

## Chapter 4 - Land Use Patterns

### Overview

The purpose of this chapter is to present the existing land uses, the status of planning and zoning and potential hazardous land uses in the county. Vulnerable populations can be identified using the existing land use map, zoning maps, and future land use maps combined with hazardous areas and land uses.

To recognize and mitigate potential hazards, the community must have an accurate assessment of existing land uses. The process identifies urban built-up land uses such as residential and commercial along with natural land cover types like farmlands, forests, and wetlands. The map presented in this chapter is a hybrid that combines land cover and land use.

Planning and Zoning are the principal tools that local communities have to manage growth, preserve community character, protect property values and enhance the economic viability of the area. Planning helps establish and focus the desired future of community and zoning ordinances are used as one of the primary ways to implement the community master plan and achieve community goals. It is not the intention to compare strengths and weaknesses of zoning regulations among various zoning ordinances but to give a comprehensive perspective on county planning and zoning. Until recently, the potential to use these tools for hazard mitigation has been largely ignored.

Michigan Resource Information System (MIRIS) land cover/use data was compiled by the Michigan Department of Natural Resources in the early 1980's using 1978 aerial photographs. In 1998, this computerized land cover/use information was updated using 1987 and 1992 aerial photography and extensive field inspections. The MIRIS land classification system was used for the update. Urban/built-up categories were mapped to greater detail than during the 1978 land cover/use inventory, which had a minimum type size of 2.5 to 5 acres. The smaller type size provides a better representation of various urban built-up categories. **Figure 4-1** is a color-coded thematic map of the 1998 Existing Land Use Inventory.

One of the features that attract people to Cheboygan County is the rural character of the area. Data from a 1998 update of the 1978 MIRIS land cover/use inventory shows that 63.8 percent of the County's 509,588 total acreage was forested, with another 6.3 percent in agriculture, 10.7 percent non-forest, 5.2 percent wetlands and 9.8 percent water (see **Table 4-1**). Just over four percent of the County's land was used for urban-type purposes in 1998, which included commercial, industrial, institutional/recreational and residential uses.

Another factor, which is a great determinate of how land is used, is the amount of land that is in public ownership. **Figure 4-2** shows the breakdown of public and private lands in Cheboygan County. Excluding water, all public lands (including that owned by cities, townships, the county, as well as federal and state properties) make up 39.9 percent of the county's total land area. This leaves 60.1 percent of the land in private ownership.

The majority of the public lands (which is primarily state property) are found in the southern and eastern sections of the county and in the northwestern corner. The majority of land in the townships of Mackinaw, Hebron, Waverly, Mentor, Walker, Wilmot and Nunda are in state ownership, while the townships of Beaugrand, Grant, Koehler, Ellis and Forest also have large tracts of state property. The townships of Munro, Inverness, Burt and Mullett have very little public lands. Furthermore, three of the county's major lakes (Douglas, Burt and Mullett) and many of the major rivers are located in these townships. Given the majority of property in these four townships are private lands and considering the popularity of living on or near water, these areas are prime for growth. Planning for anticipated growth should focus an approach that will maintain the rural character and protect high quality surface waters.

**Table 4-1  
Cheboygan County - 1998 Land Use**

Land Use Type	Number of Acres	Number of Square Miles	Percent of Total Area
Residential	14,582	22.8	2.9%
Commercial	1,031	1.6	0.2%
Industrial	3,868	6.0	0.8%
Institution/Recreation	2,088	3.3	0.4%
Agricultural	32,152	50.2	6.3%
Non-Forest	54,468	85.1	10.7%
Upland Forest	237,074	370.4	46.5%
Lowland Forest	87,999	137.5	17.3%
Wetlands	26,312	41.1	5.2%
Beaches	77	0.1	0.02%
Surface Water	49,937	78.0	9.8%
Total	509,588	796.2	100%

Source: 1998 update of 1978 MIRIS Land Cover/Use Inventory by Wade-Trim

## Land Use Categories

### *Residential*

According to the MIRIS Land Cover/Use update, 2.9 percent or 14,582 acres of the County's total land area was used for residential purposes. For the most part, residential development found in the county consists of single-family dwellings; however, single-family duplexes, multi-family residential, condominiums, mobile homes and mobile home parks are also included in this category. Residential uses are concentrated in the community centers of Cheboygan, Mackinaw City, Indian River and Wolverine. Many of the larger lakes such as Burt, Mullett, Black and Douglas Lakes and the major rivers have high concentrations of residential development both along the lakeshores and in subdivisions adjacent to the lakes. Many of these once seasonal, weekend residential developments have undergone a transition to year round residences, in addition to new dwellings being built on waterfront property. Residential development is also occurring along county roads as larger parcels are split into ten-acre and smaller parcels.

### *Commercial*

Commercial land uses include primary/central business districts, shopping center/malls, and secondary/neighborhood business districts including commercial strip development. The 1998 land use inventory identified 1,031 acres (0.2%) in commercial use. Commercial facilities are found primarily in the City of Cheboygan and south out of the city limits along M-27. Other urbanized communities, such as Mackinaw City, Indian River and Wolverine have smaller commercial service centers with limited services found in other outlying sections of the county.

***Industrial***

In addition to industrial and extractive development, this land use category includes transportation, oil and gas, communication and utility facilities. Development falling under this category made up only 0.8 percent of the total County land area. These land uses cover approximately 3,868 acres of the County. Much of the industrial development is located near the main community centers.

***Institutional/Recreational***

Land devoted specifically for institutional and recreational purposes amounted to approximately 0.4 percent or about 2,088 acres of Cheboygan County. Land uses included in this category are public parks and campgrounds, golf courses, schools, churches and public buildings.

***Agricultural Lands***

With some 32,152 acres classified as farmland, agriculture is the county's fourth largest land use category. The bulk of the county's agricultural land is found in the northern portion of the county in Beaugrand, Munro, Inverness, Benton, Aloha and Grant Townships with smaller sections of farm land found in all other townships. It is interesting, but not surprising, to note that much of the agricultural property is found along or very near the county's major rivers and lakes. Predominate agricultural land uses are pastures, hayland and growing crops such as beans, oats, and barley. A small amount of land is used for livestock such as cattle, milk cows, and hogs.

***Non-Forest Lands***

Nonforest land is defined as areas supporting early stage of plant succession consisting of plant communities characterized by grasses or shrubs. Non-forest land makes up nearly 11 percent of the County's land area. One type of opening are those created by turn of the century logging operations and subsequent wildfires. Other non-forest areas consist of abandoned or idle farmland. A majority of these areas are located within the active agriculture band mentioned above with the largest portions of this land type found around the City of Cheboygan, Inverness and Benton Townships. Typical grass species are quackgrass, Kentucky bluegrass, upland and lowland sedges, reed canary grass and clovers. Typical shrub species include blackberry and raspberry briars, dogwood, willow, sumac and tag alder.

***Upland Forests***

Upland forests make up 237,074 acres or 46.5 percent of the county's surface area. The following species predominate areas classified as upland forests: sugar and red maple, elm, beech, yellow birch, cherry, basswood, white ash, all aspen types, white, red, jack and scotch pines and any managed Christmas tree plantations. Other upland conifers include white or black spruce, balsam fir, and douglas fir along with areas covered by larch and hemlock.

***Lowland Forests***

The county's land use inventory shows that 87,999 acres or 17.3 percent of the county's surface area consists of lowland forests. Lowland forests are defined as those containing ash, elm and soft maple along with cottonwood and balm-of-Gilead. Lowland conifers such as cedar, tamarack, black and white spruce, and balsam fir stands are also included.

The upland and lowland forests combine to encompass 325,073 acres or 63.8 percent of the county's total surface area. Forests, therefore, constitute Cheboygan County's largest single land use category. Of the total forests, 72.9 percent are upland forests, while 27.1 percent are lowland forests.

***Wetlands***

As can be noted from **Table 4-1**, 26,312 acres or 5.2 percent of the County's land area was identified as nonforested wetlands. Wetlands are those areas between terrestrial and aquatic systems where the water table is at, near, or above the land surface for a significant part of most years. The hydrologic

regime is such that it permits the formation of hydric soils or it supports the growth of hydrophytic vegetation. Examples of wetlands include marshes, mudflats, wooded swamps and floating vegetation situated on the shallow margins of bays, lakes, rivers, ponds, and streams. These wetland categories include shrub wetlands, fresh-water marshes, wet meadows, open bogs, emergent wetlands and aquatic bed wetlands.

In some situations, lands classified as lowland forests are treated as wetlands. Combining the land use types of wetlands and lowland forests for Cheboygan County reveals that 114,311 or 22.4 percent of the surface area could be considered to be wetland types. **(See Figure 2-6)**

It is important to note that existing land use statistics used in this report are based on Michigan Resource Information System (MIRIS) data. Forested and wetland information contained in the MIRIS data was not verified by field inspection when the data was compiled. Thus, areas shown as wetlands on the MIRIS system may not actually meet State and Federal criteria for legally regulated wetlands. However, the information is still valuable for general land use planning decisions.

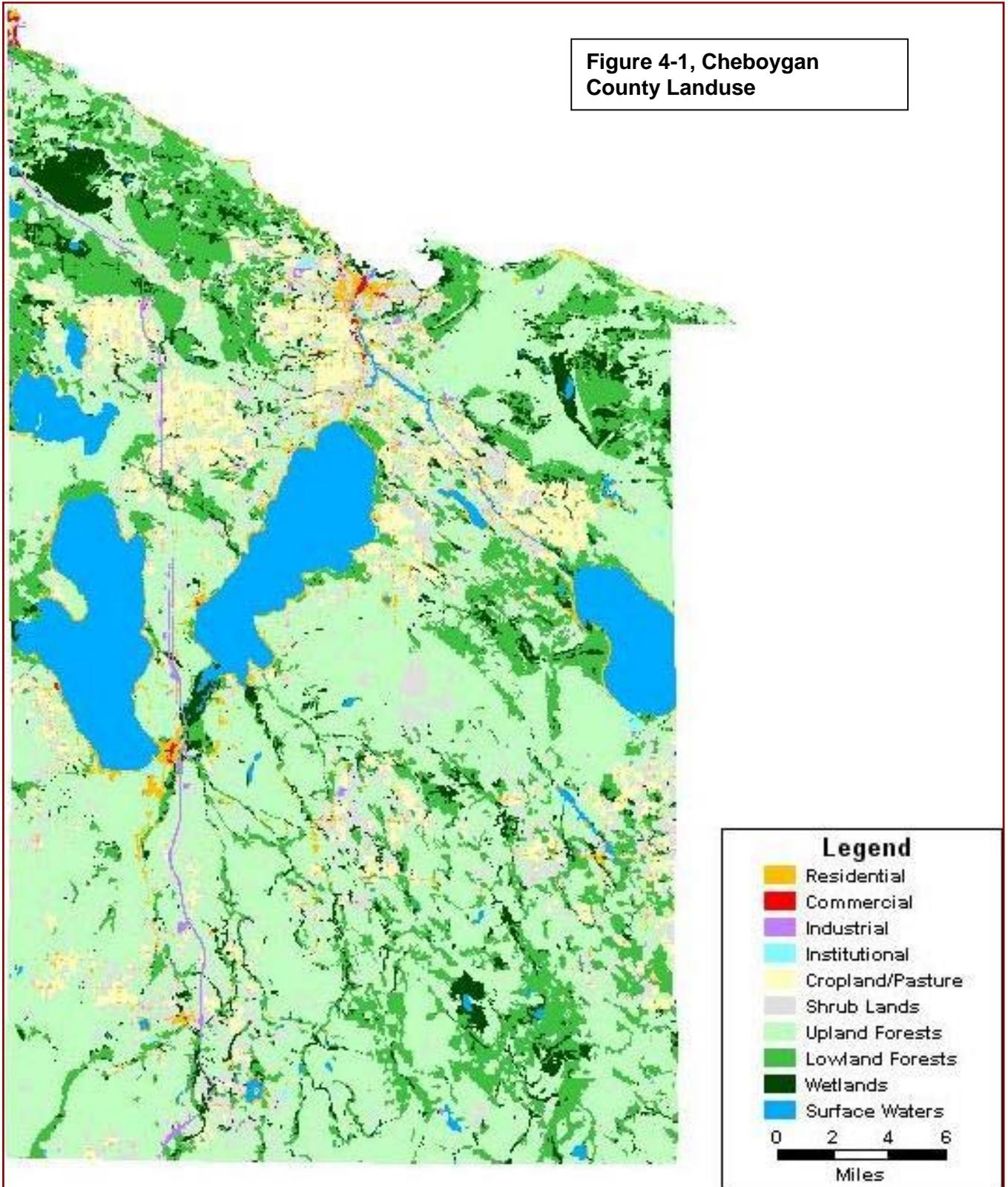
### ***Beaches***

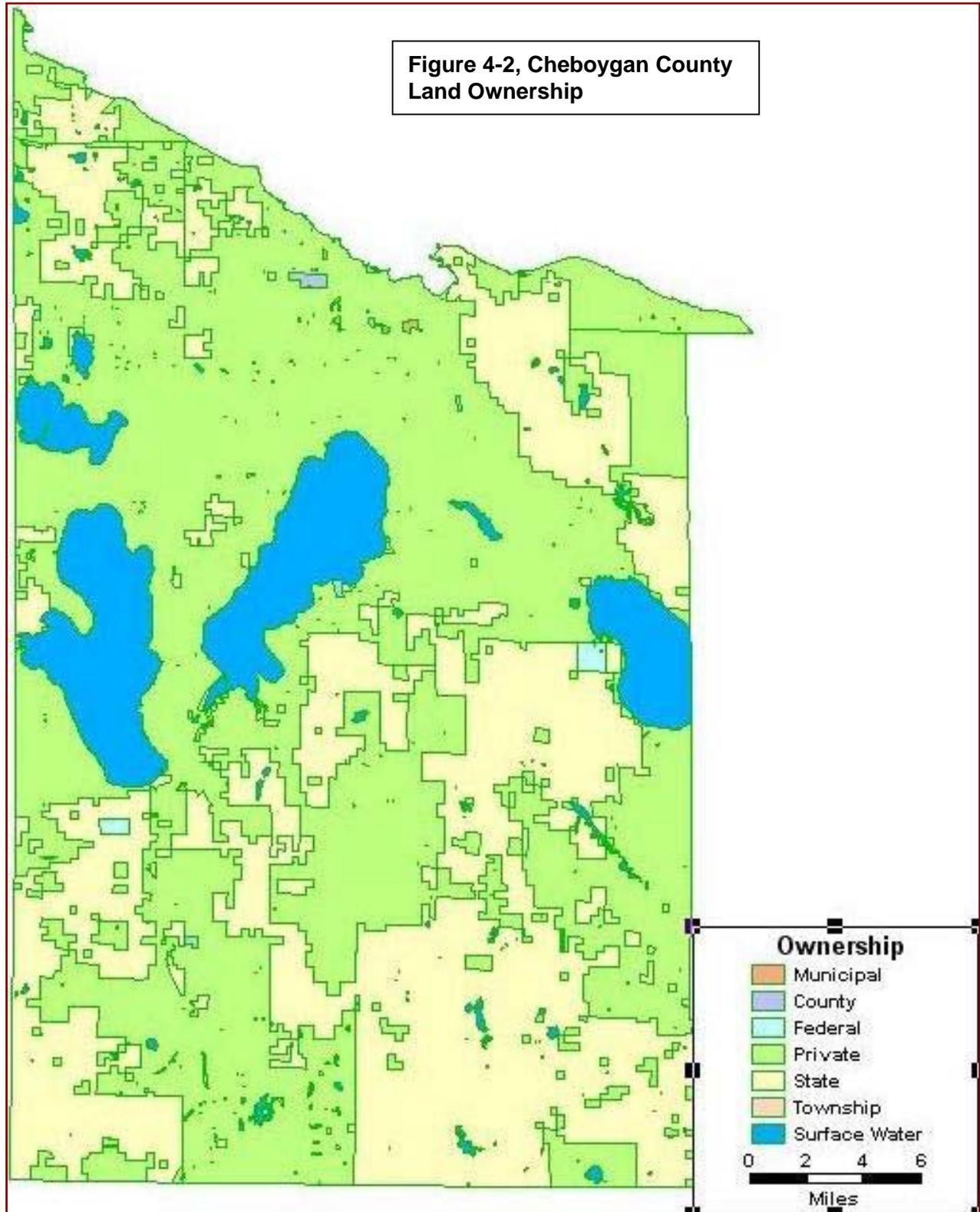
Only 77 acres or 0.02 percent of the county's surface area is classified as beaches. Beaches include all sloping accumulations of exposed sand and gravel along shorelines and sand dunes.

### ***Surface Water***

Cheboygan County is home to four major inland lakes - Burt, Mullett, Black and Douglas Lakes. These are linked together and to two Great Lakes by a series of major rivers. In fact, surface water makes up nearly 10 percent of the county's land use types (49,937 acres) and is the county's third largest land use category. **(See Figure 2-5)** The combination of wetlands types (including lowland forests) and surface water makes up nearly one third of the county's surface area. Therefore, protecting the county's water and wetland resources should be a major priority in land use planning.

Figure 4-1, Cheboygan County Landuse





## Planning and Zoning

Planning and Zoning are the principal tools that local communities have to manage growth, preserve community character, protect property values and enhance the economic viability of the area. Planning helps establish and focus the desired future of the community. Zoning ordinances are used as one of the primary ways to implement the community master plan and achieve the goals of the community.

The responsibility of planning in Cheboygan County is delegated to the County Planning Commission. In July of 1969, the Cheboygan County Planning Commission was formed. The creation of the County Planning Commission is authorized by the State of Michigan under Act 285 of the Public Acts of 1931 and its amendments under Act 282 of the Public Acts of 1945. In 2000, the County Planning Commission approved the Cheboygan County Master Plan.

This Plan's updated recommendations apply to all of Cheboygan County except Burt Township, the Village of Mackinaw City, the Village of Wolverine and the City of Cheboygan. While these municipalities are within Cheboygan County's boundary, each maintains its own planning and zoning authority under their respective State of Michigan Public Acts. The county cannot plan for incorporated areas (such as a city), unless those areas act to adopt the Plan. Also, the county has the authority to plan for its townships, unless such townships act on their own behalf (i.e. Burt Township).

## Hazardous Land uses and Areas

The Cheboygan County Hazard Map (**Figure 4-3**) identifies areas and land uses that may have an increased hazard potential. Hazards shown on the map are oil and gas wells, high-risk forest areas, main transportation routes, critical facilities and infrastructure, contaminated sites and dams and wetland areas. Residential areas were also included on the map to identify vulnerable people and property.

### *Oil and Gas Wells*

As of January 2003, 89 oil and gas wells have been drilled in Cheboygan County. Oil is currently being extracted from 7 of the wells. There is one brine disposal well and the remainder of the wells are dry holes that are plugged or in the process of being plugged. The majority of the wells are located in the southeast corner of the county. The largest number of wells is located in Nunda Township.

### *High Risk Fire Areas*

Areas with increased wildfire risk were mapped used 1978 MIRIS land cover data. Highly flammable fuel sources such as stands of Jack Pine, Red Pine and Red Oak were identified and shown in yellow on the Hazard Map. The largest concentrations of high-risk areas are located in the south half of the county in Tuscarora, Koehler, Waverly, Mentor, Ellis, Walker, Wilmot and Nunda Townships. Other smaller areas of high fire risk can also be found scattered throughout the county.

### *Dams*

There are fifteen dams located in Cheboygan County. Seven of the dams (Alverno, Cornwall Creek, Wildwood Lake and Little Black Structures A, B, C and D) are rated as a high hazard and two dams (Millcreek Dam and the Cheboygan Dam) are rated as significant hazard. The Cheboygan Dam, Tower Dam, Alverno Dam and the Kleber Dam are regulated by the Federal Energy Regulatory Commission and the remainder of the dams are regulated by the Michigan Department of Environmental Quality.

### *Contamination Sites*

Sites that contain hazardous waste, sites of environmental contamination and oil and gas contamination are located on the hazard map. Some of the data shown was more than 10 years old at the time the map was prepared and should not be considered as a definitive source on all the contamination sites in the county but can be used as a guide to identify areas that may need further investigation.

**Flood Prone Areas**

Soils that have been identified as having a high frequency of flooding are shown on the map. These areas have soils that are conducive to flooding and have a 50% chance of flooding in any given year.

**Transportation**

Cheboygan County is bisected by Interstate 75 that is the primary north-south transportation route through the state. Michigan Department of Transportation 2001 Annual Average 24 hour traffic for I-75 in Cheboygan County ranges 7,200 vehicles near Indian River to 10,300 vehicles near Mackinaw City. Other major transportation routes through the County are US 23, M-27, M-33 and M-68. Cheboygan County airport is located in Beagrand Township and 3 private airports are located near Indian River, Topinabee and Black Mountain. The mouth of the Cheboygan River is a deep water port and numerous passenger ferries and freighters travel the Straits of Mackinac each day during the shipping season.

**Figure 4-3, Cheboygan County Hazard Map Legend**



