

INTRODUCTION

An existing land use inventory is a necessary first step in planning for the future of a community. The inventory depicts the existing distribution and location of land uses within the Township. The Existing Land Use Map (see page IV-19) is based upon the interpretation of aerial photographs taken in 1996 and a windshield survey of the Township completed in August 2000.

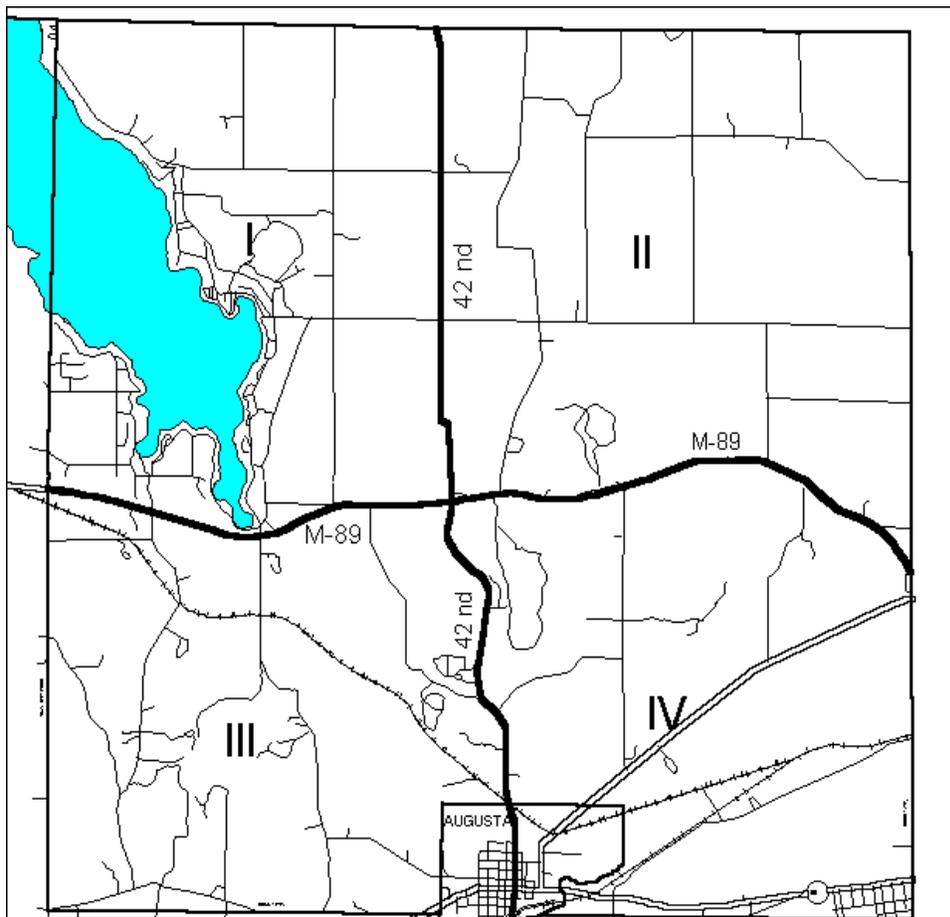
COMMUNITY WINDSHIELD SURVEY

The members of the Ross Township Planning Commission were used as a planning tool, early in the Master Plan update process, to identify and analyze problems associated with finding "missing" parcels not identified on the community's current land use map. The survey also assessed patterns of past, present and future development, and provided a comprehensive overview of the activities occurring within the Township at a point in time.

The survey involved dividing the Township into four quadrants or "sectors" and each surveyor (or survey team) was assigned a sector. Each individual or team covered their assigned sector, and were provided with instructions for identifying and recording land uses.



MAP IV-1 - QUADRANTS



Quadrant 1 – is an area consisting of the Northwestern quarter of Ross Township and was divided into subsections for easier surveying. Gull Lake is located within Quadrant 1, and as a popular residential and recreational destination for the greater Kalamazoo/Battle Creek area, contains a great deal of development. The more predominant land uses in this sector include the Kellogg Biological Station and its holdings (research farm, dairy, and bird sanctuary) and the Gull Lake Bible Conference.

Quadrant 2 – is defined as the area north of M-89 and east of 42nd Street. Stoney Lake and Hamilton Lake are located within Quadrant 2, as is Augusta Creek, which flows east/west and north/south within this study area. Wetlands and wooded land are located throughout this quadrant. Maple Hills Golf Course, Yarrow Lodge, the Cheff Therapeutic Center, and the Battle Creek Hunt Club are large landholders within Quadrant 2, as are farmers with larger agricultural holdings.

Quadrant 3 – is defined as the area south of M-89 and west of 42nd Street. The Village of Augusta was not included in the windshield survey area. Sherman Lake, Graham Lake, Pond Lily Lake and Butterfield Lake are located within this quadrant.

Brook Lodge, the Gull Lake View Golf Course, portions of the Kellogg Forest, and the YMCA Outdoor Center are among the most predominant land uses in this area.

Quadrant 4 – is defined as the area south of M-89 and east of 42nd Street. Wetlands are present in this study area, especially along the Kalamazoo River. A portion of the Fort Custer Military Reservation occupies the Southeastern corner of Quadrant 4. A stretch of Augusta Creek, which continues through the Village of Augusta and into the Kalamazoo River, flows parallel to, and east of, 42nd Street. Stonehedge Golf Course, the Fort Custer Military Reservation, the Ft. Custer National Cemetery, the Fort Custer Recreation Area, and the W.K. Kellogg Forest are major land uses within this quadrant.

LAND USE CLASSIFICATIONS

The following classifications were used in the land use inventory.

Residential - The area in which dwellings with their accessory buildings occupy the major portion of the land. This includes the most dominant housing type, **Single-Family Residential**. Single-Family Residential refers to one detached or attached (duplex) dwelling unit on a single parcel. Most units considered single-family are built on foundations or basements using traditional building methods. However, **Manufactured Housing/Mobile Homes** can also be within this land use classification. Manufactured Housing/Mobile Homes can include Mobile Home Parks, which are a designated area for the placement of mobile homes for occupancy that meet the design and building code requirements of Ross Township.

Commercial - An area where goods are distributed or services are provided. This category includes structures, adjacent land and parking areas dedicated for the use of employees and customers.

Institutional - An area or facility used by a Township, City, County, School District or State agency to meet the needs of the community. This includes city and township offices, schools, and public meeting spaces, public parking lots and other public uses. Institutional also includes land uses often deemed:

Quasi-Public - An area or facility used by a limited number of persons with particular interests and nonprofit organizations, such as churches, day care centers, private schools, private clubs and related activities.

Public Utility - An area or facility not generally accessible to the public but used to provide services to the community, such as water towers, wastewater treatment areas and water pumping stations.

Cemetery - An area used for the burial and memorial of the deceased. Facilities for memorial services may also exist on the site.

Industrial - An area where raw or unfinished materials or commodities are used to produce a product or service. This can also include wholesale business activities.



Agriculture - This category may consist of croplands, permanent pasture or orchards.

Recreation, Golf Course - An area or facility used for recreational activities, including water parks, golf courses and ski areas. This category includes structures, adjacent land and parking areas dedicated for the use of employees and customers.

Wetlands - Areas that are wetlands include marshes, swamps and related land, which are transitional areas between water masses and upland areas.

Lakes - Larger open areas of water that are contained in a depression of the earth's surface and supplied from the drainage of a more or less extended area.

Undeveloped - Areas that are open space/forested land, which can be covered with deciduous and coniferous species of trees or shrubs. This category includes abandoned agricultural fields and flood plains. Lands in this category consist of both suitable and unsuitable areas for development. This category can include **Vacant Land**, and areas that cannot be placed in the other categories noted above. Basically, undeveloped and/or vacant land is land that may or may not be suitable for development, as well as land that is not likely to be developed as it is owned and managed by public and nonprofit institutions, or larger commercial holdings such as the three golf courses in the Township, as well as the Yarrow Executive Conference and Training Center. Portions of MSU's land holdings within Ross Township, including Brook Lodge as well as lands owned by the Cheff Therapeutic Riding Center are placed within this classification due to their restricted development potential.

LAND USE DISTRIBUTION

The following text describes the existing land use distribution in Ross Township. Table IV-1 and the accompanying Ross Township Existing Land Use Map (page IV-19) supplement this text and provide land use distribution data and graphic representation of that distribution.

GENERAL EXISTING LAND USE DESCRIPTION

In 2001 the character of Ross Township's land use is defined by open space, woodlands, agricultural activity, rural country roads, wetlands, valuable water resources, and urbanizing residential development. Undeveloped open space and wooded areas make up 35 percent (7,720 acres) of the Township's existing land use area, with agriculture following at 22.5 percent (4,975 acres), wetlands at 16 percent (3,499 acres), and lakes at 8.0 percent (1,776 acres). Combined, these natural resource areas account for over 80 percent of the Township's geographic area.

TABLE IV-1 - EXISTING LAND USE (YEAR 2001)

Land Use Type	Existing Acreage	% of Total Acreage
Undeveloped (Includes Wooded Area and Open Space under Institutional Ownership)	7,720	35.0
Agriculture	4,975	22.5
Wetlands	3,499	15.9*
Residential	2,545	11.5
Water	1,776	8.0
Recreational (inc. golf courses)	640	2.9
Institutional (developed)	302	1.4
Commercial (Retail-Service)	49	0.2
Industrial	3	0.02
Roads	555	2.5
Total Acreage	22,064	100.0

*Acreage differs from Strategic Water Resource Management Report (1998) due to separate sources of data.

SOURCE: Gove Associates, Inc., 2001



Agricultural

Agricultural land use accounts for 5,139 acres in the Township. Michigan State University currently holds approximately 1,100 acres (21.4 percent) of the existing agricultural farmland in Ross Township. The majority of that farmland, which is used for experimental/research purposes, is located in the western portion of the Township, east of Gull Lake and west of 43rd Street. The remaining 4,039 acres (78.6%) are associated with independent and often smaller farms facilitating crop,



orchard, and/or livestock activities. As noted in the Existing Land Use map, agricultural land use is currently active throughout the Township. However, land north of M-89 in Ross Township is the most dominant area for this activity.

As is common in most rural communities, family farms, particularly those operated as full-time farms, are declining within the Township. Overall, land devoted to active agriculture has steadily decreased over the past several decades, although institutional farmlands, under the ownership and operation of Michigan State University, have “stabilized” this decline. As development pressures increase, the capacity to sustain large areas of agriculture becomes more difficult.



Residential

Residential uses account for 2,767 acres in Ross Township, for an average gross density of 0.7 units per acre (or an average of 1.4 acres for each unit). According to 1990 data, approximately 91 percent of residential housing is single-family. Applying the percentage of 1990 single-family residential units to the total 2001 Township acreage of 2,767, approximately 2,515 acres of Township land would be dedicated to single-family housing. While this is not the most accurate measure of specific existing residential land use, it does provide a reasonable estimate of the probable amount of land being utilized for single-family homesteads.

The Existing Land Use map graphically displays the dispersion of residential land within Ross Township. Heavy concentrations of residential development can be found along the shores and immediate surrounding areas of Gull Lake and Sherman Lake. Additional higher density single-



family development is located east of Stoney Lake, in Section 15. The balance of residential development is located in linear configurations along the major roads in the Township. Such perimeter development, while common in many rural areas, is not considered the most efficient approach to land utilization. While splitting larger parcels into smaller lots along roadways was facilitated by the Subdivision Control Act, which was subsequently amended by the Land Division Act, there are negative impacts that result from these corridor developments. Because lots are developed along County roads, which are in effect perimeter roads surrounding full sections, the interior portions of the sections are typically not used, or if they are actively farmed, the potential for residential/agricultural conflicts is enhanced. That is more likely to occur as the number of houses along the perimeter roadway increases. As perimeter lots develop, the preservation of the rural landscape becomes more difficult, in effect changing the visual character of the Township. In addition, each developed lot requires at least one driveway. As the number of lots and houses increase, so does the number of driveways. Over time, the propensity for vehicular accidents will increase. Alternative, more efficient residential land use patterns will be considered in Section VII.

Wetlands and Water Areas

Wetlands occupy approximately 3,499 acres, or 15.9 percent of the total Ross Township land area. Water areas, including lakes, rivers and streams, account for another 1,809 acres, or 8.2 percent of the Township's total existing land area.

Gull Lake is the largest water area, encompassing 2,050 acres, of which 1,121 acres are within the Township, accounting for 62 percent of the Township's total water area and 5.1 percent of Ross Township as a whole. Gull Lake has a maximum depth of 110 feet with a lake bottom consisting of combinations of sand, gravel, peat, marl, and muck. The perimeter of this lake is essentially developed, with portions developed as relatively high density residential. **Sherman Lake**, located in the southwest quadrant of the Township, is the second largest lake, covering 120 acres with a depth of up to 35 feet. Sherman Lake also contains residential land uses along its western, northern and eastern shorelines. A public access site with a boat ramp, parking and toilets is located on N. Sherman Lake Dr. The YMCA Center is situated on the east shore of the lake. **Stony Lake** is located in the center of the Township immediately adjacent to M-89 and encompasses approximately 60 acres. Stony Lake Hills, a residential subdivision covering about 150 acres, borders Stony Lake on the east. **Duck Lake** and **Wintergreen Lake**, both located in the northwest quadrant of the Township, cover 29 acres and 39 acres, respectively. Both of these lakes are within the Kellogg Biological Station boundaries and surrounded by woodland and cropland. Duck Lake has a maximum depth of 14 feet with an organic soil and sand bottom. Wintergreen Lake does have access to a wildlife viewing area, as part of the

Kellogg Bird Sanctuary visitor's program, and is a natural lake with a man-made dam and has a maximum depth of 21 feet with a bottom consisting of marl, organic soils and sand.



Hamilton Lake is located in sections 1 and 12 in the northeast quadrant of the Township. This lake encompasses 40 acres with no public access and is surrounded by woodland. It has an inlet and outlet on Augusta Creek.

Graham Lake is located in Section 19 and covers approximately 10 acres. An outlet feeds it from Gull Lake to the north and the lake's water flows into the Gull Lake Outlet into **Butterfield Lake**. Butterfield Lake is in sections 19 and 30 and encompasses 27 acres. The lake's water flows into the Gull Lake Outlet, which eventually flows into the Kalamazoo River. Both Butterfield Lake and Graham Lake are in wetland areas and therefore are not likely to be developed. **Douglas Lake**, located in Section 28, covers 9 acres, with Old Mill brook serving as an inlet and outlet for this body of water. **Craven Lake**, west of Douglas Lake, has a surface area of 32 acres in sections 28 and 29. Both Craven Lake and Douglas Lake are surrounded by wetlands. **Mill Pond**, located in Section 31, east of 37th Street and north of G Drive, is a man-made pond covering 29 acres that was created during the logging era within the Gull Lake Outlet. There are some residential parcels along the west side of the lake. **Pond Lily Lake** is in Section 32, covering 20 acres west of 39th Street and bordered by wetlands on the north. **Goslins Lake** is a small body of water in Section 11 covering 1.8 acres, with Augusta Creek serving as the lake's inlet and outlet.

There are 68 small unnamed lakes within the Township, ranging in size from 0.1 acre to 15 acres. All, except for two which are man-made, are natural lakes or ponds, with many surrounded by wetlands.

The **Kalamazoo River** runs through the southeast quadrant of the Township for a distance of about three and a half miles. Because of the substantial amount of wetlands on both sides of the river, most of its shoreline is undeveloped. **Augusta Creek**, with headwaters in Barry County, runs north and south through the middle of the Township, emptying into the Kalamazoo River in the Village of Augusta. The creek also runs east-west through Hamilton Lake in the northeast portion of the Township. Augusta Creek is a major natural asset to the Township, creating a watershed basin of steep slopes and wetlands and contributes to the scenic beauty of the area.

The expanse of wetlands within Ross Township are clearly illustrated on the Existing Land Use map (page IV-19). Wetlands of various sizes can be found within every section of Ross Township (see Existing Land Use Map). Large

Township wetland areas are located along the Kalamazoo River, Augusta Creek, and all Township lakes. The largest concentration of wetlands are in the north central portion of the Township, along both sides of Augusta Creek and around Hamilton Lake, in sections 1, 2, 3, 10, 11, and 12. Much of this area contains forest vegetation conducive to wet soils and standing water.

Other large areas of wetlands include forested areas along both sides of the Kalamazoo River in the southeast section of the Township, the areas around Butterfield and Graham lakes and an area east of Sherman Lake in sections 28 and 29. Land along both sides of Augusta Creek, particularly east of 42nd Street in sections 16, 15 and 27, also contain significant wetlands. The overwhelming majority of wetlands are located in larger parcels of approximately 20 acres or more. Because of these wet areas, these parcels, for the most part, have limited development potential.

Recreational

Existing land uses which are classified as recreational are primarily private, covering 644 acres, or 2.9 percent of the Township, and institutional. The private recreational land uses are predominantly golf courses, consisting of Gull Lake View Golf Club (283 acres in Section 20), Stonehedge Golf Course (164 acres in Section 23), and Maple Hills Golf Course (80 acres in Section 13). Gull Lake View Golf Club contains a West Course and East Course, each with 18 holes and Stonehedge contains two eighteen hole courses, one on each side of M-89. Shady Bend Campground on Augusta Drive, east of the Village of Augusta, is adjacent to the Kalamazoo River. It is the only private, commercial campground in the Township, encompassing approximately eight acres. Midland Park, a swimming and picnic area, is located on the eastern shore of Gull Lake.

While much of the institutional land in the Township is designated primarily for research and education, it is also open to the public for recreation purposes. Additional recreational land uses are associated with the Kellogg Biological Station, MSU's W.K. Kellogg Forest, Michigan State Game Area, the Cheff Center, the Fort Custer State Recreation Area, and the North County Trail. These undeveloped land holdings are described in more detail in page III-2.

Institutional

Areas defined as institutional, which include natural and agricultural areas as well as buildings and structures that are under the ownership and jurisdiction of public



and quasi-public entities, occupy over 4,680 acres (see Table IV-2 and Map IV-1), or almost 20 percent of the Township's geographic area. Those portions of institutional holdings that are actually improved (with administrative, research, conference, and ancillary buildings) encompass a very small portion of the institutional land area

within the Township. These improved portions of Institutional lands are located in Sections 5, 8, 9, 13, 20, 21, 23, 27, 28, 33 and 36 (see Map IV-2). For the most part these institutional properties are tax exempt properties. These are buildings and structures predominantly belonging to Michigan State University, and include the various components of the W.K. Kellogg Biological Station, including the Manor Home, Conference Center and Walter F. Morofsky Library at the intersection of B Avenue and East Gull Lake Drive in Section 6, the Dairy Center west of 40th Street in Section 5, the Kellogg Bird Sanctuary in Section 8, east of East Gull Lake Drive, and the Learning Center in Section 8 west of 40th Street. Michigan State University owns and operates Brook Lodge Hotel and Conference Resort in Section 28 north of Augusta. In addition, the Department of Natural Resources State Game Area encompasses approximately 330 acres east of 42nd St. and north of C Ave.

The W.K. Kellogg Forest contains a visitors building and restrooms, along with a picnic area an interpretive walking trail and numerous foot paths and trails.

The Cheff Therapeutic Center is located on 43rd Street between M-89 and C Avenue. It is a nonprofit organization devoted to providing therapeutic services to the physically disadvantaged through equestrian activities. The center is currently rebuilding its facilities, which includes offices, bathrooms, classrooms, and an indoor arena, totaling 25,000 square feet. The Center has several riding trails within the 307 acres it owns in Sections 15 and 16. The Battle Creek Hunt Club, a

private equestrian club, is located on 43rd Street west of Stony Lake. The club maintains a barn and indoor riding arena and has riding trails within the 82 acres it encompasses.

The Bible Conference is a non-denominational religious retreat and conference center located within the Midland Park plat in Section 8 on the east shore of Gull Lake. The center is used for week-long retreats and conferences during the summer and for organization conferences during other times of the year. The Conference owned property encompasses approximately 30 acres, with another 8.5 acres leased from MSU. There are currently 50 individual single-family residential structures on the grounds, in addition to a conference center, church (tabernacle) and recreation facilities (basketball, tennis, softball, miniature golf, snow tubing, swimming and boating). The Conference is in the process of increasing open space within its holdings, removing older deteriorating single-family structures and replacing them with newer units over time. A number of the newer units are designed to accommodate two families at a time. Except for residences occupied year-round by Conference staff, most residential units are occupied only on a weekly or daily basis. The Conference center contains administrative offices, a dining room and 32 sleeping rooms. The Conference can sleep a maximum of 650 people, including staff.



TABLE IV-2 – PUBLIC/INSTITUTIONAL LANDS IN ROSS TOWNSHIP

Institution	Section Location	Approximate Acres
MSU Kellogg Biological Station	4,5,6,7,8,9	1,419
Ft. Custer Military Reservation, National Cemetery, State Recreation Area	35,36	1,020
W.K. Kellogg Forest	21,22,27,28	716
Brook Lodge	21,28,29	565
Cheff Therapeutic Center	15,16	307
YMCA Outdoor Center	29,32	113
Battle Creek Hunt Club	15	82
Bible Conference	8	40
Kalamazoo County landfill (closed)	27,28	40
Miscellaneous (Township office, cemeteries, park, schools, churches)	8,12,14, 20, 21,31	25
Mich. DNR State Game Area	9,10	330
City of Kalamazoo	30	24
Total		4,681

SOURCE: Gove Associates, Inc.

In addition to the Bible Conference facility, there are three churches within close proximity to Gull Lake and one church on 46th Street north of M-89. Those include St. Anne's Catholic Church on D Avenue, west of 39th Street near the southeast corner of Gull Lake, the Yorkville Community Church at the corner of D Avenue and 37th Street near the southwest corner of Gull Lake, the Gull Lake Bible Church on Midland Drive, within close proximity to, but not associated with, the Bible Conference in Midland Park, and the Day Bible Church on the corner of 46th Street and CD Avenue, near the Maple Hills Golf course in Section 13.

MAP IV-2



Ross Township Hall, Fire Department and Police Department are located in one building on the south side of M-89 between 37th and 38th streets in Section 19, on 6.7 acres of land. The Township owns and maintains four cemeteries: one near the Yorkville Community Church (2 acres); one covering one acre south of G Avenue between 37th and 38th streets (Howlandsburg); the Day Cemetery encompassing 2.25 acres near the intersection of C Avenue and 45th Street, and the one-half acre Ross Cemetery north of the intersection of M-89 and 42nd Street. The Howlandsburg cemetery is at capacity and the remaining three cemeteries have a total of 1,850 plots available. The Township limits burials to residents and property owners with an average sale of 23 lots per year. The remaining cemeteries should be able to accommodate needed burial sites well past the 20-year planning period. In addition, the Fort Custer National Cemetery, located in the southeast corner of the Township in Section 36, encompasses 770 acres, of which 250 are developed with gravesites, leaving a substantial capacity for expansion. There are almost 14,000 internments in the current developed portion of the cemetery.

Overall, the improved (developed) portions of institutional lands comprise only a small proportion of the total land holdings by public, quasi-public and nonprofit organizations.

Commercial

Commercial uses cover 49 acres of the Township. This represents only 0.3 percent of the Township's buildable land area (non-wetland/lake areas). Commercial land uses are located in Sections 8, 17, 19, 20, 25, 26 and 33 on the Existing Land Use map. Commercial uses consist primarily of small convenience retail and restaurants concentrated in Section 20, on the south shore of Gull Lake. A motel is located in this area at the intersection of M-89 and 38th Street.



Township residents do their convenience shopping in Richland or Augusta. Since many residents commute to work in Kalamazoo/Portage or Battle Creek, it is likely that a substantial amount of shopping for convenience goods is done in those communities. Comparison

shopping (appliances, clothing, sporting goods, etc.) is available in the Kalamazoo/Portage and Battle Creek areas. Most of the stores in these larger commercial centers are within a 15 to 30 minute drive from Ross Township.

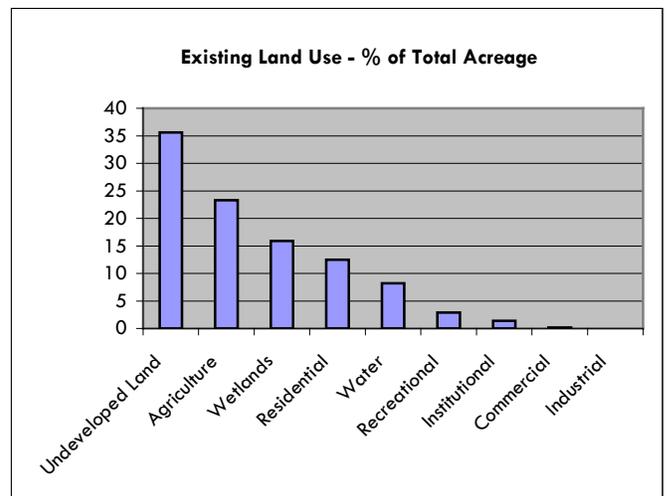
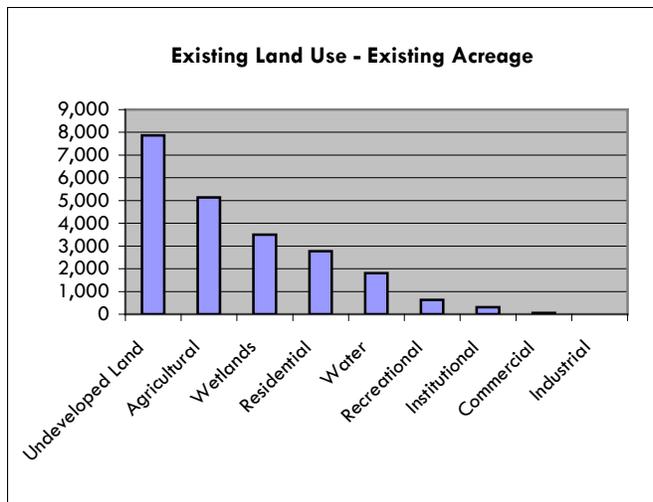
The Yarrow Executive Conference and Training Center is located on 350 acres west of 48th Street in Section 1. This is a training/conference center and bed and breakfast with dining, meeting, and sleeping facilities, as well as experimental “team” training and recreation activities, including eight one-half miles of hiking trail, access to Hamilton Lake, horseshoes, canoeing and cross-country skiing. While the conference center is itself a commercial activity, the majority of the land owned by Yarrow is open space and recreational in nature. Consequently, the total 350 acres is not designated as commercial land use, but the majority is included in the open space, wetland and water categories.

Industrial

Skamp Industries, on M-89 east of 38th Street, is the only industrial land use within the Township. This is primarily due to the close proximity of the Township to the Fort Custer Industrial Park west of Springfield, which offers a more comprehensive package for industrial development.

SUMMARY

Ross Township has an area of approximately 22,068 acres, of which approximately 36 percent is classified as undeveloped land (Woodlands and Open Space), Agricultural lands and Wetland. The following graph highlights the distribution of the major existing land uses by acreage and percentage (see Table IV-1, page IV-6), and as identified on the Ross Township Existing Land Use Map.



Given the ongoing concern within Ross Township and the Northeastern Kalamazoo County region concerning the preservation of open space and conservation of water resources, Table IV-1 further demonstrates that there is a large inventory of Township land (especially open space and water resources) that could be negatively impacted by development without an appropriate comprehensive future land use plan. Such impacts could include soil erosion and sedimentation problems from runoff due to construction, loss of vegetation, potential groundwater contamination from higher intensity development using on-site septic systems, and the detrimental loss of scenic features and viewsheds. The Future Land Use section of this Plan will designate the most appropriate locations for future development and recommend development patterns will help to mitigate those negative impacts.

MAP IV-2 – EXISTING LAND USE

