Genoa Charter Township
Livingston County, Michigan

2013 MASTER PLAN UPDATE
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RESOLUTION # 151207-A
GENOA CHARTER TOWNSHIP
COUNTY OF LIVINGSTON, MICHIGAN

RESOLUTION APPROVING UPDATES TO THE MASTER PLAN
FUTURE LAND USE MAP AND GROWTH BOUNDARY MAP

At a regular meeting of the Board of Trustees of Genoa Charter Township, Livingston County, Michigan, held on December 07, 2015, at 6:30 p.m. prevailing local time.

PRESENT: McCririe, Skolarus, Hunt, Rowell, Mortensen, Smith and Ledford.

ABSENT: None,

The following Preamble and Resolution were offered by Smith and supported by Ledford:

WHEREAS, Genoa Charter Township initiated a process to update the Master Plan for Land Use which was adopted in 2013; and

WHEREAS, the Genoa Charter Township Planning Commission, pursuant to the Michigan Planning Enabling Act (Public Act 33 of 2008, as amended), has studied and prepared recommendations for the use, development and preservation of all lands in the Township; and

WHEREAS, the Planning Commission has developed an update to the Master Plan consisting of research and analyses dealing with land use and utility limitations; and

WHEREAS, the Planning Commission has used the Master Plan analyses to prepare an update to the Future Land Use Map and Growth Boundary Map that allocates land in appropriate amounts for the future development of residential uses in sections 6, 33 and 35; and

WHEREAS, on September 14, 2015, the Planning Commission submitted the plan to the Township Board of Trustees for distribution; and

WHEREAS, on September 21, 2015 the Genoa Charter Township Board of Trustees authorized distribution of the Master Plan as provided by the Michigan Planning Enabling Act (MPEA); and

WHEREAS, the Township complied with required plan development steps of notifying and involving the Livingston County Planning Commission, surrounding communities and outside agencies; and

WHEREAS, the Planning Commission held a public hearing on November 9, 2015, and after giving consideration of all comments and concerns of the public the Commission approved a Resolution to adopt the Updated Master Plan with amendments to the Future Land Use Map and Growth Boundary Map; and

WHEREAS, the Township Board as authorized by the MPEA and by Township Resolution Number 120402 asserts its right to approve or reject the proposed updated Master Plan; and
WHEREAS, the Township Board recognizes that the Master Plan and the Future Land Use and Growth Boundary Maps are guides for public and private decision-making that will keep the Township in motion toward its vision to maintain outstanding quality of life for all residents.

NOW, THEREFORE, BE IT RESOLVED that the Board of Trustees of Genoa Charter Township hereby approves the updated Master Plan and Maps and resolves to use the Plan and Map together as a guide for the overall development of the Township;

AYES: Ledford, Smith, Hunt, Rowell, Mortensen, Skolarus and McCririe.

NAYS: None

ABSENT: None

ABSTENTIONS: None

CERTIFICATION

I, Paulette A. Skolarus, being the duly elected Clerk of Genoa Charter Township does hereby certify that this Resolution was duly passed at a public meeting of the Genoa Charter Township Board of Trustees held on December 7, 2015 Livingston County, Michigan, at a regular meeting held on December 7, 2015.

Paulette A. Skolarus
December 07, 2015
RESOLUTION # 131216
GENOA CHARTER TOWNSHIP
COUNTY OF LIVINGSTON, MICHIGAN

RESOLUTION APPROVING UPDATES TO THE
MASTER PLAN AND FUTURE LAND USE MAP

At a regular meeting of the Board of Trustees of Genoa Charter Township, Livingston County, Michigan, held on December 16, 2013, at 6:30 p.m. prevailing local time.

PRESENT: McCririe, Hunt, Skolarus, Rowell, Smith and Ledford

ABSENT: Mortensen

The following Preamble and Resolution were offered by Smith and supported by Skolarus:

WHEREAS, Genoa Charter Township initiated a process to update the Master Plan for Land Use which was adopted in 2006; and

WHEREAS, the Genoa Charter Township Planning Commission, pursuant to the Michigan Planning Enabling Act (Public Act 33 of 2008, as amended), has studied and prepared recommendations for the use, development and preservation of all lands in the Township; and

WHEREAS, the Planning Commission has developed an update to the Master Plan consisting of research and analyses dealing with land use, demographics, S. Latson Road corridor development, transportation, community facilities, recreation, and other pertinent topics; and

WHEREAS, the Planning Commission has used the Master Plan analyses to prepare an update to the Future Land Use Map that allocates land in appropriate amounts for the future development of residential uses, commercial and office uses, industrial uses, public and institutional uses; and

WHEREAS, on June 10, 2013, the Planning Commission submitted the plan to the Township Board of Trustees for distribution; and

WHEREAS, on July 15, 2013 the Genoa Charter Township Board of Trustees authorized distribution of the Master Plan as provided by the Michigan Planning Enabling Act (MPEA); and

WHEREAS, the Township complied with required plan development steps of notifying and involving the Livingston County Planning Commission, surrounding communities and outside agencies; and

WHEREAS, the Planning Commission held a public hearing on November 25, 2013, and after giving consideration of all comments and concerns of the public the Commission approved a Resolution to adopt the Updated Master Plan and Future Land Use Map; and

WHEREAS, the Township Board as authorized by the MPEA and by Township Resolution Number 120402 asserts its right to approve or reject the proposed updated Master Plan; and

WHEREAS, the Township Board recognizes that the Master Plan and Future Land Use Map are guides
for public and private decision-making that will keep the Township in motion toward its vision to maintain outstanding quality of life for all residents.

NOW, THEREFORE, BE IT RESOLVED that the Board of Trustees of Genoa Charter Township hereby approves the updated Master Plan and Future Land Use Map, its narrative, maps, tables, and other descriptive data, and resolves to use the Plan and Map together as a guide for the overall development of the Township;

AYES: Ledford, Smith, Hunt, Rowell, Skolarus and McCirie.

NAYS: None.

ABSENT: Mortensen

ABSTENTIONS: None.

CERTIFICATION

Paulette A. Skolarus being the duly elected Clerk of Genoa Charter Township does hereby certify that this Resolution was duly passed at a public meeting of the Genoa Charter Township Board of Trustees held on December 16, 2013 Livingston County, Michigan, at a regular meeting of the Board.

Paulette A. Skolarus
December 16, 2013
This Master Plan represents over a year of dedicated work by the elected, and appointed officials of Genoa Township, Township staff, Township consultants and the Livingston County Planning Department. In addition, a number of citizens provided input at public workshops. This plan updates the previous plan adopted in 2006.

Township Board
Gary McCririe, Supervisor
Paulette Skolarus, Clerk
Robin Hunt, Treasurer
Jean Ledford
Jim Mortensen
Linda Rowell
Todd Smith

Planning Commission
Doug Brown, Chairman
Dean Tengel, Vice Chairman
Barb Figurski, Secretary
Jim Mortensen, Board Liason
Diana Lowe
John McManus
Eric Rauch

Township Manager
Michael Archinal, AICP

Township Asst. Manager/Community Development Director
Kelly VanMarter, AICP

Township Engineer
Tetra-Tech MPS

Township Attorney
Frank Mancuso
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EXECUTIVE SUMMARY

Genoa Township, located in Livingston County between the cities of Howell and Brighton, is a growing community that faces the difficult challenge of accommodating ever increasing development while retaining its unique natural and rural characteristics. Values and goals of the community where developed with input from residents, landowners, the Planning Commission and the Township Board. Ultimately, it is their aspirations for Genoa Township that have become the principal basis for recommendations discussed in this Master Plan. This plan attempts to balance the various demands and interests to ensure each development decision is consistent with the overall vision for the Township.

The analysis and recommendations in this plan provide the foundation for zoning and other Township development ordinances. With this in mind, all sections of the plan will be used as tools to provide a quality community while it protects the natural features that create a sense of identity for Genoa Township.

Population Housing & Economics: Like much of Livingston County, the population of Genoa Township has been steadily increasing since the late 1980's. The population of Genoa Township was 19,821 persons in 2010. By the year 2040, the population is projected to grow to approximately 23,061 persons.

Protection of Natural Features: Genoa Township contains numerous natural features including lakes, creeks, woodlands, and rolling topography. These features make an important contribution to the quality of life in the Township. The plan recommends a number of means to accommodate development while protecting the valuable resources that are critical to Genoa Township's quality of life.

Development densities should be limited in areas that contain fragile natural features and pristine natural conditions. Any negative impact of sanitary drainfields should be minimized through restricting residential densities in areas not served by public sanitary sewer, in particular, areas with poor soil conditions.

Design for development needs to incorporate preservation of natural topography and vegetation. Setbacks and site plan design standards should be established to protect natural features. Steep slopes, streambanks and lakeshore need to be protected during development. Stormwater needs to be managed and natural drainage ways protected.

Existing Land Use: Single family residential and vacant/agricultural land were the most predominant land uses in the Township in 2013. Single family residential is dispersed throughout the Township, but with higher densities in areas with public utilities along Grand River.
Executive Summary

Avenue, around the Tri-Lakes area, Lake Chemung, and near the cities of Brighton and Howell. Most of the commercial land uses are located along the Grand River Avenue corridor. There are three distinct industrial areas, all along the Grand River Avenue, north of I-96.

Public Utilities: Portions of the Township are served by public sanitary sewer and water. The northwest and central portion of the Township is served by water and sanitary sewer systems developed in cooperation with adjacent townships. Areas around the City of Brighton are also served by sewer and water. While utilities were built, in part, to protect water quality, the availability of utilities has certainly influenced the pattern and pace of development.

Future Land Use: A future land use pattern is recommended based on existing land use patterns, transportation conditions, availability of public facilities, natural resource protection market trends and community goals. It is important to note that the future land use plan represents a 10-15-year vision for the community, which should be reviewed every at least every 5 years per the Michigan Enabling Act. Prior to any rezonings taking place, the future land use pattern and growth boundary described in this plan should be referenced.

- The plan establishes a growth boundary. Areas within the growth boundary include the Grand River Avenue/I-96 corridor between Brighton and Howell and areas surrounding the City of Brighton. Land within the Township are separated into three areas; the primary growth areas, secondary growth areas and rural reserve areas:

- Primary growth areas are areas that are currently served or available to be served by public sewer and water. These areas include single family on lots between ¼ acre, and ½ acre and multiple family residential at higher densities. This area also includes the commercial centers, industrial parks and mixed-use centers.

- Secondary growth areas do not have sewer and water, but due to their proximity to the cities of Brighton or Howell, are appropriate for infill with low density residential. Typical lot sizes will be around one acre or clustered developments at an overall density of two acres per dwelling.

- Rural reserve areas outside of the growth boundary will be maintained at a relatively low intensity rural character of development, typically more than 2 acres per dwelling unit, and agricultural uses.

- Commercial land uses are located generally along the Grand River Avenue corridor. Neighborhood commercial areas are designated for smaller scale retail and service establishments
intended to serve the needs of nearby residential neighborhoods. General commercial areas are designated for larger scale retail businesses which serve the community at large. An area for regional commercial is designated around the intersection of Grand River Avenue and Laston Road.

- A Genoa Town Center is designated along Grand River Avenue at Dorr Road. This area is planned to become a mixed-use town center with local businesses, neighborhood service establishments and traditional residential neighborhoods. Residential uses will provide a variety of housing types including apartments on upper floors above commercial uses, traditional townhouses and single family homes on smaller lots. This area will be integrated into a pedestrian-friendly, walkable area with sidewalks connecting all uses and community parks and plazas.

- Future land uses are planned south of the new Latson Road interchange to accommodate high quality, walkable commercial and an opportunity for large-scale campus uses. The intent is to retain the existing commercial development north of the interchange and provide a destination south of the interchange while limiting impacts on existing residential areas. Development in this area is intended to be phased, starting with the areas closest to the new interchange, supported by utility extensions and a newly widened S. Latson Road (formerly Nixon Road). The plan recommends this area be assessed within 5 years for potential expansion south, taking into consideration future impacts on utilities and road capacities, while protecting the nearby rural residential character.

- Industrial areas are proposed within the areas most suitable for this type of development with the infrastructure to support these uses and adequate buffers from other land uses.

- Public/Quasi-Public includes land areas occupied by government, civic or utility uses.

Transportation: A number of transportation management strategies are recommended for consideration as the Township grows. Road widening or other major improvements will be limited. Access management standards need to be applied to the location and spacing of driveways to protect the roadway level of service. With new developments, roads need to provide a safe and efficient vehicular circulation system with a continuous street network that provides connections between neighborhoods.

Greenways and Bike Paths: The maintenance of greenways and the development of bike paths are proposed throughout the Township. Bike paths are proposed along major roads such as Grand River Avenue, Latson, Brighton, Dorr and Crooked Lake Roads.
Conservation greenways should be maintained along drainageways and in natural habitat areas.

**Greening Grand River Avenue:** Adding a median to Grand River Avenue has long been planned but never implemented. This plan proposes the Township work with MDOT and the Livingston County Road Commission to study the possibility of a narrow median from the interchange at Lake Chemung to Howell city limits.
I. INTRODUCTION
**A. Introduction**

The master plan presented herein is a document created by Genoa Township to guide the future of this community. The intent of this master plan is to provide growth management strategies that help ensure a logical development pattern while maintaining community character and protecting natural resources. The plan also provides policies and actions for community leaders to consider. Some of the master plan recommendations will be implemented through amendments to the zoning ordinance text and map.

The implementation of the policies and actions in this plan will help ensure that Genoa Township remains a desirable community in which to live, work or visit by allowing residents, business owners and developers to make investments with a reasonable expectation of what will happen in the future. It is of extreme importance to emphasize those qualities of the Township identified by residents, businesses and property owners as highly desired. Recent development and population trends in Genoa Township make it easy to understand the need for a Township master plan update. Among the many reasons for the master plan are the following:

- Present a future land use map that illustrates how the Township should develop logically over time.
- Provide a legal basis for zoning and other regulations for the type, intensity and timing of development.
- Provide that, as development occurs, the most significant natural features are preserved or enhanced.
- Outline specific strategies to address situations where one land use is not compatible with an adjacent land use.
- Recommend traffic management tools to preserve roadway capacity and ensure traffic circulation harmonizes with land uses and neighborhoods.
- Address the changing desires and needs of residents.
- Provide a sustainable community with a land use pattern that translates into a diversified tax base to support the desired facilities and services with reasonable tax rates.
- Provide specific recommendations for access management, road improvements and site design along the Grand River Avenue Corridor and new Latson interchange area.
- Coordinate land use recommendations with anticipated land use changes and infrastructure improvements with the surrounding communities.

The development of this plan involved a process of identification and analysis of physical and socio-economic conditions affecting Genoa
Township. The impact of each physical and socio-economic factor on the community in the coming years results in a series of goals and policies for the Township. The master plan goals and future land use plan will assist Township leaders in substantive, thoughtful decisions which consider the long term implications for the community. These community-wide implications may not be immediately apparent to the individual property owner or citizen, but the impacts of each decision are linked and become visible over time. Poor planning decisions are difficult to eliminate, most linger forever. The master plan can be viewed as a community blueprint for the future, a mechanism to help ensure each decision fits as part of the whole.

This master plan represents a continual effort by the Planning Commission and Township Board. A series of joint public meetings were held by the Board and Planning Commission to discuss the recommendations of the plan. Citizens, landowners and interested members of the general public also attended meetings and were involved with the discussion on the plan. A public hearing to present the draft plan was conducted prior to its adoption by the Township Board.


The Township regularly refines its zoning ordinance and subdivision regulations in response to changing conditions, goals, and the law. Thus, this master plan represents the latest in a series of documents and ordinances which will help to ensure that the Township maintains its desired community character.
B. Goals

A key element in the preparation of the Master Plan is the development of community goals, which reflect the community's desires to respond to various issues. The goals must all be considered concurrently and within the overall context of the plan, as opposed to individually. The Master Plan provides guidance and direction towards the achievement of Township goals.

Land Use

- Accommodate a variety of land uses that are located in a logical pattern and complement community goals, the surrounding land uses, environment, capacity of roads and the sanitary sewer, and public water system capabilities.
- Provide land owners with reasonable use of their land in a manner that is compatible with adjacent land uses and the overall land use plan for the Township and the capacity of infrastructure.
- Promote harmonious and organized development consistent with adjacent land uses.
- Provide a variety of housing styles, types, and densities to support needs of residents.
- Support “aging in place” by providing housing, recreation, and transportation options for seniors.
- Achieve well-planned, safe, balanced, and pleasant residential neighborhoods.
- Provide employment, shopping and recreational opportunities for current and future residents of the Township.
- Achieve high quality site and building design that contributes to strong neighborhoods, vital shopping districts, and desirable employment centers.
- Encourage quality industrial and technology-based development in appropriate areas of the township to diversify the tax base with room for future expansion, where not in conflict with surrounding land uses.
- Manage development by maintaining a growth boundary to encourage efficient use of land, protect farmland and natural features, and allow the efficient provision of public services, utilities, and infrastructure.
- Promote the development of a mixed-use town center along Grand River Avenue that creates a strong sense of community identity for Genoa.
- Create outlots in underutilized parking lots to provide locations for infill commercial development.
- Work with economic development agencies, such as Ann Arbor Spark, to attract new businesses and jobs, and encourage entrepreneurship.

- Preserve and encourage growth and sustainability of existing Grand River commercial after the construction of the Latson interchange.

- Promote neighborhood commercial nodes, where appropriate.

- Develop and maintain flexible codes and ordinances to meet the needs of current and future residents.

- Provide an integrated and phased design with careful consideration for new development at the Latson interchange.

**Preservation of Natural Features**

- Preserve the "quality of life" in Genoa Township by retaining significant, sensitive natural amenities such as water bodies, wetlands, slopes, mature trees and natural ecosystems.

- Encourage integration of natural features such as woodlands and wetlands into site development as aesthetic and functional features.

- Protect the quality of the community’s lakes and water resources from overcrowding and overuse.

- Preserve the existing landscaping and natural features viewed along Township roads.

- Encourage and utilize best management practices for preservation of sensitive natural features.

**Transportation**

- Assure a multi-modal transportation network is available to support the current population and support managed growth through future improvements.

- Preserve the capacity and safety of arterial streets through access management.

- Evaluate impacts of traffic generated by development and work toward improvements concurrent with new development.

- Coordinate transportation improvements with county and state agencies.

- Promote “complete streets” through a non-motorized network to provide the opportunity for walking, jogging, and bicycling in a safe and comfortable environment.

- Consider transit-oriented development on former Zeeb/Preserves of Genoa property for future passenger rail train to Ann Arbor.

- Coordinate with MDOT to pursue the possibility of a narrow median along Grand River Avenue from the exit 141 Lake
Chemung interchange west to the Howell city limits to improve pedestrian safety, reduce vehicular conflicts, and to beautify the corridor.

Public Facilities and Services
- Coordinate with the adjacent townships and the cities of Brighton and Howell to provide area residents with high quality community services and facilities.
- Provide utility improvements only in locations best suited for development to support managed growth and provide a growth boundary to ensure development is consistent with infrastructure planning.
- Provide high-quality centralized parks, recreation facilities and open space to meet the needs of Township residents.
- Provide public spaces that meet the needs of Township residents and can expand or adapt to meet the needs of the future population.
- Establish a unique identity for Genoa Township through entry signage and streetscape design that provides a unique sense of place.
II. DEMOGRAPHICS
A. Population Trends

Genoa Township has historically been a rural community, with development along Lake Chemung, the Tri-Lakes, and the Township’s other 15 lakes. The once dominant rural/lake resort character of Genoa Township has been changing since the early 1970’s, when suburban migration began to spread into Livingston County. Cities like Brighton and Howell also played a pivotal role in attracting residents, businesses and small industries to the region.

Accompanying residential growth has been supportive commercial and public facilities. Gradually, the area began to establish a healthy employment base. Population growth in Genoa Township, as well as many of the surrounding Townships, has been substantial since 1960. Review of census and building permit information has revealed the following trends:

- The growth rate from 1960-1980 for Genoa Township was consistently greater than the total growth rate for Livingston County. The Township’s population doubled every decade between 1950 and 1980.
- In 1990 the Township had 10,820 people and was the fourth largest municipality in Livingston County.
- The 2000 Census indicated Genoa Township had 15,901 people; making it the third largest community in Livingston County.
- In 2010, Genoa Township’s population had reached 19,821, growing 24.7% from 2000, and making it the second largest community in Livingston County.
- According to SEMCOG, the population of the Township is projected to reach 23,061 people by 2040.

The most apparent reasons for the Township’s growth are its quality of life, availability of sewers, abundance of vacant/agricultural land, accessibility to employment centers in metropolitan areas and the establishment of its own healthy employment base. The importance of convenient access is evidenced by 2000 Census figures which indicated that over 51% of the Township’s work force commuted to employment centers outside Livingston County.

Growth in Genoa Township has also been influenced by development in its two neighboring cities, Howell and Brighton. Since available land is limited in those cities, developers have sought locations in Genoa Township.
Demographics

A review of general population characteristics is important to assist in determining future land use, community facilities and service needs. The distribution of population by age for 2000 to 2010 is shown in the chart below.

Young adult age groups (25-44) decreased as a percentage of the population from 2000 to 2010, while senior age cohorts (while 55+) increased.
Education

The educational attainment for Genoa Township is somewhat mixed when compared to the county and region. Genoa Township has higher percentages of students graduating high school and attending college, but lower percentages of students who complete four-year and advanced degrees, as shown in the table below.

<table>
<thead>
<tr>
<th>EDUCATIONAL ATTAINMENT</th>
<th>Township</th>
<th>County</th>
<th>SE Mich</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate or Professional Degree</td>
<td>8.5%</td>
<td>17.6%</td>
<td>11.5%</td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>15.8%</td>
<td>24.6%</td>
<td>17.0%</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>8.8%</td>
<td>7.4%</td>
<td>7.7%</td>
</tr>
<tr>
<td>Some College, No Degree</td>
<td>25.6%</td>
<td>21.3%</td>
<td>23.2%</td>
</tr>
<tr>
<td>Graduated High School</td>
<td>30.9%</td>
<td>21.4%</td>
<td>28.5%</td>
</tr>
<tr>
<td>Did Not Graduate High School</td>
<td>10.4%</td>
<td>7.8%</td>
<td>12.2%</td>
</tr>
</tbody>
</table>

Household Size

There has been a decrease in the average household size, as shown in the table below. This is similar to the national trend of single young professionals, married couples with fewer children, and the aging of the baby boomer generation.

The average household size in Genoa Township has consistently been smaller than the county and region, and all three locations have seen a similar decline in household size in the last decade.

<table>
<thead>
<tr>
<th>AVERAGE HOUSEHOLD SIZE</th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genoa Twp.</td>
<td>2.72</td>
<td>2.54</td>
</tr>
<tr>
<td>Livingston County</td>
<td>2.80</td>
<td>2.67</td>
</tr>
<tr>
<td>SE Michigan</td>
<td>2.58</td>
<td>2.51</td>
</tr>
</tbody>
</table>

Housing Construction

For the first half of the 2000s, hundreds of new housing units were being built in Genoa Township each year. Due to the financial difficulties of the second half of the 2000s, only a handful of new housing units were being built per year. Even though the rate of construction has slowed considerably, the impacts of the first half of the 2000s has contributed to higher traffic levels on the township’s local roads and the shift from a rural to suburban character throughout the township.

<table>
<thead>
<tr>
<th>BUILDING PERMITS</th>
<th>Year</th>
<th>New Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2000</td>
<td>466</td>
</tr>
<tr>
<td></td>
<td>2001</td>
<td>302</td>
</tr>
<tr>
<td></td>
<td>2002</td>
<td>442</td>
</tr>
<tr>
<td></td>
<td>2003</td>
<td>340</td>
</tr>
<tr>
<td></td>
<td>2004</td>
<td>241</td>
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<td></td>
<td>2005</td>
<td>126</td>
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<td></td>
<td>2006</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>18</td>
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<td></td>
<td>2008</td>
<td>8</td>
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<td></td>
<td>2009</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>6</td>
</tr>
</tbody>
</table>
B. Economics

Income

Household incomes in Genoa Township tend to be slightly lower than most other communities within Livingston County. In 2000, Household incomes in Genoa Township were just over $90,000, while most of the surrounding communities were closer to $100,000 with the exception of Brighton and Howell. From 2000-2010, every community in the area saw significant decreases in median income (15% or more in each community). Median income in Genoa Township decreased the most of any community, dropping from $93,450 to $67,548, a 27.7% decrease.

<table>
<thead>
<tr>
<th>MEDIAN INCOME COMPARISONS</th>
<th>2000</th>
<th>2010</th>
<th>Change 00-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genoa Twp.</td>
<td>$93,450</td>
<td>$67,548</td>
<td>-27.7%</td>
</tr>
<tr>
<td>City of Brighton</td>
<td>$62,690</td>
<td>$46,731</td>
<td>-25.5%</td>
</tr>
<tr>
<td>Brighton Township</td>
<td>$109,866</td>
<td>$93,327</td>
<td>-15.1%</td>
</tr>
<tr>
<td>Green Oak Township</td>
<td>$98,391</td>
<td>$75,881</td>
<td>-22.9%</td>
</tr>
<tr>
<td>Hamburg Township</td>
<td>$99,421</td>
<td>$84,648</td>
<td>-14.9%</td>
</tr>
<tr>
<td>City of Howell</td>
<td>$57,535</td>
<td>$43,094</td>
<td>-25.1%</td>
</tr>
<tr>
<td>Oceola Township</td>
<td>$99,655</td>
<td>$80,996</td>
<td>-18.7%</td>
</tr>
<tr>
<td>Livingston County</td>
<td>$88,217</td>
<td>$72,129</td>
<td>-18.2%</td>
</tr>
</tbody>
</table>

Employment

The largest employer in Genoa Township continues to be the management/business sector, at just under 40% of the total occupation. Service and sales sectors combine to contribute 45% of the total occupation share.

<table>
<thead>
<tr>
<th>OCCUPATION (what they do)</th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>%</td>
</tr>
<tr>
<td>Management, business, science, and arts occupations</td>
<td>3,270</td>
<td>38.0%</td>
</tr>
<tr>
<td>Service occupations</td>
<td>1,032</td>
<td>12.0%</td>
</tr>
<tr>
<td>Sales and office occupations</td>
<td>2,237</td>
<td>26.0%</td>
</tr>
<tr>
<td>Natural resources, construction, and maintenance occupations</td>
<td>860</td>
<td>10.0%</td>
</tr>
<tr>
<td>Production, transportation, and material moving occupations</td>
<td>1,119</td>
<td>13.0%</td>
</tr>
<tr>
<td>Civilian employed population 16 years and over</td>
<td>8,604</td>
<td></td>
</tr>
</tbody>
</table>
III. ENVIRONMENT
Much of Genoa Township retains a rural or natural character. The western and northeastern portions of the Township contain some agricultural uses. There is an abundance of natural features including lakes, woodlands and rolling terrain, which make an important contribution to the quality of life in the Township. Retention of these rural/natural resources is of primary importance to many residents.

In terms of development, these features provide both constraints and opportunities. Natural features have a significant influence on future land use patterns for the Township in conjunction with other factors such as existing land use, infrastructure, market factors, transportation and community regulations.

The natural environment is a critical element of the physical basis upon which the Township develops. The various components of the natural environment function, change and interact as part of an ecosystem. An ecosystem is a biological energy system made up of food chains along which energy is passed from one group of organisms to another. It is important to understand the interaction between these components and that alteration to one element will inevitably affect all others.

Alteration to the fragile natural features needs to be carefully considered to minimize impact and insure mitigation where necessary to maintain the natural balance. Not doing so will alter the system and possibly result in such things as increased erosion and sedimentation, decreased ground water recharge and increased surface runoff to the Township’s various lakes and streams. To ensure that community development is compatible with the natural features of the Township, all new developments need to make every effort to maintain the natural functions of the environment.

In Genoa Township, limitations on the type and extent of future development occur in areas that are unsuitable for septic systems, unstable for building foundations, poorly drained and not well suited for road construction. While these factors place restrictions on development, other natural resource factors present opportunities for development. The scenic and recreational attractiveness of the lakes, hills and woodlands offer a unique residential setting. It is helpful to examine these natural resource factors in detail to determine both the opportunities and constraints. Examination involves an inventory of resource factors and a determination of the capability of the natural resource base to support future development.

The following is an overview of some of the major natural features that are prevalent throughout the Township. As development occurs, the following features should be considered in addition to other site specific conditions that may be pertinent to each individual location.
GEOLOGY
The soils and geology in the township are characteristic of glacially formed landscapes consisting mainly of moraines (hills of glacially deposited sands and gravel) and till plains (mixed soil materials deposited by glacier advance and retreats). The underlying bedrock is a grey shale known as the Coldwater Formation. The surface geology of the Township was formed 10,000 to 12,000 years ago when glacial activity deposited rock, soil and large blocks of ice. The glacial drift is a very thick layer of soil material that has been deposited by the advance and retreat of the Wisconsin glacier during the last ice age. The ice blocks embedded within the soil eventually melted and left depressions, which today are lakes.

Since the last ice age the soils in Genoa Township have formed as a result of a number of soil forming factors. These include water drainage, wind, slopes, climate, biological activity and human activity.

TOPOGRAPHY
Slope is an important development consideration associated with topographic features. There are areas of significant topography in the southern and eastern portions of the Township.

Excessive slope presents constraints to development. Areas with slopes greater than 12% have been mapped to identify constraints to development (Map 1). There are three general problems with steep slopes:

- Mechanical cut and fill and placement of structures on slopes result in a significant change in the natural functions of the hillside. Drainage flow can be altered, diverted and possibly increased. This can alter the function of the hillside and increase erosion and sedimentation.
- The root system of trees and vegetation helps to stabilize the soils on the hillside. Removal of natural vegetation by agricultural operations and development causes a weakening of the slope, increased surface runoff rates and eventually erosion.

Steep slopes require sensitive site planning prior to development and during construction. Care should be taken to insure that grading is minimized and vegetation, and top soil are protected.

Along the edges of many stream courses and wetlands there are steep banks or bluffs which separate field, the lowland and the upland. These will generally have steep slopes and be heavily vegetated. Disruption of the vegetative cover on these bluff areas may cause significant erosion problems and affect stream ecology.

SOILS
Construction costs and risks to the environment can be minimized by developing areas with suitable soils. Poor soils present problems
Environmental Conditions

such as poor foundation stability and septic limitations. The three major soil characteristics considered in the analysis of soil conditions are drainage, foundation stability and septic suitability. Each of these factors have been inventoried and mapped by the Livingston County Soil Survey, prepared by the Soil Conservation Service. (See Map 2.)

Drainage: Development on poorly drained soils increases development costs, maintenance costs, and will lead to sanitary problems. Development costs are increased due to additional foundation, road and septic preparation. Maintenance costs and problems will be associated with septic field failures, flooded basements and impact to roads from frost action.

Foundation Stability: Soil areas that do not provide stable foundations may experience shifting building foundations, cracked walls and cracked pavement and roadways. These problems often result in increased development and maintenance costs or, in extreme cases, structural failure.

Septic Suitability: Because there are many areas of Genoa Township that rely on individual septic systems, the location of septic systems on proper soils is extremely important. Inspection and approval for use of a septic system is under Livingston County’s jurisdiction and ultimately their responsibility to maintain high standards of review to prevent system complications or failures. Septic field failures are often the result of poor soil permeability, high water table or excessive slope. Soils such as compacted clays and silts will not allow wastewater to percolate, a high water table prohibits adequate filtering and excessive slope does not provide adequate percolation.

Soils Poorly Suitable for Development:

- Areas with little topographic relief, which does not allow proper drainage.
- Areas with excessive slopes which are susceptible to erosion.
- Mucks or soils with high organic materials.
- Silts and clays.
- Areas with high water tables.
- Generally along lakes, creeks and wetlands.

Soils Well Suited for Development:

- Topographic relief that provides for drainage but not excessively steep.
- Loamy and sandy soils.
- Areas sufficiently above groundwater table.
Map 1
Steep Slopes Based on Soils
Genoa Township
Livingston County, MI

Note: This map's data was not updated in the 2013 Master Plan Update

May 2006

Data Sources:
Base Map: Genoa Township; Livingston County GIS
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Map 2
Septic Limitations Based on Soils
Genoa Township
Livingston County, MI

Data Sources:
Base Map: Genoa Township; Livingston County GIS

Note: This map’s data was not updated in the 2013 Master Plan Update

May 2006
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**FARMLAND**

Genoa Township was historically a resort and farming community. Over the years, much of the farmland has been converted to residential, commercial and industrial uses. There is still active farmland in the northeast corner of the Township and in the western portion of the Township. The prime farmland is in the northern portion of the Township.

**KEY VISTAS**

The lakes, topography, vegetation and cultural resources are components in the overall scenic attractiveness of the Township. Scenic vistas are places which afford expansive views of Township visual resources. These are located on top of hills and high elevations or along roadways. Roadways are important visual corridors because they unfold a rapid sequence of vistas. Lakes, fields, homes, buildings and signs are common sites which are presented to the roadside viewer. The combination of curves in the roadway and sections of densely vegetated areas along the roadway provide departures and entrances to a sequence of changing view sheds along the road.

There are a number of areas of the Township, particularly in the west along Chilson Road, which have views characteristic of a rural/open space community. These are topographically high or open agricultural areas. These areas provide a wide panoramic view of the surrounding hills and are characteristic of an open, rural agricultural area.

Other areas of the Township have characteristic views due to topography and natural features. Many of the roadways in the Township pass through rolling topography and are lined by dense woodlands. Woodlands along roadways contribute to a natural/rural atmosphere in a number of ways. The impact of vegetation on the person within the public right-of-way will be greater because of the close proximity. A greater mass of vegetation will be within the forward view of the person within the public right-of-way. Other features outside of the public right-of-way, such as buildings, will have a less dominant impact on the streetscape because they fall behind the vegetative foreground. Taller trees provide a sense of enclosure, providing a well defined public space bounded by vegetation.

Landmarks are important visual resources. There are a number of historic farm homes which lend an important character and identity to the Township. The cultural or man built landmarks should be preserved and managed in a sensitive manner. New development should compliment unique landmarks and should not detract from the scenic vistas of Genoa Township’s lakes, hills and open areas.
WOODLANDS

While the Township has been experiencing rapid development, there are still significant areas of natural woodlands. The most significant woodland areas are found in the southwestern corner of the Township. This area is the most isolated portion of the Township. The rolling topography and large forested wetlands limit development in this area and contribute to the natural character. (See Map 3)

The Township currently protects woodlands through provisions in the Zoning Ordinance that restrict clearing of woodlands on a site prior to site plan approval. During site plan review, woodlands are required to be inventoried and the design is required to demonstrate preservation of natural features. As a condition of site plan approval, trees are required to be protected during construction with root-zone fencing. The Township also has landscaping regulations that require the planting of greenbelts and street trees for any new development. Landscape materials used should be native to Michigan and a variety of species should be used for street trees to minimize the impact of disease.

Woodlands provide the following community benefits, which serves as a basis for these regulations:

- **Quality of life**: The woodlands of Genoa Township contribute to the quality of life for Township residents. The abundant woodlands and trees help create the peaceful, rural atmosphere. Trees provide a visual barrier between individual properties and neighboring properties, an essential factor for preserving the rural atmosphere and property values.

- **Influence on micro-climate**: Woodlands play an important role in moderating ground-level temperatures. Tree canopies buffer the ground surface from the sun's heat and wind. Temperature extremes during winter months can also be moderated with the help of trees.

- **Reduction in air pollution**: Woodlands absorb carbon dioxide and return oxygen to the air. Tree leaves filter pollutants from the air, removing ozone, chlorine, hydrogen fluoride, sulfur dioxide and other pollutants. Large and dense stands of trees serve as a noise buffer as well.

- **Reduction in soil erosion**: Woodlands and other vegetation stabilize soils and help prevent soil erosion. The vegetation absorbs the energy of falling rain and the web of roots of all types help hold soil particles in place. Tree leaves reduce the impact of raindrops on the soil surface and give soil a chance to absorb water. Fallen leaves minimize the loss of soil moisture, help prevent erosion and enrich the soil to support later plant growth. Wooded wetlands provide the additional benefit of trapping and holding storm water runoff. Dense vegetation can help slow flood surges and flows.
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- **Wildlife habitat**: Woodlands provide essential shelter and food for deer, raccoon, rabbits, pheasants and other birds and animals. The opportunity to observe wildlife in a natural setting has educational benefits for Township residents.

- **Township’s natural character**: There is a significant amount of mature vegetation along many of the road corridors that pass through the Township. Woodlands located near the roadway contribute to a natural/rural atmosphere in a number of ways. The impact of vegetation on the motorist will be greater because of the close proximity to the roadway. A greater mass of vegetation will be within the forward view of the motorist. Other features such as buildings will have a less dominant impact on the streetscape because they fall behind the vegetative foreground. Taller trees will provide a sense of enclosure, providing a defined space bounded by vegetation. There is also a significant amount of vegetation along most lakes and streams throughout the area.

**WETLANDS**

Wetlands are transitional areas between the aquatic ecosystems and the surrounding upland areas. They are low areas which are intermittently covered with shallow water and underlined by saturated soils. Vegetation which is adapted to wet soil conditions, fluctuation in water levels and periodic flooding can be found in wetlands. Wetlands are linked with the hydrologic system, and as a result, these wetland systems are vital to the environmental quality of Genoa Township.

Wetlands serve a variety of important functions which not only benefit the natural environment but also the community. Some of the primary values which wetlands contribute are as follows:

- Mitigate flooding by detaining surface runoff.
- Control soil erosion and sedimentation loading in rivers and lakes.
- Provide links with groundwater.
- Improve water quality which is degraded by such things as:
  - nutrients and chemicals from fertilizers and pesticides used in agriculture and landscaping/lawn care;
  - polluted urban run off from roads, parking lots, industrial and other commercial activities;
  - treated effluent from waste water treatment facilities;
  - erosion and sedimentation resulting from agricultural and construction activities.
- Function as highly productive ecosystems in terms of wildlife habitat and vegetation.
- Serve a variety of aesthetic and recreational functions.

The largest interconnected series of wetlands are located along the Chilson Creek corridor in the western portion of the Township.

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**Wetlands play a very important part in the hydrological and ecological systems. In addition to providing fish and wildlife habitat, wetlands maintain and stabilize groundwater supplies, reduce the dangers of flooding and improve water quality.**
There are also numerous kettle depressions scattered throughout the Township. (See Map 4)

There are four types of wetlands predominate within the boundaries of Genoa Township: (1) emergent wetlands with rooted cattails, bulrushes and sedge grasses; (2) Scrub/shrub wetlands, (3) bogs; and (4) forested wetlands with an over-story of trees and an under-story of shrubs. As water levels rise and fall from year to year, some ecological succession may be occurring as the wetlands shift from emergent marsh to forested wetlands.

Future development in areas surrounding these wetlands could significantly impact wetland resources. Therefore, developers and Township officials should evaluate alternative designs to minimize any potential for impact. This is best done by initially considering wetland resources as constraints to development. The relative weight of these constraints must also account for other environmental and socio-economic constraints. Minimization of impacts to these resources should take into account the cost of avoidance and the property rights of the individual. If impact is unavoidable, then mitigation should include an analysis of retaining or enhancing the wetland values to be lost.

Wetland areas are valuable as natural buffers between residential and commercial land uses. They contribute significantly to the aesthetic character of the community. By incorporating wetlands as part of the future development, they will continue to maintain open and green space as well as contribute to retaining the rural setting.

Any wetlands greater than five acres in size or contiguous with a waterway are regulated by the Michigan Department of Environmental Quality (MDEQ) through the Goemaere-Anderson Wetland Protection Act, Public Act 203, as amended. Any activity which requires these regulated wetlands be filled or drained requires a permit from the MDEQ. Permits will generally not be granted unless the issuance is in the public interest and necessary to realize the benefits derived from the activity. If a wetland fill permit is granted, mitigation should be required such as creating new wetlands within the same drainage way or enhancement of existing wetlands. In addition to this, Genoa Township Zoning Ordinance contains wetland standards that provide local reinforcement of State regulated wetlands.

LAKES

Lakes are among the Township’s most valuable natural resources of the community. The largest and most significant lakes in the Township are Lake Chemung, East Crooked Lake and West Crooked Lake. The numerous lakes provide recreational opportunities such as boating, fishing and swimming. The quality of these water features enhances the value of adjacent property for residential opportunities. Areas surrounding many of the larger lakes in the
Township have been developed for smaller lot resort and residential uses. These areas were initially developed with resort cottages on small lots with individual septic drain fields. Over time these areas have been converted to year-round homes. Areas surrounding the lakes have soil conditions that are not well suited for drain fields due to poor soil texture and a high water table. The combination of the natural soil characteristics and increased residential use of the lake areas led to significant problems with septic tank systems. The septic tank leakage began affecting the quality of wells and the lakes. In response to these problems, Genoa Township has provided sanitary sewer to serve the most intensely developed areas around Lake Chemung and the Tri-Lakes.

DRAINAGE
Upland areas drain to the low lying wetlands, lakes and streams that pass through the Township. Soil permeability of most upland areas is moderate to moderately rapid. As these areas become developed, the amount of water infiltrating the surface will decrease and the surface runoff will increase. This will be caused by clearing of natural vegetation, addition of impervious material to the land (buildings and pavement) and installation of storm drains. These will have the cumulative effect of increasing the peak discharge to the area’s drains, streams and lakes while reducing the amount of water infiltrating to ground water. Minimization of these impacts may involve protecting native vegetation, on-site storm water retention and clustered development.

While many of the lakes and wetlands within the Township are located within isolated potholes, there are some significant creeks, drains and streams that interconnect some of the wetlands and lakes. Chilson Creek is the major stream in the Township that flows from the north down to the Huron River in Hamburg Township in the south. Ore Creek in the southeastern corner of the Township, near the city of Brighton also drains to the Huron River in the south. Associated with the creeks are corridors of adjacent wetlands. The creeks and wetlands are important for surface drainage, groundwater recharge and wildlife habitat. Alteration of the creeks and wetlands can contribute to flooding, poor water quality, insufficient water supply and loss of valuable wildlife habitat.

GROUNDWATER
Important factors in the evaluation of groundwater are the quantity and quality of the water. Quantity or yield standards for a typical residential or commercial use range from 7 gallons per minute to 20 gallons per minute. Water is generally available in sufficient quantity and will not likely be a factor in limiting growth.

Water quality is a more important factor than water availability. Water hardness, iron content, salinity and septic field contamination are hazards encountered in Genoa Township. Potential sources of groundwater contamination can result from all of the various land

Sources of groundwater contamination:
- Landfills
- Agricultural fertilizers and pesticides
- Urban storm water runoff
- Septic drainfields
- Spill of hazardous materials
- Leaking underground storage tanks
uses within Genoa Township. The level of threat of groundwater contamination will vary based on 1) the susceptibility of groundwater to contamination due to geologic features, 2) contamination loading rates based upon land use and hazardous materials management and 3) the amount and type of hazardous materials utilized within the Township.

Major sources of groundwater contamination are as follows:

- Buried wastes in landfills discharge liquids referred to as leachate which can enter groundwater.
- Agricultural fertilizers and pesticides often infiltrate the soil surface and enter groundwater.
- Urban storm water run-off from buildings, streets and parking lots contains contaminants that infiltrate the soil and enter waterways.
- Septic drainfields release sewage effluent into the soil through seepage beds.
- Spills and leakage of hazardous materials such as underground storage tanks and spills of hazardous materials will infiltrate the soil surface and enter groundwater if not properly contained.

State and county requirements will need to be adhered to for any facility within the Township that involves the use, storage or disposal of hazardous materials. Facilities for storing hazardous materials should have secondary containment and a pollution incident prevention plan.

POTENTIAL ENVIRONMENTALLY IMPACTED SITES

According to Livingston County Health Department records, there are a few contaminated sites within the Township which pose environmental problems. Michigan Public Act 307 provides for identification, risk assessment, evaluation and cleanup of sites of environmental contamination in the State. Sites are identified through information from concerned citizens, environmental groups, industry, local health departments, MDEQ staff and others. From this process a priority list was and will continually be, updated. This list is used in part to develop funding recommendations to undertake response activities utilizing state funds when the parties responsible for the contamination are unwilling or unable.

Six Act 307 Sites have been identified in Genoa Township. These are located in industrial and commercial areas, with the majority in the northwest corner of the Township near the city of Howell. These locations are planned to remain in industrial, commercial or public land uses.

A closed landfill is located on the south side of Brighton Road, east of Chilson Road.
Map 4
Wetlands

Genoa Township
Livingston County, MI

Data Sources:
Base Map: Genoa Township; Livingston County GIS; M-DEQ

May 2006

Note: This map's data was not updated in the 2013 Master Plan Update
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NATURAL RESOURCE MANAGEMENT STRATEGIES
This Plan consistently emphasizes the importance of the natural resource base. The correlation of land use density in the Future Land Use Plan to natural resource capability described in this chapter will help promote preservation of natural amenities.

The Master Plan must address both the quality and the quantity of land use within the Township. Protection of Township resources requires the adoption of policies directed toward the specific resource problem including drainage, and groundwater quality, natural topography and vegetation. Resource protection regulations can be incorporated in subdivision, zoning and other special purpose regulations. High-quality natural areas have been mapped by the Livingston County Planning Department and are shown on Map 5.

Lower Density Zoning Districts: The interrelation of the environmental component of the Master Plan with the land use component is most visible with the establishment of land use categories. Within areas identified as having significant and fragile natural resources, lower impact/density development is recommended. This is based upon the natural capability analysis.

Certain portions of the Township are characterized by significant natural features such as extreme topography, large wetland complexes and extensive wildlife habitat. These, in combination with other factors such as existing land use patterns and transportation areas with critical natural features, are identified in the future land use map for Country Estate and Rural Residential Districts.

Natural Feature Setback Standards: The Township has enacted general zoning standards for setbacks from wetlands, lakes and ponds that apply to all zoning districts. There is a strong basis for this type of requirement. Development surrounding water features, particularly wetlands, affects the function of the water feature. Development immediately adjacent to a water feature may have the effect of increasing the disturbance to this natural ecosystem and reducing the water feature's ability to perform its natural function.

For example, wetlands are dependent on an interaction between the wetland and the surrounding upland. In terms of hydrology, water enters a wetland from the surrounding upland area in a number of ways- overland flow, through the upper layers of the soil and through groundwater. The upland soil and vegetation surrounding the wetland affect the amount, the means and the rate at which water enters the wetland following a storm or snow melt. Development of the surrounding upland will alter the relative balance between the overland (surface) flow and infiltration, resulting in a greater peak discharge to the wetland. In other instances, physical improvements such as structures, roads and
storm sewer systems can intercept surface flow to the wetlands. These alterations to hydrology can result in much greater fluctuations in water levels between wet and dry seasons. The undisturbed soil between the site improvements and the wetlands acts as a buffer to try to maintain the natural upland/wetland interaction that existed prior to development.

In addition to the hydrologic function, waterways are natural open space corridors which serve as wildlife habitat. Animals move through suburban areas along remaining undeveloped natural corridors, such as the numerous drainage ways that cross the Township. Development immediately adjacent to these natural features has a detrimental impact on wildlife habitat by moving structures and disturbance further into natural corridors and increasing constriction of development on these habitats. Protection of areas that line natural features is important to wildlife because this is the interface between the aquatic and terrestrial (upland) ecosystems system. This interface is important to animals such as land mammals that need water or birds which perch on trees to hunt for fish.

**Streambank & Slope Protection:** Steep slopes require sensitive site planning prior to development. Above many drainage ways of the Township there are steep banks or bluffs separating the lowlands and the uplands. These generally have steep slopes and are heavily vegetated. Disruption of the vegetative cover on these bluff areas may cause significant erosion problems and adversely affect stream ecology. Care should be taken to insure extensive grading is minimized and natural features such as vegetation and top soil are protected. This applies not only to bluffs that line waterways, but also other areas of the Township where there is significant topography.

There are a number of means for the Township to protect steeply sloped areas:

- Maintain setback requirements for all waterways. The current requirement could be revised to be variable based on the extent of the slope.
- Use flexibility offered by the Planned Unit Development regulations to cluster the development away from steep slopes. The Planned Unit Development regulations could be amended to require areas with steep slopes be preserved as natural open space.
- Adopt slope-related regulations where the density of development would be reduced on sites that contain steep slopes. Lots that are located in areas with severe topography would have to be larger. While this may add complexity to conventional development, it may also serve as an incentive for clustered development under the Planned Unit Development regulations.
Note: This map's data was not updated in the 2013 Master Plan Update

May 2006

Map 5
High Quality Natural Areas
Genoa Township
Livingston County, MI

Data Sources:
Livingston County GIS
Base Map: Genoa Township,
May 2006

LSL Planning, Inc.
**Storm water Management:** Increase in development activity will place additional burden on existing natural drainage systems unless preventive measures are adopted. The overtaxing of drainage systems could lead to localized flooding, environmental damage and costly storm drainage improvements to be borne by taxpayers.

By prompting preservation of natural drainage ways and providing storm water retention basins, the impact of development on drainage systems can be minimized. The Township should take a comprehensive approach to storm water management by encouraging the preservation of existing natural features that perform storm water management functions, minimization of impervious surface, direction of storm water discharge to open grassed areas and careful design of erosion control mechanisms. Wet ponds and storm water marsh systems should be required for detention in new developments. Storm water basins, wet ponds and storm water marsh systems need to be landscaped. Plantings should be adapted to hydric conditions and installed to create a system that emulates the functions of natural wetlands and drainage ways both in terms of hydrology and natural habitat.

**Septic Disposal:** Ground water and surface water contamination from septic drain fields is a serious concern in the Township. This issue was particularly a concern in areas surrounding the lakes that developed prior to current zoning and health regulations. Many of these neighborhoods developed as cottage communities at higher densities than currently allowed and within areas where the soils are not suitable for septic disposal. The continued growth of the community and the conversion of many of these cottages into year-round homes lead to contamination problems. In response, the Township has established public sanitary sewer districts to serve these areas, which has been effective in improving water quality in the Tri-Lakes and Lake Chemung. Through working with the Livingston County Health Department, the Township can continue to manage the problem of ground water and surface water contamination from septic drain fields.

- Continue providing public sanitary sewer to higher density areas, including high density areas around the lakes that are currently within the utility districts.
- Restrict the density of future development in areas where the threat to ground water and surface water contamination is highest. This would include areas along waterways and areas with poor soil suitability for septic drain fields.

**Restoration of Wetlands:** Prior to current wetland regulations, many wetlands within the Township have been filled, drained and/or otherwise altered. Wetlands along the various lakes have been filled for the purpose of development. In other areas, drains and agricultural tiles may have been installed to drain surface water from wetlands so the land could be farmed.
The location of these altered wetlands can be identified. Although the hydrology of the site has been altered, the native soils will still exhibit coloration and textures associated with hydric conditions. Also, the Michigan Department of Natural Resources has mapped pre-settlement land cover (vegetation) based on historic survey records. Maps are available for Genoa Township that show the historic natural land cover.

Where development of agricultural lands is proposed, these wetlands can be restored as part of the drainage and open space design of the development. Hydrologic restoration may involve the removal of fill material and/or closing (or slowing) man-made drainage ways. Restoration may also involve covering the soil surface with peat and re-establishing hydrophytes (wetland vegetation). Within Planned Unit Developments where there are damaged or filled wetlands, a condition of approval may be the restoration of the natural system.

**Lake Access & Use Regulations:** Increased population in Genoa Township and lake front development have continued to place pressures on the many lakes of the Township for recreational use. The Township has regulations that govern the creation of "keyhole" development. A keyhole, also referred to as a common use access site, is a waterfront lot that is used to provide lake access for non-riparians (non lake front lot owners). There are many existing subdivisions that contain these keyhole lots and predate the ordinance. These keyholes are generally waterfront parks owned in common by all lot owners within the subdivision.

When used for access and dockage for numerous boats, these can increase the density of boat usage on the lakes and contribute to the following problems, particularly from power boats:

- Shore erosion.
- Damage to lake bottom and stirring-up sediment.
- Oil and gas spillage.
- Noise.
- Conflicts and safety problems between users (power boats, sail boats, personal water crafts, canoes and swimmers).

As the Township continues to grow, problems associated with lake overcrowding could worsen. It is important to point out that keyholes are only one part of the problem. Impacts to the safety and quality of the Township's waterways is impacted by recreational use by riparian and waterfront lot owners, as well as through public access sites. While the current keyhole ordinance can help manage the problem, the Township should consider a more comprehensive approach to managing lake usage. Any policy needs to balance the rights of riparian owners with the right of the general public to have access to public navigable waters, and with the need to protect the quality of the state’s natural resources.
The Township may adopt a lake access ordinance that restricts the number of boats that can access each lake based on water frontage. This ordinance would apply both to keyhole access and lake front lot owners. Under this ordinance, each lake front lot (keyhole or private) would be allowed one power boat plus one additional boat for each specified amount of shore length. The specified amount of shore length would need to be established for each lake based on the carrying capacity of the lakes determined by the following:

- Lake characteristics including lake size, shoreline perimeter, amount of shallow vs. deep lake area, water quality, bank and soil characteristics and turnover rate.
- Land use characteristics including the number of platted lots along waterfront, ownership patterns, zoning minimum lot sizes/widths and common use/keyhole/public access sites.
- An inventory of the number of power boats stored on the lake, the number of boats gaining access through common use/keyhole/public access sites and the total number of boats using the lake on peak days.

Preservation of Natural Topography and Vegetation: Due to the scarcity of large tracts with woods or rolling topography, those that still exist are highly valuable. The land use densities proposed by the Land Use Plan will promote the preservation of existing vegetation and topography. Specific standards can be applied to subdivision plat regulations and site plan review to require preservation of tree cover, the provision of landscaping and buffer strips and the minimization of site grading. The Planned Unit Development regulations should continue to be utilized to encourage preservation of open space, vegetative cover and natural topography.
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IV. EXISTING LAND USE
A. Growth Trends

Historical Perspective

Historically Genoa Township was characterized by rural agricultural land uses, with resort-type development around Lake Chemung and the other 15 lakes in the region. In the early 1970's the rural character began to change. Suburbanites from the Detroit and Ann Arbor areas began looking at Livingston County as a convenient commute between this quiet lifestyle and metro area employment. Following the residential growth have been supportive commercial and public facilities. The small town atmosphere associated with the cities of Brighton and Howell attracted residents, businesses and small industries to this area. Gradually the area began to establish its own healthy employment base. Providing sanitary sewer service in parts of Genoa Township has contributed to the rapid pace and intensity of its growth. According to Livingston County and Genoa Township figures, most of the recent development in Genoa Township has been residential.

Regional Context

Genoa Township lies within Livingston County, Michigan. The urbanization of Livingston County is part of the trend of outward migration from the Detroit Metropolitan area. Situated between Brighton and Howell, with easy access to Detroit, Ann Arbor, Lansing and Flint via freeways, Genoa Township falls in a crossroads of growth.

Genoa has experienced a large amount of residential development and has developed a stable, self-sustaining employment base comprised of a variety of industries. The element that sets Genoa apart from many communities in the County is the opportunity to appreciate a rural lifestyle without the long commute.

The outward growth of Brighton and Howell has directly affected the development of Genoa Township, which is apparent along the Grand River Avenue corridor, accentuated by interchange facilities with I-96. Grand River Avenue is the major roadway that links the cities of Howell and Brighton and generally parallels I-96. This corridor gradually has been developed with a variety of uses, particularly during the past decade. Some regional scale commercial establishments began to develop in part due to sanitary sewer service becoming available in 1991. The installation of public utilities has resulted in the substantial growth of industrial uses in the Grand River corridor area.

A number of factors can be cited for growth in the southeastern Livingston County area:

- Interstate 96 and U.S. 23 increasing accessibility from Genoa Township to the major places of employment in the metropolitan region.
- The availability of relatively inexpensive large tracts of land suitable for subdivision development.
- People’s desire to live in a community with a rural atmosphere.
- The attractiveness of lake front or rural estate home sites.
- Public sanitary sewer becoming available.
B. Existing Land Use

An inventory of existing land use was conducted using current aerial photographs and verified by field observation. Existing land uses were classified and the extent of their acreage determined as depicted below. The following pages describe the existing land use characteristics of the Township when the land use update for the plan was done in 2012.

<table>
<thead>
<tr>
<th>EXISTING LAND USE (2012)</th>
<th>Acres</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-Family Residential</td>
<td>10,738</td>
<td>47%</td>
</tr>
<tr>
<td>Multi-Family Residential</td>
<td>744</td>
<td>3%</td>
</tr>
<tr>
<td>Commercial</td>
<td>742</td>
<td>3%</td>
</tr>
<tr>
<td>Industrial</td>
<td>351</td>
<td>2%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>2,213</td>
<td>10%</td>
</tr>
<tr>
<td>Parks</td>
<td>2,097</td>
<td>9%</td>
</tr>
<tr>
<td>Public</td>
<td>886</td>
<td>4%</td>
</tr>
<tr>
<td>Trans., Comm., Utilities</td>
<td>1,483</td>
<td>6%</td>
</tr>
<tr>
<td>Vacant</td>
<td>2,797</td>
<td>12%</td>
</tr>
<tr>
<td>Water</td>
<td>1,008</td>
<td>4%</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>23,058</td>
<td></td>
</tr>
</tbody>
</table>

**Agricultural**

Agricultural includes lands actively used for agricultural purposes totaling 2,213 acres.

**Single-Family Residential**

Single-Family residential is the most prevalent land use in the Township. This type of residential development is dispersed throughout the area. Some of this single-family development has
resulted from gradual divisions of agricultural land. This land use is comprised 10,738 acres in 2012.

Multiple-Family Residential

Although multiple-family housing, historically has been limited to the cities of Howell and Brighton, there has been significant multiple family development in Genoa Township since public water and sanitary sewer were introduced. This category includes attached town homes, multiple family condominiums and apartments, and manufactured housing parks. There are 744 acres of multiple-family residential development in the Township in 2012.

Commercial

Commercial uses in the Township are located primarily along the Grand River Avenue frontage. Grand River Avenue is the most heavily traveled roadway in Genoa Township. As a result, small regional shopping centers, individual business establishments and small offices have developed along this segment. Commercial/office use comprises 742 acres.

Industrial

Existing industrial uses are located on the south side of Grand River Avenue between Chilson and Latson. There are a number of small to medium sized industrial uses dispersed along the Grand River Avenue corridor. The largest industrial area is the partially developed 200 acre Grand Oaks Industrial Park just west of Latson Road between I-96 and Grand River Avenue. In total, 351 developed acres of industrial land exist in the Township.

Public/Quasi-Public

Areas designated as Public/Quasi-Public include public uses such as Township Hall, governmental buildings, churches and schools. These are dispersed throughout the Township with a high concentration of government facilities in the northwest corner towards the City of Howell. There is a total of 886 acres of public land in the Township.

Parks

This classification includes areas such as golf courses, miniature golf centers, recreational vehicle campgrounds, parks, ski areas, MDNR lake access sites, playgrounds, trails, athletic fields, and the Brighton Recreation Area which total 2,097 acres.
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C. LAND USE PATTERNS

The pattern of development reflects the urban influences of the cities of Brighton and Howell, combined with easy access to Detroit, Ann Arbor, Lansing and Flint via freeways. As illustrated on the Existing Land Use Map, the more intensive development is along the Grand River Avenue corridor, which is contrasted by residential development and agricultural activities away from this axis of development.

Grand River Avenue is the major roadway linking the cities of Howell and Brighton and generally parallels I-96. The installation of public utilities and accessibility has resulted in substantial growth of commercial and industrial uses southeast of the City of Howell. This area has been developing toward serving as a principal regional commercial center for Genoa Township and surrounding communities.

Residential areas north and south of the corridor historically were large lot development. In the last 20 years some of these lands have evolved to large planned residential communities. Some of these developments have utilized innovative design techniques to capitalize on precious environmental resources in the Township while preserving their natural condition. As a result smaller, more clustered subdivisions have emerged.

Much of the land along Grand River Avenue is less rolling and contains more buildable soils. It is the area most readily accessible and, therefore, feasible to sewer. Away from this corridor lands are characterized by more rolling topography, some areas with steep slopes, wetlands, problem soils, wooded areas and less intensive suburban rural-agricultural development.
D. UTILITY SERVICE AREAS

The availability of utilities has made a significant impact on development patterns. Most older developments use individual septic systems. A high density of septic systems in areas with unsuitable soils, high groundwater or near bodies of water can have significant impact on the quality of the Township's water resources. The septic tank leakage from older systems has affected the quality of the Township's wells, lakes, wetlands, and groundwater and limits development potential. In response to these problems, Genoa Township developed several public sanitary sewer systems for certain areas. The provision of sanitary sewer has helped to overcome some of the problems associated with septic tank systems.

Northwest portion of Township

Genoa and Oceola Townships jointly developed a sanitary sewer system with the assistance of the engineering firm of Tetra-Tech MPS back in the early 1990's. This system, the Genoa-Oceola sanitary sewer system, serves much of the Township from the area around Lake Chemung to the City of Howell, north of I-96. The treatment plant is located on Chilson Road, just north of the railroad.

The plant was designed to accommodate future development of vacant land within the presently defined service district. The system is designed to accommodate the land uses indicated in the Master Plan. Only sanitary wastewater is accepted at the waste water treatment plant. No industrial process flows are permitted.

The Township also has a public water supply system for the northwestern portion of the Township. The system serves areas north of I-96 between Lake Edgewood and the western Township border. The water system was developed as part of MHOG Water Authority, a four Township system that includes Marion, Howell, Oceola and Genoa Township. There is a 500,000 gallon water tower located by Cleary University in Genoa Township.

Oak Pointe/Tri-Lakes

Sanitary sewer service was provided in the central portion of the Township around the Tri-Lakes area as a part of the Oak Pointe PUD. The treatment plant was constructed by the developer and dedicated to the Township. This system is being combined with the Genoa-Oceola system with the Oak Pointe treatment plant being taken off-line and wastewater routed to the treatment plant on Chilson Road. The system serves the ultimate build-out of Oak Pointe, Northshore and the existing residential areas surrounding the Tri-Lakes. This system provided a benefit by not only serving the future development within the Oak Pointe PUD, but by also providing sanitary sewer service to the older lakefront subdivisions in the area.
This has had a significant benefit for the water quality within the Tri-Lakes.

As part of the Oak Pointe PUD, a public water system was also developed. The system serves the Oak Pointe development and has been extended around to the north end of Crooked Lake to serve the Northshore PUD. The system has an Iron removal facility and a 150,000 gallon elevated storage tank in the Oak Pointe Golf Course.

**Brighton**

The Pine Creek PUD, adjacent to the City of Brighton, has public water and sanitary sewer service through a P.A. 425 agreement with the City. Water has also been extended to serve existing homes on Dillon Street that had contamination problems with individual wells. There are currently no plans to extend Brighton water and sanitary sewer service to other areas of the Township.

There is also a public water supply system at the eastern edge of the Township. This system was originally developed to serve the Lake Edgewood condominium development and the Brighton Village Mobile home park. This system has been extended southward along Grand River Avenue to the City of Brighton. This extension serves commercial development along Grand River Avenue near the Brighton I-96 interchange. There is a 500,000 gallon water tower on Conference Center Drive, adjacent to I-96. This water system is owned and operated by the City of Brighton.

**Lake Edgewood**

Sanitary sewers are provided in the eastern section of the Township, through a system known as the Lake Edgewood sanitary sewer system. The system serves the greater area along the eastern portion of the Grand River Avenue corridor, west to Sylvan Glen. The Sylvan Glen manufactured housing park is served by a private on-site package treatment plant, which ultimately will be connected to the Lake Edgewood system.
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V. FUTURE LAND USE
A. Determining Factors

There are a number of factors attracting residents and developers to Livingston County in general, and Genoa Township in particular:

- Accessibility to rapid growth areas in Ann Arbor and western Oakland County, provided by the I-96 interchanges. Vacant, available property with lower land and development costs than in "competing" areas.
- Visibility to high and increasing traffic volumes along Grand River Avenue, especially between Howell and the I-96 exit 141 interchange.
- Availability of sanitary sewer service in select areas.
- An increasing population base to serve and/or employ.
- Relative affluence of residents.
- High quality of life offered in the area due to the natural features such as rolling hills, lakes, woodlots.

In addition to those general development attractors, there are some specific factors that influenced the proposed future land use pattern in Genoa Township. These factors include:

- **Existing land use** - Wholesale changes to the existing land use pattern would be difficult. The locations of most existing commercial and industrial developments are appropriate, and the community land use patterns have evolved around these existing land uses.
- **Relationship of incompatible uses** - The future land use plan strives to diminish incompatible land use relationships by providing a transition of land uses, such multiple-family between light industrial and single family residential areas.
- **Natural features** - The natural rolling topography, woodlots and scattered lakes provide highly marketable property for residential development. The types of development and allowable density shown on the future land use map were determined by the location and extent of natural features. For example, lower overall development densities are proposed for properties containing significant wetland areas to encourage clustering in buildable areas.
- **Existing Township Master Plan** - The original Township Master Plan, adopted by Genoa Township in 1976, and the Grand River Area Corridor Plan, adopted in 1995, were the principal basis for this current version of the Township Master Plan, first adopted in 2006. The future land use plan contained in the plan has been re-evaluated based on current trends and conditions for this update.
- **Infrastructure** - The density of residential uses and the location of land uses such as industrial and commercial are dependent on the availability and the capacity of the infrastructure system. Portions of the Township are currently

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### Future land use determining factors:

- Consistency with existing land use patterns.
- Diminishing incompatible land use relationships.
- Preservation of natural features and consideration of the carrying capacity of the environment.
- Positive incorporation of natural amenities.
- Existing land use planning and zoning policies such as the previous Master Plan and the Grand River Avenue Corridor Plan.
- Availability of infrastructure including utilities, transportation and community facilities.
- Market conditions for various land uses.
- The goals and objectives of the plan that express the community character desired by residents.
served, or are planned to be served, by public water and sewer. The capacity of the road network defines the intensity of uses that may be served without adversely impacting traffic operations. The availability of community facilities such as schools, recreational facilities, police and fire protection places bounds on service to land use, particularly the residential density. For this reason, this plan includes a growth boundary.

- **Desires of the Township** - The land use pattern desired by Township officials and property owners has been expressed with the objective of a diversified tax base, employment opportunities, provision of services for residents and desire for a mixture of uses.

The future land use map is a guide to the orderly development in the area and is intended to assist in decision-making. The future land use map is based on the current transportation system with the addition of the new full I-96 interchange at Latson Road and the existing partial interchange at Lake Chemung (See Map13).
### B. Future Land Use Categories

**Agricultural/Country Estate:** These areas shall remain in agricultural use, or develop as single family residential on estate lots. Many of the areas are prime farmland or have significant natural limitations such as wetlands or severe soil limitations. As these areas are not planned for sanitary sewer, they can only support low density residential development. This classification is recommended for single family residences on lots no smaller than 5 acres.

**Rural Residential:** This designation identifies that this area shall develop as single family residential on large lots. Many of the areas have significant natural limitations such as wetlands or severe soil limitations and are not planned for sanitary sewer. This classification is recommended for single family residences on lots no smaller than 2 acres or clustered development with a net density of 2 units per acre.

**Low Density Residential:** These areas are designated for single family residential use, located on the fringe between the rural residential and the more urbanized areas of the Township. While these areas are not planned for sewer service, they have fewer environmental constraints found in the Rural Residential. Single family residential uses within these areas will be located on lots of at least 1 acre in size.

**Small Lot Single Family Residential:** This designation refers to two distinct groups of moderate density single family residential uses. The older, existing, single homes around Lake Chemung and the Tri-lakes Area are situated on smaller lots. It is intended that this area shall remain single family residential. Secondly are newer, small lot, single family subdivisions located within the more urbanized area of the Township. These areas will generally be, or are planned to be, served by public water and sanitary sewer. Single family residential uses located within these areas will typically be located on lots ranging from 14,520 square feet to 21,780 square feet in size or 2 to 3 units per acre.

**Medium Density Residential:** This designation refers to medium density duplexes, attached condominiums and other multiple-family dwelling units. This area may also be developed with single-family homes on smaller ¼ acre lots. This designation is found within areas served, or planned to be served, by public water and sanitary sewer. Development will be at a density consistent with the infrastructure and land capabilities, but will not exceed a density of 5 units per acre. Developments in these areas will be served by public water and sewer.

**High Density Residential:** This designation refers to higher density condominiums, apartments and other multiple family dwellings. This

<table>
<thead>
<tr>
<th>Future Land Uses:</th>
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<tbody>
<tr>
<td>Agriculture/Country Estate</td>
<td>5 acres per dwelling unit</td>
</tr>
<tr>
<td>Rural Residential</td>
<td>2 acres per dwelling unit</td>
</tr>
<tr>
<td>Low Density Residential</td>
<td>1 acre per dwelling unit</td>
</tr>
<tr>
<td>Small Lot Single Family Residential of 2 to 3 dwelling units per acre</td>
<td></td>
</tr>
<tr>
<td>Medium Density Residential</td>
<td>5 dwelling units per acre</td>
</tr>
<tr>
<td>High Density Residential</td>
<td>8 dwelling units per acre</td>
</tr>
<tr>
<td>Neighborhood Commercial</td>
<td></td>
</tr>
<tr>
<td>General Commercial</td>
<td></td>
</tr>
<tr>
<td>Regional Commercial</td>
<td></td>
</tr>
<tr>
<td>Mixed Use Town Center</td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td></td>
</tr>
<tr>
<td>Industrial</td>
<td></td>
</tr>
<tr>
<td>Planned Industrial</td>
<td></td>
</tr>
<tr>
<td>Public/Quasi-Public</td>
<td></td>
</tr>
<tr>
<td>Private Recreational</td>
<td></td>
</tr>
<tr>
<td>Planned Unit Development</td>
<td></td>
</tr>
</tbody>
</table>
Future Land Use designation is found within areas served, or planned to be served, by public water and sanitary sewer. Development should respond to infrastructure and land capabilities, and should not exceed 8 units per acre. High density residential developments will be served by public water and sewer.

**Manufactured Housing:** These areas are designated for manufactured housing/mobile home parks. Manufactured housing areas will be served, or planned to be served by public water or a community well and sanitary sewer. Development in these areas will be limited by infrastructure and land capabilities.

**Neighborhood Commercial:** Retail and service establishments whose primary market area includes residents and employees from within a two mile radius are designated by this category. These retail businesses and services are intended to serve the needs of nearby residential neighborhoods. Typical uses would include smaller general merchandising/retail establishments such as convenience stores, banks, dry cleaners, and beauty/barber shops, and small retail strips.

**General Commercial:** Businesses which serve the requirements of the community at large including Genoa Township, Howell, Brighton, and pass-by traffic along Grand River Avenue are designated by this category. The large size and variety of permitted commercial uses generate significant volumes of vehicular and pedestrian traffic. There may be some outdoor sales or display areas. These districts are intended to be clustered, rather than allowed to create an undesirable commercial strip pattern of development, and buffered from nearby residential area. Appropriate uses include larger grocery stores, restaurants and retail shopping centers.

**Regional Commercial:** Land uses within this category include higher intensity commercial uses that serve the comparison shopping needs of the entire community and the regional market. Uses include big-box retail, large shopping centers, restaurants (including fast-food) and automobile service centers. Such land uses rely on higher traffic volumes and easy access via a major arterial or highway. Development within such areas should occur within a planned, integrated commercial setting. Site design for these uses should include high quality architectural and landscape design with parking areas and access points that promote safe and efficient circulation throughout the site. The location of this land use designation shall be focused along the Grand River Avenue corridor between Latson Road and Grand Oaks Drive to create a focused regional commercial center so that the Township, County and State agencies can more efficiently focus the infrastructure and services needed to support this regional center.

**Mixed-Use Town Center:** This category includes a mixture of uses integrated into a traditional-style development of high density single
family homes, attached and detached, along with various commercial uses including retail and office. The intent is to create a destination in the Township as an alternative to the consistent strip development that currently exists along Grand River Avenue from Howell to Brighton.

A more detailed description of this area can be found later in this chapter.

Office: This use includes various forms of office development including professional offices, medical offices and banks.

Industrial: The intent is to develop industrial uses such as research, wholesale and warehouse activities and light industrial operations which manufacture, compounding, process, package, assemble and/or treat finished or semi-finished products from previously prepared material. The processing of raw material for shipment in bulk form, to be used in an industrial operation at another location is found only in very defined and limited portions of this area.

Research and Development: This area should be developed as a light industrial/R&D/office park. High quality building architecture should be utilized to convey a high-quality image. Enhanced landscaping and screening should be provided along adjoining major thoroughfares. Flexibility in some zoning requirements may be considered in exchange for these aesthetic enhancements.

Public/Quasi-Public: These are institutional land areas to be occupied by government, utility or civic uses such as churches, parks, state, county and municipal facilities and major utility lines.

Private Recreational: These are areas designated for private recreational facilities such as golf courses, campgrounds and private parks.

Redevelopment of Public/Quasi-Public Sites: Development pressures may lead to a demand for some public sites or private recreational property to be developed with other types of uses. If there is any redevelopment of public sites or private recreational lands, proper land use relationships must be maintained to ensure design and uses are compatible with the planned character of the surrounding area. In addition, since most of those sites have significant open space or natural features, some element of those features should be preserved. The Planned Unit Development (PUD) option contained in the Zoning Ordinance would be a good approach for this type of redevelopment. PUD provides design options to permit flexibility in the regulation of land development and innovation in design.

- The relatively large size of sites allows coordinated development and transitional land uses within the site to ensure compatibility with the surrounding area.
• Clustering residential units can be used to preserve common open space and natural features such as trees, topography and key views.

• Any development with another, more intense quasi-public land use, such as a medical center or hospital, should be designed as a PUD to properly integrate the development within the community. Such facilities should be designed to provide a campus type design, with coordinated access and circulation, consistent building design and preserved open space and natural features.

Interchange Commercial: Rather than typical interchanges where gas stations and fast food establishments are built piecemeal with little consideration for aesthetics, the intent of this designation is to promote planned development of these interchange commercial uses with high quality architecture. The new Latson interchange is envisioned to be the premier exit for travelers along I-96: a destination where they can get out of their vehicles to walk around, dine, and shop.

• Appropriate uses include fast food, sit-down restaurants, gas stations, retail, and entertainment

• This area may be subject to design guidelines promoting walkability, increased landscaping standards, pedestrian-scale building siting and massing, and outdoor dining/gathering.

• Very few access points: each development shall provide access connections to adjacent properties so that there may be a shared access connection to a future traffic signal.

For more information on the Latson Interchange Subarea, please see below.

Interchange Campus: With the creation of a new interchange at Latson/Nixon in 2013, development pressures may exist for large-scale users seeking large parcels of land with convenient access to I-96. The intent is to create a district that will accommodate large-scale institutional campuses close to the interchange without leapfrog development further south.

• Possible principal uses alone or in combination: medical center/clinics, higher education satellite, corporate offices, high-tech research & development (with no external impacts), indoor sports center, conference center/hotel, health clubs, office centers, or senior living. Ancillary uses that have a direct connection to the principal use are allowed and should be part of the overall plan, such as limited restaurants and professional services when included as part of an overall development.

• Any large-scale development should be a well-planned, campus-like setting, planned in close coordination with the
Township. Upon submittal of the first development proposal for this area, an overall development plan must be provided. This plan shall guide development in the interchange campus area including signs, access/circulation, building design, landscape, and streetscape.

- A well-landscaped entry corridor that includes a median, sidewalks, street trees, and ample places for pedestrians to cross S. Latson Road. This may require provision of 40’ of right-of-way from the center of the road.

For more information on the Latson Interchange Subarea, please see below.

**Table 12**

<table>
<thead>
<tr>
<th>Future Land Use</th>
<th>Acres</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag/Country Estates</td>
<td>6,159</td>
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</tr>
<tr>
<td>Large Lot Rural Residential</td>
<td>4,151</td>
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</tr>
<tr>
<td>Low Density Residential</td>
<td>4,370</td>
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<tr>
<td>Small Lot Single Family Residential</td>
<td>2,364</td>
<td>11.0%</td>
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<td>Medium Density Residential</td>
<td>443</td>
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<td>High Density Residential</td>
<td>119</td>
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<tr>
<td>Manufactured Housing</td>
<td>399</td>
<td>1.9%</td>
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<tr>
<td>Neighborhood Commercial</td>
<td>116</td>
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<tr>
<td>General Commercial</td>
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<tr>
<td>Regional Commercial</td>
<td>270</td>
<td>1.3%</td>
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<td>Mixed Use Town Center</td>
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<td>0.9%</td>
</tr>
<tr>
<td>Office</td>
<td>238</td>
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</tr>
<tr>
<td>Industrial</td>
<td>340</td>
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<td>Research and Development</td>
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<tr>
<td>Public/Quasi-Public</td>
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<tr>
<td>Private Recreation</td>
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<tr>
<td>Interchange Campus</td>
<td>520</td>
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<tr>
<td><strong>FLU Total</strong></td>
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<td></td>
</tr>
</tbody>
</table>
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C. GROWTH MANAGEMENT BOUNDARY

The residents of Genoa Township have consistently said that preserving the natural beauty of the Township and controlling urban sprawl are important priorities for planning the community. The Township also desires to be able to provide efficient infrastructure services to support development. One of the most effective ways to meet both of these goals is with a “growth boundary.” The growth boundary concept in the plan is designed to encourage the following:

- Efficient land use,
- Protection of farmland and natural areas,
- Efficient provision of utilities, services and infrastructure,
- An efficient transportation system,
- Locations for economic growth, and
- Diverse housing options.

The growth boundary marks the separation between rural and urban areas and defines land that can efficiently support urban services such as sewer, water and roads. Secondary growth areas are also provided adjacent to the City of Brighton for low density residential. Development outside the boundary is not prohibited; however, because public utilities are not available in these areas, development needs to be maintained at a relatively low intensity and the character of development needs to not adversely impact natural features and agricultural uses.

Areas within the growth boundary include the Grand River Avenue/I-96 corridor between Brighton and Howell and areas surrounding the City of Brighton. Land within the growth boundary are separated into two distinct areas:

- **Primary growth** areas are currently served or available to be served by public sewer and water. These areas include single family and multiple family residential at higher densities with public water and sewer, commercial centers, industrial parks and mixed-use centers.
- **Secondary growth** areas do not have sewer and water, but due to their proximity to the cities of Brighton or Howell, are appropriate for infill with low density residential. Typical lot sizes will be around one acre or clustered developments at an overall density of two acres per dwelling.

**Rural reserve** areas outside of the growth boundary should be maintained at a relatively low intensity rural character of development that will not adversely impact natural features and agricultural uses.
There is presently vacant or under-utilized land within the growth boundary that can be served by public water and sewer. By focusing new development in these areas, the Township and the County can more efficiently provide the necessary infrastructure to support new growth.

In addition, the Township has planned for a mixed-use town center at Grand River and Dorr Road. This center is inside the growth boundary and currently has the public utility and transportation infrastructure to support development. This higher density center will form a compact area for housing, shopping, employment, cultural and recreational activities in a pedestrian-friendly, vital and attractive neighborhood.

An extension of utilities south of I-96 to the Latson subarea was a determining factor in the planned land uses for that area. After the interchange is completed, the area should be monitored annually for potential development and proposed expansion of the growth boundary south.

The growth boundary is not intended to be static, but should be evaluated on a regular basis along with other updates to the Master Plan. The Township Planning Act requires that the Master Plan be evaluated and updated at least every 5 years. With each update, the following criteria should be taken into consideration for amending the growth boundary:

- Amount and capacity of undeveloped or under-developed land currently within the growth boundary, which should be used to satisfy the demand for development prior to expanding the boundary.
- Projected population growth within the Township and demand for other land areas for commercial or industrial development.
- The ability to extend public water and sewer to serve new land areas outside of the growth boundary.
- The capacity and condition of the road system to support the new growth areas.
- The ability of the Township, County and other public agencies to provide necessary services to the new growth areas and the additional resulting population.
- The impact of higher density development from expanding the growth boundary will have on natural features, agricultural uses and rural character.
- Consistency with the goals and objectives of the Master Plan.
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D. GENOA TOWN CENTER

An area has been designated for the Genoa Town Center around the intersections of Grand River Avenue with Dorr and Hughes Roads. This area is planned to become a mixed-use town center with local businesses, neighborhood service establishments and traditional residential neighborhoods. Residential uses will provide a variety of housing types including apartments on upper floors above commercial uses, traditional townhouses and single family homes on smaller lots. The intent is that this area will be integrated into a pedestrian-friendly, walkable area with sidewalks connecting all uses and community parks and plazas integrated into the fabric of this town center area. The Town Center area has the potential to become an activity center for the Genoa Township community that will provide a defined sense of place for the Township.

This area is planned for higher density development and a mixture of uses; however for this type of development to be successful, it must be properly designed and developed. For that reason, this area is planned to be developed with a Town Center Overlay Zone, with specific design standards for traditional architecture, buildings, neighborhood form and streetscape elements, commonly referred to as traditional neighborhood design. Below are some general guidelines on how this area should develop.

Design Guidelines

Local Retail and Neighborhood Service
Local businesses and neighborhood service uses along Grand River Avenue will be a focal point of the proposed town center. The intent is that these areas will develop in a manner consistent with the desired small town center environment and defined by closely-knit neighborhoods surrounding a node of neighborhood commercial. Development should be similar to the traditional urban forms found in downtown Brighton and Howell.

Commercial architecture should contribute to the desired town center character. The architectural styles for buildings should resemble that of traditional architecture. Town centers commonly possess an integrated pedestrian circulation system that conveniently links residents of surrounding neighborhoods to public gathering places, neighborhood commercial areas within the town center and civic and recreational facilities. It is therefore important to ensure adequate connections are provided through the creation of a system of sidewalks and pathways that emphasizes human scale and makes a neighborhood walkable. The commercial areas of the town center need to include the following elements:

- Traditional architecture similar to that found in downtown Brighton and Howell should be used.
- Buildings should front towards and relate to the street at a pedestrian scale and orientation.
- Building envelopes should create a continuous street edge with buildings built-to the front lot line and with zero side yards between adjacent buildings.
- Parking lots should be located behind the building to minimize the dominance of automobiles and make the site more pedestrian friendly.
- Sidewalks and pathways should interconnect all uses within the town center with convenient links to residential areas and parks.
- Street trees should be provided along all frontages and brick walls or hedge rows used to screen any visible parking lots.
- The area should be developed with an interconnected grid street pattern with on-street parking.
- Signage on businesses should be designed to fit the traditional architecture and be pedestrian in scale.
- A vertical mixture of uses should be encouraged with residential or office above retail businesses and services.
Residential Uses
The residential areas of the town center should develop in a manner that is consistent with the traditional neighborhood character of a small-town. Residential will be a mixture of apartments above businesses, traditional townhouses, and single family homes on smaller lots. Other uses may include churches, civic spaces, parks and recreational uses.

With the potential of higher density of development, it is important that residential areas be designed to include all of the elements essential to a high quality traditional neighborhood. Neighborhoods need to consist of physical components such as streets, lots, blocks, homes and community facilities, such as parks, schools and churches. Residential development should include all of the following elements:

- Traditional architecture should be utilized.
- Multiple family should be developed as traditional townhouses with courtyards and parking to the rear. Single family homes should be designed with the living areas on front and garages recessed to the side or rear of the home.
- Porches or stoop entrances should be provided on all front facades.
- An interconnected grid street pattern should be developed with 600-800 foot maximum block lengths. Where locations prevent through streets, then looped drives with large center green spaces should be used instead of cul-de-sacs.
- Neighborhoods need to be developed at a walkable scale with sidewalks and pathways system.
- Vistas should be maintained to natural areas and focal points.
- Neighborhood parks need to be provided in visible and accessible locations to serve as neighborhood focal points/gathering places and provide for recreation.
Public Streetscape and Open Space

Streetscape improvements, such as street lights, landscaping, pathways and street furniture, should be integrated into the design of development in the Genoa Town Center as well as other areas along Grand River Avenue. This will create a strong sense of place and identity for the community. In order to break the corridor up, separate design themes should be considered for distinct areas such as the Genoa Town Center and the regional shopping area centered around Grand River Avenue and Latson Road.

Ornamental street lighting should be included along the frontage of development to provide unity along certain sections of the corridor. The regional commercial section of Grand River Avenue at Latson Road currently has a uniform type of street light that creates a unique identity of this area. A uniform style of street light should also be used in the Genoa Town Center area. This should be a different style of ornamental lighting to distinguish from the regional commercial area.

Gateway signs should be installed at major entryways to the Township, such as along Grand River Avenue. Enhancement elements of the entrance sign should include lighting, landscaping and masonry material.

Mixed-use developments should include plazas and public art. Public art should be designed as an enhancement to a site and provide a strong focal point. This public art should be:

- Appropriate to the scale and nature of the site.
- Integrated into the design of the building.
- Preserve and integrate natural features of the site.
- Use materials, textures, colors and design that are within the context of the surrounding area’s character.
- Designed to be accessible, durable, secure, easily maintained and not pose a hazard to public safety.
Genoa Town Center

Genoa Township
Livingston County, MI

Traditional, pedestrian-oriented street fronted by mixed-use buildings with retail on the first floor and residential or office on upper floors

Mixture of housing types including:
- Single family residential on small lots
- Traditional townhouses
- Live-work units
- Apartments above retail

Central common green for public gatherings

Buildings built-to the front lot line with parking located to the side or rear

Traditional pedestrian oriented streetscape with garages located to the rear of units
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E. I-96/Latson Road Subarea Plan

At the time this Master Plan update was prepared, a new full service I-96 interchange was under construction at Latson Road. The new interchange includes an overpass connecting Latson and Nixon Roads and a widening to five lanes between Grand River Avenue and the C.S.X. Railroad tracks. Nixon Road, renamed to S. Latson Road, would be improved to a paved, two lane roadway from the railroad south to Chilson Road. Grand Oaks Drive and Beck Road have been realigned to accommodate the interchange ramps.

With the development of the new interchange, Latson Road will be an important gateway to both north and south Genoa Township. Access to the area south of I-96 will dramatically change, necessitating a specific subarea plan to guide development decisions. The subarea plan is intended to address the following:

- Manage traffic around the new I-96 interchange and the intersection of Latson and Grand River Avenue to maintain a level of service that will meet the needs of travelers, protect the significant investment of the interchange, and allow some well-managed intensification of land use near the interchange.
- Encourage high-quality design for the land uses surrounding the interchange to create a gateway that presents a positive image to the community for residents, businesses and visitors.
- Protect the established rural and suburban residential areas south of I-96 through preservation of natural features, limiting density and preventing the intrusion of nonresidential uses outside of identified boundaries where land use change has been planned.
- Identify a secondary area along S. Latson Road where some additional land use change may be considered once a principal use has been established and approved.

The Latson Road Subarea Plan includes the following recommendations for when the interchange is completed, as illustrated on the subarea map (See Map 10):

- The land on the east and west side of Latson Road between I-96 and Grand River Avenue is planned for Regional Commercial and will be rezoned for a mixed-use PUD (NR-PUD). This PUD should include the following:
  - A diversified mixture of uses that may include commercial and office/research and development.
  - A mixture of uses that will diversify traffic generated from the site by spreading out the peak hour over times that minimize impact to the interchange’s peak hour traffic.

Planning for the Latson/Nixon Road Corridor when the I-96 interchange is completed:

- Manage traffic and access around interchange.
- Create community gateway with distinctive character.
- Diversified mixture of land uses.
- High quality architecture.
- Streetscape and landscaping improvements along Latson and Grand River.
- Protect character of rural residential neighborhoods south of I-96.
- Reevaluate the plan yearly to respond to development and market factors.
Access management that will minimize the number of driveways and protect the efficiency of traffic flow along Latson Road between the interchange and Grand River Avenue.

Distinct and prominent architectural features of enhanced character, which reflect the importance of the site’s location and create a positive visual landmark for this gateway to the community.

Extensive landscaping along Latson Road and Grand River Avenue to enhance the appearance of these corridors and the gateway to the community.

Uniformity in design through coordination of architectural styles, landscaping, ornamental lighting, pedestrian circulation and vehicular access.

The areas immediately south of the interchange along S. Latson Road are planned for Interchange Commercial, as described in Section B above. This area is intended to accommodate the needs of interstate traffic and should complement, not duplicate the commercial areas north along Latson and Grand River.

The areas adjacent to the Interchange Commercial area as depicted on the map are planned for Interchange Campus uses. This area can be served by utility extensions and is intended to be a well-planned, campus setting.

Residential development along S. Latson Road south of the Interchange Campus area will remain at large lot residential densities. The intent is to protect the residential character and natural features through lower density development (Future Transition Area on Map X).

As the areas designated for Interchange Commercial and Campus are approved for significant development, areas south currently planned residential should be reevaluated for potential supporting uses, conditional upon the utility and roadway capacities, as shown as Future Transition Area on Map 10. This plan is intended to be flexible, balancing the impacts of new development on the infrastructure system, accommodating new uses dependent on surrounding uses, and limiting the negative impacts on existing nearby uses.

South Latson Interchange Design Guidelines

Streetscape

Streetscape improvements, such as street lights, landscaping, wayfinding signage, and pathways, should be integrated into the interchange commercial and campus developments. This will contribute to the unified, high-quality development the Township would like to project at the new interchange.

As part of the development of the South Latson campus, a landscaped median should be installed south of the railroad. This will not only help beautify the corridor but improve safety by restricting left-turns.
Ornamental street lighting should be included along South Latson and within the new development itself to contribute toward the site’s unified design.

South Latson should be well landscaped, not only in the median, but along the frontage, with street trees and knee walls or hedgerows screening parking.

Gateway and wayfinding signs should be installed at the interchange welcoming visitors to the Township and directing them to major landmarks. This signage should be consistent with that proposed along Grand River and for the Town Center. Elements of a gateway entrance sign should include lighting, landscaping, and masonry material.

Pathways should be installed on both sides of South Latson and connect to the interior of the site. Buildings and parking should all have pedestrian connections to the pathway network.

Access and Circulation

In order to efficiently accommodate new traffic that is likely to result from new development, having a coordinated circulation and access plan is essential.

A signalized intersection should be located approximately ¼ mile south of the railroad at Sweet Road. This should be the primary entrance to campus Area A as identified on the Subarea Map.

An additional entrance to Area A should be located halfway between the signalized intersection and the railroad tracks and be right-in/right-out.

Area A’s ring road should be sensitive of the wetland/wooded area in its southeast corner and provide stub roads for future connections to the south.

Area B should be accessed via the newly realigned Beck Road which can be extended and configured into a loop road.

Area B’s loop road should be sensitive to the wetland/natural areas at the south of the site.

Auxiliary campus uses on the east side of South Latson across from Area A should be primarily accessed via the signalized intersection. Additional access points north and south of the signalized intersection should be right-in/right-out. A frontage road will help provide convenient access for these businesses and should continue south for future connections.

No access points other than Beck Road should be allowed on South Latson at the interchange north of the railroad tracks. Businesses fronting South Latson at this location should share access off Beck Road.
Access to the Future Transition Area should be integrated into the overall circulation plan for Areas A and B.

Further access management standards are included in the Township’s zoning ordinance and MDOT’s Access Management Manual.

**Building and Site Design**

In order to establish a cohesive, high-quality campus at the South Latson interchange, it will be important to have consistent building and site design features.

- Entrances should be well defined and easily accessible by pedestrians.
- Buildings should orient toward South Latson where possible with parking given a less dominant presence along the corridor.
- Parking should be buffered with landscaping or decorative fencing.
- Understanding that a user like a hospital may need several stories for its patient wings, this plan seeks not to require a maximum building height. More importantly, any new building built along South Latson fronting the corridor should be built at a pedestrian scale at its Latson frontage.
- Stormwater should be consolidated and treated through low-impact design and retention ponds that contribute to the existing natural character of the site.
- Building orientation should be sensitive to wetlands and existing natural features and be situated to maximize the sight lines and pedestrian access to enjoy them.
- Materials should be of high quality brick, stone, glass, or similar, reflective of a well-designed modern research park or medical campus.
- Loading zones and waste receptacles should be well delineated and appropriately screened (see zoning ordinance).
- Lighting should be directed downward and fully shielded to eliminate an outward or upward glare, providing for adequate public safety without overly illuminating a site or building.
- Site lighting should consist of decorative fixtures, such as goose neck fixtures, and be architecturally integrated with the building style, materials and color. Pole fixtures should be located within landscaped islands or behind the curb or sidewalk.
- Monument signs should be well landscaped and have masonry bases.
- Signs should be comprised of an interesting design that adds interest to the business and the streetscape. Signs that have the appearance of a box sign are discouraged.

- Signs should be architecturally integrated with their surroundings in terms of size, shape, color, texture and lighting and not promote visual competition with other signs in the area.
Map 10:
I-96 Interchange
Latson/Nixon Road Subarea Plan
FUTURE TRANSITION AREA

- future land use and the utility service area will be reconsidered in this area as the campus area is developed with primary uses.

- contain commercial to adjacent to interchange
- retain natural features
- plan for future connections
- limited access points on S. Latson (right turn in/out)
- uses on east should directly relate to principal use on west side
- connect across uses
- limited access points
- preserve ROW for potential 30’-wide median with direct left turns
- enhanced green streetscape

Future Transition Area - future land use and the utility service area will be reconsidered in this area as the campus area is developed with primary uses.
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This Concept Plan is meant to illustrate the principles of the Future Land Use categories of Interchange Campus and Commercial. This is not intended to be a detailed plan that will be built as indicated, but as a reference for the general circulation, building, greenspace, and connectivity/access concepts for the redevelopment of this area.
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E. PLANNED UNIT DEVELOPMENT

Some areas may be appropriate for development under the Planned Unit Development (PUD) option contained in the Zoning Ordinance. Areas of the Township that contain significant natural features are appropriate to develop under the PUD option. The purpose of this alternate development procedure is to facilitate the following:

- Provide flexible design to respond to the unique characteristics of the site, instead of the conventional zoning standards.
- Coordinate development on larger sites.
- Preserve significant natural features.
- Provide alternatives for land that exhibits difficult development constraints, where an improved design can provide a community benefit.
- Allow clustering of residential units to preserve common open space and natural features.
- Ensure public infrastructure and road improvements are made concurrent with the development, with developer participation.
- Provide the opportunity to mix compatible land uses or residential types.
- Coordinate infill and redevelopment along the Grand River Avenue Corridor.

F. RESIDENTIAL DESIGN STANDARDS

Residential Densities/Rezonings: Residential densities will be based primarily on the Master Plan’s Future Land Use Map. With a rezoning, the Master Plan must be considered in conjunction with site specific conditions & timing. Other factors that need to be considered are soil suitability, utilities, road conditions, natural features and surrounding land uses.

Large lot vs. cluster: Where public utilities such as sewer and water are available, this creates the opportunity to have clustered development. In areas where sewer and water are not available, there may still be the opportunity to provide a degree of clustered housing in locations where soils are well suited for individual onsite septic systems.

In general, areas not served, or planned to be served by sanitary sewer are planned for a low density and large lot size to accommodate on-site sanitary drainfields without compromising environmental quality. Areas planned for the lower densities are also not able to support higher densities due to limitations of roads and other public services. Areas with sensitive natural features are also planned for lower densities. While the overall net density of a

New residential development should include the following elements:

- Density and character of development consistent with plan and surroundings.
- Clustered development where beneficial and appropriate
- Preserved natural features.
- Open space and neighborhood recreational areas.
- Pedestrian facilities for higher densities.
- Landscaping.
site can remain consistent with the Master Plan, the PUD or cluster development option can be used to cluster the dwelling units in areas with soils suitable for sanitary drainfields and away from sensitive natural features.

**Natural features preserved:** Natural features that can be preserved by clustering include woodlands, wetlands, steep slopes, waterfront and poor development soils. Clustering should also be utilized to preserve greenway corridors, buffers and natural open space. A uniformly wooded site or an open site may not benefit from clustering, unless innovative design is utilized. In all instances, the benefit of clustering should be determined by a comparison of larger lot conventional subdivision and clustered development.

**Open space standards:** Standards need to specify that the location of open space will preserve natural features, open space corridors along waterfronts creeks and major roads. Standards in the Zoning Ordinance PUD regulations should specify the desired size of open space areas and identify priorities of items to preserve. Quality open space needs to be maintained as opposed to leftover, unusable remnant land.

**Recreational facilities:** Requirements should be made for all major residential developments to have active and passive recreational amenities. The Township Subdivision Regulations should be amended to require a minimum amount of usable neighborhood recreational area within all subdivisions and condominium projects, whether a development is a clustered PUD or a conventional subdivision.

**Pedestrian circulation:** As the community grows and traffic volumes increase, the need for pedestrian facilities becomes more apparent. Neighborhood streets should be constructed with some form of pedestrian circulation, particularly for higher density developments or along collector roads. Sidewalks should be provided in consideration of factors such as the density of development, age characteristics of the expected residents, expected traffic volumes along the street, proximity to other sidewalk systems and proximity to schools, parks and public institutions.

- Sidewalks should be required along new streets within residential developments that have half acre or smaller lots or an overall density of 2 units per acre or greater.
- Bikepaths should be required where a development fronts on a major road that is designated for a pathway in the Greenways and Pathways section of this Master Plan.
- Paved pathways should be required within open space areas of PUD’s. Stone or wood chip paths or wooden boardwalks should be provided in areas with sensitive environmental features instead of paved sidewalks.
**Landscaping:** To preserve the rural character of the Township and to enhance the natural quality of residential neighborhoods, the following landscaping should be required in all residential developments:

- Street trees or canopy trees within the front yard of each lot.
- Perimeter buffering along major roads that border the development.
- Detention pond landscaping.
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VI. TRANSPORTATION
A. INTRODUCTION

There is a strong link between land uses and transportation in Genoa Township. In addition to residential growth in the Township, there is significant new development in the surrounding townships. The area’s population growth has increased the demand for retail services and has been a catalyst for economic development. A significant portion of the county’s commercial and industrial development has been in Genoa Township along Grand River Avenue between the cities of Brighton and Howell. One of the more visible impacts of this growth is the increase in traffic volumes. Traffic volumes have increased even faster than the population growth.

One challenge for the Township is managing growth and road improvements to provide a safe and efficient system without compromises to the natural features and other characteristics that make the Township so desirable. It is also important to understand that while Genoa Township does plan and regulate the land use and zoning, all the roads in the township are either MDOT routes (part of Grand River), Livingston County Road Commission, or private roads. Therefore coordination with the road agencies is important.

To some degree, there is a conflict between the need for road improvements and other goals of the Township and residents. The same natural features that make Genoa Township a desirable place to live can be viewed as constraints to road improvements. The rolling topography, sharp curves, and limited sight distances contribute to difficult driving conditions, especially during adverse weather. In some places the unpaved roads in previously rural areas must accommodate more traffic than those roads can handle. Adjacent land uses and numerous road intersections at curves and areas with poor sight distance cause traffic flow restrictions and potential safety hazards.

One big change is the new interchange along I-96 at Latson Road. Previous Township plans had promoted this interchange to improve accessibility. With the interchange, thoughtful management of the land use in the vicinity is critical to ensuring the interchange and access roads to it have smooth traffic flow. The current redesign of S. Latson Road (formerly Nixon Road), which maintains two lanes south of the railroad tracks, will be at its capacity when built, restricting the land use potential.

For more on the interchange subarea, please see Chapter 5: Future Land Use

The transportation issues to be addressed in this chapter include:
What road improvements are needed to accommodate the projected volumes?

How can the Township preserve its visual features and still provide safe and efficient traffic flow?

What innovative regulatory and financial techniques can help preserve capacity and accelerate improvements?

How can the Township ensure the impacts of each incremental development are considered and addressed?

How can the Township improve safety and travel not just for cars, but for those walking and bicycling as well?

**B. Complete Streets**

The Michigan Planning Enabling Act amendment now requires master plans to include a transportation component that addresses different types of travel (pedestrians, bicyclists, etc). The State of Michigan Transportation Fund was amended to provide for coordination among local agencies to improve the environments for walking, biking and transit use in Michigan. Genoa Township’s consideration of pedestrians and bicyclists has been part of the program well before the state’s policy changed.

The basic objectives of a “complete street” system in Genoa Township are listed below:

- **Provide a Variety of Travel Routes.** Those walking or biking are more likely to do so when they feel safe and comfortable. Therefore, a variety of routes should be provided so non-motorized facilities are planned along roads with travel conditions that would naturally attract such activity. This involves providing connections from neighborhoods to schools, the Township Hall campus, and recreation in and near the Township.

- **Provide for Safe Travel Along the Street.** A variety of options may be considered to facilitate non-motorized and/or transit travel, in addition to moving vehicular traffic. Depending on the context, bike lanes, cycle tracks, sidewalks and pathways can all assist in moving pedestrian and bicycle traffic.

- **Provide for Safe Travel Across the Street.** Where travel along the road is often considered in non-motorized planning, it is often the travel across the street that can deter non-motorized activity, such as busy arterials like Grand River. The goal is to provide some convenient places to cross where the pedestrian is very obvious to the driver.

- **Different Types for Different Folks.** While experienced bicyclists prefer riding in the travel lane or along its right edge, less experienced riders prefer a bit more protection. Since one goal is to encourage people to bicycle more frequently, a system that meets the needs of those potential users is important. Therefore,
bike lanes, buffered bike lanes, and separated pathways should be part of an overall bikeway system.

In response to the recommendations of the Grand River Avenue Corridor Plan, the Zoning Ordinance, Subdivision regulations, and ordinances were amended several years ago to require sidewalks in medium to higher density residential developments and commercial frontages of Grand River Avenue. Many sidewalks have since been built. Reconstructing the west portion of Grand River Avenue with a median will also make it easier for pedestrians to cross the street. Many developments that have utilized the Zoning Ordinance’s Planned Unit Development (PUD) option to create clustered housing surrounded by natural open space have included trail networks. Efforts should be made to create linkages between these PUD’s to create an integrated community network.

For more on the Township’s pathways, please see Chapter 7: Greenways and Pathways

C. Existing Traffic Conditions

Genoa Township is linked to the overall region by I-96, with full movement interchanges in both of the adjacent cities of Brighton and Howell; and a partial interchange in the center of the Township for traffic traveling to and from the southeast. A new interchange is under construction at the intersection of I-96 and Latson Road. This interchange will provide full access to I-96 for the community.

Within the county, Genoa Township is linked to adjacent communities by Grand River Avenue and a number of county primary roads such as Chilson and Brighton Roads.

Genoa Township’s local transportation network is segmented by I-96, an east-west limited access highway that passes through the community. The division created by the expressway separates the northern third of the Township containing a majority of the commercial and industrial land from the southern two-thirds containing the majority of residential lands. Currently, only two roads cross the six mile length of I-96 through the Township (Chilson and Dorr Roads). A third crossing at the I-96 Latson Road interchange will increase the North-South mobility.

Among the roads in Genoa Township, I-96 and the western half of Grand River Avenue are under the jurisdiction of the Michigan Department of Transportation. Primary and local roads are maintained by the Livingston County Road Commission with the State Motor Vehicle Highway Fund matched by Township funds.
Grand River Avenue is a five lane roadway that runs between the cities of Howell and Brighton. This roadway is discussed in greater detail in the Grand River Avenue Corridor Subarea Plan, a separate document considered part of this Master Plan.

The county primary roads are generally two lane paved roadways. Many of these roads have limitations due to topography, sharp curves and poor sight distance.

Future traffic patterns within the road network will be closely related to land use. Because of this, it is vitally important that road development be coordinated with the overall plan for the Township.

Existing Traffic Volumes
Existing traffic volumes for roadways throughout Genoa Township vary, depending upon the location of the segment studied or the date the study was conducted. Specific studies of intersections are possible and encouraged, depending upon development trends in the Township. Recent traffic counts for several arterial, collector and local streets throughout Genoa Township are shown on Map 12.

These traffic counts demonstrate several of the Township's most traversed roadways. It is important to consider existing traffic volumes when considering future development within the Township, plans for roadway upgrading or widening or projection of future capacity.

It is impossible to apply general formula to each of the Township's many arterial and collector streets to establish a threshold of maximum expected roadway capacity. The Township should work with the Michigan Department of Transportation and the Livingston County Road Commission to evaluate existing conditions and establish an action plan for review of specific traffic management issues.

Capacity of the Roadway System
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. Traffic engineers use a gradation scale of A through F.

<table>
<thead>
<tr>
<th>TABLE 13</th>
<th>Comparison of Trip Generation Rates</th>
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<tr>
<td>Trips In Peak Hour</td>
<td>Trips In Average Weekday</td>
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<td><strong>Residential (per unit)</strong></td>
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<td>Single Family</td>
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<td>Apartment</td>
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<td>Condominium</td>
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<tr>
<td>Mobile Home</td>
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<td><strong>Office (per 1,000 sq. ft. gross floor area)</strong></td>
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<tr>
<td>General Office Building</td>
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<td>Medical Office Building</td>
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<td>Research and Development</td>
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<td><strong>Commercial (per 1,000 sq. ft. gross floor area)</strong></td>
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<td>Pharmacy (w/drive through)</td>
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<td>Manufacturing</td>
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<td>Warehousing</td>
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<td><strong>(Note: A trip is a one-way movement, 10 trips = 5 in, 5 out)</strong></td>
<td></td>
</tr>
</tbody>
</table>

Generally a level of service of D or better is considered acceptable. Level of service E or F represents long, undesirable delays.

Determination of roadway capacity is dependent on a number of factors. Generally, a two lane paved roadway will have a 24 hour capacity of 8,000 to 10,000 vehicle trips for Level of Service A (unrestricted flow). This will be influenced by a number of factors that will define individual roadway capacity. These include:

- Intersection design, turning lanes and traffic control devices;
- Pavement condition and material;
- Roadway width and number of lanes;
- Topography (rolling or flat);
- Design setting (winding rural or unswerving urban);
- Location and frequency of curb cuts;
- Speed limits and other traffic control devices; and
- Sight distance limitations.

Crash Data
Auto accidents occur more frequently on the major roads and intersections of the Township. Locations of relatively high accident locations are shown on the Traffic Conditions Map, based upon SEMCOG crash rates between 2006-2010.

According to the Livingston County Road Commission, intersection operation and design issues (sight distance limitations, too many driveways, etc.) are a major consideration in determining road safety conditions. The motorist on a roadway approaching an at-grade intersection with another roadway (including driveways) should have an unobstructed view of the entire intersection and sufficient distance to the intersecting roadway to permit control of a vehicle, thus avoiding accidents. At a minimum, the driver should be able to see the headlights of an approaching vehicle.

Unobstructed sight distances should be provided on all approaches at each intersection. After a vehicle has stopped at an intersection, a driver should have sufficient sight distance to make a safe departure through an intersection area. The intersection design should provide adequate sight distance for all of the various vehicular maneuvers required upon departure from a stopped position.

Roadway Functional Classification
Function, efficiency and safety of roadway movement in Genoa Township can be furthered through the establishment of a classification of roads and planning and designing these facilities for their specific purpose. A functional system or hierarchy of roads provides for movement of traffic as well as access to specific sites. This hierarchy will range from major arterials such as Grand River Avenue, which primarily serves for cross-town movement, to local subdivision streets which serve to access individual homes.
This system defines the roles of each street, in terms of operational requirements; which is in turn translated into planning, management and physical design features.

**Expressway:** I-96 serves as the principal route between the residential population of Genoa Township and major activity centers throughout the region.

**Major Arterial:** The Grand River Avenue Corridor is the major roadway through Genoa Township. This roadway serves a vital function towards connecting the Township with the adjacent cities of Brighton and Howell. Because of the amount of traffic on Grand River Avenue, commercial uses have developed along this corridor.

**Arterial:** There are a number of roadways which move traffic throughout the Township and provide connections with other adjacent communities including Brighton Rd., Chilson Rd., and Latson Rd. These roadways also provide access from other areas of Genoa Township to Grand River Avenue.

These roadways serve for longer trips within the Genoa Township and adjacent communities. Like Grand River Avenue, the primary function of these roads is to move traffic. Access to these roads must be managed in order to maintain safe and effective movement.

**Collector:** The collectors serve to assemble traffic from local subdivision streets of residential neighborhoods and deliver it to the arterial. Collectors will also serve to provide access to abutting properties. Many individual subdivisions will contain one or more collector streets which funnel traffic from the local streets and connects with adjacent neighborhoods.

**Local Streets:** Local streets serve primarily to provide access to property and homes. These roadways are generally short and discontinuous, and generally only provide connection to one or two collector streets.

**Constraints**

Several natural and fiscal constraints impact the development and efficiency of Genoa Township’s public roadway network. In a featureless environment, where no financial hindrances to development are present, the roadway system will most likely resemble a grid system, much like that which has developed in many Midwestern communities. Genoa, however, is not a featureless environment, nor does it benefit from infinite resources. As such, the following considerations must be examined to most effectively plan, prioritize and program the Township’s transportation system:

- I-96 limited access freeway;
- Water bodies;
- Wetlands;
- Topography;
- Rights-of-way;
- Financing availability; and
- Cost effectiveness of proposed improvements.

D. Improvements

There are a number of improvements that will need to be made to the road network in Genoa Township. As the Township continues to develop, traffic levels will increase creating capacity deficiencies. Maintaining the capacity of the transportation network should be done through a comprehensive approach. Intersection improvements and signalization can be made at congested intersections or intersections with relatively high crash rates. Transportation management practices, such as access management, can be used to maintain the efficiency of the transportation network.

Grand River Avenue
Specific recommendations are made for Grand River Avenue, including signalization, road widening and service drives. These are contained in the Grand River Avenue Corridor Plan.

A particular recommendation to highlight in the plan is eventually reconstructing Grand River Avenue with a narrow median in the existing right-of-way. A median will reduce conflicts thereby improving safety and traffic operations. In addition, a median adds greenspace and makes it easier for pedestrians to cross. In the past, the Livingston County Road Commission and MDOT both had concerns with a narrow median. Since the concept was last discussed with those road agencies, there has been considerable research that all supports a narrow median over five lanes, at least for some of the Grand River Avenue segments, particularly for the Lake Chemung interchange to the Howell city limits.

I-96 Interchanges
I-96 was constructed in the 1960s. The original Lake Chemung Interchange (Exit 141) was typical of many partial access facilities built in rural areas at the beginning of the Interstate Highway System. Interstate drivers going to a major community, such as Howell, were provided a smooth transition from the Interstate to the old highway which was usually the community’s main street. A similar interchange, on the far side of the community allowed travelers, who had completed their business, to continue, via the Interstate, to their next destination. As the area continues to grow, however, direct access to the freeway from both sides of the interchange becomes important in improving traffic conditions.

A Major Investment Study and Environmental Impact Statement was prepared to evaluate improvements to the original interchange. This

The MIS/EIS identified the following needs:
- Rapid suburbanization.
- Access to westbound I-96.
- Congestion and safety.
- Access south of I-96.
- Long distance north / south access.
- Limited improvement options at the Lake Chemung interchange.
- Livingston County expected to grow significantly by 2020.
study identified the following needs for transportation improvements and proposed major access modifications.

The resulting improvements consisted of two separate parts, with one half of the improvements being modifications to the existing Lake Chemung Interchange and the other half consisting of a new interchange at Latson/Nixon Roads. The modifications to the Lake Chemung Interchange have already been completed.

The Latson interchange is designed as a diamond interchange, which can accommodate two loop ramps in the future should the increased volumes along Latson Road require them.

Other improvements included in the interchange development will include:
- Nixon road will be renamed S. Latson Road and will be upgraded to an asphalt roadway south of the interchange with 2 lanes and turning pockets at intersections
- Beck Road and Grand Oaks Drive have been relocated around the interchange ramp area
- Latson and Grand River intersection will be widened to 7 lanes at each approach with dual left turns in all directions
- Large detention pond will be located north of I-96 at the previous rest area property

**Road Widening**

In order to preserve the rural character of Genoa Township, any future road widening should balance traffic needs with consideration of natural features. Excessive road widening would lead to increased traffic speeds and a more suburbanized appearance. The narrower roads which wind through the hills of the community add to the natural rural character of Genoa Township. Periodic congestion may be preferred over excessive widening for through traffic. In addition, the Road Commission does not have funding available for road widening.

Because road widening is not planned, improvements will need to be made at intersections to improve efficiency. Much of the improvements to roads will include left turn lanes at intersections.

The Township should also request acceleration and deceleration lanes along major roads for all developments which require site plan review and passing lanes for projects that will generate moderate to high left turn volumes or where there are sight distance limitations.

**Road Paving**

Much of the expected road paving will be completed in conjunction with the proposed I-96 interchange improvements at Latson Road. Nixon Road, south of I-96 will be paved southward to Chilson Road and renamed S. Latson Road. Crooked Lake Road is also in need of
pavement to provide access to the Three Fires Middle School, however funding has not been allocated for this project.

**Intersection Improvements**
Selected intersection improvements should be made at locations which have experienced higher crash rates than other intersections (see Map 13). Improvements can include turn lanes, sight distance improvements, pavement improvements, signalization or other form of traffic control.

The major roadway improvement planned within the Township is the realignment of Challis Road at Bauer Road. The west approach of Challis Road is to be realigned to the south to line up with the east approach. This will create a regular “T” intersection with the south approach of Bauer road. The north section of Bauer Road will be accessed from the former west leg of Challis Road.

Another intersection under consideration for improvements is the intersection of Brighton Road and Chilson Road. This intersection is a four-way stop that currently meets at an odd angle. Also, there is a by-pass lane from northbound Chilson road to east bound Brighton Road. The by-pass may be eliminated and the intersection realigned to create more of a regular, 90 degree intersection.

There are long traffic delays associated with traffic attempting to exit the Meijer/Hampton Ridge driveway. A traffic signal would improve access to and from those developments. The Township should request a traffic signal study by MDOT to determine if a new signal could be timed to coordinate with the traffic flow through other signals and if the state’s criteria for a signal installation are met.
Models have been used to predict the volumes and patterns of traffic flow to and from the new I-96 interchange at Latson Road. Actual traffic volumes do not always match the patterns expected in modeling. In order to determine if additional road improvements may be needed, the Township should coordinate with the Road Commission to conduct traffic counts and analyze if other improvements are needed, such as at the S. Latson Road and Chilson Road intersection.

Access Management
Typically the approach to addressing high traffic volume is to widen a road to 3, 4 or 5 lanes. However, widening can disrupt the rural atmosphere of an area. Maintaining safety and smooth traffic flow without costly, premature or even unnecessary widening is a goal of this Plan. One technique to help preserve capacity and promote safety while delaying or avoiding the need for widening is access management.

The lack of controls over the number and placement of driveways increases potential for traffic congestion and crashes. Poor but heavily used access systems conflict with the traffic movement function of the Township's major roads. Because of sight distance limitations in many areas of the Township, there are limited locations for optimum driveway and intersection placement.

Access management involves a series of tools to reduce traffic conflict points, and thus preserve capacity and improve safety. Access management standards regulate the number, spacing and design of access points, and requires the use of shared access systems where practical. The Township has adopted zoning standards for access management.

Number of Access Points: The number of access points should be limited to one where possible. Along major roads, driveways should be properly spaced from one another and from intersections with other major streets. Driveways should be aligned with those across the street or properly offset following the adopted zoning standards.

Alternative Access: Along major arterials, such as Grand River Avenue, alternative access should be encouraged, such as shared driveways, rear service drives or frontage roads. Commercial developments and parking lots should be connected through front or rear service drives. Frontage drives, rear service drives, shared driveways, and connected parking lots should be used to minimize the number of driveways, while preserving the property owner's right to reasonable access. Certain turning movements should be limited, especially left turns, where safety hazards may be created or traffic flow may be impeded.
High Traffic Generators: Uses that are high traffic generators should be located on the future land use and zoning maps where they can best be accommodated by the roadway system.

New Road Development
There are currently no plans or funding for the Livingston County Road Commission, or the Michigan Department of Transportation to construct new public roads. As presently planned, all new road construction within the Township will be the result of private development.

There are a number of areas in the Township that have unsubdivided parcels. All newly created lots (and condominium units) are required by the Zoning Ordinance to have public road frontage, or frontage on a private road constructed to the standards of the Township Private Road Ordinance.

Development of future roads, whether public or private, needs to be well planned to ensure the establishment of a safe and efficient vehicular circulation system. Special attention needs to be given to the planning and design of roads for the following purposes:

- Protect the substantial public investment in the street system.
- Promote and coordinate effective and energy efficient development.
- Promote the orderly development of, and ongoing access to, land.
- Protect community character and minimize environmental impacts.
- Promote safe and efficient travel within the Township.
- Prevent duplication of roads.
- Ensure reasonable, though not always direct, access to properties.
- Ensure roads remain passable in all weather conditions and are adequate to provide safe, year-round access by fire, police and other public and emergency vehicles.
- Ensure roads are improved to properly handle development impacts.

Requiring connections of local roads is essential to developing a local road network and maintaining the effectiveness of the Township’s major roads. Providing road connections between adjacent subdivisions allows for the movement between adjacent neighborhoods without the need to access major roads. It also provides alternative means for residents within the subdivisions to access the major road network at locations that are most efficient for traveling to their destination, shortening trips and thereby minimizing traffic impacts to the major road network. It is important that connections between local streets be designed to discourage use by through traffic that does not have an origin or destination within the local neighborhood.
Residential Roads
The Township currently has standards in the Township Private Road Ordinance for development of local private roads. These standards are applicable to local streets with a primary function to provide access to abutting residential land, and not serve higher volumes of through traffic. While all roads are required to be designed to meet Livingston County Road Commission standards, the Township has the discretion to allow some modifications on private roads where significant natural features will be preserved.

Township roadway standards provides for a hierarchy of roads based upon function. The following are used to determine the necessary road widths in residential developments:

- Lower density developments are allowed to have roads with widths as narrow as 22 feet with gravel shoulders and open ditch drainage, particularly in the rural residential areas of the Township.
- Higher density developments are required to have wider roads of 26-28 feet with concrete curb and gutter.
- Wider roads are required where a larger amount of on-street parking is anticipated.
- Collector roads in higher density developments are required to be 30 feet wide to handle larger traffic volumes.
- The roads that serve as a single point of access for a relatively large number of residential units will need to be wider and boulevards should be provided into the development. The divided roadway in effect provides an alternate access for emergency vehicles in the event one side is blocked by an accident or fallen tree.

Implementation
A majority of the road improvements, including new road development and improvements to existing roads, will be privately implemented concurrent with development. These improvements are necessary to serve development. The Township should also work closely with the Michigan Department of Transportation and the Livingston County Road Commission to ensure that proper road improvements are being installed with development. This can include additional turn lanes or the dedication of future right-of-way.

A number of public road improvements will also be implemented by the Michigan Department of Transportation and the Livingston County Road Commission. The Township should continue to work with these agencies to ensure road improvements will meet the needs of Township residents and businesses.

The Township can also take a direct role in implementing public road improvements. Current practices and programs for funding maintenance and improvements to Genoa's roadways allow a range
of options, including: dedicated millage, special assessments, bond programs, tax increment financing and Federal transportation funding.

E. Other Modes of Transportation

Rail
Genoa Township has two active railroad lines. The Great Lakes Rail Road line runs north and south through the west side of the Township. The C.S.X. Rail Road line runs east and west through the center of the Township between the cities of Brighton and Howell. Both of these lines are fairly active. These rail lines are predominantly for freight transit.

Airports
There are no airfields in Genoa Township. The nearest public airport to Genoa Township is the Livingston County Airport, northwest of the City of Howell. Detroit Metropolitan Airport is in the City of Romulus, approximately 45 miles southeast of Genoa Township. Capital City Airport in Lansing is 50 miles west. Flint’s Bishop Airport is 40 miles north.
Relatively high crash rate/accident locations (2006-2010)

Traffic Volumes - vehicles per day
SEMCOG data 2010-2011

MAP 13
Transportation Conditions
Master Plan Update
Genoa Township
Livingston County, MI

Sources: MCGI, Livingston County, Genoa Twp
October 2013
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VII. BIKEPATHS & GREENWAYS
A. GREENWAYS DEFINED

A greenway is a linear feature within the natural landscape that acts as a conveyance to integrate the various components of the landscape. Portions of the greenway function is to tie together the cultural landscape by providing transportation routes and access between Genoa's residential population and the various recreational, civic, cultural, and natural resources. Greenways also enhance the ecological function of Genoa's natural environment by preserving natural areas and corridors which are vital to the environment. A greenway is a corridor that provides the following:

- Protection, management and enhancement of Genoa's cultural resources and provision of recreational opportunities, including:
  - nature trails, bike paths and pedestrian facilities development,
  - establishing linkages between cultural and recreational resources, and
  - providing recreational opportunities;
- Protection, management and enhancement of Genoa's natural resources, including:
  - water quality improvement,
  - fish and wildlife migration and habitat enhancement,
  - protection of natural vegetation;
- Enhancement of the quality of life and aesthetic appeal of Genoa, including:
  - scenic natural areas,
  - natural character of residential neighborhoods, and
  - natural buffers between residential and non-residential land uses,
- Provision of an alternative non-motorized transportation mode to link residential areas to major destination points within the Township.

Greenways function as linkages which tie together the various components of Genoa's cultural and natural resources. The function of creating and maintaining these linkages as a Township wide network, enhances the value and quality of each individual component.

GREENWAY GOALS & OBJECTIVES

- Create a complete non-motorized network to provide the opportunity for pedestrian activity such as walking, jogging, and bicycling in a safe and comfortable environment.
- Provide linkages between residential areas and recreation areas.
- Preserve the Township's natural character of forested areas, water resources and open views of rural open space.
• Provide a natural corridor of open space connecting significant natural/open space and conservation areas of the Township.
• Provide buffers between development and ecologically sensitive areas.
• Maintain the ecological functions of natural waterways and drainage networks.
• Enhance natural habitat and migration routes to increase the Township’s ability to support indigenous wildlife.
• Increase awareness and access to the system of greenways, bike paths and the Township’s natural amenities.

SOUTHEAST LIVINGSTON GREENWAYS

A greenways plan was prepared a number of years ago for southeast Livingston County. This plan illustrates a non-motorized system of paths and conservation corridors containing significant natural features. This plan is a cooperative effort between the City of Brighton, the four surrounding townships, including Genoa, the Livingston County Planning Department and the Southeastern Livingston County Recreation Authority.

The Livingston County Planning Department has also prepared a greenway manual for the Livingston County Greenways Initiative. This document outlines goals, and objectives of greenways and standards for greenway development within the county.

Both of these documents are incorporated into this plan by reference as they provide a basis and a regional context. This plan examines Genoa Township in more detail and makes additional recommendations relative to the development of greenways concurrently with the growth and development of Genoa Township.

Greenway Objectives:
• Pedestrian activity
• Linkages from neighborhoods to destinations
• Preserve natural rural character
• Natural corridors connecting open space
• Buffer ecologically sensitive areas
• Protect natural waterways
• Wildlife habitat
• Increase awareness of greenways
GENOVA'S CULTURAL AND NATURAL RESOURCES

Cultural and natural resource components are comprised of a variety of land and water areas; all of which function as an integral system. Because the combined total system provides more value than the sum of its individual parts decisions on individual locations should be based upon the vision of the whole. The components of Genoa’s cultural and natural resource system are classified into a range of categories from public to private. These include the following:

- Brighton State Recreation Area;
- Chaldean Camp;
- County lands;
- Township Hall and other Township owned properties;
- Other government properties such as public schools, road rights-of-way and utility easements;
- Private areas which are maintained in a natural state such as drainageways and wetlands;

These open space areas are accessible to a varied group of people. Government owned areas are generally accessible to the public while private green space is only open to a smaller private group of users.

TOWNSHIP PROPERTY

The Township owns approximately 72 acres containing Township Hall and featuring large open space areas, trails, parks, athletic fields, pavilion, sled hill, playground equipment, and wetlands. The surrounding land also provides the opportunity for other uses such as public open space, conservation and recreation. In addition, two sites located near Latson Road and Grand River Avenue were dedicated for future neighborhood parks. The Township is also seeking locations for future community parks, as detailed in the Parks and Recreation Plan. The Township lands should be linked with the greenways and bike path system for the community to tie the public lands with surrounding neighborhoods.
PROPERTIES OWNED BY OTHER GOVERNMENT AGENCIES

The Township contains other publicly owned lands which contribute to the overall network of public open space. These include the following:

- Many road rights-of-way provide linear paths. Some have improvements such as bike paths that allow non-motorized movement. Many provide natural aesthetic amenities such as natural vegetation and views of open water.
- Public schools will serve more as destinations then routes for cultural and civic activities. These facilities are destinations for children in the community as well as locations for school related community events.
- The Brighton State Recreation Area is 4,947-acre park is located at the southern edge of the Township. The majority of the park is located in Hamburg Township, however a portion is in Genoa. Brighton Recreation Area provides a multitude of year round activities.
- The Lake Chemung Park is a recreational facility, located along Grand River on Lake Chemung, is owned by the Livingston County Road Commission. The small site provides open space and picnic facilities.
- There are two Department of Natural Resources (DNR) Access Sites within Genoa Township, one of which is located on Lake Chemung and the another on Crooked Lake. These sites provide public boat launches.

PRIVATE OPEN SPACE

In addition to having public areas for access, recreation and non-motorized movement, a need exists to have these networks for ecological reasons. Private open space plays an important role in maintaining the Township's ecological functions. These include private lands maintained in a near natural state through regulatory means such as drainageways and wetlands. Private open space can also include conservation easements or park/common areas within developments, such as PUD’s as well as areas which have been left undeveloped due to constraints, such as steep slopes and dense forest.

While these private open space areas are not accessible by the general public, they do enhance the quality of each individual's personal space. Collectively, these open space areas are essential to maintaining the investment that each resident has made as a part of the community. As the Township becomes more developed, natural ecosystems will be disrupted and the rural character of the community may be altered. Providing for a natural open space which is integrated with development will help to mitigate these impacts and protect private property owner's investments. This private open space also still provides ecological benefits and wildlife management.
Private open space within Genoa Township includes the following:

- Subdivision parks and common areas range in size from about half an acre to over 100 acres.
- Commercial Recreation Facilities include; the Mt. Brighton Ski Area, a 220-acre recreation area located in the southeastern portion of the township featuring downhill skiing during winter and an 18-hole golf course. Other commercial recreational facilities within Genoa Township include golf courses.

It is important that pathways to these publicly and privately owned facilities be provided to ensure a higher level of pedestrian activity is achieved within the Township.

ENVIRONMENTAL CONDITIONS

The natural environment is a critical element. The components to the environment function, change and interact as part of the ecosystem. A major objective of the greenway program is to maintain these natural functions in a balanced state, while still allowing the community to grow in a controlled manner. One method to protect these areas is through the greenways program. The environmental features to be considered, as described in the Environmental Conditions section of this Master Plan, are soils, topography, creeks, wetlands, lakes, woodlands and wildlife habitat.
USER GROUPS

There are a number of user groups for various components of the Township Greenways system. These include the following:

- **Pedestrians:** This group utilizes the trail and path system for an alternative means of transportation. While the requirements of this group are similar to those of the recreational walkers, convenient and safe access to destinations is most important.

- **Bicyclists:** This group utilizes the path system for recreation as well as transportation. The pathway's physical requirements are much different for this group. Bicyclists will generally have a much larger range than pedestrians and require more greatly improved trails. In crowded situations, there will be conflicts between pedestrians and bicyclists. If there are high traffic areas, separately designated paths may be required.

- **Recreational/health walkers and joggers:** These groups will utilize the path system for recreation, scenic enjoyment and physical exercise. These users require a safe and relaxing environment.

- **People with disabilities:** In development of a greenway system, the specialized needs of those with disabilities need to be considered. Accessible facilities should minimize hazardous conditions and permit maneuverability.

- **Educators/students:** An integral part of the greenway system are Brighton and Howell area schools. Greenways can not only be used as routes for students going to and from school, but also as "outdoor classrooms" for the study of nature.

- **Equestrians:** Despite the rapid rate of development in Genoa Township, there is a significant amount of residents that keep horses. Currently, horseback riders utilize private property, the Brighton State Recreation Area, and gravel county roads with low traffic volumes. Trails for this use may conflict with other users. If there is a demand for this use, specific bridle trails may be designated in proximity to any riding stables in the Township.
B. GREENWAYS

PATHWAYS

The trails proposed under the Greenway plan will provide connections between homes and neighborhood schools, and activity centers, as well as other trails and transportation facilities. In addition, these trails will provide ample opportunities for recreational use.

RECREATION

In addition to recreation related to trails and active parks, other passive recreation is encouraged where environmental impacts will be acceptable and where appropriate easements exist. Passive recreation consists of activities which are not programmed and do not require developed facilities. Examples are photography, resting, bird and wildlife observation, picnicking, reading, and fishing.

CONSERVATION

Greenways can be established to maintain and enhance the ecological functions which are vital to the quality of life on Genoa. The natural functions to maintain and the components of the natural system are described in the previous section of this plan under Environmental Conditions. Natural features which will determine the most appropriate location for greenways serving this purpose are soils, drainage, wetlands, vegetation and wildlife habitat.

**Drainageways:** Greenways should be established to protect natural drainageways. This will include the drainageways wetland areas that the drain flows through and the natural vegetation in the upland areas surrounding drainageways. Sufficient natural buffers on both sides of creeks should be protected in a natural vegetative state to maintain the quality and moderation of surface water flow into the drainageways and protect from excessive soil erosion.

**Habitat:** Greenways should be established to reconnect natural habitat corridors. Where there are areas of wildlife habitat such as wooded areas or wetlands, these can be connected by greenways. Connections should be made between like natural areas, and the connection should match the natural characteristics of the existing habitat areas.
C. PATHWAYS

Pathways are to be shared use facilities among pedestrians, cyclists, equestrians, the handicapped, and other pathway users. The pathways will provide connections between homes and neighborhood schools, other activity centers, other pathways and transportation facilities. In addition, these pathways will provide ample opportunities for recreation. Pathways are proposed in the following locations:

- **Along Grand River Avenue:** The goal is to have a complete sidewalk system along both sides of Grand River Avenue from the City of Brighton to the City of Howell. This will serve as the principal east-west connection through the Township and link many of the neighborhoods in the northern portion of the Township with the adjacent cities. The current priority is filling sidewalk gaps and future plans are to add paths on the eastern side of the Township. Other north-south pathways will provide connections to the Grand River Avenue paths to create an integrated network.

- **Latson/Chilson Roads:** A continuous paved path is proposed to span the Township from north to south along the Latson/Chilson Road corridor. The new interchange at Latson Road will include a pedestrian pathway that continues south to Crooked Lake and Three Fires school. Pathways are proposed along Latson Road, north of Grand River Avenue to serve the higher density residential in this area which is in close proximity to the Grand River Avenue corridor. The sections along S. Latson Road and Chilson Road in the southern portion of the Township may include a paved path and a separate unpaved path for horseback riding. At the southern edge of the Township, the pathway will enter the Brighton State Recreation Area and tie into the hiking paths located in Hamburg Township to the south.

- **Brighton Road:** A pathway is proposed along Brighton Road between Honors Way and the City of Brighton. This will provide a connection between the higher density residential in the area of Oak Pointe and the City of Brighton.

- **Dorr Road:** The Township Hall is located on Dorr Road between I-96 and Crooked Lake Road provides recreational amenities such as playgrounds, soccer fields, and bike paths. A pathway along Dorr Road would provide a link between the Township Hall and Crooked Lake Road to the interchange and also to Challis Road and Brighton Road.

- **Crooked Lake Road:** A pathway extending west along Crooked Lake Road from the Township Hall to S. Latson Road would complete a looped path system around the Tri-Lakes area. This would also provide a linkage between the Township Hall and the Three Fires Elementary School.
- **Challis Road:** An off-road shared used pathway should be developed along Challis Road from Dorr Road to the existing path on Brighton Road.

- **Bauer Road:** An off-road shared used pathway has been developed along Bauer Road from Challis Road to the Brighton State Recreational Area at the southern edge of the Township.

**Pathway Siting:** The major objectives of pathway location are as follows:

- To design a pathway that produces a minimum impact on the land.
- To provide for recreation and transportation.
- To choose an alignment that is visually pleasing and provides a variety of views and experiences.
- To take advantage of the natural terrain and vegetation.
- To provide a pathway that requires minimum maintenance.
- To have minimum impact on wildlife habitat and wetlands.

**Design:**

- The Livingston County Greenways Initiative contains standards for development of various types of trails. The standards contained in this plan should be followed.
- A pathway should be designed with curves that appear to have a purpose, not be placed haphazardly or regularly throughout the pathway length. An alignment which has long curves and short tangents will flow gracefully through the landscape.
- The relationship between Greenway projects, particularly pathways, and nearby private spaces must be carefully considered. Views, residential privacy, and access from residential areas adjacent to Greenways are important.
- Residential neighborhoods require a design that is sensitive to the character, forms, materials, and colors. Nearby residents should be closely involved in the design process. Consider carefully the character of the public/private interface.
- Environmentally sensitive areas require a careful balance between the desire for recreation and the protection of natural resources. Determine the appropriate location and intensity of use of any path system carefully. Take advantage of opportunities to enhance the natural environment of the greenway. Provide seating in areas where wildlife can be observed without being disturbed.
- Pathways and wildlife habitat potentially conflict because of the environmental impact of construction. In addition, some wildlife species are intolerant of the presence of pathway users. Where high quality habitat is present, pathway links should be rerouted around the habitat. Subtle, attractive buffers should be integrated where necessary to protect privacy and wildlife.
Occasional viewing, and seating areas can be provided along the path for resting and passive recreation activities.

Path alignment should consider the larger patches of vegetation, open space, and drainage corridors that have high wildlife value by not cutting through the center of such parcels.

Locate path intersections at natural focal points and convenient access points.

**Pathway type:** Pathways can be paved or unpaved. Paved pathways should be designed and constructed following the standards of the American Association of State Highway and Transportation Officials. To determine whether paved, unpaved, or parallel paved and unpaved pathways are most appropriate, the following criteria can be used:

- **Paved pathways should be provided when:**
  - High bicycle speed and volume is anticipated
  - There is an existing or projected year round transportation need for the pathway.
  - Winter maintenance is anticipated.
  - The pathway connects paved pathway sections along a Greenway.

- **Unpaved pathways should be provided when:**
  - The Township finds that a paved pathway would cause unacceptable environmental impacts.
  - The criteria for paving a pathway are un-met and a pathway is still needed.
  - Equestrian use is anticipated.

- **Separate paved and unpaved pathways may be provided when:**
  - Both the criteria for paving a pathway are met and equestrian use is anticipated.
  - Use conflict are anticipated because of high volume.
  - The environmental impacts of separate pathways are acceptable.
  - The area has sufficient space and amenity to make separate pathways desirable.
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VIII. IMPLEMENTATION
A. Tenets of Successful Implementation

This plan is intended to be a policy guide for moving Genoa Township forward, guiding decisions about future physical and economic development. But the plan is more than just a policy guide for Township officials and staff. With the commitment of resources to this planning effort come the high expectations that the recommendations will be implemented, some soon, or others over the next five to ten years.

Transforming the plan’s goals into reality will require a long-term commitment and political consensus. The plan is designed to be a road map for action, incorporating strategies, specific projects, and programs that will achieve the desired results. This chapter synthesizes the many plan recommendations and identifies the actions and timing needed to transform the plan’s vision into reality.

Commitment

Successful plan implementation will be directly related to a committed township leadership. While elected and appointed officials - the Township Supervisor, Manager, Township Board, and Planning Commission - will have a strong leadership role, many others - Township department directors, staff, and leaders from the community’s institutions and organizations - will also be instrumental in supporting the plan.

However, commitment reaches beyond just these individuals and includes the array of individuals with an interest and stake in the future. Citizens, landowners, developers, and business owners who will be impacted by how Genoa Township changes must unite toward the plan’s common vision.

Integrate with Capital Improvements

Township officials and departments must embrace the plan, applying its recommendations to help shape annual budgets, work programs, and the design of capital improvements. For example, the Township’s engineering division can support implementation through infrastructure improvements, streets, and storm systems designed consistent with plan policies and recommendations, or the planning and building department through site plan review. Each department, staff person, and elected official should find it a benefit, if not an obligation, to reference the plan when making decisions and setting priorities.

Guidance for Development Decisions

This plan is designed for routine use and should be consistently employed during any process affecting the community’s future. Private investment decisions by developers, corporations, and land owners should consider the plan’s direction. Other planning efforts for subareas, corridors, and community facilities should be in harmony with the master plan. Finally, the plan should be used when reviewing development proposals and referenced in related reports and studies.
Partnerships

While the Township is in a position to coordinate many of the plan’s implementation tasks, responsibility should not solely rest on the government. Instead, the vast array of stakeholders having key roles in either the township or region must all participate. Partnerships may range from sharing information to funding and shared promotions or services.

Municipal government cannot and should not do it all. Only through public/private collaboration can the plan’s vision be realized. What can these partnerships do that the Township cannot do alone?

- **Solve Larger Issues.** Many issues are beyond the control of individual jurisdictions and require cooperation, including major infrastructure improvements, non-motorized options, and economic development.
- **Meeting Expectations for Public Services.** Economic conditions make it more difficult for individual communities to meet residents’ needs and expectations. More sharing of resources and eliminating duplicated efforts may result in more cost effective ways of providing essential community services.

Evaluation and Monitoring

This plan has been developed with a degree of flexibility, allowing nimble responses to emerging conditions, challenges, and opportunities. To help ensure the plan stays fresh and useful, periodic reviews and amendments are required. This will ensure plan goals, objectives, and recommendations reflect changing community needs, expectations, and financial realities.

Any more detailed subarea plans should be adopted as master plan amendments. The plan should be reviewed at least every five years. Updates should reflect changing conditions, unanticipated opportunities, and acknowledge the implementation to date.

Roles of the Supervisor and Township Board

The Supervisor and Township Board must be solidly engaged in the process to implement the plan. Their responsibilities will be to prioritize various action items and establish timeframes by which each action must be initiated and completed. They must also consider and weigh the funding commitments necessary to realize the township’s vision, whether involving capital improvements, facility design, municipal services, targeted studies, or changes to development regulations, such as municipal codes, the zoning ordinance and procedures.

Planning Commission as Facilitators

The Planning Commission is charged with overseeing plan implementation and is empowered to make ongoing land use decisions. As such, it has a great influence on how sustainable Genoa Township
will be. Therefore, several tasks in the Action Plan are the responsibility of the Planning Commission and its staff.

As an example, the Planning Commission is charged with preparing studies, ordinances, and certain programmatic initiatives before they are submitted to the Township Board. In other instances, the Planning Commission plays a strong role as a “Plan Facilitator” overseeing the process and monitoring its progress and results. Together, Township staff and the Planning Commission must be held accountable, ensuring the township’s master plan impacts daily decisions and actions by its many stakeholders.

B. Zoning Recommendations

Zoning is a key mechanism for achieving the desired land use pattern and quality of development advocated in the plan. This section provides a useful guide relative to the inconsistencies between current zoning patterns and proposed future land use designations.

Because the Future Land Use Plan is a long range vision of how land uses should evolve over time, it should not be confused with the Township’s zoning map, which is a current (short term) mechanism for regulating development. Therefore not all properties should be immediately rezoned to correspond with the plan. The Future Land Use Plan is intended to serve as a guide for land use decisions over a longer period of time (5+ years).

Review of the Existing Land Use map in comparison to the Future Land Use map reveals a gradual transition to the planned land use pattern. Achievement of this goal will be gradual particularly where established businesses and homes are located in areas intended for other types of uses in the long term.

In addition, the Future Land Use map (Map x) is generalized. More detailed evaluation would be required as part of any rezoning consideration.

The plan categories correspond to zoning districts, but there is some generalization. The following table provides a zoning plan indicating how the future land use categories in this master plan relate to the zoning districts in the zoning ordinance. In certain instances, more than one zoning district may be applicable to a future land use category. Notes are provided to guide the Planning Commission in determining the appropriate zoning district based upon the context of the surrounding area.
Zoning changes in accordance with the plan should be made gradually so that change can be managed. The Future Land Use map as well as
the plan’s goals and recommendations should be consulted to judge the merits of a rezoning request. In review of rezoning and development proposals, the Township should consider the following sequencing standards:

- Is the proposed rezoning consistent with the policy statements and future land use plan recommended in this study. If not, is it reasonable to change the plan? There should be justification for a deviation from the plan. The Planning Commission could require an amendment to the plan before approval of a contrary zoning request.
- Is the timing for the zoning change correct?
- Is there reason to believe that the property owner cannot realize a reasonable rate of return with any use allowed under the current zoning classification? (i.e. is use under current zoning viable?) The right to a “reasonable” use of the property, is not necessarily the most profitable use.
- Are all of the permitted uses allowed under the requested zoning district compatible with surrounding land uses and zoning?
- Is the environment of the site capable of accommodating the list of uses permitted under the requested zoning classification?
- Is the proposed change in keeping with the growth management plan? Is there sufficient public infrastructure (street, sewer and water capacity) to accommodate the host of uses allowed under the requested zoning classification? If not, is mitigation being proposed to accommodate the impacts?
- Is the site large enough to meet all requirements for setbacks, area, utilities and driveway spacing?

If the response to all those questions is affirmative, then the Township should approve the rezoning. If the response to one or more of the questions is "no" then substantial evidence should be provided by the applicant to justify the change.

Zoning changes following the future land use plan may be made over time if conditions warrant:

• Consistency with the Master Plan.
• Timing.
• Reasonable use of land.
• Compatibility with surrounding land uses.
• Environmental conditions.
• Infrastructure capacity.
• Suitability of the lot to meet zoning requirements.
## C. Action Plan

The following table provides a summary list of the recommendations contained in this plan and alternative implementation tools for each.

<table>
<thead>
<tr>
<th>Plan Recommendation</th>
<th>Implementation Mechanisms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Natural Resources Management</strong></td>
<td></td>
</tr>
<tr>
<td>Lower density zoning districts for areas with significant fragile natural resources.</td>
<td>&lt; Maintain lower density Country Estate and Rural Residential zoning districts.</td>
</tr>
</tbody>
</table>
| Natural features setbacks from wetlands, creeks, ponds and lakes. | < Maintain setback requirements from waterways in Zoning Ordinance.  
< Utilize clustering allowed by PUD to preserve wetlands as open space and provide greater setbacks from shorelines. | |
| Protect natural topography and vegetation on areas with steep slopes. | < Maintain setback requirements from waterways in Zoning Ordinance.  
< Utilize clustering allowed by PUD to preserve steep slopes as open space.  
< Adopt slope based density regulations to reduce allowable density on steep slopes. | |
| Storm water management to protect the quality of natural waterways and adjacent properties. | < Adopt Township Stormwater Ordinance. | |
| Protect quality of ground and surface water from contamination by septic disposal or hazardous materials. | < Provide sanitary sewer service to existing higher density residential areas.  
< Minimize residential densities in areas where public sewer is not available.  
< Require all uses that handle hazardous materials to prepare a pollution incident prevention plan and provide secondary containment and other necessary protection measures.  
< Prohibit floor drains for industrial uses from discharging to storm or sanitary sewer. | |
| Restore natural wetlands that have been altered from their natural state. | < Require PUD’s to restore previously disturbed wetlands as a qualification condition for PUD approval.  
< Incorporate restoration of wetlands into drainage design for new development. | |
| Manage boat usage to prevent overcrowding and degradation of lake quality. | < Maintain keyhole ordinance.  
< Adopt additional lake access regulations. | |
| Preserve natural vegetation. | < Utilize clustering allowed by PUD to preserve steep slopes as open space.  
< Require natural buffer zones along public road frontages. | |
<table>
<thead>
<tr>
<th>Land Use</th>
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<tbody>
<tr>
<td>Implement future land use plan.</td>
<td>Maintain current zoning that is consistent with Future Land Use Plan.</td>
</tr>
<tr>
<td></td>
<td>Gradually rezone properties to the Future Land Use Plan when timing and other conditions are met.</td>
</tr>
<tr>
<td>Maintain growth boundaries.</td>
<td>Do not extend sewer or water services outside of growth boundary.</td>
</tr>
<tr>
<td></td>
<td>Promote infill development within growth boundary and do not rezone land outside of the growth boundary to allow higher density residential or commercial uses.</td>
</tr>
<tr>
<td></td>
<td>Evaluate growth boundary with each regular Master Plan update to ensure there is land available for infill development.</td>
</tr>
<tr>
<td>Develop Genoa Town Center.</td>
<td>Maintain form-based zoning regulations for the Town Center to ensure all development and redevelopment in this area is consistent with the intent to create a traditional, walkable neighborhood.</td>
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<tr>
<td></td>
<td>Prepare an overall concept plan for this area to coordinate development between adjacent sites.</td>
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<tr>
<td></td>
<td>Develop streetscape standards for this area including sidewalks, landscaping, street lighting, street furniture, public art and plazas.</td>
</tr>
<tr>
<td></td>
<td>Utilize PUD regulations to coordinate development of larger sites.</td>
</tr>
<tr>
<td>Implement I-96/Latson Road Subarea Plan.</td>
<td>Adopt form-based districts.</td>
</tr>
<tr>
<td></td>
<td>Ensure infrastructure can support new development.</td>
</tr>
<tr>
<td></td>
<td>Adopt additional access management standards for roads adjacent to interchange.</td>
</tr>
<tr>
<td></td>
<td>Require design of developments to preserve buffers along adjacent residential.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transportation</th>
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<tbody>
<tr>
<td>Grand River Avenue improvements, including signalization, road widening, median, and service drives, as detailed in the Grand River Avenue Corridor Plan.</td>
<td>Coordinate with MDOT and LCRC.</td>
</tr>
<tr>
<td></td>
<td>Special Assessment District.</td>
</tr>
<tr>
<td></td>
<td>Require proportionate share of improvements as a condition of development approvals.</td>
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<tr>
<td>Road Widening</td>
<td>Coordinate with MDOT and LCRC.</td>
</tr>
<tr>
<td></td>
<td>Require proportionate share of improvements as a condition of development approvals.</td>
</tr>
<tr>
<td></td>
<td>Regulate residential densities and the location of traffic intense uses to minimize need for road widening.</td>
</tr>
<tr>
<td>Road Paving</td>
<td>&lt; Coordinate with LCRC.</td>
</tr>
<tr>
<td></td>
<td>&lt; Require proportionate share of improvements as a condition of development approvals.</td>
</tr>
<tr>
<td></td>
<td>&lt; Regulate residential densities to minimize traffic on gravel roads.</td>
</tr>
<tr>
<td>Intersection Improvements</td>
<td>&lt; Coordinate with MDOT and LCRC.</td>
</tr>
<tr>
<td></td>
<td>&lt; Special Assessment District.</td>
</tr>
<tr>
<td>Access Management</td>
<td>&lt; Coordinate with MDOT and LCRC.</td>
</tr>
<tr>
<td></td>
<td>&lt; Regulate access through Zoning Ordinance access management standards.</td>
</tr>
<tr>
<td>New Road Development</td>
<td>&lt; Require adequate roadways within all new development through subdivision and condominium regulations.</td>
</tr>
<tr>
<td>Greenways, Pathways and Recreation</td>
<td>Work with Livingston County, school districts and the cities of Brighton, and Howell to provide recreational facilities for the area.</td>
</tr>
<tr>
<td></td>
<td>Require private neighborhood recreational areas within all residential developments.</td>
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<tr>
<td></td>
<td>Obtain grant to acquire site for future Township park.</td>
</tr>
<tr>
<td></td>
<td>Private investment and donations.</td>
</tr>
<tr>
<td>Provide for conservation greenways</td>
<td>Utilize clustering allowed by PUD to preserve ecological and riparian corridors as natural open space.</td>
</tr>
<tr>
<td></td>
<td>Private investment and donations.</td>
</tr>
<tr>
<td>Develop bike path system for Township</td>
<td>Provide dedicated millage for bike path construction.</td>
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<tr>
<td></td>
<td>Include bike paths in Township Capital Improvement Plan</td>
</tr>
<tr>
<td></td>
<td>Work with LCRC to include bike paths with road projects.</td>
</tr>
<tr>
<td></td>
<td>MDNR funds for pathways.</td>
</tr>
<tr>
<td></td>
<td>Private investment and donations.</td>
</tr>
<tr>
<td></td>
<td>Require all developments to construct bike paths along site frontages, where designated in plans.</td>
</tr>
</tbody>
</table>

**D. Township Implementation Funding Sources**

**Dedicated Millage**

Special millage can be used to generate revenues for a specific purpose. The Township could consider opportunities for special millage to implement recommendations in the Master Plan. For example, several Michigan communities have special land acquisition fund that is supported by a one-quarter mill property tax. A land acquisition fund would be a useful tool to promote right-of-way widening or dedication in Genoa Township. Other communities have millages to fund road improvements, bike path programs and parkland acquisition.
**Special Assessment**

Special assessments are compulsory contributions collected from the owners of property benefited by specific public improvements (paving, drainage improvements, etc.) to defray the costs of such improvements. Special assessments are apportioned according to the assumed benefits to the property affected. Special assessment funding might prove useful to implement roadway paving, streetscape improvements, secondary access drives in districts fronting on arterial streets and to construct new roads, as necessary and appropriate. These programs are particularly helpful for improving and upgrading older local roads.

**Bond Programs**

Bonds are among the principal sources of financing used by communities to pay for capital improvements. General obligation bonds are issued for specific community projects and are paid off by the general public via property tax revenues. Revenue bonds are issued for construction of projects that generate revenue (i.e. parking structures, etc.). These bonds are retired, or serviced, using income generated by the project.

**Tax Increment Financing**

Tax increment financing is authorized by the Downtown Development Authority Act and Local Development Finance Authority Act. When a tax increment finance district is established, the stated equalized assessment value of all properties within the district is recorded. Every year thereafter, the property tax revenue generated by any increase in the total stated equalized value is "captured" by the responsible organization to finance improvements established in the overall development plan. The development plan is a required document illustrating all proposed improvements within the district. Often, revenue bonds are used to finance the improvements and the tax increment revenues are used to repay the bonds. This tool could also prove to be a valuable tool for roadway improvements within the Township.

**Michigan Natural Resources Trust Fund**

MNRTF provides funding assistance for state and local outdoor recreation needs, including land acquisition and development of recreation facilities. This assistance is directed at creating and improving outdoor recreational opportunities and providing protection to valuable natural resources. These are grants between $15,000 and $500,000 with a required minimum local match of 25 percent. This grant is ideal for implementing land acquisition and park development goals in the future.
Land and Water Conservation Fund
LWCF provides funding assistance for communities to acquire and develop land for outdoor recreation. The minimum award is $15,000 and the maximum of $500,000. The eligibility criterion emphasizes preservation of natural resources such as waterways. This grant is ideal for land acquisition that is intended for passive recreation and open space in the future.

Michigan Natural Resources Tree Planting Grants
Through the Michigan Department of Natural Resources, there are three tree planting grant programs that will assist in funding landscape enhancements at the parks and re-forested projects. The township was awarded some tree planting monies to plant trees at the Township Hall.