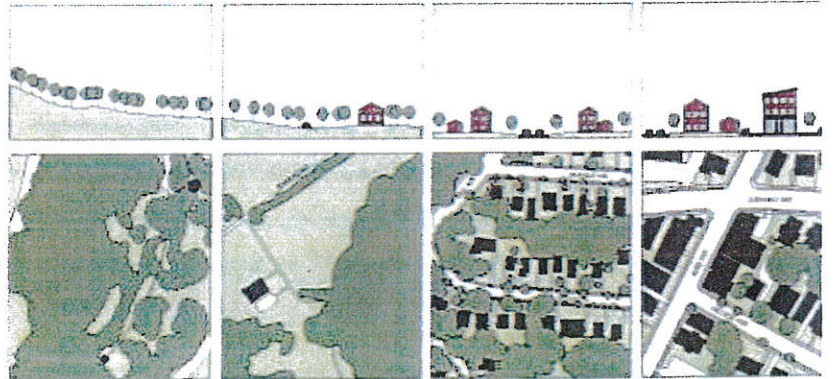


2014

Egelston Township Master Plan



1/1/2014

TOWNSHIP BOARD

EGELSTON TOWNSHIP

COUNTY OF MUSKEGON, MICHIGAN

Minutes of a regular meeting of the Board of Trustees of Egelston Township held at the Egelston Township Hall, 5428 E. Apple Ave., Muskegon, Michigan 49442, on the _____ day of _____ 2019, at _____ p.m.

PRESENT:

_____.

ABSENT:

_____.

The following preamble and resolution were offered by _____ and seconded by _____.

RESOLUTION NO. _____.

RESOLUTION APPROVING AND ADOPTING TOWNSHIP MASTER PLAN.

Whereas, The Egelston Township Planning Commission has prepared comprehensive amendments to the Master Plan for the future use, development and preservation of lands within the Township, in accordance with procedures set forth in the Michigan Planning Enabling Act, Public Act 33 of 2008, MCL 125.3839;

WHEREAS, on _____, 2019, the Planning Commission held a public hearing to consider approval of the proposed Master Plan, as amended, following the publication of notice and after expiration of the statutory comment period, in accordance with the Michigan Planning Enabling Act;

WHEREAS, on that date, the Planning Commission approved the proposed Master Plan, as amended, by a 2/3 vote of its members; and

WHEREAS, pursuant to section 43(3) of the Michigan Planning Enabling Act, the Township Board has asserted its right to approve the Township Master plan, after approval thereof by the Planning Commission.

NOW, THEREFORE, BE IT RESOLVED AS FOLLOWS:

3. The Township Council hereby approves and adopts the Township Master Plan as amended, as approved by the Township Planning Commission on _____ and attached hereto as Exhibit A.

4. Pursuant to Section 43(3) of the Michigan Planning Enabling Act, the Master Plan is effective as of the date of this resolution. The Township Board hereby directs that copies of the plan be distributed to each of the adjoining units of government, the Muskegon County Board of Commissioners and other public bodies as required by the Act.

5. The Township Board thanks the members of the Planning Commission for their work in the preparation of the Master Plan. The Township Board expects that the Master Plan will be a valuable tool for addressing future needs regarding land use, development and preservation of the Township. The Township Board believes that the Master Plan will, with revisions from time to time, be of continued use to the Township in the years to come.

AYES: _____.

NAYS: _____.

RESOLUTION DECLARED ADOPTED.

Joan Raap, Egelston Township Clerk

I hereby certify that the foregoing is a true and complete copy of a Resolution adopted by the Township Board of Egelston Township at a regular meeting therefore held on the date first stated above, and I further certify that public notice of such meeting was given as provided by law.

Joan Raap, Egelston Township Clerk

PLANNING COMMISSION

EGELSTON TOWNSHIP

COUNTY OF MUSKEGON

Minutes of a regular meeting of the Egelston Township Planning Commission, held at the Egelston Township Hall, 5428 E. Apple Ave., Muskegon, Mi. 49442, on the ____ day of _____, 2019, at ____ p.m.

PRESENT:

_____.

ABSENT:

_____.

The following preamble and resolution were offered by _____ and seconded by _____.

RESOLUTION NO. _____

RESOLUTION APPROVING EGELSTON TOWNSHIP MASTER PLAN.

WHEREAS, the Egelston Township Planning Commission has prepared comprehensive amendments to the Master Plan for the future use, development and preservation of lands within the Township in accordance with procedures set forth in the Michigan Planning Enabling Act, Public Act 33 of 2008, MCL 125.3839;

WHEREAS, on _____, the Planning Commission held a public hearing to consider approval of the proposed Master Plan, as amended, following the publication of notice and after expiration of the statutory period, in accordance with the Michigan Planning Enabling Act:

WHEREAS, the Planning Commission now desires to approve the proposed Master Plan as amended, in accordance with the provisions of the Michigan Planning Enabling Act; and

WHEREAS, pursuant to Section 43(3) of the Michigan Planning Enabling Act, the Township Board may also approve or reject the Township Master Plan, after approval thereof by the Planning Commission.

NOW, THEREFORE, BE IT RESOLVED AS FOLLOWS:

1. The Township Planning Commission hereby approves the Egelston Township Master Plan, as amended, as attached hereto as Exhibit A.
2. Pursuant to Section 43(3) of the Michigan Planning Enabling Act, the amended Master Plan is hereby referred to the Township Board for its consideration and adoption.

AYES:

_____.

NAYS:

_____.

RESOLUTION DECLARED ADOPTED.

Cariann Avery, Planning Commission Secretary.

I hereby certify that the foregoing is a true and complete copy of a Resolution adopted by the Egelston Township Planning Commission, at a regular meeting thereof held on the date first stated above, and I further certify that public notice of such meeting was given as provided by law.

Cariann Avery, Planning Commission Secretary.

EGELSTON TOWNSHIP

Township Board

John Holter, Supervisor
Joan Raap, Clerk
Kelly Gerard, Treasurer
Renea Foster
Alex Maginity
Brent Hartman
Bob Coon

Planning Commission

Don Darke.
Sheila Quillin.
Cariann Avery.
Jerry Schaefer.
Bob Coon.

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Chapter 1 INTRODUCTION

The Master Plan is a policy tool used by Township officials to coordinate growth and development decisions and to serve as the legal basis for zoning and land use regulation.

This plan update comes at a period in time when a poor economy has underscored the importance of effective, proactive policies that not only address development when it does occur, but also sets a new course for "smarter", sustainable, growth within what has been termed the "new economy".

When implemented, the Plan will foster efficient development consistent with the goals and visions of the residents and landowners. The task of planning for the future arrangement of land use might seem on its face a fairly simple exercise. In reality planning must take into account regional influences, existing land use patterns, transportation and accessibility factors, physical features and

environmental limitations, utilities, population and economic trends and importantly, the goals and visions of the land owners and residents themselves. One classic example of the inter-relationship of these influence factors is the separation or transition between residential areas and commercial or industrial districts that commonly occur. If this were not done, not only would the aesthetic and property value of homes be decreased, but public health and safety could be jeopardized. An example of the complex political nature of land use planning in Egelston Township is the dichotomy that exists between some landowners who prefer greater developmental options for their land, and the larger populace and who desire the maintenance of a predominately rural community.

There has always been a recognition of the need to periodically re-evaluate the Township's land use policies, address certain weaknesses, and proactive policies, that not only address development when it does occur, but also sets a new course for "smarter", sustainable, growth within what has been termed the "new economy".

The "new economy" is global, it is entrepreneurial, and it is knowledge based. It is an economy where business success comes increasingly from an ability to incorporate knowledge, technology, creativity, and innovation into products and services. The shift from the old

economy to the new has caused a realization that in response to technological and economic change, land use and development patterns must also change.

Following is a comparison of some the observations that can be made when comparing the “old economy” to the new.

Comparing the Old and New Economy

Key Features of the Old Economy	Key Features of the New Economy
<ul style="list-style-type: none"> • An inexpensive place to do business was a key. • Attracting companies was key. • A high-quality physical environment was a luxury. This often stood in the way of attracting cost-conscious businesses. • Success equaled: Having a fixed competitive advantage in some resource or skill. The labor force was • Then: Economic development was government-led. Large government meant good services. • Industrial sector (manufacturing) focus. • Fossil fuel dependent manufacturing • People followed the jobs. • Location mattered (esp. relative to transportation and raw materials). • Dirty, ugly, and a poor quality environment were common outcomes that did not prevent • Connection to global opportunities was not essential. 	<ul style="list-style-type: none"> • Being rich in talent and ideas is key. • Attracting educated people is a key. • Physical and cultural amenities are keys in attracting talented, educated workers. • Success now equals: Organizations and individuals with the ability to learn and adapt. • Now: Bold partnerships with business, government and nonprofit sector lead change. • Sector diversity is desired, and clustering of related sectors is targeted. • Communications dependent, but energy smart. • Talented, well-educated people choose location first. then look for or create a job. • Quality places with a high quality of life matter more. • Clean, green environment and proximity to open space and quality recreational opportunities are critical. • Connection to emerging global opportunities is critical.

Adapted from table created by MSU Land Policy Institute

Six of the above new economy factors depend on talent and on “place and location”.

“Placemaking” is a planning and economic development term that combines the notion of using places to attract talent and refers to a process of creating a place that people want to be in. What are talented people looking for in these places?

- Active/dynamic living environments, with lots of fun things to do and see.
- They are amenities driven: parks, outdoors, thriving farms, sports, hunting, fishing, waterways, greenery, etc.

- There are diverse lifestyle choices:
- There are multiple-modes of transportation (especially transit), multiple housing types with range of prices, and a range of housing densities.
- There are business and entrepreneurial opportunities.

To survive in the new economy, the Planning Commission feels that it is necessary for local

... the ECC plan is recognition that high quality of life "places" are vital in making the successful transition from the "old economy" to the "new economy".

government to take the initiative by creating a policy environment where "placemaking" is a factor in the community's long range planning.

The Master Land Use Plan of Egelston Township is the result of data collection, analyses, and discussions by the Planning Commission and of citizen input from a public

workshop, a citizen survey, and a formal public hearing. As part of the planning process, a number of issues were explored pertaining to local development and many other local issues. Included are basic projections, goals and objectives, policy recommendations and maps, which are designed to guide future development in the Township through the year 2030 and beyond. For the most part, the Master Plan is general in scope and the Future Land Use Map does not establish legally binding boundaries for future land use or the exact nature of future uses.

Just as the previous Master Plans needed to be updated as a result of change occurring both locally and regionally, more change can be anticipated and with it the need for periodic review and future revisions.

Chapter 2

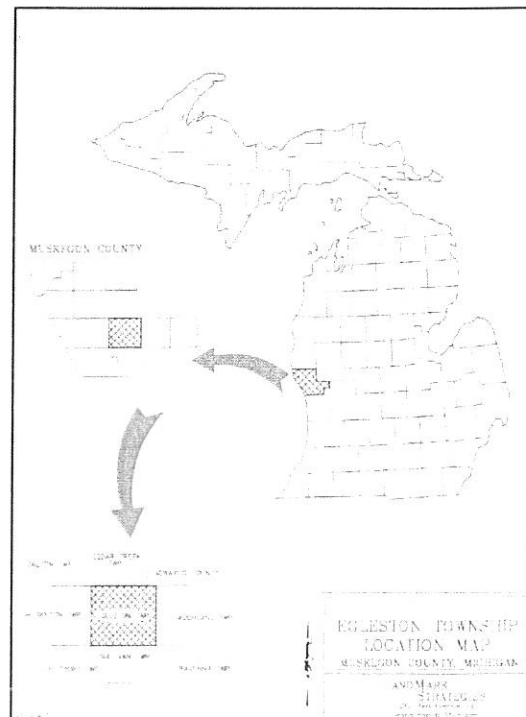
COMMUNITY PROFILE

Egelston Township is located in eastern Muskegon County, Michigan approximately 10 miles inland from the east shore of Lake Michigan. Egelston Township is located approximately 6 miles east of the City of Muskegon and 30 miles northwest of the City of Grand Rapids. The climate of the Township is affected by its proximity to the shores of Lake Michigan. Often referred to as the “lake effect”, south and southwest winds off the lake tend to moderate the temperature, resulting in warmer winter temperatures than further inland. In the summer, the tendency is just the opposite, generally keeping the air temperature below the uncomfortable readings of the nineties. Because of the lake effect phenomenon, spring arrives about two weeks later than normal for this latitude and autumn is also delayed, as is the cold of early winter. Precipitation is also influenced by Lake Michigan, especially during the winter. Local prevailing winds may cause more snow to fall further inland, sometimes as much as 30 to 40 inches. Snow is likely to fall almost every day for weeks at a time, although the daily accumulation is moderate, averaging about 31.5 inches of water per year. Snowfall averages around 86 inches, with the heaviest amounts typically in December, January, and February. Snow storms vary in intensity, resulting in amounts ranging from a trace of snow to over a foot in 24 hours.

Understanding a community and the changes undergone by that community in the past helps to provide a direction for the future. By analyzing existing trends and conditions, we can begin to learn why and how land use patterns have changed over time and the ways in which the Township can better serve the needs of its residents.

There are several basic components to the community profile:

- ✓ **Demographics:** Demographic data helps in determining the social and physical needs of the community.
- ✓ **Community Facilities:** An inventory of



community facilities lets us know what types of development, and their densities, are reasonable.

- ✓ **Environmental Features:** Environmental conditions establish limitations on how some areas of the township will evolve and existing land use patterns reveal past decisions, right *and* wrong, regarding the development of the township.
- ✓ **Public Attitudes:** Public involvement allows citizens an opportunity to voice their opinion about what they see happening in their community: and a chance to offer suggestions, provide insight, and strengthen the position of the Master Plan through their involvement.
- ✓ **Development Issues:** The issue identification process is essential to the formation of a sound vision for the future of the Township of Egelston. Unless problems are accurately identified, and the proper solutions sought, the Plan will not achieve its full potential as a tool that can make Egelston a better place to live, work, and play.

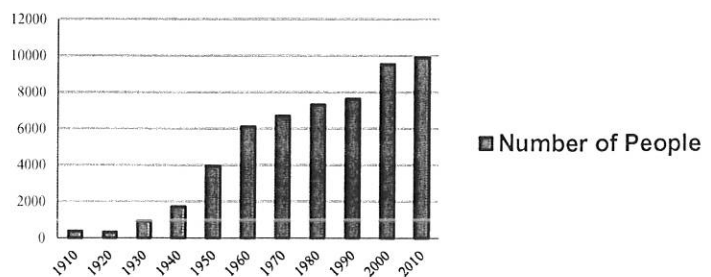
In the context of community planning, demographics help to paint a picture of the community and help to identify trends that set the stage for the Future Land Use Plan. Some of the implications of demographic change include:

- *A growing population equates to greater pressure for new infrastructure (expanded water and sewer services) at a time when existing infrastructure such as roads are aging and in need of repair. Growth also places pressure on the natural environment. In contrast, population loss or a stagnant population often is a reflection of an economy that is in peril and showing signs of job loss, high unemployment, or underemployment. What are the land use implications of economic stagnation or population loss?*
- *Will an expanding senior population start to demand more services? Trends in the demographic makeup of a community give insight into which age groups might need to be given a priority in the future with expanded services. What density or type of housing will be in demand and where will it be as a result?*
- *What types of development controls and policies will be needed to manage each type of growth? Will market trends supported by demographic shifts elsewhere be evident in this community?*
- *What additional considerations need to be given for the protection of the environment and for the protection and enhancement of the quality of life?*

Population.

The U. S. Census Bureau reported that the total population for the Egelston Township in 2010 as 9909 individuals. The Township has experienced relatively strong

**Egelston Township Population
1910- 2010**



population growth since the 1940's. The continual increase in population is due to several factors. The primary reason is that Egelston Township is a bedroom community that benefits from jobs and economic growth in the broader metropolitan region that includes Muskegon, Whitehall, Grand Rapids, and Grand Haven. Like many outlying townships, the appeal of the Township's easy highway access and relatively rural character draws many residents to live here but because most jobs are located elsewhere, most workers are also commuters.

The following table compares Egelston Township's recent growth history to that of adjacent townships and Muskegon County. From the 1980's to 1990's. Egelston Township's rate of growth (4.5%) was greater than that of the County (1%), about the same as Muskegon and Dalton Townships.

**1980 – 2010
Population Growth Trends
Egelston Township & Neighboring Communities**

<u>Community</u>	<u>1980</u>	<u>1990</u> <u>(% change)</u>	<u>2000</u> <u>(% change)</u>	<u>2010</u> <u>(# change/% change)</u>
Egelston Township	7,310	7,640 (4.5%)	9,537 (24.8%)	9909 (373/3.9%)
Fruitport Township	9,503	10,395 (9.4%)	12,553 (20.8%)	13598(1045/8.3%)
Muskegon Township	14,557	15,302 (5.1%)	17,737 (15.9%)	17840(103/0.58%
Dalton Township	5,897	6,276 (6.4%)	8,047 (28.2%)	9300 (1253/15.5%)
Cedar Creek Township	2,454	2,846 (16.0%)	3,109 (9.2%)	3198 (91/2.9%)
Moorland Township	1,521	1,543 (1.4%)	1,616 (4.7%)	1575 (-41/-2.5%)
Sullivan Township	2,356	2,230 (-5.4%)	2,477 (11.1%)	2441 (-1.4%)
Muskegon County	157,589	158,983 (0.9%)	170,200 (7.0%)	172188 (1988/1.1%)

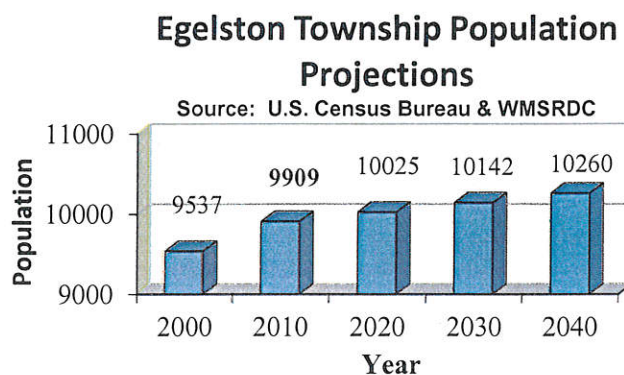
Source: U.S. Census Bureau

Between 1990 and 2000, the Township's growth rate increased dramatically from the previous decade's 4.5% rate, to nearly 25%. The increase for Egelston far exceeded the overall county rate of 7.2% as well as that of the surrounding Townships, with the exception of Dalton Township. The numerical gain of 1900 people also exceeded all others, with the exception of Muskegon Township, which saw a numerical increase of over 2400 persons during that period.

In the most recent decade, between 2000 and 2010, Egelston's population grew, but only by 373 persons, or a percentage increase of 3.9%. While this rate of growth is dramatically lower than in the previous decade, Egelston's rate was over twice that of the County as a whole. Several

nearby townships actually lost population, as did the state of Michigan as whole during the same period.

The following figure shows that the population of Egelston Township is expected to slowly increase over the next 20 to 30 years. The projections are less optimistic about growth than previous projections based on the higher historical growth rates of 1980's and 1990's. While the new projections remain tied to past increases, they are more reflective of the downturn in the economy that occurred after 2005 and the longer term economic challenges that the region is likely to face.



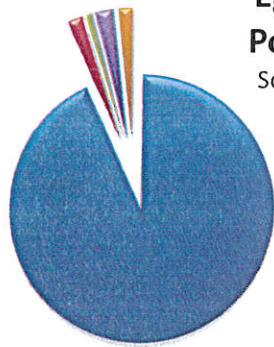
Racial Composition

The racial make-up of the community is fairly homogenous and has changed only slightly in recent decades. In 2010 minorities made up approximately 5% of the population, roughly one percent more than in 2000. The percentage of Native Americans in the population now stands at 2.3%, African-Americans at 2.1%, and whites at 95%. In 2010 the number of persons considered Hispanic or Latino (of any race) stood at 512 or 5.2% of the population. In 2000 the Hispanic/Latino population was 380 or four percent.

By comparison, Muskegon County as a whole has witnessed a somewhat larger shift in favor of the minority populations. In 1990 the white population constituted 84% while in 2010 it had declined to 80%. In 2010, 15.9% of the county's population was African American as compared to 14.2% in 2000 and 14 percent in 1990. The American Indian and Asian populations have also seen large increases. In Muskegon County, the Hispanic/Latino population has also increased and represents approximately 4.8% of the population. In Michigan as a whole, the Hispanic/Latino population increased from 3.3% in 2000 to 4.4% in 2010.

Egelston Township Population By Race

Source: 2010 U.S. Census



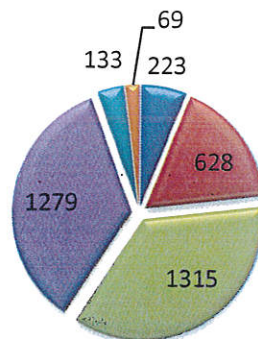
- White-9516 or 95.0%
- African American or Black- 206 or 2.1%
- Asian-80 or 0.8%
- Amer. Ind./Alaskan- 227 or 2.3%
- Nat. Hawian or other Pac. Islander- 11 or 0.1%
- Other Race- 186 or 1.9%

Income

The median household income in 2011 was estimated by the US. Census Bureau to be approximately \$40,000. This is roughly the same as estimates for Muskegon County as a whole, but is almost \$8000 less than the median income for the State of Michigan. It is significant to note that from 1990 to 2000, the Township's median household income rose from \$27,633 to an estimated \$37,557. This represented a 38% increase and compares to the meager 6% increase seen in the last decade.

Egelston Township Income Distribution By Number of Households

Source: American Factfinder2



- <\$10,000
- \$10,000 to \$24,999
- \$25,000 to \$49,999
- \$50,000 to \$99,999
- \$100,000 to \$149,000
- \$150,000 and over

Age

The age profile of the community has changed noticeably from 1990.

While school age children and individuals that make up the family forming years remain the two largest segments of the population, the percentage of school age children and the percentage of the population in the family forming years (individuals between 19 and 44), is declining. Mature families (or families headed up with individuals in the 45 to 64 age group) now outnumber those in the 25 to 44 age bracket (27.6% compared to 25.5%). The population that is 65 years of age or older (11.8%), while still the smallest, increased by over 2% in the last decade. It is noteworthy that the percentage of people in the Township over 65 years of age is however, nearly 2% lower than that of Muskegon County (13.6%) and that of the State of Michigan. This may be partially attributable to a relative lack of senior housing in Egelston, as compared to the county as a whole.

Housing

In 2010 there were a total of 3882 housing units in Egelston

Township. Of these, 3620 were occupied. Of the occupied units, 88.4% were owner occupied and 420 units, or 11.6%, were renter occupied. Between the years 2000 and 2010, the U.S. Census housing counts show that 242 new housing units were built in the

Township. Of those, the vast majority were conventional single family homes. In 2010, as in previous decades, single-family dwellings represented a majority of the housing in the Township, nearly 70%.

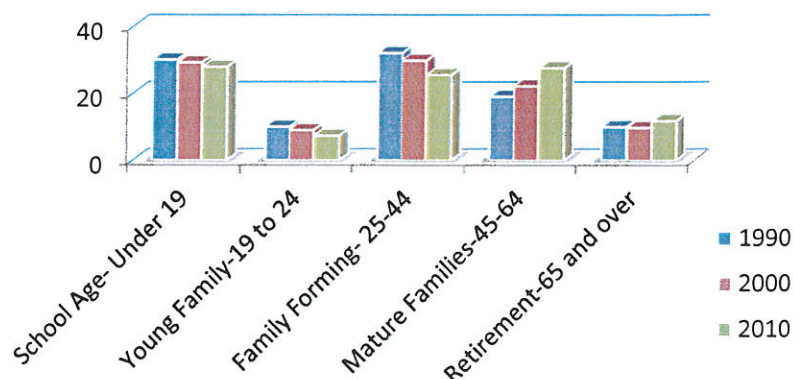
In terms of types of housing, Egelston Township has a relatively higher percentage of manufactured homes than the county or the state. The U.S. Census estimates that over 1100 (28%) of all homes in the Township are manufactured homes. The vast majority of manufactured homes are situated in manufactured home parks. The U.S. Census places the number of multi-family dwelling units in the Township at 49 and the number of dwelling units within duplex dwellings at 32.

The age of the housing stock as determined by the 2010 census is compared in the figure to the right. With the additional homes construction since 2010, it is

estimated that roughly 52% of the total housing stock is more than 30 years old.

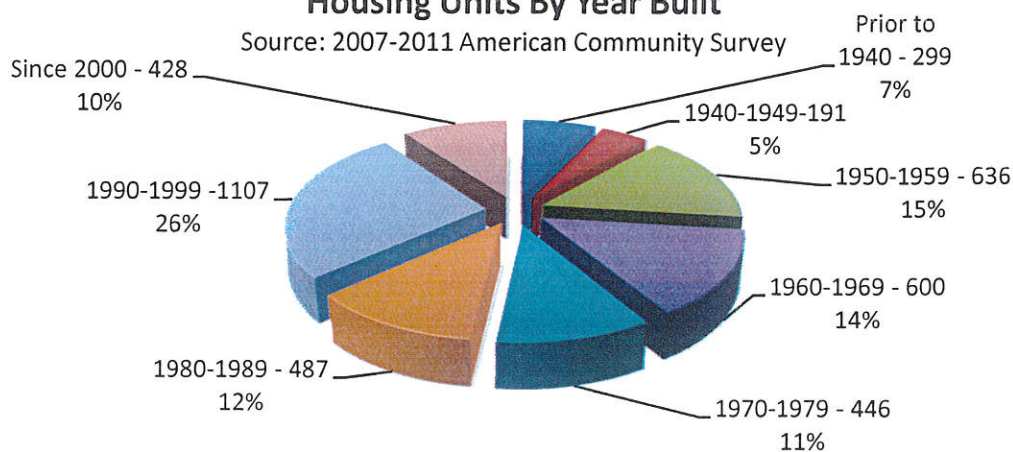
Egelston Township Age Profile Change over Time

Source: U.S. Census



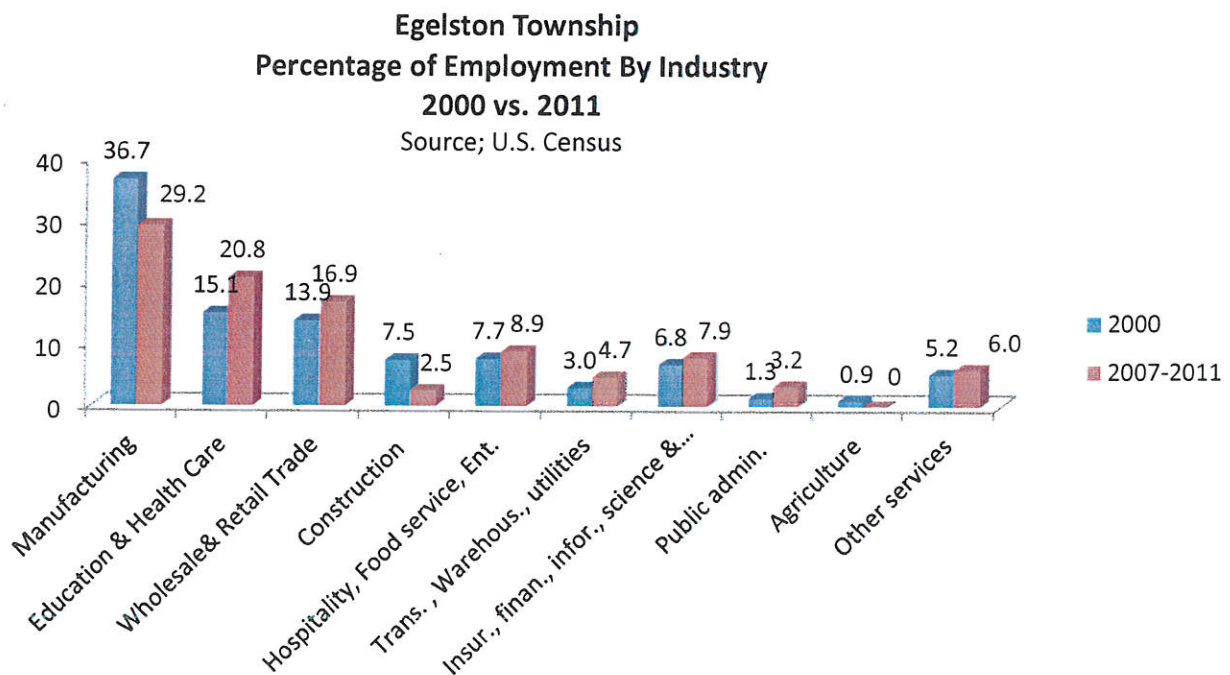
Housing Units By Year Built

Source: 2007-2011 American Community Survey



Labor Force

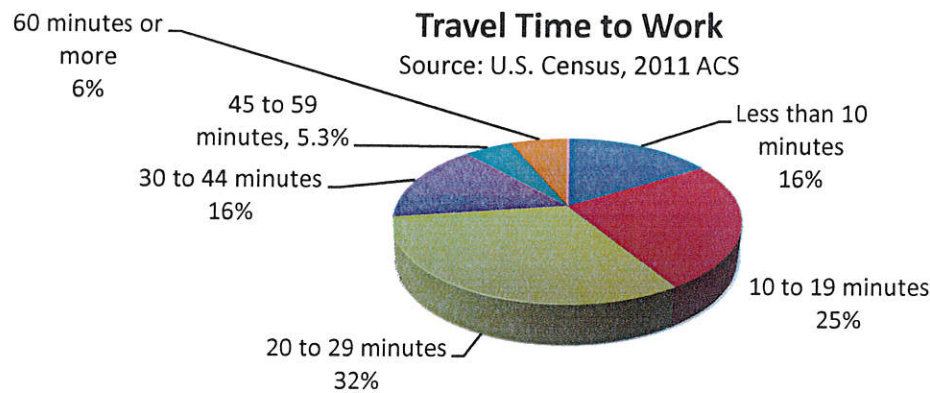
Based on U.S. Census figures, it is estimated that the current (2011) civilian labor force living in Egelston stands at roughly 4750 people. The labor force is defined as persons over 16 years of age that are either employed or seeking work. In 2011 the unemployment rate averaged approximately 8.5%. The largest percentage of the labor force in the Township continues to be employed in occupations related to manufacturing (29.2%). However, the shift in the labor force away from manufacturing and construction, to the service, retail and professional sectors, is quite apparent when you compare 2000 census data to more recent census data taken between 2007 and 2011.



The labor force can also be grouped by "occupations". The Census Bureau reveals that 30.6% of the workers are in production, transportation, and material moving occupations; 6.6% in construction, natural resources, and maintenance; 25.5% in sales and office occupations, 19.9% in service occupations; and 17.4% in management, business, arts or scientific occupations.

When analyzing travel time to work, the mean travel time is 23.2 minutes and most workers (71%) travel less than 30 minutes. With nearly 60% of workers commuting 20 minutes or more,

it is quite apparent however that many individuals work at the industries located outside of the Township.



Existing Land Use & Natural Features (See Appendix for maps)

Knowledge of existing land use and the natural features that make up the physical geography of the community is essential to the purpose of a Master Plan. The land use and land cover information relied upon in this plan was first mapped using a statewide map database. This information was last updated in 1999. Maps comparing land use change over time are included in the appendix and field observations have been used to approximate the current acres given in the land use and cover table found on the following page.

The land use pattern seen in Egelston Township is similar to many urban fringe communities, i.e. linear development along the existing grid of square mile sections, typically bordered by county roads and a highly fragmented land ownership pattern.

Residential Land Use

The largest concentrated residential area in the Township is centered on Wolf Lake. In other areas, residential development has occurred primarily along section line roads as well as minor roads and subdivision streets extending off Apple Avenue and other primary roads.

More recently, homes have been built in the more rural areas of the Township, away from Apple Avenue. Over 650 acres of land (the equivalent of a square mile section) has been utilized for residential development since 1978. While growth has slowed in recent years, this represents an annual average of 18.5 acres of land per year converted for residential use,

Residential building permits issued during the 1990's and through 2010 confirms increased residential development, including manufactured home parks. Within this time period, nearly

700 new homes were built, including the expansions that occurred in both Apple Carr Village and Egelcraft Mobile Home Parks.

Egelston Township Existing Land Use and Cover

Land Categories	use	1978 Land Use (acres)	2013 Land Use (acres)	Difference 1978 to 2005 (acres)	% Change
Single Family Residential		2098	2750	652	31%
Group(multi-family) Residential		0	1	1	100%
Manufactured Home		96	160	64	66
Development					
Commercial		108	200	92	85%
Public/Quasi-Public*		2227	2377	150	6.7%
Industrial		113	290	177	156%
Agricultural*		2519	1700	-820	-8%
Vacant Land		1332	1932	600	45%
Land Categories	Cover	1978 Land Use (acres)	2013 Land Use (acres)	Difference 1978 to 2005 (acres)	% Change
Forest **		12967	12,000	-967	-8%
Wetlands*		1142	1200	58	5%
Sand Dune		18	16	2	-11%
Water		320	320	----	---
Approximate Total Acres		22,940	22,940	----	----

*= includes part of the Muskegon Wastewater Management system used for the production of field crops.

**= includes parts of the Muskegon State Game Area

Note: 2010 estimates are projected from 1999 data based on empirical observations and building permit data for the years 2000- 2010.

Commercial Land Use

The vast majority of commercial land uses are located adjacent to Apple Avenue. Primary concentrations are near the Wolf Lake, Maple Island and Carr Road intersections. Of the more than 200 acres of land devoted to commercial businesses, it is estimated that roughly 25 percent are small item retail (food stores, convenience, hardware), 25 percent are service oriented (personal service, gasoline stations, repair, etc. restaurants), and 50 percent are large item, large land area sales(used car and RV sales, raw landscape items).

Industrial Land Use

Industrial land use is concentrated in two locations. One area is along Evanston Avenue in sections 31 and 32 (the Evanston Avenue Industrial Park) and the second area along Maple Island Road, adjacent to the Muskegon Wastewater Management System in sections 14 and 23.

Between 1978 and 2005 industrial expansion was primarily focused within the Evanston Avenue Industrial Park. Since that time, several small wood product related businesses have located in the area adjoining the wastewater system.

Agricultural Land Use and Vacant Land

In the two decades the Township has experienced an almost 50% decline in cropland, from over 2,500 acres to 1,700 acres. Most of the land was converted for residential use or left idle. A majority of the land currently being "farmed" is within the Muskegon County Wastewater System, although remnants of agriculture can be found in the southeastern quadrant along Evanston Avenue and Laketon Avenue.

Vacant land is largely fallow farm fields or open fields that cleared in anticipation of development. Vacant land, as delineated on the existing land use map, also includes a major electrical utility corridor. In recent years, the amount of vacant land actually increased, primarily as local farmers idled, or made fallow, their fields. That trend occurred all over the state due primarily to declining or unstable market values for corn and other row crops; and increase in the value of agricultural land for residential development. Those factors coupled with an aging farmer population led to few farm related investments in Egelston Township. While a great deal of vacant land is now subject to the scrutiny of potential developers and conversion to rural home sites, improved farm market conditions, the recent housing crisis, and a poor economy in general, has slowed the loss of farmland and vacant land.

Transportation Network

The road system serves as the backbone for growth and development of any community. This costly and highly visible element of the community's infrastructure is one of the most dynamic features of the community's on-going development.

Street Classification

The street system serving Egelston Township can be classified as follows:

Major Arterials - This class of street serves major movements of traffic within or through the area. Mainly designed to move traffic, the secondary function is to provide land service. Apple Avenue (M-46) is the major arterial in Egelston Township.

Minor Rural Arterials - This class of street serves primarily local or shorter distance traffic and provides a limited degree of continuity. Their principal function is providing local land access in connection with major arterials. Wolf Lake Rd., Maple Island Rd., Evanston Ave. and White Rd. are the rural arterials in the Township along with portions of Carr Road and Laketon Ave. They are also classified as county primary roads.

Collector Streets - These streets serve the internal traffic movement within specific areas and connect those areas with the major and minor arterial system. Generally, they are not continuous for any great length. Through streets such as Hall Rd., Hilton Park Ave., Brooks, Rd., Broton Rd. and MacArthur Rd. are in this category. Traffic control devices may be installed to protect and facilitate movement of traffic; however, these devices will not be as elaborate as those on arterial streets.

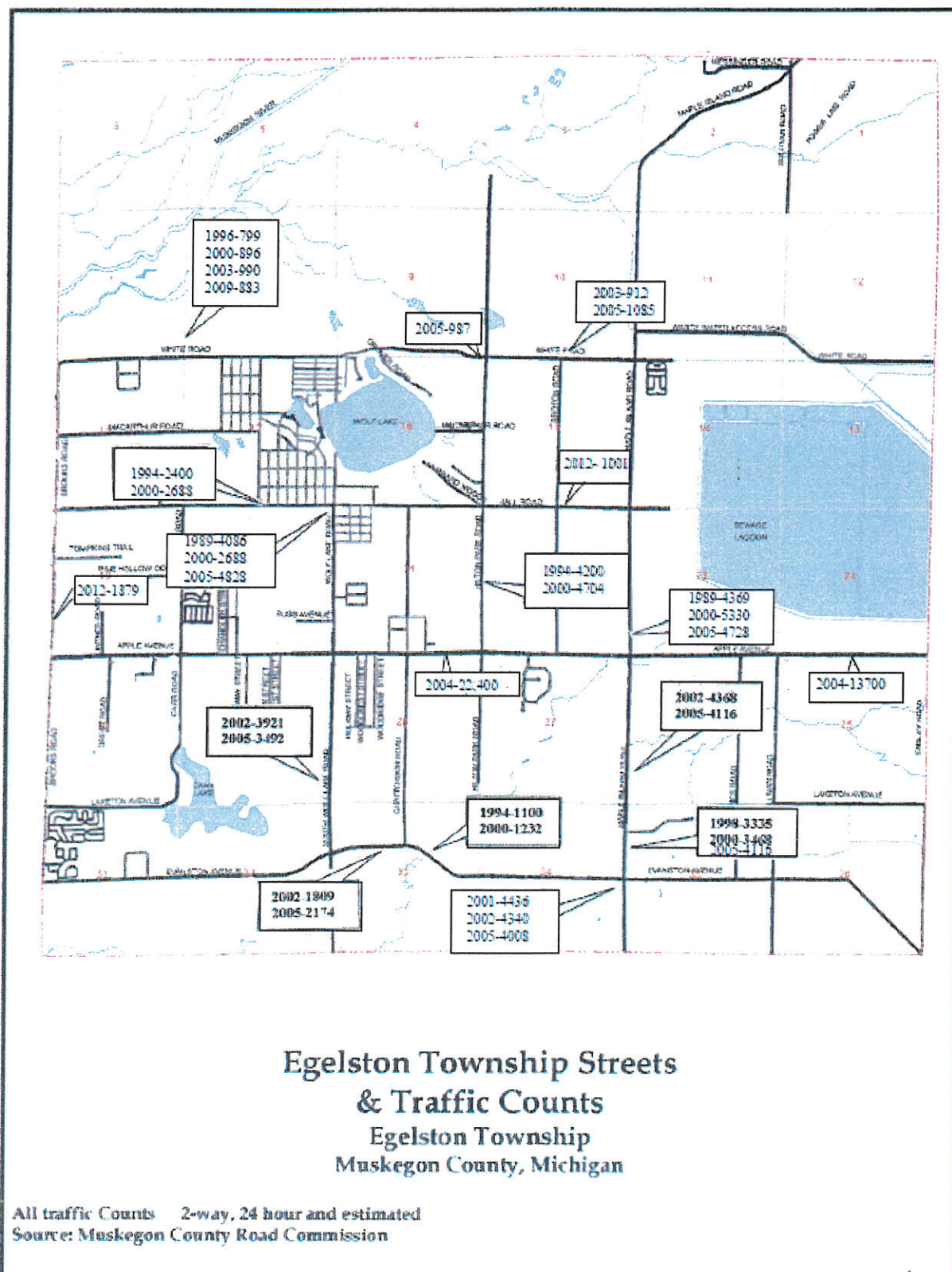
Local (feeder) Streets - The sole function of these streets is to provide access to immediately adjacent property such as in platted neighborhoods. There are many of these roads in the community, but they carry a small proportion of the vehicle-miles of travel. Many are short cul-de sac streets. Most local roads are presently public but the use of private roads within new housing developments is an increasingly strong trend for local streets development. Private roads must be privately maintained.

The street system, along with recent traffic counts are depicted on the map on the following page. One problem with the street system in Egelston Township is the relatively low degree of street connectivity caused by the physical disruptions of Wolf Lake, Carr Lake, and Black Creek. The lack of connectivity between newer subdivisions having only one or two access points is also a problem. Low connectivity increases travel distances and traffic volume on the arterials and collector streets and discourages walkers and bicyclists. This leads to more miles driven and less physical activity. Low street connectivity is also a concern of emergency service providers who are given fewer emergency routes to travel. This in turn may contribute to longer response times and higher insurance rates. Other factors that are increasingly significant include the need for better traffic controls and access management to avoid traffic and land use conflicts.

Public Utilities

The provision of public water and sewer utilities plays a significant role in the growth, or lack thereof, in a community. Sustainable growth typically requires the extension of utilities, which

often spurs more growth. Within the context of long range planning, the extension of both of these services in support of major economic development should be considered, a prerequisite.



of services. The following map shows the general extent of the Township's *existing* sewer infrastructure.

Water- At the present time there is no public water system in Egelston Township. All residences and businesses must therefore rely on individual private wells for their domestic water supply as well as for industrial processes. A water system to serve Egleston Township as part of an area-wide effort remains in the discussion stage.

Analysis of a regional water system was undertaken in 1996. The study evaluated the feasibility of establishing a regional water agency to jointly serve the communities of Muskegon, Egelston, Norton Shores, Fruitport, Dalton and Laketon Townships. The study was commissioned by the Muskegon Regional Water Alliance in recognition of the water expansion needs of member communities, and the potential cost efficiencies realized through common ownership of facilities. The study focused on methods to level the costs and quality water service between communities as well as to expand capacity through joint development of an additional water treatment plant.

Sanitary Sewer- A large percentage of the township's geographic area is served by municipal sewers under the general authority of the Muskegon County Wastewater Management System (MCWWMS). The MCWWMS also serves a majority of the county's other urbanized locations. The System was constructed in the early 1970's, when community leaders and citizens became concerned about contamination of waters throughout the area, and the impacts of this contamination.

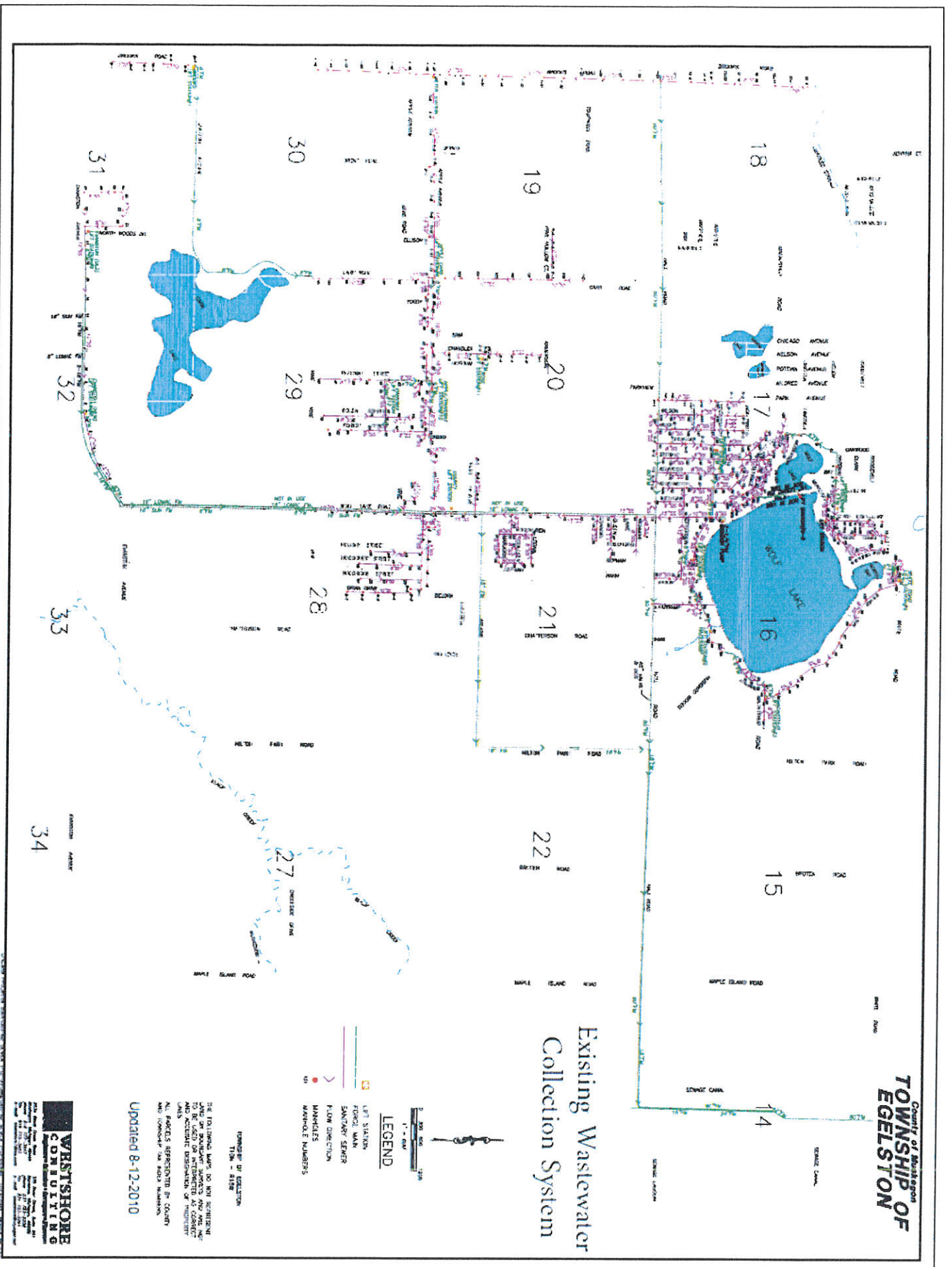
The MCWWMS was originally constructed in the 1970's, with various upgrades thereafter. The MCWWMS employs a combination lagoon/spray irrigation system for the treatment of wastes and is regarded as one of the most efficient waste treatment operations in the country.

Expansion of the rather extensive web of sewer mains is made on a regular basis consistent with area growth and development demands. Funds for system improvements are normally generated through a combination of connection fees, quarterly operation and maintenance charges, and state and federal grants.

Areas of the Township not served by the municipal sewer rely on septic systems which are placed and installed under the direction of the Muskegon County Health Department. The Township has heretofore, anticipated extending sanitary sewer service throughout the Township. This Master Plan supports the continued emphasis of the local system, with a priority given to locations experiencing high residential density development and commercial and industrial development. In the southeast and northeast areas where intensive development is not planned, public sewer expansion is not anticipated.

Public/Semi-Public Land Uses

Uses that are categorized as public/semi-public include schools, religious institutions, hospitals, parks, veterans' facilities, utilities, and public forest preserves. In Egelston Township, lands owned by public entities make up approximately 9,260 acres, or 40% of the land area in the Township. It can be stated anecdotally that not many metropolitan townships in Michigan have



over 40% of their land area owned by public entities and essentially preserved for open space and public use. The vast majority of the public land is encompassed by the Muskegon County Wastewater Management System and the Muskegon State Game area.

Muskegon County Wastewater Management System (MCWWMS)

The MCWWMS is a public facility, owned by Muskegon County. It is considered by some an industrial use, largely because of odors periodically emitted from the sewage treatment ponds. The system, located in both Egelston and Moorland Townships, is largely comprised of retention ponds and farm fields. The system covers a total of over 11,000 acres with 4,500 acres in Egelston Township. It is a spray irrigation system, designed to treat over 43 million gallons of wastewater a day while conserving the integrity of the soil used for advanced wastewater treatment in the form of crop production.

MCWWMS is often overlooked as one of the top birding sites in Michigan. Birds are attracted to the site because of insects, food provided by the crops, and the habitat provided by the lagoons, farm fields, and interspersed woodlands. Over 250 species of birds (out of the 398 documented in Michigan) have been spotted at the facility over the lifetime of the system.

Muskegon State Game Area

The State Game Area is recognized as a significant natural resource in the Township. Currently the area has limited accessibility and is best by boat from the Muskegon River and Mosquito Creek. There are only a few trails and roads allowing access by foot or motorized vehicle.

This area is open to the public for hunting and fishing during the appropriate seasons. The area, considered collectively with the wastewater management system, forms a northern "open space boundary" for the Township.

Other Public/Semi-Public Land Uses

Parks, churches, the veteran's facility, and schools represent the other public and semi-public land uses in the Township.

Egelston Township itself owns and operates five Township parks. They include:

Flickema Park. Located at the corner of Park Street and Hall Road. It is 5 acres in size and offers ball diamonds, tennis/basketball courts and a soccer field.

Holiday Park. Located at S. Wolf Lake Road and Vine St. It includes 8 acres and offers ball diamonds, soccer fields, a playground, and picnic pavilion.

Beal's Park. Located on the south shore of Wolf Lake. It contains 6.6 acres and offers a swimming beach, picnic pavilions and picnic area, restrooms, ball field and playground.

Sunset Beach. Located on the west shore of Wolf Lake. It contains 2.5 acres and it offers a swimming beach, boat launch, restrooms, and fishing pier.

Pine Ridge Park. Located just west of N. Wolf Lake Rd. on the north side of White Road. The park contains 17 acres abutting the Muskegon State Game Area. It has a sledding hill and walking trails.

In addition to the above park facilities, a playground and ball field/soccer field are located at the Township Hall.

Schools are also a principal provider of public services and facilities available to residents. The Township has historically subsidized part of the cost of programs offered by the Oakridge School System's Community Education program. The Oakridge School District presently offers a senior citizen enrichment program. That program offers a number of leisure time classes, brings in speakers and provides various health and wellness information classes and wellness clinics at various times throughout the year.

Natural Features

Egelston Township is graced with over 14,000 acres of relatively intact natural features including forests, wetlands, lakes, and streams. A majority of the natural features in Egelston Township are part of the Muskegon State Game Area, including wetlands and forest.

Wetlands

Wetlands have varying and important functions that protect the environment, water quality and subsequently the quality of life in Egelston Township. Since Egelston Township residents all have private wells and rely on groundwater for their domestic water supply, the water purification and recharge functions of wetlands is very important to Egelston Township.

Wetlands also:

- Provide areas for hunting and fishing;
- Provide wildlife habitat;
- Provide protection for property from floods and;
- Provide erosion control.

Forests

In addition to a broad expanse of woodlands within the State Game Area, many wooded areas are found behind the residential areas that have developed in strip fashion along the section line roads, in the interior of square-mile sections. These woodlands are important from the standpoint that they represent open space, wildlife habitat and buffers to light and noise. These privately held woodlands are in fact the "rural character" that many residents of Egelston Township relate to.

Development in these areas will ultimately place pressure on the natural environment and increase the need for infrastructure. To address and minimize these changes, alternative development concepts such as residential cluster development and open space preservation can be beneficial.

Lakes, Rivers, and Streams

The surface and groundwater systems comprise the Township's hydrologic system. They are inter-related and most lakes and streams are in some way dependent on groundwater for recharge. Groundwater is also affected, often initially more than surface water, by land use and development. The surface water system in Egelston Township consists primarily of:

- The Muskegon River
- Mosquito Creek
- Black Creek
- Cranberry Creek
- Ryerson Creek
- Hall Drain
- Wolf Lake
- Deer Lake
- Five Lakes System
- Muskegon County Wastewater Retention Lagoons

Black Creek's water quality was impacted in the past, largely by a substance known as "bog iron" and industrial pollutants.

The health of Ryerson Creek has also been scrutinized and findings by the Michigan Department of Environmental Quality have classified the creek as a warm water stream, largely due to storm water that goes unfiltered to the stream. Warm water streams are not capable of supporting an abundance of aquatic life, nor are they typically used for recreational purposes. The watershed is shared by both Egelston and Muskegon Townships. In Egelston Township, the watershed encompasses all of sections 19 and 20. Development within the Ryerson Creek watershed has contributed heavy metals, floating debris, turbidity, and oil films to the water and has also increased flows during storms.

Egelston Township's participation in the development of that storm water management plan led to the integration of several storm water management principals into the goals and objectives of this Master Plan.

Soils

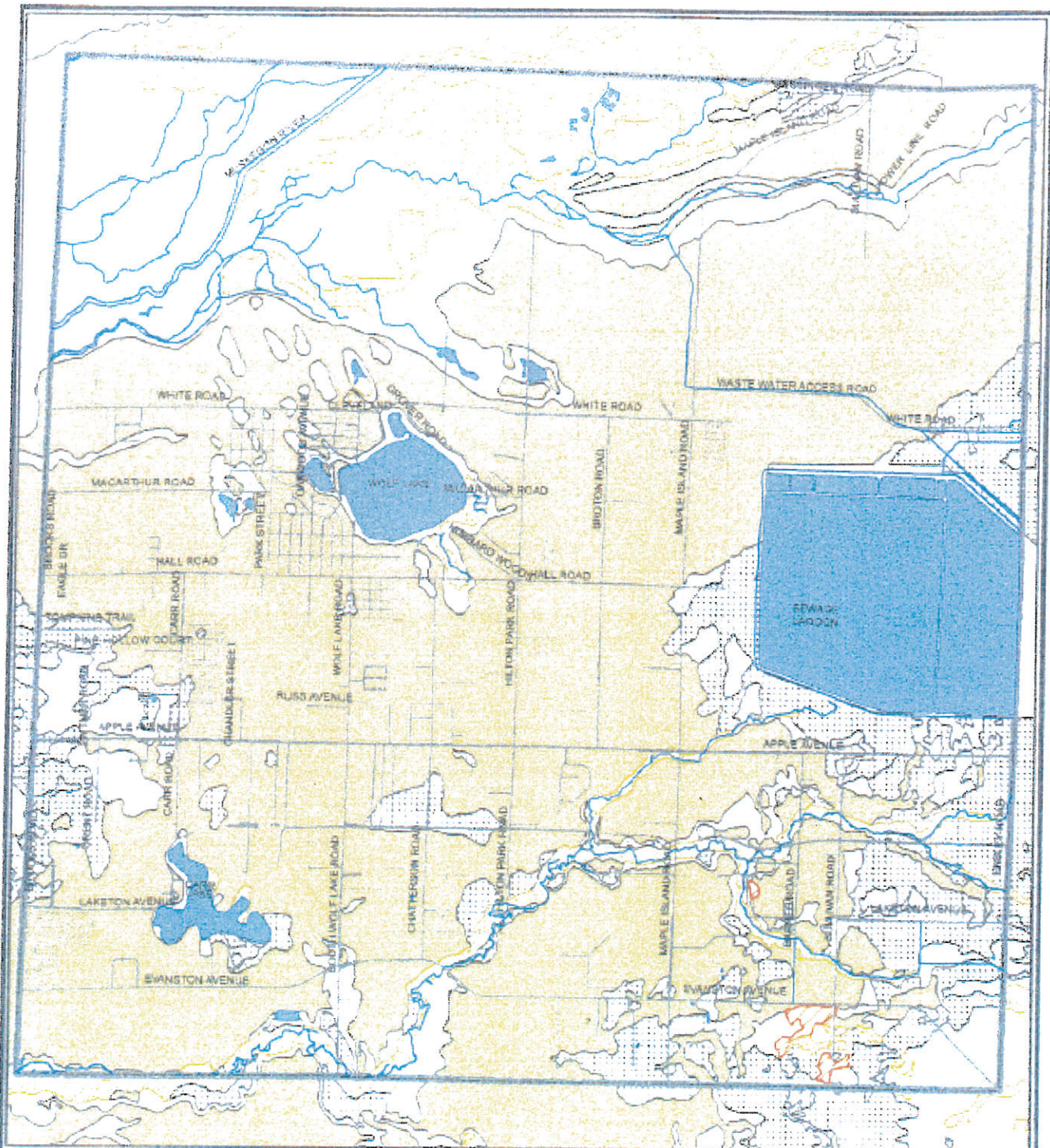
Soils are an important and inherent natural feature to a community. Soils dictate, among other things:

- What types of vegetation (native or non-native) will grow (pines in sandier soils for example);
- Whether a drain system is needed to build a home with a basement; and
- Whether sand needs to be hauled to a site for road development.

Too often, soil information is overlooked in planning, often because soils mapping is done by taking samples at set intervals, not parcel-by-parcel. A soil survey is, however, a good over-all guide for development as long as one recognizes the need for on-site examinations when making final engineering or specific development decisions.

Soils were originally analyzed for Egelston Township as part of the 1994 Master Plan. The “Environmental Features & Limitations” map generated for that Plan has been regenerated and is included on the following page. The “Environmental Features & Limitations” map shows soils in the Township as mapped in the Muskegon County Soil Survey and the limitations that may be posed by soils. These limitations may include any of the following:

- High water table
- Poor load bearing capacity
- Soil is subject to ponding
- Soil is subject to frost heaving
- Unstable organic material



Soil and Slope Site Limitation Factors

SOIL TYPE	BUILDINGS W/ BASEMENT	BUILDINGS W/ SEPTIC	LOCAL ROADS
SOIL (B/B)	SLIGHT	SLIGHT	SLIGHT
SOILS (C/B, B/B)	MODERATE	MODERATE	MODERATE
SOILS (H, S, F, T, D)	SEVERE	SEVERE	SEVERE
SLOPE and SOIL (B/B)	SEVERE	SEVERE	SEVERE
OTHER SOILS	SLIGHT	SLIGHT	SLIGHT

Additional Map Features



Water and Wetlands	Roads and Easements
Land Use	Township Boundary



Environmental Features and Limitations

Egelston Township
Muskegon County, Michigan



Map Prepared July 2006
by Muskegon County Land Use
Mapping and GIS Division
in Collaboration with Land Mark Associates
Map Data Sources:
Soil Data from NRCS, 2001
and Other Map Data Muskegon County Mapping and GIS
Division, State Plane NAD 1983 datum and Town
Michigan State Data

Chapter 3

ISSUE IDENTIFICATION

The Master Plan update process attempts to identify and address development related issues and the proper solution to those issues.

Egelston Township must become a place that people, young, educated, skilled people, want to live in.

Following is a listing of the guiding “principles” that were identified from the input received at the workshop. The appendices contain addition reports detailing the results and outcomes of the

Township survey.

Guiding Principles

Elementary, secondary and continuing education-The local public school systems must be maintained and strengthened and the attainment rates for those with higher education must be increased.

Economic Growth- Planning efforts must foster economic growth.

Ordinance enforcement- Emphasis must be placed on ordinance enforcement.

Community cohesiveness and unity- The community’s ability to define and agree upon the “common good” and to work toward its goals is crucial to its future.

Protection of recreation and amenities- Existing parks and must be improved and new parks and trail infrastructure provided. Wolf Lake is an example of an important recreational amenity worthy of protection and enhancement. Better advantage of it as a resource to attract economic growth could be made.

Green Spaces- Green space and open space must be protected/provided

Industrial Growth-The areas infrastructure, labor force and “smart growth” approaches to planning must be used to attract new industry.

Complete Streets- The concept of complete streets to enhance transportation and neighborhood linkages must be embraced.

Accountability- Government must remain accountable

Alternative energy- Egelston Township must be promoted as a location for locating alternative energy facilities such as wind and solar power.

Fail to Plan/Plan to Fail-Government taking an active role in creating and carrying out plans that change the status quo is seen as crucial to the areas future.

Collaborative efforts/partnering- Egelston’s future is dependent upon people, businesses, and governments working together and partnering in ways that have thus far not occurred.

In most ways the land use and development issues now facing Egelston Township are a continuation of those first identified in 2006 or earlier. There is however, a greater realization on the part of Township officials that the solutions to issues are not easy and they require more than a simple listing and then a shelving of the Master Plan. Resolving these long-standing issues will require political will, broad community support, public and private collaboration, and prolonged efforts.

Community Character and the Environment

Many residents and community officials continue to identify the Township primarily as a rural community. Most also recognize that Egelston Township is an integral part of the urbanizing fringe of the Muskegon metropolitan area. *There is a desire among residents to maintain the rural/urban balance within the Township which minimizes the uncontrolled sprawl of residential areas and which maintains the character of the remaining rural areas.* Quality of life depends on the expanding sense of community.

Planning and Code Enforcement

Township officials and citizens alike have long identified haphazard sprawl development, poor property maintenance and unsightly outdoor storage on residential properties (household items, junk cars, etc.) and non-conforming business operations in residential and rural areas as issues that significantly detract from the Township's image and property values. More recently, issues relating to the need for consistent enforcement of ordinances relating to the safety and maintenance of private roads and driveways have also arisen.

Comprehensive land use policies and zoning regulations are important but that they cannot be effective unless there is broad public support and a strong commitment for land use policy implementation, enforcement and change.

Housing and Residential Development

1. There remains recognition that affordable housing is needed in the Township. There is also recognition that the Township has its "fair share of manufactured home parks. *A more balanced residential land use policy approach to meeting the affordable housing needs of the community and the alternative housing styles desired by young professionals, coupled with utility extensions, will ultimately lead to an increase the availability of apartments and multifamily dwelling units while limiting additional growth in the number and size manufactured home communities.*

2. Within Egelston Township relatively little new development is being located in areas where public sewer utilities are available. The trend in single family residential development toward small scale, large lot private road developments will continue. Rural fringe development of this type requires relatively little up-front cost but results in a great deal of wasteful land fragmentation and a proliferation of numerous disconnected small neighborhoods with poor accessibility. *The inefficiencies of scale and lack of forethought with respect to accessibility, traffic circulation, and community cohesiveness makes the prospects of future public utility and roadway extensions, street maintenance and the delivery of emergency and other public services difficult and costly.*
3. The pattern of residential lot splits within Egelston Township has had an important impact upon the rural character of the Township. A significant portion of residential development in the Township has occurred in a strip pattern where residences are "stripped" along the arterial and collector road network. *The Township's rural views of woodlands, fields, and other open spaces, as experienced from the roadway are reduced to images of never ending driveways, cars, garages, and front yards. In business areas, the viewing experience is one of endless driveways, parking lots, and signs.*

Utilities

The intensity of existing development in the Wolf Lake area and the west-central parts of the Township has necessitated the development of a public sewer system. This system is capable of being incrementally expanded to serve the majority of the developable land area of the Township. A public water supply and distribution system has not been created in the Township.

1. *In the long range, public health and environmental quality, the ability to attract sustainable economic development and the ability to achieve more balanced residential growth are all dependent upon the provision of adequate infrastructure, especially public sewer and public water. The provision of adequate infrastructure in key areas of the Township is therefore viewed as an overriding quality of life issue.*
2. *Public water is needed and strategically planned sanitary sewer extensions are needed to catch up with existing commercial and industrial areas so that a limited quantity but diverse range of commercial services and industrial operations can be encouraged to locate here.*

Roads and Transportation

1. State, county and Township funds for public street improvements and normal street maintenance are limited. As a result, street improvements and normal maintenance activities are often delayed well beyond the point in time when the need is identified. *Lack of public funding for street improvements requires that the Township make land use decisions that will minimize vehicle miles traveled and which maximizes the safety and efficiency of the existing street network. This realization is also manifested in the need to locally monitor changes in traffic patterns brought about by changes to the highway network in adjacent communities. The need to plan for increased truck and passenger vehicle traffic along the Maple Island Road corridor is one example.*

2. Private roads have proliferated as the result of developers choosing to avoid the high initial cost of constructing new public streets. Lack of forethought, oversight, and street maintenance has created problems for emergency vehicles and has diminished property values. *An inability to extend private streets will hamper adjacent private development by blocking logical public street extensions. The need to make capacity improvements to existing streets will be magnified as a result and the ability to solve circulation problems will be thwarted.*
3. The patterns of commercial and residential strip development have also had a significant impact upon energy consumption, and safety in the Township's road corridors in general. *This pattern of development can be debilitating to the community because:*
 - *The increased number of driveways directly accessing the major roads increases the level of congestion and traffic hazards along these corridors. Travel times are thus increased.*
 - *The dispersed population pattern increases the cost, and decreases the quality of public services;*
 - *A lack of complete streets (e.g. the inclusion of pedestrian, bicycle and mass transit facilities) within the right of way can thwart community cohesiveness and negatively impact public health and the quality of life in general.*

Business and Industry

1. The character of Apple Avenue as a commercial corridor and as the heart of the community remains a concern. Residents would like to see the commercial corridor development occur in a more planned fashion with mixed uses and with concentrations in centralized areas.

Chapter 4

GOALS AND OBJECTIVES

Planning goals are strategic statements that express and define the community's future. They provide long-range direction for virtually all planning activities. For that reason there needs to be a good understanding of the community's planning goals both in terms of the physical direction they provide and in terms of the social, economic, and regulatory implications that they have. Equally important, there needs to be a consensus among the elected officials and the Planning Commission that the goals stated in the Master Plan are relevant, realistic, and reflective of the overall needs and desires of residents and land owners. For these reasons, it is important that the Master Plan's goals and the tools that are used to achieve its goals are periodically reviewed, revalidated, and updated as necessary.

A community's goals and its development policies are related and co-dependent. The policies are in essence "what to do" action statements, that if completed or implemented will enable the community to reach its goals. The policies along with certain other recommended implementation measures also need to be periodically updated and validated.

The following Goals and Objectives build upon the goals and objectives included in the previous Master Plan. They were refined subsequent to a process of identification and discussion of a number of current and emerging development issues with Township officials as well as from insights gained at a public workshop and through an on-line survey.

The statements below are listed by topic areas. Following each goal are policy statements that describe the means used to achieve the desired goal.

General Growth Management

Goal: Maintain a predominately rural character in the majority of the Township while fostering the creation of identifiable places for the majority of residential and economic development activity. Development will be guided in a manner that facilitates the efficient provision and/or expansion of public facilities and which fosters the wise use of natural resources, protects environmentally sensitive areas and which strives to preserve scenic beauty. To those ends, the tenants of "SMART GROWTH" will be adhered to as policies of the Egelston Township Master Plan, wherever possible:

Foster Distinctive, Attractive Communities with a Strong Sense of Place: By creating

high-quality communities with architectural and natural elements that reflect the interests of all residents, there is a greater likelihood that buildings (and therefore entire neighborhoods) will retain their economic vitality and value over time.

Mix Land Uses: In today's service economy, communities find that by mixing land uses, they make their neighborhoods attractive to workers who increasingly balance quality of life criteria with salary to determine where they will settle.

Preserve Open Space, Farmland, Natural Beauty and Critical Environmental Areas: Open space protects animal and plant habitat, places of natural beauty, and working lands by removing the development pressure and redirecting new growth to existing communities.

Create Range of Housing Opportunities and Choices: By using smart growth approaches to create a wider range of housing choices, communities can mitigate the environmental costs of auto-dependent development, use their infrastructure resources more efficiently, ensure a better jobs-housing balance, and generate a strong foundation of support for neighborhood transit stops, commercial centers, and other services.

Create Walkable Neighborhoods: As the personal and societal benefits of pedestrian friendly communities are realized – benefits which include lower transportation costs, greater social interaction, improved personal and environmental health, and expanded consumer choice – many are calling upon the public and private sector to facilitate the development of walkable places.

Provide a Variety of Transportation Choices: Providing people with more choices in housing, shopping, communities and transportation is a key aim of smart growth.

Take Advantage of Compact Building Design: By encouraging buildings to grow vertically rather than horizontally, and by incorporating structured rather than surface parking, for example, communities can reduce the footprint of new construction, and preserve more greenspace.

Encourage Community and Stakeholder Collaboration: Smart Growth plans and policies developed without strong citizen involvement will at best not have staying power; at worst, they will be used to create unhealthy, undesirable communities. When people feel left out of important decisions, they will be less likely to become engaged when tough decisions need to be made.

Make Development Decisions Predictable, Fair and Cost Effective: For smart growth to flourish, state and local governments must make an effort to make development decisions about smart growth more timely, cost-effective, and predictable for developers.

Strengthen and Direct Development Towards Existing Communities: By encouraging development in existing communities, communities benefit from a stronger tax base, closer proximity of a range of jobs and services, increased efficiency of already developed land and infrastructure, reduced development pressure in edge areas thereby preserving more open space, and, in some cases, strengthening rural communities.

Regional Cooperation:

Goal: *Recognize the importance of cooperation between neighboring local units of government in the creation of a viable and sustainable economic region. There are three basic regional planning principles embodied within the Egelston Township Master Plan to help improve the greater Muskegon metropolitan area. They include:*

- Discourage the continued conversion of rural land at the edges of metropolitan areas.
- Find ways to make infill development and the restoration of older areas more attractive to investors and consumers.
- Knit the region together with transportation systems that reduce the dependency on the automobile.

Community Goals

In addition to the generalized goals of growth management and “smart growth” presented above, the specific planning goals presented below are listed by topic areas. Following each goal are objectives that serve to state the specific means of achieving the desired goal.

Open Space and Natural Resource Preservation

Goal: *Preserve the Township's environmental and scenic quality.*

Objectives:

1. Ensure that development takes place in an environmentally consistent and sound manner by;
 - a. Directing and regulating development in ways that minimizes the potential for flood hazard, soil erosion, and disturbances to the natural drainage network,
 - b. Understand and incorporate environmental limitations and capacities in the land use decision making process.
2. Through zoning, site plan review and education, integrate the preservation of natural features such as soils, topography, steep slopes, hydrology, air quality, unique views and vistas,
2. and natural vegetation into the process of site design and building design.

Implementation Tasks

- Continue to work with Muskegon County GIS to maintain physical features inventory maps including, soils, wetlands, streams, and steep slopes, and flood prone areas.
- Utilize and enforce development standards designed to protect the quality of surface and groundwater resources, wetlands, and woodlands.

Consider adoption of a Stream Corridor Protection Overlay zone for use in maintaining a natural vegetative corridor along Black Creek and its tributaries.

- Utilize environmental inventory maps and data when reviewing development plans to ensure awareness of potentially impacted features

Open Sp. Objectives- Continued

- 3 By ordinance, maintain a hierarchy of allowable development types and densities based upon the relationship between the nature **and location** of the proposed project to the potential for ground water impact;
4. Through site plan review, discourage practices which will alter the natural, valuable function of wetlands, including those not protected under the State of Michigan Wetlands Protection Act (P.A. 203 of 1979) *[now Part 303 of Act 451, as amended.]*.

Open Sp. Implementation Tasks-Continued

- Provide developers with a surface and ground water quality permit review checklist that itemizes the required Township, county, state and federal permits that are required for each commercial and industrial development. Use the checklist prior to the issuance of occupancy permits
- Limit commercial and industrial intensity and decrease base residential developmental densities in the areas not immediately served by public sewer to levels commensurate with the loading capabilities of area soils.
- Limit the number and appropriately regulate the size of lots that are allowed to occur using individual on-site septic systems. Rely on county and state officials to develop improved standards regarding the suitability of soils for septic system placement and use.
- Require a centralized, private on-site, sanitary wastewater treatment system for residential developments occurring outside of planned sanitary sewer extension areas and in areas where the extension is not expected in the near future.
- Minimize or deny the creation of additional R-1, R-2 or R-3 and commercial and industrial property unless public sewer is immediately available.
- Require connection to the municipal sanitary system when the development is capable of being served.
- Review and utilize environmental inventory maps when reviewing development plans to ensure awareness of potentially impacted features

Open Sp. Objectives- Continued

5. Provide for the preservation and maintenance of trees and other woody vegetation as commercial, and industrial sites are developed and as residential developments are approved
6. Require the satisfactory reclamation of lands after removal of natural resources such as sand, gravel, soil, rocks or minerals.
7. Encourage Township residents to use approved methods of solid waste disposal such as waste stream reduction, recycling, and composting. Encourage residents to participate in community clean-up programs.
8. Encourage reforestation, and wildlife habitat improvement programs on public and private lands.
9. Encourage greater retention of open space as a component of each new major residential development's overall project design.
10. Through appropriate watershed management planning, promote the highest feasible water quality of the Township's system of lakes and streams.

Open Sp. Implementation Tasks- Continued.

- Establish landscape guidelines within Township Zoning Ordinance and Subdivision Control Ordinance
- Through permit application, site plan review, and field inspections enforce the requirements of the Township's Earth Changes and Natural Resources Removal Ordinance.
 - Cooperate with area waste haulers, landfill operators, and Muskegon County and other local governmental agencies to expand such programs.
 -
 - Coordinate open space preservation and clustered housing density requirements to the availability and provision of utilities.
 - Work with Muskegon County to enforce soil erosion and sedimentation standards.
 - Require sewer utilities in areas where development densities nearest surface water features pose a risk to water quality.
 - Maintain appropriate building setbacks from surface water features.
 - Encourage residents to use best management practices when applying fertilizer and pesticides in yards.
 - Eliminate the use of phosphate fertilizers near bodies of water.
 - At the time of approval, review the use of hazardous substances by the operators of home businesses and encourage best management practices (BMPs) and spill prevention.

Residential Development

Goal: *Create attractive, safe, and convenient residential environments providing a variety of housing opportunities with adequate schools, parks, utilities, and open space.*

Objectives:

1. Orient high density residential development to locations where, at a minimum, public sewer utilities exist or where the utility can be extended as part of a proposed development.
2. Establish density standards that are consistent with the natural capacity of soils to handle on-site septic systems and which promote the preservation of the Township's natural resources and rural and suburban qualities.
3. Encourage a balanced housing stock to accommodate all segments of the Township's population. Provide opportunities for the placement of affordable housing, and the creation of housing units and live/work arrangements in mixed use developments.
4. Enhance the desirability of neighborhoods by including sidewalks, bike paths, pedestrian paths, that link neighborhoods and neighborhood centers wherever possible. Require open space, parks and playgrounds, and related site amenities.
5. Maximize the proportion of residences within one quarter to one half mile of parks, schools, grocers, retailers, service providers, employment, public transportation and other desirable community features.
6. Create residential development patterns that utilize small lot, cluster; development in conjunction with the establishment of open
Res. Objectives- Continued
7. Space areas and/or conservation easements

Implementation Tasks

- Institute and use subdivision control and utility policies that require utility concurrency whenever possible.
- See Open Space and Natural Resource Preservation Implementation Tasks.
- Require utility concurrency for developments that should be supported by utilities.
- Avoid the premature zoning of land.
- Identify and zone desired locations for multi-family residential developments.
- Work towards the extension of a public water distribution system to areas within the Township where high density development is desired.
- Monitor the number of sites within manufactured home communities and limit the ratio of single family homes to mobile homes to the ratio of no less than approximately 2.5 (detached conventional single family) to 1(manufactured).
- Develop a non-motorized trail and sidewalk plan for the Township.
- Within development regulations include these features as required improvements and/or encourage their provision as options that justify bonus density consideration.
- Encourage or require open space preservation and design of housing developments (clustering), particularly for
Res. Implementation Tasks- Continued
- Developments that locate in the areas

dedicated to the preservation of unique natural features.

8. When necessary, protect the viability of neighborhoods by controlling the expansion of incompatible land uses on adjacent properties.

identified for rural preservation.

- Strengthen buffer and screening provisions of the zoning ordinance.
- Rely on the site plan review process to influence appropriate site design and layout of all types of development and thereby minimize impacts on adjacent land uses.

Commercial Development

Goal: Provide opportunities for a full range of commercial uses. Business locations should be of high quality design and provide for safe and efficient patterns of pedestrian and vehicular circulation.

Objectives:

1. In order to minimize traffic congestion and pedestrian and vehicular hazards, prepare and implement site development standards.
2. Achieve commercial development which is pedestrian friendly, which creates a desirable sense of place, and which will operate in a safe and efficient manner.
3. Encourage mixed-use development to allow siting of residential, retail, office, recreational,

Implementation Tasks

- Utilize access management standards recommended by MDOT for use along Apple Avenue and other major arterials.
 - a. Require the shared use of commercial driveways and access roads.
 - b. Limit the number and spacing of driveways along principal arterials.
 - c. Encourage (require if critical to public safety) the use of frontage roads or drives.
- To compliment access control measures, consider increasing the minimum lot width and lot size requirement for new commercial lots when developed individually
- Incorporate appropriate design and performance standards within the Township Zoning Ordinance. Standards should address:
 - a) Site landscaping.
 - b) Pedestrian and bicycle facilities
 - c) Site circulation and parking
 - d) Signage
 - e) Site drainage and snow storage
- Rezone primary and secondary commercial areas that are identified on the Future Land

and educational facilities within close proximity to each other thus encouraging walking and bicycling as routine parts of everyday life.

4. Ensure that new commercial and mixed use development is supported by infrastructure (e.g. water, sanitary sewer, roads, etc.) and services (e.g. police and fire services, etc.) adequate to meet the needs of the development without adding undue financial burden to the Township.
5. Address the issue of existing isolated businesses in the residential and rural areas to help reduce land use conflicts and hazards to the environment.

Use Plan commensurate with the appropriate PUD, C-1 and C-2 Zoning Districts.

- Recognize and permit existing homes in commercial zones as permitted uses rather than non-conforming uses.
- Require either utility concurrency (both public sewer and water) in support of major development proposals. Where sanitary sewer and or public water is not available require increase lot sizes and restrict development intensity.
- Consider a grace program for existing violators in order to encourage them to improve operational practices.
- Review and update as necessary, current home occupation and family run business provisions of the Zoning ordinance to ensure that standards are reasonable and applicable to economic conditions within the Township.
- Through diligent enforcement, discourage new isolated small businesses from starting up without proper regulation.
- To minimize potentially conflicting or inappropriate commercial and industrial expansion, eliminate spot commercial and industrial zoning districts within predominantly rural residential areas

Industrial Development

Goal: *Enhance employment opportunities for Township residents by attracting high quality industrial development to occur in areas served by adequate transportation systems and public utilities and services.*

Objectives:

1. Extend public utilities and services to those areas identified as desirable for industrial development.
 2. Separate industrial uses from less intense land
- Avoid rezoning of additional land to industrial unless public sewer is available.
 - Require appropriate use of buffer strips,

uses such as residential.

- open space or transitional land uses.
- Promote the development of well-planned industrial plats (e.g. parks) rather than scattered site, single lot, development.
- Eliminate spot industrial zoning districts in rural residential areas.

3. Prevent site related problems often encountered with industrial uses.

- Relegate industrial development to appropriate locations.
- Implement regulatory controls that require adequate buffers, setbacks and operational performance standards for noise, odor, vibration, and glare.

4. Ensure that housing, entertainment, and cultural amenities which attract and support an educated work force is available.

Infrastructure - Roads, Private Roads, Pedestrian ways and Utilities

Goal: Ensure that economic development and higher density residential areas are served by adequate transportation systems, public utilities, and services.

Objectives:

1. Pursue a "complete streets policy" when implementing a Township street and transportation strategy for ensuring the long range capacity of the public street network.

Implementation Tasks

- Base land use policies and decisions in part on the functional capacity of the adjacent roadway system.
- Work with MDOT and The Muskegon County Road Commission to identify needed traffic control measures such as turning lanes, traffic signalization service drives. Curb cut design and location standards.

Infra. Objectives- Continued

Infra. Implementation Tasks

- Amend the zoning ordinance to increased building and parking setbacks based upon the functional classification of roadways.
- Identify the locations and routes for future additions to the collector and arterial road system. In the absence of specific locations, develop land use intensity standards that will be employed to ensure the adequate design, function and routing of new streets in support of new development.
- Conduct the necessary studies and as

2. Develop and implement Township area wide utility plans based on land use objectives and environmental concerns.
3. Link neighborhoods and population centers (e.g. subdivisions, etc.) with parks, commercial areas, and other community amenities.
4. Regulate private road development so that private roads connect logically and efficiently with the public road system and, where appropriate, adjacent private road systems.

Infra. Objectives- Continued

needed implement right of way preservation setback requirements along Maple Island Road from M-46 to White Road to insure the ability to make capacity improvements at minimal cost and disruption to adjacent land uses.

- Prepare a non-motorized trail and sidewalk plan for the community
- Continue to sequentially expand the wastewater collection system.
- Develop and implement a water distribution plan for areas of the highest development intensity including the industrial areas and the Wolf Lake/Apple Avenue area.
- Work with the Muskegon County Drain Commission to ensure appropriate storm water management.
- Prepare a non-motorized trail and sidewalk plan for the community.
- Work with the Muskegon County Road Commission and the Michigan Department of Transportation to design and construct non-motorized paths/lanes on newly constructed or reconstructed roads.
- Through improved ordinances and enforcement establish private road construction standards which:
 - a) Provide for efficient access by emergency vehicles.
 - b) Ensures proper, long-term, maintenance of the road.

Infra. Implementation Tasks- Continued

- c) Ensures the road will not constitute a danger to inhabitants of the Township or those traversing the road.
- d) Require the interconnection/upgrading of existing and future private roads.
- e) Retains the ability to deny private roads on the basis and need for a public route that will better reduce traffic or improve public street

circulation.

- f) Minimize the creation of cul-de-sac streets.

- 5. Ensure that local roads are properly maintained and that the natural beauty (e.g. resulting from topography, contiguous trees, etc.) of many of the Township's roads is preserved.

- Annually discuss improvement needs and priorities and coordinate with the Muskegon County Road Commission and Michigan Department of Transportation

Parks and Recreation

Goal: Plan for and develop active and passive outdoor recreation facilities to meet the needs of existing and future Township residents.

Objectives:

- 1. Construct non-motorized paths/lanes on newly constructed or reconstructed roads, linking population centers (e.g., subdivisions, etc.) with recreational, commercial, and other local amenities.
- 2. Work with residential developers to set aside suitable open space and public land for neighborhood parks and road easements for pedestrian/bicycle paths.
- 3. Encourage neighbors and adjacent residential developments to enact reciprocal agreements for cross-county skiing and hiking trails.

Parks & Rec. Objectives- Continued

- 4. Coordinate planning efforts with the Michigan Department of Natural Resources pursuant to the use and management of the Muskegon State Game Area.
- 5. Coordinate planning efforts with the Muskegon County Waste Water Management System pursuant to the use of Wastewater property for outdoor recreational activities.

Implementation Tasks

- Work with the Muskegon County Road Commission and the Michigan Department of Transportation to identify funding and to establish design requirements.
- Adopt a non-motorized trail plan and open space linkage plan for use in reviewing and approving development plans
- Extend linkages to the county-wide rail-to-trail network.
- Include cross easement requirements in the Zoning and Subdivision Control Ordinances for use when approving new developments containing common open space.

Parks & Rec. Implementation Tasks- Continued

Inter-Governmental Cooperation

Goal: Promote a coordinated approach among local units of government with respect to the implementation of goals, objectives, and policies that will influence the development of Egelston Township and its neighboring communities.

Objectives:

1. With the participation of Muskegon Charter Township and Moorland Township, prepare and implement uniform traffic access management and non-motorized trails along M-46 (Apple Avenue).
2. Promote a coordinated approach among local communities for the planning, provision, and expansion of public water and sanitary systems.
3. Increase local funding resources through the coordination of efforts of local government to secure and efficiently spend state and federal grant dollars.

Chapter 5

Future Land Use Plan

This chapter contains the recommendations and descriptions for future land use in Egelston Township. These recommendations will provide an overall framework for land use management and the integration of future development. The Michigan Planning Enabling Act, (MCL 125.3801 et. seq.) Public Act 33 of 2008, as amended, specifically gives Township Planning Commissions the authority to prepare and officially adopt a future land use plan or "Master Plan" as it is often called. Within the Egelston Township Master Plan, the "Future Land Use Plan" is the element that functions as the principal official policy statement on land use and redevelopment for the Township. The Future Land Use Plan and Future Land Use Map are also intended to serve as the Township's "zoning plan" as required under the State of Michigan's Zoning Enabling Act and will serve as the basis for evaluating zoning requests.

Because of the constant change in our social and economic structure and activities, the Master Plan in general and the Future Land Use Plan in particular must be maintained through periodic review and revision so that it reflects contemporary trends while maintaining continuity with Township's overall vision and its long-range goals.

Combined with supporting tools such as a workable and effective zoning ordinance, land division and subdivision regulations, utility plans, and other capital improvement plans, the "Future Land Use Map", serves as an important guide to decision making. It strives to create compatible land arrangements which can preserve or enhance property values, advance economic development, guide capital improvement expenditures, and ultimately help to define the quality of life to be enjoyed by residents of the Township.

Relationship of Planning to Zoning

The following narrative provides an explanation of the important, but sometimes confusing, relationship between land use planning and zoning.

The laws of the State of Michigan require that a community engage in land use planning activities, including the preparation of a "zoning plan" prior to the initiation of a zoning ordinance in a community. The following provides basic definitions of the terms "planning" and "zoning."

Planning: Planning is the process of guiding the future growth and development of a community. The process includes preparation of a document known as the Comprehensive Plan, Future Land Use Plan or Master Plan which addresses the various factors relating to the growth of a community. Through the process of land use planning, it is intended that a community can identify those measures needed to preserve, promote, protect and improve the public health, safety and general welfare. Additional considerations include: comfort, good order, appearance, convenience, law enforcement and fire protection, prevention of overcrowding and avoidance of undue concentrations of population, the facilitation of adequate and efficient provision of transportation, water, sewage and services, and the conservation, utilization and protection of natural resources within the community. A Plan is a guide to development but it is not a legally enforceable document.

Zoning: The enactment and administration of the zoning ordinance are legislative and administrative processes used by local units of government to achieve or implement the goals and policies of the Master Plan. Zoning is only one of several such instruments. Other instruments include capital improvements programming, downtown development plans (administered by downtown development authorities) and the enactment and administration of local subdivision regulations. Zoning and subdivision regulations are typically, however, the only major implementation tools having the force of law.

OVERVIEW OF THE FUTURE LAND USE PLAN AND FUTURE LAND USE MAP

The basic principles guiding the formulation of the Future Land Use Plan was the adherence to the series of goals and objectives contained in the previous chapter. They were developed with the input of citizens obtained through a citizen questionnaire and through face to face discussions. The ultimate decisions made by the Planning Commission were also based on several other factors including:

The Need to Foster a Sense of Community.

New residential clusters of homes should use natural and man-made boundaries and landmarks to create defined neighborhoods.

Smart Growth-Efficiency and Compactness.

Major development activity, whether as singular project or as a series of smaller proposals with a collectively large impact, should be directed to locations where the use of the existing and already programmed or planned public investment in capital improvements can be maximized. Significant Development should only be allowed to occur when the infrastructure, (roads and utilities) are capable of supporting and sustaining it.

Available Services.

The status of community services and their ability to accommodate additional development are critical issues. Are utility systems able to accommodate the intensity and type of development desired or contemplated?

Existing Development and Redevelopment.

By necessity any discussion of future land use requires consideration of current uses. Since much of the Township is already partially developed, ensuring that existing homes and

mandated Open Space Preservation requirements (Section 506 of the Michigan Zoning Enabling Act) and similar open space preservation provisions included in the Zoning Ordinance. Existing and future development in this district will be expected to rely on private individual wells and septic systems.

Rural Density Residential –RDA (2.5 to 5 acres per dwelling unit)

The Rural Density Residential District is intended to support rural residential development at somewhat higher density than the REA District. *The district is applied to existing R-5 zoning areas in Sections 27 and 34 and small portions of Sections 32 and 33.* Public sewer extensions are still well out of reach in these sections and while a high water table does not directly impede on-site septic systems, the extremely sandy soils do not, as a general rule provide good protection for underground water supplies. High numbers of septic systems coupled with corresponding numbers of individual domestic well penetrations into the various aquifers therefore pose an increased risk for groundwater contamination.

Land fragmentation has resulted in the creation of numerous residential property splits with most being in the 2 to 10 acre range. The larger residential lots are primarily wooded and interspersed in the district are numerous large undeveloped wooded properties. These characteristics present a highly rural flavor that is valued highly by residents. It has been observed that continued splitting of these parcels, as presently allowed by the 1 acre zoning of the R-5 zoning district, is resulting in a proliferation of haphazard rear lot development accomplished through flag lot, joint driveway and private road developments. This destabilized some of the established residential patterns and a continuation of this trend at the one unit per acre density was seen as undesirable given the environmental consequences mentioned above.

The recommended residential density policies of the RDR planning district are intended to minimize the effects of haphazard land fragmentation and to complement the REA planning district located to the east. The RDR planning district will serve as a transitional area between suburban densities to the north and west. The planning district is expected to serve a category of residents and home buyers that desire a rural environment in relatively close proximity to urban amenities.

The recommended land use policies for use the RDR district to include:

businesses are not adversely affected is important, but recognizing where or when redevelopment is a more positive alternative is also a critical factor to consider.

FUTURE LAND USE CATEGORIES AND ZONING PLAN

The following land use categories along with supporting recommendations. The Future Land Use Map illustrates the geography of the Future Land Use Plan (see **appendix**).

Rural Estate and Agricultural – REA (1 dwelling unit to 1 acres)

This planning designation has been applied to part of Section 2 in the northeast and the majority of the land area within the four extreme southeast sections of the Township, (Sections 25, 26, 35 and 36). The exceptions are found along Apple Avenue. The REA corresponds to the R-5 “Agriculture and Resort Uses” zoning district. Much of the southeast area is characterized by a high water table and sandy soils that pose severe development limitations, especially septic systems and buildings with basements. The area is bisected by Cranberry Creek and Big Drain and the adjacent low areas are subject to flooding. Existing development in the area consists of numerous large residential lots of five or more acres and several relatively large parcels of woodland and farmland. The northeast area is similar to the southeast and is even further isolated from supportive infrastructure by the State Game area and the MCWWMS.

The planning district is focused toward preserving the rural character and farming activity still found in the planning district, a desire that has been widely expressed by existing residents in the area. The decreased density will prevent over taxing of the rural roadways and over taxing of the soil with on-site septic systems. The low overall residential density will also better enable the creation of the buffers needed to preserve the area's remaining agricultural operations. The low dwelling unit density will also facilitate fewer conflicts with other permitted rural activities also allocated to the R-5 Agricultural and Resort Uses district.

The majority of REA development is expected to occur on large lots. Open space cluster development at higher net densities but at the same gross density as the balance of the district will however be accommodated under zoning provisions adopted pursuant to the State's mandated Open Space Preservation requirements (Section 506 of the Michigan Zoning Enabling Act) and similar open space preservation provisions included in the Zoning Ordinance. Existing

1. Utilization of a basic land division minimum lot size for residential parcels from 2.5 acres. Open space cluster development at higher net densities but at the 2.5 unit per acre gross density will be accommodated under zoning provisions adopted pursuant to the State's mandated Open Space Preservation requirements (Section 506 of the Michigan Zoning Enabling Act) and similar open space preservation provisions included in the zoning ordinance is also recommended.
2. Limiting the extent of fragmentation at the 2.5 acre lot size. House lots of that size should be limited to occurrences of land division only.
3. Use of standards that effectively prohibit plat and site condominium forms of development without the preservation of substantial un-developable open space.
4. Use of incentives to encourage the preservation of large tracts of un-fragmented open space within plats and site condominium developments. Incentives and general standards for this form of development include:
 - Allowing of a gross development density approaching the one unit per acre that is presently allowed under existing R-5 zoning.
 - Stipulating that 40% to 45% of the development property be preserved as un-developable open space.
 - The average lot size in such developments would be allowed to create more efficient net densities on the developed fraction of the parcel to approximately two units per acre.
 - Prohibiting individual septic and drain field systems within such developments as matter of course. All developments not capable of connecting to the public sewer system would as a practical matter be required to install professionally engineered and operated private community wastewater treatment facilities (e.g. package plants or community drain fields) with collection systems built to Township standards.
 - Consider "down zoning" existing commercial and industrial zoned property located in the southeast $\frac{1}{4}$ of Section 34. These areas are well out of reach of utilities and it is not desirable for them to support a wide range of commercial or industrial uses. Under the R-5 zoning, the portions of the parcels that are presently used and developed for business purposes would be treated as legal non-conforming uses having limited abilities to expand or to change to another business use. The undeveloped portions would be expected to support uses allowed in the R-5 zoning district.

Low and Medium Density Residential –LMDR (R-1 conditional to R-2 Zoning)

The LMDR Planning area encompasses existing and planned detached single family residential areas and developable parcels located in fringe areas where public sewer, and eventually public water are planned but where in large part the utilities are not yet present. Depending on utility availability, the recommended zoning for these areas is R-1 Residential or R-2 Residential. In the northwest and southwest quadrants of the Township, the LMDR area consists of non-sewer portions of the R-1 and R-2 Residential Districts. In sections 15 and 16, the LMDR area consists of non-sewer R-5 Agriculture and Resort areas that have previously been planned for medium density residential, but are not yet zoned R-1.

The LMDR planning areas are envisioned as the areas where development at zoned R-1 and R-2 densities of three dwelling units per acre or more should be facilitated, but where it should not occur until adequate public infrastructure such as sewer is extended.

Within the LMDR planning district four basic development options exist:

1. Private extension of public sewers. This option will allow the minimum lot sizes permitted in the R-1 and R-2 districts to be used on lands presently zoned that way. Note: The primary distinction between R-1 and R-2 is that the R-2 district permits duplex dwellings. Because of the increased density associated with the R-2 District, public water should be considered a prerequisite to the creation of additional R-2 zoning districts.
2. Development with the installation of private community wastewater treatment and collection system. It is recommended that each development occurring with a private system, connect to the public system when and if the public utility is extended to, or past the development property. Policies similar to those established in the RDR planning district to encourage open space preservation and clustering could also be applied in this planning district.
3. Development without public sewer or private community wastewater treatment. The number of permitted lots would therefore be limited to allowable metes and bounds splits unless public or private sewer is provided as indicated in 1 and 2 above, residential density should be limited to approximately one unit per acre (1 acre minimum lot size) and platting/site condominium development prohibited.
4. Within areas of the LMDR District that are presently zone R-5, the recommended platting and site condominiums limitations and policies of the RDR planning area should be applied. If concurrent sewer extensions are to occur, rezoning to permit the R-1 and R-2 zoning should be considered.

Medium Density Residential –MDR (R-2)

The Medium Density planning district supports medium density housing consisting primarily of detached single family residential development and a controlled degree of attached two family and duplex dwellings. The MDR planning district coincides in large measure with the R-2 Residential zoning district. The MDR area is the residential core area of the Township, nearest the commercial and institutional sectors. Public sewer is generally available or relatively nearby and the installation public water is ultimately foreseen. Included are areas west of Hilton Park Road north of Apple Ave., including Wolf Lake, and a corridor south of Apple Ave, and east of Wolf Lake Road.

The district character is one of small to medium sized parcels of (13,000 s.f.). Because of the proximity to existing public sewer, new “sub-division” development should only allowed if public or private wastewater systems are used. To increase the cost feasibility and efficiency of utility extensions the negative impacts of metes and bounds land fragmentation should minimized. For this reason a maximum lot width and size requirement is recommended.

As a development option, open space preservation/clustering is recommended in this district.

High Density Residential –HDR (R-3)

The HDR planning district facilitates multifamily dwellings, attached 3 and 4-plex units and duplexes at a maximum density of 5 units per acre. The HDR designation will provide opportunities for elderly housing and retirement communities. In the HDR Districts, public sewers will be necessary and no new HDR (R-3) districts should be created unless there is concurrency with public sewer.

An HDR area is also indicated on West Apple Ave., east of Brooks Road where such development is viewed as an alternative to commercial strip development.

Manufactured Home Community –MHC (R-4 Mobile Home Park Residential)

The Manufactured Home Community planning district coincides with the R-4 Zoning District and recognizes and supports the existing manufactured home parks in sections 14, 20 and 31. At least two of the existing manufactured home communities have additional ability to expand and appropriate zoning has been allocated for that purpose. Given their ability to expand, it is felt that the existing facilities and the adjacent areas continue to contain adequate land area to

satisfy long range demands. In order to maintain a balanced stock of housing Egelston Township should monitor the number of sites within manufactured home communities and limit the percentage of mobile homes in the total housing stock to under the current percentage of just under 30% or a ratio of approximately 2.5 conventional single family homes to one manufactured home. All manufactured home communities should be required to locate with public sewer and public water supplies.

Commercial Land Use

Commercial establishments typically seek out major streets with high traffic volumes to maximize their visibility and encourage drive-in trade. When a major street begins to develop commercially however, traffic congestion too often occurs and conflicts result between through traffic and the vehicles entering and exiting business driveways.

The Master Plan recognizes that the demand for a variety of commercial types of development are likely to increase within the planning period. These demands will continue to be greatest along the along Apple Avenue (M-46) where traffic volumes are highest, and where commercial establishments can take advantage of high traffic volumes and a more concentrated consumer market. It is important to direct this type of development in a manner which minimizes some of the undesirable effects that additional commercial strip development brings.

PC-Primary Commercial (C-1)

This designation applies to areas intended to support retail and personal service establishments. These businesses cater to the day to day convenience needs of residents in the immediately surrounding residential areas. The areas are generally intended to be developed under zoning provisions outlined under the existing C-1 Commercial Zoning District contained in the Township Zoning Ordinance.

SC-Secondary Commercial (C-2)

A secondary focus of commercial activity includes the commercial areas at the intersection of Apple Avenue and Maple Island Road. This area is intended for a broad range of commercial retail and service activities oriented toward a regional market. This area of the Township has good regional access. Commercial land uses

range from retail to service establishments that are both destination oriented and drive-by businesses. The areas illustrated may be developed under provisions of the C-2 Commercial zoning district, but it is recommended that concepts of walkability, connectivity, mixed uses and compactness be encouraged.

ROC - Mixed Use Residential/Office/Commercial Plan District.

A majority of the remaining Apple Avenue corridor continues to encompass a mixture of vacant land, residences and commercial businesses. Within these areas development and redevelopment potential exists for a variety of uses including residential, retail and office use. The ROC area is therefore envisioned as a mixed use Planning District where flexible development guidelines requiring meaningful buffers, landscape controls and access management techniques are used to influence development in the intermingling of residential and commercial properties. The ROC designation is intended to support housing and professional services oriented development in areas of good housing access. At larger intersection nodes, retail service establishments catering to the needs of employees and nearby neighborhoods could be accommodated as part of mixed use developments established under a coordinated development scheme such as a planned unit development.

Commercial Design Standards

Unless careful site planning and access controls are instituted, conflicts between uses can occur, opportunities for integrated uses lost, and the capacity of streets can be greatly reduced. It is recommended that site plans and the rezoning of land designated on the Future Land Use Map for commercial purposes be done cautiously to help assure that development is not done prematurely or haphazardly, with disregard for the lack of utilities, adjacent existing uses or those that will develop later, on an adjoining site. Implementation of the commercial land use plan should therefore include implementation the following recommendations:

1. Utilization of flexible planned unit development zoning provisions which facilitate and encourage proposals that incorporate integrated mixed uses, joint access and alternate access characteristics.

2. Knowledgeable use of zoning standards and the site plan review process. The Site plan review process should be used to promote land use and transportation objectives and to increase site design quality relative to;
 - Wastewater collection and storm drainage: Unless public sewer and engineered drainage systems are provided, major development should not be permitted.
 - Driveway Location and Spacing: Driveways should be located as far from street intersections as possible to avoid left turn conflicts and businesses should be encouraged to use joint driveways whenever possible. Driveways should be spaced to reduce conflicts and provide gaps in traffic for safer ingress and egress. To promote adequate driveway spacing, commercial parcels located on arterial streets should have a minimum of 200 feet of street frontage. Driveway standards should be applied at the time of redevelopment and new development.
 - Landscaping: Commercial development should provide landscaping along the street edge to enhance aesthetics and screen parking areas. Specific landscaping requirements should be incorporated in the zoning ordinance for use in ensuring adequate and uniform landscape treatment among businesses.
 - Alternate Access: Wherever possible a secondary means of ingress and/or egress should be provided. For corner parcels, alternate access could take the form of access to an intersecting street. For interior parcels, access across adjacent parking lots, access to another street to the rear of the property, or development of a new distinct frontage road or rear access service drive parallel to the major street are all desired alternatives.
 - Signs: The number, size and location of signs should be controlled and kept to a reasonable minimum to avoid motorist confusion and to insure individual business identities.
 - Pedestrian Access: Where appropriate, sidewalks or pathways should be provided to link businesses with each other and residential areas.

Industrial Land Use

The Future Land Use Map identifies existing and future industrial areas. Industry is vital to a diversified tax base and for providing local employment opportunities. Industrial areas must be located for good highway access and situated to minimize potential conflicts with residential uses. Industrial development should also be supported by the provision of adequate sewer and ultimately public water.

LI - Light Industrial Planning District (I-1)

The Future Land Use Map identifies a **Light Industrial Planning district (LI)** area west and south of the Muskegon County Wastewater Treatment system. Another LI area is located on south Wolf Lake Road, north of Evanston Ave. The Light Industrial Planning District should only support industrial uses that produce minimal impacts on adjoining land uses. This planning designations corresponds to the I-1 Industrial Zoning District.

GI - General Industrial (I-2)

The General Industrial Plan District supports heavy industrial uses and encompasses the established industrial park in sections 31 and 32 along Evanston Avenue. These intensive industrial uses have the potential to produce off-site environmental impacts (e.g. noise, odors, glare, etc.) heavier truck traffic and other influences that have a larger impact on adjoining land uses. This planning designations corresponds to the I-2 Industrial Zoning District.

Wastewater Management System - WMS

The Wastewater Management System (WMS) Plan District supports the County owned waste water management site. The area is expansive and extends well into adjoining Moorland Township. The uses and activities that occur within Egelston Township include lagoon and irrigation forms or wastewater treatment, farming of field crops and limited industrial activity.

Conservation - CON

The Conservation Plan District (CON) is the Muskegon State Game Area which has a primary function and purpose of wildlife management and land conservation and preservation. Wildlife management, forestry, hunting and other limited outdoor recreation are activities that are carried out there. The area is publicly owned and all carried and or closely monitored by the Michigan Department of Natural Resources. The CON planning designation falls within the R-5 Agricultural and Resort Use Zoning District.

Conservation Corridor - CC

The Conservation Corridor Plan District outlines environmental buffer areas for water courses. The planning district runs across several zoning districts along the Townships major stream

courses. It is intended to highlight the need for a greater measure of protection for these important natural features. The effort to protect the streams is part of a regional watershed planning effort to protect the rivers and streams and to improve surface water quality in general.

The CC district is intended as an overlay, designating the land closest to the watercourses as the area that is best left as a buffer between structural development and harmful surface disruption practices and the watercourse. When implemented this simple regulatory tool can be highly effective in achieving water quality objectives. Within the designated buffer, extensive removal of natural ground cover and clear cutting of trees is discouraged. Structures and development activities will be encouraged to be setback a minimum of fifty feet from the high water mark and contiguous wetland areas. Implementation measures include amendments to the zoning ordinance. The few farmers that may be affected will generally be exempt from the zoning regulations. Implementation measures could also include educational efforts to encourage farmers to use best management practices near watercourses.

Maple Island Road Corridor- MICor

See the Maple Island Road discussion included in “Chapter 7 Transportation and Utilities”. The entire Maple Island Road corridor has been highlighted on the Future Land Use Map as an overlay corridor District that crosses several other planning designations. Within this corridor district, traffic projections and access management studies should be made in recognition the increased potential for change brought about by changing truck traffic patterns.. Pending the outcome of those studies and projections, a special zoning overlay should be considered for the purpose of instituting additional building setbacks, increased lot widths and access management controls that cross multiple zoning districts.

Parks and School Sites

For reference purposes, the Future Land Use Plan identifies the major township park and school facility locations. Such facilities are typically accommodated within the zoning districts in which they are located either as a matter of right, exception or by special zoning provisions.

Chapter 6

TRANSPORTATION AND UTILITIES

As in all communities, there is a direct functional relationship between land use patterns and its transportation patterns. This relationship should be coordinated as part of the Future Land Use Plan. Similar to land use, traffic volumes are influenced by development patterns in the region and the amount of through traffic. Thus, the Township must look beyond its boundaries and jurisdiction in order to ensure responsible planning. This involves cooperation with Muskegon County Road Commission (MCRC), Michigan Department of Transportation (MDOT) and surrounding communities.

ACCESS MANAGEMENT

Preserving the traffic carrying capacity of a roadway helps to avoid costly improvements and safety problems. Transportation studies have consistently shown that the number, design, and location of driveways along major roadways has a direct effect on traffic flow, ease of driving and accident potential. Because of the negative effects of driveway proliferation on traffic flow and capacity, every effort should be made to limit the number of driveways and to encourage access from side streets, service drives, frontage roads, and shared driveways.

The most effective means of ensuring proper access management is the site plan review process, enforced through the zoning ordinance. However, in order to properly administer site plan review, the Township should ensure that Future Land Use along major corridors adequately considers the function of the adjacent roadways.

A common misconception is that local communities have no input on driveway locations if the state or county has jurisdiction over the roadway. Although local regulation cannot conflict with the road authority (i.e. be less restrictive), it can control driveway locations through the site plan review process. Communication and coordination with the road authority is important but through this process local governments do have authority to control the placement and spacing of curb cuts as long as they are not less restrictive than the road authority.

Lots on Arterial Streets

Lots that have frontage on major streets often have no other means of access. This can have troublesome effects particularly if interior lands are not part of the initial lot's development and

subsequent interior development is allowed to have its own distinct access point within the original frontage area. This creates a high number of individual driveways along streets that often carry high speed traffic and results in significant traffic hazards.

When the interior of a property is being developed, flag lots with narrow frontage should be prohibited. In commercial and industrial settings, shared access is the desired alternative and in both business and residential settings appropriately spaced series of perpendicular interior streets can be one of the required solutions. Where appropriate, connection of these streets with streets or common easements parallel to the major street should be required and as many lots as possible should be required to gain access from these interior streets.

In rural areas rather than lining a major street directly with residential lots, a frontage street or a marginal access interior street should be created and the lots should back up to the major street. Additional landscaping or fencing may be provided for the back yard areas of these lots if homes are involved.

Driveway Spacing

Speed along many major roads is a significant concern, spacing between driveways must be carefully considered. Increasing the distance between each driveway provides a measure of safety by ensuring that drivers are not confused as to the location of driveways, since they may be separated by a wide distance. This also allows for a sufficient distance to slow down to enter the driveway.

The Zoning Ordinance may call for a minimum frontage on major roadways that will be developed for more intensive land uses. Proper spacing will help ease traffic conflicts between driveways and vehicles on the street. Driveway spacing (and lot frontages) will be less on those streets that are developed with land uses that generate less traffic.

Driveway controls are especially important when considering commercial and other nonresidential development. Spacing of drives should be as far from the intersection of public streets as possible. Sharing of drives for adjacent properties should also be required, where feasible. Limiting access points clearly helps provide an added measure of safety for uses that generate higher volumes of traffic.

FUTURE ROADWAY IMPROVEMENTS

Over the next twenty years, new growth in some areas of the Township may make necessary for major improvements to some existing roadways. In addition, continuing maintenance of existing road surfaces, including resurfacing, shoulder, and drainage improvements will also be necessary. In most instances however, where low intensity land uses are planned, resurfacing may be needed but even the major arteries should not need major improvements such as widening. Some intersections may require upgrading as traffic increases, but those improvements should be relatively minor.

Traffic operations are typically evaluated by the extent to which motorists are delayed in their travel. Future traffic operations are evaluated by comparing projected traffic volumes to the capacity or the road network. Roadway capacity is defined as the number of vehicles that can travel through an intersection or roadway segment during a specified time period. Generally, traffic operations and capacity analysis is evaluated for the peak hours of traffic.

Compared to many communities in West Michigan, Egelston Township's traffic conditions are generally manageable. Traffic volumes on most streets are relatively low, with comparatively few accident problems, reflecting its low density development and lack of major traffic generators, such as shopping centers. The heaviest volumes occur during the morning and afternoon peak hours, since the trips taken by these vehicles are primarily work oriented. An average two-lane, rural roadway has the ability to safely accommodate up to 16,000 vehicles per day. The most heavily traveled roadways, including M-46, are under their capacity and will not require major widening in the foreseeable future.

The following generalized transportation related recommendations are intended to address existing problems and to avoid problems in the future:

1. Development along arterial and collector roads, especially access by individual driveways, should be limited. New subdivision roads (both public and private) accessing the collectors and arterial roads should be planned for interconnectivity and reviewed for safe sight distance, proper acceleration and deceleration lane tapers and any left hand turn problems that may occur.
2. Establish road improvement priorities. Through cooperation with the Muskegon County Road Commission, monitor traffic volumes and road conditions as part of an ongoing program that establishes road improvement priorities. In this way, the Township and County can objectively allocate limited resources to those areas having the greatest need.

3. Consider the ability of existing roadway conditions to handle projected traffic volumes resulting from new development when reviewing rezoning requests, special land uses and PUDs.
4. Maintain private road regulations. Limits on the length of cul-de-sac streets and the interconnectivity of the street network should be analyzed prior to the authorization of new private streets. The Township should reserve the right to require private street interconnectivity and/or the creation of a public street where the logical extension of a public street or interconnectivity of streets is judged necessary to maintaining the safety and capacity of that nearby collector and arterial streets.

Maple Island Road Corridor

One important corridor to watch carefully, is Maple Island Road. That corridor runs north and south through the eastern portion of the Township and connects with Interstate 96 in Ottawa County and M-120 in Newaygo County. It is expected that the U.S. 31 bypass of Grand Haven (M-231) that is presently under construction, will enable a large amounts of traffic normally routed through Muskegon, to route more directly to and from places such as Fremont, Newaygo and other Michigan communities along M-37 and elsewhere to the north. The Michigan Department of Transportation and the affected counties have yet to conduct detailed assessments but it is expected that increased truck traffic on this route, along with passenger traffic increases could be significant.

Emphasis should be placed on the preservation of land (future right of way) needed to handle future lane expansions or additions at the Maple Island Road/M-46 intersection. Similar consideration should also be given to the two mile long section north of M-46 to White Road where economic development on the east side of the road is being encouraged and could also add local traffic demands.

Apple Avenue

The problems of strip commercial development have been well documented over the years. A multitude of commercial uses, each with its own driveway or driveways, creates traffic congestion and turning movement problems and increases the likelihood of accidents. Apart from a recommended geographic allocation of land uses in response to existing and preferred development patterns, the Plan recognizes the need for better access control measures along the Apple Avenue corridor. The following recommendations are intended to address these concerns.

1. Access control standards should be designed to regulate and coordinate access to undeveloped land along Apple Avenue. . These standards should address such items as driveway placement, width, and number; acceleration and deceleration lanes; driveway distance from intersections; joint driveways; frontage roads and service drives; and pedestrian movement. In establishing access control standards, the Township must enlist the support of the Muskegon County Road Commission and the Michigan Department of Transportation officials in reviewing site plans for new developments so that the access control standards developed by the Township can be implemented.

PEDESTRIAN SAFETY AND NEIGHBORHOOD COMFORT

"Transportation" is no longer synonymous only with the automobile, but refers to the movement of people by whatever means of transportation people choose to use, including walking, public transit, biking, and other non-motorized means. When more transportation alternatives are available, it is less likely that any one form will become over loaded or slowed by congestion, fossil fuels are conserved and public health is improved.

The term that has recently become popular to convey the concept of a multi-modal transportation system is "complete streets". Complete streets entails making a transportation network that serves the entire community, leads to improved transportation choices that includes walking and bicycling. Developing sidewalk and/or shared path networks linking residential areas to community areas, shopping and places of employment and enjoyment benefits senior citizens, children, teens and adults of all ages by giving them safe and pleasant alternatives to driving everywhere. Complete streets strategies promote public health by allowing people to incorporate activity into their daily routines, while at the same time making vehicular transportation more efficient by reducing short trip travel within the community.

Since each complete street is unique, it is impossible to give a single description but the ingredients that may be found on a complete street in include sidewalks, bike lanes (or wide paved shoulders), frequent crossing opportunities, pedestrian signals, curb extensions, and perhaps ultimately, comfortable and accessible bus stops.

The following types of improvements are part of the complete street package and can greatly enhance pedestrian comfort and safety.

- Site amenities such as bench seating, bike racks and trash receptacles could encourage more pedestrian activity and bicycling.
- On-street bike lanes could improve safety.
- Sidewalks could be added or improved in some locations.
- Street buffers could be created parallel to sidewalks by adding decorative berms, street trees and dense shrubs.
- Parking lot screening and landscaping could improve aesthetic character.
- A consistent use of signs, building materials, and architectural character.
- Overhead utility lines could be placed under ground and street lighting fixtures could be added to further improve aesthetics.

INTEGRATED SIDEWALKS AND TRAIL SYSTEM

Pedestrian and non-motorized circulation provides enormous benefits to residents from a social, economic and environmental perspective that improve the quality of life within the community. Several of these benefits have been previously introduced but include:

- An alternative to automobiles so traffic volumes can be reduced.
- Improved accessibility to schools, churches, the library, parks and other public or institutional uses.
- Designation of specific areas for non-motorized travel can improve safety since it separates bicyclists (especially the younger and casual bicyclists) from vehicular travel lanes.
- Increased public access to natural features such as woodlands and wetlands.
- A heightened awareness and preservation of sensitive resources.
- Increased access to the river and parks improves opportunities for recreation.
- Affordable, year round active recreation available to all age groups that improves community health, family togetherness and neighborhood cohesion.
- New business and economic development opportunities at trail heads and way points..
- Increase in the value of property situated along the pathway.

The Township should continue to strive to improve and expand its pedestrian system to help maintain community cohesiveness. This can be done by the creation of an integrated sidewalk

and trail system that connects significant parks and open spaces, neighborhoods, schools and businesses.

In order to integrate “off-street trails” and create walkable and bike friendly streets throughout the Township, it is desirable to make logical interconnections of the pathways with the existing and future sidewalks and the existing street system. Under this approach a network of sidewalks, off street pathways and designated bike routes will make the entire Township (residential neighborhoods, commercial areas, schools and parks and open space) accessible to pedestrians under the concept of “complete streets”. This will require the eventual expansion of the sidewalk system and the designation of certain street segments as “bicycle routes”.

Designated Bicycle Routes

From a bicycle trail design and engineering point of view, cyclists fall into two broad categories.

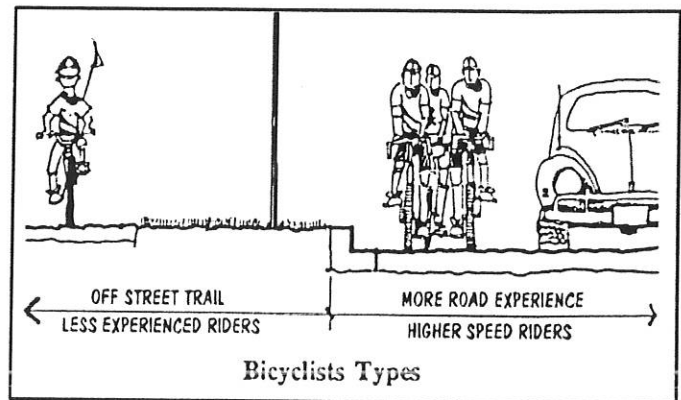
Type I-Recreational Cyclists: Novice or occasional riders

These cyclists tend to ride at slower speeds. Generally, they have less road experience and avoid automobile traffic because of a fear of being hit by a car. Slower speed riders prefer residential streets and off-street trails.

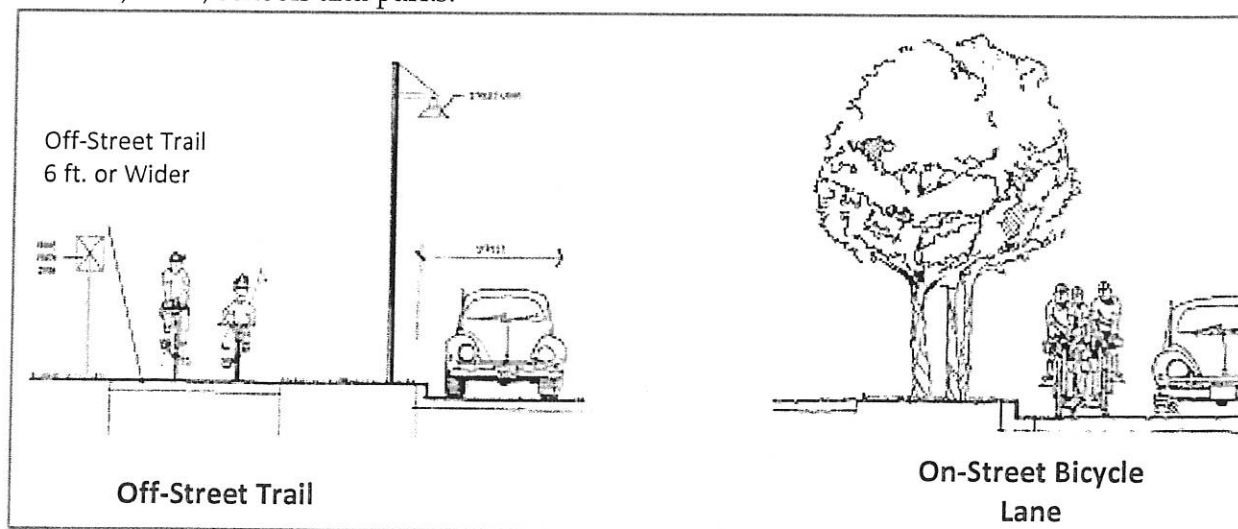
Type II- Serious Cyclists: Experienced and frequent riders

The second category of cyclists is typically the higher speed riders. They generally have more road experience and thus, are more willing to ride on most streets in heavier vehicular traffic. The higher speed riders, like the first group, choose the roads less traveled when they have a choice, but will use the major roads when necessary to get where they want to go.

Routes for the faster riders require stricter design criteria but those criteria also meet the needs of the slower riders. With a goal of improving the riding and trail conditions for all cyclists, using the more experienced cyclists as the prototypical rider for the design guidelines whenever possible accomplishes this objective. One can see that the opposite is not true by picturing a high speed rider on an Off-Street trail which, at least when compared to roads, is relatively narrow and winding. Riders traveling at higher speeds under these conditions will increase the trail's accident potential.



The off-street trail is still within the street right-of-way and is basically an extra wide sidewalk designed to accommodate the higher travel speeds of cyclists and skaters. These trails are typically 6'-12' wide and are when available, separated from the vehicular traffic by several feet of right-of-way, preferably at least 6 feet. They are not always parallel to the curb but can meander around existing trees and landforms to give interest and variety to the walking or riding experience. These trails usually connect residential neighborhoods to neighborhood centers, retail, schools and parks.



On Street Bicycle Route Criteria

The selection of routes to be used as designated bicycle routes should be based on the following criteria:

- Location of governmental and educational centers schools, Township Halls, Public Library, Post Office, Museum, etc.
- Locations of local churches.
- Locations of existing and future parks and regional parks.
- The condition and design of existing streets.
- Truck routes.
- Avoiding dead end routes, loops are the optimum configuration.

Implementation considerations

1. Bike route signage will be used to identify bike routes.
2. The roadway will be restriped to provide a wider outside lane for bicycle traffic. The restriping should take place if the restriped traffic lanes are at least 11' wide and restriping will allow for at least 1.5' of additional lane width in the outside lane.

3. Prohibition of on-street parking may be necessary in order to complete certain on street bike route segments.

Where street width is too narrow to accommodate two on-street bicycle lanes on the route, consideration should be given to the widening of sidewalks to at least 6 feet to create an off-street trail segment on at least one side of the street.

UTILITIES

Sewer System

Areas of the Township that are not served by the municipal sewer rely on septic systems which are placed and installed under the direction of the Muskegon County Health Department. In the past was anticipated that sanitary sewer service would ultimately be extended throughout the township. This plan suggest that certain areas in the southeast corner of the Township remain at very low rural densities and that public sewer therefore not be planned for that area.

Elsewhere, the Master Plan supports the continued emphasis of the local system, with continued emphasis on locations experiencing high residential density development and commercial and industrial development. Some residential development areas out of the immediate range of the public sewer extensions could be allowed to develop initially at maximum zoned densities with the use of engineered, private community wastewater treatment facilities. Development of such areas should, however, only be allowed to occur with the understanding that the private treatment systems are an interim measure and that connection to the public system will ultimately be required.

Water System

In order to fully recognize the area's potential for long term sustainable economic growth it is recommended that a water system within Egelston Township be developed. The feasibility of such a system may be increased if it is planned and coordinated as part of a regional system such as that originally envisioned under the Muskegon Regional Water Alliance. The system should ultimately parallel the extent of the sanitary sewer system with initial elements directed toward industrial and business customers or to resolve drinking water quality and public health issues that might arise in already developed areas.

EGELSTON TOWNSHIP FUTURE LAND USE MAP

Adopted December 16, 2014
Map Revised March 28, 2019

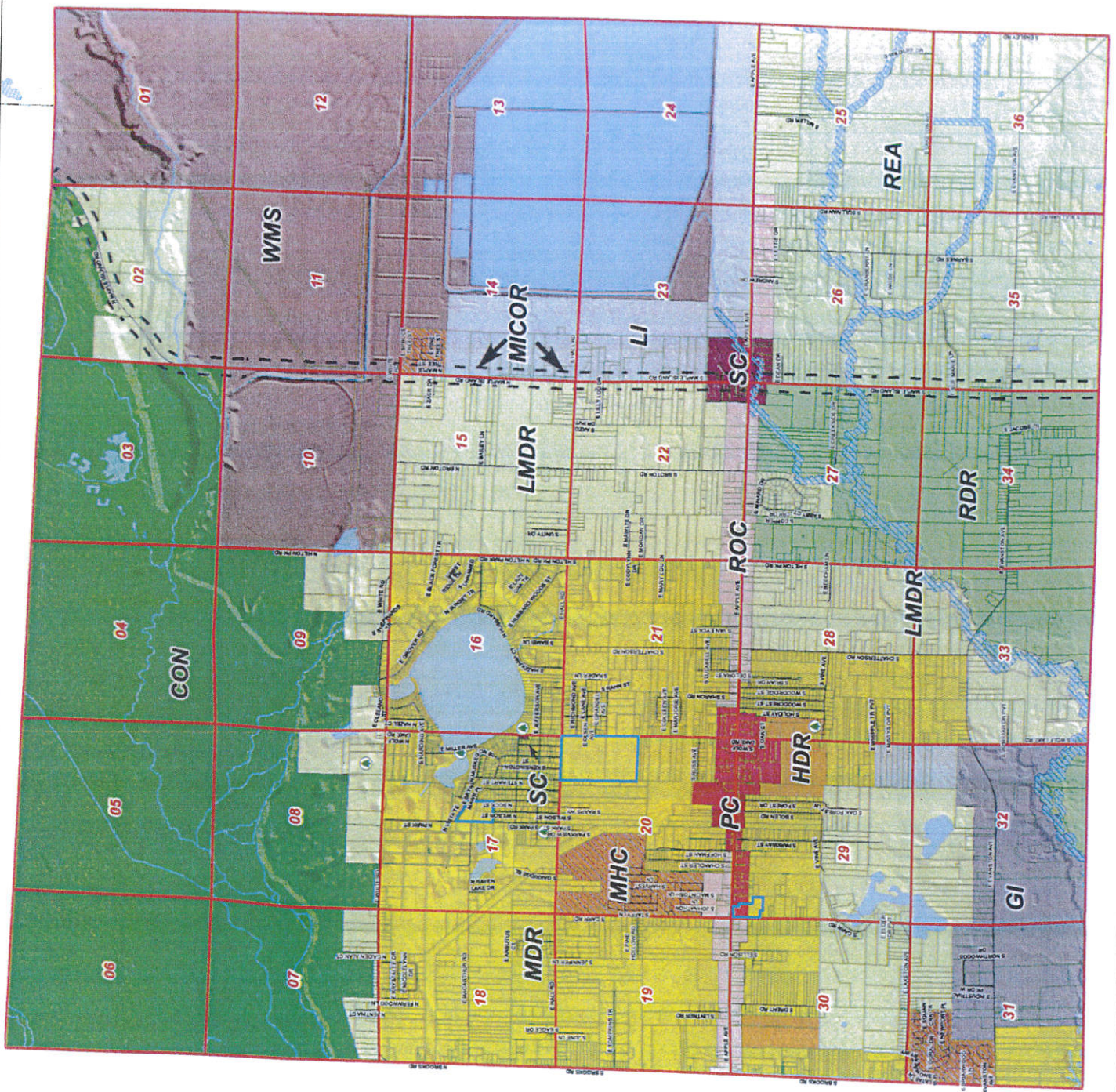
FUTURE LAND USE DESIGNATION AND MAP FEATURES

- OAKRIDGE SCHOOLS
- PARKS
- EDUCATION FACILITY BOUNDARY
- SECTIONS
- CONSERVATION CORRIDOR
- DRAIN CONSERVATION CORRIDOR
- LAKES
- RIVERS AND STREAMS
- DRAIN SEGMENTS
- STREET CENTERLINE
- MICOR: MAPLE ISLAND ROAD CORRIDOR
- CON: CONSERVATION
- LI: LIGHT INDUSTRIAL
- GI: GENERAL INDUSTRIAL
- MHC: MANUFACTURED HOME COMMUNITY
- HDR: HIGH DENSITY RESIDENTIAL
- MDR: MEDIUM DENSITY RESIDENTIAL
- LMDR: LOW AND MEDIUM DENSITY RESIDENTIAL
- PC: PRIMARY COMMERCIAL CENTER
- SC: SECONDARY COMMERCIAL CENTER
- ROC: MIXED USE RESIDENTIAL AND COMMERCIAL
- RDR: RURAL DENSITY RESIDENTIAL
- REA: RURAL ESTATE AND AGRICULTURE
- WMS: WASTE WATER MANAGEMENT



MUSKEGON COUNTY
GIS

Map by Muskegon County GIS
141 E. Apple Avenue Muskegon, MI 49445
P: 231-724-4458 F: 231-724-1123 www.muskegoncountygis.org
Map Date: Muskegon County GIS
Projection: State Plane MDO 1983 Michigan South Zone, International Feet



Chapter 7

Implementation

In order for the Master Plan to serve as an effective guide for the controlled development of Egelston Township it must be implemented. Primary responsibility for implementing the Plan rests with the Egelston Township Board, the Planning Commission and the Township staff. This is done through a number of methods including the adoption and enforcement ordinances; capital improvement programs; and cooperation and partnerships with other public agencies and the private sector; and administrative procedures.

The Master Plan itself is not a regulatory device. The implementation of the Plan must occur as the result of zoning and capital improvement decisions of the Planning Commission and Township Board who establish and administer land use regulations and who plan and provide needed public improvements. Private citizens, including individual home, business and land owners are also involved in fulfilling the recommendations of the Master Plan by the actual physical development of land uses and through the rezoning of land. The authority for this, however, comes from the Township government. Cooperation between the public and private citizens, including developers, is therefore important in the successful implementation of the Master Plan.

Zoning and Related Land Development Regulations

Zoning represents a legal means for the Township to regulate private property to achieve orderly land use relationships. Zoning is the process most commonly used to implement community master plans. The zoning process consists of an official zoning map and zoning ordinance text. The official zoning map divides the community into different zones or districts within which certain uses are permitted and others are not. The zoning ordinance text notes the uses which are permitted and establishes regulations to control densities, height, bulk, setbacks, lot sizes, and accessory uses. The zoning ordinance also sets forth procedures for special land use approvals, street access regulations and sign controls, among others. These measures permit the Township to control the quality as well as the type of development. Other regulations include Subdivision and Site Condominium Control Ordinances, land division ordinances, private road regulations, and blight ordinances.

The Township Planning Commission and Township Board are charged with making necessary revisions to zoning regulations and other development standards to ensure that the recommendations of the Plan are carried out. *Along with the recommendations contained in the Future Land Use Chapter, specific implementation measures, including several changes to the zoning Ordinance and Zoning map are outlined in the Goals and Objectives Chapter of this plan.*

Evaluating Land Use Changes

The Egelston Township Master Plan and Future Land Use Map continue to express the general desire among residents and Township officials to retain the predominately single family residential character of the Township. However, provisions for alternate housing types need to be included in order to meet the changing economic and demographic needs of the population. At the same time there is a relative "open slate" nature to some of the of Township's current landscape. Some aspects of the Master Plan and Future Land Use Map are fairly specific and other aspects are general in scope and are intended to be flexible. This flexibility is manifested by the depiction of the low to medium density residential planning areas and a "mixed use" corridor area of Apple Avenue. Elsewhere along the Apple Avenue corridor, long standing zoning districts are recognized but a range of acceptable future land use alternatives are indicated rather than precise relationships.

Utility extensions and future economic conditions will provide much greater clarity as to the ultimate scope and relationships of the various development types within the mixed-use districts rather than inflexible "Euclidean style" zoning. There is also no precise schedule to implement the recommendations in the Plan. Market demands, the availability of public utilities and provisions for adequate roadways, public services and other triggering or threshold factors such as the availability of similarly zoned and serviced land in the vicinity should be considered when reviewing any request for rezoning a particular parcel of land.

While the Future Land Use Map does portray the recommended general geographic location and extent of future land uses and it does form the basis for zoning, it is not the "Official Zoning Map". It should not, therefore, always or necessarily be relied upon to establish the precise boundaries of land use or exact locations of future uses.

At the time of actual rezoning, the land use change or changes that would be brought about by the rezoning should be evaluated carefully. As with any land use decision, the application of generally accepted "zoning criteria" can be essential to reaching fair and consistent decisions.

Zoning Criteria

The following evaluation criteria should be used by the Planning Commission and Township Board when zoning or land use changes are requested or otherwise contemplated:

1. *Can the property reasonably be used under its present zoning classification?*
2. *Is the proposed use compatible with other zoning and land uses in the area?*
3. *Would it be more appropriate to add the proposed use to the existing district as a use permitted by right, or by special use permit, or by Planned Unit Development than to rezone?*
4. *Is the location proposed appropriate for the range of uses permitted in the zone requested or contemplated?*
5. *Are uses in the proposed zone equally or better suited to the area than the current uses?*
6. *Does the proposal constitute a "spot zone" that is unsupported by rational land use planning?*
7. *Can the proposed development be adequately served by public utilities and services?*
8. *Is it consistent with development trends in the area?*
9. *Are the proposed rezoning consistent with both the policies and the uses proposed for that area in the Master Plan? If not, is the plan current and reasonable, or does it have to be updated?*

Consistency with the Vision, Goals and Recommendations of the Master Plan

If conditions upon which the Master Plan and Future Land Use Map was developed have changed significantly since the Master Plan was adopted, factors such as economic conditions, demographic shifts, new utility lines, changing traffic conditions and other reasons should be considered by the Planning Commission as part of their deliberation. Particular attention should be paid to the adopted Goals and Objectives to ensure that they remain valid, and that the proposed rezoning or land use change does not impair their intent. It is also important to consider the timing of certain rezoning requests relative to the recommendations of the Future Land Use Plan. In some cases the Future Land Use Plan may suggest a certain end use for a particular area but because of the lack of utilities or transportation improvements the rezoning to enable the end use should not occur until the necessary infrastructure is programmed and in place.

Prepare and Adopt Capital Improvements Program

Capital Improvements Programming is the first step in a comprehensive management system designed to set priorities and to accomplish the community's goals and objectives. It is a means of planning for the funding and implementation of major construction and land acquisition activities. The typical CIP is six years in length and updated yearly. The first year in each CIP contains the capital improvement budget. The program generally includes a survey of the long-range needs of the entire governmental unit covering major planned projects along with their expected cost and priority. The Township Board then analyzes the project's financing options and the interrelationship between projects. Finally, a project schedule is developed. Priority projects are included in the Capital Improvements Program. Low priority projects may be retained in a Capital Improvements schedule which may cover as long as 20 years.

The CIP is useful to the Township, private utilities, citizens and investors, since it allows coordination in activities and provides the public with a view of future expectations.

Recreation Plan

The Plan recommends that the Township maintain a recreation plan in order to be eligible for state recreation funding programs such as the Land and Water Conservation Fund, and Michigan Department of Natural Resources Trust Fund. Assistance under these programs is available for planning, acquiring land, and developing a wide range of outdoor recreation areas and facilities. The programs are administered by the Michigan Department of Natural Resources and are financed by funds appropriated by the federal government and state legislature. Under the LWCF program, grants of up to 50% of the cost of a project are available; under the MNRTF Program, 100% funding may be obtained.

Planning Education

Planning Commissioners should attend planning seminars to keep themselves informed of planning issues and learn how better to carry out their duties and responsibilities as Planning Commissioners. Seminars are regularly sponsored by the Michigan Association of Planners (MAP), the Michigan Township Association (MTA), and MSU Cooperative Extension Program and all are valuable resources for Planning Commissioners. There are also several useful planning publications for Planning Commissioners.

Inter-Governmental Cooperation

Inter-governmental cooperation on certain land use issues and utility issues can pay dividends to all involved. In an effort to manage growth properly, the Township desires to establish goals and regulations consistent with those of its neighbors so that the immediate area develops in a compatibly efficient manner, without over development. Consequently, Egelston Township hopes to minimize incompatible land uses across municipal boundaries and to manage growth in such a way that the strengths of each community are taken advantages of and that competition between communities for tax base and economic development dollars is minimized. The implementation of programs or policies resulting from this strategy will necessitate endorsement and support from all jurisdictions involved. This activity must be on-going and includes the notions of collaborating with adjacent communities in areas such as utilities, joint land use planning.

Public Information

It is important that the proposals of this Plan be discussed and understood by the citizens of Egelston Township. Acceptance of this Plan by the public is essential to its successful implementation. Steps should be taken to make Township residents aware of this Plan and the continuing activities of the Planning Commission. This can be accomplished through newspaper reports of Planning Commission activity. Contact with local civic and service organizations is another method which can be used to promote the Township's planning activities and objectives.

Revisions to the Master Plan

Under Michigan statute, the Master Plan must be reviewed annually and updated every five years. This will keep the plan responsive to new growth trends and current Township citizen attitudes. In the annual and five year review processes the planning goals, land use information, population projections and other pertinent data should be revised as necessary.

Appendices

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Surficial Glacial Geology	A-4
Pre-settlement Landscape	A-5
Land Use/Cover-1998	A-6
Land Use/Cover -1978	A-7
Land Use/Cover Change 1978 to 1998	A-8
Land Use/Cover Classification System	A-9

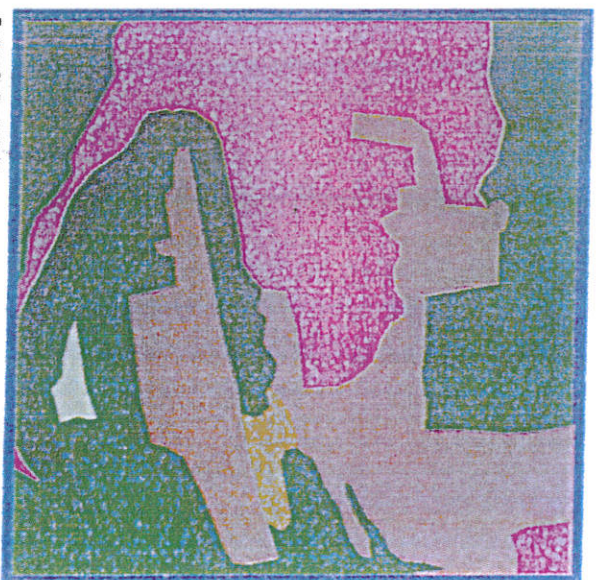
Land Use/Cover Resource Atlas

Egelston Township

Muskegon County, Michigan



Section 3 - Aerial Photo



Section 3 - Land Use/Cover

Atlas Project Partners:

**MICHIGAN STATE
UNIVERSITY**

RS&GIS
RESEARCH AND OUTREACH SERVICES

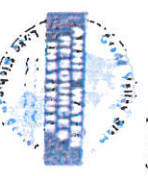
Funded by a grant from:

The Wege Foundation

With assistance from the:

Fremont Area Community Foundation

Atlas developed by:



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December 2003
MR-2003-22

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Project Overview

The Muskegon River Watershed covers approximately 2725 square miles and is contained within twelve counties in northern Michigan: Clare, Crawford, Kalkaska, Lake, Mecosta, Missaukee, Montcalm, Muskegon, Newaygo, Osceola, Roscommon, and Wexford. There are 140 townships, cities, and villages that are partly or wholly within the watershed boundary. Together these municipalities had a population of about 358,000 persons in the year 2000, compared to a population of 220,800 persons in 1960. For this 40-year period the 140 municipalities population has increased by approximately 62% (137,200 persons). It is estimated, based on the 2000 census, that the human population just within the Muskegon River Watershed is approximately 247,500 persons.

A major focus of this project was to inventory the current (based on 1998 aerial photography) land use and cover conditions within the watershed. The inventory was started in 2002 and completed in 2003. A change assessment was then done to understand how land use and cover conditions changed within the watershed from the previous inventory of 1973. This Atlas attempts to characterize the landscape of individual watershed townships by taking a close look at its surface geology, topography, presettlement landscape, and its 1978 and 1998 land use and cover conditions.

Land use and land cover changes have been identified as major factors in environmental problems both globally and locally. Replacing natural habitats with human development has many impacts on our natural environment. The Wege Foundation, with support from the Fremont Area Community Foundation, has generously funded the creation of this Atlas. The Atlas is to be used as a tool by local officials to help them understand the dynamic process of land use and cover change that is occurring within their respective townships, and the implications associated with these changes.

Building a Sustainable Future for the Muskegon River Watershed: A Decentralized Approach – A Project of: The Muskegon River Watershed Partnership

Project Partners:

Grand Valley State University -
Annis Water Resources Institute

Langworthy, Strader, LeBlanc & Associates

Local Conservation Districts

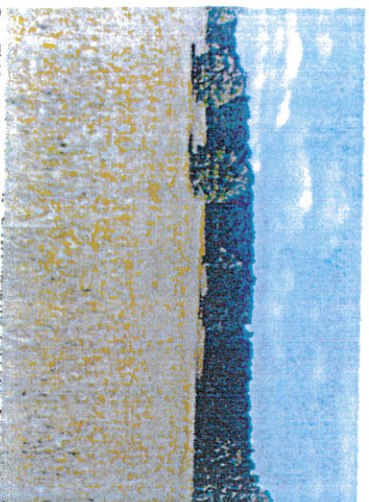
Michigan State University:
Remote Sensing & Geographic Information
Science Research and Outreach Services,
Department of Geography, and the
Urban Planning Program

The Nature Conservancy

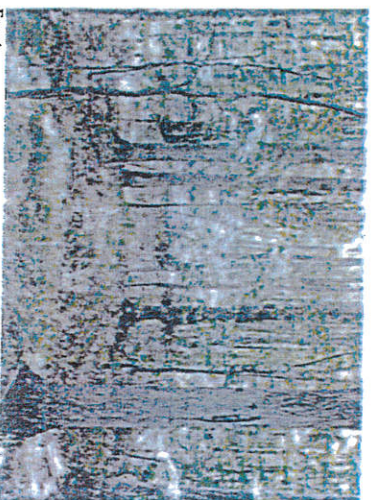
West Michigan Shoreline Regional Development Commission

Land Conservancy of West Michigan

USDA – Natural Resources Conservation Service



Open Field



Forest



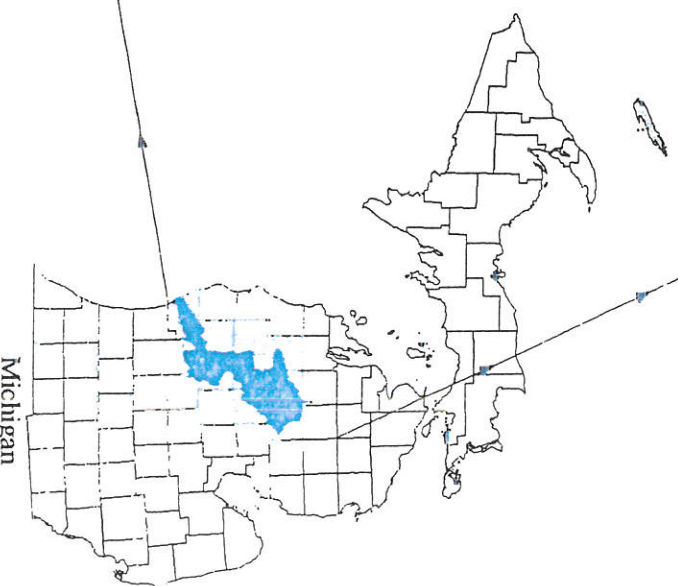
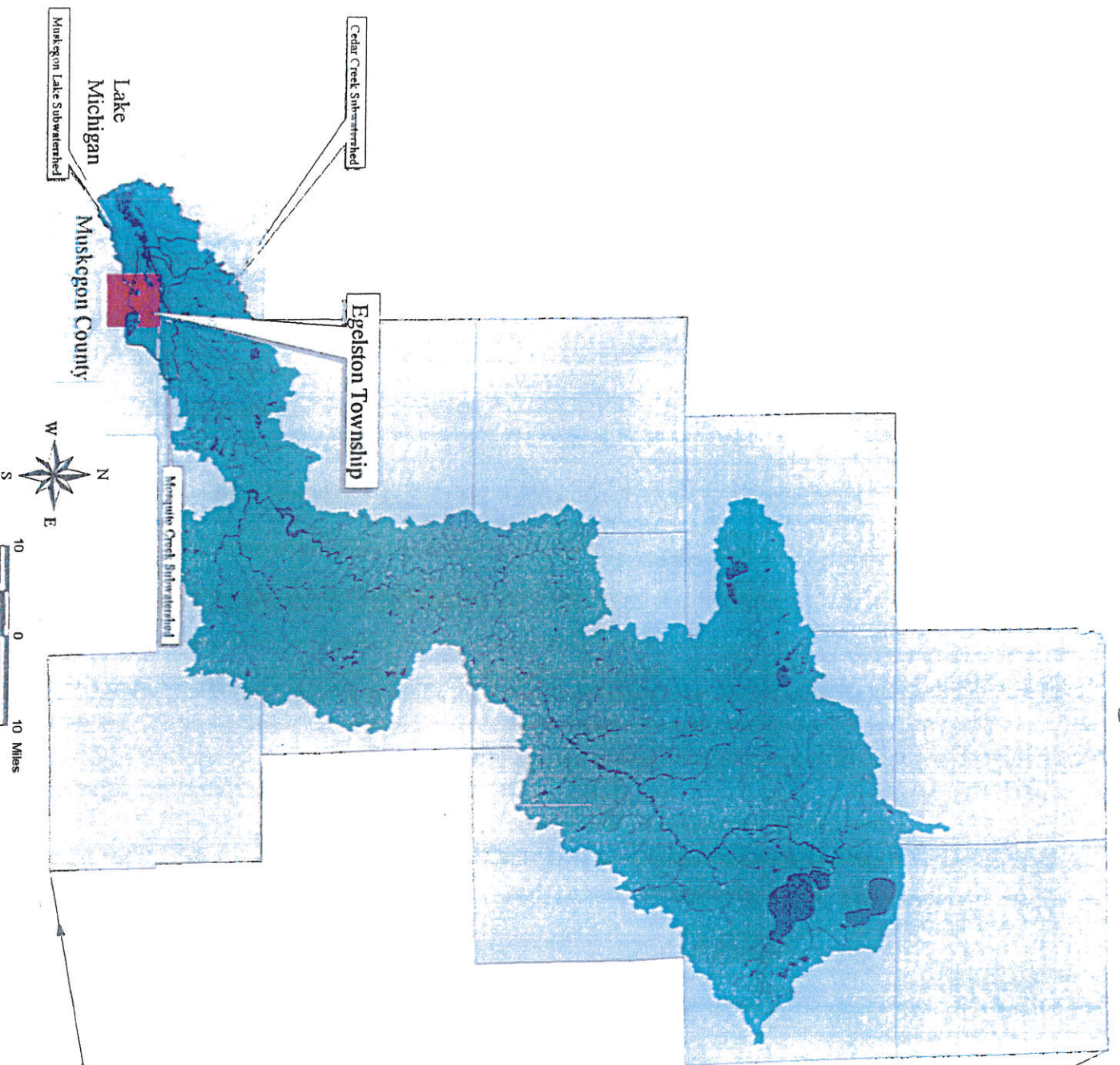
Agriculture

Muskegon River Watershed

Egelston Township

2000 Population = 9337 Persons

Percent of Township within the Muskegon River Watershed: 58%

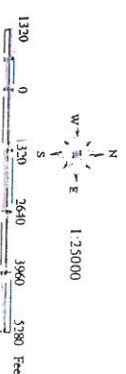
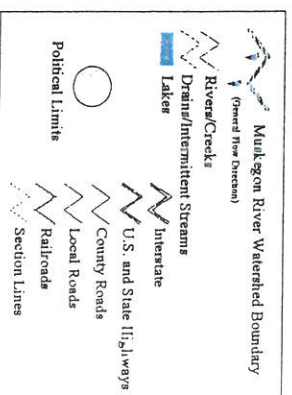
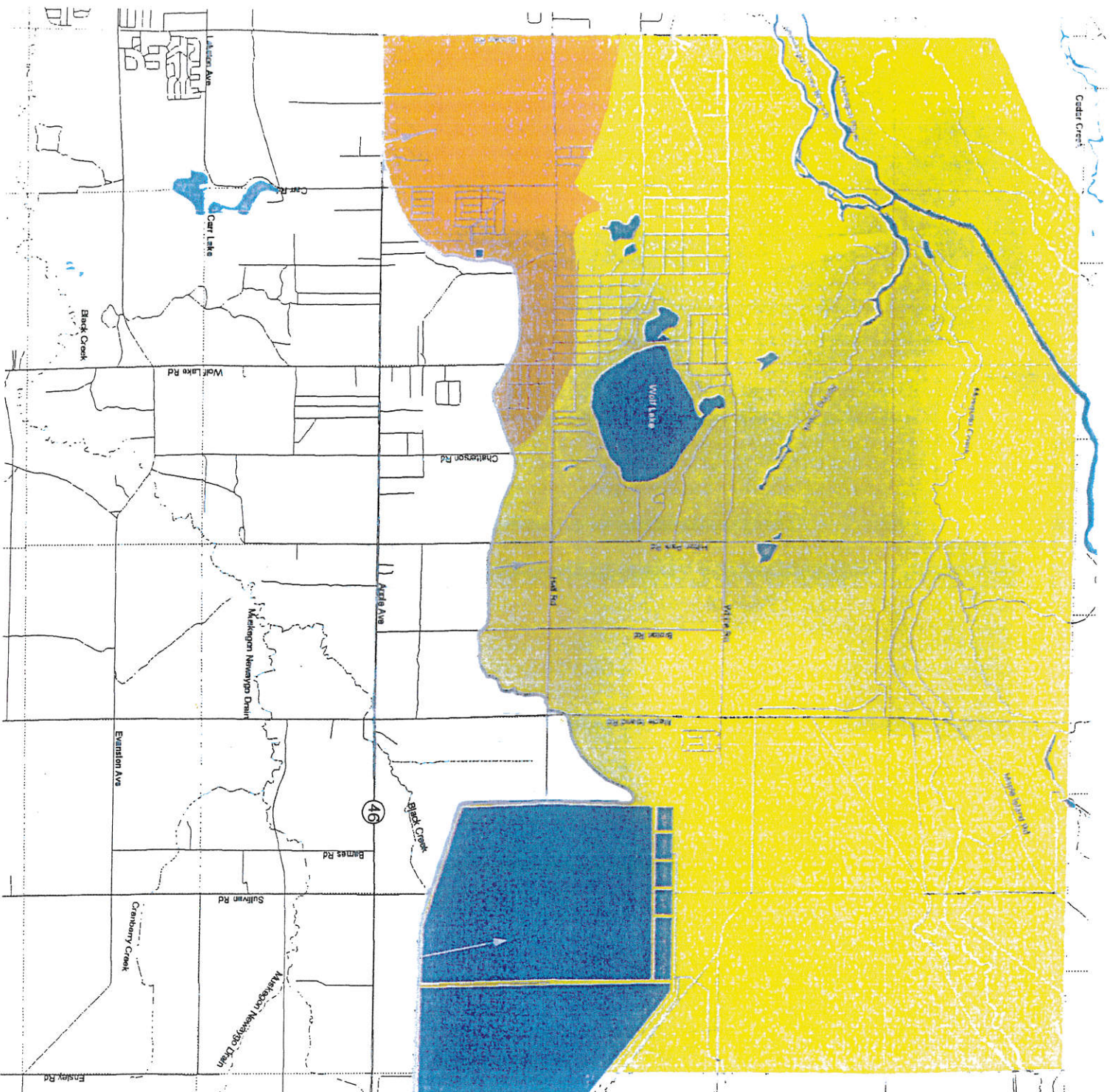


Subwatersheds

Muskegon River Watershed

Egelston Township

Muskegon County, Michigan

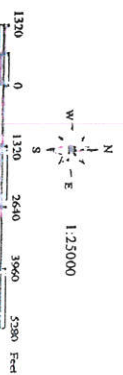
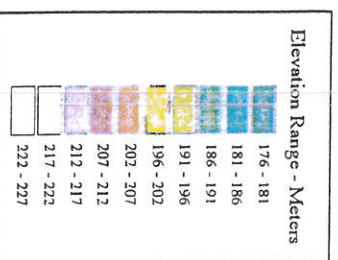
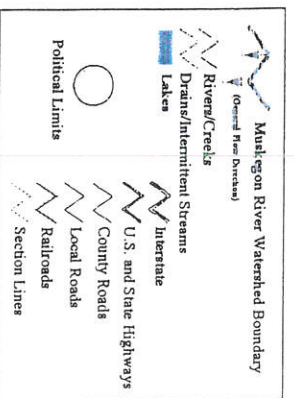


Base Data Source:
Michigan Center for Geographic Information,
Department of Information Technology, 2002
Subwatershed Source:
Michigan Department of Environment, Quality,
Land and Water Management Division,
Hydrologic Studies Unit, 1998

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Grand Valley State University
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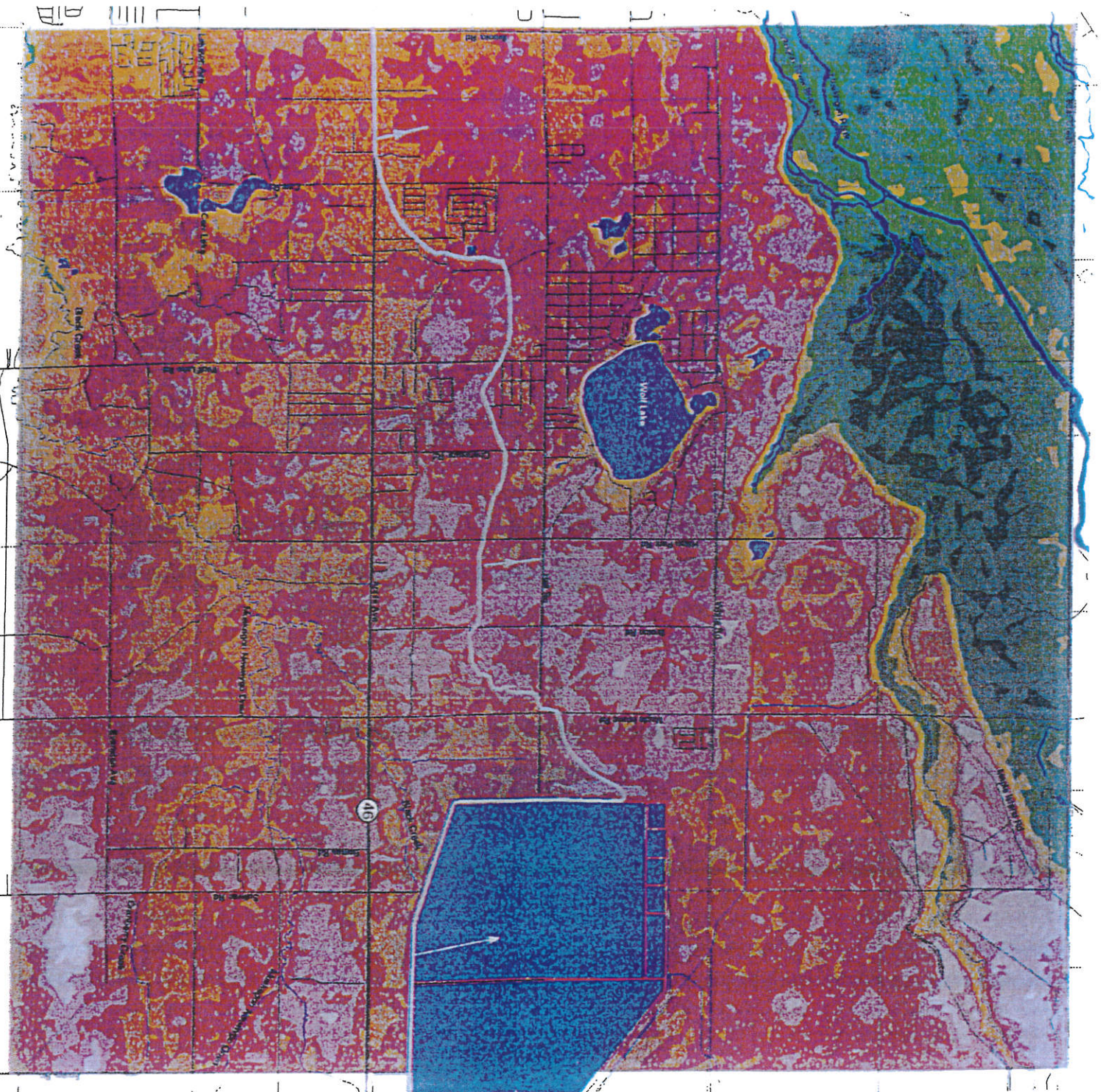
Digital Elevation Model

Egelston Township
Muskegon County, Michigan

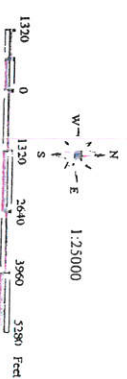
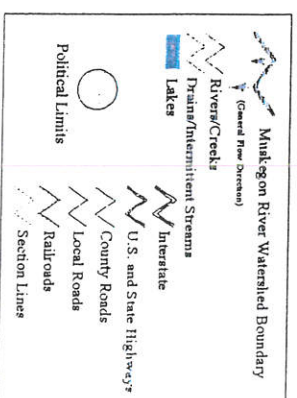
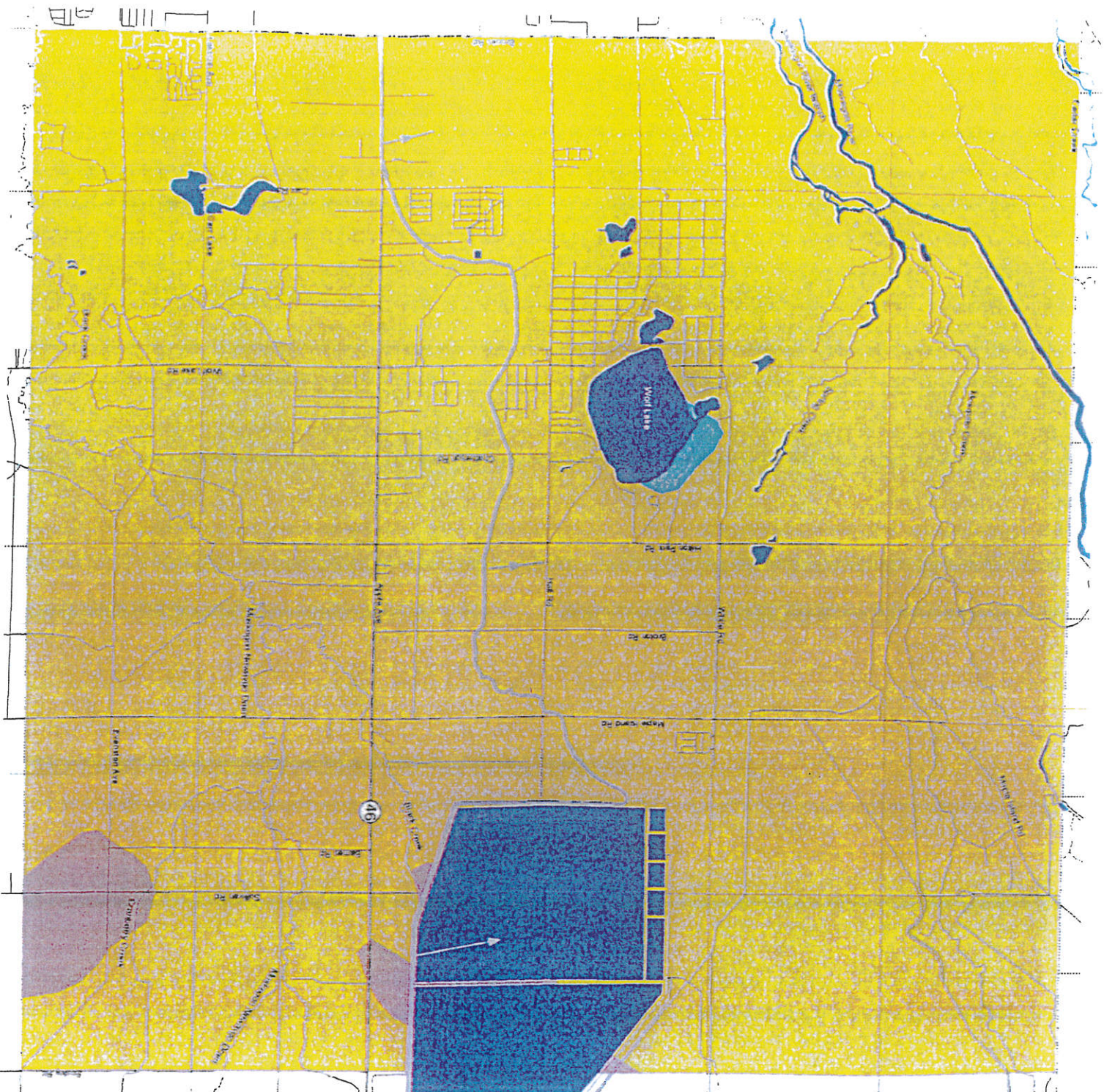


Base Data Source:
Michigan Center for Geographic Information,
Department of Information Technology, 2002
Elevation Source:
Shuttle Radar Topography Mission (SRTM)
aboard the Space Shuttle Endeavour,
launched on Feb. 11, 2000. Obtained from the
U.S. Geological Survey, EROS Data Center, 2002

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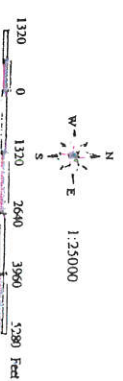
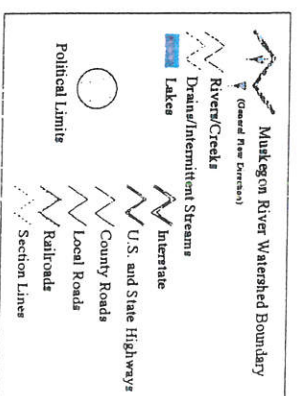
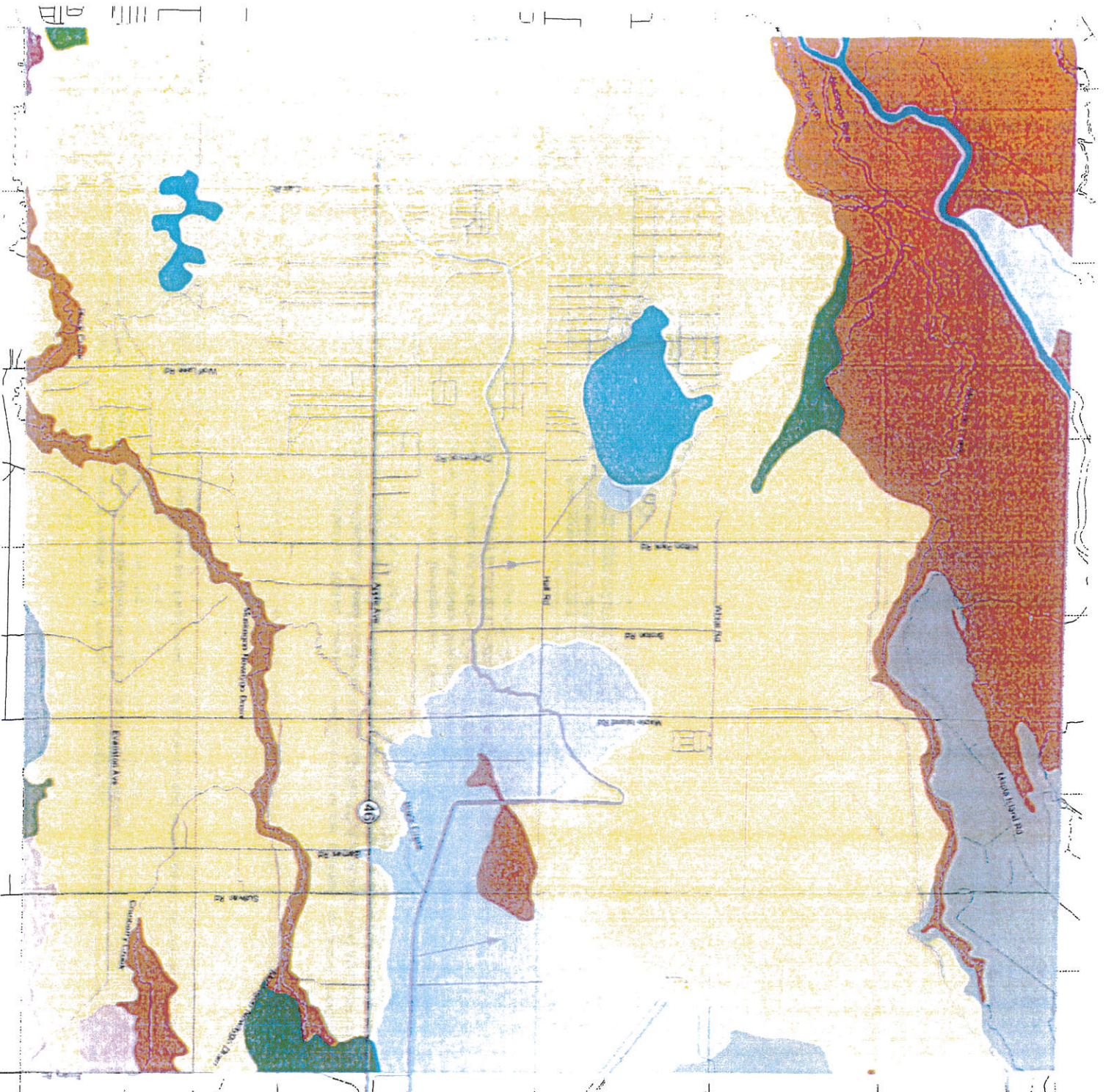
Surficial Glacial Geology Egelston Township Muskegon County, Michigan



Base Data Source:
Michigan Center for Geographic Information,
Department of Geography, Michigan State University,
Geology Data System, 2002
Based on Quaternary Geology of Southern Michigan
by W. R. Ferrel and D.L. Ball, 1982

Information Services Center
Annals Water Resources Institute
Grand Valley State University
Map Prepared: December 2003

Presettlement Landscape Egelston Township Muskegon County, Michigan



Base Data Source:
Michigan Center for Geographic Information,
Department of Information Technology, 2002.
Presettlement Landscapes Source:
As interpreted from the General Land Office Survey's
1816-1826, Michigan Natural Features Inventory,
Lansing, MI, 1995.

Information Services Center
Ann Arbor Water Resources Institute
Grand Valley State University
Map Prepared: December 2003

Surficial Glacial Geology and Presettlement Landscape

Surficial glacial geology describes the local landscape found within the Township. Surficial geology information identifies large glacial deposits such as outwash plains or moraines. These landforms or deposits, which helped shape the landscape of today, were created by glacial ice during the Pleistocene (Ice Age) Epoch. This information can be used by managers and planners to help them understand the patterns and processes that created our landscape.¹

Presettlement landscape data describe Michigan's native vegetation as it appeared prior to widespread European settlement in the 1800's. These historical data make a good reference point when trying to understand the cumulative impacts that the fragmentation, degradation, and conversion of our landscape have had on our natural systems.²

Overview of Egelston Township Landscape

Elevation varies from 176 meters along the Mosquito Creek to 227 in the southeast corner of the Township. Elevation changes abruptly along the edge of the Muskegon River floodplain. Total change in elevation is 51 meters or about 167 feet.

Lacustrine sand and gravel covers 95% of the Township, indicating that the land is located on an ancient lakebed. In presettlement times, higher elevation area in the south supported White Pine-White Oak forest (67% of the total land area). Mixed Hardwood swamp (16% of the total land area) and Hemlock-White Pine forest (4% of the total land area) occupied the Muskegon River floodplain. Shrub Swamp/Emergent marsh was found both near the Muskegon River and along the middle of the upland's eastern border. The Shrub swamp was the third most common cover type, occupying 6% of the Township. A 490-acre Oak/Pine barren was adjacent to the upland section of the Shrub swamp.

Today, the Township is a mixture of forest, agriculture, and urban development. The Muskegon River floodplain is mostly wetland and Lowland Hardwoods, whereas Central Hardwood and Oak forest is the dominant upland forest type. The northern, low elevation area is free of urban development. In other areas, most land that is not forested is residential, commercial, or industrial property. Part of the Muskegon County Wastewater Management System is located on the Township's eastern side. The aerating, settling, and spraying areas of its land treatment processes cover all 11,000 acres in Egelston and Moorland Townships. About 5,200 acres of cropland are part of the system's land area (both Egelston and Moorland Townships). Residential development is especially abundant along many of the county roads and lakes in the Township.

Presettlement Vegetation Types	Acres
Beech-Sugar Maple Forest	182
Beech-Sugar Maple-Hemlock Forest	76
Black Ash Swamp	18
Hemlock-White Pine Forest	964
Lake/River	448
Mixed Conifer Swamp	306
Mixed Hardwood Swamp	3568
Oak/Pine Barrens	490
Shrub Swamp/Emergent Marsh	1461
White Pine-White Oak Forest	15417
TOTAL	22928

Landform Description	Acres
Dune sand	872
Lacustrine sand and gravel	21868
Water	188
TOTAL	22928

References:

- ¹ W. R. Fernald & D.L. Bell, 1982. *Quaternary Geology of Southern Michigan*, The University of Michigan, Ann Arbor, MI.
- ² Conner, P.J., D.A. Albert, H.A. Wells, B.L. Hart, J.B. Raab, D.L. Price, D.M. Kamming, R.A. Conner, and D.W. Schuen. 1995. *Michigan's Native Landscapes, as Interpreted from the General Land Office Surveys 1816-1856*. Michigan Natural Features Inventory, Lansing, MI. 78p.

Land Use and Cover Classification System

(Based on the Michigan Land Cover/Use Classification System - 2000)

RESIDENTIAL

Residential land uses range from high density, multiple-unit structures of urban cores, to low density, where houses are on lots of more than one acre on the periphery of urban expansion. Included in this category are multi-family units, single family units, duplex units, and mobile home parks.

COMMERCIAL/INSTITUTIONAL

Commercial land uses are those used predominantly for the sale of products and services. The main buildings, secondary structures, and areas supporting the basic use are all included -- office buildings, warehouses, driveways, sheds, parking lots, landscaped areas, and waste disposal areas. Education, religious, health, correctional, and military facilities are considered institutional. All buildings, grounds, and parking lots that compose the facility are included within the institutional unit.

INDUSTRIAL

Industrial areas include a wide array of uses from light manufacturing and industrial parks to heavy manufacturing plants.

OTHER DEVELOPED AREA

This land use includes areas used for transportation, communication, utilities infrastructure, extractive operations such as sand pits, and open land such as recreation facilities and cemeteries.

CROPLAND

Land used to produce crops such as small grains, hay, or row crops including vegetables.

ORCHARD OR OTHER SPECIALTY CROP

This land use includes orchards, vineyards, and bush fruits. Horticultural areas include nurseries, floricultural producers, and seed/sod producers.

CONFINED FEEDING AND PERMANENT PASTURE

Feeding operations are large, specialized livestock production facilities, chiefly: beef cattle feedlots and large poultry farms. Hog and fur-bearing animal farms are also included. Permanent pasture is land that produces grasses and certain types of legumes, which are grazed by animals.

OTHER AGRICULTURAL LAND

Other agricultural land not included in the preceding three categories or combinations of agricultural land that cannot be clearly defined are included here. Land with greenhouses or land associated with agricultural production such as barns, out buildings, grain storage buildings, and the family farmhouse are in this category.

GRASSES AND FORBS OPEN FIELD

Areas dominated by native grasses and forbs. Such areas are often subjected to continuous disturbance such as mowing, grazing or burning to maintain herbaceous character.

SHRUB OPEN FIELD

Dominated (>25% cover) by native shrubs and low woody plants. If left undisturbed, such areas are soon dominated by young tree growth.

DECIDUOUS FOREST

Land with greater than 25 percent tree crown cover is considered forested. Typical broadleaf species are oak, maple, beech, birch, ash, hickory, aspen, cottonwood and yellow poplar.

CONIFEROUS FOREST

Land with greater than 25 percent tree crown cover is considered forested. Typical coniferous species are pine, spruce, balsam, larch, hemlock and cedar.

WATER

This category includes all areas that are predominantly or persistently covered with water.

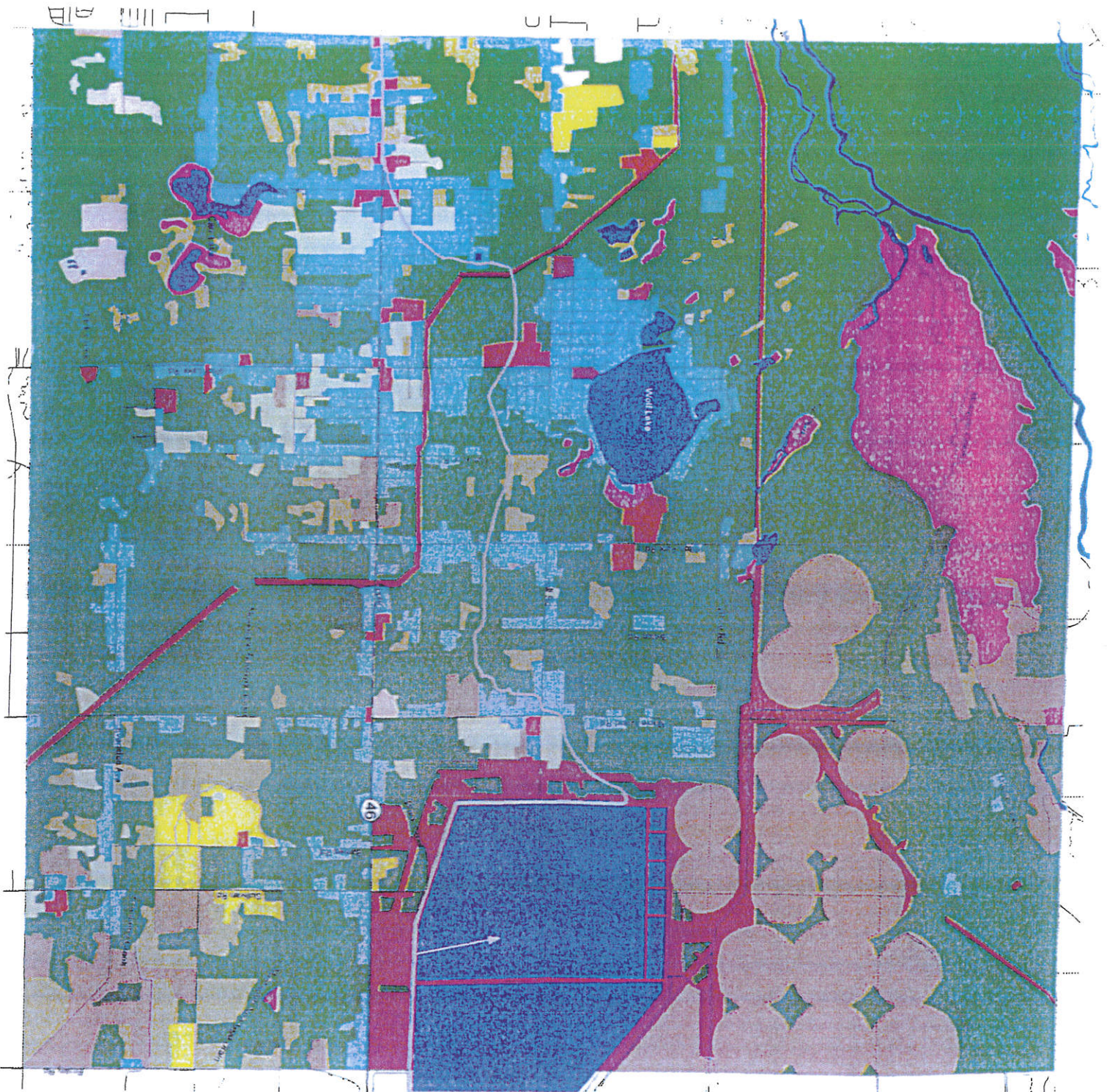
WETLAND

Wetlands are those areas 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 aquatic or hydrophytic vegetation is established.

SAND DUNE/OTHER

Sand dune and other areas are those of limited ability to support life and have little or no vegetation. Types of land cover considered in this category include beaches, riverbanks, sand dunes, and bare exposed rock.

Land Use/Cover - 1978 Egelston Township Muskegon County, Michigan



Muskegon River Watershed Boundary
(General Flow Direction)

Rivers/Creeks
Dashed line with 'V' marks

Drains/Intermittent Streams
Dashed line

Lakes
Blue area

Interstate
Double line with 'M' marks

U.S. and State Highways
Line with 'H' marks

County Roads
Line with 'C' marks

Local Roads
Line with 'L' marks

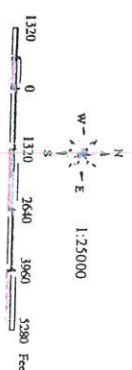
Railroads
Line with cross-ticks

Section Lines
Dashed line

Political Limits
Circle

Land Use/Cover Types

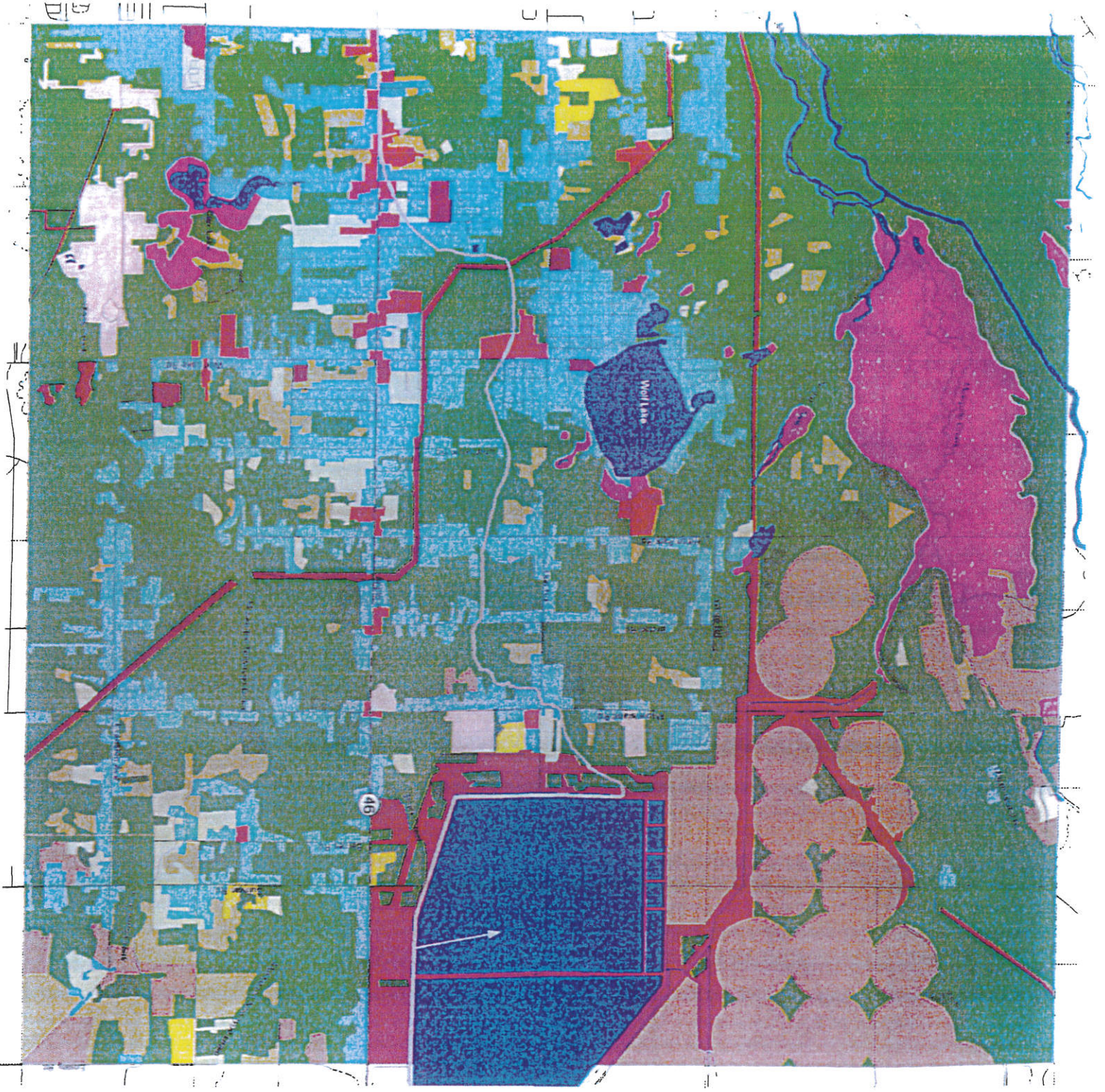
- Residential
- Commercial/Institutional
- Industrial
- Other Developed Area
- Cropland
- Orchards and Other Specialty Crop
- Confined Feeding/Permanent Pasture
- Other Agricultural Land
- Grassland and Forbs - Open Field
- Shrub Open Field
- Deciduous Forest
- Coniferous Forest
- Water
- Wetland
- Sand Dunes/Other



Base Data Source:
Michigan Center for Geographic Information,
Department of Information Technology, 2002.
Land Use/Cover Data Source:
Michigan Department of Natural Resources, MIRS, 1978.

Information Services Center
Anne Water Resources Institute
Grand Valley State University
Map Prepared: December 2003

Land Use/Cover = 1998 Egelston Township Muskegon County, Michigan

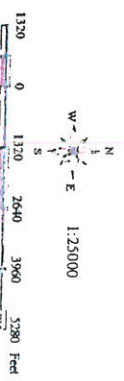


Legend

- Muskegon River Watershed Boundary
- Drains/Creeks
- Lakes
- Interstate
- U.S. and State Highways
- County Roads
- Local Roads
- Railroads
- Section Lines
- Political Limits

Land Use/Cover Types

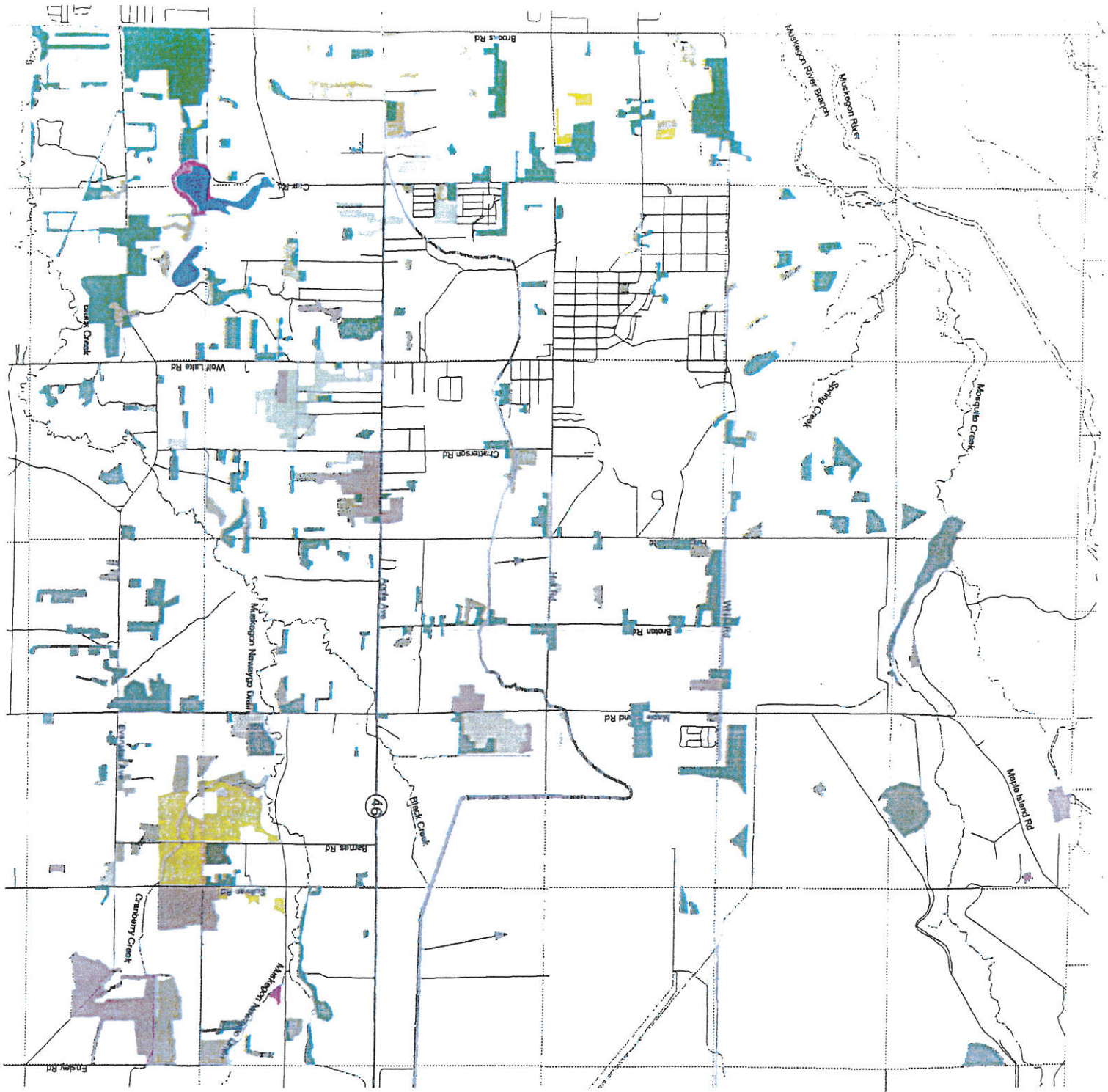
- Residential
- Commercial/Institutional
- Industrial
- Other Developed Area
- Cropland
- Orchards and Other Specialty Crop
- Confined Feeding Permanent Pasture
- Other Agricultural Land
- Grasses and Forbs - Open Field
- Shrub Open Field
- Deciduous Forest
- Coniferous Forest
- Water
- Wetland
- Sand Dune/Other



Base Data Source:
Michigan Center for Geographic Information,
Department of Information Technology, 2002.
Land Use/Cover Data Source:
Michigan State University, Center for Remote Sensing
and Geographic Information Science, 2002.

Information Services Center
Anne M. Water Resources Institute
Grand Valley State University
Map Prepared December 2003

Land Use/Cover Change 1978 to 1998 Egelston Township Muskegon County, Michigan



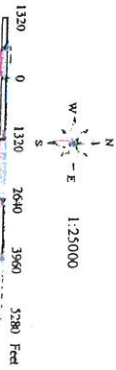
Muskegon River Watershed Boundary
(Grand River District)

- Rivers/Creeks
- Drains/Intermittent Streams
- Lakes
- Interstate
- U.S. and State Highways
- County Roads
- Local Roads
- Railroads
- Section Lines
- Political Limits

**Change From:
Land Use/Cover Types**

- Residential
- Commercial/Institutional
- Industrial
- Other Developed Area
- Cropland
- Orchards and Other Specialty Crop
- Confinfed Feeding/Permanent Pasture
- Other Agricultural Land
- Grass and Forbs - Open Field
- Shrub Open Field
- Deciduous Forest
- Coniferous Forest
- Water
- Wetland
- Sand Dune/Other

NOTE: This map identifies areas in the Township that have changed use or cover during the 20 year period between 1978 and 1998. The mapped areas show what the land use/cover conditions used to be in 1978.

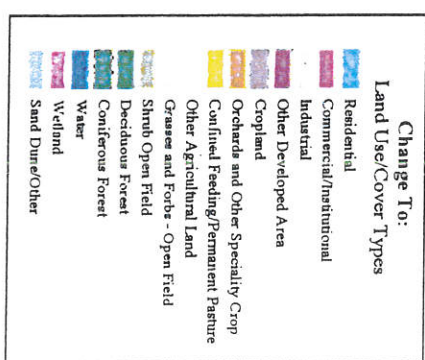
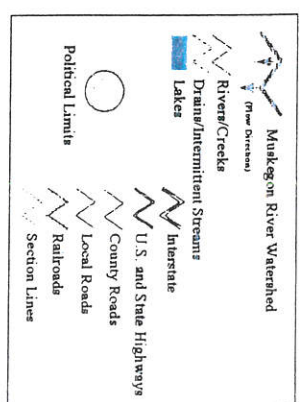
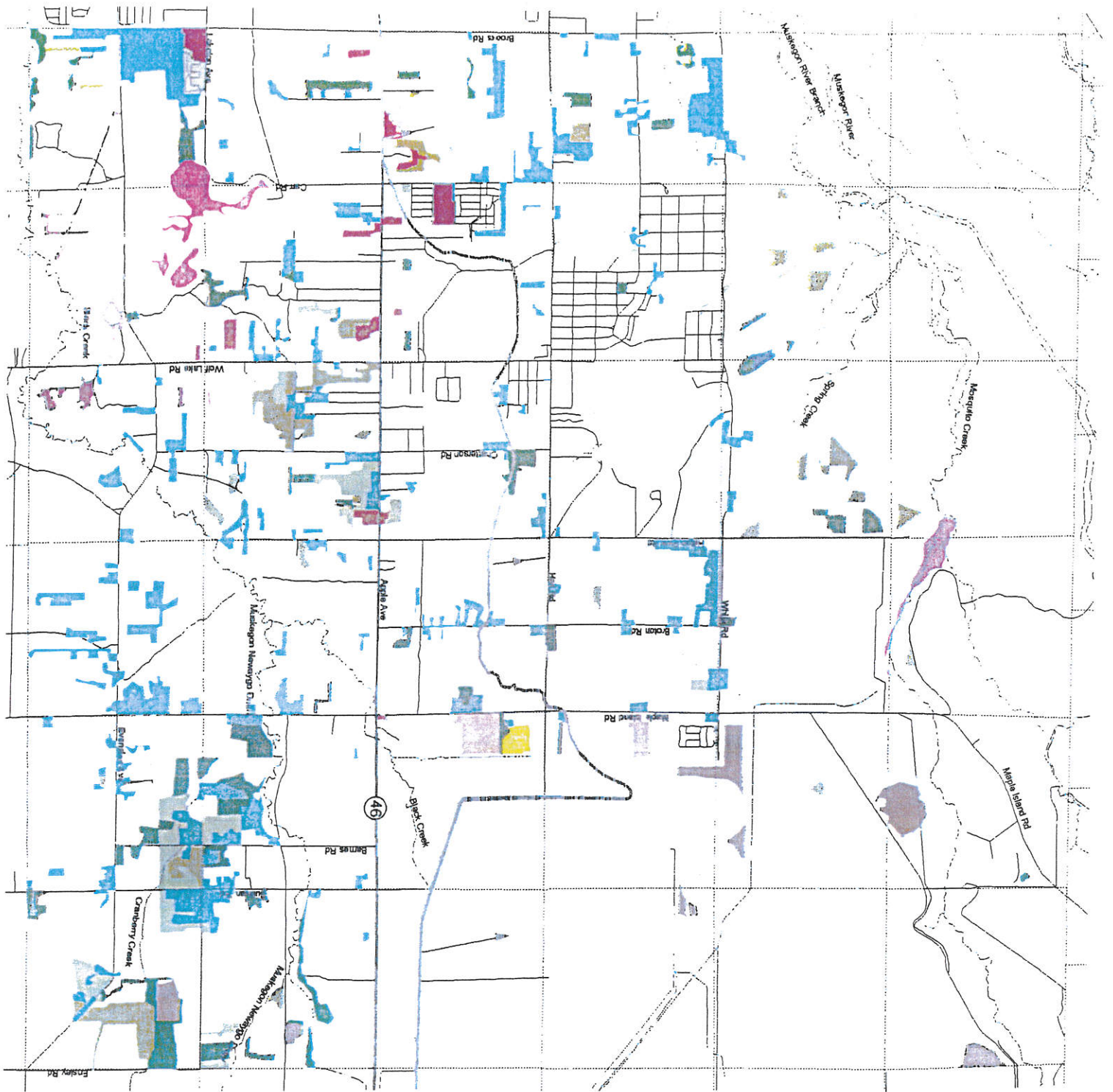


Base Data Source:
Michigan Center for Geographic Information,
Department of Information Technology, 2002.
Land Use/Cover Data Source:
Michigan Department of Natural Resources, MIRS, 1978.

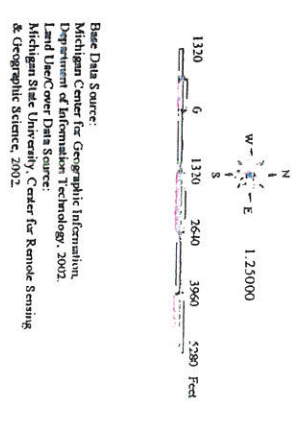
Information Services Center
Annals Water Resources Institute
Grand Valley State University
Map Prepared: December 2003

Land Use/Cover Change 1978 to 1998

Egelston Township
Muskegon County, Michigan



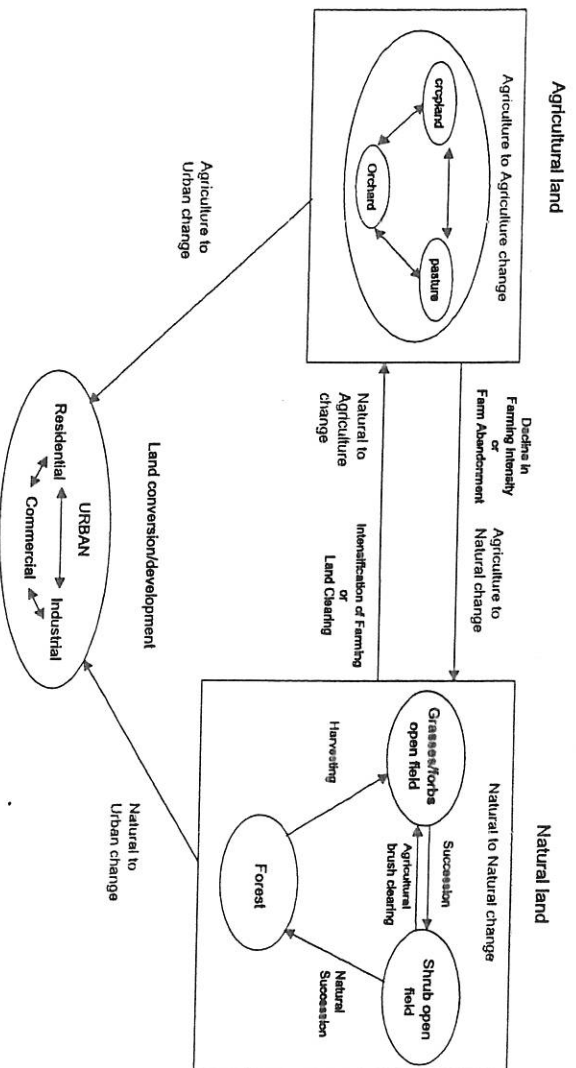
NOTE: This map identifies areas in the Township that have changed use or cover during the 20 year period between 1978 and 1998. The mispelled areas show what the land use/cover conditions changed to by 1998, near present conditions.



Base Data Source:
Michigan Center for Geographic Information,
Department of Geography and Technology, 2002.
Michigan State University, Center for Remote Sensing
& Geographic Science, 2002.

Information Services Center
Ann Arbor Water Resources Institute
Grand Valley State University
Map Prepared: December 2003

Process of Land Use/Cover Change

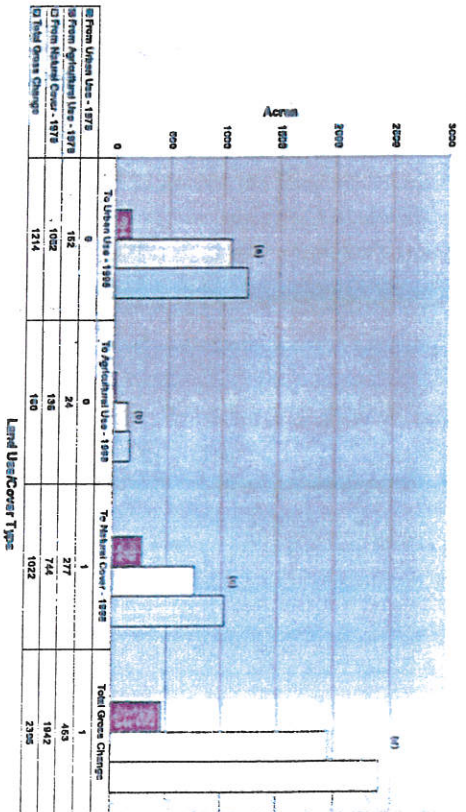
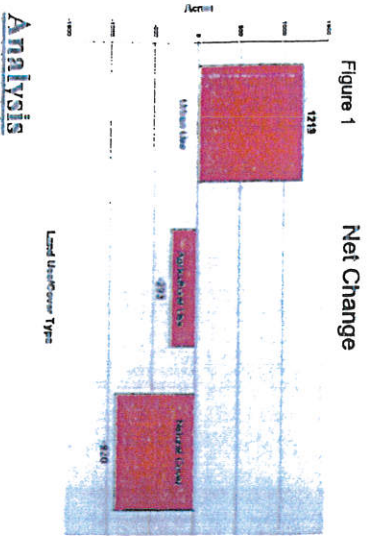


Note: The process of land use and cover change is extremely dynamic. The graphic above shows the most common change processes that occur.

Land Use/Cover Types	1978	1998	Net Change	Percent Change
Commercial/Institutional	206	277	71	34.5
Confinfed Feeding/Permanent Pasture	263	103	-160	-61.0
Coniferous Forest	498	563	65	13.0
Cropland	2244	2132	-112	-5.0
Deciduous Forest	12236	11271	-965	-7.9
Grasses and Forbs - Open Field	450	478	28	6.3
Industrial	106	285	179	169.2
Other Agricultural Land	0	19	19	100.0
Other Developed Area	2362	2383	21	0.9
Residential	2194	3105	911	41.5
Shrub Open Field	911	793	-118	-13.0
Water	320	272	-48	-15.0
Wetland	1141	1250	109	9.6
TOTAL ACRES	22931	22931		

Land Use/Cover
Change Statistics
1978 to 1998

Land Use/Cover Change Analysis 1978 to 1998
(acreage reflects only those areas in the township that have changed land use or cover during this 20 year period)



NOTE:
To help simplify the maps on pages 12 and 13, areas of change less than one acre were eliminated from the maps. As a result, values in this bar chart may be slightly different from the values in the table on page 14.

Land Use/Cover Type

Urban use experienced a net increase in acreage (1213 acres). Agricultural use and natural cover experienced a net decrease in acreage (-293 acres and -920 acres, respectively) (Fig. 1)

Overall, 10% of the land area (2396 acres) changed use or cover during this 20 year period (Fig. 2d) (Examine maps on pages 12 and 13 to see where this change has occurred)

Overall, urban land exhibited the largest amount of change (1214 acres) (Fig. 2a)

New urban land was most often developed on former natural land (1062 acres) and former agricultural land (152 acres) (Fig. 2a)

Most of the new urban development in the Township was into single-family residential units, accounting for 905 acres (75% of the urban development). New houses most often were developed on forest (630 acres) followed by open field (127 acres) and cropland (81 acres) (data not shown, extracted by GIS analysis)

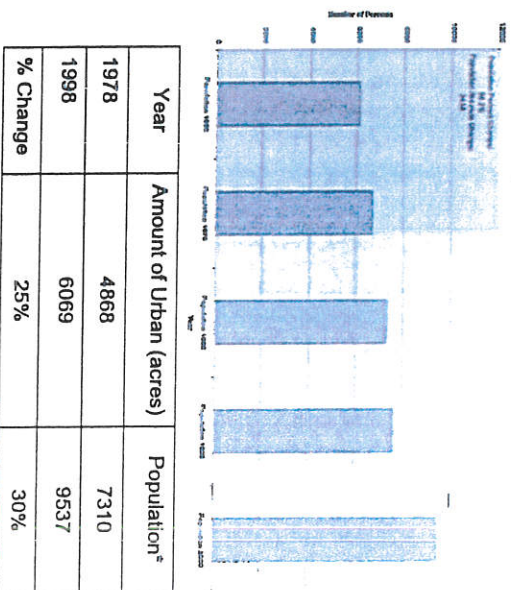
As a result of farming intensification, 136 acres of former natural land were converted to an agricultural use (Fig. 2b), whereas 24 acres of land were converted to a different type of agricultural land practice (Fig. 2b)

Due to a decline in farming intensity or farm abandonment, 277 acres of agricultural land reverted back to a natural condition of grasses and forbs open field, shrub open field, or forest (Fig. 2c)

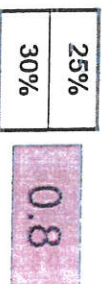
As a result of natural plant succession, 744 acres of natural cover changed to another natural condition (e.g. open field to forest) (Fig. 2c)

As population increased (by 2227 people since 1980), urban development expanded. The Sprawl Index of 0.8 suggests that the rate of land consumption has not exceeded the rate of population growth and no sprawl is occurring (Fig. 3)

Population 1960 to 2000



Urban Sprawl Index



An area is considered to be "sprawling" when the rate of land consumption exceeds the rate of population growth. This Urban Sprawl Index compares the relative amount of change in acreage to average local population growth. The higher the index value the greater the "sprawl" in the Township. A value of 1 indicates no sprawl has occurred.