8.9 Mineral Resources

Iron mining on the Marquette Range is an old extractive industry, going back over 160 years. Substantial amounts of the high-grade, easily accessible, direct-shipping ore have been reduced by various methods of underground mining. The Humboldt Mine has created significant landforms as a part of the mining process. Humboldt Township has adopted zoning standards and regulations that are intended to minimize the negative affects of any future mining operations. Mining operations are discussed in detail in Chapter 3, Economic Base.

CHAPTER 8.0-NATURAL FEATURES

8.10 Climate

Climate has a strong influence on the way of life and the activities of the people of Humboldt Township. Like the rest of the State, Humboldt Township has four distinctive seasons that allow for a wide variety of outdoor activities. Generally, January and February are the coldest months, with average maximum temperatures from 22.7°F to 27.3°F and average minimum temperatures from 5.6°F to 7.7°F. The warmest months are July and August, with average maximum temperatures from 77.0°F and 74.9°F and average minimum temperatures from 53.4°F and 52.6°F.

Snowfall in Humboldt Township generally occurs from November through April. Weather greatly impacts transportation systems within Marquette County, necessitating seasonal weight restrictions on roads during spring breakup, causing access issues.

8.11 Issues and Opportunities

- The iron ore contained within the bedrock lying beneath Humboldt Township is linked to the area's development as a mining community. Original settlement and the existing land uses are directly related to the Township's natural features and resources.

- Soil suitability and steep slopes, especially in the southerly portion of the Township make some areas less suitable for future development. Land stability in and around mining sites is a factor which should be considered in all proposed development or redevelopment plans.

- All available soil data should be reviewed for all development proposals.

- Humboldt Township does not participate in the National Flood Insurance Program and approximately 320 structures are located in flood-prone areas, with over 50 percent of the structures being associated with permanent residential development.

- Fish, Helen and Casey Lakes and the Black, Escanaba and Michigamme Rivers are all utilized for residential development and recreationally. There is potential for residential

CHAPTER 8.0-NATURAL FEATURES

• 8.11 Issues and Opportunities continued

development on Lake Lory, provided that water quality issues can be addressed and reconciled.

- Wildfire is a natural component to the lifecycle of forests and jack pine cover is prominent in many portions of Humboldt Township and it can quickly become a disaster when it threatens human lives or property. To reduce such risks, zoning should address and limit development in remote areas with limited accessibility.

- Mining and its support facilities can have a substantial impact to area natural features. Humboldt Township has adopted zoning standards and regulations that have been designed to help minimize the negative effects of any future mining operations.

- The climate of Humboldt Township presents a variety of challenges, and with the need for snow removal from streets and parking lots along with building codes which dictate adequate support for snow loads. The local climate may be attractive to a number of people and can be suitable for businesses or industries which specialize in certain types of goods or services/seasons.

CHAPTER 9.0-LAND USE

9.1 Land Use Patterns

Patterns of land use evolved from economic necessity. The economy was firmly linked to trade routes that followed natural features such as lakes and streams. The general historic land use patterns which are common to the Upper Peninsula are reflected in the patterns that have developed in the Marquette County area. Settlements were established at, or close by, active points of commercial activity, namely mining and timber production. Humboldt Township is an example of a community that was developed near mining activities. This chapter discusses current land use and ownership throughout Humboldt Township.

9.2 Factors Affecting Land Use

Land use is never a static process and change is always occurring. Decisions affecting land use can come from a variety of sources. Changes in land use have been the result of various decisions made by individuals, families, businesses, or governmental and public agencies. It is important to note, however, that land use changes cannot be attributed to a single set of decisions made by one group or individual. Rather it is a combination of decisions over time made by a number of individuals, organizations or public agencies.

Location tends to be the most important factor for home buyers and commercial interests. The availability of public and private services, accessibility, existing conditions of the area and price are other important considerations. Owners of business and industrial ventures initiate, expand or close their operations based on economic probability. Many factors may be considered in determining economic feasibility including supply and demand for the goods or services produced, cost and quality of transportation and site availability. Local decisions have a bearing on these factors.

Other factors affecting land use include the existing transportation system, taxation, land values, natural features, and changing technology and market conditions. Changes in lifestyles, family size, shopping preferences and customer attitudes also affect land use decisions. Mobility is greater than at any previous time in history, families are smaller, and life expectancies have increased. These changes are reflected in employment patterns and housing and shopping preferences. From a land use standpoint, some pertinent issues have been recent preferences for larger homes situated on larger parcels, the apparent willingness to endure longer commuting distances to work and the growing market for housing specifically designed for elderly residents, particularly those residing in the area for only part of the year. Current trends have indicated that some residents are reconsidering the "urban" lifestyle and moving back to the cities.

9.2 Factors Affecting Land Use continued

Laws and Regulations

Laws and regulations have been enacted giving local units of government the means to deal with land use issues. These legal tools allow federal, state and local governments to address the overall compatibility and appropriateness of development and land use.

Federal legislative actions have created a number of loans and grant programs for community facilities, water and wastewater systems, housing, economic development and planning. Drinking water standards, air quality and many other environmental factors are addressed in federal regulations.

The traditional role of the state has been limited to providing the enabling legislation for local units of government to regulate growth and development through implementation of planning and zoning. Consolidated zoning enabling legislation, the Michigan Zoning Enabling Act, Public Act 110 of 2006, as amended, and consolidated planning enabling legislation, the Michigan Planning Enabling Act, Public Act 33 of 2008, were adopted to guide local units of government on the statutory requirements. The State of Michigan regulates land use and development in regions of environmental concern including wetlands, floodplains and coastal areas, which may have a direct effect on local land use. The state also enforces standards for municipal water systems and wastewater systems that are at least as strict as federal standards. A community's ability to provide water and wastewater treatment systems is directly affected by these regulatory standards.

Local governments can exert the most effective influence on land use changes through zoning ordinances, subdivision regulations, building codes and public investment in roads, water and sewer systems, parks, etc. Local planning efforts that seek to define the most desirable and appropriate uses for the various parts of a community, and anticipate and prepare for growth, dramatically helps to guide future land use decision-making. Humboldt Township utilizes a zoning ordinance to regulate land use.

Transportation

The transportation system that serves a community determines how quickly and easily raw materials and finished goods can be received and shipped. It also is directly related to product cost, a crucial factor for business. The vast network of roadways in the U.S., together with the proliferation of private automobiles, has enabled residents of rural areas to commute to larger communities for employment and shopping and has increased the accessibility of many areas to tourists. This increased mobility has, in many cases, facilitated scattered suburban residential development. One negative impact of suburban residential development often referred to as "sprawl," frequently converts open space and forested agricultural lands to more intensive uses. Alternatively, carefully planned road systems and improvements to existing roads should dictate where future residential development occurs.

9.2 Factors Affecting Land Use continued

Land Use Patterns

Land values in rural areas may be much lower than urban areas, thus more attractive to potential residents. Commercial and industrial enterprises are generally less willing to forego municipal services such as water and sewer and they are also more likely to locate in areas of population concentrations rather than in very rural areas. Tax rates and land values are also important considerations for businesses as well. Changing technology, including computer networking, cellular telephones, voice mail, teleconferencing, video conferencing, and e-mail provide businesses with location options that were previously not practical. However, the quality of life associated with these rural locations is an additional attraction.

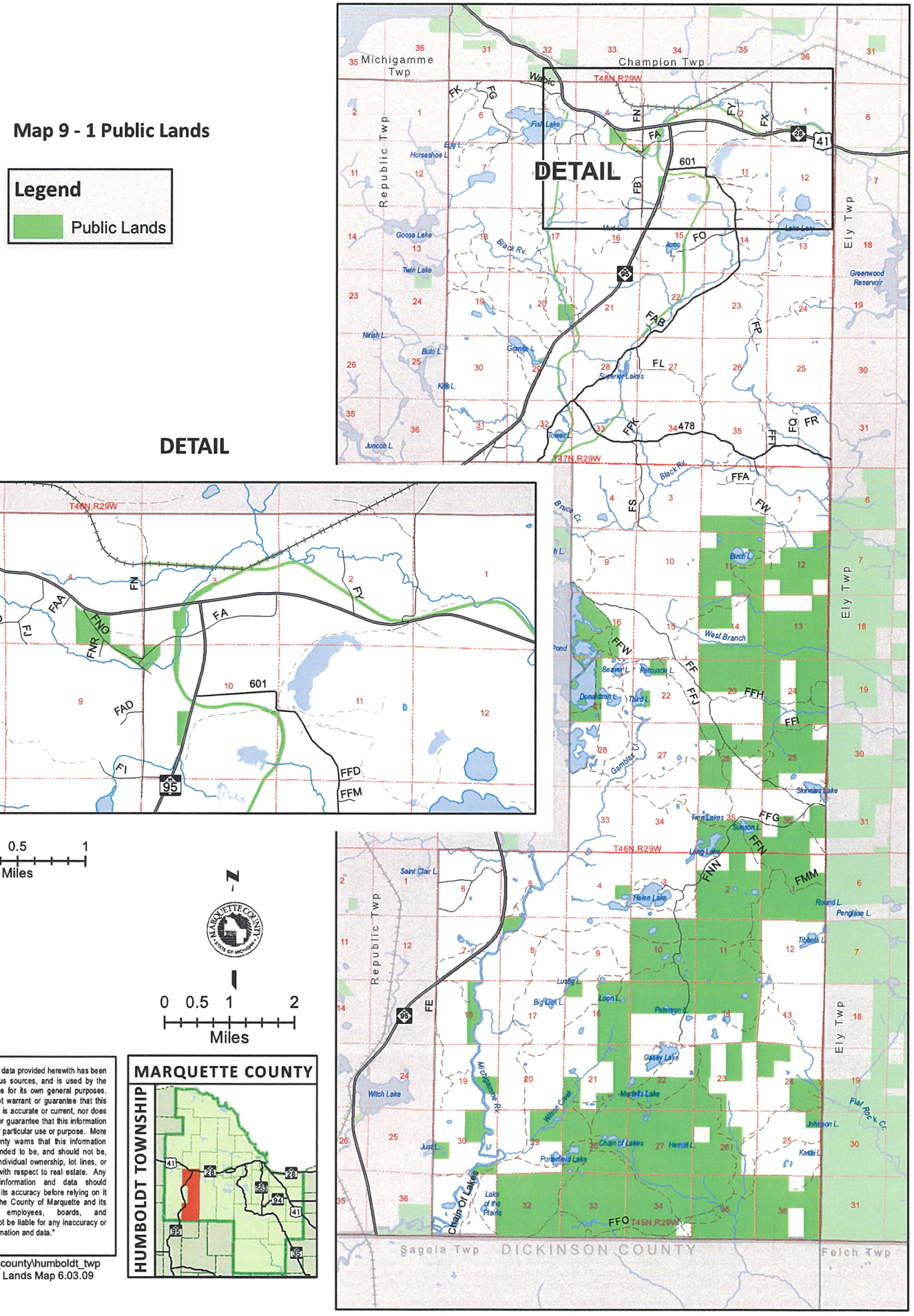
Land Ownership

Land ownership in Humboldt Township has been dominated by major corporate landowners. Lands in corporate ownership have essentially been used for timber production and mining. Use of these lands has been determined by ownership. Several mining interests control through ownership a small amount of the surface area of Humboldt Township, which constricts standard development options which do not involve active mining or mining support. As discussed in Chapter 3, Eagle Mining, a subsidiary of Toronto Canada-based Lundin Mining Corporation, has rehabilitated and modernized the former Humboldt Mill and has been using it as a milling facility to support the Eagle Mine. Large amounts of land in Humboldt Township are also held by Verso Corporation (formerly New Page and earlier Escanaba Paper Company) and International Paper (formerly Champion International Corp.).

The State of Michigan is also a large landholder in the Upper Peninsula and owns acreage in the southern two-thirds of Humboldt Township (approximately 11,000 acres). This land makes up approximately 25 percent of Humboldt Township's total land area. Lands held in State ownership are part of the Escanaba River State Forest and the Michigan Department of Natural Resources (MDNR) also owns approximately 3,700 acres in Humboldt Township. Public land holdings are illustrated on Map 9-1, Public Lands Map.

Private land ownership comprises a large portion of Humboldt Township's land area as well. Privately held lands are concentrated along the Michigamme and Black Rivers and the northern third of Humboldt Township. Fish, Granite, Perch, Beaver, Donaldson and Petcuson Lakes maintain pockets of private land ownership. Humboldt Properties, LLC owns approximately 2,500 acres of property that was purchased from Cliffs Natural Resources. Additional substantial landowners in Humboldt Township include (all acreages are approximate): Murphs Camp, Inc. own 1,000 acres located in the southeast corner, Dave and Patricia Holli (1,100 acres), Republic Wetlands Preserve (1,100 acres), Republic Lands, LLC (600 acres) and GMO Threshold Timber (500 acres).

Map 9 - 1 Public Lands



DETAIL

"The information and data provided herewith has been compiled from various sources, and is used by the County of Marquette for its own general purposes. The County does not warrant or guarantee that this information and data is accurate or current, nor does the County warrant or guarantee that this information and data is fit for any particular use or purpose. More specifically, the County warns that this information and data is not intended to be, and should not be, used to determine individual ownership, lot lines, or lines of occupation with respect to real estate. Any recipient of this information and data should independently verify its accuracy before relying on it for any purpose. The County of Marquette and its officers, agents, employees, boards, and commissions shall not be liable for any inaccuracy or omission in this information and data."

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MP Public Lands Map 6.03.09

9.2 Factors Affecting Land Use continued

Land Ownership continued

Approximately 28 percent of Humboldt Township's total land area is held in Commercial Forest Reserve, or commercial forest land. The commercial forest program provides a property tax reduction to private landowners as an incentive to retain and manage forestland for long-term timber production. Landowners participating in this program pay a reduced property tax of $1.30 (through 2021 rate) per acre for land over forty acres. These rates are scheduled to increase $0.05 every 5-years thereafter. Additionally, the State of Michigan pays $1.20 per acre annually to each county where land is listed in the program. Lands listed in this program must remain open to the public for hunting, trapping and fishing only. Landowners are not required to allow motor vehicle access to the property. Commercial forest lands are private lands held under the control of private owners. Landowners include private individuals, clubs, forest industry, and other businesses and are required to have an approved forest management plan. Tracts of commercial forest land are dispersed throughout Humboldt Township, held under multiple owners; the largest amount of land is held by Weyerhaeuser (approximately 11,700 acres).

Natural Features

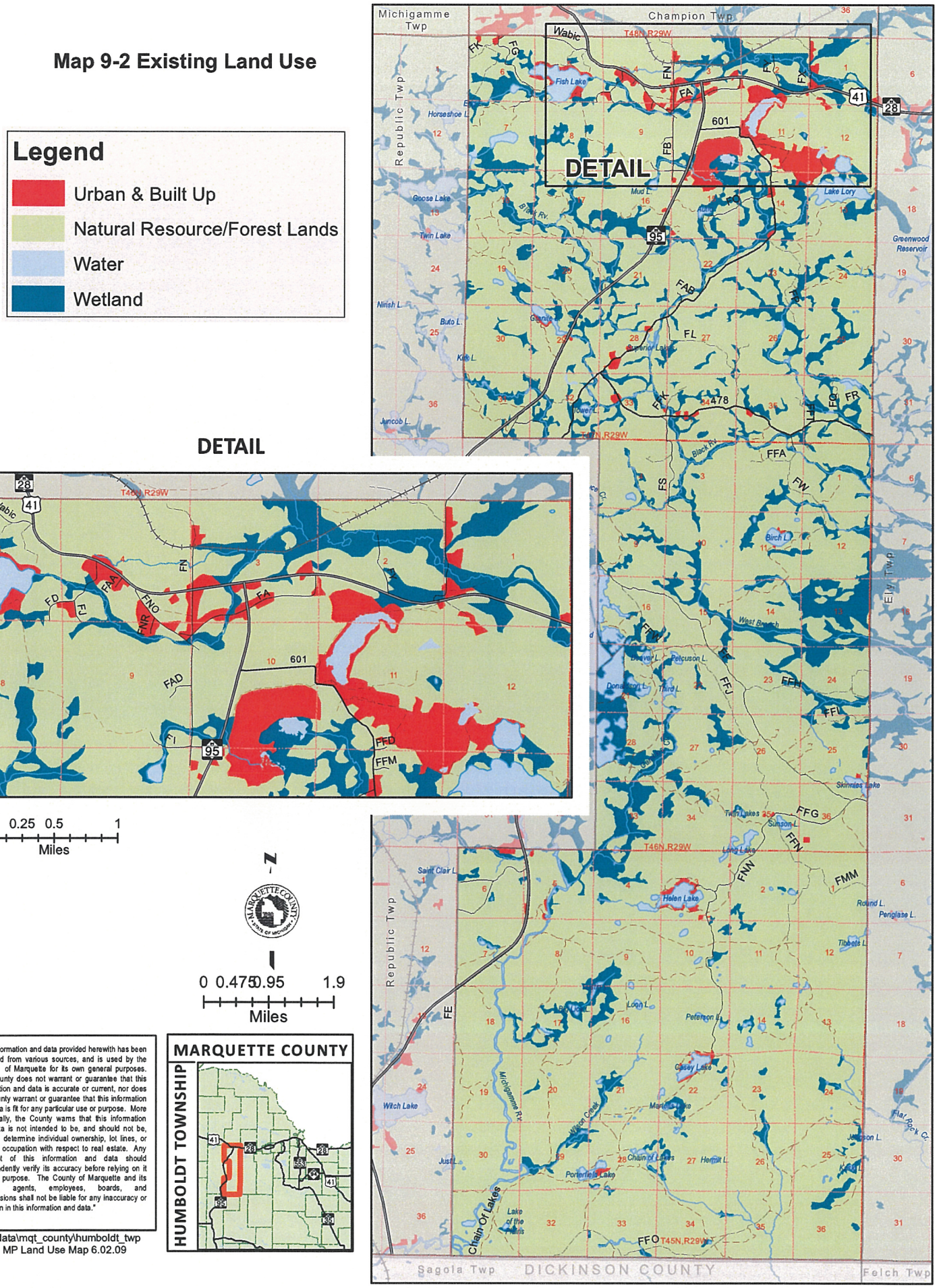
The physical characteristics of the land have a considerable effect on the determination of potential land use. Slope, soils and drainage are just several natural characteristics that have an effect on land use. The natural features of Humboldt Township are described in detail in Chapter 8, Natural Features, along with detailed maps to graphically depict specific features.

9.3 Existing Land Use Inventory

Land cover is the natural landscape recorded as surface components: forest, water, wetlands, urban, etc. Land cover can be documented by analyzing spectral signatures of satellite and aerial imagery. In 1978, the Michigan Resource Information System (MIRIS) Land Cover Maps were produced. The data obtained from the maps generated an inventory of land cover for the state. Ideally the MIRIS data was to be updated by the State every five years; the efforts have proved to be cost prohibitive. Updating the MIRIS land use information is very helpful and is necessary to identify trends in land use and in developing plans to encourage development or discourage what is taking place.

In 2005, the County was flown and aerial imagery was obtained. The 2005 imagery was used to identify land that has become "urban and built up" since the 1978 MIRIS data were created. Map 9-2, Existing Land Use Map for Humboldt Township has been developed utilizing this data, providing an up to date description of the current existing Land Use. Land Use is the documentation of human uses of the landscape: residential, commercial, agricultural, etc. Land Use can be inferred but not explicitly derived from satellite and aerial imagery. The Land Use Categories and approximate total Acreage are described in Table 9-1, Current Land Use, Humboldt Township and Figure 9-1, Current Land Use, Humboldt Township.

Map 9-2 Existing Land Use

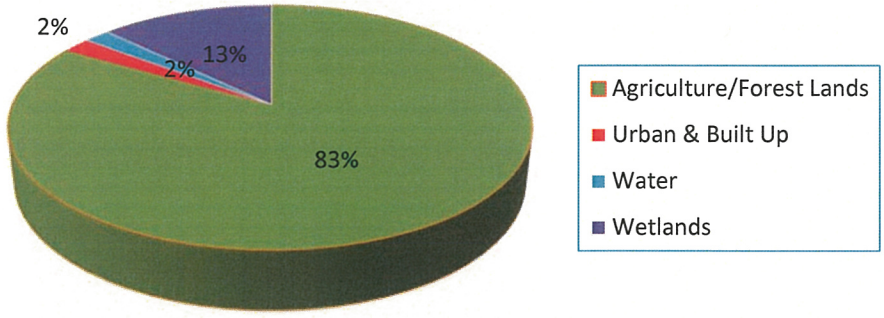


CHAPTER 9.0-LAND USE

9.3 Existing Land Use Inventory continued

Table 9-1 Current Land Use, Humboldt Township	
Category	Total Acres
Agriculture/Forest Lands	51,019.4
Urban & Built Up	1,186.8
Water	1,182.6
Wetlands	7,807.5
Total Acreage	**61,196.3**

Figure 9-1
Current Land Use , Humboldt Township



9.4 Urban and Built Up Land

Urban and built up land is a general land use category that encompasses several "developed" land uses such as residential, commercial, extractive, institutional and industrial.

Residential Land Use

Residential land use includes single family homes, multi-family homes and mobile homes, in a low to medium density pattern. Humboldt Township is predominately a bedroom community with an economy that is very dependent upon outside economic venues. Humboldt Township does not encompass concentrated areas of housing development and existing housing is low density and scattered. There is limited infrastructure in Humboldt Township at this time. All homes utilize on-site private potable water wells and septic systems. There are no areas of concern regarding existing housing and development issues are generally site specific. New housing development is limited by the amount of land available and a current lack of demand. Much of the land in Humboldt Township is part of the Escanaba River State Forest and large amounts of land are corporately owned, with private land ownership highly protected and guarded.

9.4 Urban and Built Up Land continued

Residential Land Use continued

Manmade barriers to development in Humboldt Township include the lack of infrastructure, as well as a lack of demand for new housing. Natural barriers to development include rock and wetland areas as well as the physical constraints of specific sites. Humboldt Township will continue to encourage development in areas capable of supporting residential development. There are no new anticipated developments at this time. Recent housing development has been limited and waterfront lots have been the most popular in recent years. Humboldt Township only has a limited number of rental units. Future residential development will be encouraged in areas easily accessible to major transportation routes and the limited utilities that are currently available. Year-round residential development will not be encouraged in areas where public services, such as mail, garbage pickup, emergency services, snowplowing, school bus pickup as well as adequate roads, are not available.

As illustrated in Chapter 4, Housing, Table 4-10, Residential Building Permits Issued, Humboldt Township, 2013-2017, sixty building permits were issued for Humboldt Township. Total construction costs for all building permits issued in 2017 totaled $302,000. The largest share of building permits in recent years was for 23 commercial new constructions in 2013. Currently, Humboldt Township does not have curb and/or sidewalk, which is typical for rural Townships in the Upper Peninsula.

Commercial Land Use

As discussed in Chapter 3, Humboldt Township has limited commercial development, mainly due to the modest number (481) of residents and limited infrastructure available to support large scale commercial activity. The lack of available land also presents a barrier to future commercial growth. According to Humboldt Township estimates, many residents are employed out of the area at Northern Michigan University (NMU), UP Health System-Bell Hospital, Marquette General Hospital, NICE Community Schools, and the Tilden Mine. Very few residents are employed within Humboldt Township. Commercial forestry represents a major long-term profitable industry in Humboldt Township and logging trucks pass through Humboldt Township along major traffic routes as well as local roads daily.

Commercial development is permitted by right and conditionally in the Town Development (TD) District, which is primarily located along US-41 and M-95, the two major transportation corridors traversing Humboldt Township. There have been few new business developments within the Township since the mid-to-late 1990's. Future commercial development is most likely to occur along the major traffic routes, including US-41 and M-95. Humboldt Township would entertain a variety of proposals for new business developments within appropriate locations throughout the Township.