



CHAPTER II EXISTING CONDITIONS

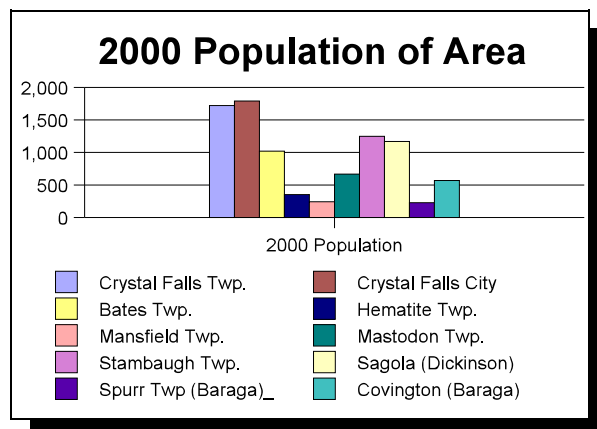
This chapter reviews the current conditions in Crystal Falls Township including demographic, economic, land use patterns and natural features. It also examines the trends in those areas so that future opportunities and limits can be analyzed.

DEMOGRAPHICS

Demographics data describes the character of the population. The data for Crystal Falls Township and surrounding communities are shown in the following charts. Comparison is made with adjacent townships, nearby cities, the county, and the State of Michigan to underline the distinctive characteristics of Crystal Falls Township.

POPULATION

This chart shows the general population characteristics for the year 2000. Crystal Falls Township is a large component of the population in the area. In fact, Crystal Falls Township is 13% of the total Iron County population of 13,138 in 2000. The only larger areas are the City of Crystal Falls (by 69 residents) and the nearby Iron River population of 1,929. The township, however, is smaller than the 5,930 residents of Breitung Township in Dickinson County, immediately north of the City of Iron Mountain, 30 miles southeast from Crystal Falls Township.



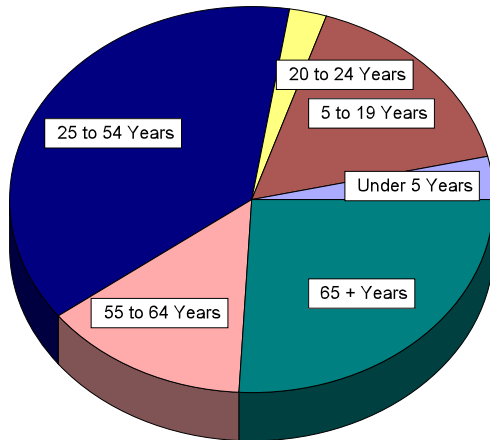
Other data shows that Crystal Falls Township population growth since 1960 exceeded all of the communities listed. Crystal Falls Township grew 19.3% in population compared to 14.2% for Stambaugh and minimal growth or losses in the other communities. Overall Iron County had a population loss from 1960 to 2000.

Race is not shown on any detailed population chart because the area is racially homogeneous with primarily Caucasians. Crystal Falls Township, for example, had only 4 blacks and 3 American Indians in 2000. Generally very few African-Americans, who reside in large urban areas, or American Indians, who were never common in the area, live in or near the township. Crystal Falls Township – in fact all of Iron County – has a strong Norwegian and Swedish ancestry. Finnish ancestry is not shown by the U.S. Census Bureau. Dickinson County to the east has a strong Germanic ancestry and nearly as strong an Italian ancestry.



Crystal Falls Township Age Profile

Percent of Age Group



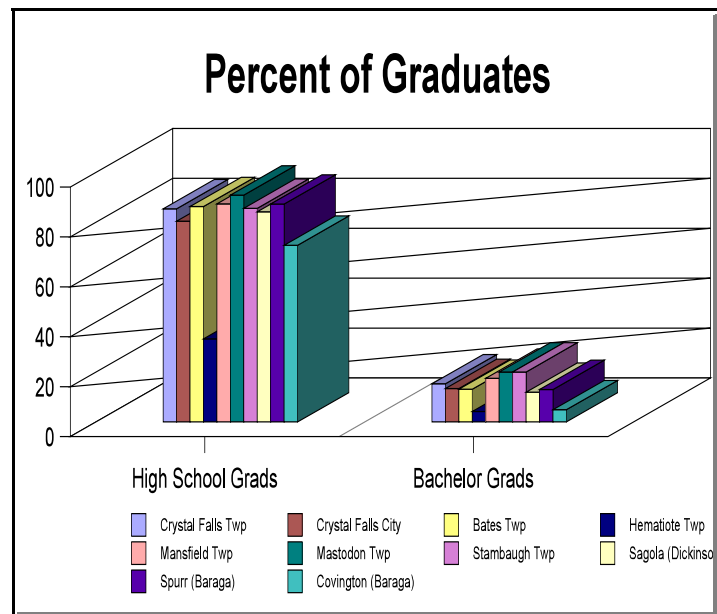
Although not shown here, Crystal Falls Township is close to the median age for area townships, but at 48.4 years it is above Iron County's 45.4 years and well above the Michigan median of 35.5 years. Generally the age reflects the lack of higher education institutions, insufficient jobs for young workers and more retirees in the area. This can be demonstrated by the following profile of the township.

Age is a major predictor of school-age needs, working-age people and senior citizen needs as detailed in the adjacent chart. The average number of people in each age group can be approximated from the data. If that data is adjusted by age group for each year, the percent of children under 5 per year is only

about two-thirds of the other population groups per year. That data also shows the ages from 20 to 34 show the largest population decline, probably caused by people moving out, which may explain the smaller percentage of preschool children.

On a percentage basis and compared with the State of Michigan, Crystal Falls Township has a very significant number of people over age 65. This is consistent with anecdotal information from the planning commissioners that people retire and then move back to the Upper Peninsula after a career of working downstate or out-of-state.

The percent of college graduates in Crystal Falls Township is similar to out-state averages and even exceeds the Iron County percentage. Several other area townships such as Mastodon and Stambaugh, however, have a higher percentage of college graduates than Crystal Falls Township. Generally it can be seen that residents of the township have an education level consistent with most of its neighboring townships.

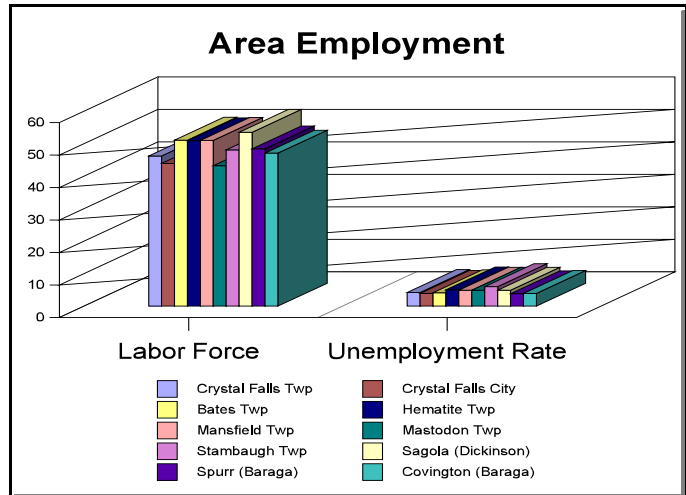


Commuting time is shown in minutes for the average commute. At 21 minutes Crystal Falls Township is



about average for the area and even lower than the state time of 24.1 minutes. There is no surprise except for the longer commuting time for Mastodon, Spurr and Covington Township residents. Although close to Crystal Falls, Mastadon has no large employers in the township and both Spurr and Covington are rural areas without significant employers.

The commute time is primarily because of the large distances residents travel to work destinations rather than slow traffic as with much of Michigan.



Employment and unemployment are relatively typical of other townships and the county. However, the total employed in the state is significantly higher as a percentage of the population. This appears to be true because of more married women in the labor force downstate. This tends to be verified by an extra family worker contributing to the median household and family incomes in the state. There may also be fewer employment opportunities for women in the area and thus keeps them out of the labor force. Unemployment is close for the various communities, but is somewhat higher in the townships with more college graduates. There is insufficient information to explain why this is the case.

HOUSING

The characteristics of housing, like demographics, are a gauge of where the township is at a point in time rather than defining the alternatives as to where it can go. But we cannot effectively change – if the community chooses to do so – until we know where we are now. The chart on the next page outlines the current status of housing in Crystal Falls Township and compares it to surrounding communities, Iron County and the State.

The table details the type of occupancy for structures in all communities surrounding Crystal Falls Township. The most significant finding is that basically the surrounding communities (except the City of Crystal Falls and four very rural townships) have a similar mix of rural, seasonal and slightly suburban areas. Overall, the occupied housing for owner-occupied is 15% higher than the state average and about 6% higher than Iron County (which includes additional urban areas). Generally nearly 90% of all occupied housing is owner-occupied. Another factor for the high percentage of seasonal housing is the lack of other major employment such as manufacturing and some service industries for township residents.



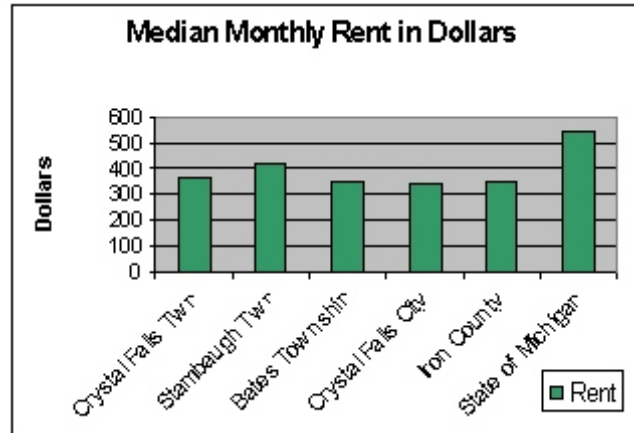
Occupied and Vacant Housing in the Crystal Falls Area

COMMUNITY	TOTAL Housing Units	OCCUPIED				VACANT			
		Owner-Occupied		Renter-Occupied		Seasonal		Other Vacant	
		#	%	#	%	#	%	#	%
<i>Crystal Falls Township</i>	1,207	668	90.6	69	9.4	403	85.7	67	14.3
Bates Township	803	396	90.6	39	9.0	314	85.8	52	14.2
Hematite Township	343	137	84.0	26	16.0	167	92.8	13	7.2
Mastodon Township	689	298	94.9	16	5.1	330	88.0	45	12.0
Stambaugh Township	1,312	477	91.2	46	8.8	682	86.7	105	13.3
Mansfield Township	236	98	94.2	6	5.8	128	97.0	4	3.0
Spurr Twp. (Baraga Co.)	300	96	91.4	9	8.6	190	97.4	5	2.6
Covington Twp. (Baraga)	335	216	90.8	22	9.2	82	84.5	15	15.5
Sagola Twp. (Dickinson)	930	437	92.0	38	8.0	423	95.1	22	4.9
Republic Twp. (Marquette Co)	983	430	87.2	63	12.8	410	83.7	80	16.3
Crystal Falls City	913	624	78.5	171	11.8	32	27.1	86	82.9
Iron County	8,722	4,737	82.4	1,011	17.6	2,377	78.6	647	21.4
State of Michigan (000's)	3,786	2,793	73.8	993	26.2	234	52.1	215	47.9

Even more significant is the seasonal housing. Over 39% of the total housing in the area surrounding Crystal Falls Township is seasonal housing compared to only 5.5% of the housing statewide. Because Iron County has several urban towns, it has only 27% seasonal housing. These dramatic numbers for seasonal housing are, of course, because of lakes and rivers for fishing and water sports, hunting in fall and winter snowmobiling and cross-country-skiing. The woods, water and hills make the upper peninsula a strong draw for summer homes. This housing profile is indicative of tourist income as well. The seasonal income may be fairly good for the tourist season, but the income is not likely to sustain itself at strong levels more than six months a year.



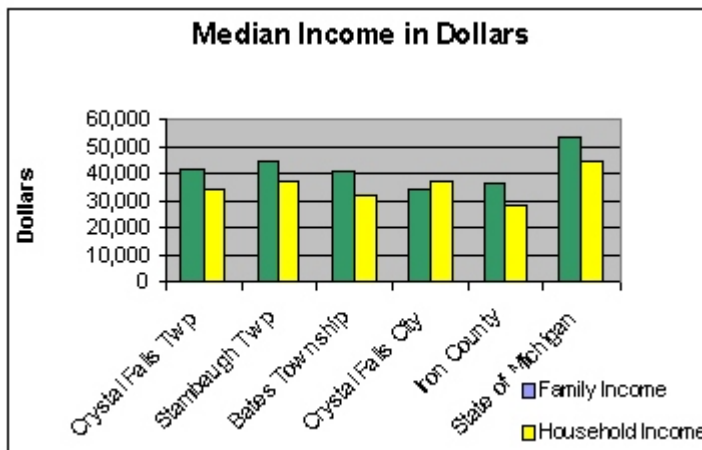
The adjacent chart shows the owner-occupied housing value. As the chart demonstrates, Crystal Falls Township is in the center of the pack for selected surrounding townships. However, the township has only 60% of the median value for owner-occupied housing compared to the State of Michigan. The owner-occupied housing in the Township is over 90% of all occupied housing units.



Although the value for seasonal homes is not reported separately by the census bureau, anecdotal observation indicates that many seasonal housing units have a higher dollar value than year-round occupied structures.

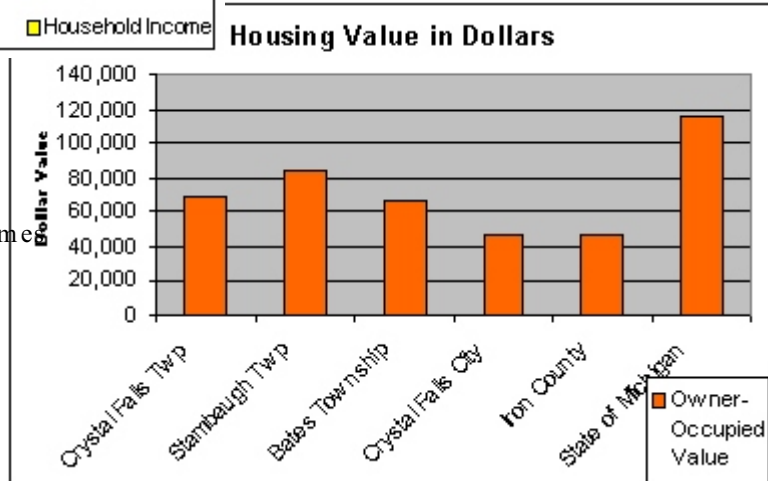
The monthly cost for rent in rental dwellings does not improve the relationships with other communities.

The median rental rate for Crystal Falls Township is only 66% of the State of Michigan median rental rate. Rental housing is also only about 10% of the total occupied housing units in the township. Thus current market rates make it unattractive to develop new rental units. In addition the existing seasonal homes may become attractive as permanent dwellings if the housing market improves with the economy.



Income

The median Family and Household Income for Crystal Falls Township, surrounding areas, Iron County and the state are shown on the adjacent chart. Family income is for traditional families of parents usually with children. Households include the families, single residents and unrelated people living together. The incomes



further demonstrate conclusions shown by population and housing statistics: this area of the Upper



Peninsula is significantly less prosperous than the state-wide level. For example, the Township is about 76% of the state median family income. Crystal Falls Township is, though, comparable to the median family and household incomes for other selected townships in Iron County.

Poverty is shown on the chart to the right. In this case Crystal Falls Township has a relatively low rate of individuals in poverty. In fact, nearly all the other townships in the area

have a significantly higher poverty rate, except Stambaugh. As the previous charts show the community is one of the most prosperous in Iron County – probably because it is suburban to three municipalities (Iron River, Caspian and Gaastra). Mansfield Township, just east of Crystal Falls, is not shown in most data, because its smaller population is even more prosperous and that small community would skew the comparison.

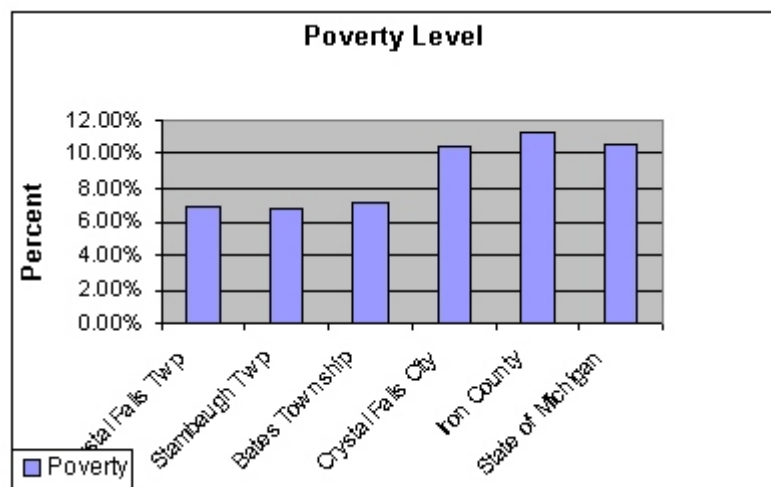
Unlike the other income indices, the poverty level of Michigan is higher than Crystal Falls Township and its surrounding townships – primarily because of its rural nature. That relationship is likely to change very slowly during the next several decades.

ECONOMIC PROFILE

Several significant businesses in the Crystal Falls Township have strong national reputations, such as Conner Sports Flooring and Magiglide Inc. (commercial closet doors). Other strong employers in the township are the Iron County Medical Care Facility and Victoria Heights assisted living, Great Lakes Gas Transmission and the State of Michigan Departments of Transportation and Natural Resources.

The Michigan Department of Labor reported that Iron County overall had only a 4.1% unemployment rate for September 2002. During the same period the United States rate was 4.8%, the Michigan rate was 5.3% and the total Upper Peninsula rate was 5.6%. Thus, Crystal Falls Township, which is 13% of total county population, is part of a low labor market unemployment rate.

The present economic status of residents of the county is shown by employment on a chart on the following page. The chart shows the types of employment positions held by the residents of the township according to the year 2000 census by the U.S. Census Bureau. This





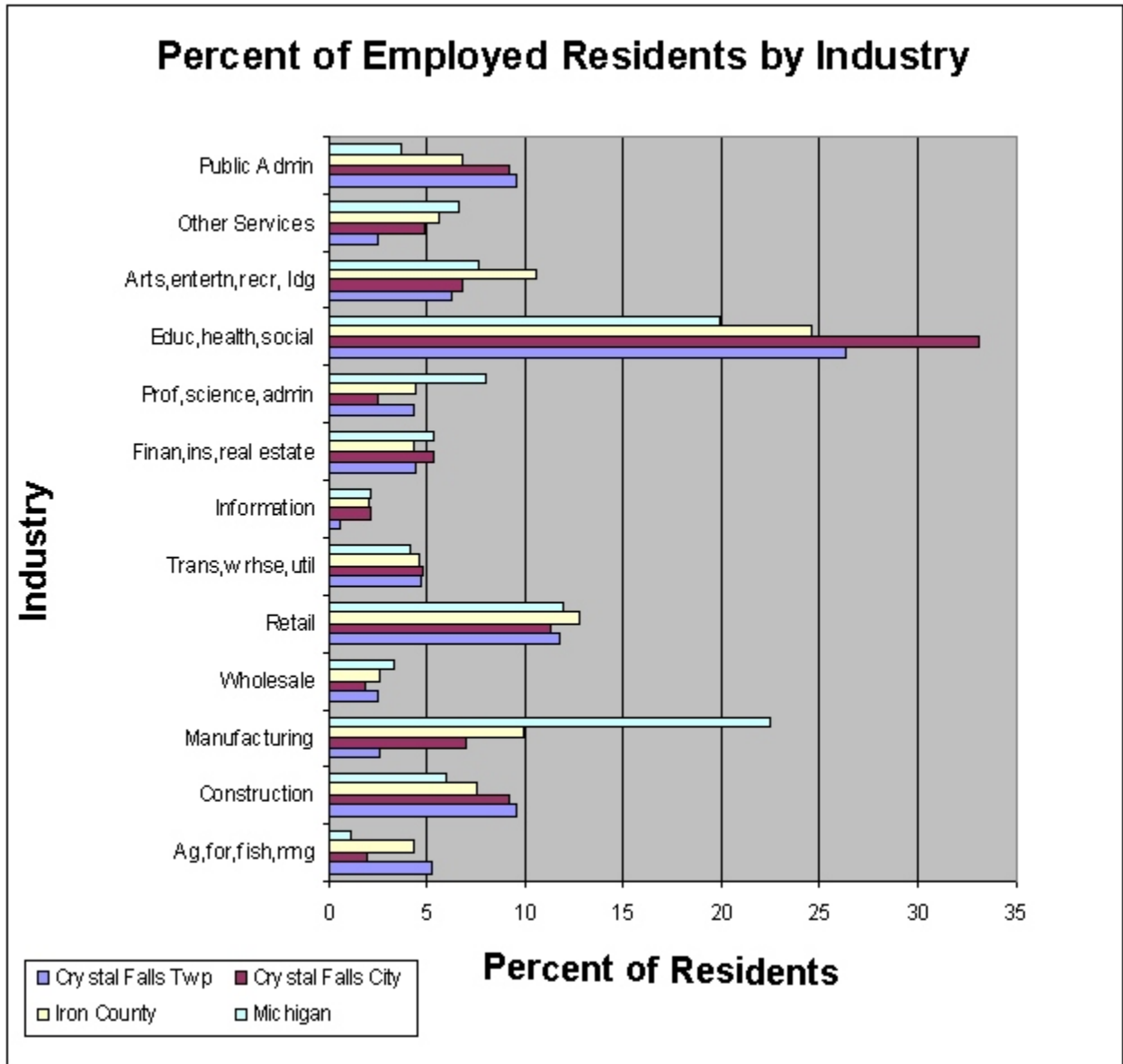
demonstrates potential gaps in employment that may warrant consideration for future economic growth.

The chart does show that both Crystal Falls City and Township residents are dramatically employed in the sectors of Education, Health & Social Services. The Iron County Medical Care Facility and the Forest Park School District in Crystal Falls Township and City probably explain the high levels of employment residents in that education and health sector.

A disproportionate share of residents of Crystal Falls Township and Crystal Falls City are employed in Public Administration – probably because the City is also the County Seat. The Township also has district facilities of the Michigan Departments of Natural Resources and Transportation.

The residents of the Township are also notably employed in Agriculture, Forestry, Fishing & Mining. Most likely forestry is the precise sector that employs most of these residents. The Township and City residents are also strongly employed in the Construction sector.

There are sectors where Township residents are not employed as significantly. Several other communities – notably Iron River and Caspian – have a higher percentage of employees in Arts, Entertainment, Recreation, Accommodation and Food. Other Services and Information are also low employers of Crystal Falls Township residents. The percent of residents working in Manufacturing are much less significant in Iron County than the State of Michigan. However, Crystal Falls Township has an even smaller percent of employees in that sector.



These areas may be considered deficiencies in the percent of Township employees but are not necessarily areas of opportunities. The City of Crystal Falls more nearly approximates the State level in many of these sectors, In addition, there are four cities and a Village in Iron County and are within sixteen miles of one another, these municipalities become a single labor market area. This shows as Iron County has a better overall approximation with statewide employment of residents than does any particular community in the county.

Considering that Crystal Falls Township is far north of the economic mainstream and its primary link is a small passenger airport over 30 miles south east, it has to look for a different set of advantages to



promote economic growth. These will be discussed later with implementation of the Master Plan.

CURRENT LAND USE

Current land use is shown on the fold-out map. This map is not precise because of the limitations of source data, which is 1998 aerial photography, 2000 census data, MIRS satellite data and 2002 field-checking of unusual uses or concentration of uses by the consultant. The goal is to understand the general pattern of uses and their interrelationships as rather than have absolute accuracy. It also presents the natural topography, the general type of vegetation and water features.

Understanding existing land use is an essential element in developing the Master Plan. The land uses on the adjacent Existing Land Use Maps depict the following distribution of land use.

2002 LAND USES		
	<u>Acres</u>	<u>Percent of Township Land</u>
Single Family/Duplex/Seasonal	1,912.93	1.25
Mobile Home/Manufactured Home Park.		
Commercial	83.71	0.05
Industrial	227.19	0.15
Public/Quasi-Public	113.61	0.07
Transportation/Utilities/Waste Disposal	70.77	0.05
SUB-TOTAL DEVELOPED LAND	2,408.22	1.57
Agricultural	3,225.45	2.11
Coniferous Forest	22,620.11	14.77
Deciduous Forest	102,217.96	65.75
Wetlands	13,241.78	8.65
Open Fields/Fallow Land	5,003.15	3.27
Lakes	3,655.21	2.38
Water	462.76	0.30
Outdoor Recreation	301.53	0.20
SUB-TOTAL UNDEVELOPED LAND USES	150,727.93	98.44



TOTAL LAND Total Land Area is 239.28 square miles.	153,136.14	100.00%
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Existing Land Use South Half map



Existing Land use North Half



The developed portion of Crystal Falls Township is proportionately very small as it amounts to only 1.56% of the land area leaving 98.44% having limited development or is undeveloped. That is because it is such a huge township; it is nearly 7 times the size of a “normal” 36 square mile township with an area of 239 square miles.

The Copper Country State Forest includes approximately 71 ½ square miles (about 30%) of the township’s land area. Within those boundaries the State of Michigan owns much, but not all, of the land. The balance of the land in the Copper Country State Forest is private land owned by either the lumber companies or individuals.

From the Existing Land Use we can see the following basic conditions:

- **Residential:** Most of the developed land is residential within several miles of the City of Crystal Falls. Some additional development – primarily residential – also extends further out on US-2 and US-141. Seasonal housing dominates the lakes such as Fortune Lakes, Long Lake, Deer Lake, a small portion of Chicagon Lake and other lakes. There are private hunting camps in the forests to the north.
- **Commercial:** Commercial development is limited to the two US highways. The largest commercial strip is on the joint US-2/US-141 highway west of the City of Crystal Falls to Tobin-Alpha Road and US-141. There are a few scattered sites west towards Iron River on US-2. Even though commercial development is relatively modest, by sales volume the Township is the retail center of the Crystal Falls area.
- **Industry:** The most significant industry in Crystal Falls Township is Conner Sports Flooring Company, a world-renowned floor company and Magiglide, Inc., which is a well regarded door company; both located on Industrial Road and old US-141 in a private industrial park. Those roads are also the only all-season county roads in the township. The Great Lakes Natural Gas Company has a large facility for maintenance and offices on Oss Road just north of US-2 on the western side of the township.
- **Recreation:** Public and private recreation land in Crystal Falls Township consists primarily of the Bewabic State Park on US-2 and First Fortune Lake near the township’s eastern border, two campgrounds on public lands (Deer Lake and Glidden Lake), private Chicagon Falls in Copper Country State Forest near Long Lake 3 ½ miles north of US-2 and five public boat-launching sites. The Wisconsin Energy (WE) Company also has several recreation sites on its property fronting on the Michigamme Reservoir. There is a trail on the former railbed crossing the township east-west. Some additional recreation opportunities are available for hiking trails, cross-country skiing and snowmobiling in the Copper Country State Forest.
- **Agriculture:** Because soils are generally unproductive and the growing season is relatively short, there are only a few farms west of the city. Some of the farmlands are currently fallow.



- **Open and Undeveloped Land:** Most open and undeveloped land is north of US-2 in the US-141 corridor. It consists primarily of former farms or former woodlots.
- **Natural Features:** The balance of the township is covered by natural resource areas including deciduous and coniferous forests, wetlands, lakes and ponds, rivers, steep hills and fields. This is by far the largest land use category in Crystal Falls Township.

Except for tree harvesting, developed land use amounts to less than 1.56% of the township. There is no problem of sufficient undeveloped land *per se* but the public road access is very limited to privately-owned parcels in the northern part of the township. This is shown on the attached map.

TRANSPORTATION

The transportation system is shown on the previous Land Use Map of the community. Transportation in Crystal Falls Township can almost be considered as seasonal activity in some limited respects because bicycles, motorcycles and boating are not used in the winter. However, the year-round use of trucks, SUV's and cars is supplemented by use of snowmobiles in winter. The basic transportation system can be summarized with the following transportation modes:

Highways

Both US-2 and US-141 highways serve the Crystal Falls area. They are two-lane highways with US-2 as the east-west connection to Escanaba and Ironwood and US-141 a north-south connection with Menominee and Hancock-Houghton. US-2 and US-141 are combined highways south of the City of Crystal Falls. M-69 is a two-lane, east-west highway traversing east from Crystal Falls for sixty miles to US-2 and US-41. The connection then travels the additional 8 miles east to Escanaba on US-2/41. County Road 639 enters Crystal Falls Township in the extreme southwest terminating at US-2 after about two miles. It connects to County Road 424 on the south. None of these roads are near capacity or have dangerous alignments. There are no other major connecting roads in the township.

Crystal Falls Township has one small network of "Class A" all-season roads maintained by the Iron County Road Commission. That area is north of US-2 and east of current US-141 by Gilbert Lake on Old US-141 and Industrial Road. All of the other roads have seasonal restrictions.

During the winter some of the road rights-of-way are also paralleled by snowmobile trails for routine use. The private logging roads and trails that go to the far north of the township are not routinely maintained for light vehicle use even though they access some private property. Virtually all the housing in that area is accordingly seasonal. Deer Lake Road is an unpaved public road of the Iron County Road Commission that travels furthest north to Deer Lake.

Railroads



There is one surviving, active railroad track in the township. It is operated by the Escanaba & Lake Superior Railroad Co. north of the city to serve the Village of Amasa in Hematite Township. In Crystal Falls Township that rail line is close to the private industrial park near Gilbert Lake but is currently not extended into the industrial park.

Aviation

The Iron County Airport is south of the township in Mastodon Township just off US-2/141. It is a general aviation airport with modest traffic. The nearest passenger airport is southeast in Dickinson County at Kingsford just southeast of Iron Mountain. It is about 30 miles distant on US-2/141.

Transit

Transit needs are met by specialized elderly and handicapped service and are provided by U P Community Service in Iron Mountain and the Crystal Falls Community Center. Intercity bus transportation is provided by Greyhound Bus Lines from Duluth, Minnesota stopping at Iron River.

Trails/Walkways

There are no trails or walkways intended for commuting purpose. The former Chicago and Northwestern railbed east-west through the township is used principally as a trail for snowmobiles in the winter. The recreational trails include those at the Bewabic State Park and various trails in the Copper Country State Forest in the township.

The transportation infrastructure in Crystal Falls Township appears to have sufficient capacity for both the short- and long-term needs. Even with many township residences located near the Crystal Falls City limits, the total market of about 5,000 people can be served by current transportation facilities. There may become a demand for turning lanes, passing lanes or other small improvements to accommodate traffic needs and safety in selected locations, but they will be small improvements and most likely on US-2 and/or US-141. Although not required by current or expected volumes, a road parallel to US-2/141 and behind commercial uses may be desirable west of the City.

COMMUNITY FACILITIES AND UTILITIES

Community Facilities

The Crystal Falls Township has a limited number of community facilities within its boundaries at this time. The major facilities are the following:

- Crystal Falls Township Hall located on the northwest corner of US-2 and US-141/Tobin Alpha



Road. It has offices and a meeting room in the 1930 structure. It is currently being expanded.

- The Iron County Medical Care facility is located on US-2 near Fire Tower Road. The campus includes nursing homes and assisted living for all of Iron County on a total of 40 acres.
- The State of Michigan also has District Offices of the Departments of Natural Resources and Transportation near the US-2 and US-141 intersection.

Parks

Crystal Falls Township does not own or operate any parks in the area. The township still has a variety of parks operated by others which include:

- Bewabic State Park occupies about 325 acres of land First Lake of Fortune Lakes and US-2. It has 144 campsites, a swimming beach, fishing, hiking and boating, including public access.
- The Nature Center Fortune Pond operated by the Department of Natural Resources is located on the west side of New Bristol Road about 1,300 feet north of US-2. It was originally a surface mine at the Briar Hill Creek but now is known for exceptionally clear water surrounded by woods.
- The Iron County Gibson Lake Park is located just off US-141 on Gibson Lake Road. The facility is used by local residents and some tourists.

In addition there is one private campground, five public access slips for boats and trails in the Copper Country State Forest.

Public Utilities

Public utilities in the township are limited to sanitary sewers connected to the City of Crystal Falls system and two areas of water service by the township. The sanitary system is on the near west side adjacent to the City of Crystal Falls. The sanitary sewers also travel west to US-141 and then serve the Iron County Medical Care facility by forcemain approximately a mile southeast of US-141. Sanitary sewer collection is then treated by the City of Crystal Falls in a lagoon system south of the city.

There are two water system service areas operated by the Township of Crystal Falls. The largest service area is the South (or Lind) District west and north of the City and south of the Paint River. The smaller North District is immediately south of Townline Road serving the areas along US-141, near Gibson and Gilbert Lakes and the industrial area for Conner Sports Flooring and Magiglide. It serves north to the Hematite Township boundary. The township also sells water to Hematite Township to serve the Village



of Amasa area..

The public buildings, parks and public utilities are displayed on the adjacent map.

NATURAL RESOURCES AND ENVIRONMENTAL QUALITY

Crystal Falls is exceptionally rich in natural resources. Much of this is based on the geology of the area that resulted in strong and rapid iron mining growth in the Crystal Falls Township area in the late 1800s. As iron mining disintegrated early in the twentieth century, another natural resource – forestry – arose. Wood is used for lumber and especially most recently for paper. Despite the mining and harvesting of lumber, only a small portion of the township land remains cleared for those purposes. The presettlement forests of Maple-Birch, Pines and Spruce-Fir have been replaced by the predominance of Aspen-Birch, Maple-Birch-Hemlock and Spruce-Fir.

General Description of Land

The township is a hilly upland with about 470 feet difference in altitude. It is drained by the Paint River, Deer River and the Michigamme River and Reservoir that flow into the Brule River which joins the Menominee River on the Wisconsin border before it flows into Lake Michigan. Most of it is covered by deciduous and some coniferous forest. Wetlands are also quite prominent as well as lakes. The specific soil associations note the primary use of the land is woodlands. The soil ranges from moderately suited to unsuited for general farming. The major concerns for farming are usually the short growing season, stoniness and water erosion. Farming is a very small activity in Crystal Falls Township.



Utility Map



Topography



Topography is shown on the previous map. Total relief ranges from 1,300 feet elevation to 1,770 feet for a total of 470 feet. Although hills are found throughout the township, the highest areas are clearly in the north. However, the greatest differential between prevailing land height and highest altitude (therefore the highest hills) is in the southwest and south central parts of the township. The City of Crystal Falls has a height difference of about 280 feet elevation and a hill between US-2 and Pentoga Road (County Road 639) has about the same difference in elevation from nearby Lake Chicagon. Crystal Falls Township also has some unique land feature. For example, a glacial esker (sand and gravel ridge) crosses US-2 near Oss Road. It is more prominent south of US-2.

ENVIRONMENTAL LAND QUALITY

Crystal Falls Township does not have serious land pollution according to the Michigan Department of Environmental Quality. There is no Superfund site in the City or Township. There are two Part 201 (state determined) contaminated sites in the township. Both are landfills contaminated with domestic and community waste. They are the city-owned landfill on Hilltop Kelso Road and the township-owned landfill near Bjork Drive. There was also a Paint River Road landfill. Leaking Underground Storage Tanks exist in the City of Crystal Falls at four locations with one near the township at the Iron County Road Commission garage located at 712 Urban Avenue.

There are also tailings from iron mines in the township, but these are natural materials without adverse chemical composition. The township is also concerned about Freon, anti-freeze, oil, gasoline and other pollutants in several hundred cars stored haphazardly by one property-owner in Section 23, T43N R33W. Unfortunately, the Michigan Department of Environmental Quality does not have authority for this problem. Overall land pollution in Crystal Falls Township is not serious and does not warrant any special accommodation in this master plan.

Land safety is an issue near the major pipelines and mines. A major natural gas pipeline recently ruptured causing major land dislocation. Similarly, several underground drifts in iron mines have already collapsed causing rapid subsidence of the surface land. Fortunately both of these incidents happened away from populated areas and caused no significant problems to other private owners. Unfortunately, mine data on drift location is not readily or inexpensively available. From a planning perspective, then, the Township of Crystal Falls will have zoning that restricts land development near the pipelines or near suspected drifts. It is important to maintain a safe distance from underground pipes and to test for possible underground drifts where suspected.

WETLANDS

Wetlands are fairly common in the low elevations and along watercourses in the township, according to the US Geological Survey. They are especially significant in several large wetlands in Crystal Falls Township northeast and east of the city and south of the Michigamme Reservoir. Another large wetland exists east and southeast of Amasa and partly in the township. Wetlands are found in forests, open lands and shallow water. But because of the heavy forestation in Crystal Falls Township, the wetlands are primarily in forested areas. Certain wetlands are subject to regulation and protection by the Department of Environmental Quality only if the wetlands are contiguous to or connected to a body of water.



WATER FEATURES AND QUALITY

Water is plentiful in Crystal Falls Township. One major watercourse is the Paint River in the south central portion of the township and going through the City. A dam in the City is used to generate electricity by the City at the former site of Crystal Falls. The Paint River eventually joins the Brule River south of the Township just before it joins with the Michigamme River to form the Menominee River. The west part of the township is drained by the Hemlock River, which flows south to join the Paint River near Bates-Amasa Road. Central Crystal Falls Township is drained by the Deer River and eventually flows into the Michigamme Reservoir, Michigamme River and Menominee River into Lake Michigan. In the east, the Fence River drains the northeast part of the township until it too empties into the Michigamme Reservoir.

Despite the name, there is no falls known as Crystal Falls in the area. Crystal Falls used to be located where a power dam was built across the Paint River in the northern part of the City of Crystal Falls. Only one cited falls now exists in the Township; that is known as the Long Lake (or Chicagon) Falls on the Chicagon Creek (Slough) before it joins the Paint River. It is about seven miles northwest of the City of Crystal Falls on private land. There are half a dozen prominent waterfalls near the township on the Michigamme River, Paint River and Margeson Creek before it flows into the Michigamme Reservoir.



Lakes are also common in the township. Small parts of the huge Michigamme Reservoir (owned by the Wisconsin Electric Power Company) and Lake Chicagon are on opposite sides of the township. In addition, numerous other lakes are found including the Fortune Lakes (First & Second), Runkle Lake, Deer Lake, Swan Lake, Sunset Lake, Long Lake, Fire Lake, Gilbert Lake, Gibson Lake, Bone Lake and Shank Lake. The water features and water quality are shown on the Natural Environment map.

Water quality is important to seasonal vacation destinations such as the township. Crystal Falls Township has five water bodies on the non-attainment list for water quality as maintained by the Michigan Department of Environmental Quality. Water contamination is not expected to be common because there are few point sources or even non-point sources that affect water quality in the township. Deposition of mercury from atmosphere through rain is a factor but such air emissions can come from a variety of countries, making control very difficult. The current non-attainment areas listed by the DEQ are summarized below:

- *Paint River* – Combined Sewer Overflows (CSO's) and pathogens are a major problem.



The City of Crystal Falls is the largest source of CSO's and along with the hydroelectric impoundment likely increases the number of pathogens. The State of Michigan is requiring plans to eliminate CSO's over the next five years.

- *Michigamme Reservoir* – Only the far western portion of the reservoir is in the township along with a short section of the river. The Reservoir is polluted with mercury and has a Fish Contaminated Advisory because of the mercury. Impoundments such as the Michigamme Reservoir are particularly vulnerable to high mercury levels.
- *Chicagon Lake* – The northernmost tip of Lake Chicagon extends into the southwest corner of Crystal Falls Township. This well-known lake with a Native American site is a mercury lake but does allow full body contact as do most lakes with mercury contamination.
- *Second Lake of the Fortune Lakes* – This beautiful lake is also near the southwest corner of the township. It is also a mercury lake without limitations on body contact.
- *Runkle Lake* – Runkle Lake is partly in the City and partly in the township on the east side north of M-69. This lake is also designated a mercury lake with limitations on human consumption.

Mercury contamination of surface water is a common problem in Michigan and the nation. A minor increase results from mining and some air deposition of mercury from coal-fired electrical generating plants – especially in foreign countries. Still, much of the mercury in water is natural. The State of Michigan Department of Health does have appropriate fish advisories listed in a public brochure.



Natural Environment



AIR QUALITY

There are no significant air emissions emanating from major sources in Crystal Falls Township or even from the general area. The nearest air monitor is at Seney in the middle of the Upper Peninsula. Monitoring at that site shows the air quality is good. All of Michigan is considered non-attainment for ozone but any ozone in the Upper Peninsula probably originates out-of-state. Localized problems do exist, particularly in the winter, because of the growing use of wood-burning furnaces. The township is considering changes in their zoning ordinance to help deal with the negative impacts of wood-burning furnaces to adjacent properties.

PLANTS AND ANIMALS

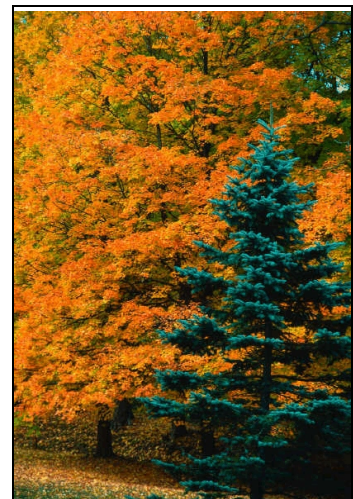
This summary of plants and animals in Crystal Falls Township is limited to significant types of plants and animals as well as the Threatened and Endangered Species listed by the DEQ and selected species listed by the State of Michigan. Smaller biota such as algal clumps, many plants, insects, reptiles and others are not included among the common species even though they may be prevalent. The intent is not to be comprehensive in plants and animals but rather demonstrate the varieties.

Botanical Species

The township is replete with plants and especially forests. Before European presence, the forests that blanketed the Crystal Falls Township area were predominantly coniferous trees of fir, spruce, pine and cedar. Regrowth has been primarily deciduous trees such as Aspen, although there are some areas of coniferous forests and individual coniferous trees.

The plants identified here are only a few of the more common species from the U.S. Department of Agriculture. Even the common species are not detailed. For example “maple” trees are identified but there are many different kinds of “maple” trees.

The area is significantly logged and owned by paper mills, which utilize the fast growth and character of aspen trees for producing paper. Consequently, replanting by those commercial operations is primarily in aspen and other lighter, deciduous trees. Tree regrowth and logging is a form of agriculture, but it also creates a habitat for a variety of animal life during its regrowth. Consequently those deciduous trees are likely to remain the most common varieties.



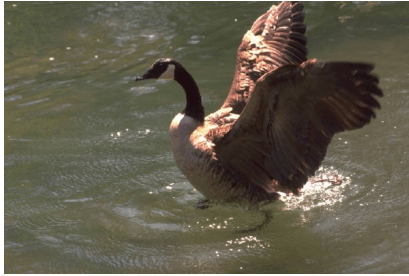


HABITATS FROM BOTANICAL SPECIES			
<u>Grain & Seed Crops</u>	<u>Grasses & Legumes</u>	<u>Wild Herbaceous Plants</u>	
buckwheat	orchardgrass	bunchberry dogwood	
corn	timothy	goldenrod	
wheat, oats and rye	bromegrass	wild cicely	
sorghum	clover	lambsquarters	
millet	alfalfa	dandelion	
canola			
<u>Hardwood Trees & Woody Understory</u>	<u>Coniferous Plants</u>	<u>Wetland Plants No Submerged/Floating</u>	<u>Shallow Water Areas (Less than 5 feet deep)</u>
oak	pine	swamp milkweed	marshes
aspen	spruce	spotted joepyeweed	waterfowl feeding areas
cherry	fir	wild rice	ponds
maple	cedar	marshmarigold	
apple	juniper	rushes	
hawthorn		sedges	
dogwood		reeds	
raspberry			
blackberry			
blueberry			
Fruit Producing			
Russian-olive			
autumn-olive			
crabapple			
Source: Soil Survey of Iron County, Michigan , US Department of Agriculture, 1993 Great Lakes Nature Guide , Michigan United Conservation Clubs, 1990			

Diversity of plant life in Crystal Falls Township, though, is limited by the shorter growing season and the winter cold and snow. These same conditions result in a smaller amount of understory growth in the forests. The previous chart identified the general types of plant environments and plants existing in Iron County and probably in various parts of the township. This shows only selected plant life and does not include the numerous small plants and very common species. It also includes a limited selection of the aquatic plants.



Zoological Species



The remoteness of northern parts of Crystal Falls Township allowed larger animals to prosper in the area. Even after European settlement these animals included black bear, moose and timber wolf throughout Iron County. Since the European settlements the habitats are more diverse and some these species are not as common in the area because they tend to be reclusive and avoid noisy, busy



human habitation. The smaller mammals are more likely to be near or in the developed portions of the township. Nocturnal animals probably have a range that comes closer to developed areas at night. Animals are categorized according to the type of habitat where they are most likely to be found. Obviously, the woodland wildlife tend to be predominate in Crystal Falls Township although there are significant areas of wetland wildlife as well.



The only exception are fishes because they are found in lakes or rivers throughout the township regardless of the surrounding vegetation. The major impediments to fish are the waterfalls and dams that prevent or limit upstream migration.



WILDLIFE IN IRON COUNTY		
Openland Wildlife <u>(cropland, pasture, meadows)</u>	Woodland Wildlife <u>(deciduous, coniferous & related)</u>	Wetland Wildlife <u>(open water, marshy, swamps)</u>
MAMMALS		
cottontail rabbit	whitetail deer	muskrat
snowshoe hare	black bear	mink
red fox	bobcat	beaver
	raccoon	otter
	porcupine	
	skunks	
	squirrels	
BIRDS		
sharp-tailed grouse	bald eagle	ducks
kestrel	osprey	geese
meadowlark	wild turkey	herons
field sparrow	ruffed grouse	shore birds
	woodcock	
	thrushes	
	woodpeckers	
		OPEN-WATER FISH
		Perch
		Bluegills
		Sunfish
		Small-mouth bass
		Large-mouth bass
		Northern pike
		Muskellunge
		Walleye
 Sources: Soil Survey of Iron County, Michigan, US Department of Agriculture, 1993 Atlas of Michigan, Ed. Lawrence M. Sommers, Michigan State University Press, 1977		

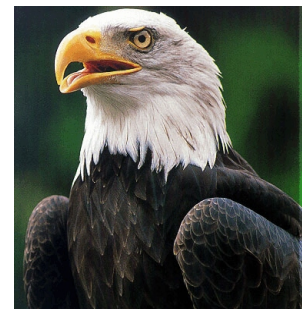
The best ways to protect the existing species is to minimize environmental and natural resource change in the rural areas of the township. In addition, where possible some mitigation in water quality, particularly along the Paint River is appropriate. Fish ladders are also a tool to lengthen fish migration upstream. Primary protection measures should be implemented in the isolated northern areas.



THREATENED AND ENDANGERED SPECIES

Although the township has bountiful vegetation and diversified large animals, it has only two Threatened and Endangered Species listed by the U.S. Fish and Wildlife Service. The two species identified are:

- *Gray Wolf* – The gray wolf is listed as “Endangered” and is found in the Upper Peninsula habitat of northern forest areas. It is probably most prominent in the northern part of the township.
- *Bald Eagle* – This bird is listed as “Threatened” and is found most frequently in mature forests near water. It can likely be found throughout the township where logging or intense activities are not active. Because it is responding to habitat improvements it may soon be delisted.



In addition, other plants and animals are cited by State of Michigan Department of Natural Resources as Threatened, Endangered or Special Concern species. The actual list is maintained with the Extension Service of Michigan State University. The state listed nineteen such species in Michigan. In addition to the federal list, the Threatened species for birds include the common loon and osprey. The only bird of Special Concern is the red-shouldered hawk. A great blue heron rookery for Iron County is also noted and listed without category.

The only other animals are six types of invertebrates of Special Concern.

There are also six types of vascular plants; five of these are of Special Concern and one, the assinioba sedge (a tufted marsh plant having achenes and solid stems) is threatened. Presumably species threatened or endangered in Michigan may be more common in other states. Also listed without category are the middle precambrian earth history, weathering, and the poor conifer swamp

From a planning perspective, all of the plant and animal species are best protected by maintaining the isolation of wooded areas, lakes and rivers in Crystal Falls Township. In addition, these species tend to be shy of human habitats and sprawl should be discouraged. This maintenance of natural habitats is partly accomplished by the regulations of Multiple Use Forest District and the Prime Forestlands District of the current township zoning ordinance.