, Liscon Creek, Monroe Creek, Olstrom Creek, Ranney Creek, St. Clair Creek, Todd Creek along with Lake Charlevoix, Six Mile Lake, Lake St. Clair and Lake Patricia. These creeks and inland lakes are important scenic and recreational resources. It is therefore important that all water resources be protected and managed in a manner which would ensure their quality.

Groundwater

Important factors in the evaluation of groundwater are the quantity and quality of the water. The geologic and hydrologic features of the Township provide residents with sufficient water quantities. Water availability will not likely be a factor in limiting growth.

In general, South Arm Township has good ground water quality. High levels of nitrates, attributed to farming activity, have been found in a few wells. However, the occurrence is site specific, typically found in shallow wells and can be overcome by drilling deeper wells. Wells located in bedrock, often near lakes, often produce low quantity and quality water. Small lots adjacent to lakes present additional problems related to siting on-site septic systems and on-site water wells.

The vulnerability of drinking water aquifers to surface contamination is high in the Township due to highly permeable soils. A review of the Aquifer Vulnerability to Surface Contamination in Michigan Map prepared by the Center for Remote Sensing and Department of Geography at Michigan State University shows two vulnerability classifications: highly permeable soils over highly sensitive drift lithology and highly permeable soils over unknown drift lithology. Therefore, in South Arm Township, water quality is potentially more of a limiting factor than water supply. For example, the combination of highly permeable soils, shallow wells, on-site septic systems and dense residential development can result in nitrates and other contaminants in drinking water.

Surface Water

The Township is located within three major watersheds, Lake Charlevoix, Jordan River and Elk River. Approximately 25 percent of the Township's surface water drains into the Jordan River watershed and 29 percent of the Township's surface water drains into the Elk River Watershed. The balance of the Township, 46 percent, is located in the Lake Charlevoix watershed. Surface water run-off enters the lake either as direct run-off or via small creeks. **Figure 4-2** shows the major surface water resources and the major watersheds.

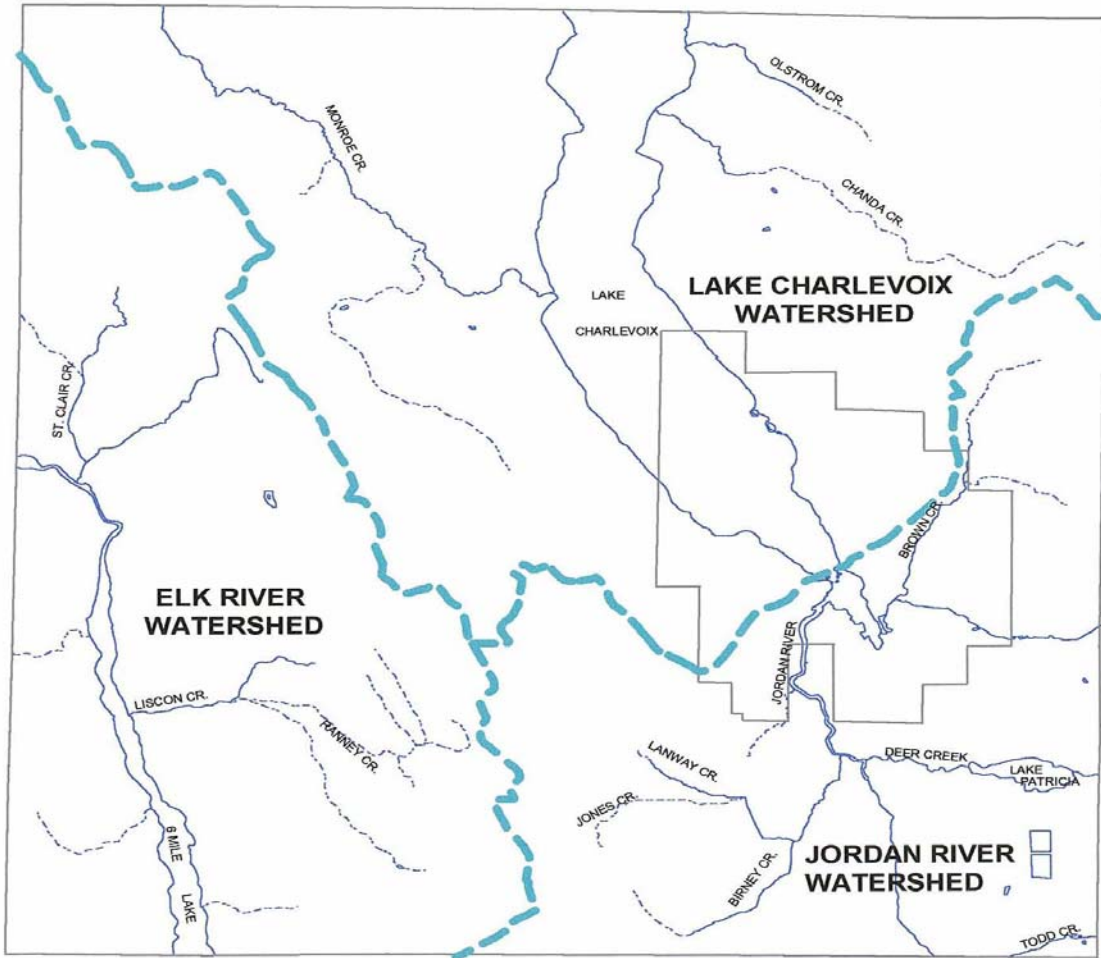
These creeks and lakes offer scenic and recreational amenities to Township residents and visitors. It is extremely important that the quality of these surface waters be protected from the negative impacts of development, such as nonpoint source pollution and loss of scenic views to open water. Additionally, these surface water resources and associated wetlands are important for surface drainage, groundwater recharge and wildlife habitat. Alterations to the water features can contribute to flooding, poor water quality, insufficient water supply and loss of valuable wildlife habitat.

Lakes can be classified into three types based on water quality or the level of productivity. *Oligotrophic* lakes have very little nutrient accumulation and as a result have little aquatic plant and algae growth. The water is very clear and the lakes can support cold water fish. In *Mesotrophic* lakes there is a greater presence of nutrients which results in lowered clarity and the presence of aquatic plants. *Eutrophic* lakes have large amounts of aquatic plants due to higher nutrient levels. The presence of suspended algae will cause the water to be turbid. Dying plants may also produce unpleasant smells and the thick weed growth will interfere with

WATERSHEDS AND SURFACE WATER RESOURCES

SOUTH ARM TOWNSHIP
CHARLEVOIX COUNTY

FIGURE 4-2



Source: Watershed Boundaries - USDA Natural Resource Conservation Service
Digital Base - Michigan Department of Natural Resources

boating and swimming. The aging or eutrophication of a lake from a high quality (oligotrophic) lake to warm, weedy, poor quality (eutrophic) lake is a natural process. However, this process can be greatly influenced by human activity. Changes in the watershed can alter the quality and quantity of runoff which, in turn, can influence the rate of eutrophication.

Biologists use three measurements to describe the trophic state of a lake: secchi disk readings of water transparency, chlorophyll-a and total phosphorus. The trophic state is a measure of how productive a lake has become. Plants, aquatic weeds, plankton, and algae, as well as the fish that feed on the plants, are what is being produced. These three measurements are used in a formula to calculate a number called the Trophic State Index (TSI). A TSI value up to 38 indicates an oligotrophic lake, 39-48 is mesotrophic and 49-100 is eutrophic.

Six Mile Lake has a surface area of 378 acres and a shoreline length of 8.7 miles. Six Mile Lake is located in the surface water system called Chain-of-Lakes which is a part of the Elk River watershed. Water quality for Six Mile Lake has been assessed since 1983 through the Tip of the Mitt Watershed Council's Volunteer Lake Monitoring Program. Using the average data, the trophic Status Index is 43, classifying the lake as mesotrophic. The Lake is considered to have good water quality and remained relatively stable since the inception of the monitoring program.

Lake Charlevoix has a total surface area of 17,300 acres with a shoreline length of 60 miles. Both the Jordan River and Boyne River empty into Lake Charlevoix. While the main basin and the south arm are connected, the two basins are quite distinct from an ecological perspective. The south arm is smaller, shallower, and has a relatively larger watershed area than the main basin. Water quality for Lake Charlevoix has been monitored since 1977 through the Tip of the Mitt Watershed Council's Volunteer Lake Monitoring Program. The average Trophic Status Index for the main basin is 30 and for the south arm is 34, which classifies both as oligotrophic. The water quality is excellent and has remained relatively stable since the inception of the monitoring program.

The Jordan River watershed covers approximately 125 square miles. Numerous small streams and creeks empty into the Jordan River, which in turn disperses into a rich marshy, flood plain at the southern limits of Lake Charlevoix's South Arm. The mainstream itself is 33 miles long and, combined with the numerous tributaries, the watershed has over 100 miles of streams and

creeks. The Jordan is designated a blue ribbon trout stream along most of its stretch. The Jordan has the distinction of being the first river in Michigan to be designated wild and scenic in 1972 under the state's Natural Rivers Act. The Jordan River Natural River District includes the mainstream and its tributaries from its source to Rogers Road. The Jordan River natural river zoning administered by the DNR regulates activities within 400 feet of the river's edge.

While the current quality of surface waters in South Arm Township is very good, the threat of potential water pollution from point and non-point sources is a major concern. Proper land use management can help control water quality conditions in South Arm Township. Some methods to maintain and improve water quality include: fertilizer/pesticide application regulations, septic tank inspection regulations, soil erosion and sedimentation regulations, and lake/stream greenbelt regulations.

4.6 Wetlands and Woodlands

A wetland is land where water is found, either on the surface or near the surface, at any time during the year. Poorly drained soils and water-loving vegetation also may be present. Wetlands are often referred to as marshes, swamps or bogs. Residents of Michigan 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. Additionally, wetlands support wildlife, and wetland vegetation protects shorelines from erosion.

Wetland areas in South Arm Township are typically associated with old glacial drainageways. Wetland complexes are found adjacent to surface water resources listed above. For reference purposes, wetland areas are mapped on the existing land use map in Chapter 5.

In addition to the scenic characteristics of woodlands, forested areas provide habitat for wildlife, protect the soil from erosion, and act as a buffer from noise on heavily traveled highways. Public and privately owned forested lands can be found scattered throughout the Township. Forested areas are also mapped on the existing land use map in Chapter 5.

The dominant forest associations in South Arm Township are northern hardwoods (sugar maple, American beech and basswood) and aspen/white birch in the upland areas. Wetland

forest species include lowland hardwoods such as black ash, slippery elm and red maple and lowland conifers such as northern white cedar, black spruce and eastern tamarack.

4.7 Fish and Wildlife

Sport fishing is popular in the lakes, rivers and creeks. Cold water streams such as the Jordan River and its tributaries support resident populations of trout and lake run trout and salmon. Inland lakes support good resident populations of warm water fish such as northern pike, largemouth and smallmouth bass, walleye, yellow perch, bullhead and various panfish species. Lake Charlevoix supports both warm water fish species and cold water species. The lake is known for its excellent fisheries, including smallmouth bass, walleye, lake trout and brown trout.

The Michigan Department of Natural Resources (DNR) manages the fisheries in Lake Charlevoix, Six Mile Lake and the Jordan River through annual fish stocking programs. In Lake Charlevoix, approximately 90,000 yearling walleyes are planted on alternate years. Additionally, approximately 100,000 lake trout are typically stocked annually. Six Mile Lake has previously been stocked with 10,000 fingerling walleye annually, but since 2005 the records indicate this stocking has not occurred. The DNR has typically planted approximately 8,000 yearling steelhead in the Jordan River, although this last occurred in 2007.

The forested, farmland and wetland regions of the Township provide the habitat for several game and non-game species of wildlife common to northern Michigan. Game species found in the Township include white-tailed deer, ruffed grouse, woodcock, wild turkey, squirrel, black bear, raccoon, snowshoe hares, cottontail rabbit and migratory waterfowl. Other game species important to trappers are beaver, muskrat and weasel. Fox, woodchuck, badger, porcupine, opossum, skunk, coyote, common loon and many species of song birds are common non-game species.

4.8 Scenic Features

Approximately 35 percent of the land area in South Arm Township is forested. Glacial moraines and drumlins in the Township have created a rolling topography which is covered with a visually pleasing mix of woodlands, farmlands and open areas. These hills and valleys offer excellent vistas of the rural landscape and waterways. Due to the presence of the attractive water resources, most of the Township's residential and commercial development occurs near the

lakes. In general, the diverse landscape offers a pleasant natural and scenic character appreciated by residents and visitors alike.

4.9 Sites of Environmental Contamination

The Michigan Environmental Response Act 307 of 1982, as amended, provides for the identification, evaluation and risk assessment of sites of environmental contamination in the State. The Environmental Response Division (ERD) of the Michigan Department of Environmental Quality (DEQ) is charged with administering this law. A site of environmental contamination, as defined 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 agency publishes an annual list of environmentally contaminated sites by county, showing the sites by name, Site Assessment Model score, pollutant(s) and site status. The April 2010 database for Michigan Sites of Environmental Contamination, identifies 37 listed sites within Charlevoix County. Of the 37 sites listed for Charlevoix County, six are located in the East Jordan area. The sites are: East Jordan Disposal (closed), East Jordan Iron Works Gasoline Spill, East Jordan Laundromat, East Jordan Chemical Company, 123 Main Street (gasoline station), and Former Jordan Valley Greenhouse. The Michigan Sites of Environmental Contamination - Leaking Underground Storage Tank (April 2010) lists 33 sites in Charlevoix County with six located in East Jordan area.

4.10 Surface Water , Ground Water and Air Discharge Permits

All point source discharges into surface waters are required to obtain a National Pollutant Discharge Elimination System (NPDES) permit. As of 2009, the following permits are issued in South Arm/East Jordan Area: East Jordan Iron Works, East Jordan Cooperative, Burnett Foods, East Jordan Plastics, Swan Valley Marina and East Jordan Wastewater Treatment Facility.

Groundwater discharge permits are issued by the solid waste division of the Michigan Department of Environmental Quality. Three entities have groundwater discharge permits in the Township and City. These include Burnett Foods, Northern Industrial Coatings and the City of East Jordan wastewater treatment facility.

Air Quality is monitored by the Air Quality Division of the Michigan Department Environmental Quality. Standards have been established as acceptable levels of discharge for any of the following air pollutants: particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and trace metals. These pollutants are monitored on a continuing basis at selected locations around the state. Monitoring in recent years has shown the level of pollutants in the region to be within the established acceptable standards.

Air discharge permits are required for businesses discharging more than the acceptable level of any of the regulated air pollutants. As of 2009, the only business in the area listed as active is the East Jordan Iron Works which holds several permits.

4.11 Summary

Review of the natural resources in South Arm Township indicate the environment is currently in good shape, however these resources are extremely vulnerable to change. Residents highly value the natural resources and scenic features of the Township, as indicated in the community survey. The environmental features of the Township are an important asset to the community, and need continued protection.

5.0 Existing Land Use

5.1 Introduction

As development occurs, larger tracts of land are generally broken down into smaller parcels. Therefore, studying the existing pattern of land divisions is one way to analyze the status of land use and development. Land division patterns for South Arm Township are discussed below.

There is a minimal amount of State owned land in the Township which is located in Sections 3, 35 and 36. Privately owned large tracts can be found in nearly every section of the Township and are typically farmland, nonforested open fields, upland forest, or wetlands.

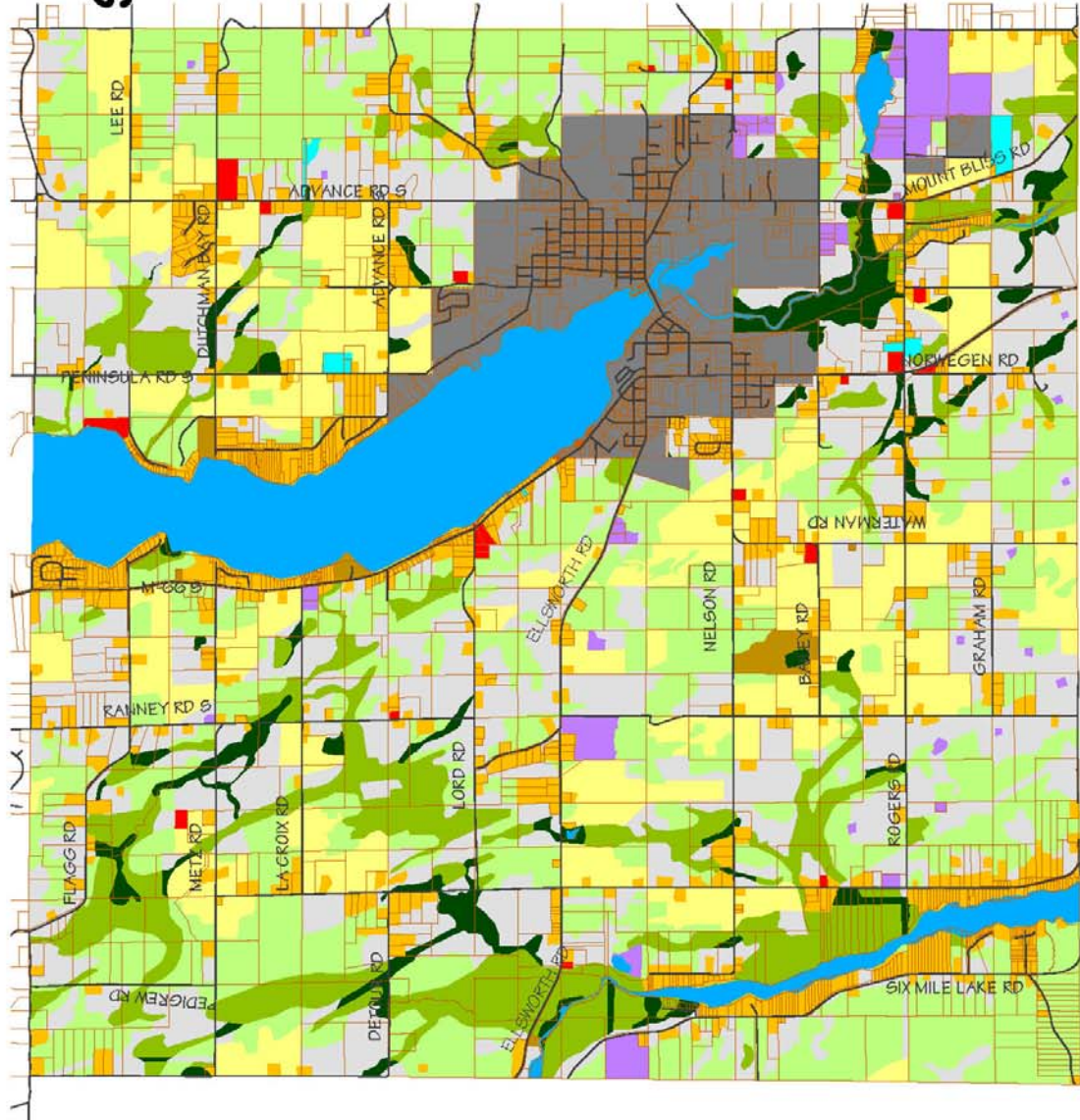
Parcels of ten acres or less are found throughout the Township in nearly every section. Small tracts and small lot residential subdivisions have developed adjacent to Lake Charlevoix and Six Mile Lake as well as adjacent to the East Jordan city limits and major highway corridors.

5.2 Land Use Areas

The existing land use in the Township was mapped January 1999, and updated for the 2010/2011 Master Plan Update using the available 2004 aerial photography, then reviewed and corrected by the Planning Commission members based on local knowledge. The map of existing land use, shown as **Figure 5-1**, illustrates the distribution of land uses throughout the Township. Michigan Resource Information Systems (MIRIS) land cover/use classification categories were used to map the existing land use. The updated information was then computerized to produce the existing land use map and statistics. **Table 5-1** presents the land uses in current rank order, showing the number of acres and percent of the Township in each of the land use categories. Each of the land use categories is discussed later in this chapter.

Two important land use trends were noted during the MIRIS land cover/use map update. First of all, there has been an increase in low density residential development on both large and small tracts throughout the township. These are typically occurring on parcels two acres and larger. Another significant trend is an increase in the amount of farmland, which may be due to some fields which were fallow in 1999, but being actively farmed in 2010.

South Arm Township 2010 Existing Land Use



Map layers

- Parcel lines
- Roads

LAND COVER/USE CATEGORIES

- Residential
- Commercial
- Industrial/Extractive/Utilities
- Institutional
- Recreation/Cemeteries
- Agricultural
- Nonforested/Undeveloped/Open
- Upland Forest
- Lowland Forest
- Wetlands
- Water
- East Jordan

0 2,000 4,000 6,000 Feet

Figure 5-1

Sources:
Charlevoix County GIS Department,
Michigan Center for Geographic Information,
Wade-Trim Inc, and M.C. Planning & Design

Adopted: June 8, 2011

Table 5-1
Existing Land Use Statistics
South Arm Township

Land Use Category	Number of Acres		Percent of Township	
	1999	2010	1999	2010
Upland Forest	5,512	5,582	25.5	25.8
Nonforested/Undeveloped/Open	6,687	5,254	31.0	24.3
Agricultural	2,644	3,112	12.2	14.4
Wetlands/Lowland Forest	3,033	2,865	14.0	13.3
Residential	1,364	2,305	6.3	10.7
Industrial/Extractive/Utilities	295	377	1.4	1.7
Recreation/Cemeteries	92	94	0.4	0.4
Commercial	71	93	0.3	0.4
Institutional	58	59	0.3	0.3
Water	1,852	1,867	8.6	8.6
TOTAL	21,608	21,608	100.0	99.9

Source: Michigan Resource Inventory System and photo interpretation, field verification and map updating.
Note: Due to rounding, the total percentages of land uses do not equal 100 percent.

Upland Forest

The forested lands are the most predominant land cover in the Township and account for 25.8 percent, or 5,582 acres, of the Township. Of the forested lands, northern hardwoods comprise over three-quarters of the upland forested lands. The aspen-birch association is the second most common upland forest type, followed by pine. The upland forest areas tend to be growing on land that was not suitable for farming. Northern hardwoods includes species such as sugar maple, red maple, American beech, basswood and yellow birch. Red pine is the predominant pine species and is typically found in plantations.

Nonforested / Undeveloped / Open

The nonforested land category is the second most prominent land cover type in the Township. This category consists of herbaceous open and shrub land. As shown in **Table 5-1**, 5,254 acres or more than 24 percent of the Township is in the nonforested category. A majority of the nonforest areas are old farm fields, a noted change from the 1978 MIRIS land cover map which showed agriculture as being the most prominent land cover type. Today many of the areas are no longer being farmed, which clearly exemplifies the trend in conversion of farmland to less intensive uses.

Agricultural

Agricultural lands currently comprise approximately 3,112 acres or 14 percent of the Township. The agricultural land is located in the South Central, Northeast and Northwest parts of the Township.

Wetlands

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. The identified wetland areas include areas which support lowland hardwoods and conifers, such as northern white cedar, elm, red maple, ash and aspen species, as well as lowland brush and grasses. Wetlands and lowland forests comprise just over 13 percent of the Township area. The wetland areas are associated with lakes, rivers, creeks and intermittent drainages. 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, nearly every section in the Township has areas identified as wetlands. The network of wetlands is connected to lakes which receive surface water discharge from the many streams and creeks associated with wetlands. The wetlands are often found in valleys that carve deep into the upland areas of the Township. The interconnected resources exemplify how activities distant from major water bodies can still have an impact on the water quality.

Residential

As can be seen on the Existing Use Map and table, residential use ranks fifth in the amount of land currently in this use. Residential use occupies more than ten percent (2,305 acres) of the land in the Township in 2010. Residential development on various size parcels is distributed throughout the Townships and in the platted subdivisions mentioned earlier in the chapter. This category also includes multiple family housing. At the intersection of Lord Rd. and M-66, a motel has been converted to a multi-family unit.

Industrial/Extractive/Transportation

Land in this use category covers 1.7 percent or 377 acres of the Township and includes the East Jordan Airport, East Jordan sewage treatment facility and industrial uses adjacent to Lake Patricia. Several sand and gravel pits as well as a power substation are included in this category.

Recreation

This category includes parks, campgrounds, public access sites, cemeteries and golf courses. Less than one percent falls within this category.

Commercial

Two small commercial areas located adjacent to Lake Charlevoix include a marina and a lakeside resort. Other commercial uses include an auto service and businesses that rent boat/personal storage space. Lands used for commercial purposes comprise less than one percent of the Township's area.

Institutional

This category includes institutional uses, which cover less than one percent of the Township's land area. Included in this category are Township offices, Grandvue Medical Care Facility, churches and private clubs such as the East Jordan Snowmobile Club. These sites are shown on the Existing Land Use Map.

Water

Open water comprises nearly nine percent of South Arm Township. Included in this category are Lake Charlevoix, Six Mile Lake, St. Clair Lake and the Jordan River. The water area includes parts of Lake Charlevoix and the Jordan River which are in part within the political boundaries of East Jordan. For a full discussion of the importance of surface water, see Chapter 4, Natural Resources.

6.0 Community Goals and Objectives

The purpose of this chapter is to set forth the Township's goals and objectives to guide future development. Community participation and input was a critical component in developing these goals and objectives. In analyzing the data compiled in the earlier chapters, it is very clear that environmentally sensitive areas exist in South Arm Township. Therefore, uncontrolled development could dramatically alter the character of the Township. However, by encouraging new development to conform to community-based standards and guidelines, both the rural character and the natural resources of the Township can be preserved to the fullest possible extent.

In developing community goals and policies, it is important to analyze existing community characteristics, such as: social and economic features, environmental resources, available services and facilities, and existing land use. In addition to examining existing characteristics, another important tool in the development of community goals and objectives is to identify community assets and problem areas.

6.1 South Arm Township Strengths and Opportunities

South Arm Township is blessed with many assets, both natural and man-made. The abundance of high quality natural resources was the driving force behind the early settlement of the area. Today these natural resources are still vital to the local economy and quality of life. An industrial based economy in the Township and City of East Jordan drive the local economy. The rural character, small town atmosphere and strong sense of community create the identity and pride of the community. A list of strengths and opportunities are listed at the end of this chapter.

6.2 South Arm Township Weaknesses and Threats

Based on public input, South Arm Township also does have some problems which include lack of mid-value housing, road maintenance, limited Township financial resources, lack of good local shopping opportunities, limited intergovernmental cooperation, the zoning ordinance needs to be updated, and consistent enforcement and better local support correcting zoning violations. A list of weaknesses and threats are listed at the end of this chapter.

6.3 Future Vision South Arm Township in the Year 2020

Visioning is a process to help community members imagine, describe and attain a preferred future for their community.

Vision >> Goal Formulation >> Action Plans >> Action

As part of the 1999 Master Plan update participants in a workshop were asked to respond to the following Visioning exercise. To encourage a free flow of ideas, answers were not constrained by present situations. All participants had opportunities to present their ideas in an open, informal setting. All comments are listed at the end of the chapter. The following situation was presented and discussed:

Imagine you have friends or relatives visiting in the year 2020. You decide to take them for a tour to show off the wonderful community in which you live. You take a drive through the countryside, admire the beauty of the landscape, marvel at the development, drive into East Jordan for lunch, and maybe even take a boat ride on Lake Charlevoix, Six Mile Lake or the Jordan River. Much of what you see and hear pleases you, and some activities surprise you. Describe the 2020 future that you envision. Consider the physical environment (residential, commercial and industrial development); the natural resources (forestlands, water, open space and farmlands); community facilities and services; and community activities and relationships.

Participants in the workshop envisioned an area where much of the commercial growth has occurred in the City of East Jordan and growth in the Township has been mainly residential. There has been a reasonable balance between growth and preservation of natural resources. There are thriving commercial areas with many shopping opportunities, a variety of restaurants and tourism-based businesses. Commercial development has occurred in well defined areas with proper controls and is not dispersed throughout the Township. Residential development maximized the retention of open space, natural areas, and views. There are a variety of housing types for all income groups and age groups. Through enforcement of the blight ordinance, neighborhoods are clean and people take pride in keeping up their homes. The industrial parks are full of thriving and clean industries that provide good paying jobs for area residents.

There are now family farms that produce locally grown foods for Township residents. Greenways and ecological corridors have been retained and improved to provide recreational

opportunities, provide critical wildlife habitat, and protect water quality in the lakes and rivers. Residents and visitors can view many species of wildlife, including eagles and osprey along the Jordan River estuary. Township ordinances have preserved greenbelts and natural vegetation along the many lakes, streams and rivers. The area is still blessed with clean air and water.

South Arm Township works cooperatively with surrounding townships and the City of East Jordan on recreational, cultural and community programs. The Township operates with reasonable budgets that make the best use of available financial resources. Recreational trails link the community to the regional resources. Many people visit the area because of the quiet rural character, the beautiful lakes and streams, abundant natural resources and quaint community at the mouth of the Jordan River. South Arm Township is still a close, warm and friendly community.

In April 2010, the South Arm Township Planning Commission reviewed the vision created as part of the 1999 Master Plan update and agreed that the earlier created vision still fits the Township.

6.4 Goals and Objectives

Planning and Community Development

Goal: Ensure the sustainable/wise use of land while protecting the social, economic and natural resources and preserve the friendly rural character, ambiance and services.

Objectives:

- Implement this Township Master Plan through revising the zoning ordinance and development of a township recreation plan and a capital improvement program.
- Control the location of new development by designating appropriate areas for new residential, commercial and resort/recreational land uses.
- Establish open space and 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; and encourage the retention of open space and scenic vistas with PUD's, clustering, and conservation easements.
- Develop regulations and standards to protect the community against high noise levels and exterior lighting glare.
- Develop access management standards for commercial development along the primary

corridors within the Township including M-32 and M-66.

- Enforce all Township ordinances in a consistent and fair manner.

Residential

Goal: Allow for suitable housing opportunities for all income levels and age groups.

Objectives:

- Support and encourage the development of housing to meet the needs of all household types and income groups, including affordable single family housing and housing options for the elderly.
- Designate areas appropriate for all types of residential development including single family, multi-family, condominium, low to moderate income rental complexes, and extended care facilities.
- Encourage the development option of clustered single-family housing in buildable portions of the Township, in order to protect open space.
- Encourage the maintenance of the existing housing stock and residential neighborhoods in good repair, appearance, usefulness and safety.
- Preserve the integrity of existing residential neighborhoods by protecting from intrusion of incompatible uses.
- Manage waterfront development, including restricting the use of waterfront lots as waterfront access sites for off water properties, in order to minimize the associated negative impacts on water quality.

Commercial Areas and Activities

Goal: Promote a varied business environment, foster growth and cooperation among area 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 within the Township and adjacent communities.
- Recognize the importance of the tourist industry to the local economy.
- Develop or utilize innovative planning and zoning techniques, such as cluster development and/or shared parking, to regulate linear or strip commercial development along state highways and county roads.
- Increase safety and reduce the visual impact of signs, especially billboards, by controlling their size, number, illumination, and configuration.

- 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.

Industrial Development

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

Objectives:

- Ensure that industrial developments take place in an environmentally sensitive manner and are harmonious with the existing community.
- Encourage light industries, that do not pollute the air, soil, or water nor offend because of noise, odor, or visual impact, to locate in existing industrial areas and industrial parks within the Township and adjacent communities.
- Require landscape buffers where industrial uses are adjacent to land uses such as residential and commercial.

Infrastructure

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

Objectives:

- Encourage the efficient use and maintenance of existing roadways and infrastructure.
- Work with the Charlevoix County Road Commission and the Michigan Department of Transportation to plan for vehicular and pedestrian safety at intersections and on roadways.
- Encourage cooperative Township and City planning for public utilities, such as water and sewer systems.
- 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.
- Support the development of bicycle paths and pedestrian walkways to connect the more densely populated areas and commercial districts and provide access to regional resources.
- Develop construction standards for private roads and access.

- Develop standards and encourage shared road access.
- Support the continuation and expansion of public transit to better serve the needs of senior citizens and other transit dependent Township residents.
- Promote and facilitate improved access to communication technology, including affordable high speed internet access.

Recreation and Public Lands

Goal: To preserve, protect and maintain environmentally sensitive areas, open space, public access and public parks for the enjoyment of residents, visitors and future generations.

Objectives:

- Maintain public water access sites for residents, seasonal residents and visitors.
- Encourage creative design and planning techniques such as PUD's, clustering and conservation easements, for all new development, so as to maintain open space and scenic vistas.
- 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.
- Support cooperative recreational planning and development with East Jordan, the surrounding townships and the schools.
- Pursue outside funding sources, such as grants for land acquisition and/or recreational development either passive or active.
- Support the development of trail systems that connect the community to local and regional recreation areas and natural areas.

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:

- Promote intergovernmental and regional cooperation on issues of mutual concern.
- Ensure a responsible fiscal policy and budget process to finance the Township government.
- Promote the involvement of volunteers in the government process.
- Utilize the proactive master planning process as a check and balance on decision-making.

Natural Environment

Goal: Protect and preserve the natural environment by protecting groundwater, surface water, 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 by evaluating 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.
- Maintain greenbelt areas adjacent to lakes, ponds, streams, and wetlands.
- Implement groundwater protection and stormwater management regulations in the Township's zoning ordinance, while encouraging the continued natural use of wetlands as groundwater recharge, stormwater filtering and stormwater holding areas.
- Limit high density 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.
- Encourage planting and retention of native tree and shrub species when properties are developed.
- Encourage the retention of existing forestlands by appropriate zoning.
- Recognize the importance of open space in order to maintain the much valued rural character of the area.

Agricultural Land

Goal: Recognize the importance of agricultural lands within South Arm Township.

Objectives:

- Maintain and provide for the preservation of prime and locally important farmland where feasible, including tree farming and specialty crop farms.
- Allow and encourage farmland and open space protection through the “transfer of development rights” and “purchase of development rights”. Encourage clustering of non-farm development to minimize agricultural land and open space consumption.
- Recognize farmland as contributing to the scenic and rural character of the Township, therefore, discourage the conversion of farmland into other more intensive uses.

6.5 Strengths and Weaknesses

Strengths:

Natural resources
Jordan River
Six Mile Lake Natural Area
Wildlife/fisheries
Locally grown produce
Public access to the water
Rural character
Hills woodlands and open space
Quiet
Easy going pace
Tourism
Recreation
Large private owned businesses

Weaknesses:

Blight and trash
Lack of housing in mid-value range
Lack of Township financial resources
Limited enforcement of zoning ordinance
Roads in poor condition
Need better communication between Township and residents
Absentee landowners with different perception of the Township
Limited opportunities for college graduates to return to area for employment
Lack of Internet service
Lack of facilities for tourism
Loss of resorts

Future Vision South Arm Township in the Year 2030

Physical Environment

Still a mix of lakeshore cabins and larger homes
Affordable housing that maximizes retention of open space and protects natural areas
View areas, development on large parcels, blends into the landscape, retention of natural vegetation and views
Ability to buy locally grown produce and meat
A thriving commercial area in East Jordan with many opportunities for shopping, a good book store, coffee house, and many good restaurants
A planned community - known as a haven for nature appreciation
A gateway community to the abundant natural resource in the region There are no more keyhole lot developments on the lakes and rivers

Commercial development in well defined areas with proper controls; the commercial development is not dispersed throughout the Township
Strong zoning and planning
Moderate income housing
Much of the commercial and industrial growth has occurred in the City and growth in the Township has been mainly rural residential
No expansion of gravel pits, additional regulation, locate in one area of the Township

Natural Environment

There are thriving family farms that provide specialty locally grown produce available at the farmers market
Locally grown produce available at a farmers market
Greenways - connecting to regional resources, providing wildlife habitat and recreational opportunities
There is an abundance of all types of wildlife
Uniform policies on waterfront setback have preserved greenbelts and the natural vegetation along our lakes and streams that include no keyhole development
The wetlands have been preserved
There is an abundance of clean water and air

Facilities

There are Township parks that provide multiple recreational opportunities
All Communication towers are co-located as much as possible
Utilities are located underground for all new development
Sewer system where needed
Recreation trails linking the communities to the regional resources and wildlands
Alternative energy sources such as solar and wind
The roads are well maintained and have directed development within the community

7.0 Future Land Use Recommendations

7.1 Overview

While considerable residential growth is occurring in South Arm Township, according to the land use update (see Chapter 5), over 86 percent of the land area was still classified as forest, farmland, non-forest open space, wetlands and water. Approximately 13 percent of the Township's land was used for urban related purposes, including commercial, industrial, utilities, institutional/recreational and residential development. Projections indicate that current growth rates will continue. Through land use planning and land use controls, South Arm Township intends 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 future land use recommendations of the 1999 Master Plan for South Arm Township were review and updated by Township Planning Commission with public input and assistance from the planning consultant. The 2010 recommendations are based on an analysis of several factors including: the pattern of existing land use, social and economic characteristics, environmental conditions, available community services and facilities, the existing patterns of land divisions and community goals and policies.

7.2 Land Use Planning Areas

Listed below are the eight different land use planning areas used to develop the future land use recommendations. Detailed explanations of each land use planning area will follow. **Figure 7-1** is the Future Land Use Map of South Arm Township which depicts the locations of land use planning areas.

- Farm-Forest / Open Space Residential
- Medium Density Residential
- Mixed Residential
- Waterfront Residential
- Commercial
- Waterfront Commercial
- Industrial / Public Service
- Resource Conservation

Farm-Forest Land / Open Space Residential: The Farm-Forest Land / Open Space Residential category is the most extensive future land use category planned for the Township. This area covers much of the Township between Lake Charlevoix and Six Mile Lake and the northeast corner of the Township. The category primarily encourages the continuation of farming and forestry activities, with residential uses considered to be secondary or incidental to the farm and forest related uses in these areas. Due to the importance of farming in South Arm Township, agricultural support businesses are encouraged in this area.

Most typical farming and forestry activities are encouraged and considered compatible land use in this area. Intensive feedlot operations are the exception, due to odor and animal wastes, would not be considered compatible with the current or future rural residential character of the area. Outdoor commercial recreation and open space uses such as riding stables, golf courses, campgrounds, and nature preserves, are considered compatible uses.

The Farm-Forest / Open Space Residential area also includes parcels that have been developed for single-family residential. The category is designed to also accommodate single family dwellings at a maximum density of one unit per two acres. The large residential lots provide privacy from neighbors and/or other development. This development is located on roads with light vehicular traffic. No municipal water or sewer service will be available. Buffers or physical separation from incompatible uses (industrial and agriculture) are necessary when located adjacent to this type of development. Additional provisions are recommended to be incorporated into the Zoning Ordinance to allow for a cluster development pattern to avoid or minimize development impacts on environmentally sensitive areas, forests or farmland. Large lot subdivisions and cluster residential developments should provide their own access to paved county roads or state highways. It should also be noted that South Arm Township and Charlevoix County Road Commission policies are to continue the current level of road maintenance, including limiting the conversion of seasonally maintained roads to year round maintained roads.

Under special use conditions home occupations (if situated entirely within the dwelling), home based businesses, public and semi-public buildings, parks and playgrounds, limited commercial natural resource extraction and sewage treatment facilities may be permitted, provided they do not conflict with adjacent uses. Limited small scale wind turbines may be compatible in this

area with appropriate regulations, including setbacks provisions, limits on lighting, noise, shadow flicker and vibration limitations.

This future land use plan recognizes that a few existing parcels may be less than the recommended minimum lot size. The plan recommendations in no way intend to restrict the construction of new residences or continued residential use on these existing parcels.

Residential

Residential land use categories in the Township are presented in three sub-categories: Medium Density Residential, Mixed Residential and Waterfront Residential. The location of these categories are indicated on the future land use map, **Figure 7-1**. These categories are intended to provide a variety of different living environments and housing options, and are defined as follows.

Medium Density Residential: The Medium Density Residential development category is primarily designed to accommodate single-family dwellings on small lots with a minimum size of 30,000 square feet. The medium density 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 adjacent to the community of East Jordan.

Principal uses would include single family dwellings, two-family dwellings and farms on parcels ten acres or more. Special approval uses include home occupations contained within the dwelling; bed and breakfast facility; churches and associated structures; parks and playgrounds; schools, libraries; community buildings and publicly owned buildings; public utility buildings; publicly owned and operated parks. Special uses may be allowed in this area if designed to be compatible with the residential setting. The location of "neighborhood" businesses adjacent to these developments are compatible for support services.

Mixed Residential: The Mixed Residential development category is primarily designed to accommodate single-family, two-family and multiple-family dwellings on small lots ranging in size from 30,000 square feet to roughly two acres. This area will allow for a wide range of housing types and values to accommodate the need for affordable housing. Maximum density for multi-family residential is four dwelling units per acre with 50 percent of the gross area either

open space or nonprofit recreational uses. Density bonuses should be considered for greater percentages of dedicated open space. Mobile home parks are allowed under special use permits. Minimum lot size should be 12,000 square feet for mobile home park. Twenty percent of the park development should be dedicated for open space or recreational purposes.

Community uses such as parks, churches, schools, libraries or cemeteries, in addition to home occupations (utilizing space inside the dwelling unit), and bed and breakfast facilities may also be allowed in this area if designed to be compatible with the residential setting.

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 shall be restricted, unless adequately engineered wastewater disposal systems are included as part of the design. Multi-family residential and mobile home parks should be required to connect to public water and sewer systems within two years of those services becoming available.

Waterfront Residential: To preserve the scenic beauty, property value and environmental integrity of areas adjacent to lakes, pond, rivers and streams, a "Waterfront Residential" designation is recommended. With such a specialized designation it will be possible to develop residential standards specific to the unique environment found in waterfront areas. The Waterfront Residential designation is utilized along portions of Lake Charlevoix, Six Mile Lake, St. Clair Lake, Lake Patricia and the Jordan River in areas of existing waterfront residential development. Development regulations within the waterfront residential area should be designed to address Township residents' concerns regarding congestion of the local roads, as well as concerns regarding water quality and shoreline protection. Compatible land uses are one single-family dwelling on each lot and parks and playgrounds.

Due to importance of the lake frontage and river frontage within the Township, which is based in large part on the excellent water quality of these water bodies, the Township intends to manage waterfront development to minimize the threats to water quality, such as those resulting from shoreline erosion, increased runoff and surface water pollution. Shared access frontage will be restricted in order to protect the water quality and reduce impacts on the surrounding uses through zoning provisions such as density limits on shared access lots and buffer requirements.

The recommended minimum lot size is 30,000 square feet and the minimum lot width on the water is 100 feet and a minimum waterfront setback of 75 feet. However, many older platted subdivisions in waterfront areas contain lots created prior to implementation of the South Arm Township Zoning Ordinance. These lots are typically 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. Renovation and redevelopment of existing waterfront properties is expected to continue as seasonal residences are replaced by year round homes. The renovation and redevelopment should be sensitive to the provision of compatible architectural styles and maintenance of a native vegetation strip which appropriately protects the water quality of the adjacent water body.

Commercial: The commercial category includes existing commercial development and identifies specific areas for expansion adjacent to the existing commercial areas. Recommended uses include a wide variety of retail and service establishments with large parking lots or a cluster of smaller retail and service businesses that are located along a major thoroughfare. The minimum lot size would be one acre. These uses tend to generate heavy vehicular traffic. The commercial districts are located to serve vehicular traffic. This type of development often needs municipal water and sewer, or may need a satellite water or sewer system. Buffers should be used to separate commercial from existing or new residential uses. Additionally, in order to reduce the pressures for commercial development on the waterfront and to provide regulations to protect the water quality, this plan recommends special considerations and additional conditions for commercial uses located adjacent to a water body.

It is recommended the Township adopt access management, sign, billboard and landscaping regulations to maintain traffic safety and minimize the visual impacts of commercial development along the main roads. It is further recommended the Township implement zoning that allows for cluster commercial development that would share driveways and parking lots, and create pedestrian friendly environment, while maintaining open space, protecting sensitive areas and minimize negative visual impacts.

This future land use plan recognizes existing businesses in outlying areas are operating in areas surrounded by non-commercial uses and these businesses provide important services. The plan recommendations in no way intend to infringe upon their continuance.

Waterfront Commercial: An area of waterfront commercial is designated in the vicinity of Lord Road and M-66, as shown on the Future Land Use map, figure 7-1. The waterfront commercial category is designed to provide for limited water-oriented commercial activities which are compatible with protecting the sensitive natural environment of the lakefront. The waterfront commercial designation in this Master Plan is intended to support the waterfront commercial (C-2) zoning district in the South Arm Township Zoning Ordinance.

Industrial: The Industrial future land use areas include existing manufacturing facilities, the industrial park, the East Jordan Airport property, East Jordan sewage treatment facility, wholesale storage operations and areas to accommodate new industrial growth. In addition, the industrial future land use category includes the East Jordan Air Industrial Park located in Section 36. The industrial park has public water and sewer service provided by East Jordan. The City and Township have entered into a 425 agreement whereby the property has been annexed into the City; however, the Township will receive one mill taxes for a period of 50 years.

The minimum lot size is recommended to be five acres with smaller lot sizes granted through special condition uses. Smaller lot would be possible if part of an industrial park and industrial condo development. The industrial future land use category is designed to provide sites for wholesale activities, warehouses, major repair operations, retail operations that require large outside storage areas, manufacturing and other industrial operations. Operations are subject to performance standards relative to impacts on the community. This district is compatible with a business district, but not compatible with residential districts without a required buffer.

Resource Conservation: The Conservation category encompasses private lands with extensive wetlands. South Arm Township recognizes that the presence of wetlands contributes significantly to the scenic and rural character valued by the Township residents. Locations recommended for Resource Conservation are indicated on the future land use map. Primary uses to be encouraged in the Conservation areas include hunting, fishing, skiing, hiking, camping and forestry. This plan encourages the establishment of contiguous reserve areas, river set backs, wetlands, quiet areas, scenic areas and wildlife habitat.

The conservation category is further designed to provide protection to environmentally sensitive

areas and natural resources, while allowing for very limited and low intensity development to occur. This development would be consistent with recreational and conservation uses. This plan recommends a minimum lot size of five acres for the category. 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.

This future land use plan recognizes that a few existing parcels may be less than the recommended minimum lot size. The plan recommendations in no way intend to restrict the construction of new residences or continued residential use of these existing parcels.

Methods which other communities have employed to help protect and preserve the privately held conservation and forestlands while protecting a landowner's economic investment include the Purchase of Development Rights (PDR), Transfer of Development Rights (TDR), clustering requirements for residential uses and tax breaks or incentives for continuing forestry use. It is recommended that these alternatives be investigated for possible application in South Arm Township, as a way to balance economic rights with resource conservation goals.

South Arm Township Future Land Use Map

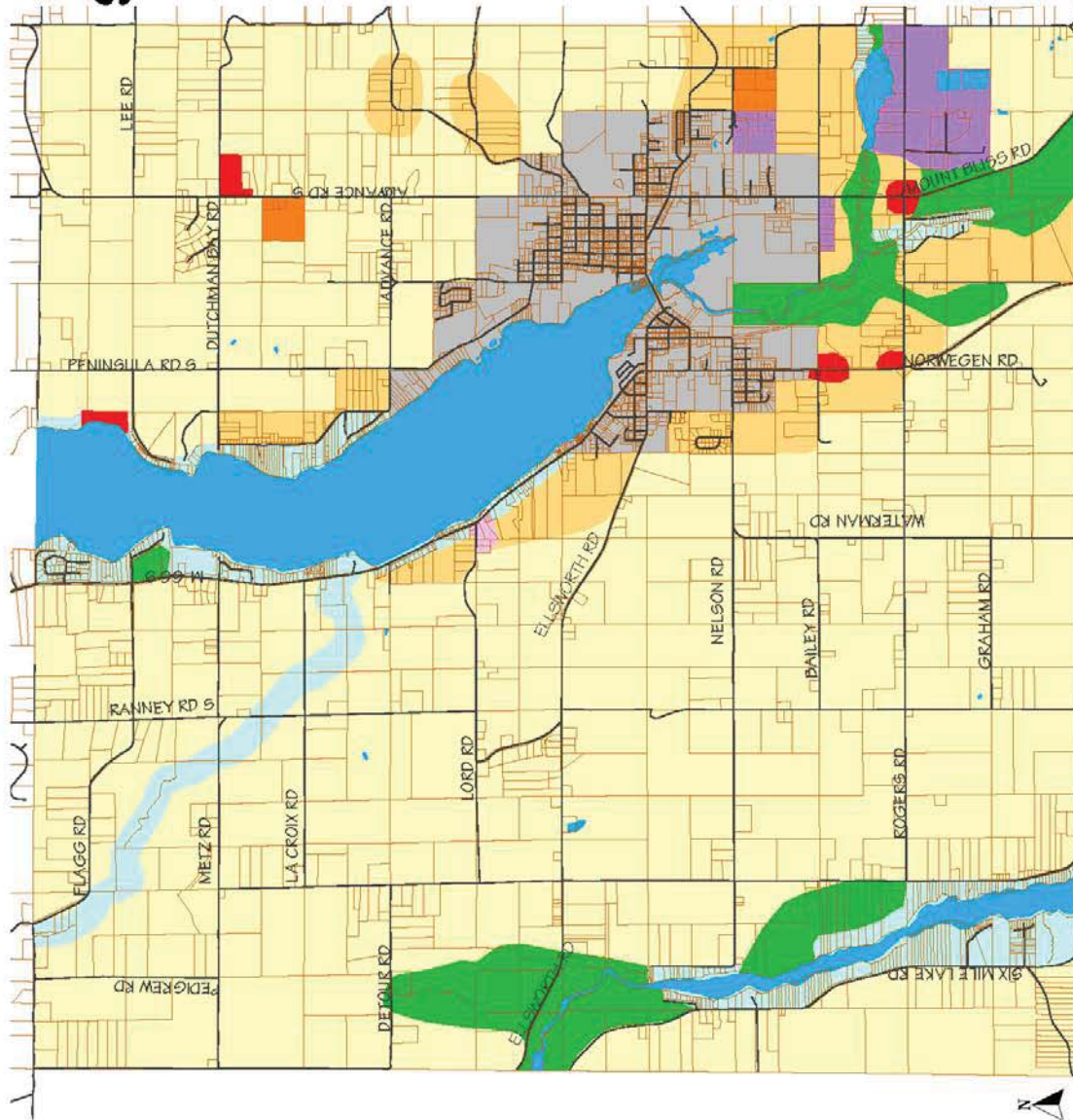


Figure 7-1

Sources:
 Charlevoix County GIS Department,
 Michigan Center for Geographic Information,
 Wade-Thim Inc, and M.C. Planning & Design

Adopted June 8, 2011

8.0 Plan Adoption and Implementation

8.1 Draft Plan Circulated for Comments

The draft South Arm Township Master Plan – 2011 Update was transmitted to the Township Board for review and comment in July 2010 with a revised draft provided in November 2010. The Board authorized distribution of the plan to the adjacent Townships and Counties, as required by statute, on November 10, 2010. Following the Board's authorization, the draft 2011 Update was distributed to the adjacent Townships, as well as to the county planning commissions of Charlevoix and Antrim Counties on November 16, 2010. Comments were only received from the Charlevoix County Planning Commission/Planning Department and are included in Appendix A.

8.2 Public Hearing

The South Arm Township Planning Commission held a preliminary public hearing on the proposed 2011 Update of the South Arm Township Master Plan, on October 12, 2010. Additionally, a second public hearing was held jointly by the Planning Commission and Township Board on February 9, 2011. A third public hearing (June 8, 2011) was held jointly by the Township Board and Planning Commission with the legally required notice published in the Petoskey News-Review newspaper on May 20, 2011 and posted on the Township website. A copy of the public hearing notice is reproduced at the end of this chapter. During the review period, the draft 2011 Update was available for review on the Township's website, at the Jordan Valley District Library or by contacting the Township Zoning Administrator.

The purpose of the public hearings was to present the proposed Master Plan Update to accept comments from the public. In addition to the Planning Commission members and Township Board Members, three residents of the township attended the June 8, 2011 public hearing.

The public hearings began with brief explanation of the planning process. Plan development and subsequent update included several Planning Commission workshop meetings, and input from the Township Board. During the hearings, maps of existing land use, color coded

resource, proposed future land use recommendations were presented and the previous plan including highlighted changes.

8.3 Plan Adoption

The South Arm Township Master Plan Update – 2011, including all associated maps, was formally adopted by Planning Commission resolution on June 8, 2011 with the inclusion of the 2010 Census data which became available after the draft plan was circulated. The Township Board having formally asserted its right to approve or reject the plan on June 8, 2011 and formally adopted the 2011 Update on June 8, 2011 with the inclusion of the 2010 Census data, copies of the signed minutes and resolutions are on file at the Township.

8.4 Legal Transmittals

Michigan planning law requires that the adopted Master Plan Update be transmitted to the Township Board, as well as to the adjacent Townships and the County Planning Commission. Copies of these transmittal letters appear at the end of this chapter.

8.5 Plan Implementation

A Master Plan is developed to provide a vision of the community's future. It is designed to serve as a tool for decision making on future development proposals. A Master Plan will also act as a guide for future public investment and service decisions, such as the local budget, grant applications, road standards development, community group activities, tax incentive decisions, and administration of utilities and services.

According to the Michigan Zoning Enabling Act, master planning is the legal basis for the development of a zoning ordinance. The Act states: "The zoning ordinance shall be based upon a plan designed to promote the public health, safety and general welfare; to encourage the use of lands in accordance with their character and adaptability, to limit the improper use of land; to conserve natural resources and energy; to meet the needs of the state's residents for food, fiber, and other natural resources, places to residence, recreation, industry, trade, service, and other uses of land; to insure that use of the land shall be situated in appropriate locations and relationships; to avoid the overcrowding of population; to provide adequate light and air; to

lessen congestion on the public roads and streets; to reduce hazards to life and property; to facilitate adequate provision for a system of transportation, sewage disposal, safe and adequate water supply, education, recreation, and other public requirements; and to conserve the expenditure of funds for public improvements and services to conform with the most advantageous use of land resources, and properties."

Zoning

The Zoning Ordinance is the most important tool for implementing the Master Plan. Zoning is the authority to regulate private use of land by creating land use zones and applying development standards in various zoning districts. A zoning ordinance regulating land use activities has been in effect in South Arm Township since 1981. The Ordinance has since been revised numerous times. For nearly three decades the Ordinance has provided guidance in regulating the location, density and standards for local development. The Township Zoning Ordinance should now be reviewed to ensure the Ordinance as it applies to South Arm Township is consistent with the goals and the Future Land Use Plan presented in this Master Plan Update.

Grants and Capital Improvement Plan

A 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 find it beneficial to prioritize and budget for capital improvement projects, such as infrastructure improvements, park improvements, etc. A Capital Improvements Program (CIP) is one tool which is often used to establish a prioritized schedule for all anticipated capital improvement projects in the community. A CIP includes cost estimates and sources for financing for each project, therefore can serve as both a budgetary and policy document to aid in the implementation of a community's goals defined in the Master Plan.

Recreation Plan

The Township must have a current DNR approved Community Recreation Plan to be eligible for recreation grant funding. Background information presented in this Master Plan update would serve as part of the recreation plan. Additional work would include developing information on existing recreational facilities within the Township and the region, recreation goals and an action program for existing and proposed facilities. The DNR approved Recreation Plan would cover a five year planning period. Grant funds should be pursued for recreation projects identified in the Community Recreation Plan.

Public Hearing Notice

South Arm Township

**Master Plan Update 2011
Public Hearing**

The South Arm Township Planning Commission and Board of Trustees will hold a public hearing to review the South Arm Township draft Master Plan Update 2011 at **6:00 pm** on **Wednesday, June 8, 2011** at the South Arm Township Hall at 02811 M-66 S.

All interested parties are invited to attend the hearing and comment on the South Arm Township draft Master Plan Update 2011. The draft plan is available on-line at (<http://www.charlevoixcounty.org/southarm.asp>). For additional information, contact Jonathan Scheel, South Arm Township Zoning Administrator at (231) 342-9025. Written comments may be submitted in advance of the public hearing to: Jeffry Rogers, South Arm Township Planning Commission, Chair, P.O. Box 293, East Jordan, MI 49727.

M. C. Planning & Design

Community Planning Site Planning Landscape Architecture

Letter of Transmittal

If transmitted items are not as noted, notify writer immediately.

To: South Arm Township Board of Trustees

Date: February 7, 2012

Transmitted By: Regular Mail Overnight Delivery

Attn: Anita Stephens, Clerk

Hand Delivered

Picked Up By:

RE: South Arm Township Master Plan Update 2011 -
Adopted

Other:

We are transmitting 20 copy(s) of the following:

<input type="checkbox"/> Certification for Payment No.	<input type="checkbox"/> Discs	<input type="checkbox"/> Prints	<input type="checkbox"/> Specs.
<input type="checkbox"/> Change Order No.	<input type="checkbox"/> Drawings	<input type="checkbox"/> Product Literature	<input type="checkbox"/> Tracings
<input type="checkbox"/> Construction Change Req. No.	<input type="checkbox"/> Field Measure Plans	<input type="checkbox"/> Samples	<input type="checkbox"/> Work Orders No.
<input type="checkbox"/> Copy of Letter	<input type="checkbox"/> Plans	<input type="checkbox"/> Shop Drawings	_____

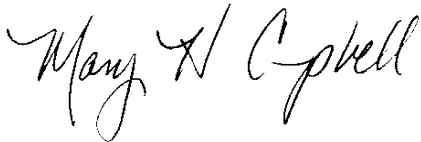
Other: Adopted Master Plan Update 2011 for South Arm Township

For your: Action As Requested Information Review/Comment Use
 Approval Distribution Records /Files Signature

Remarks: As per the state planning statutes, I am transmitting the adopted 2011 Master Plan Update to you on behalf of South Arm Township Planning Commission. If you have any questions please call me at (231) 487-0745.

Thank you for your attention to this matter.

Job No. SAT



By: Mary H. Campbell, ASLA, AICP

cc: Jeffrey Rogers, Planning Commission, Chair

M. C. Planning & Design

Community Planning Site Planning Landscape Architecture

Letter of Transmittal

If transmitted items are not as noted, notify writer immediately.

To: Adjacent Townships and Counties

Date: February 6, 2012

Transmitted By: Regular Mail Overnight Delivery

Hand Delivered

Attn: Clerks and Planning Commission Chairs

Picked Up By:

RE: South Arm Township Master Plan Update 2011 -
Adopted

Other:

We are transmitting 1 copy(s) of the following:

<input type="checkbox"/> Certification for Payment No.	<input type="checkbox"/> Discs	<input type="checkbox"/> Prints	<input type="checkbox"/> Specs.
<input type="checkbox"/> Change Order No.	<input type="checkbox"/> Drawings	<input type="checkbox"/> Product Literature	<input type="checkbox"/> Tracings
<input type="checkbox"/> Construction Change Req. No.	<input type="checkbox"/> Field Measure Plans	<input type="checkbox"/> Samples	<input type="checkbox"/> Work Orders No.
<input type="checkbox"/> Copy of Letter	<input type="checkbox"/> Plans	<input type="checkbox"/> Shop Drawings	_____

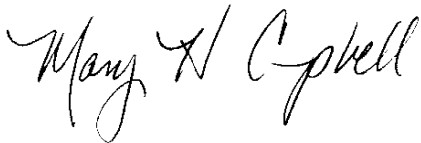
Other: Adopted Master Plan Update 2011 for South Arm Township

For your: Action As Requested Information Review/Comment Use
 Approval Distribution Records /Files Signature

Remarks: As per the state planning statutes, I am transmitting the adopted 2011 Master Plan Update to you on behalf of South Arm Township Planning Commission. If you have any questions please call me at (231) 487-0745.

Thank you for your attention to this matter.

Job No. SAT



By: Mary H. Campbell, ASLA, AICP

cc: Anita Stephens, South Arm Township Clerk
Jeffry Rogers, Planning Commission, Chair

APPENDIX A

County Comments

The following is an excerpt from the Charlevoix County Planning Commission minutes of January 13, 2011 approving the South Arm Township Master Plan Update.

VII. Townships, Cities, DEQ and Corps of Engineers Items

South Arm Township Master Plan Update

Bob Draves recused himself and took a seat in the audience because he serves on the South Arm Township Board of Trustees and will be voting on this plan later in the approval process.

Sullivan reviewed the Planning Department Staff Report on the proposed Master Plan Update. He said, based on his review, it appeared that the Township did not thoroughly review this plan prior to releasing it for public review.

Looking at the 2010 Existing Land Use Map on Page 5-2, Wieland commented that the agricultural land in the Township is very fragmented. Sullivan said the Existing Land Use Map shows how the land is being currently being used. However, the Future Land Use Map on Page 7-8 shows a much more extensive area planned for agricultural uses in the future.

Jason asked if the 2010 Census data is available now. Sullivan said no; it will be released within the next couple months. The discussion turned to how the 2010 Census data will be used for reapportionment purposes.

Referring to the Soil Constraints map on Page 4-5, Ferguson suggested using a color other than red for the state highways because red is already used to designate soils with slopes of 18% or greater.

Referring to Page 4-10, last paragraph on the page, Ferguson questioned the term "forest associations". Sullivan explained that different types of trees in a forest can be grouped together based on similar characteristics.

Looking at Page 5-5, Ferguson questioned why cemeteries were listed in the "Recreation" category. Sullivan said this is how cemeteries are classified according to the State of Michigan Land Use/Cover Inventory. Ferguson also noted that the East Jordan Snowmobile Club should be listed under "Recreation" instead of "Institutional". Sullivan added that Grandvue Medical Care Facility should be added under "Institutional".

Ferguson said she also had noted some grammatical corrections in her copy of the plan. Sullivan asked if she could share this information with Staff after the meeting and it will be passed along to the Township.

Jason agreed with Sullivan that the data used in the plan should be more recent.

Sullivan said the plan should also draw more conclusions based on the data.

Jason noted that the north/south runway at the municipal airport was closed by the Federal Aviation Administration (FAA). Also, he said the East Jordan School District has had a loss in student population and there should be some statements in the plan recognizing this fact.

Levengood said the Township put forth a good effort in developing the goals and objectives section. Sullivan agreed.

Levengood noted that the plan was a little difficult to read due to the large spaces appearing in the middle of some words. Kiersten suggested that using a different font might solve this issue.

Discussion took place regarding the possibility of having Staff meet with the Township Planning Commission to review the comments and concerns in the Staff Report.

Draves noted that a public hearing has already been scheduled and he asked if the Census data in the plan could be updated without delaying or having to re-do part of the plan approval process. Sullivan said yes; once the public hearing has taken place and the Township Planning Commission has reviewed all of the comments received, they can make any necessary changes to the plan prior to adoption.

MOTION by Michael Buttigieg, seconded by Nancy Ferguson, to support the comments and concerns raised in the Planning Department Staff Report, and to recommend that Planning Department Staff meet with South Arm Township to review the Staff Report. Voice vote: all in favor. Motion carried.

Evangeline Township Text Amendments

Commission members and Staff reviewed and discussed the Planning Department Staff Report concerning the proposed text amendments to the Evangeline Township Zoning Ordinance to add provisions for low impact commercial recreational facilities and to clarify regulations pertaining to Nonconforming Uses and Structures.

During the discussion of the proposed amendments to Section 6.02 B., Buttigieg asked how the Township defines a “waterfront lot”. Sullivan quickly skimmed the zoning ordinance, but he couldn’t find a definition for this term. He said Staff would take a closer look for this definition in the ordinance at a later time. It was noted that the terms “waterfront lot” and “non-waterfront lot” should be defined in the ordinance if they’re not already.

MOTION by Tom Wieland, seconded by Bob Draves, to send the comments and recommendations in the Planning Department Staff Report to Evangeline Township for their consideration. Voice vote: all in favor. Motion carried.

Other Business

Buttigieg said he would appreciate having the County map put up on the wall again in the Pine Lake Room. Ferguson agreed.

Sullivan commented on the recent Michigan Supreme Court decision involving Beach Drive in Charlevoix Township and the precedent it may set.

IX. Adjournment

MOTION by Michael Buttigieg, seconded by Nancy Ferguson, to adjourn the meeting. Voice vote: all in favor. Motion carried.

Chairman Jason adjourned the meeting at 9:25 p.m.

Respectfully Submitted By,

Larry Levengood
Secretary

LL/kjs

Charlevoix County Planning Department Staff Report Review of South Arm Township Master Plan Update 2011

The review of a community plan consists of a number of steps or types of review. The major steps are listed below, followed by a detailed description of each one.

1. Review of adoption process
 2. Review of content and context
 3. Review of internal consistency (Does the layout of the plan and the information used to create it seem to make sense?)
 4. Review of plan in relation to plans of surrounding communities and county plans (external consistency)
-

1. Review of adoption process

M.C. Planning and Design, the planning consultant retained by South Arm Township to assist with the 2011 Update of the Master Plan, sent a Notice of Intent to Plan to the Charlevoix County Planning Commission in 2010. Subsequently, a copy of the draft plan was submitted for review by the County Planning Commission in 2010, but was later withdrawn because the South Arm Township Board had not authorized the release of the plan for review. The Township made additional changes to the plan and in November, the Township Board authorized the release of the plan for review by the County and other governmental units.

M.C. Planning & Design also submitted to the Planning Department a list of adjacent communities to which the draft plan was sent for review in November.

2. Review of content and context

Does the plan contain evidence that careful study and consideration of present and future conditions in regard to growth and development were made, not only for the community in question, but adjoining communities as well, in the development of the plan? From what Staff has been able to discern, it appears that South Arm Township has done a pretty good job of addressing present and future conditions, given some of

the dated information that was used. We have concerns that there was not a great deal of coordination between South Arm Township and the surrounding communities with regard to the development of this plan. The use of the consulting firm, M.C. Planning and Design did help to some extent as they have worked for neighboring townships as well.

Does the plan contain evidence that in the development of the plan, coordination and cooperation occurred between the community for which the plan was developed and adjoining units of government, Tribal Governments, and regional, state, and federal level agencies? The plan makes no mention of efforts to work with neighboring communities and we speculate that no outreach to obtain input or involvement was attempted or accomplished.

What type of information was used in developing the plan (the information used to form the basis of the plan)? The plan was updated using demographic, land use, infrastructure, and natural resource data. Some of the data used does not change (natural resources, for example), but some of the information was dated and some of it was inaccurate to the point that we had questions as to the source.

Was the appropriate type of information used in developing the plan? Yes

Is the information accurate? In some cases, it was not accurate.

Is the plan a policy plan or is it based on specific "hard" data, such as land use need estimates by land use type? This plan contains a number of policy statements as well as current land use data. Other types of data were used, such as census, that is dated. It does not appear that an effort was made to make population projections or projections as to future land use needs.

Does the Plan contain descriptive information, such as tables, graphs, charts, and maps to assist in explaining the past, current and expected or desired future conditions?

Information is included that provides an understanding as to the past conditions but the plan is lacking to some extent as to the present and future conditions.

Does the Plan address land use, transportation and infrastructure issues? Yes

Does the Plan have a general time frame (20 years into the future, for example)? The plan does not attempt to forecast the needs for a specific time period in the future.

Does the Plan state how far into the future it addresses land use, transportation, infrastructure and other issues? No

Does the plan contain midrange points into the future (i.e., this area is expected to be built out in the next ten years, and the area beyond a given point will not be zoned to allow the long term intended uses until the "close in" area is developed)? No

Does the plan contain a future land use map showing the development of the plan during midrange points into the future and at the end point of the plan's life (20 or 25 years)? No

Does the plan contain policy statements to aid in achieving the desired outcome of the plan upon adoption? Yes, to a point.

Does the plan contain specific recommended actions to assist in implementing the plan? Yes, to a limited extent.

Does the plan recommend or give guidance as to potential sources of assistance or funding to enable the plan to be implemented? No

Additional Comments

This plan is an update of a plan originally developed in 1999. The information in their current plan is based on the 1990 Census and this updated plan is based on data from the 2000 Census. Staff recommends that, in the future, South Arm Township develop a new plan in 2015 or 2016, followed by either an update or a new plan developed in 2021 or 2022 to enable the township to use *current* demographic data. More current demographic data from the American Community Survey (ACS) could have been used for this plan update. The ACS data is collected annually by the U.S. Census Bureau in place of the massive decennial census form used prior to 2010. For the most part, the information used seems to be accurate and was used appropriately.

In a couple of instances in the plan, conclusions could have been drawn from the data but they were not. For example, on page 2-2, the second sentence under Section 2.2 states that a younger population tends to need more rental housing or smaller homes and the elderly population needs assisted care or nursing home facilities. Additional conclusions could have been made, such as the fact that as families age and the children move out, often the parents no longer need as large a home. Given the younger population's need for smaller homes and the fact that senior citizens are comprising an ever increasing segment of the population, this could lead to the need to reduce the minimum square footage of dwellings from what is now required in the Township Zoning Ordinance. This change may also better reflect the current real estate market and it would result in a reduction in building materials and energy consumption in homes.

In some instances, the statements in the plan were not accurate when reporting the data. For example, below Table 2.5 on page 2-5, the last sentence on the page states "and two percent lower than the State". That figure should actually be 3.9 percent less than the State. On page 2-11, under Table 2.12, the second sentence is inaccurate. Perhaps it should state that "Less than one percent of the structures were lacking complete plumbing..."

Other issues or concerns with the content of the plan include the following:

- Page 3-1, Section 3.1, third line down, the word "near" should be replaced with the words "outside of"
- References to "District Health Department #3 or variations of it should be changed to "Health Department of Northwest Michigan"
- Page 3-2, 4th line down from the top of the page, replace the word "bedrock" with the word "groundwater"
- Page 3-2, Section 3.2, East Jordan Plastics is not a plastic recycling drop-off center and the recycling and disposal facility near Ironton (Cedar Ridge) does not accept recyclables nor materials for disposal and has not for a number of years.
- Page 3-3, last paragraph on the page, Staff question's the accuracy of much of what is stated here. In particular, County Transit makes one trip to Traverse City per month, and Northwest Regional Transportation may no longer exist.
- Page 3-4, Section 3.6, second paragraph, South Arm Township is not incorporated within the East Jordan Public School District. The Township is located in part within the East Jordan School District and in part within the Ellsworth Community School District.
- Page 3-5, the list of churches in East Jordan and South Arm Township is incorrect. St. John the Nepomucene Catholic Church is located in Antrim County, and Staff believes some of the others are not located in either East Jordan or South Arm Township as well.
- Page 3-5, Section 3.7, first paragraph, Otsego Memorial Hospital should also be included because it is closer to much if not all of the Township than is Munson Medical Center in Traverse City. It may also be closer for some residents than Northern Michigan Hospital. Second paragraph, the Health Department reference should use the correct name and include Otsego County as part of the service area.

- Page 3-6, Section 3.8, second paragraph, add the following to the end of the first sentence: “in South Arm Township.” Also, the Township may want to consider changing all references to the Michigan Department of Natural Resources and Environment in the plan to *either* the Michigan Department of Natural Resources or the Michigan Department of Environmental Quality, *as appropriate*. In the second sentence, rewrite to read as follows: “Other DNR public boat launch facilities in South Arm Township are located along Dutchman's Bay Road on the South Arm of Lake Charlevoix and along Miles Road on Six Mile Lake.” Third paragraph, Staff has not been able to find any reference to a Whiskey Creek flowing into the Jordan River through Sportsman’s Park.
- Page 4-3, last paragraph above Section 4.3, Staff recommends making some reference to the most recent push to explore for natural gas and what impacts that may have. First paragraph under Section 4.3, line 2, replace the words “septic field failures” with “difficulty in locating septic fields”
- Page 4-4, Section 4.4, 2nd paragraph, line 3, replace “be provided with an on-site septic” with “also contain a Health Department of Northwest Michigan approved waste disposal”. Third paragraph in section, 5th line down, delete the words “and prime farmlands” as they are not depicted on Figure 4-1.
- Page 4-7, 8th line from the top of the page, replace “high nitrate” with the words “nitrates and other contaminates”
- Page 4-10, 4th line from the top of the page, replace the word “bridge” with the word “Road”
- Page 5-4, 6th line down under Nonforested/Undeveloped/Open, after the word “conversion”, add the words “or abandonment of”
- Page 5-5, Under Institutional, 2nd line, after the words “Township offices”, add the words “Grandvue Medical Care Facility”. Under “Water”, second line down, delete the word “Floodplain”. Third line down, delete the words “may be considered part of” and replace with the words “are in part within”
- Page 6-1, Section 6.2, 4th line down, after the word “support”, add the word “correcting”
- Page 6-3, third line from the top of the page, replace the word “floodplain” with the word “estuary”

- Page 6-7, at the end of the bullet points under Natural Environment, consider adding another bullet point which reads "Require site plan standards that include stormwater retention and/or detention facilities."
- Page 6-8, bottom of page, end of last statement, it seems like something is missing.
- Page 7-6, Under Resource Conservation, second line, is the intended word "wildlands" or "wetlands"?

3. Review of internal consistency

- *Are the conclusions reached and the future course of growth and development supported by the data presented within the plan itself or in associated documentation? Yes*
- *Are the recommendations reasonable given our environment, the state of the economy, existing land use and development within the community? Yes*

4. Review of plan in relation to plans of surrounding communities and county plans (external consistency)

- *Does this plan conflict with plans of adjoining communities? The plan's recommendations in and of themselves through the policy statements do not conflict with those of adjoining communities (at least in Charlevoix County) nor with the Charlevoix County Future Land Use Plan. The recommended density levels for residential development do differ considerably in many areas along the borders of South Arm, Eveline and Wilson Townships. These could possibly be resolved between the three communities through the use of clustering in South Arm Township and retaining open space. A good example of this is the requirement for a 2-acre minimum lot size in the Farm/Forest area in South Arm Township as opposed to an 8- to 10-acre minimum in the other two townships. This issue has been an age-old argument. Does a 2-acre minimum save farmland by not requiring 10 acres to be taken out of farm or forest production every time a home is built or does requiring a 10-acre parcel decrease the amount of residential development that occurs in that portion of the Township? This needs discussion and coordination between the three townships.*
- *Are these conflicts a result of terminology or actual problems between land uses proposed along community boundaries? This is more of a philosophical issue as noted above.*

- *If conflicts exist, are these related to a timing issue (i.e. this being a new plan as compared to plans five or more years old in adjoining communities)?* No
- *Does this plan make major strides forward in complying with the requirements of the Michigan Planning Enabling Act or amendments to that Act, where older plans from adjoining communities do not address those requirements of that Act?*
This plan does make strides forward in complying with the Michigan Planning Enabling Act. Conflicts between the future land use map within this plan and those of Eveline and Wilson Townships are not a result of complying or not complying with the Michigan Planning Enabling Act or the age of the respective plans. The existing plan, which this update is intended to replace, addresses the issue of plans needing to be reviewed every five years.
- *Does the plan appear to support the efforts of adjoining communities and/or the county plan(s)?* If the policy statements within this draft plan are followed, Staff believes this plan will support the efforts of adjoining communities as well as efforts at the county level.
- *Does the plan hinder the implementation of neighboring or county level plans?*
Many of the townships in Antrim County do not have plans, nor zoning, so Staff couldn't compare this plan to those communities. The Antrim County Master Plan does not give any substantive policy statements or detailed future land use map to which we can compare this plan. The Antrim County Planning Commission is currently working on either a new plan or major rewrites to their existing plan to address these issues.