

RESILIENT GRAND HAVEN CHARTER TOWNSHIP

Grand Haven Charter Township 2016 Master Plan



This plan was prepared by the Land Information Access Association (LIAA) as part of the Resilient Grand Haven project. Support for the project came from the Michigan Municipal League (MML), Michigan Association of Planning (MAP), and the University of Michigan's Taubman College of Architecture and Urban Planning. A special thank you is owed to the many organizations and individuals that contributed to the planning process.

This project was funded in part by Grand Haven Charter Township, the City of Grand Haven, the Michigan Coastal Zone Management Program, Department of Environmental Quality, Office of the Great Lakes; and the National Oceanic and Atmospheric Administration, U.S. Department of Commerce.



ACKNOWLEDGMENTS

GRAND HAVEN CHARTER TOWNSHIP TRUSTEES

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Laurie Larsen, Clerk	Mike Hutchins
William Kieft III, Treasurer	Cal Meeusen
Ron Redick	

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CHAPTER 11. THE FUTURE OF GRAND HAVEN- A YOUTH PERSPECTIVE WRITTEN BY:

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At a regular meeting of the Township Board of Trustees of the Charter Township of Grand Haven, Ottawa County, Michigan, held on the 25th day of April, 2016, at 7:00 p.m. The meeting was held at the Township of Grand Haven, 13300 168th Avenue, Grand Haven, Michigan.

PRESENT: French, Meeusen, Behm, Hutchins, Redick, Larsen, and Kieft
ABSENT: None

After certain matters of business had been discussed, Supervisor French announced that the next order of business was the consideration of a resolution to formally approve the 2016 Resilient Grand Haven Master Plan. Following discussion, the following resolution was offered by French and supported by Behm:

RESOLUTION NO. 16-04-06

WHEREAS, Grand Haven Charter Township, Ottawa County, Michigan has a duly constituted Planning Commission whose responsibilities under the Michigan Planning Enabling Act, Public 33 or 2008, as amended, include the preparation of a Master Plan to guide future land use development in the community; and,

WHEREAS, the Township Planning Commission did issue its notice of intent to prepare a plan in accordance with Section 39, (2) of Public Act 33; and,

WHEREAS, the Township Planning Commission has worked with the consultants at Land Information Access Association to oversee a planning process that included significant public input, as well as investigations and surveys of existing resources; and,

WHEREAS, the Township Planning Commission prepared a proposed new Master Plan and submitted the plan to the Township Board for review and comment on October 19, 2015 and authorized distribution of the Master Plan to the entities that received the notice of intent to prepare the plan; and,

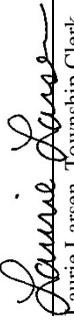
WHEREAS, after expiration of a 63 day review and comment period, the Township Planning Commission did give notice of a public hearing on the draft plan in accordance with Section 43, (1) of Public Act 33, with such public hearing being held on April 18, 2016; and,

WHEREAS, the Planning Commission did revise the draft plan to address comments received at the public hearing, with such changes to the text and maps being recorded in the minutes of this meeting;

NOW, THEREFORE, BE IT RESOLVED, that contents of the draft plan dated April 20, 2016, together with all the maps attached thereto and contained therein, are hereby adopted by the Grand Haven Charter Township Board in accordance with Section 43, (2)(3) of Public Act 33 by not less than a majority of its membership.

AYES: Redick, Meeusen, Kieft, Hutchins, Larsen, French, Behm
NAYS: None
ABSENT: None

RESOLUTION DECLARED:
ADOPTED ON: April 25, 2016


Laurie Larsen, Township Clerk

CERTIFICATE

I, the undersigned, the duly qualified Township Clerk of the Charter Township of Grand Haven, Ottawa County, Michigan, certify that the foregoing is a true and complete copy of the resolution adopted by the Township Board at a regular meeting of the Township Board held on the 25th day of April, 2016. I further certify that public notice of the meeting was given pursuant to and in full compliance with Michigan Act 267 of 1976, as amended, and that the minutes of the meeting were kept and will be or have been made available as required by the Act.

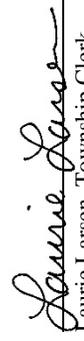

Laurie Larsen, Township Clerk

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EXECUTIVE SUMMARY

WHAT IS A MASTER PLAN?

A Master Plan creates a blueprint for the preservation of a community. It is the essential foundation upon which communities are built and guides not only the physical and economic development, but also accommodates social, environmental, and regional concerns. The planning process offers an opportunity to look broadly at local programs such as economic development, public infrastructure and services, environmental protection, and how they relate to one another by presenting a “big picture” look at the community today and articulating goals for the future. The land use plan resembles a series of goals and policies that are then used to guide future land use regulations and decisions, including zoning. A good plan clearly articulates the desires and aspirations of a community.

The Master Plan is intended to take a long-range view of the Township, guiding growth and development for the next twenty years and beyond, while also providing flexibility to respond to changing conditions, innovations, new concepts and available resources.

USES OF A MASTER PLAN

- Gives guidance to property owners, developers, neighboring jurisdictions, and county and state entities about expectations and standards for public investment and future development.
- Establishes the basis for the zoning ordinance, capital improvements, land use policies, and other implementation tools and programs.
- Provides the framework for day-to-day planning decisions by staff and land use policy decisions by the Planning Commission and Township Board.
- Identifies and evaluates existing conditions and characteristics, community values, trends, issues and opportunities.

WHAT IS THE RESILIENT GRAND HAVEN CHARTER TOWNSHIP MASTER PLAN?

The Master Plan was developed with a specific focus on resiliency. By their very nature, communities are continually complex and dynamic. People move and populations shift, industries go out of business and new industries emerge, natural areas are converted to neighborhoods, housing values fluctuate, and shorelines shift and change. Sometimes these changes emerge over a long period of time whereas some changes can be quite sudden. Community resilience, then, is a measure of the sustained ability of a community to utilize available resources to withstand and/or recover from adverse situations.^{1,2}

Build Community Resilience

According to the Resilient Framework established by the Rockefeller Foundation, a resilient community is:

1. Reflective
2. Robust
3. Redundant
4. Flexible
5. Resourceful
6. Inclusive
7. Integrated

¹ Rand Corporation, 2015. Community Resiliency Featured. <http://www.rand.org/topics/community-resilience.html>

² Rockefeller Foundation, 2014. Resilience Framework. <https://www.rockefellerfoundation.org/our-work/topics/resilience/>

A Resilient Community Often Has:

1. Minimal human vulnerability
2. Diverse livelihoods and employment
3. Adequate safeguards to human life and health
4. Collective identity and mutual support
5. Social stability and security
6. Availability of financial resources and contingency funds
7. Reduced physical exposure and vulnerability
8. Continuity of critical services
9. Effective leadership and management
10. Empowered stakeholders
11. Integrated development planning

Source: Rockefeller Foundation

The Master Plan Process

A Joint Planning Committee, consisting of the full planning commissions of the Township and the City helped to plan, participate in and oversee the master planning process.



PUBLIC PARTICIPATION OVERVIEW

Over 200 members of the public directly contributed to the Master Plan by participating in the Leadership Summit, Community Action Team Meetings, and a Public Open House. In addition the planning process was documented through the Project Website at www.resilientmichigan.org/grand_haven.asp and the Township Facebook Page at www.facebook.com/GHTownship. Lastly, the Township engaged the Grand Haven Area Community Foundation’s Youth Advisory Committee (YAC) through an exercise to illustrate their vision for the community. Subsequently the YAC drafted A Youth Perspective chapter that has been included in the Master Plan.

HOW IS A MASTER PLAN IMPLEMENTED INTO THE ZONING ORDINANCE?

A Zoning Ordinance cannot exist without an adopted Master Plan. The Master Plan forms the legal basis for the existence of the Zoning Ordinance. After each document has been adopted by the Township Board the Master Plan then functions as a guide for zoning ordinance amendments.

As amendments are made to the zoning ordinance the Township must ensure they align with the vision, goals, and objectives found in the Master Plan. In essence, the two must have a symbiotic relationship and be able to support amendments and revisions to each document.

For example, if the Master Plan encourages taller buildings the Township can amend the Zoning Ordinance to allow taller buildings. Conversely, if the Master Plan discourages taller buildings the Township should not attempt to amend the Zoning Ordinance. Rather, the Master Plan must be amended first, and the Zoning Ordinance could be revised afterwards.

Master Plans and Zoning Ordinances are “living documents.” Meaning, they each respond to changing conditions. As social norms shift over time each document should be updated to reflect the new changes. That is why the Michigan Planning Enabling Act requires municipalities to review their Master Plan every 5 years. If this review finds the Plan does not align with current trends then it should be updated. This allows the Zoning Ordinance to effectively respond to the needs of Township residents.

DEMOGRAPHIC AND HOUSING TRENDS

PEOPLE

- The Township’s population continues to grow, and is projected to reach more than 22,000 residents by 2030, which equates to a 46% growth rate over a 20 year period.
- The number and proportion of people aged 50+ increased more than any other group.
- The median household income is \$69,850, which is a 12% increase between 2000 and 2014.
- Residents with at least a Bachelor’s degree is increasing.
- The number of two-parent households with children continues to decrease, whereas the proportion of married couples without children, single-parent households, and householders living alone has increased.

HOUSING

- The Township gained an additional 1,200 housing units between 2000 and 2014.
- More residents live in multi-family buildings, especially structures with 3+ units.
- The average household size has decreased from 2.9 to 2.7 people per home.
- The median value of a home is \$176,900 which is a 15% increase between 2000 and 2014.
- Median rents were higher in 2014 than in Michigan or Ottawa County overall.
- Taxable value increased by nearly 3.5% between 2014 and 2015.

FUTURE LAND USE PLAN

The Future Land Use Plan is the general framework upon which land use and policy decisions for Grand Haven Charter Township will be guided for the next 20 to 25 years. The Future Land Use Plan was developed after careful consideration of several dynamic factors, including: existing land use, future development plans, community services, environmental features and a build-out analysis.

FUTURE LAND USE DESCRIPTIONS

The Township, in conjunction with guidelines established by Ottawa County, has established 11 future land use classifications. The classifications listed below include a brief description on the land uses and identifies the corresponding zoning district(s) that equate to the current districts found in the Zoning Ordinance.

AGRICULTURAL PRESERVATION (AP)

- Agricultural and agri-business uses.
- Corresponding Zoning District: Agricultural (AG)

RURAL RESIDENTIAL (RR)

- Single family homes on lots that range from 1 – 10 acres.
- Corresponding Zoning Districts: Rural Preserve (RP) and Rural Residential (RR)

LOW DENSITY RESIDENTIAL (LDR)

- Single family homes on lots approximately ½ acre in size, and may or may not be located in a platted subdivision.
- Corresponding Zoning District: Low Density Residential (LDR)

MEDIUM DENSITY RESIDENTIAL (MDR)

- Single family, and limited two-family, homes on lot sizes ranging from 13,000 – 15,000 square feet and are typically located in a platted subdivision.
- Corresponding Zoning Districts: R-1 and R-2 Single Family Residential

The Master Plan

It is important to understand the Master Plan is a guide for growth and development within the Township. Local officials and planning staff will continually need to develop and adapt new land use policies that respond to changing conditions, innovations and new concepts.



Agricultural Land Uses

Agricultural land currently makes up 23% of the Township's total land area.



Commercial/Horticultural Ag. Land Uses

Commercial/Horticultural Ag. land makes up 2.9% of the Township's total land area.



Parks, Recreation, and Natural Area Land Uses

Land devoted to parks and recreation (including natural areas) make up 7.6% of the Township's total land area.



MEDIUM-HIGH DENSITY RESIDENTIAL

- Includes a variety of housing types that act as a transition between a traditional single-family neighborhood to higher densities and more intense land uses. Examples include senior housing and assisted living facilities.
- Corresponding Zoning Districts: Residential PUD

HIGH DENSITY RESIDENTIAL (HDR)

- Multi-family homes including duplexes, apartments, senior housing, townhomes, etc.
- Corresponding Zoning Districts: R-3 Two Family Residential, R-3.5 Restricted Multiple Family Residential, and R-4 Multiple Family Residential

MANUFACTURED HOME PARK (MHP)

- Manufactured homes located in a designated park on 144th Avenue.
- Corresponding Zoning District: R-5 Manufactured Home Park

OFFICE/SERVICE (OS)

- Low-intensity commercial uses such as office buildings
- Corresponding Zoning District: Service Professional (SP)

COMMERCIAL (C)

- Traditional commercial uses such as retail, restaurants, shopping centers, office buildings, etc.
- Corresponding Zoning Districts: Commercial (C-1) and Service Professional (SP)

GENERAL INDUSTRIAL (GI)

- Majority of industrial-related operations such as manufacturing, assembly, and warehousing.
- Corresponding Zoning Districts: Industrial (I-1) and Corridor Industrial (I-1A)

EXTRACTION (E)

- Solely related to a sand mining operation that is currently in existence.
- Corresponding Zoning Districts: includes any district that permits the Removal and Processing of Natural Resources as a special land use.

PUBLIC/QUASI-PUBLIC (PQP)

- Schools, government facilities, parks, natural areas, recognized churches, etc.
- Corresponding Zoning Districts: includes any district that permits Public/Quasi-Public land uses.

FUTURE LAND USE MAP

The Future Land Use Map can be found in the Chapter 9 of the Master Plan, and on the Township website at: www.ghet.org/about/map.

GOALS AND OBJECTIVES

The Master Plan identifies a vision for the future of the Township and sets a series of goals and objectives to guide the decision-making process. Below are the 8 goals that have been established, and the objectives can be found in Chapter 7 of the Master Plan.

GOAL 1

The Township will preserve valuable natural resources, and the shorelines along Lake Michigan and the Grand River. These natural assets provide a cultural identity and add economic value to the community.

GOAL 2

The preservation and enhancement of natural features of the community will be a central consideration in all civic decisions in Grand Haven Township. Buildings and infrastructure will be planned, constructed and maintained to protect and improve the quality of the natural environment while serving the needs of the population and allowing residents and visitors appropriate access to enjoy natural features.

GOAL 3

Discourage the inappropriate and unplanned use of land through sporadic and isolated land divisions. Encourage carefully planned developments that are responsive to market demands.

GOAL 4

Support multiple housing options and mixed-use developments for all segments of the population that place users near daily services.

GOAL 5

Grand Haven's public facilities, including its roads, utilities, parks, and public buildings will be carefully planned, constructed and maintained to efficiently serve the needs of current and future generations.

GOAL 6

Residents and visitors to the greater Grand Haven community will have safe and convenient access by way of non-motorized pathway system, private automobiles, and public transportation.

GOAL 7

Grand Haven Township will continue to be a vital economic center that includes a balance of clean manufacturing, professional and personal service, the arts, hospitality, retail, commercial, and institutional employment.

Coastal Processes

Chapter 12 summarizes a coastal study conducted by the University of Michigan as part of the Resilient Grand Haven Charter Township planning process.



Manufacturing in Grand Haven Township

The Township is home to a number of manufacturing business, that provide vital jobs to residents throughout the Township and region.



GOAL 8

Grand Haven Township will be a leader in working with other units of government, state agencies, schools, and special authorities to manage growth and service delivery to the residents and businesses of the area in the most efficient and transparent manner possible.

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CHAPTER 1. INTRODUCTION

The *Resilient Grand Haven Charter Township Master Plan* serves as the official policy guide for Grand Haven Charter Township’s future development and growth, including the management of its assets and resources. Organized through a series of relevant topics, goals, and objectives, the Master Plan provides the framework and basis for sound community development and land use decision making. The *Resilient Grand Haven Charter Township Master Plan* also establishes clear direction and expectations for the Township.

PURPOSES AND USE OF THE MASTER PLAN

- Solidifies the vision for the Township.
- Identifies and evaluates existing conditions and characteristics, community values, trends, issues and opportunities.
- Gives guidance to property owners, developers, neighboring jurisdictions, and county and state entities about expectations and standards for public investment and future development.
- Provides support for the allocation and spending of funds.
- Establishes the basis for the zoning ordinance, capital improvements, land use policies, and other implementation tools and programs.
- Provides the framework for day-to-day planning decisions by staff and land use policy decisions by the Planning Commission and Township Board.
- Provides the framework and foundation for creative problem solving and adapting to change – in other words, becoming a resilient community.
- Builds partnerships between informed citizens, community stakeholder groups, non-profit organizations and county and regional entities that help support and participate in plan implementation.

The Master Plan is intended to take a long-range view of the Township, guiding growth and development for the next twenty years and beyond, while also providing flexibility to respond to changing conditions, innovations, new concepts and available resources.

The Master Plan identifies and discusses important community trends like climate variability, which is redefining the Township’s natural environment. The Master Plan also highlights resources that help increase quality of place through better design and projects that consider placemaking. The Master Plan describes where new development should be directed and the character and standards to which new homes and buildings should

The Master Plan

It is important to understand the Master Plan is a guide for growth and development within the Township. Local officials and planning staff will continually need to develop and adapt new land use policies that respond to changing conditions, innovations and new concepts.



The Master Plan Process

A Joint Planning Committee, consisting of the full planning commissions of the Township and the City helped to plan, participate in and oversee the master planning process.



adhere. In addition, the Master Plan identifies the preferred characteristics of neighborhoods, ways to support healthy lifestyles, and improvements to the transportation system. The Master Plan also identifies how the Township can better respond and adapt to unanticipated events and adverse situations.

A COLLABORATIVE PLANNING PROCESS

The Master Plan was developed with unique collaboration between public officials from Grand Haven Charter Township and the City of Grand Haven. While local officials from the Township and City have collaborated on joint planning issues before (e.g., Robbins Road Corridor), this marked the first time they collaborated in the development of their Master Plans. This collaborative planning effort also resulted in an updated Master Plan for the City of Grand Haven.

A *Joint Planning Committee*, consisting of the full planning commissions of both the Township and the City, the respective community development staff, and the consultant helped oversee and facilitate the planning process. In addition, the *Joint Planning Committee* provided a sounding board for new ideas, information, a venue for the review, and consideration of new materials. This planning process also involved public input and civic engagement throughout, as discussed further in Chapter 10.

Although the Master Plan was developed under this collaborative approach, ultimately, the final components and content of this Master Plan were established and approved by the Grand Haven Charter Township Board, the Planning Commission, and staff members.

This collaborative planning process should set the groundwork for continued dialogue between local officials from the Township and the City on community-wide land use issues, planning policies, community development, zoning matters and future Master Plan amendments.

PLANNING FOR A UNIQUE FOCUS

Because the Township and the City were willing to discuss and consider how climate variability might impact their community and how they might respond to those impacts, portions of the Master Planning Process were funded through a grant from Michigan's Coastal Zone Management (CZM) Program. In addition, under a grant of services from the *University of Michigan Water Center*, Township and City staff members and the *Joint Planning Committee* worked with a team of professors and researchers from the University of Michigan's Taubman College of Architecture and Urban Planning to study and determine the potential physical and environmental impacts of dynamic coastline processes. More information about their activities and conclusions, and how these impact the Master Plan is described in more detail in Chapter 12.

MASTER PLAN FRAMEWORK: GUIDING PRINCIPLES OF THE MASTER PLAN

The planning process fostered many ideas and conversations about the past, present, and future of Grand Haven Charter Township. During the planning process, these ideas coalesced into *Ten Guiding Principles* for the creation of the plan and the direction of the Township going forward.

The *Ten Guiding Principles* came from an iterative planning process that involved Grand Haven Charter Township

and City of Grand Haven staff members, the *Joint Planning Committee*, the consultant team, and the public. The following *Ten Guiding Principles* are organized by past, present, and future.

BUILD ON OUR PAST

1) BUILD ON WHAT'S WORKING

Grand Haven Charter Township's last master plan was developed and adopted in 2009. The master plan was a thorough and well-written document, describing the current conditions of the community and identifying key community goals and action statements. In the seven years since the plan was adopted, several of these goals and actions have been realized. At the same time, Grand Haven Charter Township continues to address many new challenges.

While the conditions and challenges of the Township have changed, many of the overarching goals and policies discussed in the 2009 Master Plan remain applicable. In addition to incorporating language from the 2009 Master Plan, the Resilient Grand Haven Charter Township Master Plan builds upon existing goals and strategies, as discussed in Chapter 7.

SHAPE THE PRESENT

2) UNDERSTAND COASTAL PROCESSES

Grand Haven Charter Township has seven miles of Great Lakes shoreline and is framed by the Grand River. Many residents live along shorelines, enjoying scenic views and recreational opportunities.

For this planning process, a specialized team of researchers from the University of Michigan's Taubman College of Architecture and Urban Planning worked to determine the physical and environmental impacts of possible climate scenarios throughout the Township, including the coastal areas. Their research and recommendations influenced the planning process in a number of ways. More information on University of Michigan's involvement can be found in Chapter 12.

3) SUPPORT SMART GROWTH

Smart Growth is a national movement with a strong presence in Michigan. According to the Smart Growth Network, growing is smart when it gives us great communities with more choices, greater return on public investment, a thriving natural environment, and a legacy we can be proud to leave our children.¹ There are 10 key tenets of Smart Growth worth noting, as each of these are addressed to some degree in planning efforts across the State and in this Master Plan:

1. Mix land uses
2. Take advantage of compact building design
3. Create a range of housing opportunities and choices
4. Create walkable neighborhoods

¹ The Smart Growth Network, 2014. This is Smart Growth. <http://www2.epa.gov/sites/production/files/2014-04/documents/this-is-smart-growth.pdf>

Build On What's Working

Many of the goals and action statements identified in the 2009 Master Plan are still applicable today and have been included in the new Master Plan. For example, the Township will continue to expand the system of non-motorized trails and pathways.



Coastal Processes

Coastal processes are influenced by natural systems such as wind, waves, lake levels, sediment and weather. Understanding coastal processes can help jurisdictions plan for naturally-occurring changes and activities along the shoreline.



Plan for Place

Even small amenities like this neighborhood library can help promote social interaction and contribute to a sense of place.



5. Foster distinctive, attractive communities with a strong sense of place
6. Preserve open space, farmland and critical environmental areas
7. Strengthen and direct development toward existing communities
8. Provide a variety of transportation choices
9. Make development decisions predictable, fair and cost-effective
10. Encourage community and stakeholder collaboration

4) PLAN FOR PLACE

Where location refers to a particular geography, “place” refers to the physical components that make a location recognizable. Placemaking, then, is the act of designing and managing elements of the public realm to create places that are exciting, accessible, and comfortable. The State of Michigan has promoted and supported placemaking efforts in various communities and has provided a guidebook for communities looking to bring vibrancy back to neighborhoods and downtowns.

Although a majority of the Township is rural, placemaking will be a key strategy to help protect and increase vibrancy of commercial corridors (and centers) and new residential developments.

5) COLLABORATE REGIONALLY

Many elements of a community, from economic health to air and water quality, are not defined by a municipal boundary. Decisions regarding land use, infrastructure and natural resource protection have an impact on surrounding jurisdictions and vice versa.

Local officials in the greater Grand Haven Community recognize that ongoing collaboration is essential. There are many tie-ins to regional efforts throughout the plan. For examples, see Chapters 10 through 13.

PLAN FOR THE FUTURE

6) BUILD COMMUNITY RESILIENCE

By their very nature, communities are continually complex and dynamic. People move and populations shift, industries go out of business and new industries emerge, natural areas are converted to neighborhoods, housing values fluctuate, and shorelines shift and change. Sometimes these changes emerge over a long period of time whereas some changes can be quite sudden. Community resilience, then, is a measure of the sustained ability of a community to utilize available resources to withstand and/or recover from adverse situations.²

7) PREPARE FOR CLIMATE VARIABILITY

A changing climate will mean variable temperatures, increased rains, and more severe storms in the Great Lakes region. For Grand Haven Charter Township, responding to climate variability is a challenge in the short- and long-term. It requires Township officials and community stakeholders to consider how they plan for new development, transportation, infrastructure, natural resource preservation, energy

Build Community Resilience³

According to the Resilient Framework established by the Rockefeller Foundation, a resilient community is:

1. Reflective
2. Robust
3. Redundant
4. Flexible
5. Resourceful
6. Inclusive
7. Integrated

² Rand Corporation, 2015. Community Resiliency Featured. <http://www.rand.org/topics/community-resilience.html>

³ Rockefeller Foundation, 2014. Resilience Framework. <https://www.rockefellerfoundation.org/our-work/topics/resilience/>

production, and community health. For a summary of climate research globally, regionally, and statewide, see Chapters 12 and 13. A number of goals and implementation strategies are intended to address climate concerns, as seen in Chapter 7.

8) COMPETE IN THE NEW ECONOMY

The economic drivers of Michigan's economy have changed. While the recovering manufacturing sector will continue to remain a key component of Michigan's economy, future economic growth in Michigan will come from a variety of industries, most of which are high technology and service oriented. According to Michigan State University's Land Policy Institute (LPI), sectors like health care, financial management, highly-skilled manufacturing, human service sectors, and the food industry will become the backbone of what is called the "New Economy."

Although the manufacturing sector continues to thrive in Grand Haven Charter Township and further investment in manufacturing should be made, it will be important for local officials to consider ways to attract a variety of jobs and industries. Investing in various sectors will increase economic resiliency and proactively attract growing industries. In fact, economic diversity is shown to spur overall economic growth more efficiently than an economy based solely on a small number of sectors.⁴

9) PROTECT AGRICULTURE

As discussed in the 2009 Master Plan, at one time, most of the Township was used for agricultural purposes. Today, as the population of the Township continues to grow, local officials may be presented with proposals to convert agricultural areas into other uses. In the future, existing agricultural lands may also be subject to changes in the region's climate. For example, although the region is expected to receive increased precipitation, it will likely come in short but heavy rain events, followed by long periods of dry conditions. In order to protect this vital use of land, local officials and area farmers will need to consider new ways to capture, retain, and distribute water.

10) ENHANCE WALKABILITY

A place is walkable when its transportation infrastructure provides multiple ways for people to travel to a variety of locations. Connected pathways, sidewalks, and bike lanes all serve to make a community healthier and more accessible for all incomes and ages. A walkable community can also benefit residents in terms of personal satisfaction, health, recreation, and economic benefits such as increased revenues from tourism, business activity, and employment.

There are currently many initiatives across the State to increase awareness about walkability in all types of communities. Although Grand Haven Charter Township is predominately rural and suburban, residents are able to freely move throughout the Township on an inter-connected system of bike paths. In addition, many neighborhoods and commercial corridors are connected by sidewalks. Emphasizing pedestrian connectivity in land use decisions is an important component of any walkability effort.

The Difference Between Climate and Weather

Weather reflects the short-term conditions of the atmosphere while **climate** is the average daily weather for an extended period of time. This difference was very evident in Michigan over the last two years. Although the winters of 2014 and 2015 were two of the coldest winters on record, average temperatures in Michigan have increased by 2.5 degrees Fahrenheit since 1950.

Walkability

According to walkability expert and noted author Jeff Speck, the General Theory of Walkability explains that to be favored (above driving), a walk has to satisfy four main conditions. It must be:

1. **Useful.** Most aspects of daily life are located close at hand and organized in a way that walking serves them well.
2. **Safe.** The street has been designed to give pedestrians a fighting chance against being hit by automobiles; they must not only be safe but feel safe.
3. **Comfortable.** Building and landscape shape streets into "outdoor living rooms."
4. **Interesting.** Sidewalks are lined by unique buildings and friendly faces.



⁴ Ashraf, Quamrul and Oded Galor (2011). Cultural Diversity, Geographical Isolation, and the Origin of the Wealth of the Nations. Working Paper 17640. JEL No. NO1,O1,O4. Web. Accessed September 2015. <http://www.nber.org/papers/w17640.pdf>

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CHAPTER 2. PEOPLE AND SOCIAL SYSTEMS

The following chapter uses data from various sources to describe the Township's population. In many cases, recent Census data was compared to the Census data from 1990 and 2000 to identify demographic trends. Beyond the Census, this analysis also uses other data sources, like population projections from the West Michigan Regional Planning Commission.

SUMMARY OF DEMOGRAPHIC TRENDS

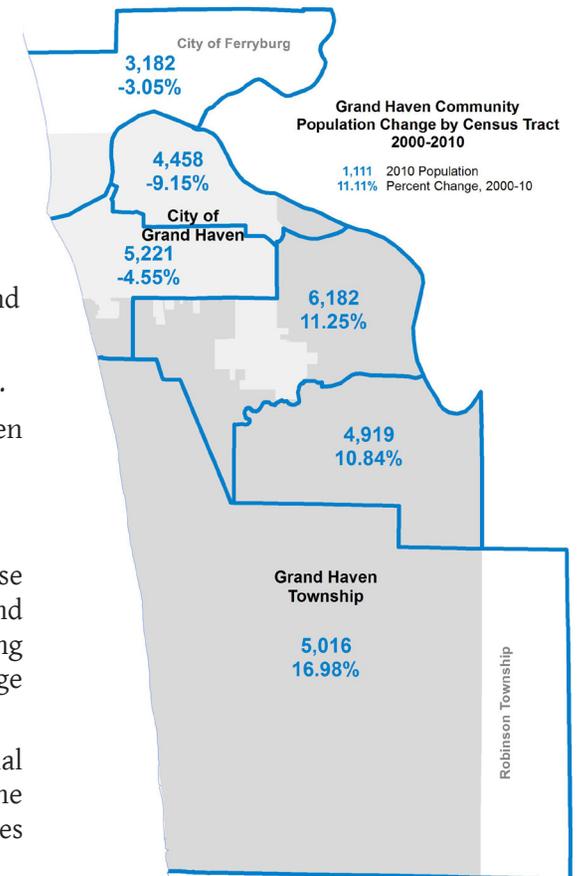
- Grand Haven Charter Township's population continues to grow.
- The pace of growth in Grand Haven Charter Township has slowed, but is faster than Ottawa county overall.
- Between 2000 and 2014, the number and proportion of people 50+ years old in the Township increased more than any other age group.
- The number of two-parent households with children continues decreased from 2009 and 2014, whereas the proportion of married couples without children, single-parent households, and householders living alone has increased.
- The proportion of residents with a Bachelor's degree or higher increased between 2009 and 2014.
- Poverty rates are increasing in the Township and Ottawa County overall, especially young children under 5 years old and residents aged 18 to 34.

POPULATION CHANGE

The overall population in Grand Haven Charter Township in 2014 was estimated to be 15,553, a 17.1% increase in total population since 2000. Figure 2.1 and Table 2.1 on the next page show that a number of cities and villages in the Tri-Cities area lost population in recent years, where Grand Haven Charter Township, Spring Lake Township, and Ottawa County overall gained population. Grand Haven Charter Township's percentage of population increase was higher than nearby communities.

Grand Haven Charter Township, like many communities along the Lake Michigan coastline, has a substantial seasonal population in addition to the year-round residents. This seasonal population is not counted in the total population figures. In 2014, 4.5% of the Township's housing units were designated as seasonal properties that are used for part of the year. This is discussed more in Chapter 3.

Figure 2.1 Regional Population Change



Population Projections

A growing population could increase demand for public services, infrastructure, and utilities. Additionally, it may increase pressure for the conversion of agricultural land into other uses.

Table 2.1 Population Change, 1970 to 2010

	Population						Change (2000 to 2014)	
	1970	1980	1990	2000	2010	2014	#	%
Grand Haven Township	5,489	7,238	9,710	13,278	15,178	15,553	2,275	17.1
City of Grand Haven	11,844	11,763	11,951	11,168	10,412	10,687	-481	-4.3
Village of Spring Lake	3,034	2,731	2,537	2,514	2,323	2,413	-101	-4.0
Spring Lake Township	8,013	9,588	10,751	13,140	14,300	14,555	1,415	10.8
City of Ferrysburg	2,196	2,440	2,919	3,040	2,892	2,936	-104	-3.4
Ottawa County	128,181	157,174	187,768	238,314	263,801	269,795	31,481	13.2

Source: US Census Bureau 1970 to 2010 (Northwest Michigan Council of Governments), American Community Survey 2010-2014

Table 2.2 Projected Population, 2015 to 2030

	Actual Population		Projected Population		% Change (2014 to 2030)
	2014	2020	2025	2030	
Grand Haven Township	15,553	18,728	20,502	22,277	43.2
City of Grand Haven	10,687	9,859	9,583	9,306	-12.9
Ottawa County	269,795	316,671	343,106	369,541	37.0

Source: American Community Survey 2010-2014, West Michigan Regional Planning Commission Population Projections

POPULATION PROJECTIONS

According to West Michigan Regional Planning Commission, it is likely the overall population in the Township will continue to increase, at a faster pace than in the last decade, through 2030. Table 2.2 shows the Township is expected to gain an additional 43.2%, or about 6,700 residents, between 2014 and 2030. This projection has important implications for redevelopment, housing, service delivery, and the Township’s operating budget.

AGE DISTRIBUTION

Age distribution is an important factor in identifying social, economic, and public service needs. Using U.S. Census Bureau statistics, the Township’s population is characterized into eight life stages, as shown on Table 2.3. The column on the far right of Table 2.3 shows whether the population in that life stage increased or decreased from 2000 to 2014. Overall, the Mature Family Group is the largest in the Township, both in number of residents (3,748) and share of the total population (24.1%). In 2000, the Established Family Group and was the most predominate. Between 2000 and 2014, the Township gained population in six out of eight life stages, with the Mature Family and Retired life stages growing the most dramatically. This trend suggests that residents nearing, or in retirement, are staying in or relocating to the Township.

Table 2.3 Change in Population by Life Stage, 2000 to 2010

Life Stage	Age Range	2000		2014		Change (2000 to 2014)	
		#	% of total	#	% of total		
Preschool	4 and Under	977	7.4	840	5.4	↓	-137
Elementary	5 to 14	2,373	17.9	2,379	15.3	↑	6
Secondary	15 to 19	1,009	7.6	1,213	7.8	↑	204
College	20 to 24	560	4.2	949	6.1	↑	389
Young Family	25 to 34	1,483	11.2	1,773	11.4	↑	290
Established Family	35 to 49	3,620	27.3	2,706	17.9	↓	-914
Mature Family	50 to 64	2,163	16.3	3,748	24.1	↑	1585
Retired	65 and Over	1,093	8.2	1,929	12.4	↑	836

Source: US Census 2000, American Community Survey 2010-2014.

RACE AND ETHNICITY

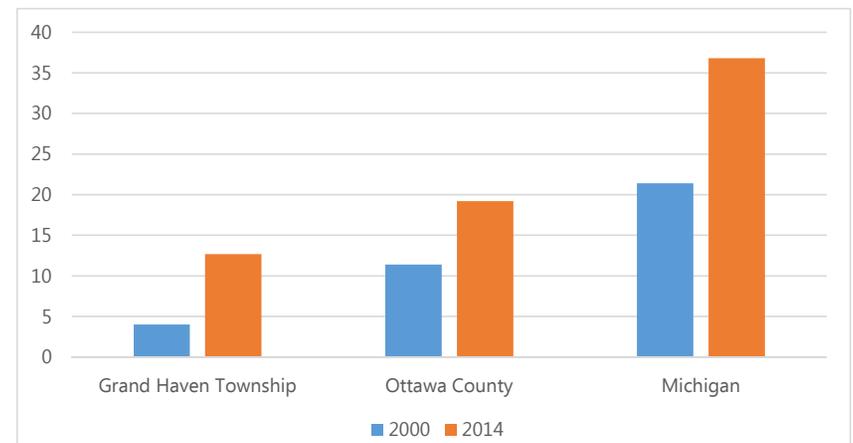
The population of Grand Haven Charter Township was predominately white (92.6%) in 2014. Just over 5% of the population identified as Hispanic or Latino in the 2014 American Community Survey (see Table 2.4). The Hispanic and Latino population grew faster than the Township overall, increasing in population by 219%. Asian, American Indian, and Black populations also grew between 2000 and 2014. In the Township, minorities make up about 12% of the total population. Figure 2.2 shows the Township has a lower percentage of non-white residents than Michigan and Ottawa County overall.

Table 2.4 Racial Composition, 2000 to 2014

Race/Ethnicity	2000		2014	
	#	% of total	#	% of total
White	12,900	97.2	14,400	92.6
Hispanic or Latino	252	1.9	805	5.2
Asian	74	0.6	323	2.1
American Indian	47	0.4	93	0.6
Black	16	0.1	26	0.2
Other, More than One Race	129	1	711	4.6

Source: US Census 2000, American Community Survey 2010-2014.

Figure 2.2 Percentage of Non-White Residents, 2000 and 2014



Source: US Census 2000, American Community Survey 2010-2014.

HOUSEHOLD STRUCTURE

The number and types of households helps characterize the social and economic forces at work in the Township. Table 2.5 compares data from 2005-2009 to data collected in 2010-2014 to show the proportions of single-parent households and married couples without children has increased. In general, changes in the Township’s overall household structure are consistent with reported national increases in non-traditional and single-person households.

Young Professionals

According to a 2013 report from the Detroit Regional Chamber, only about 63% of recent college graduates from Michigan public universities stay in Michigan after they graduate. Of the graduates who stayed, just over 6% moved to the greater Grand Rapids region (including the greater Grand Haven Community).

Of the graduates that stayed, 43% said it was because of Michigan’s recreational activities and 37% said it was because of Michigan’s physical attributes.

The City of Grand Haven, in partnership with Grand Haven Charter Township and other neighboring communities, should continue to invest in projects that support and expand recreational opportunities and projects that protect the community’s natural resources. In doing so, the community can better position itself to compete for young professionals.

Table 2.5 Types of Households

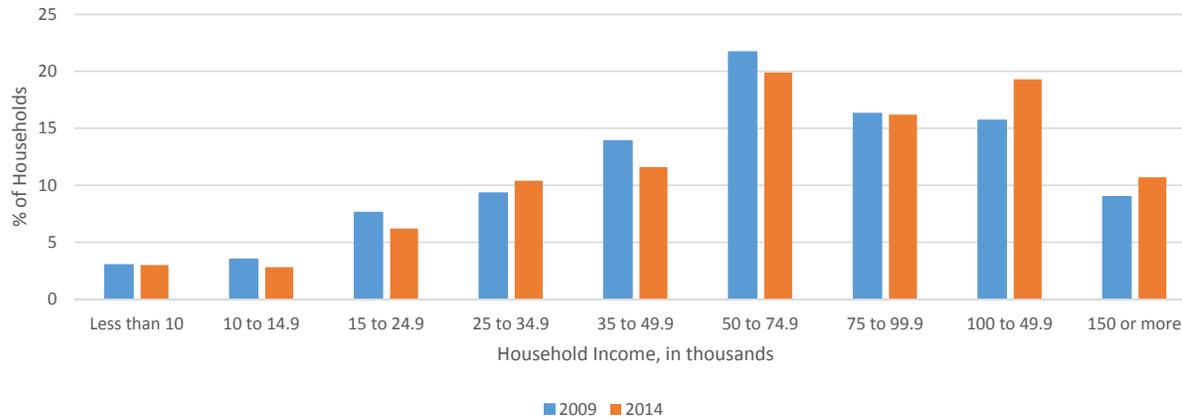
	2009		2014	
	#	% of total households	#	% of total households
Unmarried male, with children	162	2.8	282	5.0
Unmarried female, with children	154	2.7	238	4.2
Married couple, with children	1,757	30.7	1,522	26.9
Married couple, no children	2,064	36.1	2,183	38.6
Persons Living Alone Under 65	798	14.0	580	10.3
Persons Living Alone Over 65	299	5.2	307	5.4
Total Number of Households	5,716	100	5,655	100

Source: American Community Survey, 2005-2009, 2010-2014

HOUSEHOLD INCOME

Household income is a key measure of the economic condition of a community. Income helps determine how much a household can spend on housing, retail, and local investments. These expenditures and investments directly and indirectly determine the amount of money available for public facilities and services, primarily through property tax revenue collected by Township agencies. Using data collected from 2005-2009 and 2010-2014, the median household income in Grand Haven Charter Township increased 3.5% to \$67,513. The percentage of households with annual incomes under \$25,000 and between \$35,000 and \$49,999 decreased, while the percentage of households with annual incomes over \$100,000 increased (see Figure 2.3 on the next page). In other words, households making incomes over \$100,000 make up a greater share of the population in 2014 than in 2009. The cause of these changes are unknown, but may be a result of the Great Recession.

Figure 2.3 Percentage of Households, By Income, 2009 to 2014



Source: American Community Survey 5-year estimates 2005-2009, 2010-2014.

EDUCATIONAL ATTAINMENT

Numerous studies have shown that educational attainment is related to an individual’s earning capacity.¹ In other words, people with more education tend to make higher total incomes over their lifetime. A community’s average educational achievement, therefore, can be an indicator of its economic capacity. Table 2.6 shows that, in general, over 70% of the Township’s adult population has at least some college education. It also shows that median earnings increase as educational attainment rises. However, in recent years, median earnings decreased for those over 25 years old with less than a high school diploma, with only a high school diploma, and a graduate degree or higher.

Table 2.6 Educational Attainment by Percent of Population Aged 25 and Over and Median Earnings

	2009		2014	
	% of Population Aged 25+	Median Earnings	% of Population Aged 25+	Median Earnings
Less than High School Diploma	6.4	26,417	5.5	17,788
High School Diploma	27.3	26,797	24.2	25,621
Some College or Associate's Degree	30.7	34,315	28.9	35,849
Bachelor's Degree	24.9	54,847	27.9	56,191
Graduate Degree or Higher	10.6	68,264	13.6	63,950

Source: American Community Survey 2005-2009, 2010-2014

¹ United States Census Bureau, American Community Survey Reports, Education and Synthetic Work-Life Earning Estimates. 2011. <<https://www.census.gov/prod/2011pubs/acs-14.pdf>>

POVERTY

In general, poverty rates in Ottawa County are increasing. According to the 2012 Ottawa County Community Assessment from the United Way of Ottawa County, poverty rates are growing significantly throughout the county, especially among children. This holds true in Grand Haven Charter Township, where the American Community Survey measured the total poverty rate at 6.1% from 2005 to 2009 and 9.5% from 2010 to 2014.

In the Township, poverty rates are growing the fastest among those aged 18 to 24, those aged 25 to 34, and those under 5 years old. Table 2.7 shows that the number of residents in multiple age ranges has grown significantly in recent years, while Figure 2.4 shows the percentage increase of families living in poverty by Census Block Group. The majority of the Township is in a Census Block Group with a moderate increase in percentage of families living in poverty. Compared to other nearby communities, the Township has a moderate to low poverty rate among families.

Figure 2.4 Percent Increase in Families in Poverty

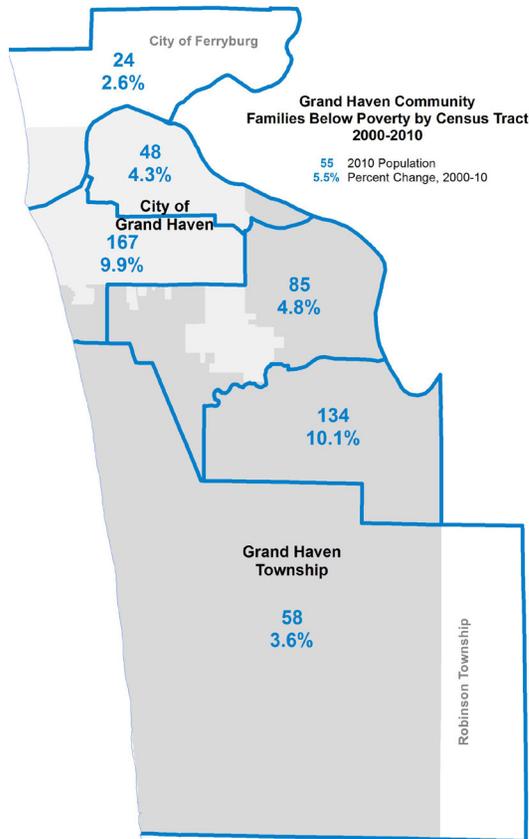


Table 2.7 Population in Poverty Comparison

Age Range	2009	2014	% Change
Under 5	17	108	535.3
5 to 14	286	197	-31.1
15 to 17	58	154	165.5
18 to 24	37	352	851.4
25 to 34	48	314	554.2
35 to 44	69	38	-44.9
45 to 54	156	171	9.6
55 to 64	140	47	-66.4
65 to 74	17	63	270.6
75 and Over	122	12	-90.2
Total Population	950	1,456	53.3

Source: American Community Survey, 2005-2009, 2010-2014.

CHAPTER 3. HOUSING

Understanding the types and number of households, the choices householders make to own or rent, and the condition of the housing stock are all important elements of a master planning process. The information in this chapter draws from decennial U.S. Census data, American Community Survey 5-year estimates from 2010 to 2014, and building permit data from Grand Haven Charter Township. As much as possible, the data is selected to show the most recent information available.

SUMMARY OF HOUSING TRENDS

- The Township gained an additional 1,200 housing units between 2000 and 2014.
- More Township residents live in multi-unit units, especially structures with 3 or more units.
- The number of vacant, non-seasonal properties has increased by 90 units from 2000 to 2014.
- The average household size in the Township decreased between 2000 and 2014, from 2.9 to 2.7.
- The median value of a home grew by 15% between 2000 and 2014.
- Median rents in the Township were higher in 2014 than in Michigan or Ottawa County overall.
- Taxable value in the Township increased by nearly 3.5% between 2014 and 2015.

HOUSING UNITS AND TENURE

In 2014, there were 6,194 housing units in Grand Haven Charter Township, an increase of nearly 1,200 units from 2000. This boost in housing stock included over 550 additional rental units, causing a 149% increase in residents choosing to rent. From 2000 to 2014, owner-occupied housing units also grew. Table 3.1 also shows in 2014, about 76% of units were occupied by owners and 15% of units were rented. Nationally, more residents are choosing to rent. A recent report from Harvard's Joint Center for Housing Studies have determined that a nationwide surge in rentership is due both to changing consumer preferences and to economic impacts of the Great Recession.¹

Table 3.1 Occupancy and Tenure, 1990 to 2010

	1990		2000		2014	
	#	% of total units	#	% of total units	#	% of total units
Owner-occupied	2,936	89	4,235	91.9	4,724	76.3
Renter-occupied	364	11	374	81.1	931	15.0
Non-seasonal vacant	100	2.7	191	3.7	280	4.5

Source: US Census 1990, 2000. American Community Survey, 2010-2014.

¹ Joint Center for Housing Studies, "America's Rental Housing: Evolving Market and Needs". Cambridge, President and Fellows of Harvard College, 2013. http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/jchs_americas_rental_housing_2013_1_0.pdf

Table 3.2 Housing Types 2000 to 2014

	2000				2014				% Change, 2000 to 2014	
	Grand Haven Township		Michigan		Grand Haven Township		Michigan		Grand Haven Township	Michigan
	#	%	#	%	#	%	#	%		
1 unit	4,216	83.2	3,153,728	74.5	4,863	78.5	3,473,344	76.6	15.3	10.1
2 Unit	112	2.2	146,414	3.4	68	1.1	116,964	2.6	-39.3	-20.1
3 or More Units	136	2.6	649,434	15.3	792	12.8	695,573	15.3	482.4	7.1
Mobile Home	557	10.9	277,158	6.5	471	7.6	245,882	5.4	-15.4	-11.3
Total Housing Units	5,066	100	4,234,279	100	6,194	100	4,532,719	100	22.3	7.0

Source: U.S. Census Bureau 2000, American Community Survey, 2010-2014.

HOUSING VACANCY AND SEASONAL HOUSING

From 2000 to 2014, the number of seasonal units, which are considered vacant by the United States Census Bureau, increased by just 17 units, or 4.1% of the total housing stock in the Township. The number of non-seasonal, vacant units increased dramatically. Perhaps due to the Great Recession, nearly 90 additional non-seasonal units were counted as vacant between the 2000 and the 2014 census. This change is summarized in Table 3.1.

HOUSING TYPES

Between 2000 and data collected from 2010-2014, the housing stock gained many multi-unit structures. Table 3.2 shows the percentage of housing structures with more than 3 units grew by 656 units to comprise 15% of the housing stock in the Township. This increase is concentrated in buildings with 5 to 9 units per structure. Single-unit structures, most likely single family homes, grew relatively proportionate to the Township overall.

HOUSEHOLD SIZE

Table 3.3 on the next page shows the average household size decreased in Grand Haven Charter Township, Ottawa County, and the State of Michigan from 2000 to 2014. This reduction in average household size follows a national trend in which choices like marrying later in life and having fewer children increases the prevalence of smaller households. Average household sizes have decreased despite a national increase in multi-generational households.² In 2014, the average household in Grand Haven Charter Township had 2.7 persons.

HOUSING VALUE AND GROWTH

The value of housing in Grand Haven Charter Township continues to rise. Table 3.4 shows the median value of an owner-occupied home has risen substantially in the Township since 1990. Home values in Ottawa County grew by 19.2% from 2000 to 2014, while Grand Haven Charter Township values grew slightly less at 14.8%. The values of owner-occupied housing in the Township and Ottawa County increased more than the State overall. If value is a measure of demand, building permits issued are a measure of supply. Grand Haven Charter Township records the number of permits issued for rehabilitation and construction of housing and commercial units, and the cost of each project. Though an issued permit may not mean the project was complete, building permit records measure much of the investment occurring in residential and commercial properties. Total building permits issued for new construction in 2015 are summarized in Table 3.5.

² Missing Middle Housing, "Leveraging the Needs of the Market". <http://missingmiddlehousing.com/about/demand-market/>

Table 3.3 Average Household Size

	1990	2000	2014
Grand Haven Township	2.9	2.7	2.7
Ottawa County	2.8	2.7	2.7
State of Michigan	2.6	2.5	2.5

Source: U.S. Census Bureau (1990, 2000) and American Community Survey (2010-2014).

Table 3.4 Median Value of Owner-Occupied Homes

	1990	2000	2014	% Increase (2000 to 2014)
Grand Haven Township	77,600	149,900	172,100	14.8
Ottawa County	74,600	128,800	153,500	19.2
State of Michigan	60,600	110,300	120,200	9.0

Source: U.S. Census Bureau (1990, 2000) and American Community Survey 5-year estimates (2010-2014)

Table 3.5 Total Permits Issued for New Construction, 2008-2015

	2008	2009	2010	2011	2012	2013	2014	2015
Commercial Building	7	3	0	2	5	0	0	2
Single Family Dwelling	32	11	16	37	51	68	68	76
Multi Family Dwelling	1	0	0	0	2	0	0	0

Source: Grand Haven Charter Township

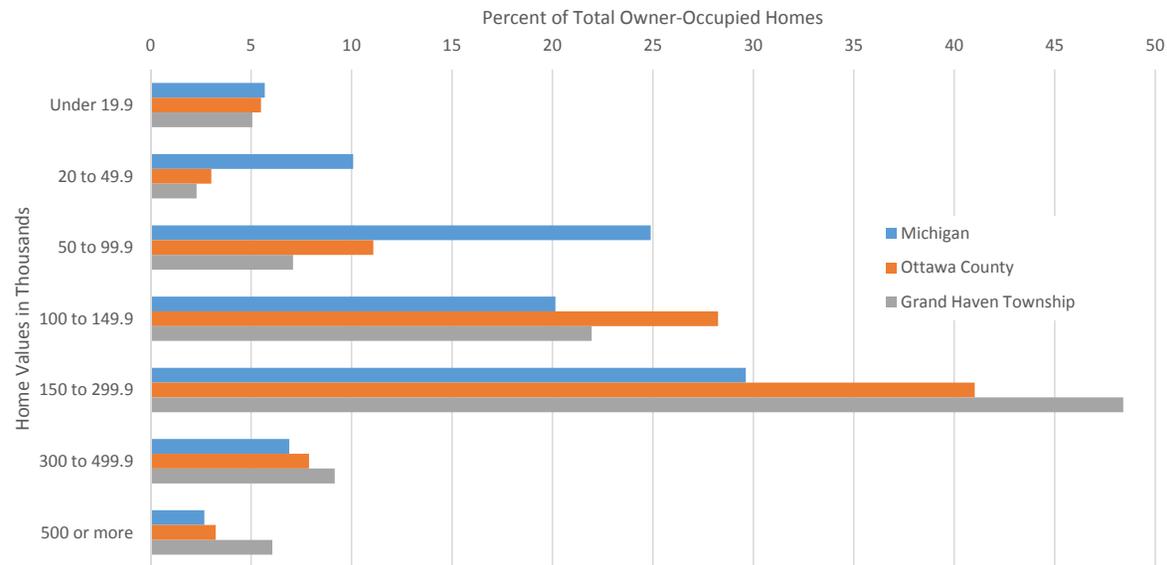
From 2008 to September 2015, 365 building permits for new construction were issued. Nearly 95% of permits were for single family homes. The years 2013 and 2014 are tied for the years with the most permits issued (68 each year), and 2015 may end up being higher (62 permits issued between January and September of 2015).

The cost associated with the construction projects averaged 689,400 dollars for a commercial building, 229,850 dollars for a single family dwelling, and 468,000 dollars for a multi family dwelling. Projects in 2015 tend to have a higher value than they have since 2008. The average value for single family dwellings in 2015 is \$251,750.

HOUSING AFFORDABILITY

Housing affordability is important for both owners and renters. The Department of Housing and Urban Development suggests that no more than 30% of a household's income should be spent on housing. For homeowners, this generally means that a homeowner should pay

Figure 3.1. Owner-occupied housing value, by percentage of total occupied units in each value range, 2010-2014.



Source: American Community Survey 5 -Year Estimates 2010-2014

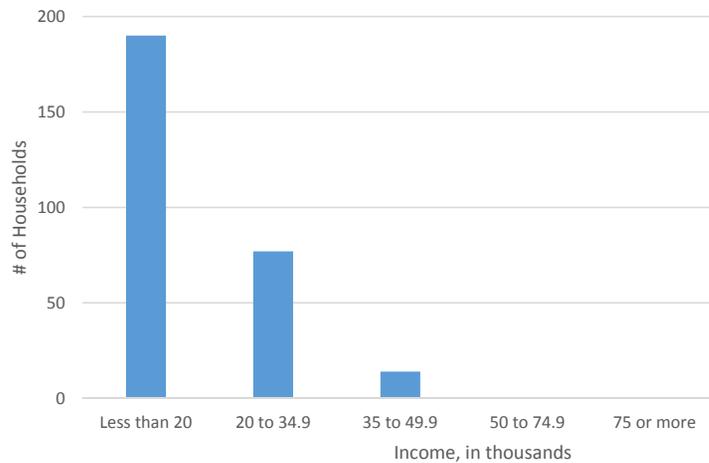
no more than 2.5 times their annual income on a home. In Grand Haven Charter Township, the median household income is \$67,513 and the median value of an owner-occupied home is \$172,100. This suggests that a household making the median income can afford a home at median value, given national standards that a household should spend no more than 30% of their income on housing costs.

The blue bars in Figure 3.1 show the percentage of owner-occupied units in each value range in Grand Haven Charter Township, as indicated by the U.S. Census American Community Survey 5-year estimates from 2009 to 2013. When compared to Ottawa County (in orange) and Michigan (in blue), it is clear the values of owner-occupied homes in Grand Haven Charter Township are less evenly distributed, with the bulk of homes valued in the middle ranges.

Rental affordability is frequently measured by the percentage of income spent on housing. In 2014, 281 renting households, or about 4.9% of all households, paid greater than or equal to 30% of their income on rent. Figure 3.2 on the following page shows that most of these households made between under \$34,999 dollars in 2014. Of the renting households that spend more than 30% of their income on rent:

- 21 are headed by a resident between 15 to 24 years old
- 104 are headed by a resident between 25 and 34 years old
- 117 are headed by a resident between 35 and 64 years old
- 39 are headed by a resident over 65 years old

Figure 3.2 Number of cost-burdened renting households, by income range



Source: American Community Survey 5 -Year Estimates 2010-2014

Table 3.6 Median Gross Rent

	1990	2000	2014
Grand Haven Township	473	573	817
Ottawa County	454	579	782
State of Michigan	423	546	780

Source: U.S. Census Bureau (1990, 2000) and American Community Survey (2010-2014)

In 1990, the median gross rent was just 19.6% of household income in Grand Haven Charter Township. In 2000, median gross rent as a percentage of household income grew to 19.9%, just a 1.5% increase. By 2014, this number had grown to 25.5%, a 28.1% increase in about 15 just over a decade. Rising rents and housing costs are a national and statewide trend, and Grand Haven Charter Township’s median rent grew slightly less than the State of Michigan and Ottawa County overall in the last 25 years. Table 3.6 shows the median gross rent from 1990 to 2014.

MISSING MIDDLE HOUSING CONCEPT

One of the goals established in this Master Plan is to support multiple housing options and mixed-use developments for all segments of the population that place users near daily services. The Missing Middle Housing concept is one method that may be utilized to achieve this goal.¹

The term Missing Middle is defined as a range of multi-unit or clustered housing types compatible in scale with single family homes that help meet the growing demand for walkable urban living. The defining characteristics are walkability; medium density, but lower perceived densities; small footprint and blended densities; and smaller, well-designed units. Examples of these housing types are carriage houses, duplexes, courtyard apartments, bungalow courts, townhomes, fourplexes, mansion apartments, mixed-use live/work developments, etc.

These housing types are classified as “missing” because very few have been built since the early 1940’s due to regulatory constraints and auto-dependence patterns that lead to a suburban lifestyle. The Missing Middle Housing types are attractive to singles, childless couples, and empty nesters.

The buildings easily integrated into the existing landscape because the Missing Middle homes typically have the same footprint as a large single family home. Furthermore, if properly distributed the housing types act as a density stepping-stone between the traditional single family subdivisions and the downtown environment. Meaning, carriage houses and duplexes would be located closer to the single family neighborhoods and the multiplexes and townhomes are nearer to the downtown.

The Missing Middle Housing experts state that a Form Based Code (FBC) zoning ordinance is the most effective method of integrating, and regulating, these housing types. Therefore, in order to most effectively plan for the Missing Middle housing typologies explained in this section, the Township should consider using either a Form Based Code overlay zone or a full Form Based Code ordinance in the future.



MissingMiddleHousing.com is powered by Opticos Design. Illustration © 2015 Opticos Design, Inc. 

Image Source: Opticos Design, Inc. MissingMiddleHousing.com

¹ The source of all information for this section comes from MissingMiddleHousing.com

CHAPTER 4. BUILT SYSTEMS

This chapter provides an overview of the roads and infrastructure, utilities, and public services in Grand Haven Charter Township. Each of these areas are vital to the overall operation of the Township and its provision of services for residents, workers, and visitors.

TRANSPORTATION NETWORK

A good transportation network provides multiple ways for people to move around the Township and connect to surrounding communities and the larger region. A transportation network with a variety of transportation options has a number of community benefits. For example, a well designed system of streets can help disperse traffic congestion and ease the load of higher capacity streets. Trails, pathways and sidewalks can support active and healthier lifestyles. Public transit provides people without the ability or means to drive an environmentally friendly and affordable option to access work, school and other community amenities. The transportation network also plays a critical role in determining the nature and intensities of land uses that occur throughout the Township.

ROADS

The road network in Grand Haven Charter Township consists of about 145 miles of paved and unpaved roads that link the outlying areas of the Township (see Table 4.1). The primary and most central thoroughfare is US-31, which runs north and south through the Township. M-45, in the southern portion of the Township, is the primary east and west thoroughfare, connecting the Township with Grand Rapids. The Michigan Department of Transportation recently built a two-lane limited-access roadway (often referred to as “the bypass”) just west of 120th Avenue that will connect M-45 north to the I-96/M-104/112th Avenue interchange near Nunica in Ottawa County. The new 7-mile roadway is designated as “M-231.” The roadway opened in October 2015. Due to the anticipated increase in traffic along this new corridor, it is very likely that areas near the intersections of M-45 and Lincoln Street will face development pressure. In fact, the Planning Commission likely will have an impact study performed on the Lincoln Street area in the coming years.

TRANSPORTATION NETWORK ROAD CLASSIFICATIONS

The Federal Highway Administration classifies roads based on the function they serve using the National Functional Classification system. Map 4.1 on the next page indicates classifications for all public and private roadways in the Township. The following are examples and definitions of those road classifications:

PRINCIPAL ARTERIALS

Principle arterial roads are often state and interstate highway corridors, carrying high traffic volume.

Transportation Network

Public roadways, bridges and other transportation infrastructure are extremely expensive to build and properly maintain. As a result, Township officials (working with the Ottawa County Road Commission, neighboring jurisdictions and MDOT) need to plan investments carefully and in advance of need. On the other hand, unexpected development can place unplanned and uneven demand on road networks. Therefore, it will be important for Township officials to consider the existing condition and capacity of roads as community development projects materialize and land use decisions are made.



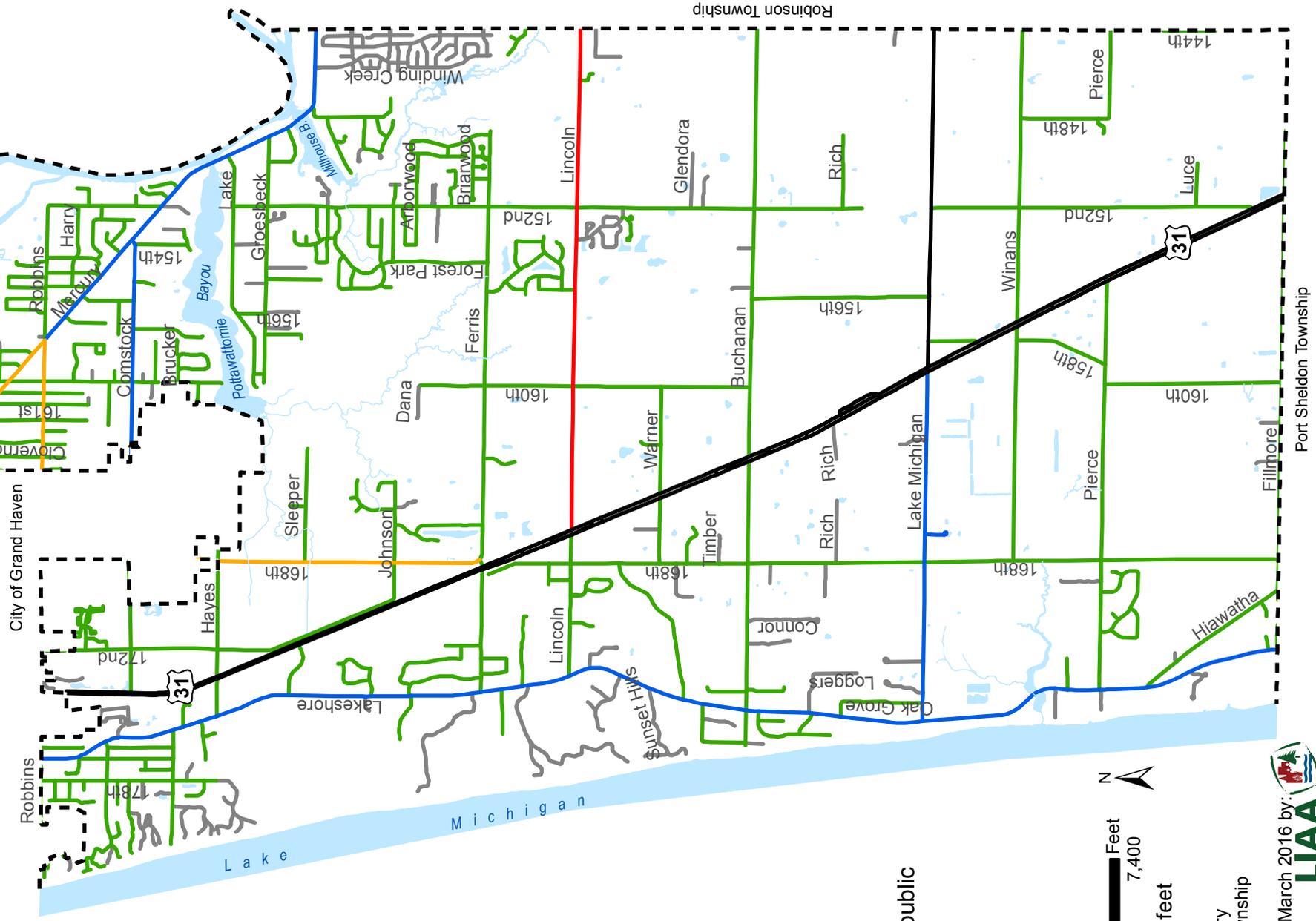
Table 4.1 Miles of Roads, by Type

	Miles
Private Roads (Paved)	24
Private Roads (Unpaved)	4
County Primary Roads (Paved)	23
County Local Roads (Paved)	24
County Local Roads (Unpaved)	19
Public Subdivision Roads (Paved)	40
State Highways	9
Total	143

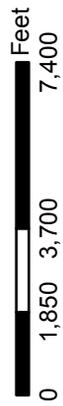
Source: Grand Haven Charter Township



Grand Haven Charter Township Road Classifications Map #4.1



- Other Principal Arterials
- Minor Arterials
- Major Collector
- Minor Collector
- Local
- Not a certified public road



1 inch = 4,400 feet

Data Sources:
Michigan Geo. Data Library
Grand Haven Charter Township
Ottawa County GIS



Prepared March 2016 by:

MINOR ARTERIALS

Minor arterial roads link cities and towns, carrying moderate traffic and providing access to adjacent development.

MAJOR AND MINOR COLLECTORS

Collector roads are designed for short trips, serving developed areas and “collecting” traffic from local roads.

LOCAL ROADS

Local roads include all other public streets. Their function is to provide access to adjacent homes and development and they carry traffic making relatively short trips.

PRIVATE ROADS

Private roads are developed and owned by individuals, developers or home-owner associations; however, their design is regulated by a Township ordinance. Private roads are generally constructed to serve small scale residential developments, and owners and users of these roads must pay for maintenance. Although Grand Haven Charter Township generally discourages the construction of private roads due to high infrastructure costs, private roads have been useful in reducing curb-cuts on major thoroughfares as a means to improve safety.

NON-MOTORIZED TRANSPORTATION

Grand Haven Charter Township is home to over 26 miles of non-motorized pathways and trails that serve as non-motorized transportation routes in the Township. Please see Chapter 5 for a detailed discussion of this Township asset.

PUBLIC TRANSPORTATION

Public transportation needs in Grand Haven Township are met by Harbor Transit. Harbor Transit is a public demand-response transportation system that serves Grand Haven Charter Township, the City of Ferrysburg, the Village of Spring Lake, Spring Lake Township, and the City of Grand Haven. In total, Harbor Transit covers a 55 square-mile service area. In 2015, Harbor Transit operated a fleet of 22 buses, two mini-vans, and two seasonal trolleys. Grand Haven Charter Township contributes the largest share - roughly 32% of the millage monies for the 2016/2017 budget - of the five jurisdictions serviced by Harbor Transit.

Since Harbor Transit’s first full year of service in 2012, ridership within the Township has increased nearly 62%. In addition, the 54,780 rides originating in Grand Haven Charter Township in 2015 accounted for nearly 24% of the total number of rides provided by Harbor Transit. According to Harbor’s Transit’s most recent *Annual Report*, overall ridership was up in all major categories, with the most significant increases coming from those riders 50+ years of age and students.

West Michigan Shoreline Regional Development Commission (WMSRDC)

WMSRDC is the planning agency for the metropolitan transportation planning (MPO) organization for Muskegon and Northern Ottawa Counties. The mission of WMSRDC is to promote and foster regional development through cooperation amongst local governments and other regional partners. They provide services, manage, and administer programs in homeland security, transportation planning, economic development, environmental planning, community development, local government services, and other special projects.

Specifically, WMSRDC and the MPO assist with developing, programming, and implementing transportation projects in the area. The Transportation Improvement Program (TIP) plans for major infrastructure improvements for the next 20 to 25 years. The TIP includes general road improvements, safety, maintenance, transit and non-motorized projects.

Road Conditions

Since 2012, Grand Haven Charter Township has supplemented the work of the Ottawa County Road Commission by resurfacing almost 16 miles of streets, re-graveling about 4 miles of rural roads, and crack sealing 29.5 miles of roadways. Currently, Grand Haven Charter Township has the highest average rating of roadways within Ottawa County.

Resilient Activities - Harbor Transit

In an effort to move toward more environmentally friendly and sustainable practices Harbor Transit has purchased six liquefied petroleum buses and an on-site L.P. fueling station. Harbor Transit also has two L.P. powered trolleys. These help reduce emissions by generating 12% less carbon dioxide, 75% less nitrogen oxide and 42% less carbon monoxide than gasoline buses.



Harbor Transit

According to a recent Harbor Transit user survey, 37.9% of survey responders used Harbor Transit on a daily basis and 22% used Harbor Transit to get to work.

Water Distribution

According to the EPA, the average American family uses 320 gallons of water per day, about 30 percent of which is devoted to outdoor uses. More than half of that outdoor water is used for watering lawns and gardens. Nationwide, landscape irrigation is estimated to account for nearly one-third of all residential water use, totaling nearly 9 billion gallons per day.



UTILITIES AND PUBLIC SERVICES

WATER DISTRIBUTION

All municipal water in the Township is obtained from Lake Michigan and provided by two sources, the North Ottawa Water System (NOWS) and the water treatment plant run by the City of Grand Rapids. All but the lower third of the Township receives their water from the NOWS, which is a joint municipal water system run by the municipalities in the Northwest Ottawa area. The Township has five direct connections to the NOWS water distribution system which can deliver up to 11 million gallons of water per day to the Township.

Water from Lake Michigan is obtained through two submerged intakes. The capacity of the two NOWS intakes is 28 million gallons of water a day while the NOWS water treatment plant has a capacity of about 23.5 million gallons of water a day. In 2015, the system has an average daily use of about 6.5 million gallons of water per day with a maximum daily use of about 16.8 million gallons of water per day. The maximum daily use of water typically occurs in the summer months, as approximately 34 percent of water is used for outdoor uses.

Even at these peak times, the water treatment plant uses only about 71.5 percent of its total capacity. In fact, based on very conservative numbers, local officials believe an additional 6,250 household could be added to the NOWS system before the plant would need to be expanded. The Township's system of water collection lines is shown on Map 4.2 on the next page.

WASTEWATER COLLECTION

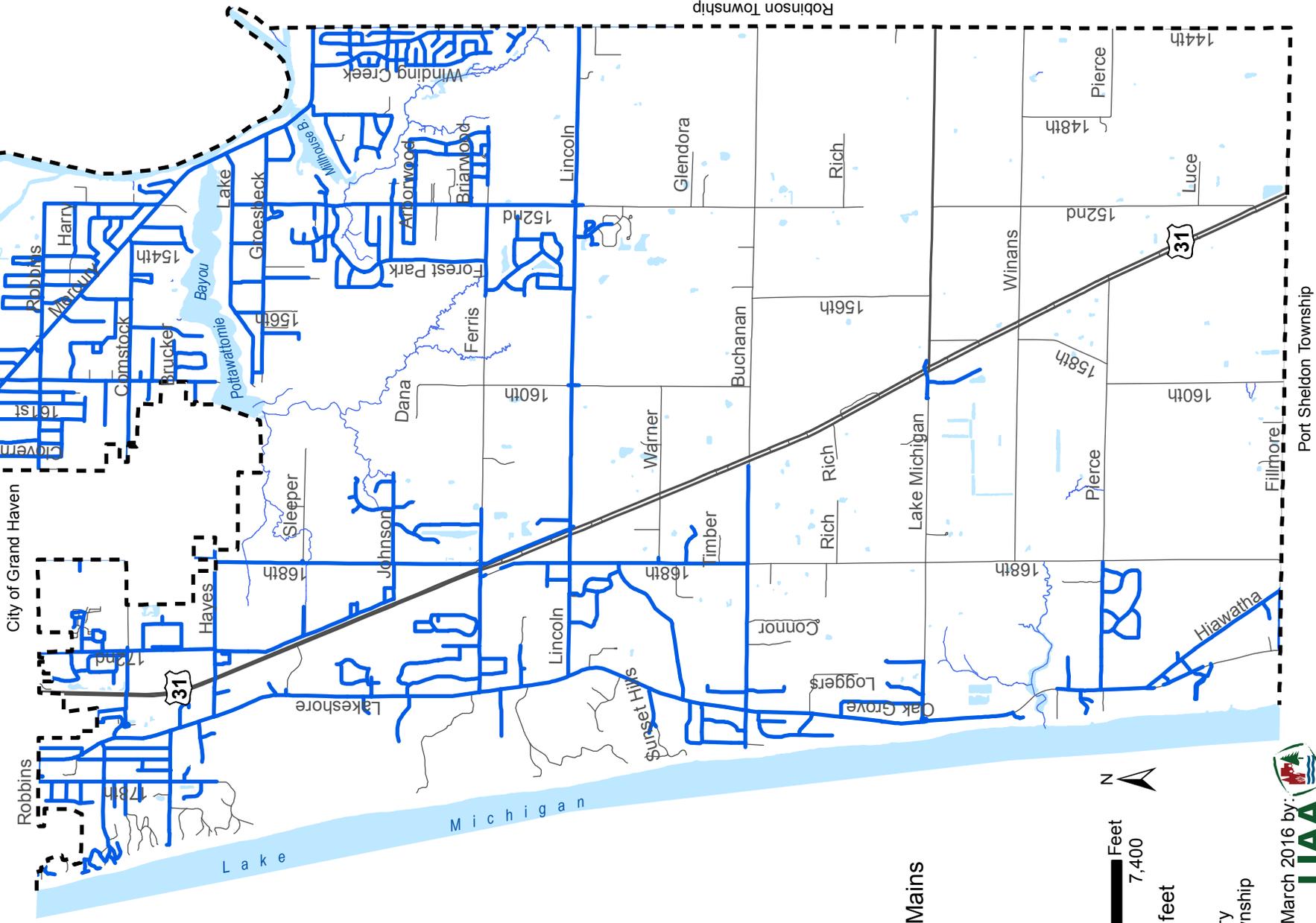
Grand Haven Charter Township's wastewater collection system connects to over 600 homes and businesses. The system includes nearly 26.5 miles of sewer lines, several pumping stations, and 11 lift stations. The total capacity of the wastewater treatment plant that services the Grand Haven and Spring Lake area is 10 million gallons per day. However, the monthly average capacity is about 6.8 million gallons per day.

Although more households and businesses have connected to the system in recent years, because of conservation efforts like installing low-flow fixtures and efforts by the Township to separate their storm-water and sanitary sewer systems, the flow rate per customer has gone down. The sanitary sewer plant is utilizing only about 59 percent of the hydraulic capacity of the plant. Local officials believe the treatment plant could accommodate an additional 1.1 million gallons of waste per day before expansion of the wastewater treatment plant would need to be considered. This equates to roughly 5,500 new households.

In regards to overall capacity issues of the waste water system within the Township, local officials concluded the ability to move waste water from areas within the Township that are growing (e.g., the Lincoln Street and Ferris Street corridors) to the 168th Avenue lift station was limited by capacity of the Hidden Creek lift station. As a result, the Township initiated work on a new Hidden Creek lift station in 2015, which will more efficiently move the current flow (and additional flow from over 200 residential units) to the 168th Avenue lift station. Eventually, the Hidden Creek lift station may be bypassed when the discharge from Hofma Park lift station is pumped to the west side of US-31 and into an existing gravity sewer line in fiscal year 2017 or 2018. The Township's system of wastewater collection lines is shown on Map 4.3.



Grand Haven Charter Township Water Distribution Map #4.2



— Existing Water Mains



0 1,850 3,700 7,400
Feet

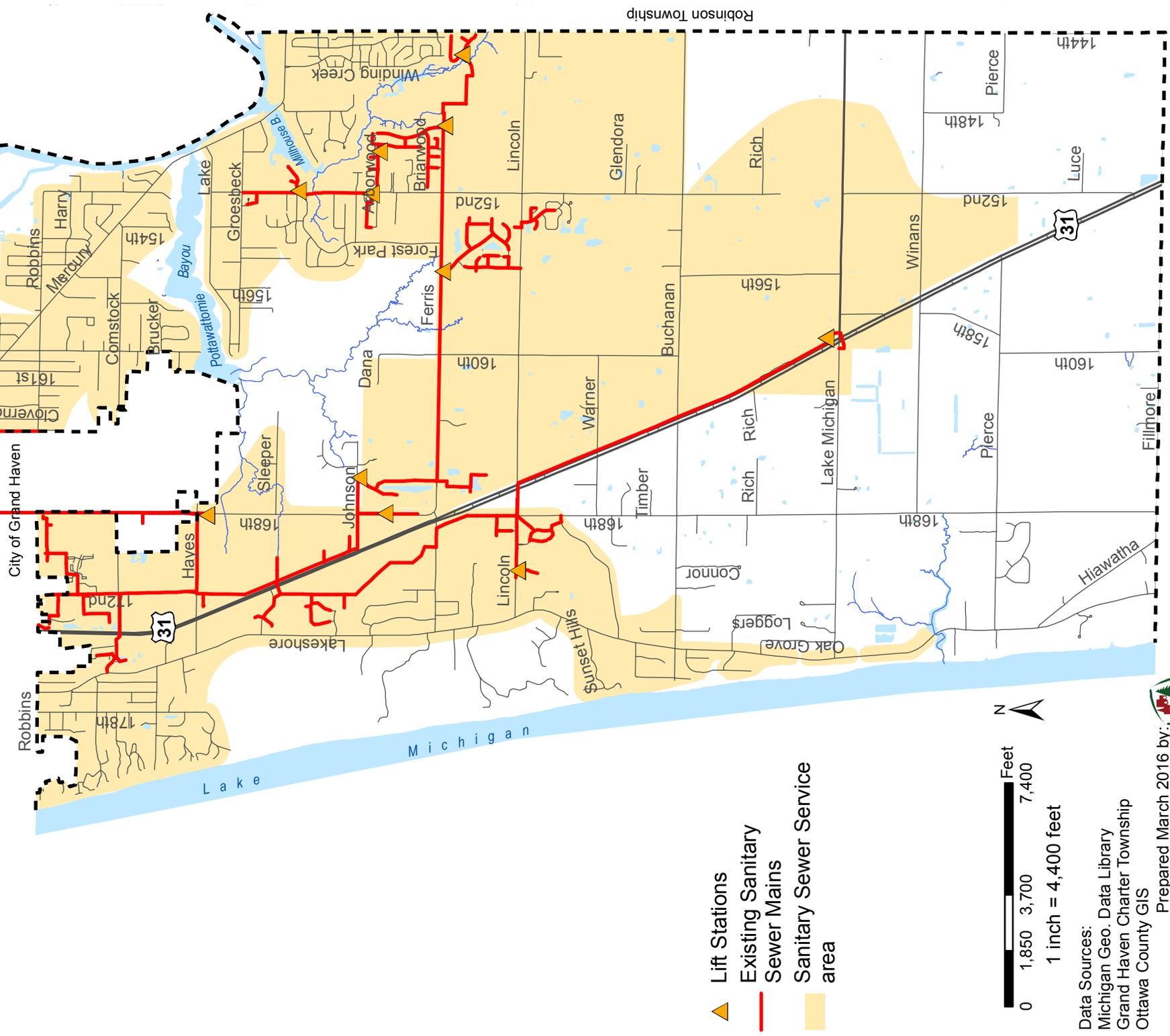
1 inch = 4,400 feet

Data Sources:
Michigan Geo. Data Library
Grand Haven Charter Township
Ottawa County GIS

Prepared March 2016 by:
LIAA



Grand Haven Charter Township Existing Sanitary Sewer System Map #4.3



Prepared March 2016 by:

Port Sheldon Township

ORPHAN DRAINS

There are numerous so-called “orphan drains” throughout Ottawa County. These drains are considered to be “orphans” inasmuch as the drains have never been accepted by a County Drain Commission and public monies cannot be spent to maintain or improve these drains.

Unfortunately many of these drains are found within street right-of-ways and/or provide stormwater management for residential or commercial developments. If there is a future need to maintain or improve the drain, neither the Ottawa County Water Resources Commissioner (OCWRC) nor the Township would be able to complete the work on this segment of this orphan because the drainage course is not public.

To address this issue, the Township has started a multi-year project to identify all orphan drains by comparing county drains records to all subdivision and development plans. Once the orphan drains are identified, the Township will request Board of Reviews on each of the orphan drains in order of importance to bring these orphan drainage systems under the authority of the OCWRC. At that point, Ottawa County would be responsible to maintain the drainage systems and would either assess the maintenance costs at-large solely to the Township, OCRC, and County or, if the project was significant and costly, spread the costs through both at-large assessments to municipal units and assessments to the private property owners.

TOWNSHIP SERVICES

Grand Haven Charter Township is governed by an elected seven-member Board of Trustees. However, under the direction of the Township Manager, daily municipal activities are carried out under six departments and more than 17 service areas. The following is a summarized list of the Township departments and their responsibilities.

1. ADMINISTRATION AND HUMAN RESOURCES DEPARTMENT

The Administration and Human Resources Department oversees the enforcement of all laws and township ordinances, manages all undertakings of the Township; responsible for administrative services that include community development support, elections, and customer service; prepares the annual budget, is responsible for all personnel matters, monitors risk management and liability concerns, and advises the Township Board.

2. ASSESSING DEPARTMENT

The Assessing Department is responsible for determining the assessed value for all real and personal property, processing land division applications and maintaining records.

3. COMMUNITY DEVELOPMENT DEPARTMENT

The Community Development Department is responsible for all building, electrical, mechanical, plumbing permits, inspections, and the processing of all special land use applications, zoning permits, long-term planning, and the Township’s geographic information system.

4. FINANCE DEPARTMENT

The Finance Department is responsible for local tax collection (i.e., the Schools, District Library, Council on Aging, Museum, and County), investments, and all financial transactions for the Township.

Water System Reliability Study

In 2016, the Township completed a Water System Reliability Study. The study established requirements for maintaining public water supply systems for drinking and household purposes. The Michigan Department of Environmental Quality requires this study to be completed at least every 5 years. Based on the three primary components of the water distribution system, the supply (source water through treatment), the water distribution system (pipe), and the storage requirements, the following conclusion could be made:

- The water supply has met the regulations for microbiological, radioactive, inorganic and volatile organic contaminants.
- The existing supply capacity is adequate for 2035 and further into the future. The maximum daily demand in 2015 comprised just 49 percent of the existing meter capacity. Projected through 2035, maximum daily demand may reach up to 61 percent of the existing meter capacity.
- The transmission and distribution system is generally adequate for the community. The Township provides adequate water supply for normal (non-emergency) system conditions and meets emergency supply goals. However, the reliability of the water system would be improved with some transmission system improvements, upsizing of several small diameter distribution mains, and looping of the dead end mains within the system.
- The Township’s goal is to provide fire protection to customer’s equivalent to 1,000 gpm for 3 hours at all locations and 3,500gpm for 3 hours for industrial and commercial customers. Specific distribution and transmission system improvements have been recommended for improved fire protection in some areas of the Township where these suggested thresholds are not met.

Utility Expansion

In order to provide cost-effective services and achieve the community's vision of sustainable growth, this Master Plan identifies a number of policies for the expansion of utility services and infrastructure. In general, the cost of service expansion will be assumed by the new development, although Grand Haven Charter Township will continue to provide maintenance of existing infrastructure. See Goal #3 in Chapter 7 for a detailed discussion of utility service and infrastructure goals.

Fire Protection

The Advanced Life Support (ALS) paramedic's increases survivability of the sick and injured. The Department's cardiac arrest save rate over the last five years was 52%. The national average of cardiac arrest saves is 11%.



5. PUBLIC SERVICES DEPARTMENT

The Public Services Department is responsible for the water distribution system, sanitary sewer collection system, non-motorized pathway system, parks, cemeteries, building and grounds, and information systems management.

6. FIRE/RESCUE DEPARTMENT

The Fire/Rescue Department is responsible for fire suppression, medical first response, technical rescues, and safety training.

FIRE PROTECTION

Fire protection in Grand Haven Charter Township is provided by a robust and skilled Fire/Rescue department that includes 7 full-time firefighters and 23 part-time firefighters.

Township firefighters are equipped with 1 quint (75 foot aerial), 1 engine, 1 tanker, a brush truck, a medical first responder truck and a paramedic rescue truck. The Township's Fire/Rescue Department is considered to be one of the premier departments in Northwest Ottawa County. In addition, because many firefighters are trained Paramedics, it is the only Fire/Rescue Department in West Michigan to operate with an Advanced Life Support Paramedic License.

As with many of the services in the Township, fire protection has seen an increase in demand and usually responds to nearly 1,100 emergencies annually. Fire protection is financed by a 1.9 millage. Because Grand Haven Township has an effective Fire/Rescue Department, Township property owners enjoy lower insurance rates.

EMERGENCY MEDICAL CARE

The nearest hospital to Grand Haven Charter Township is the North Ottawa Community Hospital (NOCH) located in the City of Grand Haven. This medical center is a private non-profit 81-bed acute care facility which is also equipped with an emergency room. Grand Haven Charter Township is also a member of a seven-member community group that contracts NOCH for ambulance services.

LAW ENFORCEMENT

Law enforcement in Grand Haven Charter Township is currently provided by the Michigan State Police and four full-time officers contracted from the Ottawa County Sheriff's Department, one of which is solely dedicated to traffic enforcement. In an effort to bring law enforcement officers closer to the community, the Township made office space available for both the sheriff deputies and a detective. The result has been that officers are more familiar with the Township and are better informed of issues within the Township. According to the 2014 Ottawa County Sheriff's report, 4,773 calls for service were made to the Sheriff department. This marked a 3 percent decrease in the number of calls made to the Sheriff's office in 2013. The Township continues to remain relatively safe as most of the crimes committed were not violent.

SCHOOLS

All of Grand Haven Charter Township is located within the Grand Haven Area Public Schools District. Grand Haven High School and two of the district's elementary schools (i.e. Rosy Mound and Peach Plains Elementary Schools) are located within the Township. The Grand Haven Area Public Schools District is one of the primary reasons why families choose to live in the Township. Grand Haven schools have a proven track record as about 87% of students graduate and scores in the MEAP and ACT are consistently above county and state averages. In addition, about 66% of the graduating seniors go on to some type of college and almost half of the graduating seniors go on to a 4-year college or university.

Schools

66% of the graduating seniors at Grand Haven High School go on to some type of college.



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CHAPTER 5. NATURAL SYSTEMS

Grand Haven Charter Township is fortunate to have some of the most diverse and unique natural environments in Michigan. This chapter summarizes the water and land assets of the Township.

Grand Haven Charter Township is located along the beautiful shores of Lake Michigan, in northwest Ottawa County. The Township is bounded on the north by the City of Grand Haven and Spring Lake Township, on the east by Robinson Township, on the south by Port Sheldon Township, and on the west by Lake Michigan. Because of Lake Michigan and the Grand River, Grand Haven is also home to picturesque sand dunes, wetlands, native vegetation, and rich soils. Diverse elevation changes are present in the Township, as shown on Map 5.1 on the next page.

GRAND HAVEN CHARTER TOWNSHIP'S WATER ASSETS

LAKE MICHIGAN

Grand Haven Charter Township's identity is partially formed around Lake Michigan and the Grand River. Lake Michigan and the Great Lakes are truly one of the most special and unique natural resources on the planet and Grand Haven Charter Township is fortunate to sit right on its doorstep! Home to 21% of the world's supply of surface freshwater and 90% of the United States' supply of surface freshwater, the Great Lakes have been, and continue to be, the foundation of Michigan's DNA and our most defining feature.

Today, the Great Lakes are center stage for the state's tourism industry and the Pure Michigan campaign. In addition, leaders from around the State are working to utilize the Great Lakes to further the "Blue Economy" – an economy where the Great Lakes provide for clean energy, promote sustainable systems, and create new food and mobility systems.

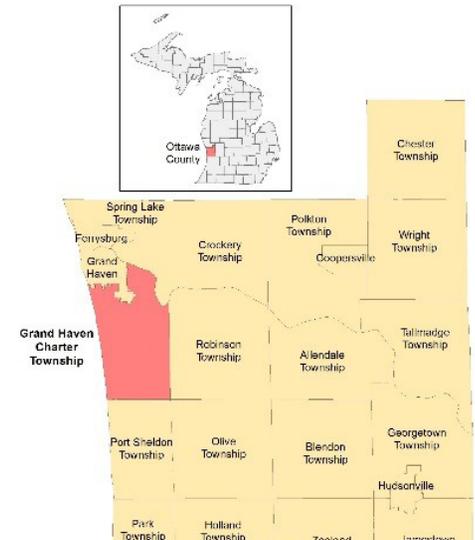
THE GRAND RIVER

The Grand River is Michigan's longest river winding 256 miles from Jackson to Grand Haven, and spans 19 counties with 12 major tributaries. The River forms part of the eastern and northern borders of the Township, before passing through the City of Grand Haven and into Lake Michigan.

Much of the Grand River along the Township is bordered by large riverine wetland areas. These wetlands and bayou areas have helped to limit intense development in close proximity to much of the riverbank within parts of the Township.

The Grand River supported the development of the region by providing a means of conveying logs to sawmills located on the banks of the Grand River. Steamboats ferried finished products between Grand Rapids and Grand Haven. In addition, gypsum, limestone, sand, and gravel were mined from the banks of the Grand River, and

Grand Haven Charter Township



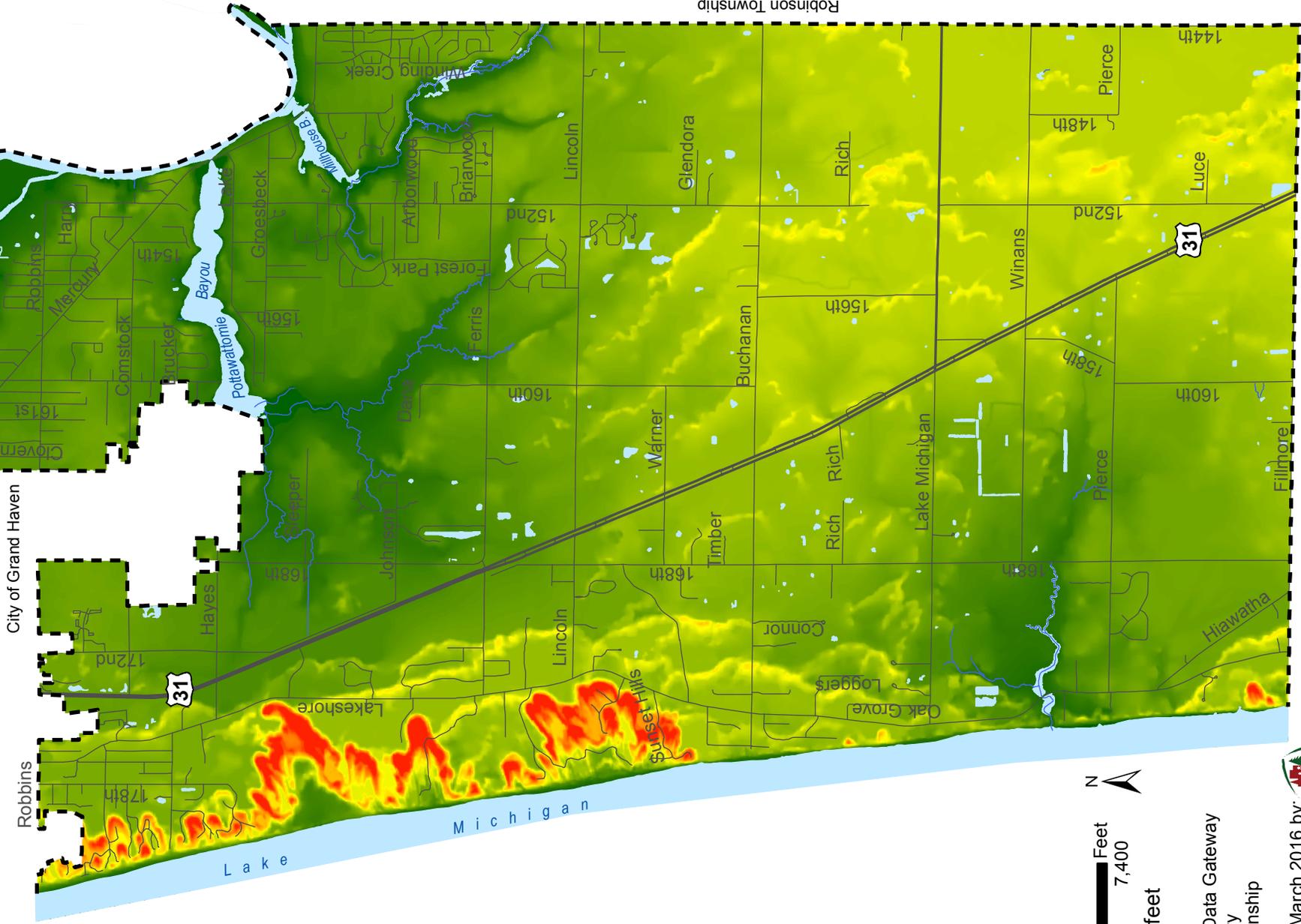
Water Assets

Grand Haven Charter Township is located on Lake Michigan, one of the unique and prominent features on earth.





Grand Haven Charter Township Digital Elevation Model Map #5.1



High : 829.7 ft
Low : 578.4 ft



0 1,850 3,700 7,400
Feet

1 inch = 4,400 feet

Data Sources:
USDA-NRCS Geospatial Data Gateway
Michigan Geo. Data Library
Grand Haven Charter Township
Ottawa County GIS



Prepared March 2016 by:

Port Sheldon Township

Robinson Township

clams were harvested for commercial button production.

Today, the portion of Grand River flowing through Grand Haven still serves Great Lakes shipping, providing coal to the local power plant and shipping sand and aggregate from local businesses to markets elsewhere. However, this economic use of the river requires continued maintenance and, at times, dredging to keep shipping channels open. Further up-stream, the portions of the Grand River along Grand Haven Charter Township are used for recreational activities like boating, paddling and fishing.

In 2011, the Grand Valley Metropolitan Council updated the 2004 Grand River Watershed Management Plan. The Plan is a broad document to build and expand improvement efforts in the watershed, focusing on water quality. The Plan holistically considers the ecosystem of the entire Grand River Watershed as it casts a vision and strategies for the future of the Watershed.

THE GRAND RIVER WATERSHED

The Grand River Watershed covers 5,660 square miles and drains portions of Muskegon, Newaygo, Mecosta, Montcalm, Gratiot, Ottawa, Kent, Ionia, Clinton, Shiawassee, Barry, Eaton, Ingham, Livingston, and Jackson counties. The watershed also includes several major sub-tributaries including the Lower and Upper Grand Rivers, Maple River, and Thornapple River. Local watersheds directly affecting Grand Haven Charter Township are illustrated in Map 5.2 on the next page.

Approximately 53% of the land within the Grand River Watershed is agricultural, 27% is urban, and 20% is forested. Water quality within The Grand River watershed is directly related to the land management practices in the region. For example, if new development creates a large amount of impervious surface (i.e. asphalt) and stormwater is not properly managed on site, the run-off entering into the creek, stream, or river deteriorates water quality and quickens erosion on stream banks.

Since Grand Haven Charter Township lies near the mouth of the Grand River, activities that occur upstream have a significant impact on the quality of the river and riparian areas in the Township. While local officials in Grand Haven Charter Township should continue to work towards improving the water quality of the lower Grand River, this task will require cooperation from numerous upstream stakeholders, including agencies and governmental units.

SAND DUNES

Michigan's dunes are one of the most striking environmental features in the world. Together, they represent the largest freshwater dune ecosystem in the world. The dunes provide unique habitats for rare and endangered species and hold enormous environmental and recreational value. There are about 250,000 acres of sand dunes in Michigan. Of that, the Michigan Department of Environmental Quality classifies 70,000 acres of dunes as Critical Dune Areas (CDAs).

Grand Haven Charter Township has 1,056 acres of Critical Dune, which encompass approximately 6% of the Township's total land area. They are located along nearly the entire Lake Michigan coastline within the Township. The inland extent of the dune areas is quite substantial in the northern portions of the Township. Critical dune areas are illustrated on Map 5.3. For more information on current regulation and maps of Critical

The Grand River

The Grand River supports a wide variety of recreational boating activities.



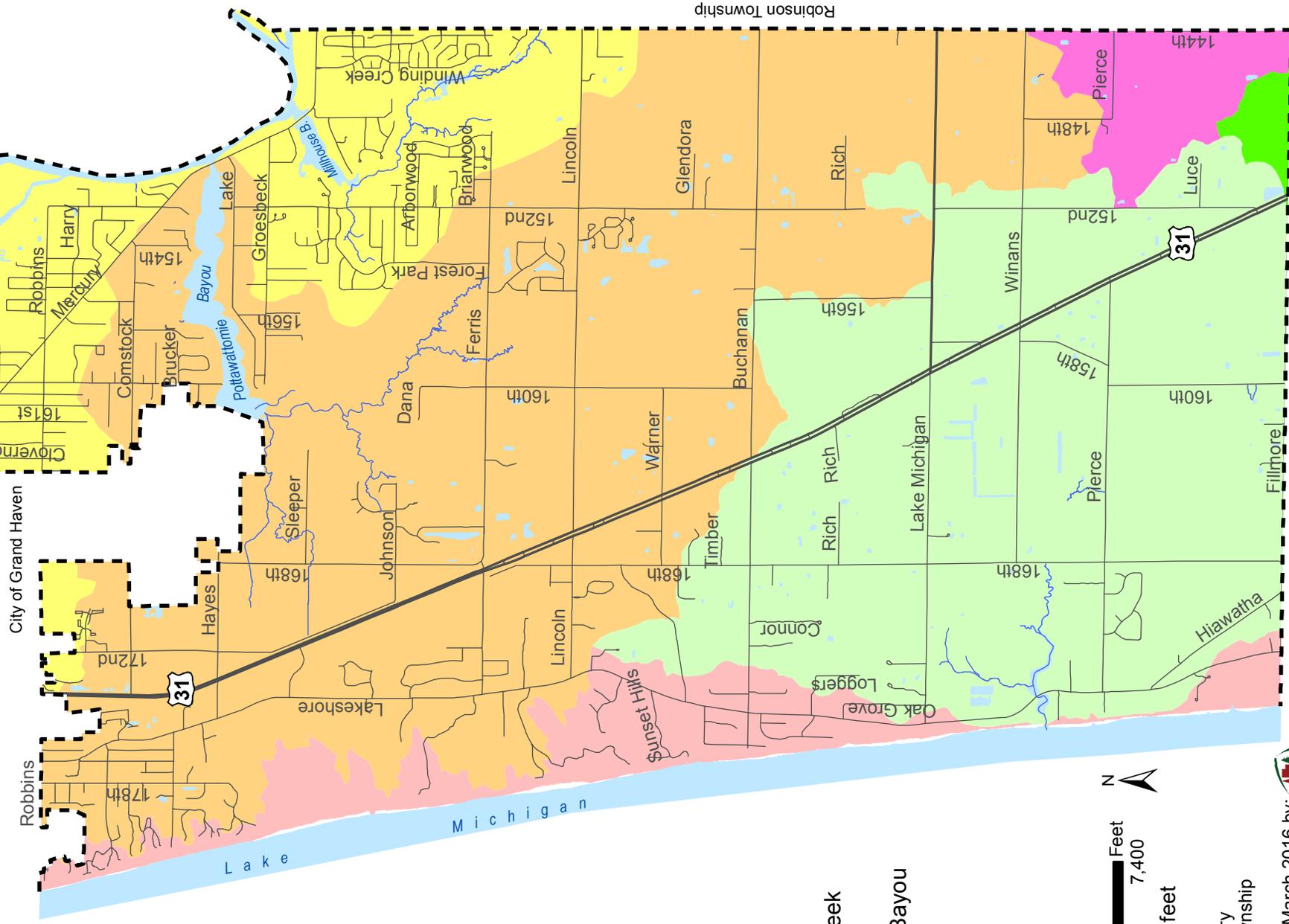
What is a Watershed?

A watershed is a region of land that is drained by a particular river or river system. Typically, these systems include many smaller tributaries such as creeks and streams that feed into a larger river and are influenced by the land's elevation





Grand Haven Charter Township Watersheds Map #5.2



- Bass River
- Grand River
- Lake Drainage
- Little Pigeon Creek
- Pigeon River
- Pottawattomie Bayou



0 1,850 3,700 7,400
Feet

1 inch = 4,400 feet

Data Sources:
Michigan Geo. Data Library
Grand Haven Charter Township
Ottawa County GIS

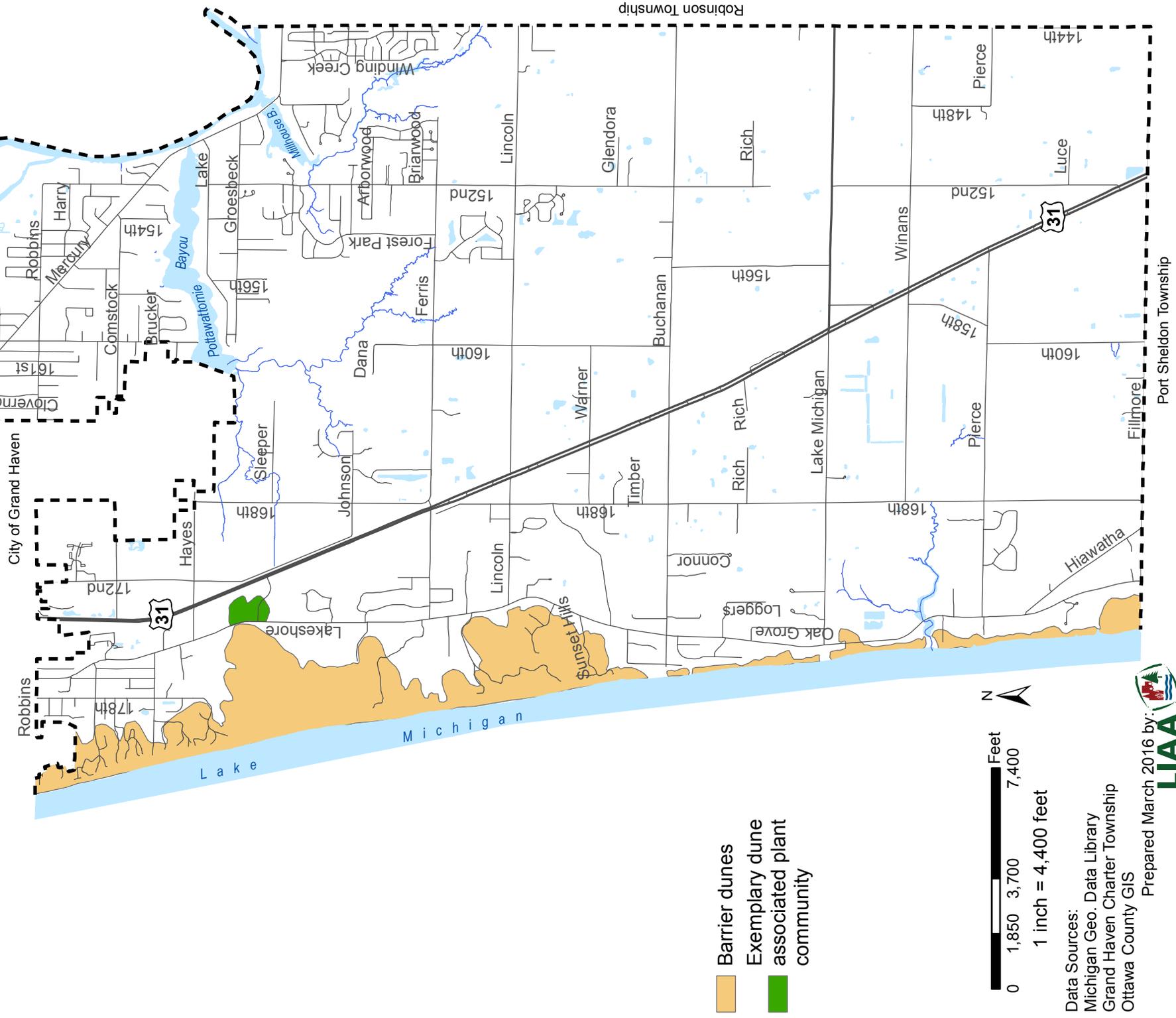


Prepared March 2016 by:

Port Sheldon Township



Grand Haven Charter Township Critical Dunes Map #5.3



- Barrier dunes
- Exemplary dune associated plant community



Data Sources:
Michigan Geo. Data Library
Grand Haven Charter Township
Ottawa County GIS

Prepared March 2016 by:
LIAA

Sand Dunes

Grand Haven Charter Township has 1,056 acres of Critical Dunes



Dunes in Grand Haven Charter Township, please see Chapter 12.

WETLANDS

Wetlands play a critical role in regulating the movement of water within watersheds. Wetlands are also incredible flood absorbers and one acre of wetlands can retain up to one million gallons of water. The water-holding capacity of a specific wetland varies by the size, slope, type of vegetation, location relative to flooding path, and the water levels in the wetland prior to flooding. Coastal wetlands also control the severity of erosion along a shoreline during a storm. Perhaps more than any other environmental asset, wetlands absorb high energy waves and break the flow of currents. Michigan has coastal, tree, and shrub wetlands, each covered by water either all or part of the year.

This diversity of wetlands was misunderstood as European settlement began, and many wetlands were dredged, drained, and converted to serve industry. Today, less than half of the state’s wetlands remain, and in a time of changing climate, the need to conserve and restore wetlands is paramount.

Grand Haven Charter Township contains roughly 3,226 acres of wetlands. Map 5.4 on the next page illustrates the location of wetlands in the Township. For more information and detailed analysis on wetlands regulation and wetland analysis specific to Grand Haven Charter Township, see Chapter 12.

SIGNIFICANT VEGETATION

Natural vegetation, along with other natural features, contributes to the high quality of life and beauty of Grand Haven Charter Township. The areas containing significant vegetation in Grand Haven Charter Township include the Rosy Mound Natural Area, the Hofma Preserve, Kirk Park, and the Hiawatha Forest. Whenever possible, existing mature vegetation should be preserved as development occurs, and additional plantings may be added in selected areas where aesthetics do not meet the standards established elsewhere in the community.

There are currently around 11,160 acres of tree canopy in Grand Haven Charter Township. The Township is committed to preserving this wonderful natural resource in a number of ways. For example, the U.S.-31 and M-45 Overlay Zone protects existing vegetation along these routes. Grand Haven Charter Township’s tree canopy is discussed in both Chapters 12 and 13.

SOIL TYPES

Grand Haven Charter Township contains several different classifications of soils and varying slopes. The majority of the soils with steep slopes are found generally in the northwestern portion of the Township where the sand dunes are located. Overall, the Township contains soils in eight different classifications, which are described below and illustrated on Map 5.5, according to the Soil Survey of Ottawa County.

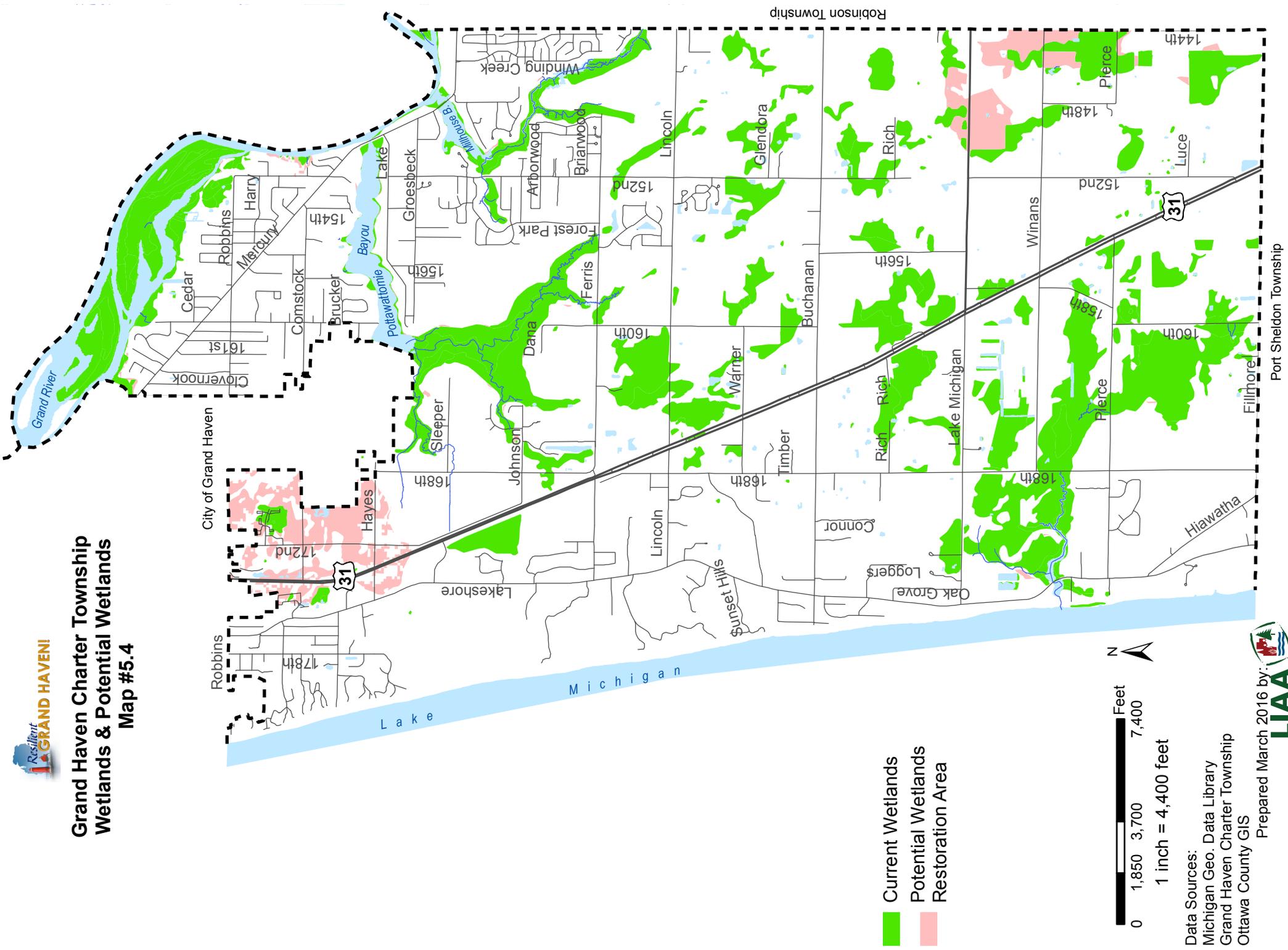
The **Adrian-Houghton** classification consists of very poorly drained soils that occur together as a complex. Available water capacity for both soils is very high and the surface runoff on both soils is very slow or ponded. These soils have a seasonal high water table at or near the surface from November to May. This land can be suitable for celery, onions, carrots, or grain. However, special fertilizers are required to grow crops in this soil

Wetlands

Grand Haven Charter Township has 3,226 acres of wetlands, which account for about 18% of the Township’s total land area.

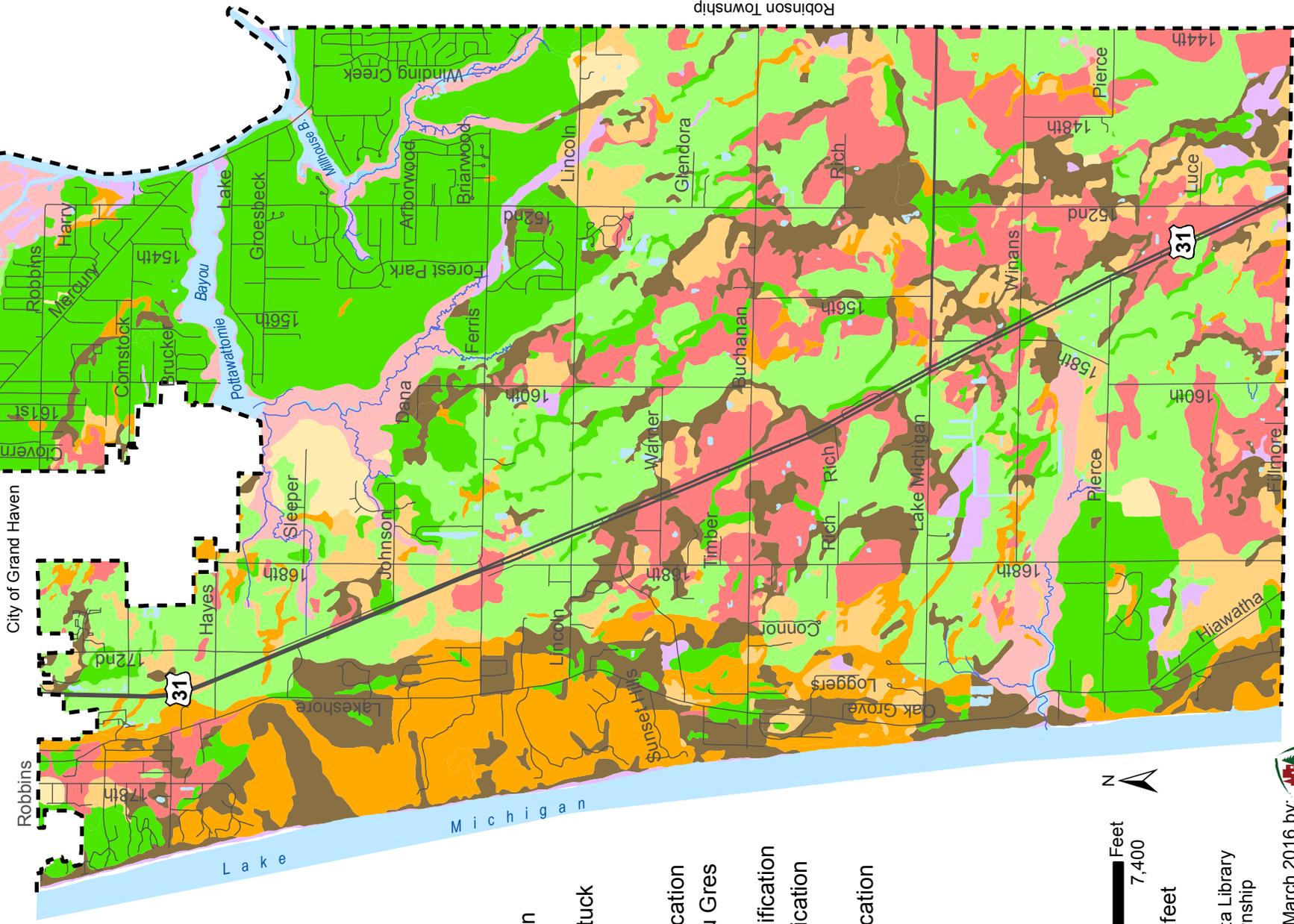


Grand Haven Charter Township Wetlands & Potential Wetlands Map #5.4





Grand Haven Charter Township Soil Classification Map #5.5



- Adrian-Houghton classification
- Au Gres-Saugatuck classification
- Blown-out land
- Chelsea classification
- Crosswell and Au Gres classification
- Deer Park classification
- Grandby classification
- Other
- Rubicon classification
- Water



0 1,850 3,700 7,400
Feet

1 inch = 4,400 feet

Data Sources:
NRCs, Michigan Geo. Data Library
Grand Haven Charter Township
Ottawa County GIS



Prepared March 2016 by:

Port Sheldon Township

type, as this soil type quickly decomposes its organic matter.

The **AuGres-Saugatuck** classification are somewhat poorly drained soils that occur together as a complex. The available water capacity is low and the surface runoff is slow. These soils have a seasonal high water table from 0.5 to 1.5 feet below the surface from December to June. In some areas, this soil can naturally support a variety pine and spruce trees. With specialized fertilizer and supplemental irrigation, soil in this classification support blueberries, melons, strawberries, and cucumbers.

Blown-out land consists of sandy soils that were cleared of their original forest cover and left exposed to the erosive action of water and wind. Some areas have been stabilized, while others are actively eroding. This type of sandy soil can typically support trees, beach grass, and other vegetation hearty enough to withstand erosion.

The **Chelsea** classification is a somewhat excessively drained soil. Permeability is very rapid. Available water capacity is low. Runoff is slow to medium depending on slope. Land in this classification is suitable for hardwood forests.

The **Croswell and AuGres** classification are sandy soils that occur together as a complex. Croswell soils are moderately well drained and AuGres soils are somewhat poorly drained. Permeability is rapid, surface runoff is slow and available water capacity is low. These soils have an apparent seasonal high water table between 0.5 and 5.0 feet from November to May. A limited amount of land in this classification may be suitable for pine tree forestation, though it natively supports grass and sparse trees.

The **Deer Park** classification is described as an excessively drained sandy soil. Permeability is rapid and the available water capacity is low. Surface runoff is slow to rapid, depending upon slope, and the natural fertility is very low. This land is not suitable for farming, but has high recreational and aesthetic value for cottages, parks, and scenic woods.

The **Granby** classification is described as a poorly drained sandy soil. Permeability is rapid and the available water capacity is low. Surface runoff is very slow or ponded. The seasonal high water table is near or above the surface from late fall to early spring. This land is typically forested with low-lying hardwoods as crops in this soil require artificial drainage.

The **Rubicon** classification is described as an excessively drained sandy soil. Permeability is rapid and the available water capacity is very low. Surface runoff is slow and the natural fertility is low. Land in this soil type does not support crops but is useful for recreational facilities, woodland, and wildlife habitat.

MANAGEMENT EFFORTS

The following management efforts are in place to protect and safeguard the resources within the greater Grand Haven Community. The following is not an exhaustive list of environmental management strategies. Rather, selected policies and plans are outlined that have significance to the goals and objectives in Chapter 7.

FLOODPLAIN MANAGEMENT

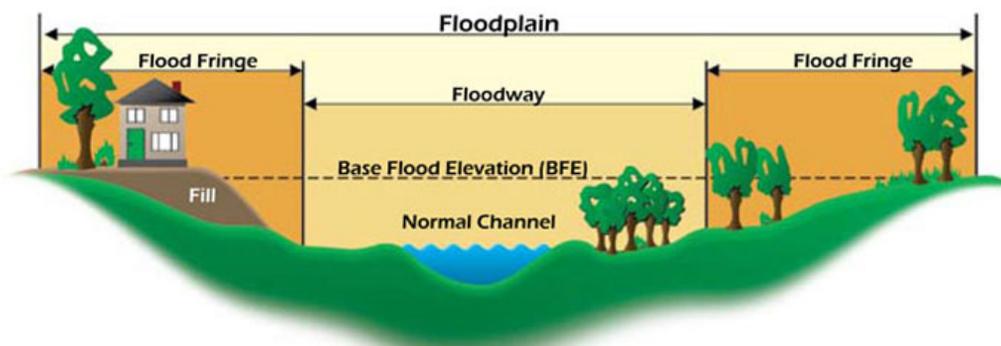
A river, stream, lake, or drain may occasionally overflow its bank and inundate adjacent lands. The land that is inundated by water is defined as a floodplain. Floodplains also serve as water recharge areas and natural

Soil Types and Development Implications

Soil drainage or permeability measures the rate at which water moves through soil and is an important factor when deciding between a septic tank system or another type of on-site wastewater treatment system.

Poorly drained soils, like the Adrian-Houghton and AuGres-Saugatuck classifications, provide challenges for septic systems and do not generally support homes with basements. Whereas septic systems in well drained soils, like the Chelsea and Deer Park classifications may not adequately filter effluent.

Characteristics of a Floodplain



Source: NFIP Guidebook, FEMA

water retention basins during periods of heavy precipitation or spring snow thaws. Development within the 100-year floodplain requires an exhaustive permitting process.

The National Flood Insurance Program (NFIP) is an optional program managed by the Federal Emergency Management Agency where communities can receive flood insurance for disaster relief by agreeing to regulate floodplain development. Most coastal communities participate in the NFIP, including Grand Haven Charter Township.

Flood Insurance Rate Maps (FIRMs) are created and released by the Federal Emergency Management Agency (FEMA), using event-based modeling and lake level elevations determined by a single storm event, for various return periods. It is important to note that individual property owners can petition to change the flood zone

designation for their property, so FIRMs may not be fully scientifically derived.

The FIRMs for Ottawa County, were adopted in 2011 by Grand Haven Charter Township, as seen in Map 5.6 on the next page. For an analysis of properties and environmental features that fall in floodplains based on the FIRMs, see Chapter 12.

PARKS AND RECREATION

Parks, trails and recreation facilities play an integral role in the community. Parks and open space often link natural areas and help improve both water and air quality. Numerous studies have shown that when people have access to parks, they exercise more. This increased level of physical activity can reduce the risks for chronic diseases and help manage mental health. Perhaps most importantly, parks and recreation facilities can help build and strengthen a community and contribute to quality-of-life and sense-of-place.

Grand Haven Charter Township has a number of well-loved parks. In addition, the Township manages several public access sites, providing boaters, paddlers and fisherman access to the Grand River and its bayous. In 2015, the Township Board adopted Explore the Grand Region: A Community Parks and Recreation Plan in Northwest Ottawa County, a new community-wide Parks and Recreation Plan developed in partnership with the City of Grand Haven, the City of Ferrysburg, Spring Lake Township and the Village of Spring Lake. The Plan includes a list and description of each park and recreation facility within the five communities. The Plan also outlines specific goals and objectives for the park and recreation facilities for each participating jurisdiction as well as a number of action statements. See Map 5.7 for the locations of parks and recreational amenities in Grand Haven Charter Township

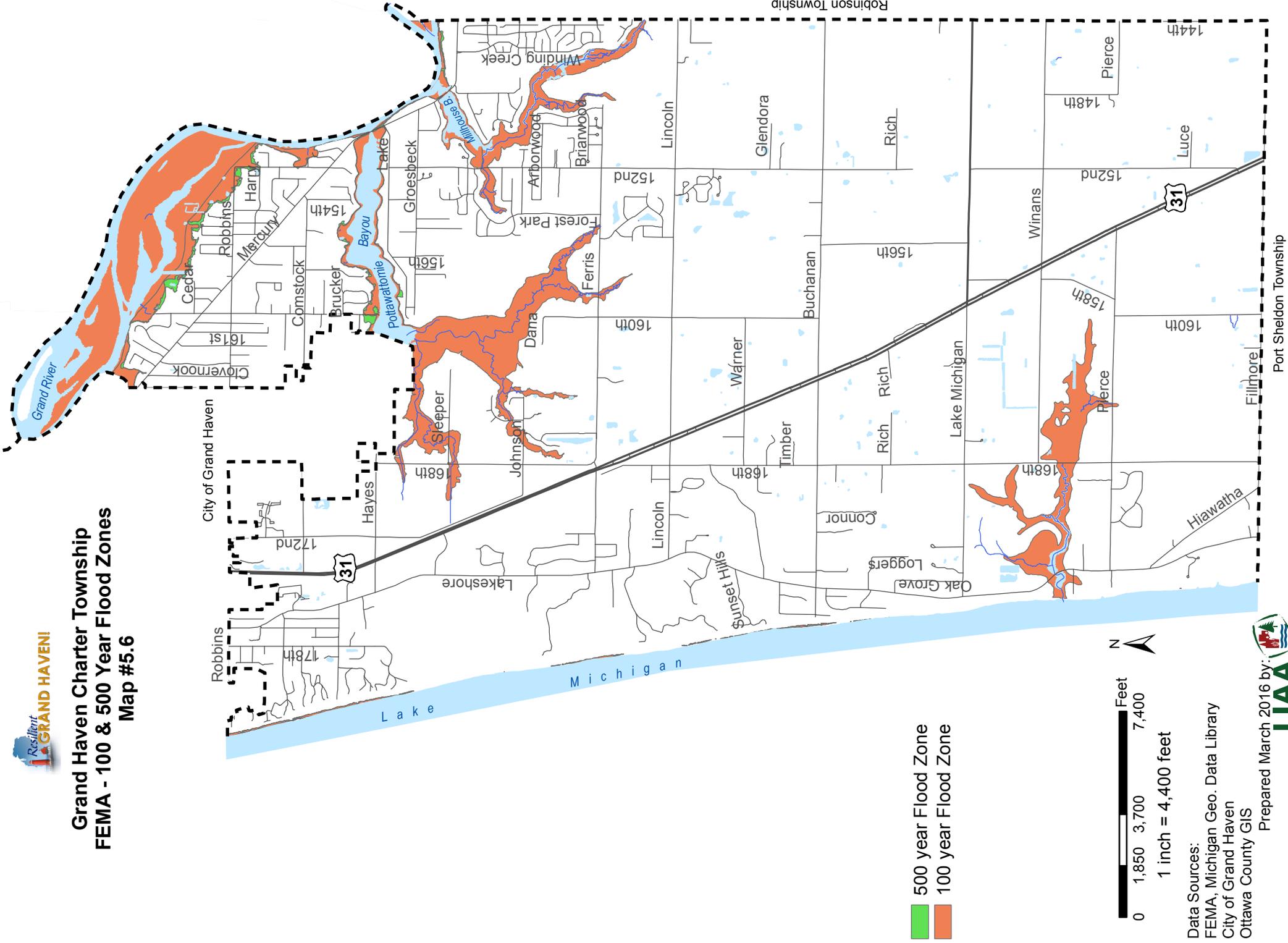
Parks

Hofma Park and Preserve allows visitors an opportunity to enjoy a variety of wetland and upland wooded ecosystems.





Grand Haven Charter Township FEMA - 100 & 500 Year Flood Zones Map #5.6



- 500 year Flood Zone
- 100 year Flood Zone



Data Sources:
FEMA, Michigan Geo. Data Library
City of Grand Haven
Ottawa County GIS

Parks

Pottawattomie Park features a boardwalk and fishing pier.



PARK AND RECREATION AMENITIES

- 152nd Access & Shiawassee Access
Location: 152nd and Shiawassee Drive
Size: 0.25 acres (each)
- Bignell Park
Location: Bignell Drive
Size: 0.5 acres
- Brucker Street and Buchanan Street Access
Location: Brucker St & Buchanan St
Size: 0.5 Acres Each
- Hofma Park and preserve
Location: 15581 Ferris Street (16295 Sleeper St)
Size: 565 Acres
- Mercury Park
Location: 16715 Mercury Drive
Size: 6.71 Acres
- Odawa/Battle Point Boat Launch
Location: 14091 144th Avenue
Size: 2.5 Acres
- Pottawattomie Park
Location: 15600 Comstock Street
Size: 20.83 Acres

Pathways

Over 26 miles of non-motorized trails inter-connect Grand Haven Charter Township.



TRAILS AND NON-MOTORIZED PATHWAY PLANNING

One of the Township’s most treasured assets is certainly its 26.7 miles of non-motorized pathways and trails (as seen on Map 5.7). There are numerous health, environmental, and community-wide benefits associated with non-motorized trails, many more than can be adequately described in this Master Plan. The following list identifies several key benefits of trails:

- **Trails provide physical benefits.** Trails can support both vigorous training and low impact recreation, which makes them a recreational asset that can be used by all skill-levels.¹ This is further supported by the 2016 County Health Rankings, which found Ottawa County ranked number one in Michigan for health outcomes, and second for health factors. Health outcomes are based on weighting the quality and length of life.² Health factor scores are based on health behaviors, physical environment, and social factors among others.

¹ Michigan Trails and Greenway Alliance: MichiganTrails.org

² 2016 County Health Rankings for Ottawa County: <http://www.countyhealthrankings.org/app/michigan/2016/rankings/ottawa/county/outcomes/overall/snapshot>

- **Trails are good for the economy.** Trails attract tourism, and tourists provide direct spending benefits (like souvenirs, and equipment) and indirect spending (a restaurant able to expand to a new location because of increased business) to a community.³ Studies have shown that over half of tourists consider the availability of bicycling and trail opportunities as a strong influencing factor when choosing a vacation destination!⁴ Trails also increase the property values of nearby homes and save homeowner’s money because they do not have to drive to other recreation destinations.⁵
- **Trails also provide psychological benefits.** Contact with the natural world, even for just a few minutes each day, improves psychological well-being, relieves feelings of anxiety, and improves a person’s ability to cope with stress.⁶
- **Trails benefit the environment.** Trails provide opportunities to educate the community about the environment, promote safe corridors for animal and plant migration, and preserve sensitive habitats. Additionally, trails provide an alternative to driving in Michigan’s auto-centric culture. Providing easy access to non-motorized pathways increases a community’s resilience as trails decrease dependence on air-polluting automobiles.⁷
- **Trails provide strong social benefits for a community.** Trails promote a sense of social cohesion and can act as a meeting place for the community.⁸ Trails provide a safe place where children can ride bicycles and play away from fast moving traffic. In fact, in Grand Haven Township, safety concerns were one of the key reasons trails were first constructed. Additionally, studies have found that quality of life is a significant factor when a household is choosing where to live. Participants in one Michigan study listed safe streets as the #1 location factor, walkable streets as #3, and parks as #13.⁹ Trails also encourage new relationships between strangers by providing a place to informally meet those that live or work nearby.

The Township has been committed to developing a strong network of trails in the community. The Township’s Pathway construction program was established in 1990 after voters approved a millage to construct the first 12 miles of pathway. A second phase began in 1998 after voters approved another mileage to construct an additional 11 miles of trail. Since then, another 3 miles of pathways have been added by private developers or the Township’s Downtown Development Authority (DDA). Because of the popularity of the trails and the Township’s commitment to offering recreational opportunities, the Township Board will place another dedicated millage for an additional 10 miles of pathway on the ballot in November 2016.

The Township Department of Public Service is responsible for maintaining the Township’s pathways, including removing snow to ensure the pathways remain open year-round.

Currently, the section of trail along Lakeshore Drive is designated a regional shared use path by the West Michigan Shoreline Regional Development Commission.

³ Michigan Trails and Greenway Alliance: MichiganTrails.org

⁴ Economic Impact of Investments in Bicycle Facilities, 2004. <http://www.americantrails.org/resources/economics/NCouterbanks.html>

⁵ Racca, David P. and Amardeep Dhanju. Property Value and Desirability Effects of Bike Paths Adjacent to Residential Areas, 2006. Delaware Center for Transportation and the State of Delaware Department of Transportation. <https://www.railstotrails.org/resourcehandler.ashx?id=4482>

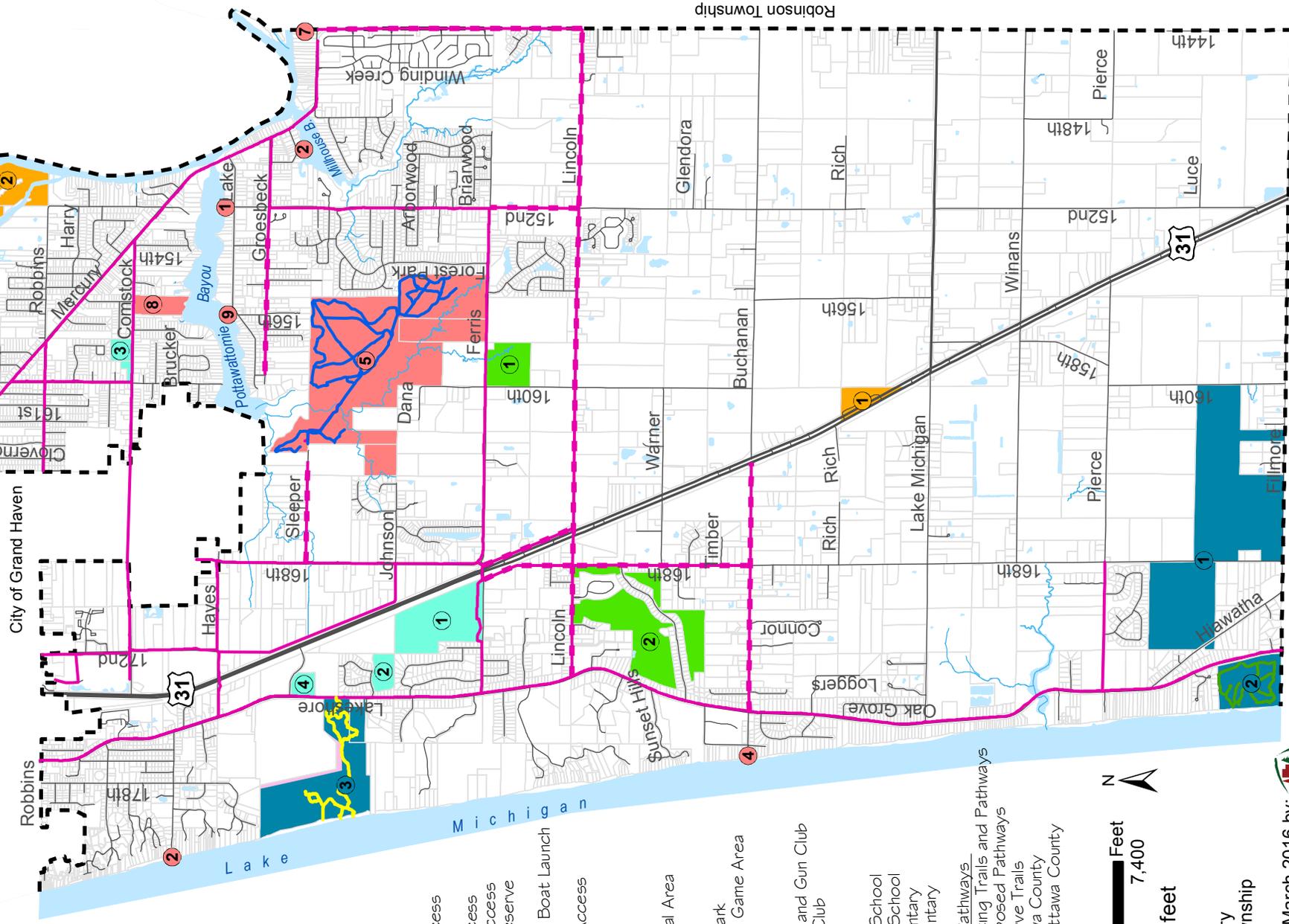
⁶ Health Promot. Int. (March 2006) 21(1): 45-54.doi: 10.1093/heapro/dai032First published online: December 22, 2005

⁷ <http://www.americantrails.org/resources/wildlife/>

⁸ Go For Green: The Social, Health, and Heritage Benefits of Trails. <http://atfiles.org/files/pdf/BenGo4green.pdf>

⁹ Michigan Cool Cities Initiative as cited by the NGA Center for Best Practices. <http://www.nga.org/files/live/sites/NGA/files/pdf/0510ACTIVEIVINGMI.PDF>

Grand Haven Charter Township Parks and Trails Map #5.7



- **Local Parks**
 - 1 - 152nd Avenue Access
 - 2 - Bignell Park
 - 3 - Brucker Street Access
 - 4 - Buchanan Street Access
 - 5 - Hofna Park and Preserve
 - 6 - Mercury Park
 - 7 - Odawa/Battle Point Boat Launch
 - 8 - Pottawattamie Park
 - 9 - Shawassee Drive Access
- **County Parks**
 - 1 - Hiawatha Forest
 - 2 - Kirk Park
 - 3 - Rosy Mound Natural Area
- **State**
 - 1 - Agnew Roadside Park
 - 2 - Grand Haven State Game Area
- **Private**
 - 1 - North Ottawa Rod and Gun Club
 - 2 - Grand Haven Golf Club
- **Schools**
 - 1 - Grand Haven High School
 - 2 - Lakeshore Baptist School
 - 3 - Peach Plains Elementary
 - 4 - Rosy Mound Elementary
- Non-Motorized Trails/Pathways**
 - Grand Haven Twp Existing Trails and Pathways
 - Grand Haven Twp Proposed Pathways
 - Hofna Park and Preserve Trails
 - Kirk Park Trails - Ottawa County
 - Rosy Mound Trails - Ottawa County



Data Sources:
Michigan Geo. Data Library
Grand Haven Charter Township
Ottawa County GIS

CHAPTER 6. ECONOMY

The following chapter provides a summary and analysis of the Township’s economic conditions. Understanding the economic profile of Grand Haven Charter Township helps inform and shape land use and development in the future. It can also highlight opportunities for public and private investment. This chapter will discuss the types of businesses, wages, employment, and other data relevant to the economic growth of Grand Haven Charter Township.¹

REGIONAL ECONOMIC OVERVIEW

According to the Upjohn Institute’s June 2015 Business Outlook report, the six Metropolitan Areas that make up West Michigan have overall seen job growth in manufacturing, construction, and most goods and service producing industries since 2014. It is unclear if job growth is a result of the economy rebounding from the Great Recession, or if other competitive advantages are driving changes in the West Michigan economy.

The U.S. Bureau of Labor Statistics provides information on the employment and wages for the Holland-Grand Haven Metropolitan Statistical Area (MSA). This data is only comparable through 2014, because the MSA boundaries have been expanded. Table 6.1 shows the Holland-Grand Haven MSA has continued to grow in terms of employment and jobs from 2010 to 2014.

Table 6.1 Holland-Grand Haven MSA Economic Overview, 2010 to 2014

	2010	2011	2012	2013	2014
Total Employment	98,600	100,000	102,770	105,430	113,270
Average Hourly Wage	\$ 18.67	\$ 18.83	\$ 18.63	\$ 19.26	\$ 19.58
Average Annual Wage	\$ 38,840	\$ 39,160	\$ 38,750	\$ 40,070	\$ 40,720

Source: Bureau of Labor Statistics

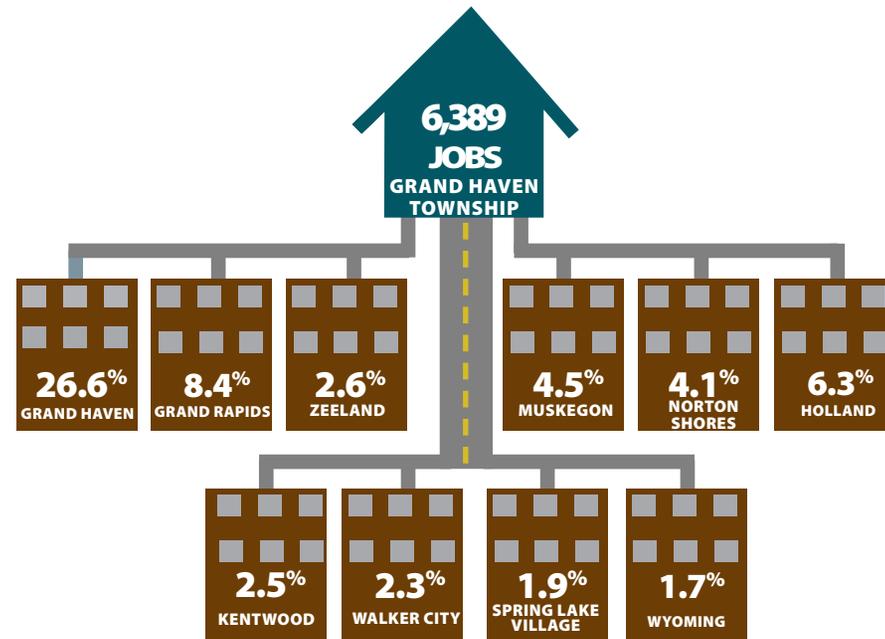
COMMUTE PATTERNS

Grand Haven Charter Township residents held 6,389 primary jobs in 2013.² The graphic in Figure 6.1 on the next page shows the most common locations, outside of the Township, that job holders travel to for work. About 26% (1,698) of Grand Haven Charter Township’s workers commuted to the City of Grand Haven. 8.4% (538) worked in Grand Rapids, and fewer numbers worked in the City of Holland, Muskegon, and Spring Lake Township. About 10% (629) worked in Grand Haven Charter Township (not shown on Figure 6.1). The remaining

¹ It is important to note the sources listed below all collect data in slightly different ways. As much as possible, large discrepancies are avoided by using only one reliable source for each topic presented in this chapter. Each data source was carefully chosen to provide an overall, well-rounded look at the economic condition of Grand Haven Charter Township, and small discrepancies may exist.

² 2013 Longitudinal Employer-Household Dynamics by the U.S. Census Bureau

Figure 6.1 Where Do Township Residents Work?



Source: U.S. Census (On The Map Tool, 2013 Commuting Data), American Community Survey, (Commuting Modes, 2009-2013)

Figure 6.2 How Do Township Residents Commute?



jobs are held in smaller numbers in various places throughout the State. It is clear from Figure 6.1 that a large percentage of employees living in the Township work nearby. This is reflected in a low commute time of 23 minutes for Grand Haven Charter Township residents.³

Figure 6.2 on the left shows the way Township residents commute to work. While majority of residents drive alone, many residents choose to carpool (7.6%). Fewer residents walk (1.2%) or take public transit (.4%) to work.

INDUSTRIES IN GRAND HAVEN TOWNSHIP

The Grand Haven Chamber of Commerce produces annual reports showing the largest employers in the area. The top employers in the region in 2014 are shown in Table 6.2 on the next page.

A location quotient represents the share of jobs an occupation has in the regional economy, compared to the United States economy overall. In other words, if an industry’s location quotient is above 1.00, this industry is more represented in the Grand Haven regional economy than it is in the United States as a whole. The industries in Table 6.3 have a high location quotient, meaning the Grand Haven region specializes in producing

³ American Community Survey, 2009-2013 5-year estimates for Grand Haven Charter Township

Table 6.2 Top Employers in the Grand Haven Region, 2014

Employer	Number of Full Time Equivalent Employees
Shape Corporation	1,500
Herman Miller	1,300
Grand Haven Area Public Schools	766
North Ottawa Community Health Systems	478
GHSP	387
Automatic Spring Products	315
Casting Technology Company	270
Meijer	250
West Michigan Molding	250
Engine Power Componentes	188
Brilliance Publishing	153

Source: Grand Haven Chamber of Commerce, 2014

those products or services, is more inclined to attract these industries, and likely has a competitive edge in these areas. The third column in Table 6.3 shows the percent increase in employment from 2010 to 2014. It is unknown whether this increase in employment is evidence of rebound from the economic recession, new job creation, or a mix of both.

Table 6.3 Industries with High Location Quotients in 2014

Industry	2014 Location Quotient	% Increase in Employment, 2010 to 2014
Production Occupations	2.94	30.6
Architecture and Engineering	2.42	36.5
Building Grounds, Cleaning and Maintenance	1.44	22.7
Transportation and Material moving	1.24	2.7
Installation, Maintenance, Repair	1.05	30.3
Healthcare Support Operations	1.01	36.3

Source: Bureau of Labor Statistics

Manufacturing in Grand Haven Township

The Township is home to a number of manufacturing business, that provide vital jobs to residents throughout the Township and region. Grand Haven Township's 2015-2018 Strategic Plan cites manufacturing as the most important wealth creating business in the community, providing 29%, or 30,000, of the region's jobs. Manufacturing provides opportunity in what is referred to as the "secondary" job market, where raw materials are made into products like steel.



Agriculture in Grand Haven Township

Ottawa County ranks second in the State of Michigan and 98 in the United States overall for agricultural production. Agricultural land provides aesthetic value cherished by many in the Township, but also provides a strong economic foundation for the Township and the region. Agriculture provides what is referred to as “primary” jobs, where natural resources are mined and produced, causing a chain reaction in the local economy of “secondary” jobs (manufacturing), and “tertiary” jobs (service sector).



AGRICULTURE IN GRAND HAVEN TOWNSHIP

The Township also has a strong agricultural economy, as shown in Table 6.4. Ottawa County is home to 1.9% of the State’s farmland, but comprises 6.3% of the State’s total market value of agricultural products. The Township is leveraging its agricultural assets for continued growth, and between 2007 and 2015, the amount of land used for agricultural purposes in the Township increased by 181 acres.

Table 6.4 Agriculture Overview, 2012

	Ottawa County	Michigan Total	Ottawa County as a % of Michigan Total
Total Farmland (Acres)	186,154	9,948,564	1.9
Number of Farms	1,363	52,194	2.6
Estimated Market Value of Land and Buildings (in thousands of dollars)	1,202,183	39,993,227	3.0
Market Value of Agricultural Products (thousands of dollars)	543,405	8,678,050	6.3
Number of Cattle and Calves in Inventory	40,910	1,130,477	3.6
Number of Hogs and Pigs in Inventory	37,041	681,128	5.4
Number of Broilers and other Meat-type Chickens Sold	1,985,020	5,737,416	34.6
Corn for Silage or Green Chops (Acres)	15,566	309,709	5.0
Land in Orchards (Acres)	4,648	111,372	4.2

Source: Census of Agriculture, 2012

CHAPTER 7. GOALS AND OBJECTIVES

The primary function of the *Resilient Grand Haven Charter Township Master Plan* is to guide future development and growth within the Township. The Master Plan identifies a vision for the future and a series of goals and objectives to guide decision making. The goals and objectives in this chapter of the Master Plan provide guidance for the future planning of the Township, and are based on the input gathered during the Resilient Grand Haven planning process, discussions with the Grand Haven Charter Township Planning Commission, and previous community planning efforts.

Goals provide statements that describe the desired future for the Township and provide general direction for local decision makers. Objectives are more detailed descriptions of actions needed to achieve the goals. The following pages identify the goals and accompanying objectives of the *Resilient Grand Haven Charter Township Master Plan*.

Goal 1: The Township will preserve valuable natural resources, and the shorelines along Lake Michigan and the Grand River. These natural assets provide a cultural identity and add economic value to the community.

1. The sensitive natural resources that distinguish the Grand Haven landscape will be identified and protected, which include but are not limited to: wetlands, critical dunes, high risk erosion, floodplains, and water resources.
2. Develop and implement shoreline protection standards such as riparian buffers, erosion protection with native vegetation plantings, and low-impact development.
3. Limit the amount of impermeable surface with all new development to minimize surface runoff and maintain infiltration.
4. The Township will take thoughtful measures to ensure residents will have long-term sustainable water sources.
5. Develop best management practices to prevent the introduction, and spread, of invasive species and diseases transmitted by flora and fauna.
6. Encourage forest stewardship practices through public education.

Goal 2: The preservation and enhancement of natural features of the community will be a central consideration in all civic decisions in Grand Haven Township. Buildings and infrastructure will be planned, constructed and maintained to protect and improve the quality of the natural environment while serving the needs of the population and allowing residents and visitors appropriate access to enjoy natural features.

1. Develop a green infrastructure plan to enhance and sustain the network of natural features.
2. Preserve the viewsheds of Lake Michigan, the Grand River, and the bayous by minimizing encroachment into riparian areas, floodplains, and steep slope areas within the Township.
3. Recognizing the importance and value of tree coverage the Township will evaluate the need and feasibility of implementing a tree planting policy.

4. Incorporate the use of renewable energy whenever feasible.
5. Support the goals and objectives of the Explore the Grand Region: A Community Parks and Recreation Plan in Northwest Ottawa County, 2015 – 2019.

Goal 3: Discourage the inappropriate and unplanned use of land through sporadic and isolated land divisions. Encourage carefully planned developments that are responsive to market demands.

1. Support a Township land use policy that results in a well-balanced, but diverse pattern of land uses that incorporates sustainable growth principles.
2. Establish ordinances to achieve the targeted growth areas defined in the 2009 Master Plan.
 - a. Land east of US-31 – new residential development should generally be limited to the north side of Lincoln Street. However, the Township may consider future residential Planned Unit Developments or Cluster Developments along the immediate southern edge of Lincoln Street in limited circumstances. Such as, the proposed development would fulfill a unique housing niche (i.e., affordable housing, senior housing, assisted living, PUD with a crop and livestock theme, etc.).
 - b. Land west of US-31 – limit new residential development to land north of Buchanan Street.
 - c. Limit future commercial and industrial development along US-31 and M-45 to those areas that are currently served, or are planned to be served, by municipal water and sewer. The costs associated with any utility extensions must be assumed by the developer.
 - d. Limit new development to land that is supported by existing infrastructure and paved roads. All proposed developments within 2,700 feet of municipal water or sewer must bear all costs to extend the infrastructure services.
3. Preserve the local character of the Township by implementing development regulations to protect the rural character, thriving agricultural operations, and successful agri-businesses, which include roadside stands and farmers markets.
4. Refine and enhance the Planned Unit Development (PUD) and Cluster Development Ordinances to ensure that residential developments are designed to promote the goals of clustered residential development, the preservation of large tracts of contiguous open space, and the preservation of development buffers along external county roads.
5. Support an amendment of the PUD ordinance that permits residential crops and livestock as the main theme of the new development.

Goal 4: Support multiple housing options and mixed-use developments for all segments of the population that place users near daily services.

1. Support the development of diverse housing types to expand choices available to current, and new, Township residents.
2. Examine the need, and viability, of increasing densities in certain segments of the Township.
3. Support and encourage senior housing and assisted living facilities (i.e., aging in place).

Goal 5: Grand Haven’s public facilities, including its roads, utilities, parks, and public buildings will be carefully planned, constructed and maintained to efficiently serve the needs of current and future generations.

Goal 6: Residents and visitors to the greater Grand Haven community will have safe and convenient access by way of non-motorized pathway system, private automobiles, and public transportation.

1. Expand the Township’s pathway system to promote the health and safety of residents and visitors.
2. Investigate the potential impacts of the new M-231 bypass on future development, traffic, and infrastructure in the Township.
3. Develop a best practices access management plan with OCRC and Ottawa County Planning Commission. This plan will strive to reduce traffic volumes; correct unacceptable traffic conditions; address safety concerns on major thoroughfares; and develop street design standards.
4. Coordinate current and future development projects with the Ottawa County Road Commission (OCRC).
5. Support efforts to increase access to a regional transit system. This includes supporting the goals and objectives of Harbor Transit’s strategic plan.

Goal 7: Grand Haven Township will continue to be a vital economic center that includes a balance of clean manufacturing, professional and personal service, the arts, hospitality, retail, commercial, and institutional employment.

1. Research the viability of incorporating an incentive-based development plan for all land uses, including energy efficiency and brownfield redevelopment.
2. Support the manufacturing sector in the Township by promoting existing opportunities and encouraging future growth.
3. Support the expansion, and improved access, to high-speed and reliable wireless broadband service.

Goal 8: Grand Haven Township will be a leader in working with other units of government, state agencies, schools, and special authorities to manage growth and service delivery to the residents and businesses of the area in the most efficient and transparent manner possible.

1. Coordinate planning efforts with surrounding municipalities for well-planned and cooperative communities.
2. Cooperate with other area communities in the evaluation and implementation of any feasible joint approach to service delivery.
3. Consolidate separate community initiatives into a common vision, which results in sound community building, promotes leadership, engages volunteers, and involves students.
4. Complete an evaluation of Township buildings and facilities to identify improvements to reduce energy consumption and stormwater runoff and implement those that prove feasible.
5. Partner with the Tri-Cities to create a marketing and branding strategy for the community.

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CHAPTER 8. EXISTING LAND USES

This chapter discusses the current development patterns and existing land uses in the Township. The characteristics of land in Grand Haven Charter Township and the way people use land, have changed over time. Trees have grown and matured in areas that were once open fields. Lands that were once cultivated as farmlands have become shrub-covered fields or new housing developments. The current land development patterns reflect the Township’s development history and help inform the existing land use classifications discussed at the end of this chapter.

CURRENT LAND DEVELOPMENT PATTERNS

The term “land development” refers to the conversion of land for the purposes of residential, commercial, industrial or other such uses. Land development can be described by the amount of land per type of use in an area, as well as by the characteristics of development (e.g. residential density). The process of developing land can have intermediate impacts that result in a variety of other changes to the physical environment. These impacts can potentially include the loss of sensitive habitats and wetlands, degradation of water quality due to increased runoff, and the loss of agricultural lands and open spaces.

Historically, development patterns in the Township were dictated by the layout and location of existing roads, which generally followed section lines and natural features such as the river and bayous. This created a land use pattern of individual homes that directly fronted onto main roads, or small scale residential neighborhoods that were located near main roads. Large plots of agricultural lands and open spaces were maintained behind these “strips” of roadside residential development.

The Township recognized this development pattern was causing safety hazards for residents. The growing population of the Township was leading to more driveways being accessed from heavily traveled public roadways that typically have a 45 – 55 mph speed limit. In 2011, the Township adopted an ordinance to directly address this issue. This ordinance requires any lot that abuts, and is accessed from, a public street (which are classified as State Trunkline, County Primary, or County Local by the Ottawa County Road Commission) shall have the minimum lot width doubled (e.g., R-1 increases from 100 feet to 200 feet). Furthermore, the Township requires properties located on corner lots to obtain driveway access from the lesser traveled of the two roads. These two provisions have made great strides in reducing the number of driveways on public roadways, and improving the safety of residents traveling in the Township.

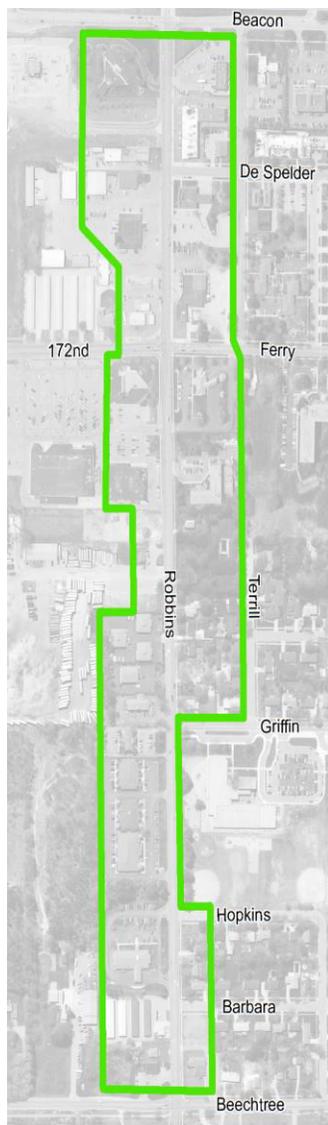
However, over the past twenty years the high rate of growth in the community has led to land development that has forever changed the landscape. Urban growth has pushed outward from the cities of Grand Haven (immediately north) and Holland (12 miles south) into adjacent Townships. As the Township grows, it is taking steps to protect existing agriculture land in the face of development pressure. Notably, as the Township has

Township Land Uses



Robbins Road Sub-Area Plan

The Robbins Road Corridor planning process covered the study area shown below and included several walking tours and design charrettes.



grown, open and undeveloped land has been used for development, leaving the agricultural land, and its aesthetic rural character of the Township intact. This is clear in the different types of land uses that can be identified as “patterns” when looking at the Existing Land Use Map (Map 8.1 on the next page).

Medium to high density residential development, which accounts for the majority of residential development within the past 20-30 years, is generally located in two main “regions” of the Township. It is found in the northeast quadrant, which includes large subdivisions such as Forest Park, Grand Oak, Forest Park East, and Dermshire Forest. The River Haven Village manufactured home park is also located in this region. The second “region” of residential development is along the lakeshore the full length of the Township. This development is primarily single family and includes some of the older, more established residential areas and neighborhoods.

Given the importance of good highway access, the majority of the Township’s commercial and industrial development is located along or near US-31 and M-45. However, Grand Haven Charter Township is different than many other communities traversed by major highways, such as Holland and Muskegon, in that the amount of land currently used or zoned for commercial development is comparatively limited.

SOUTHWEST QUADRANT SUB-AREA PLAN

In 2004, Grand Haven Charter Township adopted the Southwest Quadrant Sub-Area Plan as an amendment to the 1996 Master Plan. It covered the area south of Buchanan Street and west of US-31. This plan was created as a direct result of the development pressure that was occurring in this region (e.g. the proposed 80 acre Lakeshore Woods PUD residential development on Pierce Street).

The 2004 update included many goals and recommendations to help guide decisions about anticipated growth in the still-rural southwest quadrant of the community. Specifically, the plan recommended that many properties greater than 10 acres be “downzoned” as a way to delay development until appropriate infrastructure was in place to support higher densities. The Future Land Use Map in Chapter 9 reinforces the Southwest Quadrant Sub-Area Plan by continuing to “downzone” parcels in order to relieve development pressure and support the statements of purpose for each Zoning District.

ROBBINS ROAD SUB-AREA PLAN

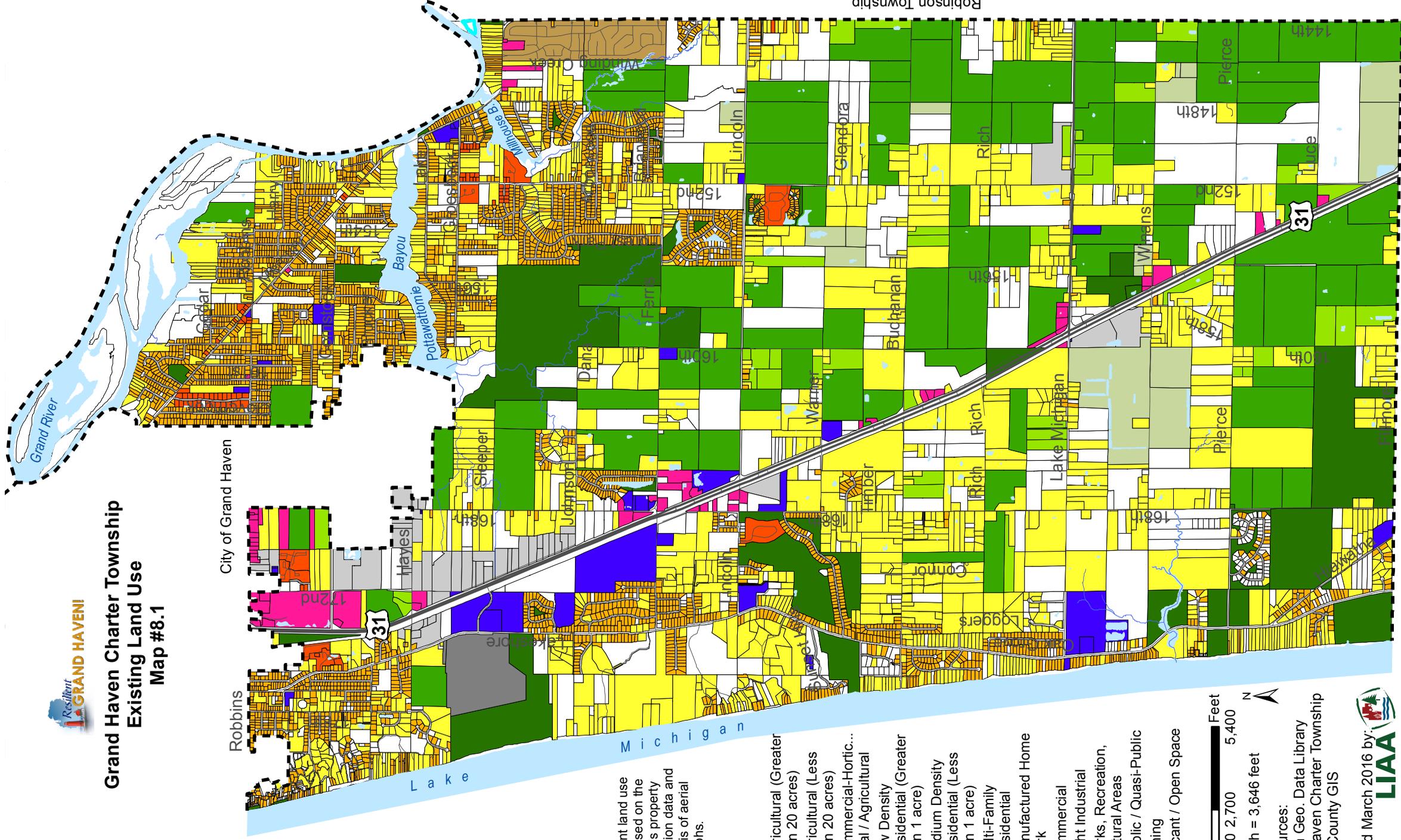
In 2009, Grand Haven Charter Township, partnered with the City of Grand Haven to develop a joint plan for the Robbins Road Corridor. The Plan addresses land uses on both sides of Robbins Road and traffic issues between US-31 and Beechtree/168th Avenue. The Plan recommends a series of access management techniques to improve safety and traffic operations along the corridor. The Plan also recommends a series of zoning changes and the establishment of building design standards. The recommendations outlined in the Robbins Road Sub-Area Plan can be found in Appendix A.

EXISTING LAND USES

Existing land use classifications are important to understand because they can significantly shape a community’s character. Land use is a term that describes how a particular piece of property is being used, or will be used in the future. When grouped together, individual land uses can establish an overall development pattern of



Grand Haven Charter Township Existing Land Use Map #8.1



The current land use map is based on the Township's property classification data and an analysis of aerial photographs.

- Agricultural (Greater than 20 acres)
- Agricultural (Less than 20 acres)
- Commercial-Horticultural / Agricultural
- Low Density Residential (Greater than 1 acre)
- Medium Density Residential (Less than 1 acre)
- Multi-Family Residential
- Manufactured Home Park
- Commercial
- Light Industrial
- Parks, Recreation, Natural Areas
- Public / Quasi-Public
- Mining
- Vacant / Open Space



Data Sources:
Michigan Geo. Data Library
Grand Haven Charter Township
Ottawa County GIS

similar or like uses.

AGRICULTURAL

Agricultural land is the Township’s second largest land use making up 23% of the total land area. This category includes land that is currently used for agriculture such as farming, nurseries, dairying, forestry operations, and other similar activities. Agricultural uses are generally found on large, vacant parcels. However, they are distinct from the Vacant/Open Space classification in that they are actively being used for agricultural purposes.

On the Existing Land Use Map (Map 8.1), agricultural land was divided into two classifications: greater than 20 acres and less than 20 acres. It is important to identify the larger agricultural parcels of actively farmed land because they conform to the minimum acreage requirements for the Agricultural zoning classification, and they have a greater potential to change the character of Grand Haven Charter Township should their land use be converted to a more intensive use such as a residential subdivision.

Blueberries are one of the primary crops successfully grown in Grand Haven Charter Township. They do well in the Township’s soils and the moist air from Lake Michigan. Christmas trees are also a major agricultural activity, a crop that grows well in sandy soils. Several large greenhouse operations that grow nursery plants and shrubs benefit from the Township’s lakeshore climate.

COMMERCIAL-HORTICULTURAL/AGRICULTURAL

There are a few agricultural sites in the Township which are unique from the other types previously described. Agricultural uses that maintain permanent commercial structures such as greenhouses and retail market buildings often generate larger volumes of daily truck traffic, engage in more intensive growing practices, and attract more frequent “customers.” These types of uses are considered Commercial–Horticultural/Agricultural uses, and they account for 2.9% of the Township’s total land area. Zelenka Nursery LLC, Autumn Leaves LLC, and Reenders Blue Acres LLC are all examples of these types of land uses.

LOW DENSITY RESIDENTIAL

Low Density Residential is the Township’s dominant land use in terms of acreage, occupying 28% of the total land area. Parcels that are classified as Low Density Residential are greater than one acre (43,560 per square foot) and contain a single-family home. These uses fall somewhere between a typical subdivision lot and a larger, more rural or agricultural residential use. Concentrations of low density residential can be found in the western portion of the Township (west of US-31).

MEDIUM DENSITY RESIDENTIAL

Medium Density Residential parcels are less than one acre (43,560 per square foot) but still contain a single-family home. This land use comprises 10.5% of total land area. Concentrations of Medium Density Residential uses can be found in the north half of the Township (i.e. north of Ferris Street), as well as along Lakeshore Drive. Similar parcels less than one acre with a single family home that were approved as a Planned Unit Development (PUD) are also classified as Medium Density Residential.

PUDs are the preferred residential development alternative within the Township. This trend can be expected to

Agricultural Land Uses

Agricultural land makes up 23% of the Township’s total land area.



Commercial/Horticultural Ag. Land Uses

Commercial/Horticultural Ag. land makes up 2.9% of the Township’s total land area.



Low-Density Land Uses

Low Density land uses make up 28% of the Township’s total land area.



Medium Density Land Uses

Medium Density land uses make up 10.5% of the Township's total land area.



continue because PUDs often result in creatively-designed residential developments that preserve a portion of a site's natural features. In addition, they also allow developers greater design flexibility and the possibility of incentives such as bonus densities. Given that lot sizes in a Medium Density area are typically smaller (sometimes less than allowed under standard zoning requirements), these developments often emphasize "cluster-type" patterns. Examples of Medium Density Residential PUDs include the Shores of West Olive, Lakeshore Woods, Hidden Creek and Forest Park East Subdivisions.

MULTI-FAMILY RESIDENTIAL

Multi-Family Residential land uses account for a very small percentage (i.e. 0.9%) of Township's total land area, but they can have a much higher density. Multi-Family housing includes any residential structure with two or more units. This category also includes mixed-use residential housing (i.e. single-family mixed with multiple-family) and multiple-family housing units approved as a PUD.

The majority of these units are renter-occupied or renter/owner occupied (i.e. the owner lives in one unit and rents out the other(s)). Pockets of Multi-Family Residential can be found in the northern half of the Township along Lakeshore Drive, 172nd Avenue, and other areas. Such residential developments include the Timber View Apartment Complex, Grand Haven Club Condominiums, Hunters Woods Subdivision, Bayou Point Condominiums, and Bignell Ridge Condominiums.

Multi-Family Land Uses

Multi-family land uses make up just 0.9% of the Township's total land area.



MANUFACTURED HOME PARK

This classification includes developments approved for multiple, manufactured housing units. River Haven Village is currently the Township's only Manufactured Home Park. This type of land use uniquely impacts the Township because of the high population density or units per acre that is allowed. River Haven Village has 726 available manufactured home lots, of which about 638 are currently occupied. Assuming at least 1.9 residents per unit, the park could house about 1,379 people if it were fully occupied. Based on a site area of 152 acres, the resulting density would be 4.8 units per acre, which is considered an extremely high density for single-family housing. Though greatly different in style, this land use classification has similar characteristics to that of Multi-Family Residential. River Haven Village accounts for 0.9% of the Township's total land area.

Commercial Land Uses

Commercial land uses make up 1.3% of the Township's total land area.



COMMERCIAL

Commercial land uses are primarily concentrated on the US-31 and Robbins Road corridors, but there are some exceptions. This classification includes personal services, retail sales establishments, offices, restaurants, and other non-residential/non-industrial uses.

Large-scale commercial uses such as Meijer and Walmart Super Center also fall under this category. Additionally, these two developments fall under the US-31 Overlay District, and thus are subject to higher quality design standards than a typical commercial development. The commercial nodes in the Township provide needed goods and services for Township and neighboring residents, and for those traveling through the community. Future commercial growth will likely be fueled by an increase in area-wide population and the availability of commercial land suitable for development, which accounts for 1.3% of the total land uses.

INDUSTRIAL

Industrial uses include operations engaged in the manufacturing, fabricating, assembling, and treatment of products and materials. These uses may create excessive noise, release air pollution, generate truck traffic, and cause ground vibration more than other, less-intensive land uses. The majority of the industrial uses in the Township are located along the 172nd Avenue corridor between Comstock and Johnson Streets, as well as along Hayes Street.

As a relatively small segment of all land uses in the Township (i.e. 2.0% of the total land area), industrial uses can have a significant influence on the overall community. These uses require additional planning consideration such as the availability of adequate public services and their compatibility with adjacent uses.

PARKS, RECREATION, NATURAL AREAS

This category includes land used for recreation and social activities that are offered by public and private entities. These uses account for a considerable amount of the Township's total land area (i.e. 7.6%) and includes Township-operated parks like Pottawattomie and Hofma Preserve and county-operated parks like Kirk Park. This category also includes privately owned and operated facilities such as the Grand Haven Golf Club and the North Ottawa Rod and Gun Club. Designated open space within approved PUDs is also included within this classification. Plans are in place to acquire 40 acres of open space through the Michigan Natural Resources Trust Fund by early 2016. The Township is also in the process of receiving a donation of 118 acres of land.

These uses contribute greatly to the quality of life in Grand Haven Charter Township. Many people choose to live and work in communities that offer quality parks and recreational opportunities and Grand Haven Charter Township offers some of the best in the region. The Township's recreation amenities are discussed in more detail in Chapter 5.

PUBLIC/QUASI-PUBLIC

Sometimes referred to as "Institutional" uses, Public/Quasi-Public uses include schools, churches and community facilities such as the Township administrative offices and fire station. Each individual parcel in this category has a specific use and role for the community. Churches for example, though privately owned, are considered quasi-public because of their role as a community center for many people.

These types of uses can be found throughout Grand Haven Charter Township and are closely tied to neighborhoods and are conveniently located for residents. Similar to the parks and recreational uses previously described these uses positively contribute to the quality of life for residents and businesses. They foster interaction between neighbors and are important for the future stability of the community. Public/Quasi-Public uses account for 2.1% of the Township's total land area.

MINING

The sole mining operation in the Township is the Standard Sand mine located between Lake Michigan and Lakeshore Drive in the north part of the Township. Sand is an important natural resource, plentiful in the Great Lakes region, due to its raw material value for glass making, industrial molds, and concrete. The Standard Sand property is approximately 121 acres, which accounts for 0.7% of the Township's total land area.

Industrial Land Uses

Industrial land uses make up 2% of the Township's total land area.



Parks, Recreation, and Natural Area Land Uses

Land devoted to parks and recreation (including natural areas) make up 7.6% of the Township's total land area.



Public/Quasi-Public Land Uses

Land used by churches, schools and Township facilities make up 2.1% of the Township's total land area.



Vacant/Open Space Land Uses

Vacant or open spaces account for 19.6% of the Townships total land area.



VACANT/OPEN SPACE

This category includes sites that have no structures and are not used for any of the previously described activities. Close analysis of vacant sites is necessary to better understand the potential impacts of new development and to shape their future uses. This category accounts for 19.6% (approximately 3,396 acres) of the Township’s total land area, a significant amount of acreage.

Table 8.1 shows the acreage in each land use category in 2015.

Table 8.1 Acreage of Existing Land Uses

	Acreage	% of Total Acreage
Large Agricultural (Lot size > 20 Acres)	3,633	21.0
Small Agricultural (Lot size < 20 Acres)	443	2.6
Commercial/Horticultural	501	2.9
Low Density Residential (Lot size > 1 Acre)	4,803	27.8
Medium Density Residential (Lot size < 1 Acre)	1,823	10.5
Multi-Family Residential	151	0.9
Manufactured Home Park	152	0.9
Commercial	227	1.3
Light Industrial	347	2.0
Parks, Recreation, and Natural Areas	1,321	7.6
Public/Quasi-Public	366	2.1
Mining	129	0.7
Vacant/Open Space	3,396	19.6

Source: Grand Haven Charter Township

CHAPTER 9. FUTURE LAND USE AND ZONING PLAN

The Future Land Use Plan depicts the preferred but generalized composition of future land uses for Grand Haven Charter Township. The Future Land Use Plan is the general framework upon which land use and policy decisions will be guided for the next 20 to 25 years. The Future Land Use Plan was developed after careful consideration of several dynamic factors, including: availability of utilities, type of roadway (paved or gravel), existing land use, future development plans, community services, environmental features and a built-out analysis.

RELATIONSHIP BETWEEN THE MASTER PLAN AND ZONING PLAN

The Master Plan describes the vision, goals and objectives for the Township. The Zoning Plan is based upon the Master Plan and is intended to guide in the development of the zoning ordinance. The zoning ordinance is the primary implementation tool for the future development of Grand Haven Charter Township.

There are two key elements to a Future Land Use Plan:

- **Future Land Use Map** - The Future Land Use Map (Map 9.1) designates specific land uses that are to occur on certain parcels or areas of the Township.
- **Future Land Use Text** - The Future Land Use text provides the written support for the map regarding the purposes and intent of the plan, as well as strategies for implementation.

The Township should continue to develop as a place with quality residential neighborhoods, natural beauty, and limited commercial and industrial development. This plan bases many of its policies on the 2009 Master Land Use Plan. A foundation for the success of that plan has been the policy of “balanced residential development,” which still remains a critical component. The goal of balanced residential development is to protect rural, agricultural, and environmentally sensitive land from untimely or inappropriate residential development. In support of such a goal a two-pronged strategy is recommended:

- Encourage residential development in those areas adequately served by infrastructure, including paved roads, natural gas, municipal water, and sanitary sewers.
- Employ zoning regulations, in conjunction with the Future Land Use Plan, to prevent residential development from occurring in areas designated as Agricultural Preservation.

While commercial and industrial uses are critical for the economic health of any community, an expansive amount of such land uses would have a significant impact on the Township’s character. However, such expansion, especially in areas where dense commercial and industrial uses already exist may be necessary to attract new industries and expand the Township’s tax base.

This balance weighs the community’s current character against opportunities for future economic growth and development. Consequently, the Plan supports an appropriate amount of land available for both commercial and industrial uses. These land uses are strategically

clustered on the US-31, M-45 and Robbins Road corridors. These concentrations focus development activity in locations that are well served by roads and utilities, and result in separating additional traffic and nuisances from the Township’s residential neighborhoods. Concentrating such activities allows residents, laborers, and visitors to enjoy shopping, restaurants and other services without disturbing residential neighborhoods.

FUTURE LAND USE CLASSIFICATIONS

AGRICULTURAL PRESERVATION

Intended Land Uses

This designation describes areas of the Township that consist of agricultural and agri-business uses such as blueberry and Christmas tree farms, dairies, commercial nurseries, and other such farm-related uses. However, it also includes large vacant properties, fallow fields, and woodlots that contribute to the rural character in certain areas of the Township.

Agri-business remains a significant activity in the growing Township, particularly on those lands deemed valuable for specialty farms, such as blueberry production. While a home that is subordinate to an agricultural use conducted on a property would be allowed, this classification is not intended for residential development. In fact, the creation of residential lots through land divisions or new residential development are strongly discouraged given the lack of appropriate infrastructure and the large inventory of pre-approved residential lots and units located elsewhere in the Township.

Properties identified as Agricultural Preservation on the Future Land Use Map that are not currently zoned Agricultural, but meet its criteria, should be allowed to downzone to Agricultural, or be used for agricultural purposes whenever the opportunity arises.

Corresponding Zoning District

Land uses that are allowed in the Agricultural zoning district should correspond to the Agricultural Preservation land use designation and require a 20 acre minimum lot size. This will ensure that agricultural and rural lands are not subdivided into small parcels, which affect their ability to maintain adequate, contiguous areas for farm land and the preservation of rural character.

General Location

Agricultural Preservation land uses are primarily located south of Lincoln Street (east of US-31) and south of Buchanan Street (west of US-31).

RURAL RESIDENTIAL

Intended Land Uses

Areas planned for Rural Residential (RR) are characterized by single-family homes on lots that range from 1 to 10 acres. This “rural development” pattern is typically integrated, with or adjacent to, agricultural activities and generally there is a significant separation distance between homes. Unchecked, the indiscriminate application of this type of development can lead to an early or inappropriate transition of agricultural/rural land uses

Agricultural Preservation

Corresponding Zoning Districts: AG Agricultural

Minimum Infrastructure Required: None

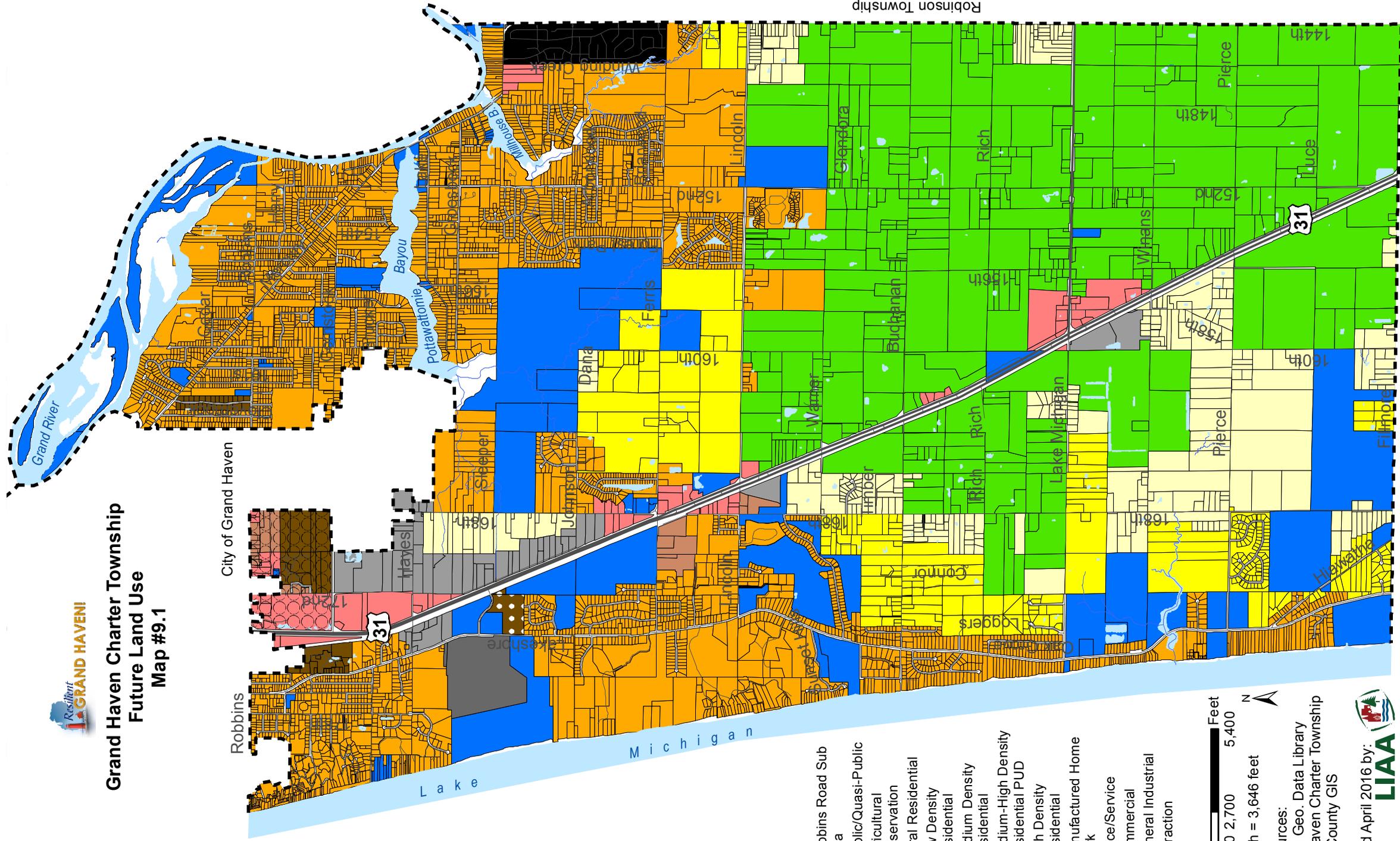
Rural Residential

Corresponding Zoning Districts: RP (Rural Preserve), RR (Rural Residential)

Minimum Infrastructure Required: Direct Access from a Paved Public Roadway



Grand Haven Charter Township Future Land Use Map #9.1



- Robbins Road Sub Area
- Public/Quasi-Public
- Agricultural Preservation
- Rural Residential
- Low Density Residential
- Medium Density Residential
- Medium-High Density Residential/PUD
- High Density Residential
- Manufactured Home Park
- Office/Service
- Commercial
- General Industrial
- Extraction



Data Sources:
Michigan Geo. Data Library
Grand Haven Charter Township
Ottawa County GIS

to a sprawling suburban residential development pattern. Therefore, this classification should be applied cautiously. The transition to Rural Residential should be guided by the availability of public infrastructure. For parcels smaller than ten acres this means requiring direct access to a paved public roadway.

As established by a 2011 Zoning Text Amendment Ordinance (ZTAO), certain large scale developments with eight or more lots (includes subdivisions, site condominiums, and mixed uses) shall not be created in the RR Zoning District unless it is developed as a Planned Unit Development. This form of regulation will enable the Township to control and moderate the size, scope and impact of future projects.

Corresponding Zoning Districts

Rural Preserve (RP) and the Rural Residential (RR) zoning districts correspond to areas planned for Rural Residential. These two zoning districts require 10 acre and 45,000 square foot minimum lot sizes, respectively. The primary purpose for the RP zoning district is to preserve large areas of rural land from premature development and act as a buffer in order to reduce development pressure on agriculture land. Therefore, parcels ten acres or greater that are designated Rural Residential and are currently zoned RR, or more intensely, are encourage to be rezoned to RP.

General Location

Small pockets of Rural Residential are found throughout the Township primarily near areas designated Agricultural Preservation. Specifically, these areas are concentrated in the Southwest quadrant of the Township. Rural Residential areas are so designated because of existing patterns of this type of land use. Most existing one acre or greater lots either contain a single family home, or they are vacant but are too small to subdivide or develop as a Planned Unit Development. Therefore, to avoid an inappropriate transition from agricultural/ rural land to residential sprawl development. This plan limits its application.

LOW DENSITY RESIDENTIAL

Intended Land Uses

When served by adequate public infrastructure, Low Density Residential areas are appropriate places for future residential development. However, additional residential growth in the Township, even in areas master-planned for such uses, must be carefully evaluated and should be permitted only where there is a demonstrated need.

To promote high quality development, Planned Unit Development (PUD) or Open Space Cluster requirements should apply to all future development in Low Density Residential areas. While these development options may allow increased residential densities, they also promote innovative design techniques (e.g. open space preservation, public amenities, and mixed housing and land use types) which are supported by this Master Plan.

As established by a 2011 Zoning Ordinance Text Amendment, certain large scale developments with eight or more lots (includes subdivisions, site condominiums, and mixed uses) shall not be created in the LDR Zoning District unless it is developed as a Planned Unit Development. This form of regulation will enable the Township to control and moderate the size, scope and impact of future projects.

Corresponding Zoning Districts

Low Density Residential

Corresponding Zoning Districts:

LDR (Low Density Residential)

Minimum Infrastructure Required: Direct

Access from a Paved Public Roadway, Natural Gas, Municipal Water, and if available, Sanitary Sewer

The Low Density Residential District accommodates the land uses in this category. Specifically, the minimum lot size is 25,000 square feet, or in the case of a PUD, it should be used to establish a base density that is appropriate for the area.

General Location

This category is primarily found near Buchanan Street, west of 168th Avenue, and east of Lakeshore Drive. The Southwest quadrant is facing high development pressures to convert agricultural land into residential uses. Therefore, it is important to establish gradient buffers to preserve the valuable agricultural land. To accomplish this, LDR designations are established between Medium Density Residential and Rural Residential land uses. Another substantial pocket of an LDR designation is found along Ferris Street between US-31 and the Cutter Park Subdivision.

MEDIUM DENSITY RESIDENTIAL

Intended Land Uses

Medium Density Residential accommodates both single and two-family residences on lot sizes ranging from 13,000 to 15,000 square feet for single family residences, and 26,000 for two-family residences. However, individual lot sizes within a Planned Unit or Open Space Development may be smaller provided the overall density does not exceed the appropriate levels of the underlying zoning district and surrounding area, as determined by the Planning Commission. This wide range of housing and residential densities provides the well balanced, but diverse pattern of land uses the Master Plan encourages. However, any future residential growth in the Township, even in areas master-planned for such uses, must be carefully evaluated and allowed only where there is a demonstrated need.

To promote high quality development, Planned Unit Development (PUD) or Open Space Cluster requirements should apply to all future development in Medium Density Residential areas. In addition, two-family residences are preferred to locate in areas planned for High Density Residential rather than Medium Density Residential. However, new residential developments that include two-family residences may be considered on lands planned for Medium Density Residential if approved as a Planned Unit Development in order to provide the Township with an opportunity to require high standards of site layout, architectural design, and construction quality.

As established by a 2011 Zoning Text Amendment Ordinance, certain large scale developments with eight or more lots (includes subdivisions, site condominiums, and mixed uses) shall not be created in the R-1 and R-2 Zoning District unless it is developed as a Planned Unit Development. This form of regulation will enable the Township to control and moderate the size, scope and impact of future projects.

Corresponding Zoning Districts

The R-1 and R-2 single family residential zoning districts correspond to the Medium Density Residential category.

General Location

Generally speaking, most existing, developed neighborhoods, subdivisions, and lots in the Township have been designated Medium Density Residential. They are mainly located in the northeast quadrant of the Township

Medium Density Residential

Corresponding Zoning Districts: R-1 and R-2 Single Family Residential

Minimum Infrastructure Required: Direct Access from a Paved Public Roadway, Natural Gas, Municipal Water, and if available, Sanitary Sewer

(north of Lincoln Street), and near the lakeshore (along Lakeshore Drive).

MEDIUM-HIGH DENSITY RESIDENTIAL

Intended Land Use

This designation describes areas of the Township that are adjacent to single-family residential, multiple-family residential, and more intense land uses such as commercial and industrial. Medium-High Density Residential PUD land uses include a variety of housing types that act as a transition between a traditional single-family neighborhood to higher densities and more intense land uses. Furthermore, these lighter uses should generate less traffic than a traditional high density use, which makes it more appropriate to be located near single-family residential neighborhoods. These residential land uses may include senior housing, assisted living facilities, housing for the elderly, family foster care facilities, adult day care facilities, nursing or convalescent homes, and housing types identified as the “missing middle” in Chapter 3.

This use is not intended to reach the level of intensity that is afforded by the High Density Residential district. Rather, this designation is intended to act as a transition between medium density residential land uses, high density residential land uses, and more intense land uses such as commercial and industrial. Land in this district must be developed as a Planned Unit Development to ensure the Township can control and moderate the size, scope and impact of a project.

Corresponding Zoning Districts

The Residential Planned Unit Development district corresponds to the Medium-High Density Residential PUD category.

General Location

This category is limited, and the only area designated for this land use is on Rosy Mound Drive between Lakeshore Drive and US-31.

HIGH DENSITY RESIDENTIAL

Intended Land Use

High Density Residential land uses include a variety of housing types at a density greater than a typical neighborhood. These residential land uses may include duplexes, apartments, multi-unit condominiums, and senior housing. Since these are more intense land uses they should only be allowed if a property is well served by public infrastructure including natural gas, municipal water, sanitary sewer, and has direct access to a paved public roadway.

Corresponding Zoning Districts

The R-3, R-3.5, and R-4 multi-family residential zoning districts correspond to the areas designated High Density Residential. The application of a PUD is strongly encouraged whenever a rezoning is considered in order to provide the Township with an opportunity to require high standards of site layout, architectural design, and construction quality.

Medium-High Density Residential

Corresponding Zoning Districts: Residential PUD

Minimum Infrastructure Required: Direct Access from a Paved Public Roadway, Natural Gas, Municipal Water, Sanitary Sewer

High Density Residential

Corresponding Zoning Districts: R-3 (Two Family Residential), R-3.5 (Restricted Multiple Family Residential), and R-4 (Multiple Family Residential)

Minimum Infrastructure Required: Direct Access from a Paved Public Roadway, Natural Gas, Municipal Water, and if available, Sanitary Sewer

General Location

Existing High Density Residential designated areas include the 43 North Condominium and Apartment PUD, Timber View Apartments PUD, Piper Lakes Apartments PUD, and the area flanked by numerous two- to four-unit structures along Clovernook Drive. These developments are all located near, or north of, Comstock Street.

Understanding the Township is expected to experience continued growth, it was necessary to identify additional locations suitable for High Density Residential development. Therefore, land south of the 43 North PUD, south of the Timber View Apartments PUD, and north of the Piper Lakes Apartments PUD have been master-planned for additional HDR. This designation also aligns with the goals found in the Robbins Road Sub-Area Plan.

Other High Density Residential developments (that are inconsistent with the Master Plan) could be considered on a case-by-case basis only where there is a clear demonstrated need, and where adequate public infrastructure exists and surrounding land uses are compatible and would help support a particular land use proposal. For example, a higher density senior housing development located near shopping and personal services could be considered given a desire to accommodate this type of housing for an aging population.

MANUFACTURED HOME PARK

Intended Land Use

Manufactured Home Parks are designed for a long-term duration of stay, and must comply with the applicable requirements of Public Act 419 of 1976, as amended, and Public Act 96 of 1987, as amended, and all other applicable local, county, state, or federal regulations.

Corresponding Zoning District

The R-5 Manufactured Home Park Residential District is the only applicable zoning district.

General Location

The only area designated for this land use is the River Haven Manufactured Home Park located at the corner of Mercury Drive and 144th Avenue.

OFFICE/SERVICE

Intended Land Use

Areas planned for Office/Service should allow low-intensity commercial uses such as general office buildings, service professional offices, medical clinics, financial institutions, and service establishments. These land uses are desirable transitions between major thoroughfares, commercial, and residential areas.

Corresponding Zoning Districts

The SP-Service Professional and Commercial PUD zoning districts correspond to the Office/Service classification. Any future development proposals that are significant in scale or scope should be considered as Planned Unit Developments.

General Location

Manufactured Home Park

Corresponding Zoning Districts: R-5 (Manufactured Home Park)

Minimum Infrastructure Required: Direct Access from a Paved Public Roadway, Natural Gas, Municipal Water, Sanitary Sewer

Office/Service

Corresponding Zoning Districts: SP (Service Professional)

Minimum Infrastructure Required: Direct Access from a Paved Public Roadway, Natural Gas, Municipal Water, and Sanitary Sewer

Areas designated Office/Service are limited in the Township and are mainly located near existing uses, such as Robbins Road. This corridor has been subject to more detailed planning and is included in Appendix A. Other existing and planned Office/Service areas are found at the southeast corner of 168th and Lincoln, and at the southwest corner of Ferris and U.S.-31.

COMMERCIAL

Intended Land Use

The Commercial designation provides for the continuation, redevelopment and new construction of a variety of commercial uses in the Township. These include retail businesses, restaurants, theaters, shopping centers, as well as most of the uses in the Office/Service land use classification.

Commercial land uses that are appropriately located, high quality, and further the intent and purpose of this Master Plan are very important for the continued economic prosperity and quality of life.

Corresponding Zoning Districts

The C-1 Commercial, SP-Service Professional, and Commercial PUD zoning districts correspond with the Commercial land use designation. Any future development proposals that are significant in scale or scope should be considered as Planned Unit Developments.

General Location

The major areas designated as Commercial are located adjacent to the US-31 and Robbins Road corridors. Both locations are appropriate for commercial activity because of existing land uses and available infrastructure. Additionally, this area can accommodate higher traffic volumes, provide relatively easy access, and offers the visibility that is desirable in a suburban setting.

A primary goal for the US-31 corridor is to keep businesses and the environment they inhabit attractive and unobtrusive. This concept is buttressed by the Township’s Overlay Zoning District. Several large areas along US-31 are also planned for non-commercial uses so as to preserve the existing rural character. Commercial land uses are located in several areas of the Township but the majority are along US-31. These have been clustered in three primary commercial “nodes” and include:

- US-31/M-45 intersection (including a small area south of Buchanan Street)
- US-31/Ferris Street intersection (extending north to Johnson and south to Lincoln)
- US-31/Robbins Road intersection (extending south to Hayes Street)

GENERAL INDUSTRIAL

Intended Land Use

General Industrial land uses include a wide range of industrial-related operations such as manufacturing, assembly, fabrication, millwork, wholesale businesses, warehousing, and research and development facilities. They may also include more intense commercial uses that have potential to impact properties beyond their boundaries.

Commercial

Corresponding Zoning Districts: C-1 (Commercial) and SP (Service Professional)

Minimum Infrastructure Required: Direct Access from a Paved Public Roadway, Natural Gas, Municipal Water, and Sanitary Sewer

General Industrial

Corresponding Zoning Districts: I-1 (Industrial), I-1A (Corridor Industrial)

Minimum Infrastructure Required: Direct Access from a Paved Public Roadway, Natural Gas, Municipal Water, Sanitary Sewer

These land uses are also important for the continued economic prosperity and quality of life in Grand Haven Charter Township. Quality manufacturing jobs are highly sought after across the country and successful manufacturing operations can provide numerous benefits to a community, such as jobs and tax revenues. For those reasons, high-quality industrial land uses that further the intent and purpose of this Master Plan are encouraged.

Corresponding Zoning Districts

The I-1 Industrial and Industrial I-1A Corridor Industrial zoning districts correspond with the General Industrial land use designation. Any future development proposals that are significant in scale or scope should be considered as Planned Unit Developments.

General Location

Currently, there are many industrial uses in the Township, and these are a vital part of the region’s economy. However, due to the intensive nature of industrial activities, the area planned for General Industrial is somewhat limited. In fact, most of the areas are already developed, such as along 172nd Avenue (between Comstock Street and Johnson Street) and Hayes Street (between 172nd Avenue and 168th Avenue), the property south of Lincoln Street (west of US-31), and the properties south of Lake Michigan Drive (west of US-31). There is also a small section of General Industrial planned along the west side of US-31 near Hayes Street where Heyboer Excavating operates.

EXTRACTION

Intended Land Use

Extraction is essentially a sub-category of the General Industrial classification and recognizes the continued existence of Standard Sand, the sole sand mining operation in the Township.

Corresponding Zoning Districts

Zoning districts that permit the removal and processing of natural resources, either by right or as a special land use, correspond with the Extraction land use classification. However, the property that Standard Sand occupies is currently zoned R-1 Residential and should not be zoned otherwise. This will allow the property to someday revert back to a residential use, which is consistent with the surrounding properties.

General Location

This land use classification is tied directly to the Standard Sand mining operation, located west of Lakeshore Drive, south of Hayes Street and is the only area master-planned for Extraction.

PUBLIC/QUASI-PUBLIC

Intended Land Uses

This designation accommodates schools, government facilities, public utilities, parks, natural areas, and public recreational uses. It also recognizes churches, private recreational uses, and other community-oriented activities located on privately-owned land. These uses positively contribute to the quality of life for Township

Extraction

Corresponding Zoning Districts: All that permit the Removal and Processing of Natural Resources

Minimum Infrastructure Required: Varies

Public/Quasi-Public

Corresponding Zoning Districts: All that Permit Public/Quasi-Public Land Uses

Minimum Infrastructure Required: Varies

residents and businesses. They foster interaction between neighbors and are important for the future stability of the community.

Corresponding Zoning Districts

All zoning districts that permit these types of uses either by right or as a special land use correspond with the Public/Quasi-Public land use designation. Specifically, schools, parks, recreation areas, and churches are permitted in most of the Township's residential zoning districts as special land uses.

General Location

Public/Quasi Public land uses can be found throughout Grand Haven Charter Township and are closely tied to neighborhoods and conveniently located for residents. Because of the importance of these land uses, the Future Land Use Plan accounts for all such existing uses in the Township.

ZONING REGULATIONS

AGRICULTURAL DISTRICTS

The agricultural zoning districts in Grand Haven Charter Township are:

- AG - Agricultural District
- RP - Rural Preserve

The primary purpose of the Agricultural District is to provide for farming, dairy farming, forestry operations and other rural activities. The primary purpose of the Rural Preserve District is to provide a buffer between the agricultural uses and residential uses.

RESIDENTIAL DISTRICTS

The residential zoning districts in Grand Haven Charter Township are:

- RR - Rural Residential District
- LDR - Low Density Residential District
- R-1 - Single Family Residential District
- R-2 - Single Family Residential District
- R-3 - Two Family Residential District
- R-3.5 - Restricted Multiple Family Residential District
- R-4 - Multiple Family Residential District
- R-5 - Manufactured Home Park Residential District

The main purpose of these zoning districts is to provide a variety of housing options within the Township. The Rural Residential District is intended to provide for large-tract housing developments that co-exist with agricultural activities on open areas in the Township. The Low Density Residential District is designed to

support new residential development between large areas of rural residential properties and medium density development. The R-1 and R-2 Single Family Residential Districts are intended to provide for single family neighborhoods. The R-3 and R 3.5 Two-Family Districts are intended provide for a higher density of single family and multi-family neighborhoods. The R-4 Multiple Family Residential District is intended to provide high density residential developments as well as nursing homes and other adult care or medical facilities. The R-5 Manufactured Mobile Home Park Residential District is dedicated to providing for manufactured housing.

COMMERCIAL DISTRICTS

The commercial zoning districts in Grand Haven Charter Township are:

- SP - Service/Professional District
- C-1 - Commercial District

The primary purpose of these zoning districts is to provide for a variety of commercial and service uses that serve local residents as well as those traveling throughout the region. The SP Service/Professional District is designed to accommodate uses such as offices, banks and other services in areas adjacent to neighborhoods. The C-1 Commercial District allows all SP uses including office buildings and personal service establishments. In addition, the C-1 District is intended to provide for retail operations and other commercial services.

INDUSTRIAL DISTRICTS

The industrial zoning districts in Grand Haven Charter Township are:

- I-1 - Industrial District
- I-1A - Corridor Industrial District

The primary purpose of these zoning districts is to provide for manufacturing, assembling, and fabricating activities within the Township.

PUD DISTRICT

The PUD District is designed to provide for unique developments that substantially benefit both the users of the project and the community. In areas where such benefits would be unfeasible or unlikely under the other zoning districts.

CHAPTER 10. PUBLIC PARTICIPATION

Because the Master Plan is a reflection of the values and vision of the community, engaging the public was a critical component of the community-wide planning process. Outreach and engagement activities for the Master Plan were designed to:

- Build awareness and promote the community-wide planning process.
- Encourage Township and City citizens to talk about issues of mutual concern and interest.
- Engage citizens and stakeholders about the future of the community.
- Make connections and build partnerships between community stakeholders, non-profits and civic organizations.
- Build awareness about local, state, regional and national issues that impact the community.
- Determine if more detailed information about coastline processes influence coastal land use policy.

The following civic engagement activities were conducted during the community-wide planning effort.

PROJECT WEBSITE

In an effort to raise awareness about the planning project, the consultant team developed an interactive project website (www.resilientmichigan.org/grand_haven.asp). The website provided information about upcoming public meetings, post-meeting notes, draft documents, links to videos and presentations, news articles and an interactive forum. At the conclusion of the planning process, the Township and City Master Plans were placed on their respective websites.

PUBLIC MEETINGS

Over 200 members of the public directly contributed to the Master Plan by participating in the Leadership Summit, Community Action Team Meetings, and a Public Open House.

LEADERSHIP SUMMIT

Nearly 100 people participated in the Leadership Summit, a multi-faceted workshop designed to engage citizens, public officials and community stakeholders with an in-depth discussion about community resilience. During the Summit, experts from the University of Michigan, Michigan State University's Land Policy Institute and the State's Climatology Office, among others, delivered presentations on how the community could become more resilient to challenges associated with a changing climate, shoreline processes and the dynamic global economy.

Outreach & Civic Engagement

An interactive project website was developed to raise awareness for the master planning effort.



Leadership Summit

During the Leadership Summit, several well-regarded state-wide experts discussed how the community could become more resilient to future climate and economic challenges.



Community Action Team Meetings

Over the course of three meetings, citizens and community stakeholders worked to map community assets and develop goals and objectives for six community topics.



COMMUNITY ACTION TEAM MEETINGS

Over 120 people participated in three successive public meetings to help develop recommendations for the community. Following brief presentations from local stakeholder organizations on specific issues facing the community (e.g. transportation, local economy, and families in need), participants were organized into topic specific groups, referred to as *Community Action Teams*.

COMMUNITY ACTION TEAMS

1. Access and Transportation
2. Energy and Economy
3. Neighborhoods and Infrastructure
4. Agriculture and Food
5. Human and Social Systems
6. Parks and Natural Systems

Over the course of three meetings, participants of the six Community Action Teams (CAT) worked to identify and map assets and threats pertaining to their topic as well as develop specific goals and objectives. The results of these meetings helped create the goals and objectives outlined in Chapter 7.

Youth Charrette

Members of the YAC worked to identify community assets and illustrate a vision for the community.



PUBLIC OPEN HOUSE

An open house was held on October 20th, 2015 to introduce the Plan to the public. Around 35 people attended the open house to view the draft plan, offer comments, and hear about the process.

COMMUNITY OUTREACH

KEY PERSON AND GROUP INTERVIEWS

The consultant team met with staff members from different community organizations such as Harbor Transit, the Grand Haven Area Community Foundation and the Chamber of Commerce, as well as Township staff members and local officials to identify and learn more about land use and community development issues and discuss their vision for the community.

YOUTH ACTIVITIES

In February 2015, about 30 members of the Grand Haven Area Community Foundation Youth Advisory Committee (YAC) participated in a youth charrette. The YAC consists of high school students from the Tri-Cities area that regularly meet to discuss and assess youth issues. The youth charrette kicked off with an interactive Resilient Bingo game, in which members were asked to identify fellow students who were doing “resilient” things at home (e.g., has ridden a bicycle to run an errand sometime in the last six months). Students then worked to identify and map community assets and illustrate their vision for the community in an activity called *Crayon Your Community*.

At a second meeting in April, students worked to develop a preferred non-motorized map for the community.

Following the meeting, the YAC worked to develop a “Youth Chapter” for this Master Plan, which can be found in Chapter 11.

SOCIAL MEDIA

The Grand Haven Charter Township Board approved the use of a Facebook page as a method to inform residents about events and communicate important Township news to followers. During the Resilient Grand Haven planning process, this Facebook page was used to support this Master Plan and encourage participation. Social media will continue to engage the community as this Master Plan is implemented. The page can be found at: www.facebook.com/GHTownship.

COMMUNITY PARTICIPATION

A wide variety of community stakeholders participated in the *Resilient Grand Haven* planning process. Public meeting attendees and community outreach participants included local citizens, public officials from a number of local units of government, planning commissioners, municipal staff members, and representatives from the following organizations:

- Alliance for the Great Lakes
- Brilliance Publishing
- Buster Mathis Foundation
- Center for Women in Transition
- Covenant Life Church
- David C. Bos Homes
- Financial Empowerment Center
- Four Pointes Area Agency on Aging
- Friends of Grand Haven Township Parks
- GEI Consultants, Inc.
- Grand Haven Area Community Foundation
- Grand Haven Area Public Schools
- Grand Haven Chamber of Commerce
- Grand Haven Main Street DDA
- Harbor Transit
- Hesselsweet Architects
- Hofma Park Commission
- Human Services Coordinating Council
- Lakeshore Environmental, Inc.
- Lakeshore Nonprofit Alliance
- Loutit District Library
- Michigan State University Extension
- North Ottawa Community Health
- Northwest Ottawa Recreation Authority
- Old Things, LLC
- Ottawa Conservation District
- Ottawa County Parks Commission
- Southside Neighborhood Association
- St. Patrick Church
- Tri-Cities Area Habitat for Humanity
- West Michigan Environmental Action Council
- West Michigan Sustainable Business Forum

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CHAPTER 11. THE FUTURE OF GRAND HAVEN – A YOUTH PERSPECTIVE

This Chapter was written by the youth of the Grand Haven Community through the Youth Advisory Committee (YAC). In an effort to better understand the values and vision for the community of young people in the Grand Haven community, the consultant team worked closely with the Youth Advisory Committee (YAC). Organized as a formal program within the Grand Haven Area Community Foundation, the YAC consists of high-school students from the Tri-Cities area that regularly meet to talk about and think through youth issues. In February, about 30 YAC members participated in a “youth charrette” in which students were asked to identify and map community assets and illustrate their vision for the community in an activity called *Crayon your Community*. In April, the consultant team worked with YAC members to develop a preferred non-motorized map for the greater Grand Haven Community. Following these hands-on activities, a handful of YAC members were tasked to summarize and write - in their own words - the results of the planning activities for this chapter of the Master Plan.

YOUTH DEMOGRAPHIC OVERVIEW

The population of 15 - 19 year olds in Grand Haven Charter Township and the City of Grand Haven 2010 was just over 1,600. However, between 2000 and 2010 the population of the youth in this age range decreased by 25.9% in the City, but increased 12.9% in Grand Haven Charter Township. It is also important to note that the number of households with children under 18 years has decreased by 7.4% in the City of Grand Haven and 0.1% in Grand Haven Charter Township between 2000 and 2010.

The racial makeup of the students in Grand Haven Area Public Schools is relatively Caucasian, which has stayed consistent over the past years, hovering right around 90% since 2010.

Between 2010 and 2015, the number of students in the Grand Haven Area School District increased by 4.6% (273 students), to 6,203 students.¹ There are a number of students who receive a Reduced Lunch in the GHAPS District. According to the United Way 2015 Community Assessment for Ottawa County 35% of students in GHAPS receive free or reduced lunch. There have also been expanded learning opportunities to accommodate for the different preferences in learning styles – Grand Haven Central High School offers a more individualized learning environment, and a smaller class size. Additionally, Grand Haven Cyber School is offered.

WHAT WE LOVE ABOUT DOWNTOWN GRAND HAVEN

THE YOUTH OF GRAND HAVEN LOVE THE FOLLOWING ASPECTS OF OUR DOWNTOWN GRAND HAVEN

We love the Waterfront area because it connects our downtown area to the Boardwalk and Beaches. We like the accessibility factor of the downtown area and that everything is walkable and in close proximity. This makes it

Youth Charrette

YAC members work together to identify and map community assets during the Youth Charrette.



YAC Members



Photo Credit: Ed Post

¹ Michigan Department of Education



Photo Credit: Ed Post

easy for people of all walks of life to enjoy our downtown. We like that our downtown supports privately owned businesses, and that our downtown offers a diverse array of stores. We feel there is something for everyone.

There are great recreational opportunities in the Mulligan’s Hollow area – the skate park, YMCA, and the Imagination Station are just a few. We think it is great that our downtown area supports a variety of festivals and activities. These help to draw diverse crowds of people to our community – especially our downtown area. We enjoy having a Farmer’s Market connected to our Boardwalk and downtown area. We love the access to organic, fresh, and locally grown produce. We would love to see this Market continue to grow and expand.

WHAT WE LOVE ABOUT THE GRAND HAVEN COMMUNITY

THE YOUTH OF GRAND HAVEN LOVE THE FOLLOWING ASPECTS OF THE GRAND HAVEN COMMUNITY

We are very fortunate to have a great park system that provides us with access to several local parks and nature centers (Rosy Mound, Kirk Park, Hofma Park, and Harbor Island). We are also lucky to have a wide variety of recreational opportunities in our community such as the Rod & Gun Club, various boat launches, kayak launches, sports fields, and other water sport rentals. It is important for our community to be able to take advantage of the great recreation opportunities that are provided to us by our natural resources and landscapes.

We also like the family friendly entertainment options that are available, such as the Grand Haven 9 Movie Theater, and Starlite Lanes. We also like that local businesses support our school system in many ways – with their time, or with monetary support – it is great that they encourage us as students, and invest in our futures.

MODES OF TRANSPORTATION/DIFFICULTIES

THE GRAND HAVEN YOUTH UTILIZE THE FOLLOWING MODES OF TRANSPORTATION (SOME FOR RECREATION)

We tend to travel via: car, bike, moped, Harbor Transit, skateboards, and by foot. There are other modes of transportation that we use as well. For recreational purposes we utilize: boats, bicycles, skateboards, and the Trolley.

We recognize the following barriers to transportation in our community:

We feel there is incomplete coverage in service with Harbor Transit and the inability to travel in a timely fashion (it does not provide service to all areas of our community). We also notice that in the summer, traffic is often congested and there is a lack of accessible parking spots. This leads us -- the youth and others in our community -- to seek other modes of transportation in the summer months.

We would like to see the following expanded:

We would like to see the Non-Motorized Trail Networks expanded throughout the Grand Haven community in order for non-motorized modes of transportation to be utilized safely. This will also help contribute to the health and well-being of our community members and give us more opportunities to participate in recreation.

We would also like to see increased efficiency with the pick-up, and delivery, times of Harbor Transit. Ridership, including other youth in our community, would grow if it was easier to access.



Photo Credit: Ed Post



Photo Credit: Ed Post



Photo Credit: Ed Post

EDUCATIONAL OPPORTUNITIES IN OUR COMMUNITY

THE YOUTH OF GRAND HAVEN WOULD LIKE TO SEE THE FOLLOWING EDUCATIONAL OPPORTUNITIES AND/OR CURRICULUM EXPANSIONS IN OUR SCHOOLS

We would like to be able to take courses that will prepare us for life beyond high school – either career or college readiness (Home Economics, Financial Planning, etc.). It is also important to expose us to as many career opportunities as possible – this could be done by offering more courses focused on specific career opportunities (engineering, coding, general business, accounting, etc.) and we’d also like to see expanded technical learning opportunities (trade schools, etc.).

POTENTIAL FUTURE AMENITIES FOR GRAND HAVEN

THE YOUTH OF GRAND HAVEN WOULD LIKE TO LIVE IN AREAS THAT HAVE THE FOLLOWING

We would like to live in an area that has more diversity and cultural opportunities for us to participate in. We’d like to be involved in creative opportunities through art, music, etc. that would be available in our community. We would like to live in an area that gives us the opportunity for an urban/bigger city feel in the downtown area while also providing the choice of living in more spacious areas. For this, we would need reliable, and easily accessible, public transportation.

In our future communities we will also be looking for a family friendly environment. A community that will provide and support good school systems, good childcare, and a high quality healthcare system. We would love to live in an area with expanded and continued recreational opportunities – the parks system, water access, and beaches.

WHAT WE PLAN TO DO AFTER COLLEGE

THE YOUTH OF GRAND HAVEN HAVE MANY PLANS FOR LIFE AFTER COLLEGE INCLUDING

We would like jobs in the following fields: Medical, Education, Financial, Public Relations, Automotive/Engineering, Social Work, and Technology. We would like to live in apartments, loft, single-family homes (in subdivisions), and single-family homes that are within walking distance to the downtown area.

We see Grand Haven as a great place to raise a family and would eventually like to return to the area. When we return to the area we would like to live in Grand Haven Township, the downtown area, or on waterfront property. We would also like to work in the downtown area, for major companies that are well-established in the area, or those that have recently relocated to provide jobs that are relevant to our experiences and provide great value to Grand Haven.



Photo Credit: Kelly Ruffing, IFG Photography



The following is a list of all members of the Youth Advisory Council at the Grand Haven Area Community Foundation who contributed to the ideas and concepts mentioned in this chapter: Max Anthes, Sophia Barron, Sydney Borchers, Tommy Clover, Gabby Coates, Jack Costello, Hannah Dillree, Sydney Fritz, Geoff Gabala, Abbi Garrison, Adam Greer, Leah Hoffer, Landon Hudson, Kaden Kar, Connor Kippe, Olivia Kuhn, Anish Mandala, Ryan Montgomery, Chase Palmer, Alli Pennington, Michala Ringquist, Ellie Scholtz, Lukas Steffel, Brant Verlinde, and YAC Advisor, Lauren Grevel.

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CHAPTER 12. SUMMARY OF CLIMATE AND SHORELINE PROCESSES

This chapter provides an executive summary of a University of Michigan research study analyzing the shoreline of the Grand Haven community. The full report, including background information, methodology, all maps, and more detailed results are available online <http://www.ght.org/CoastalReport>.

PURPOSE OF THE PROJECT

As part of this master planning process, the University of Michigan partnered with Grand Haven Charter Township and the City of Grand Haven to analyze shoreline dynamics to help Grand Haven manage its coastal areas. The project sought to answer several key questions. First, what data is readily available for coastal planning, and how well does this data reflect current and future climate conditions? Second, does increasing access to coastal research help local jurisdictions plan for coastal changes? These questions are addressed using a scenario planning framework. Environmental and land use ramifications of increased flooding are also considered.

SUMMARY OF CLIMATE VARIABILITY

It is no secret the Great Lakes are one of the most unique and precious environmental features in the world. In fact, “the Great Lakes basin contains more than 20% of the world’s surface freshwater supplies and supports a population of more than 30 million people.”¹ Michigan is home to nearly 3,300 miles of Great Lakes shoreline, with 36,000 miles of rivers and streams, and 11,000 inland lakes.² Yet, the shoreline in Michigan is often left unprotected and misunderstood, especially in the face of a changing climate.

Climate and weather are directly related, but not the same thing. Weather refers to the day-to-day conditions in a particular place, like sunny or rainy, hot or cold. Climate refers to the long-term patterns of weather over large areas. When scientists speak of global climate change, they are referring to changes in the generalized, regional patterns of weather over months, years, and decades. Climate change is the ongoing change in a region’s general weather characteristics or averages. In the long term, a changing climate will have more substantial effects on the Great Lakes than individual weather events.

¹ Mackey, S. D., 2012: Great Lakes Nearshore and Coastal Systems. In: U.S. National Climate Assessment Midwest Technical Input Report. J. Winkler, J. Andresen, J. Hatfield, D. Bidwell, and D. Brown, coordinators. Available from the Great Lakes Integrated Sciences and Assessments (GLISA) Center, http://glisa.msu.edu/docs/NCA/MTIT_Coastal.pdf.

² Ardizzone, Katherina A. and Mark A. Wyckoff, FAICP. Filling the Gaps: Environmental Protection Options for Local Governments, 2nd Edition. Michigan Department of Environmental Quality, Coastal Zone Management Program with financial assistance from the National Oceanic and Atmospheric Administration, authorized by the Coastal Zone Management Act of 1972. December 2010.

Hurricane Sandy caused an estimated 755 billion dollars worth of damage in 2012. The impacts of this Hurricane were felt on Lake Michigan, causing waves up to 33 feet.

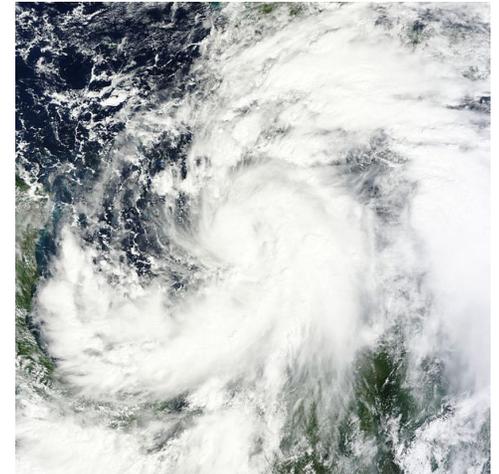
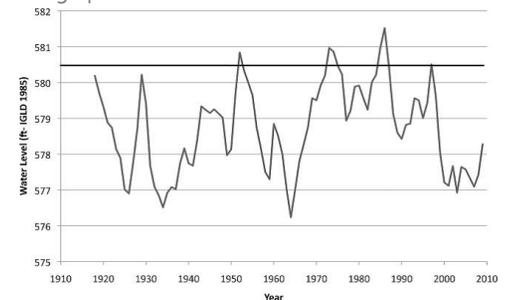


Photo Source: NASA 2012

Figure 12.1 The water levels of the Great Lakes fluctuate as shown in the figure below. The mean water level is indicated by the straight line across the graph.



Source: NOAA, 2011

Erosion on Lake Michigan endangers homes built too close to the shoreline. This photo was taken on the Indiana coastline of Lake Michigan.



Source: EPA.gov

Damage from a 1989 storm in Grand Haven.



Source: Grand Haven Charter Township

INCREASED PRECIPITATION AND STORMINESS

There is strong consensus among climate experts that storms will occur in the Great Lakes region in greater frequency and intensity.³ This is already happening as “the amount of precipitation falling in the heaviest 1% of storms increased by 37% in the Midwest and 71% in the Northeast from 1958 to 2012.”⁴ As storms produce more precipitation and generate stronger sustained winds, the Great Lakes will see stronger and higher waves.⁵ In addition to direct damage caused by storms, sustained increases in the number of storms and their intensity can both directly and indirectly pollute waters by overloading sewage and stormwater capabilities.⁶ Increases in the intensity of storms also quickens the pace of erosion on Great Lakes shorelines.

WATER TEMPERATURE

Climatologists predict there will be fewer days below freezing in Michigan and other Great Lakes states. As temperatures remain warm for a greater part of the year, the winter season will shorten and the lake ice cover that accompanies winter weather will decline. The ice coverage on the Great Lakes and Lake St. Clair declined by 71% from 1973 to 2010, and ice covers the lake for an average of 15 fewer days each year.⁷

The associated impacts of rising water temperature include changes to where fish and other aquatic animals can live, increased vulnerability to invasive species, and increased risk of algae blooms.⁸ Rising water temperature also enables winds to travel faster across the surface of the lake, increasing the vulnerability of coastal communities to damaging waves as storms and winds increase.⁹ Lastly, ice cover protects the shoreline during winter storms. With less ice cover, the shoreline is more susceptible to erosion and habitat disruption.

REGULATORY INVOLVEMENT

The full report summarizes current State, Federal, and local regulation relevant to coastline management. These include the National Flood Insurance Program (NFIP), permitting processes for wetlands, High Risk Erosion Area management, Soil and Erosion and Sediment Control ordinances, Critical Dune Area designations, and Federal and State Water Mark Lines. Only the most relevant information for the National Flood Insurance Program, and Federal and State Water Mark Lines, and wetlands are presented in this summary.

³ U.S. Global Change Research Program. Global Climate Change in the United States, 2009. Cambridge University Press, Cambridge, MA.

⁴ Mackey, S. D., 2012: Great Lakes Nearshore and Coastal Systems. In: U.S. National Climate Assessment Midwest Technical Input Report. J. Winkler, J. Andresen, J. Hatfield, D. Bidwell, and D. Brown, coordinators. Available from the Great Lakes Integrated Sciences and Assessments (GLISA) Center, http://glisa.msu.edu/docs/NCA/MTIT_Coastal.pdf.

⁵ Great Lakes Integrated Sciences and Assessments. Climate Change in the Great Lakes Region. GLISA, 2014. Web. Accessed July 2015. http://glisa.umich.edu/media/files/GLISA_climate_change_summary.pdf

⁶ Cruce, T., & Yurkovich, E. (2011). Adapting to climate change: A planning guide for state coastal managers—a Great Lakes supplement. Silver Spring, MD: NOAA Office of Ocean and Coastal Resource Management.

⁷ The Heinz Center. (2000). Evaluation of Erosion Hazards. Web. Accessed July 2015. <http://www.fema.gov/pdf/library/erosion.pdf>

⁸ Austin, J. A., & Colman, S. M. (2007). Oceans- L06604 - Lake Superior summer water temperatures are increasing more rapidly than regional air temperatures: A positive ice-albedo feedback (DOI 10.1029/2006GL029021). Geophysical Research Letters, 34, 6.).

⁹ Dinse, Keely. Preparing for Extremes: The Dynamic Great Lakes. Michigan Sea Grant. Web. Accessed July 2015. <http://www.miseagrant.umich.edu/downloads/climate/11-701-Preparing-Coasts-for-Extremes.pdf>

Figure 12.2 The shoreline in Grand Haven for various years, 2015 photo



Source: Google Earth Pro, 2015 Imagery

NATIONAL FLOOD INSURANCE PROGRAM

Of all the regulation analyzed, Grand Haven Charter Township is most interested in advancing participation in the National Flood Insurance Programs' Community Rating System. Grand Haven Charter Township joined the NFIP in 1981. Since that time, the Township has received over \$229,000 in aid for 17 separate claims.

Under the Community Rating System (CRS), the Grand Haven community can receive credit for implementing several of the changes recommended in this report (see recommendations at the end of this chapter and in the full report). As times of high intensity waves and inundation are expected to increase, the Grand Haven Community might consider making changes to zoning ordinances, building codes, and other policies to better manage floodplain development. Additionally, NFIP flood insurance premiums are rising nationwide as storms increase and payouts rise.¹⁰ Participating in the CRS is a proactive approach to keeping costs low while protecting both man-made and natural resources near the shoreline.

WETLANDS

In Michigan, development in some wetlands is regulated through a permitting process. Generally, a wetland is regulated if it is connected to, or within 1,000 feet of, a Great Lake shoreline, is connected to or within 500 feet of an inland lake, pond, or river, or is at least 5 acres in size.

OVERVIEW OF RESEARCH FRAMEWORK

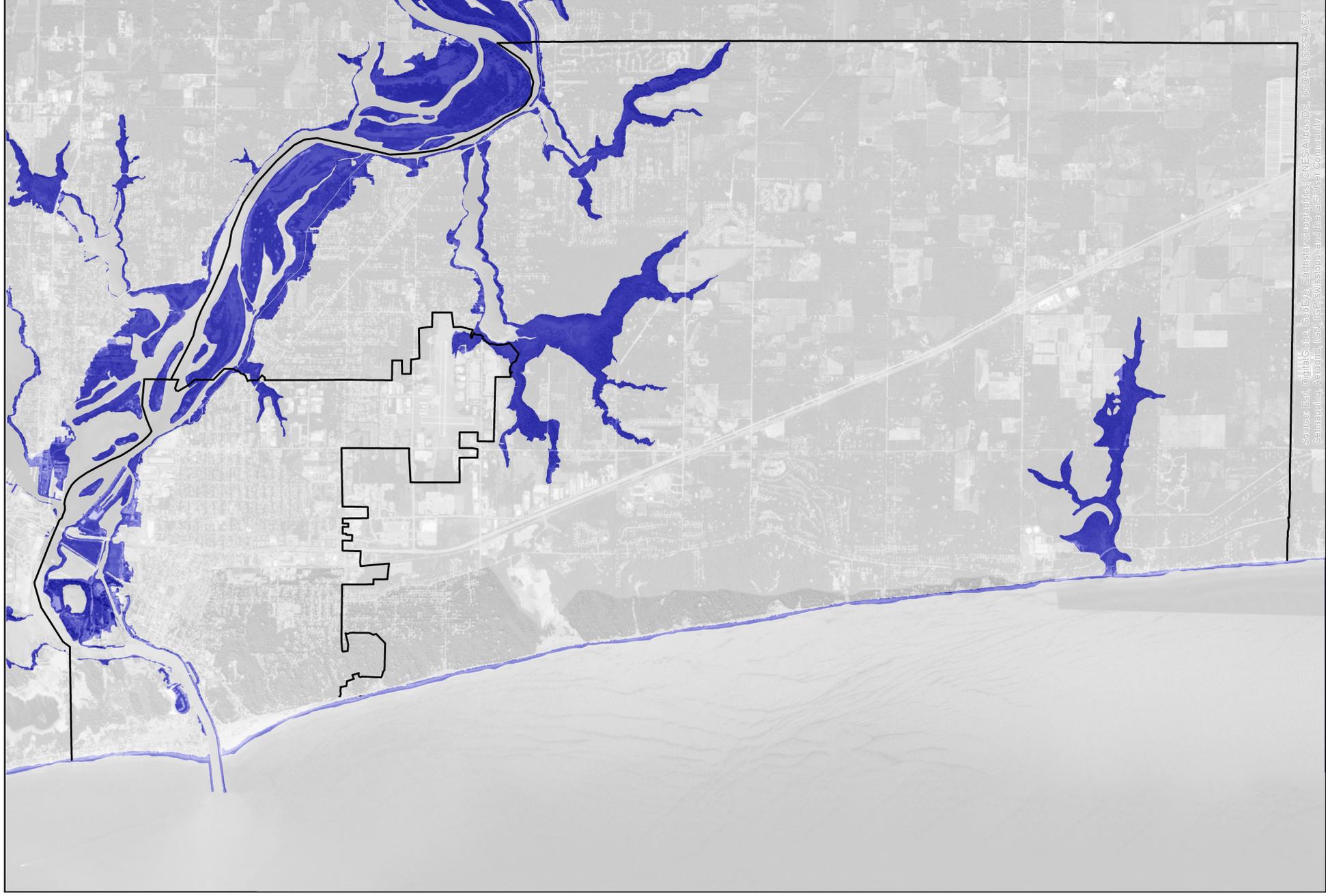
The Research Framework of this study uses scenario planning to assess environmental, fiscal, and land use conditions under different management options and Climate Futures. In this context, the project team identified two driving forces: (1) rising levels of flood waters and (2) local government management options. Each Climate Future was tested against each management option and evaluated for impacts on the environment and land use in the community.

CLIMATE FUTURE DEFINITIONS

- “Lucky” Future – Under the Lucky Climate Future, Great Lakes water levels will continue to stay relatively low. Although there will be wave and wind action, major storm events and wave impacts will not encroach on properties landward of current beaches. A Lucky flood projection is shown in Map 12.1.
- “Expected” Future – Under the Expected Climate Future, Great Lakes water levels will continue to fluctuate according to long-term decadal patterns. There will be periods of high water levels similar to the long-term highs recorded in 1986, with Great Lakes still-water elevation closer to that of long-term average (580 feet). There will also be more frequent large storm events than in the past. Map 12.2 shows an Expected flood projection.
- “Perfect Storm” Future – Under the Perfect Storm Climate Future, Great Lakes water levels will continue to fluctuate according to decadal patterns. However, still-water elevation will be higher than the long-term average and closer to the long-term high (583 feet). Map 12.3 shows a Perfect Storm flood projection.

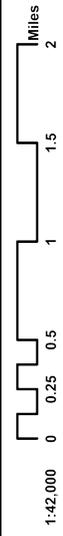
¹⁰ Cruce, T., & Yurkovich, E. (2011). Adapting to climate change: A planning guide for state coastal managers—a Great Lakes supplement. Silver Spring, MD: NOAA Office of Ocean and Coastal Resource Management.

Map 12.1 Lucky Climate Future

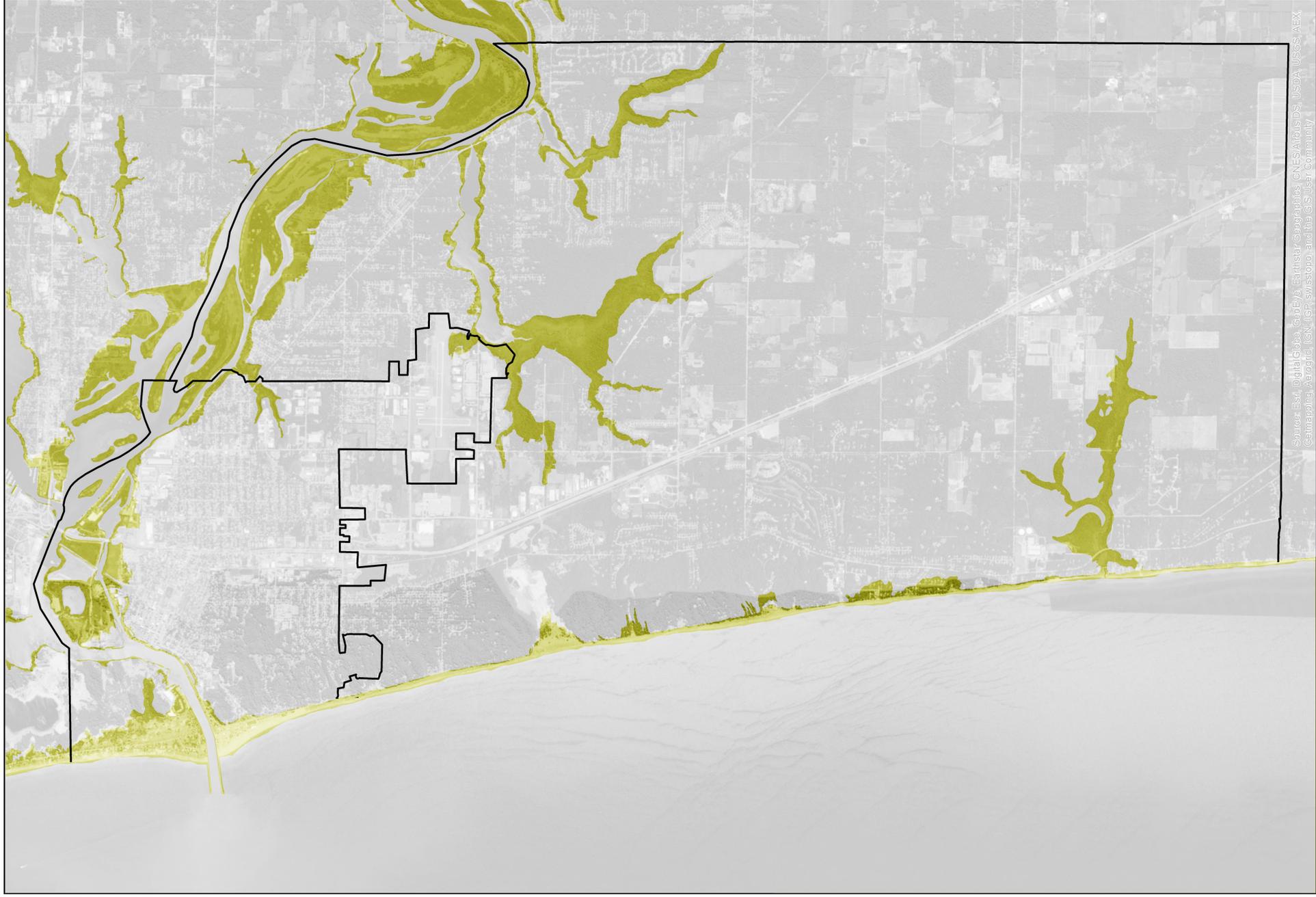


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, Swisstopo, and the GIS User Community

"Lucky" Flood Scenario

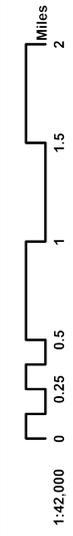


Map 12.2 Expected Climate Future

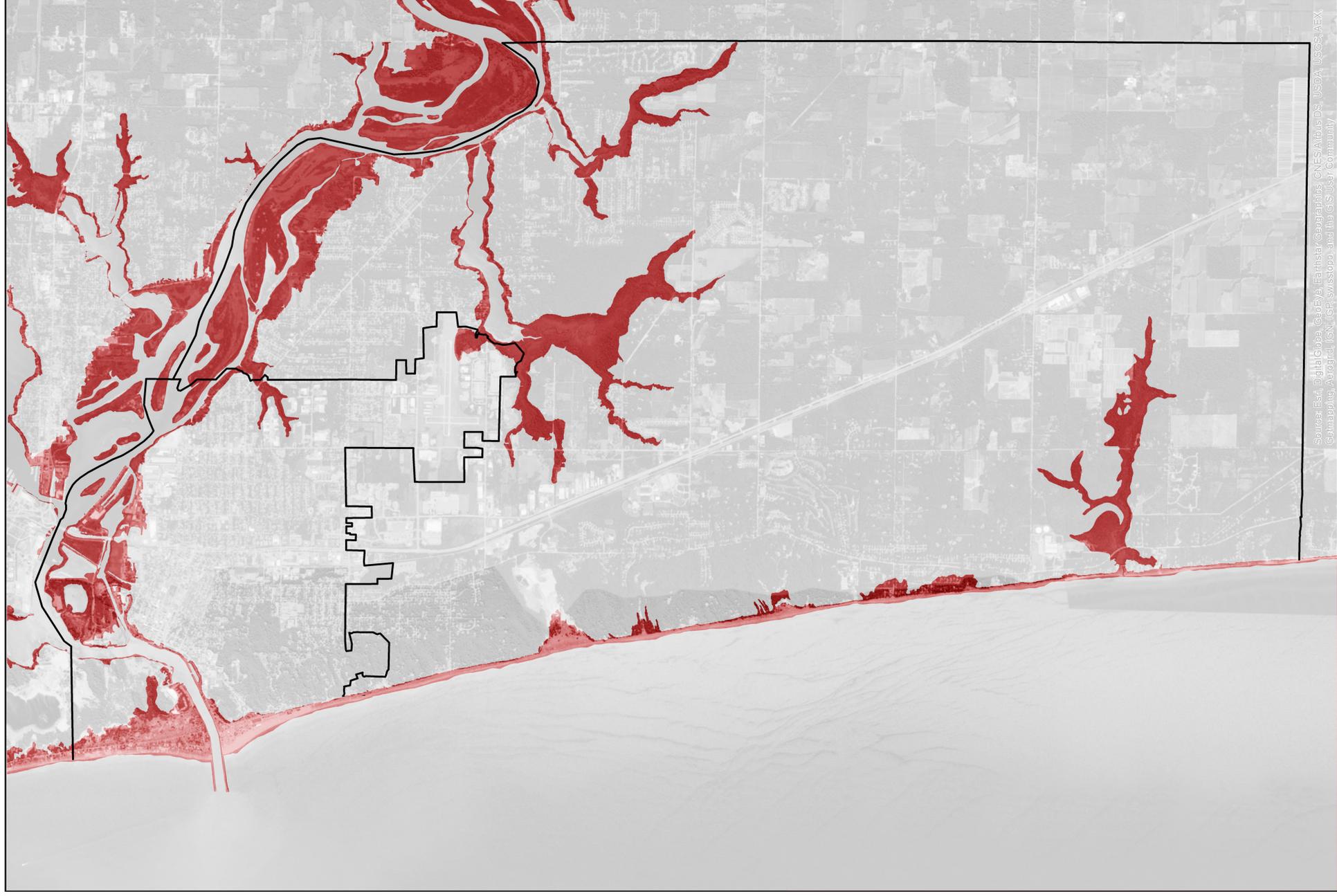


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroX, GeoEye, IGN, JP2, swisstopo, and the GIS User Community

'Expected' Flood Scenario



Map 12.3 Perfect Storm Climate Future



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroX, GeoEye, AeroGRID, IGN, iGPS, swisstopo, and the GIS User community

Perfect Storm[®] Flood Scenario

1:42,000 0 0.25 0.5 1 1.5 2 Miles

Table 12.1 Conceptual Research Framework

	Lucky Climate Future	Expected Climate Future	Perfect Storm Climate Future
Current Structures and Infrastructure			
Build-Out According to Current Zoning			
Build-Out According to Current Master Plan			
Build-Out According to Best Management Practices			

MANAGEMENT OPTIONS

The following four management options were used in the analysis.

- Current Structures and Infrastructure
- Build-out According to Current Zoning
- Build-out According to Best Management Practices (BMPs)

Map 12.4 on the next page shows a reasonable estimation of the Township’s development capacity by section (defined using census blocks). This map serves as a visual depiction of the “Build-out According to Current Zoning” Management option and was used as a baseline in this study to determine where changes to the current structures and infrastructure are likely and to identify the potential effectiveness of Best Management Practices. It is very important to note this is not an exact picture of the development capacity in the Township, rather this work equates to an estimate of where development may possibly occur under the current zoning ordinance.

Clearly, the Township allows for significant growth under its current zoning ordinance, especially in the west (near Lake Michigan) and the northeast (near the riverine system). The total number of residential building units that could be added, given the above limitations, is nearly 4,600 units. It is important for the Township to carefully consider areas where development should be concentrated in order to maintain its rural character and natural/open space as it grows.

The remainder of the study analyzed impacts to land use (total acres, parcels, number of structures, and critical facilities) and environmental assets (wetlands, tree canopy, impervious surface, Critical Dune Areas, and High Risk Erosion Areas.) The following summarizes the key results for some variables analyzed. Expanded results, including a description of methods and limitations, can be found in the full report.

LAND USE RESULTS

ACREAGE AND PARCELS IMPACTED

The number of acres impacted by flooding increases the most between the Lucky and Expected forecast (15%). Between Expected and Perfect Storm, the total acres impacted increases by about 3%. Additionally, as the Climate Future causes more severe flooding, greater numbers of residential and publicly owned parcels may be impacted. Commercial parcels seem to bear the least impact across all Climate Future forecasts. Additionally, there were no critical facilities impacted under any future climate forecast. Critical facilities include current locations of police and fire stations, schools, places of worship, utilities, public facilities, and water treatment plants.

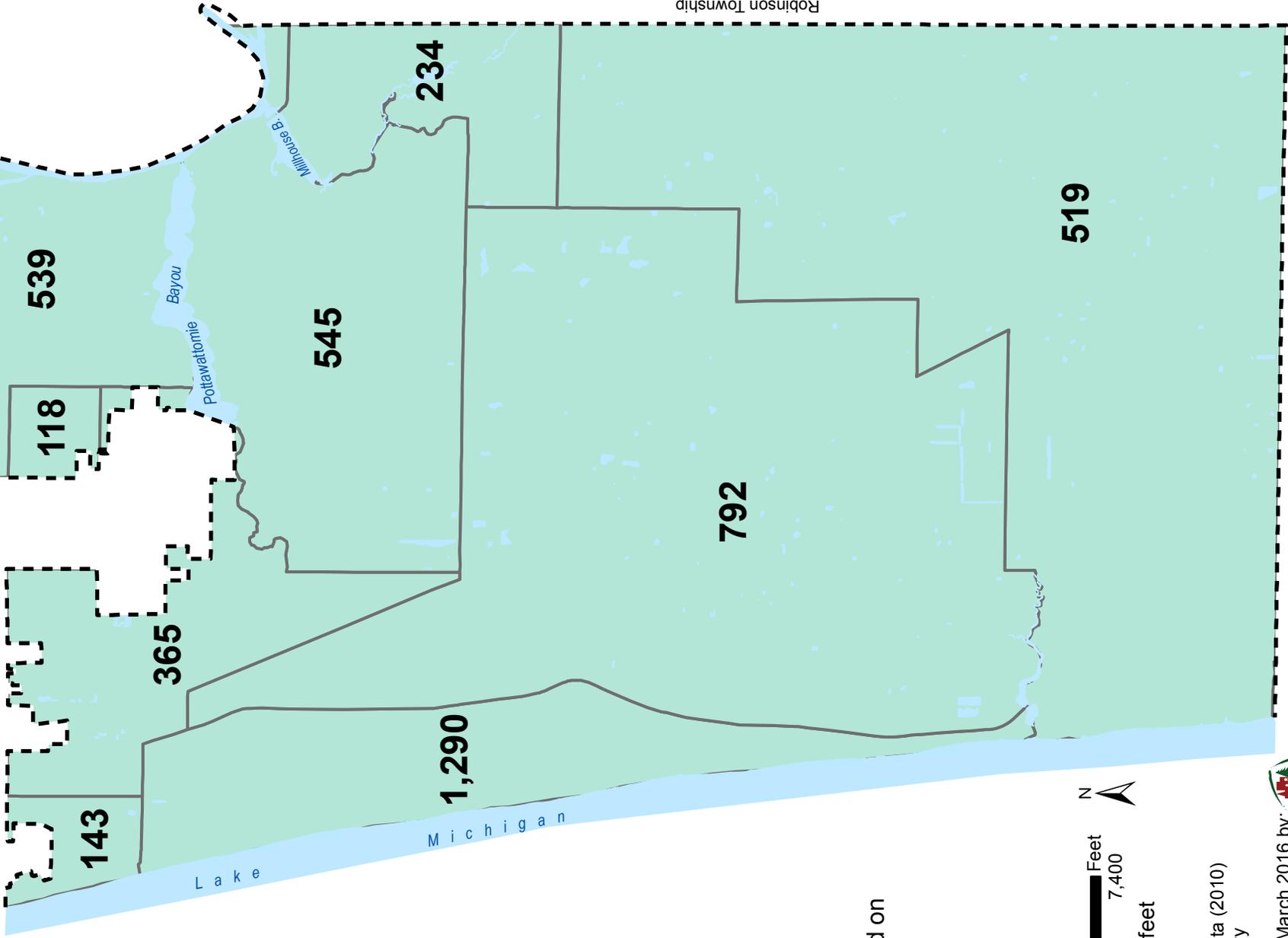
NUMBER OF STRUCTURES IMPACTED BY FLOODING

Between 46 and 385 structures would be impacted in the Township depending on the severity of the climate and the management practices the Township pursues. In general, as the community grows and as the Climate Futures cause more severe flooding, implementing Best

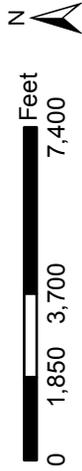


Grand Haven Charter Township Buildout Analysis Map #12.4

City of Grand Haven



Sections, based on
Block Groups*



1 inch = 4,400 feet

Data Sources:
U.S. Census Bureau,
Block Group Level Data (2010)
Michigan Geo. Data Library
Ottawa County GIS

Management Practices will reduce the number of structures impacted by over 60%.

ENVIRONMENTAL RESULTS

WETLANDS

This study analyzed existing, potential, and unprotected wetlands. Key findings include:

- There are nearly 1,400 acres of existing wetlands impacted by all three Climate Futures, which account for over 40% of the Township’s existing wetlands.
- There is some potential to increase the size and number of wetlands in order to increase resiliency to severe flooding and maximize the ecosystem benefits that wetlands provide. Currently, there is opportunity to increase the total acreage of wetlands in the Climate Future flood areas by about 15 percent.
- Wetlands under 5 acres in size are considered unprotected, as they are not currently regulated by any local or state process. In aggregate, small wetlands can still have a large effect on the ecosystem’s flood control capacity. The Township has between 80 to 90 acres of unprotected wetlands in areas likely to flood in each Climate Future.

CRITICAL DUNE AREAS IMPACTED BY FLOODING

Critical Dune Areas are important assets for the Grand Haven Community and, due to their soil composition, may be especially vulnerable to damage from flooding. The intent of this study is to provide some base of analysis for the future health of Critical Dunes, especially as development on Critical Dunes is likely to increase due to weakened regulations, which are noted in greater detail in the full report.

While it is impossible to predict the number and scope of development permits that may be granted in the future, this study provides insight into parcels that may be developed in or near Critical Dune Areas. Relatively few acres of Critical Dune Area would be impacted by flooding in any of the Climate Futures analyzed, and around 10% of the Critical Dune land is impacted under Expected and Perfect Storm Climate Futures. However, the potential for development in, and near Critical Dune Areas is very high. The Township should consider methods, as recommended in the next section, to restrict this potential for development.

RECOMMENDATIONS

In total, this analysis showed that even minimal use of Best Management Practices can greatly reduce the number and size of land use and environmental assets at risk. The following is a list of Best Management Practices collected from other research throughout the state. This list is not comprehensive, and each recommendation needs further research to determine if it is appropriate in Grand Haven Charter Township. The following Best Management Practices are organized into key goals, and additional BMPs are presented in the full report.

PROTECTING PRIVATE PROPERTY

- a. Public acquisition of repetitive loss areas or areas identified as at risk for coastal flooding. Develop these areas as parks, trails, or other community amenities that can withstand temporary flooding and inundation.
- b. Participate in the FEMA Community Rating System and set benchmarks to increase score.
- c. Adopt a local wetland ordinance to protect smaller wetlands (less than 5 acres) to promote wetland services in neighborhoods.
- d. Enact deed restrictions stating the existence of an environmentally sensitive area on public property.

- e. Encourage implementation of green infrastructure through incentives, stormwater utility fees and stormwater credit manuals.
- f. Encourage cluster development that allows structures to be sited in less vulnerable coastal areas.
- g. Adopt performance standards that minimize on-site soil and vegetative disruptions.
- h. Implement a Transfer of Development Rights program, where development rights are transferred to inland areas away from coastal hazards.
- i. Implement a Purchase of Development Rights program by working with a land bank or conservation district to purchase rights to development in areas at risk for coastal zone flooding.

PROTECTING PUBLIC HEALTH

- j. Disconnect combined sewer systems (stormwater and sanitary).
- k. Provide incentives for on-site stormwater treatment to reduce standing water.
- l. Increase capacity of stormwater sewer system to handle heavier precipitation events.

EMERGENCY MANAGEMENT

- m. Ensure at least one municipal staff employee is a certified floodplain manager.
- n. Identify public locations with back-up power supplies.

PROTECTING PUBLIC INFRASTRUCTURE

- o. Update design standards to build roads, culverts, and bridges in adherence with updated precipitation tables.
- p. Do not allow public infrastructure to be built in Special Flood Hazard Areas, or the following zones: VE, AE, AO, or X.
- q. Ensure critical facilities are sited outside the VE/AE zones.
- r. Encourage development to occur in high, vertical density in areas where infrastructure is available. This will help ensure the protection of natural spaces and help local governments maintain valuable infrastructure.

PROTECTING NATURAL RESOURCES AND MAXIMIZING ECOSYSTEM SERVICES

- s. Identify high priority public lands for wetland restoration and apply for grants to fund restoration projects.
- t. Conduct a community inventory of environmentally sensitive areas and create 50-foot buffers around all environmentally sensitive areas.
- u. Require native vegetation on coastal properties, particularly near Critical Dune Areas and other environmentally sensitive areas.
- v. Zone for low intensity and low density around environmentally sensitive areas.
- w. Adopt overlay zones, including: prohibition of off-road vehicles; special use permits and developments in well-protected

and vegetative areas behind foredunes; impervious surface restrictions; design standards allowing for raised structures; and native vegetation requirements.

PROTECTING WATER QUALITY

- x. Prioritize open space protection through the master plan process for areas that are continuous, provide flood protection, and provide stormwater filtration.
- y. The Master Plan should recognize the relationship between water quality and stormwater management.
- z. Limit percentages of impervious surfaces in new developments (no more than 10%).
- aa. Adopt lakeshore setbacks to regulate tree cutting, mowing, and fertilizer use.

CONCLUSION AND NEXT STEPS

Overall, this project outlines a clear way for the Grand Haven Community to identify areas at risk of flooding. It includes a strategy for reasonably assessing build-out potential in relation to flood risk, and evaluates how that risk is lowered when each jurisdiction adopts several Best Management Practices as ordinances. This analysis suggests the Grand Haven Community should conduct further research and choose Best Management Practices that fit the community's unique needs.

CHAPTER 13. SUMMARY OF DEFINING VULNERABILITY IN THE GRAND HAVEN COMMUNITY

Many communities across Michigan are experiencing the impacts of climate variability on agriculture, infrastructure and human health.¹ Severe storms, extreme heat events, and heavy flooding are all projected to increase in West Michigan, but with thoughtful planning and preparation, communities can better withstand and recover from these events and become even better places to live and thrive.² Figure 13.1 on the next page shows the history of severe weather events in the Grand Haven region.

The following pages summarize the results of a vulnerability assessment for the Grand Haven Community. A vulnerability assessment is a useful step toward increasing resiliency. The full report, *Defining Vulnerability in the Grand Haven Region*, is available on the Township's website at: <http://www.ghc.org/VulnerabilityReport>. By using maps and data, this vulnerability assessment identifies areas of the community where populations are most likely to experience the negative effects of climate variability. This assessment focuses on the Township's vulnerabilities to extreme heat and heavy rain events, as these are each expected to occur more often and with greater intensity in West Michigan. However, many risk factors identified here may also apply to other types of shocks and changes within the community.

The project team used a method developed by the University of Michigan's Taubman College of Architecture and Urban Planning in order to determine the Township's vulnerability to extreme heat events and heavy rain and flooding events.³ This vulnerability assessment identifies the most vulnerable areas in the Grand Haven Community using a simple model:

VULNERABILITY = SENSITIVITY + EXPOSURE

In this model, *sensitivity* refers to the degree to which a community or certain segments of a community could be impacted by an event, while *exposure* refers to hazards in the natural or built environment. Vulnerability occurs when the environment is more susceptible to a climate event in areas where more sensitive populations live. Separate maps for sensitivity (where sensitive populations live) and exposure (where the environment is most susceptible to extreme heat) were created. The overall sensitivity and exposure maps and the resulting vulnerability maps are included for both extreme heat and heavy rain events in the following pages.

¹ There are many resources available to study this more. One good example is the Union of Concerned Scientists publications. See this 2009 bulletin on Michigan's response to climate change: http://www.ucsusa.org/sites/default/files/legacy/assets/documents/global_warming/cli-mate-change-michigan.pdf

² Great Lakes Integrated + Assessment Center's Regional Climate Change Maps: <http://glisa.umich.edu/resources/great-lakes-regional-climate-change-maps>

³ Foundation for Community Climate Action: Defining Climate Change Vulnerability in Detroit (December 2012) University of Michigan's Taubman College of Architecture and Urban Planning.

⁴ National Research Council. Reconciling observations of global temperature change. Washington, DC: National Academy Press, 2000:86.

⁵ National Institute of Environmental Health Sciences. A human health perspective on climate change. April 2010.

A Resilient Community Often Has:

1. Minimal human vulnerability
2. Diverse livelihoods and employment
3. Adequate safeguards to human life and health
4. Collective identity and mutual support
5. Social stability and security
6. Availability of financial resources and contingency funds
7. Reduced physical exposure and vulnerability
8. Continuity of critical services
9. Effective leadership and management
10. Empowered stakeholders
11. Integrated development planning

Source: Rockefeller Foundation

The impacts of climate change extend beyond what is studied in this Vulnerability Assessment. In fact, there are major health effects caused by long-term changes to the climate that are predicted for the Midwest Region. Already, people in Michigan are experiencing higher rates of skin and eye damage from increased exposure to ultraviolet radiation, increased incidence of respiratory and cardiovascular diseases, and increased incidence of vector-borne and water-borne diseases.^{4,5} Weather conditions and high heat events exacerbate poor health conditions like allergies, asthma, and obesity.

Figure 13.1 Extreme Weather Events Timeline

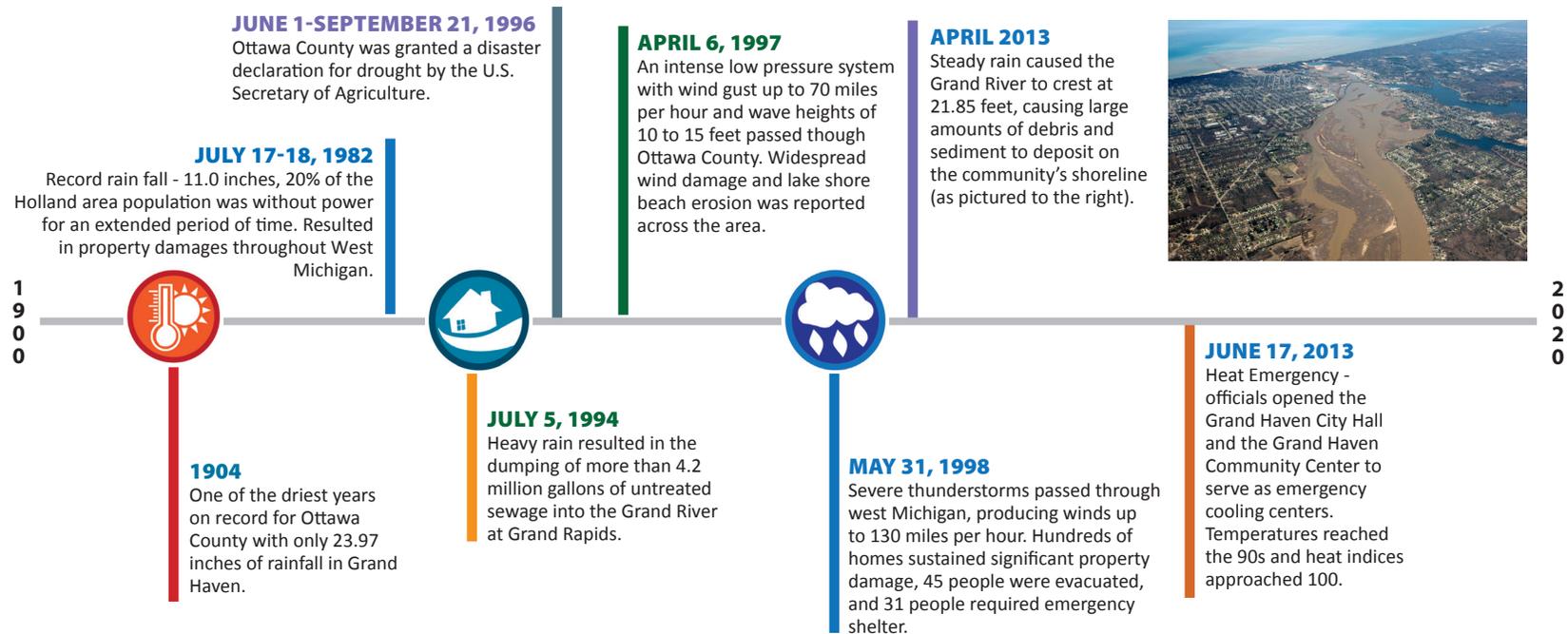


Figure 13.1 above summarizes a few of the major weather-related events in the Grand Haven Community and West Michigan over the past century. Oftentimes, severe weather events result in negative impacts to the local economy and have a greater impact on the vulnerable populations within the community.

EXTREME HEAT EVENTS

Extreme heat is caused by very high temperatures and very high humidity. Extreme heat events that last for several days are called heat waves, and can cause serious health conditions like heat exhaustion, heatstroke, and even death.⁶ Heat waves can also damage agricultural products, exacerbate drought, and create problems for infrastructure like roads and utilities. Additionally, extreme heat events are hard to plan for, as weather forecasts often fail to predict prolonged heat waves in the long-term, and short-term forecasts leave little time to prepare.⁷ It is important for communities across the State to build the relationships and resources necessary to mitigate the severe consequences of heat waves before an event occurs. This vulnerability assessment provides one step in that process.

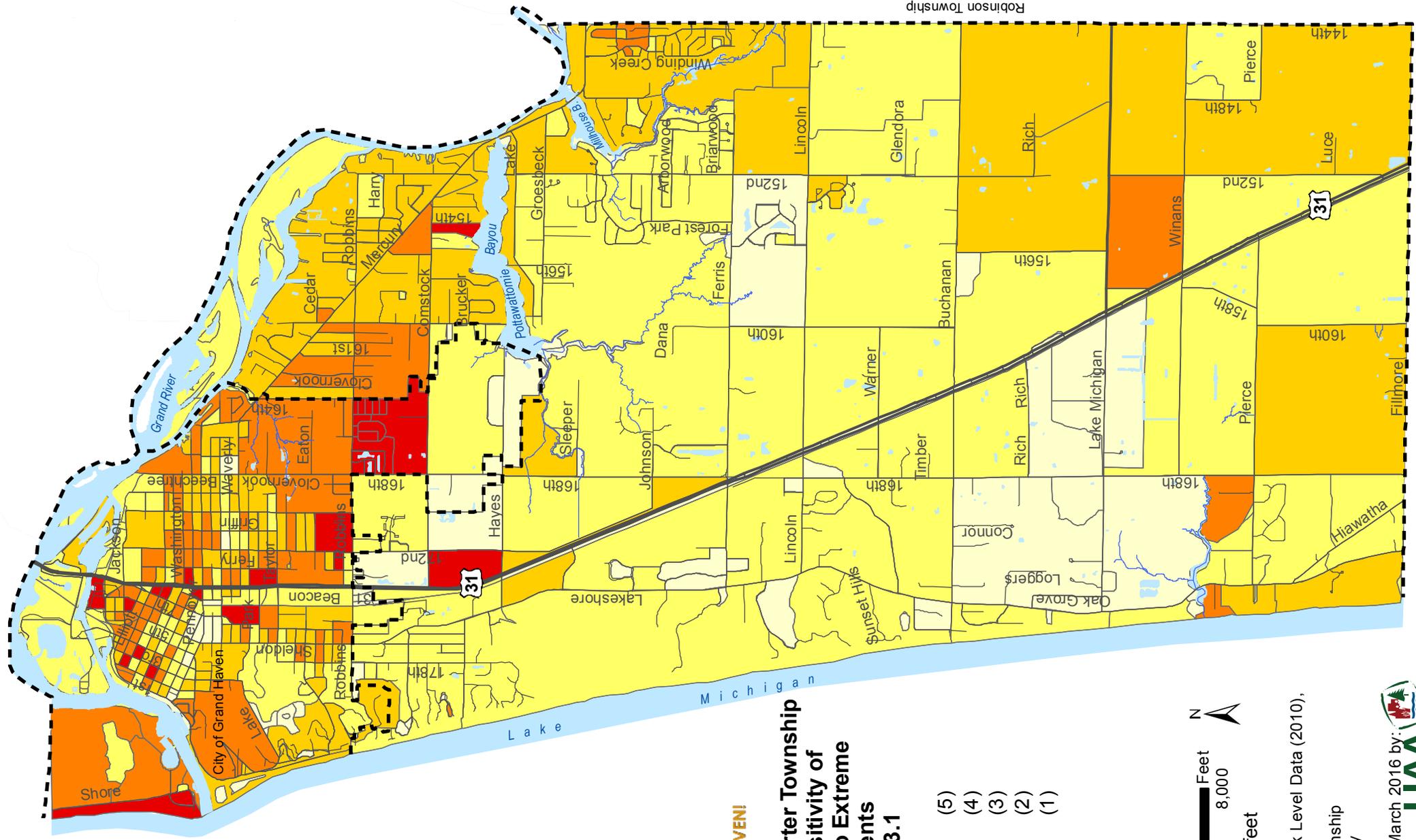
STEP ONE: IDENTIFYING POPULATIONS SENSITIVE TO EXTREME HEAT EVENTS

Researchers who study heat impacts have found that several groups of people tend to experience the most harm from a heat event.⁸ The following populations are considered relatively more sensitive (see Map 13.1):

⁶ Center for Disease Control and Prevention, Climate Change and Extreme Heat Events. <http://www.cdc.gov/climateandhealth/pubs/ClimateChangeandExtremeHeatEvents.pdf>

⁷ Ibid.

⁸ Foundation for Community Climate Action: Defining Climate Change Vulnerability in Detroit (December 2012) University of Michigan's Taubman College of Architecture and Urban Plan-ning.



**Grand Haven Charter Township
Relative Sensitivity of
Populations to Extreme
Heat Events
Map #13.1**

- 16 - 21 (5)
- 13 - 15 (4)
- 10 - 12 (3)
- 6 - 9 (2)
- 1 - 5 (1)



Data Sources:
 U.S. Census Bureau, Block Level Data (2010),
 ACS data (2009-2013)
 Grand Haven Charter Township
 Michigan Geo. Data Library
 Ottawa County GIS

What About the Winters of 2014 & 2015?

Remember, weather reflects the short-term conditions of the atmosphere while climate is the average daily weather for an extended period of time. This difference was never more evident in Michigan than over the last two years. Although most of the Great Lakes froze over the winters of 2014 and 2015 overall there has been a 71% reduction in the extent of ice cover between 1970 and 2010. Temperatures have also increased by 2.5 degrees since 1950, with NASA stating that 2016 is likely to be the warmest year on record.



Source: NASA , 2010 <http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=43038&src=nha>

- Residents 65 years of age and over - Studies indicate that older age is associated with higher hospital admission rates in heat waves.⁹
- Residents living alone - Although living alone is not necessarily a risk, people who are socially isolated are at greater risk during an extreme heat event. Isolated people may not be able to recognize symptoms of heat-related illness and fail to take proper action.¹⁰
- Minority populations - Studies also suggest that minorities are at greater risk during extreme heat events. This may be for various reasons, including less reliable access to health care, transportation and other social supports needed to reduce heat exposures.¹¹ In other words, a correlation exists between non-white populations and increased sensitivity to extreme heat.
- Populations in poverty - Living in poverty is associated with increased heat-related morbidity and mortality. In general, persons living at or below the poverty line have less access to resources, like air conditioning or cooling options for their residences. This can limit a person's access to relief from an extreme heat event.¹²
- People over 25 with less than a high school education - Similarly, studies demonstrate a link between low educational attainment and heat-related illness and death.¹³

WHERE DO THE MOST SENSITIVE POPULATIONS LIVE IN GRAND HAVEN TOWNSHIP?

The Sensitivity of the Population to Extreme Heat Events (Map 13.1) provides a reasonably detailed assessment of where sensitive populations live. This does not mean residents in these locations are in immediate danger. Rather, the map provides planning officials a new way of identifying areas where heat waves could present serious problems for a significant number of citizens. In general, the map shows that populations in some areas are relatively more sensitive to extreme heat events than others. There are a number of areas within the Township with relatively high concentrations of sensitive populations.

STEP TWO: IDENTIFYING AREAS WITH HIGH EXPOSURE TO EXTREME HEAT EVENTS

Exposure refers to the environmental factors that increase the risk of extreme heat. When larger communities experience heat waves, air temperatures can vary significantly from place to place during the day and at night. Some of these differences can be attributed to the varying types of land cover found throughout the community.¹⁴ For example, temperatures can be significantly lower at night in locations with a heavy tree

⁹ Curriero FC, Heiner KS, Samet JM, et al. Temperature and mortality in 11 cities of the eastern United States. *American Journal of Epidemiology*. 30 (2001): 1126-8.

¹⁰ Smoyer-Tomic, K.E.; Kuhn, R.; Hudson, A. Heat wave hazards: An overview of heat wave impacts in Canada. *Nat. Hazards* 2003, 28, 465-486.

¹¹ Waugh and Tierney (eds.) *Emergency Management: Principles and Practices for Local Government*. Chapter 13: Identifying and addressing social vulnerabilities by Elaine Enarson.

¹² Smoyer KE. Putting Risk in its place: Methodological Considerations for Investigating Extreme Event Health Risk. *Social Science and Medicine*. 47:11 (1998):1809-1824.

¹³ Curriero FC, Heiner KS, Samet JM, et al. Temperature and mortality in 11 cities of the eastern United States. *American Journal of Epidemiology*. 30 (2001): 1126-8.

¹⁴ Landsberg, H. (Ed.), 1981. *The Urban Climate*. Academic Press, New York.

canopy and very little pavement. Conversely, temperatures can be higher in locations with little greenery and lots of pavement. This temperature relationship is called the Urban Heat Island effect.

When the Urban Heat Island effect is not present, heat indexes (the combination of air temperature and humidity) rise when the sun is shining during the day and drop when the sun goes down in the evening. Urban Heat Islands are caused when buildings, roads, and other impervious surfaces absorb heat from the sun during the day and release heat throughout the night. In other words, in areas with excessive impervious surfaces and less natural ground coverage, heat indexes are higher, even at night. During a heat wave, the environment stays warm even at night, and sensitive populations are at even greater risk of heat-related illness. Studies have documented that despite nearby rural areas, the Urban Heat Island effect can cause a 2 to 9 degree Fahrenheit increase.¹⁵ Two key factors were used to determine areas with high exposure: impervious surfaces and tree canopy coverage.

- Impervious Surfaces - Impervious surface refers to parking lots, roads, sidewalks, building footprints, and any other area that is paved. Data for impervious surfaces was digitized using aerial imagery.
- Tree Canopy Coverage- Tree canopy refers to the land within a community covered by trees, shrubs, or other vegetation. Trees and vegetation actually lower the surface and air temperature nearby, reducing the Urban Heat Island effect.¹⁶ Grand Haven Township's tree canopy data was digitized using aerial imagery and mapped as a percentage of total land cover within each Census Block.

WHERE IS THE RISK OF EXTREME HEAT THE GREATEST?

The Exposure to Extreme Heat Events Map (Map 13.2) shows the areas within Grand Haven Charter Township where the risk of the Urban Heat Island effect is greatest. In other words, the darker shades of blue indicate where extreme heat may be most intense during a heat wave. This map can help the Township better assess where new vegetation and tree canopy should be prioritized, existing canopy preserved, and where reducing impervious surfaces (e.g., with specialized pavement or native landscaping) would be most beneficial.

STEP THREE: COMPOSITE VULNERABILITY FOR EXTREME HEAT EVENTS

The Grand Haven Community Heat Vulnerability Map is a simple additive combination of the overall sensitivity map and the overall exposures map (see Map 13.3). The resulting vulnerability index depicts where concentrations of exposures and sensitive populations create a higher risk for community residents. In general, those areas with a composite score of 22 to 27 (red) have residential populations that may be particularly vulnerable to extreme heat events.

HEAVY RAIN AND FLOODING EVENTS

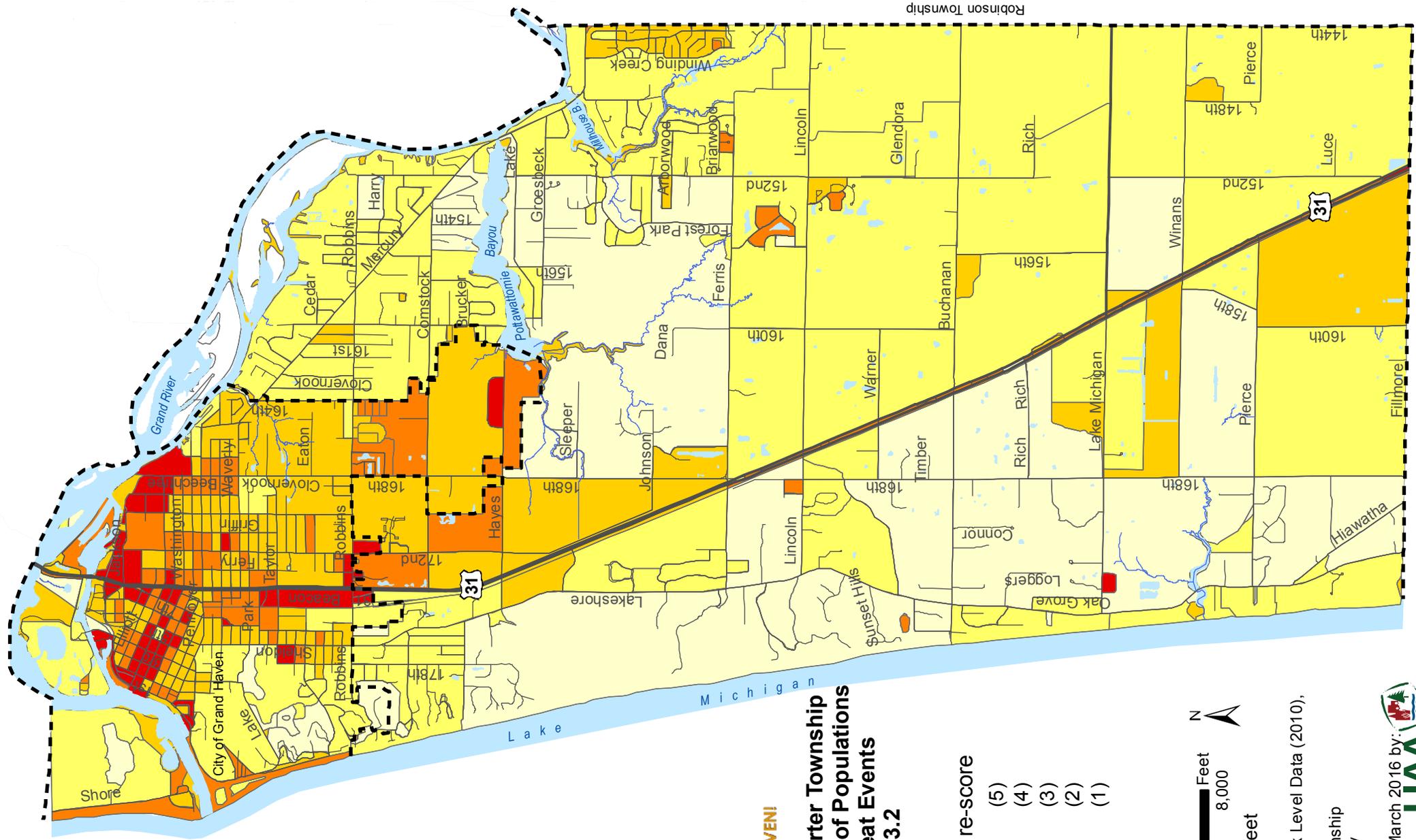
Climate models suggest the Grand Haven Community and West Michigan can expect more frequent storms of increasing severity in the decades ahead. In many communities, flooding impacts are felt most significantly at the household level. Recall that this study uses a model where "Vulnerability = Sensitivity + Exposure." The

Based on the most recent models, the climate of the Grand Haven Community will continue to warm, with greater increases in temperature during the winter months and at night. There are a variety of weather impacts expected with this change. Some of the potential impacts of climate variability in the Grand Haven Community include:

1. Storms are expected to become more frequent and more severe.
2. Increases in winter and spring precipitation
3. Less precipitation as snow and more as rain
4. Less winter ice on lakes
5. Extended growing season (earlier spring/late fall)
6. More flooding events with risks of erosion
7. Increases in frequency and length of severe heat events
8. Increased risk of drought, particularly in summer

¹⁵ Environmental Protection Agency: <http://www.epa.gov/sites/production/files/2014-06/documents/basicscompndium.pdf>

¹⁶ Environmental Protection Agency Heat Island Cooling Strategies Page: <http://www.epa.gov/heat-islands/heat-island-cooling-strategies>



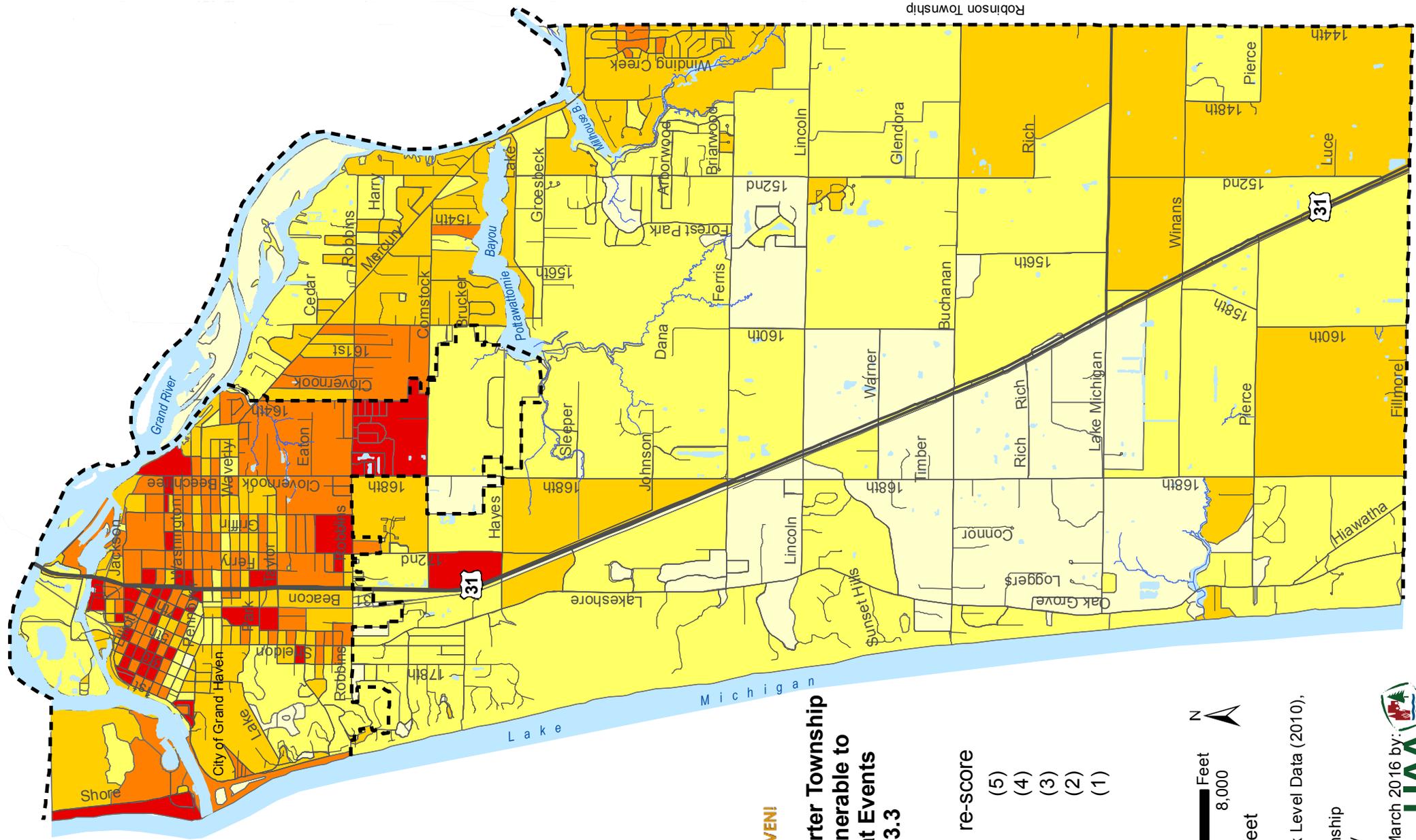
**Grand Haven Charter Township
Relative Exposure of Populations
to Extreme Heat Events
Map #13.2**

additive score	re-score
 9 - 10	(5)
 7 - 8	(4)
 5 - 6	(3)
 3 - 4	(2)
 1 - 2	(1)



1 inch = 4,750 feet

Data Sources:
 U.S. Census Bureau, Block Level Data (2010),
 ACS data (2009-2013)
 Grand Haven Charter Township
 Michigan Geo. Data Library
 Ottawa County GIS



**Grand Haven Charter Township
Population Vulnerable to
Extreme Heat Events
Map #13.3**

additive score	re-score
 22 - 27	(5)
 18 - 21	(4)
 14 - 17	(3)
 10 - 13	(2)
 3 - 9	(1)



1 inch = 4,750 feet

Data Sources:
 U.S. Census Bureau, Block Level Data (2010),
 ACS data (2009-2013)
 Grand Haven Charter Township
 Michigan Geo. Data Library
 Ottawa County GIS

Severe storms have the potential to cause powerful waves and damage to properties near the shoreline, in addition to flooding further inland.



Source: LIAA

following paragraphs summarize who is most sensitive to flooding, where in the Township environmental exposure to flooding is highest, and the resulting vulnerability assessment.

STEP ONE: IDENTIFY POPULATIONS SENSITIVE TO FLOODING

In many communities, flooding impacts are felt most significantly at the household level. A home's flood risk is based on its relative location to floodplains and other flooding hazard areas. The household flood sensitivity refers to how well the house structure is equipped to deal with flooding. As modeled by the University of Michigan, household sensitivity to flooding can be determined by looking at the age of the housing stock and a homeowner's financial ability to maintain and improve the home, which is approximated using the median household income. In general, homes built before 1940 used a more porous concrete material for basement construction, so water can flow more rapidly through the foundation. Older homes may be more vulnerable if residents have not had the financial resources to make improvements and upgrades. By looking at median household income as a marker of likely upkeep of the home, an attempt was made to exclude older homes that have been well-maintained and undergone upgrades from our areas of flood damage risk.

STEP TWO: IDENTIFY AREAS WITH HIGH EXPOSURE TO FLOODING

During heavy rain events, areas of low elevation are most likely to flood, according to the Federal Emergency Management Agency (FEMA). For this study, FEMA's Flood Insurance Rate Maps for the Grand Haven Community were used to define areas that are subject to flooding (see Map 5.6). For more information on how FEMA's maps were used in this study, see the full report.

STEP THREE: COMPOSITE VULNERABILITY FOR HEAVY RAIN AND FLOODING EVENTS

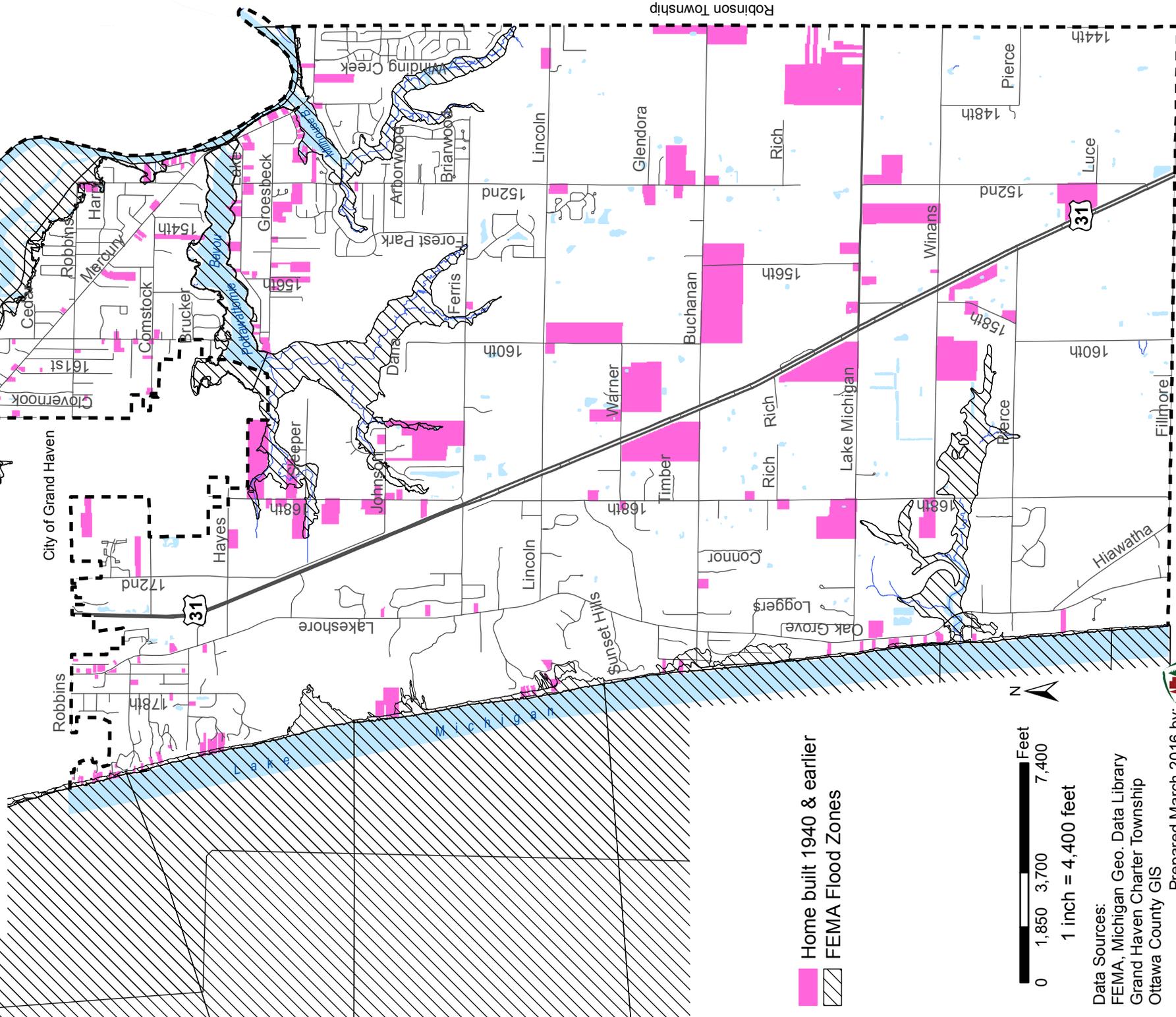
By looking at the overlap of flooding exposure and housing sensitivity, the project team identified a number of Census Blocks that are the most vulnerable in the community to flooding damage. Map 13.4 depicts the Community Flooding Vulnerability.

CONCLUSION

In conclusion, there are a number of areas in the Grand Haven Community that have relatively high vulnerability to extreme heat events and/or heavy rain and flooding events. In order to increase community resilience, the community can use the above vulnerability assessments to inform action plans to reduce sensitivities and exposures to hazards of all kinds. The maps in this summary chapter can provide direction for Grand Haven Township's planning commissioners, staff, and public health officials as they work to reduce risks to human health. This vulnerability assessment can also be used to channel resources to the areas in greatest need, develop emergency preparedness materials and programs, and reduce environmental exposure through land use planning and other policies.



Grand Haven Charter Township Population Vulnerable to Heavy Rain and Flooding Events Map #13.4



- Home built 1940 & earlier
- FEMA Flood Zones



0 1,850 3,700 7,400
Feet

1 inch = 4,400 feet

Data Sources:
FEMA, Michigan Geo. Data Library
Grand Haven Charter Township
Ottawa County GIS

Prepared March 2016 by:



Port Sheldon Township

Fillmore

Hiawatha

Pierce

Winans

Luce

Pierce

158th

156th

152nd

148th

144th

Robinson Township

Rich

Rich

Rich

Rich

Connor

Loggers

Oak Grove

Silk Hat Sunn

Lincoln

Lincoln

168th

160th

156th

152nd

Forest Park

Arborwood

Brianwood

Wynding Creek

160th

156th

152nd

148th

144th

140th

136th

132nd

128th

124th

120th

116th

112th

108th

104th

100th

96th

92th

88th

84th

80th

76th

72th

68th

64th

60th

56th

52nd

48th

44th

40th

36th

32nd

28th

24th

20th

16th

12th

8th

4th

0th

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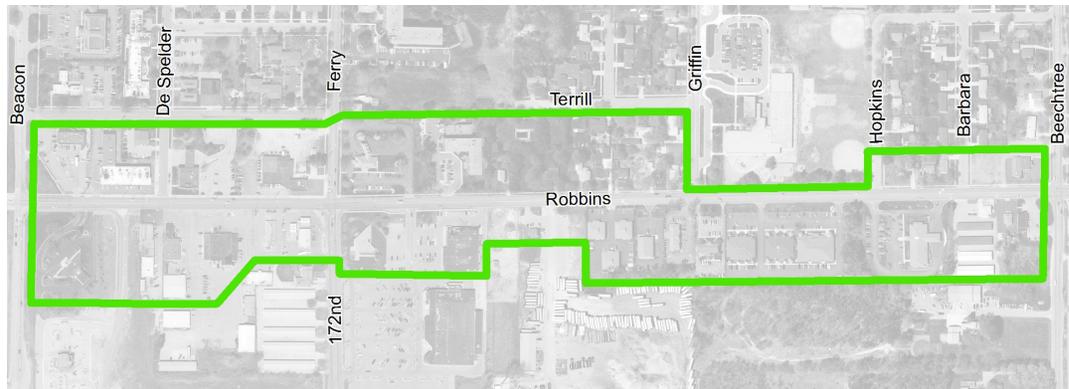
APPENDIX A. 2009 ROBBINS ROAD SUB AREA PLAN

INTRODUCTION

While a Master Plan must recognize broad development patterns, it is also important to structure realistic objectives and recommendations. As such, many land use and development challenges respond effectively to area-wide solutions and approaches. However, portions of any community face unique opportunities or challenges that respond best to focused attention. This is the case for the Robbins Road corridor. Its unique circumstances are made somewhat more complex since both the City of Grand Haven and Grand Haven Township have control over the area.

Recognizing that the corridor's future affects both communities and that the decisions of one will affect land uses in the other, the township and city cooperated in the development of this Sub Area plan. The plan identifies corridor liabilities and assets and presents a strategy to overcome obstacles and to maximize opportunities. While the Robbins Road Sub Area is distinct, it is nevertheless important to consider its relationship to the larger community. Therefore, this Appendix provides recommendations for the Robbins Road corridor and its improvement that are consistent with the greater Township Master Plan.

Given that both communities were updating their Master Plans simultaneously in 2009, the Township and City coordinated their planning activities recognizing that the decisions of one community affect land uses in the other.



The Robbins Road Sub Area extends from US-31 on the west to Beechtree/168th on the east.

METHODOLOGY AND CITIZEN INPUT

The Robbins Road Sub Area plan began with extensive research and site visits. The consulting team walked and drove the corridor and prepared an extensive inventory of photos and noted its key features, development patterns, unique land uses, traffic patterns, as well as aesthetic and land use strengths and weaknesses. This work concluded on August 14, 2008, with a joint meeting of both the city's and township's Master Plan Steering Committees. The meeting began with a description of the planning process and initial impressions of the sub



area. Participants then divided into two groups, (each included representatives of both jurisdictions) who then undertook a SWOT (Strengths/Weaknesses/Opportunities/Threats) assessment. The following table summarizes those results:

Strengths	Weaknesses
<ul style="list-style-type: none"> ◆ Traffic volumes ◆ Vacant land to south ◆ Twp. desire to contain commercial growth in nodes and near City ◆ Viable commercial area ◆ Area-wide resource ◆ Deeper Lots ◆ Larger Ownership ◆ DDA West End 	<ul style="list-style-type: none"> ◆ Tight Access at Meijer (division between jurisdictions) ◆ Poor pedestrian safety ◆ People avoid light by cutting through Res. On Ferry & Despelder ◆ Lack of left turn lanes results in rear end accidents ◆ Disorganized onsite circulation ◆ Difficult lefts at 168th and Beechtree ◆ Twp. lacks control of roads ◆ 66' R.O.W. ◆ Solvent plume in ground water ◆ Shallow ground water ◆ Narrowness of properties on North Side – West End ◆ Bad past planning (need to redevelop) ◆ A lot of commercial property exists today ◆ Lack of pedestrian connections
Opportunities	Threats
<ul style="list-style-type: none"> ◆ Realign Whittaker Way with Despelder ◆ Reduced curb cuts at Walgreen's ◆ Meijer out lots ◆ Brownfield Redevelopment Authority, in both City and Township ◆ DDA in Township ◆ Commitment to cooperate across boundaries ◆ US-31 Bypass, by 2012 (?) ◆ Infrastructure ◆ Expansion of public transit ◆ Corridor TIF Plan ◆ Architectural character standards ◆ Size of parcels South of road ◆ Intersection – Meijer ◆ 3 – Lane Road 	<ul style="list-style-type: none"> ◆ Possible dev. to south w/access to Robbins Road ◆ Possible lack of cooperation from stakeholders ◆ Ottawa County Rd. Commission ◆ Revenue source ◆ Economics today ◆ Amount of commercial ◆ By Pass ◆ Lack of transportation choices ◆ Nothing happens with redevelopment

Based on the preliminary research and the SWOT input, an existing features map, (using 2004 aerial photos) and a site analysis were prepared. These were assembled as “Walking Audit Packets”, which the township and city staffs and local residents used to self-guide tours of the Sub Area. This approach helped all gain a better understanding of the Sub Area and its issues and opportunities.

To maximize public involvement, local residents and business owners were notified by mail, phone, and

newspaper articles, and through the City of Grand Haven Master Plan website about the Robbins Road Sub Area planning process. They were also invited to obtain a “Walking Audit Packet” either at the township, city, or to download it from the project website and to participate in a planning charrette for the area. A charrette is a short-duration, intense planning and design session that directly involves the public, local stakeholders, and a consultant led planning and design team. The charrette process allows planners and designers to work in a focused manner with the immediate input from participants.

The planning charrette began on the evening of September 15, 2008, with a trolley bus tour of the corridor. Participants identified and discussed various land use and design-related issues that were addressed in greater detail during a facilitated brainstorming session later that evening. This discussion included a facilitated evaluation of liabilities, assets, needs, and desires, and helped focus input on commonly held beliefs and how the character of the Sub Area affects perceptions. Participants then voted and ranked priority issues and opportunities.

Significant area-wide liabilities included a lack of:

- Sidewalks on the south side of Robbins Road
- Street trees and landscaping,
- Clearly defined internal circulation patterns
- A dedicated left-turn lane.

However, several “dreams and desires” were identified including:

- Greater corridor design consistency
- Slower traffic speeds
- Planned development south of the corridor

Participants were invited to return the next day to view progress and to offer further input. The opportunities for immediate feedback created a very dynamic atmosphere and resulted in innovation that might not otherwise have been possible. Consequently, a number of ideas were tested, re-worked, and either embraced, or rejected.

An open house was held at the close of the charrette process to review the draft Sub Area plan. The informal atmosphere helped further engage stakeholders and decision-makers in a dialogue about planning assumptions; it offered an opportunity for residents and business owners to see the initial outline of the Sub Area plan, and allowed a discussion about the remaining work.

The resulting joint community plan for the Robbins Road corridor was finalized and then integrated, as this chapter, into the 2009 Grand Haven Township Master Plan.

Using the input from the brainstorm sessions, alternative responses to each sub area’s challenges were developed.



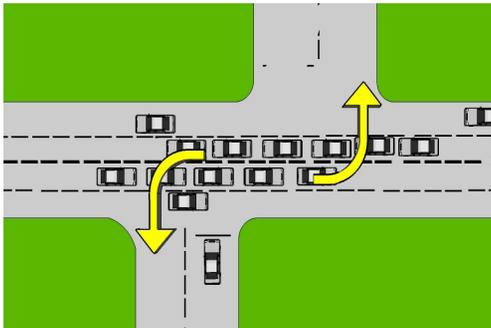
The open house offered an opportunity for residents and business owners to see the initial outlines of the sub area plans.



Successive layers of pavement have nearly overtopped the curb, further exacerbating access management in this area



Ineffectively aligned opposing intersections create the potential for "left turn lock-ups"



ROBBINS ROAD CORRIDOR

Robbins Road is controlled by the City of Grand Haven; however, since it is a jurisdictional boundary, properties along its north side fall within the city while properties to the south fall primarily into the township. Initially, the corridor study area extended about 250 - 300 feet north and south of Robbins Road and from US-31 to Beechtree Street/168th Avenue. The planning area was about 48 acres and included properties developed as a variety of commercial uses at the west end, but with office and residential toward the east. To gain a better understanding of land uses and development opportunities it was later broadened to approximately 100 acres, taking in more land to the south.

Much of the recent activity in and adjacent to the corridor has occurred in the township, however, more land remains there to be developed. As such, the township seeks a plan for this area that focuses development, taking advantage of existing infrastructure, committed development patterns, and targeted land uses that create a better sense of place for this key community gateway.

During the planning process several challenges and assets were identified; these are more fully developed below:

TRANSPORTATION

Robbins Road has four travel lanes (two in each direction) and carries upwards of 12,000 vehicle per day at its west end and about 9,800 at the east. While the US-31 and Robbins Road intersection is signalized, south bound US-31 movements require an indirect left. The Robbins Road, 172nd Avenue/Ferry Street and 168th Avenue/Beechtree Street intersections are also signal controlled.

The majority of vehicle crashes on Robbins Road (22 out of 25 reported accidents in 2008 through August) occurred between US-31 and 172nd Avenue/Ferry Street. This is where commercial activity is concentrated and multiple and poorly defined curb cuts are located. Many accidents in this vicinity are rear-end crashes, most likely due to the lack of a dedicated left turn lane and poor access management.

With forty-nine access points along Robbins Road, left-turn movements are common. As a result, the inside lanes are often encumbered with turning cars and weaving traffic as drivers change lanes to avoid vehicles and queues. Furthermore, many opposing driveways are poorly aligned, creating several potential left-turn lock-up situations. There is also a lack of uniform access to and from the roadway, although this disorganized pattern is much more prevalent west of Ferry Street/ 172nd Avenue.

About 800 feet east of US-31, parking lots extend right up to the street resulting in an oppressive, asphalt-dominated environment with little room to sort out parked cars from drive aisles and to define sidewalks. Successive layers of pavement in this area have nearly overtopped the curb, further exacerbating access management.

AN ENTRY OPPORTUNITY

The US-31/Robbins Road intersection is a major community gateway. The broad highway boulevard and indirect left turns work well to regulate traffic, but missing are elements that support aesthetics and create a

memorable “arrival experience” that enhances both communities.

PARKING LOT LAYOUT

Many parking lots along Robbins Road interconnect and yet while this cross access is poorly defined, overall it likely helps reduce traffic congestion. These interconnections could be enhanced and made safer by improving pavement markings and clearly channelizing internal parking lot traffic. The current



The lack of definition within the parking areas may lead to confusion for drivers and an unsafe environment for pedestrians

situation, with poorly defined access and internal drive aisles not only leads to confusion, it also makes walking in this area unfriendly at best, and dangerous, at worst.

These challenges are also exacerbated by what may be an oversupply of parking, especially at the southeast corner of Robbins Road and 172nd Avenue. It appears that additional commercial development could be accommodated there, strengthening the vitality of the area and making more efficient use of vast parking lots without overburdening sites or roadways. Care must still be taken to carefully integrate any new uses with existing development.

PEDESTRIAN ACCESS

The corridor does not accommodate pedestrians very well as sidewalks are only consistently located along the north side of Robbins Road. On the south side, immediately east of 172nd Avenue, only about 500 feet of sidewalk exists. West of 172nd Avenue there is little, if any parkway between the road, pedestrian zones, and parking lots. Consequently, pedestrians are very exposed to fast moving traffic. Given traffic volumes and turning movements, crossing Robbins Road on foot can be a daunting experience that must



The quality and safety of pedestrian areas vary significantly across the corridor.



be addressed by appropriately designed sidewalks, tree lined parkways and safe and clearly defined pedestrian crossings.

SITE AND ARCHITECTURAL DESIGN

Site and building design and architectural character vary tremendously along the corridor; from outdated commercial strip development to more modern office settings. Some structures, however, may be reaching the end of their useful life. While Southtown Plaza, a 1960s strip center, is about to be replaced with a modern Walgreens pharmacy and convenience store it should not deter a continued focus on the importance of architectural design and character. In fact this new development should be viewed as a catalyst opportunity to establish a set of consistent corridor design principles for the city and township, guaranteeing consistency in theme, the location and placement of buildings and parking, building materials, signs and lighting.

AN AREA OF STRONG POTENTIAL

Despite traffic and access issues, the Robbins Road Sub Area provides vital commercial and retail services to the township and city. Immediately to the south, Meijer and Wal-Mart have expanded their retail reach attracting shoppers beyond just the surrounding area. In terms of total sales volume, the Sub Area and its environs rivals many other shopping areas in West Michigan. In addition, Pinewood Place, located on Ferry Street just north of Robbins Road, is undergoing an expansion; providing more senior housing and added employment opportunities.

Vacant and underutilized lands in the township also provide future opportunities. Several large parcels are planned and zoned for medium to high density residential and/or commercial uses, creating the potential for more traffic. Yet, if done correctly this development can lessen roadway impacts by promoting more walkable environments within the context of a mixed land use district, one with jobs, housing and shopping all within close proximity. In addition, the Meijer PUD has yet to be built out.

PLAN DESIGN POLICIES

Several transportation, and planning and design policy recommendations have been identified through this effort. These will help resolve issues and enhance the Robbins Road corridor so that it can continue to serve commercial and residential interests in both the township and city.

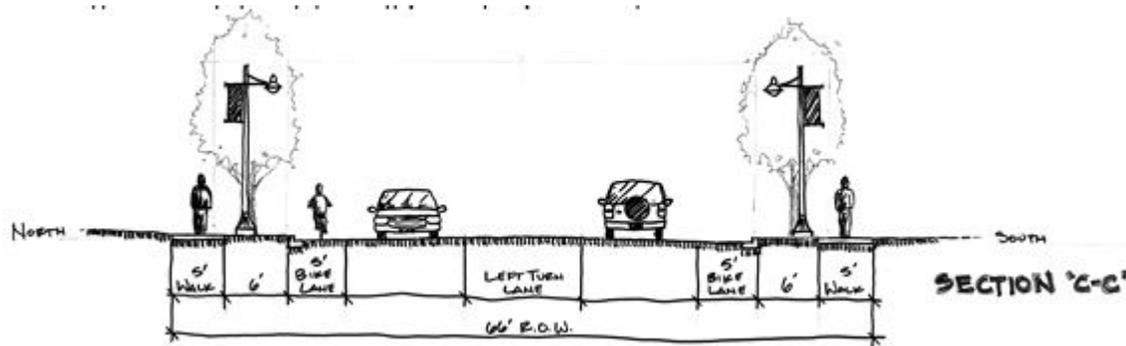
1. DEDICATED LEFT TURN LANE

Robbins Road traffic volumes vary considerably from west (with the highest levels) to the east; however, the lack of a dedicated left turn lane encumbers the entire corridor. This issue was identified and potential solutions were discussed during the process to gain citizen input.

The recommended alternative reconfigures Robbins Road to a three-lane section (possibly with right-turn lanes at appropriate high-volume locations, such as 172nd Avenue and the newly proposed Whittaker Way/DeSpelder intersections). A five-lane cross-section with a dedicated left was also considered, but ultimately rejected based on the modest traffic volumes and the relatively narrow right-of-way.

The proposed three-lane section accommodates a travel lane in each direction and a dedicated center left. This configuration better and more safely accommodates traffic flow and left turn movements than the current four lane pattern and should result in reducing crashes.

The figure above illustrates the proposed three-lane section within a 66-foot wide right-of-way. It also demonstrates sufficient area to accommodate changes to the roadway; leaving five-foot wide bicycle lanes, six-foot wide parkways to accommodate street trees and five-foot wide sidewalks on both sides of the road.



2. UNIFORMITY AND CONSISTENCY OF DESIGN

With some properties reaching obsolescence and others being considered for redevelopment, now is the time to improve the character and functionality of Robbins Road by applying consistent site, building, and architectural design standards that are coordinated between the city and township. In fact, citizens ranked uniform and consistent design standards as among their highest priorities. Such an approach would benefit both municipalities and assure compatible development within the corridor; of course, not all sites are poised for new development or redevelopment. Therefore, any standards must be flexible enough to address current uses while anticipating enhancements as new investment occurs. Design standards will also need to recognize that uses transition from west to east; shifting from relatively intense regional commercial on the west, to employment and residential on the east.

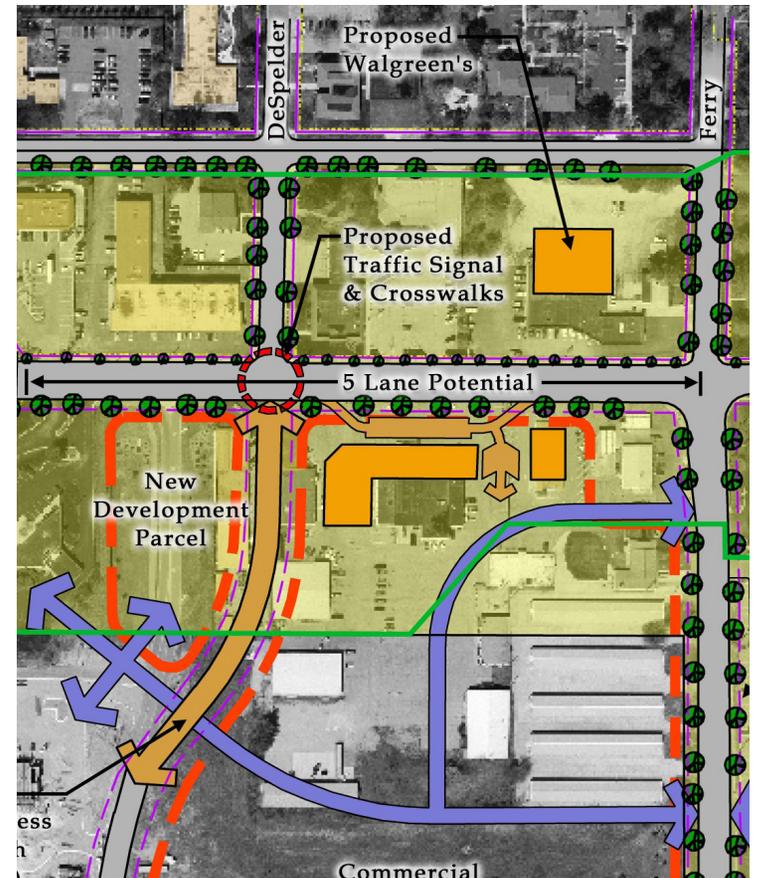
This Plan recommends the following required site development standards that at a minimum address the standards on the following page.

3. NEW ROADS AND INTERCONNECTIONS

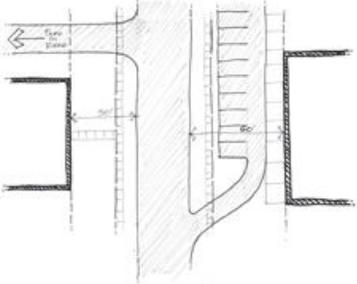
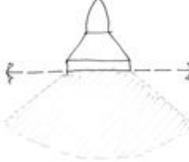
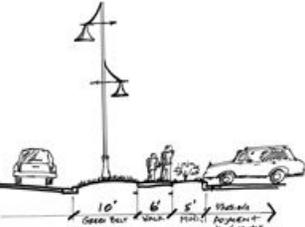
The vacant lands to the south present an important opportunity for the township, but without carefully considered implementation strategies the wrong kind of development could trigger additional traffic issues and undermine efforts to manage growth. While some properties have direct access to Robbins Road, others will require connections to 172nd or 168th Avenues. Interestingly, charrette results ranked “better connectors among all areas” as one of the top implementation strategies for the Plan.

As such, the Plan recommends an expanded and interconnected system of public streets to serve future development and to better distribute traffic. Specifically, an east-west street, located about 900 feet south of Robbins Road, is proposed between 172nd and 168th Avenues. Griffin Street should also be extended south to meet the new street and a round-about explored for that intersection. Eventually, a further extension of Griffin south to Comstock Street should be considered.

Aligning Whittaker Way and Despelder would improve the efficiency of the intersection and create a new development parcel.



Robbins Road Conceptual Uniform Design Standards

<p>Setbacks, variables</p> <ul style="list-style-type: none"> o Without front parking o With front parking (and screening) 	<p>Landscape Treatment</p> <ul style="list-style-type: none"> o Buffer depth along roads o Trees, size and quantities o Shrub screens for parking lots 
<p>Signage</p> <ul style="list-style-type: none"> o Size (area and height) o Illumination o Freestanding and Building 	<p>Lighting Standards</p> <ul style="list-style-type: none"> o Cutoff Fixture Types o Wattage Limitations 
<p>Sidewalks</p> <ul style="list-style-type: none"> o Size o Location options 	<p>Building Design, by type</p> <ul style="list-style-type: none"> o Height, Roofline o Minimum/Maximum footprint o Finish architecture 
<p>Site Layout</p> <ul style="list-style-type: none"> o Access management (spacing and offsets) o Shared drives, parking & Cross Access 	<p>Low Impact Storm Water Management</p> <ul style="list-style-type: none"> o Landscape for detention o Rain gardens 

Whittaker Way (the Meijer access drive to Robbins Road) should also be realigned to connect with DeSpelder Street. Not only would this improve traffic circulation, but it would also expand development opportunities for properties to the west. To accomplish this, however, will require demolition and redesign of existing sites; but as the area transitions, affected businesses can be relocated to new corridor development.

New roads to better serve the Meijer PUD and the larger parcels to the east are also recommended to enhance circulation and development potential. Finally, streetscape enhancements, including sidewalks, should apply to all new and existing roadways.

4. TRADITIONAL NEIGHBORHOOD DEVELOPMENT (TND) CONCEPT

The area south of Robbins Road, between 172nd and 168th avenues, is ideally suited for a Traditional Neighborhood Development. A TND emphasizes compact, mixed-use, transit and pedestrian-oriented development and offers a blueprint based on traditional town patterns. Neighborhoods, sized for easy walking distance, would function as the basic building block. Such neighborhoods should further emphasize human-scale design, town and neighborhood centers, public spaces, civic uses and other features that foster a sense of community. TNDs are also characterized by an interconnected network of narrow streets. Narrow street widths, on-street parking, street trees and other features are intended to slow local traffic and create a safe, attractive environment for pedestrians, in addition to cars. Transit and bicycle travel are also accommodated. The grid pattern of streets includes collectors and arterials, but also provides a variety of routes for local traffic. Service alleys are also a hallmark of TNDs.



Since this area has convenient access to shopping, restaurants, employment, and schools, and is also served by the area's public transportation system, Harbor Transit, it is a natural extension of the traditional development patterns located to the north of Robbins Road in Grand Haven. TND design principles should, therefore, apply to all new development using the following criteria:

- **Mixed Land Uses** – Land uses should include a blend of single and multiple-family residential, office, and regional and neighborhood-serving commercial, either integrated horizontally across the Sub Area or vertically within buildings.
- **Varying Densities and Unit Types** – Lot sizes, densities and residential types should vary and allow a compact design form. Setbacks should be replaced with build-to lines that locate buildings in a predictable pattern near the street, without intervening parking lots. Minimum building heights should be established and allowed to exceed 2.5 stories and 35 feet.
- **Interconnected Streets** – Narrow, inter-connected streets, with on-street parking should be laid out in a grid pattern. New connections between Robbins Road and Comstock Street, and 172nd Avenue and 168th Avenue should be made with respective extensions of DeSpelder Street and Timberview Drive. Streets should be lined with trees and sidewalks, and illuminated by street lights that not only serve the automobile, but pedestrians as well.



- Quality Design – Buildings (including residential, commercial and office) should have a distinct architectural character that supports TND principles. These include: clearly defined front doors that face the street; ample windows that support CPTED (Crime Prevention Through Environmental Design) principles by orienting to public spaces and increasing “eyes’ on the street”; pitched roofs for residences and quality building materials.
- Parking in the Rear – In TNDs automobiles are accommodated, but they are not allowed to dominate. To promote pedestrian-friendly neighborhoods, parking areas should be situated at the rear of a building and be accessed via alleys. Garages should be either set back from the front façade of a home or they should be located at the rear to avoid dominating the street scene with blank walls and parked cars. On-street parallel parking should be allowed to provide a buffer between traffic and pedestrians on the sidewalks.

5. PEDESTRIAN CONNECTIONS

Other than sidewalks along the north side of Robbins Road the corridor lacks crosswalks or crossing signals. This was ranked among the highest liabilities identified by the public. Consequently, crosswalks should be added at Robbins and Griffin, including alternative crosswalk paving to further delineate pedestrian zones.

6. ENTRY FEATURE

The US-31 and Robbins Road intersection is a recognized community entrance which offers an excellent opportunity for enhancements. One example of an entry feature enhancement is an archway that extends over US-31, welcoming visitors to Grand Haven. The historic entry archway in Frankfort Michigan and the archway at the Grand Valley State University Allendale campus entrance are both good examples of such an entry feature.



The wide boulevard intersection of US-31 and Robbins Road offers an excellent opportunity for an entry feature such as these archways at Frankfort and Grand Valley State University.

IMPLEMENTATION STRATEGIES

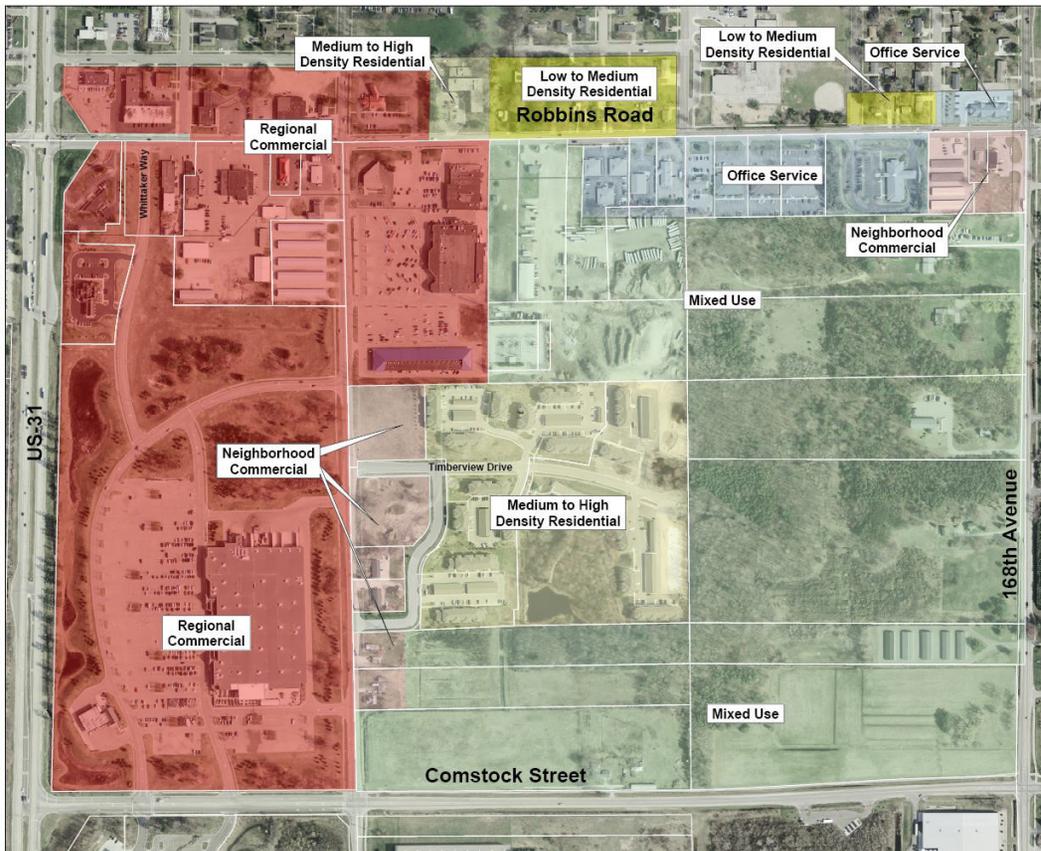
The following recommendations help establish an agenda for further action by the township and city, either working separately or jointly:

1. FUTURE LAND USE AND ZONING ADJUSTMENTS.

The township recognized the need to develop a more detailed concept for the Robbins Road Corridor, which is reflected in this plan. Recommendations include a diversity of land uses that vary by type, density, and design. Since this is a shared vision, uniform standards for design and site access must be developed and all new development must be required to meet them.

FUTURE LAND USE CONCEPT

Future land use patterns along Robbins Road are designed to transition from commercial in the west to residential in the east; development densities should also be varied. As vacant properties develop in the township they should be interconnected with a new network of streets that link to Robbins Road, Comstock Street, and 168th 172nd Avenues. Such vacant lands should be developed with a mixture of land uses, preferably as a Traditional Neighborhood Development, as described earlier in this Appendix.



The following future land use designations are proposed for the township’s portion of the Robbins Road Sub Area. The Office Service and Medium to High Density Residential designations are not included due to the fact that these uses are already built out and are not anticipated to change.



Buildings should generally be residential in character with pitched roofs.

REGIONAL COMMERCIAL

Land uses generally include larger single or multi-occupant structures providing products and services in an auto-oriented environment. However, future development must be designed to provide a safe and inviting place for both pedestrians and drivers. Sites should interconnect using existing and planned drives enabling patrons to access more than one use without being forced back onto a major road. Landscaping should be used to define sites, access drives, and streets, and to soften the regional scale of development.

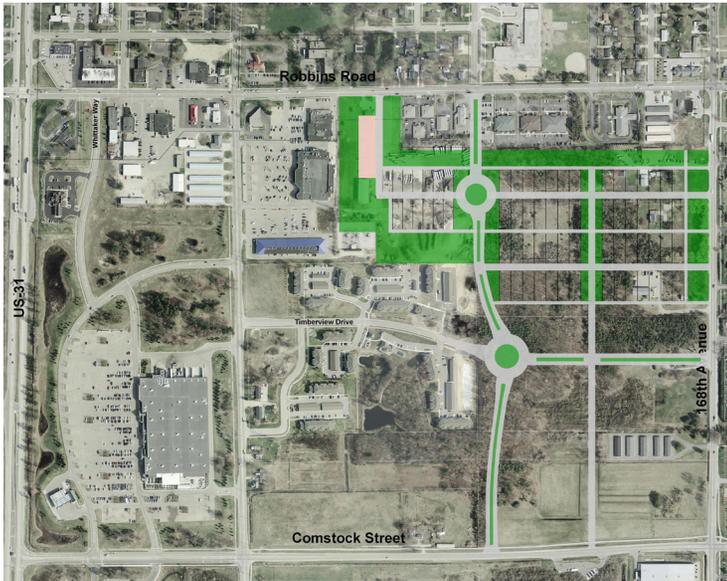
NEIGHBORHOOD COMMERCIAL

A location for small-scale retail and service facilities, these land uses primarily serve nearby residents. Buildings should generally be residential in character, with pitched roofs and sites carefully designed offering safe and inviting environments for pedestrians, bicyclists, and motorists alike. Parking should be convenient, but not configured so that nearby sidewalks and streets are dominated.

MIXED USE

This Plan recommends that the areas planned for Mixed Use are developed in accordance with the TND principles outlined earlier in this Appendix. Appropriate land uses include a mixture of single- and multi-family residential, commercial and office that are compactly integrated at varying densities and are located in buildings of varying scale and design.

The area should be developed around a grid-form street network that branches off two main street extensions; an extension of Griffin Street south to Comstock Street, and an extension of Timberview Drive east to 168th Avenue. All streets should include sidewalks, landscaping and decorative lighting to promote a safe and comfortable pedestrian environment. The graphic on the previous page provides an illustrative concept of a TND plan for the Robbins Road Sub Area.



ZONING

Areas in the township are regulated under the C-1 (Commercial) and SP (Service Professional) zones, while four zoning districts apply in the city. These are Commercial, Multiple-family Residential, Single-Family Residential and Office Service. West of Ferry/172nd zoning is consistent – “C” in the city and “C-1” in the township and permitted and special land uses are comparable in both codes. The township’s C-1 district requires a minimum lot size of 35,000 sq. ft. with a minimum width of 110 feet. However, the city’s code relies on setback and lot coverage standards to regulate parcel dimensions. A front setback in the township is 50 feet while it is 25 feet in the city.

These differences point out the need for uniformity and consistency; therefore, adjustments to both the city’s and township’s ordinance standards will be necessary to implement plan goals. However, since the defined zoning districts may apply elsewhere in either jurisdiction, care must be taken to avoid unintended conflicts. Therefore, a mixed use zoning district, if considered in the township, must be tailored specifically to the objectives of this plan. In addition, the township’s PUD provisions (if those district regulations are

used to implement recommendations) should be evaluated so that they reflect the land use objectives of this Plan. Alternative approaches, including adopting a uniform set of design standards as an overlay applying to both jurisdictions, should be explored. Other approaches include a form-based code or a pattern book used as a development guide. While either approach would provide uniform standards, mandatory requirements will only guarantee positive change.

Implementation of the portion of this Plan relating to the TND concept is dependent on the township's prior adoption of specific zoning district regulations that will allow for (1) additional flexibility in site design (flexibility, that is, beyond what is afforded under the current PUD Ordinance), (2) the intended quality and variety of building characteristics, (3) the compatible integration of mixed land uses, and (4) such other regulations as are deemed necessary to implement the township's goals of promoting high quality development, based on the TND principles outlined earlier in this Appendix. *Therefore, no TND proposals will be considered or approved by the township until such time the township has formulated and adopted the necessary zoning regulations to effectively regulate such a development concept.*

2. ROAD RECONSTRUCTION

A redesign of Robbins Road is recommended to better manage traffic, including left-turns and since it falls under the city's jurisdiction, Grand Haven is in a position to take leadership role for improvements. But it will be important to involve adjoining property owners; and the city and township should collaborate bringing the Ottawa County Road Commission and MDOT together to achieve consensus on its ultimate design, roadway landscaping, the configuration of intersections and, ultimately, the potential redesign of the US-31 intersection. A combination of funding sources will certainly be necessary to accomplish this, but the initial step would be to move from the concepts outlined in this plan to testing their feasibility and preliminary design.

3. PLANNED NEW ROADS

The Plan contemplates an expanded and interconnected network of streets to better channel traffic, to reduce pressure on a limited number of key intersections, and to permit efficient use of the lands adjoining the corridor. While part of this area may be outside the current planning boundaries, attention must still be paid to the implications of anticipated growth that could impact Robbins Road. The township should, therefore, work with the affected property owners to evaluate roadway options, curb cuts, and access management. As new development proposals occur in this area, the Planning Commission should use the Master Plan to guide the type and location of changes to its transportation system.

4. REALIGNED WHITTAKER WAY AND DESPELDER INTERSECTION

An adjustment to the Meijer PUD is recommended that would result in shifting Whittaker Way (its northerly access road) to the east about 150 feet to align with Despelder Street. This change, together with the proposed Robbins Road three-lane cross section, will significantly enhance access and the market potential of surrounding properties. It will

Shift the Whittaker Way, Robbins, Despelder intersection for better alignment



also make possible a signalized intersection and designated crosswalks to improve pedestrian access. Additional stacking and left-turn movements may also be enhanced. Of course, this alignment will require property acquisition and the demolition and relocation of some existing buildings and businesses. But, it also creates an expanded development area to the west that currently lacks visibility and exposure.

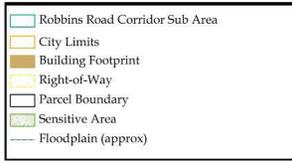
5. CONSIDER A CORRIDOR IMPROVEMENT AUTHORITY

Act 280 of 2005 authorizes municipalities to establish a tax increment financing authority to plan and implement improvements along a defined commercial corridor. This statute uniquely contemplates cooperation between jurisdictions to address the challenges of boundary roads. Two such entities would need to be established individually by the township and city, but they could work jointly on a development and financing plan. The act allows tax increment financing as a funding source for improvements. These could include some or all of the costs of road reconstruction, streetscape improvements, land acquisition, site redevelopment, and others. The tax increment captured by the authority would include township and city levies, as well as the levies of other taxing jurisdictions that agree to participate.

6. WORK WITH MDOT AND THE CITY OF GRAND HAVEN ON ENTRY FEATURE IN INTERSECTION

Given that US-31 is a state highway, and Beacon Boulevard and Robbins Road are both city-controlled roadways, coordination with MDOT and the City of Grand Haven is critical to the development of an entry feature at the US-31 and Robbins Road intersection.

Robbins Road Corridor Sub Area - West Site Analysis

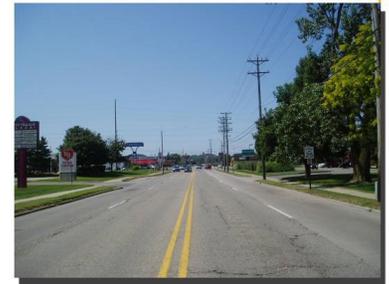
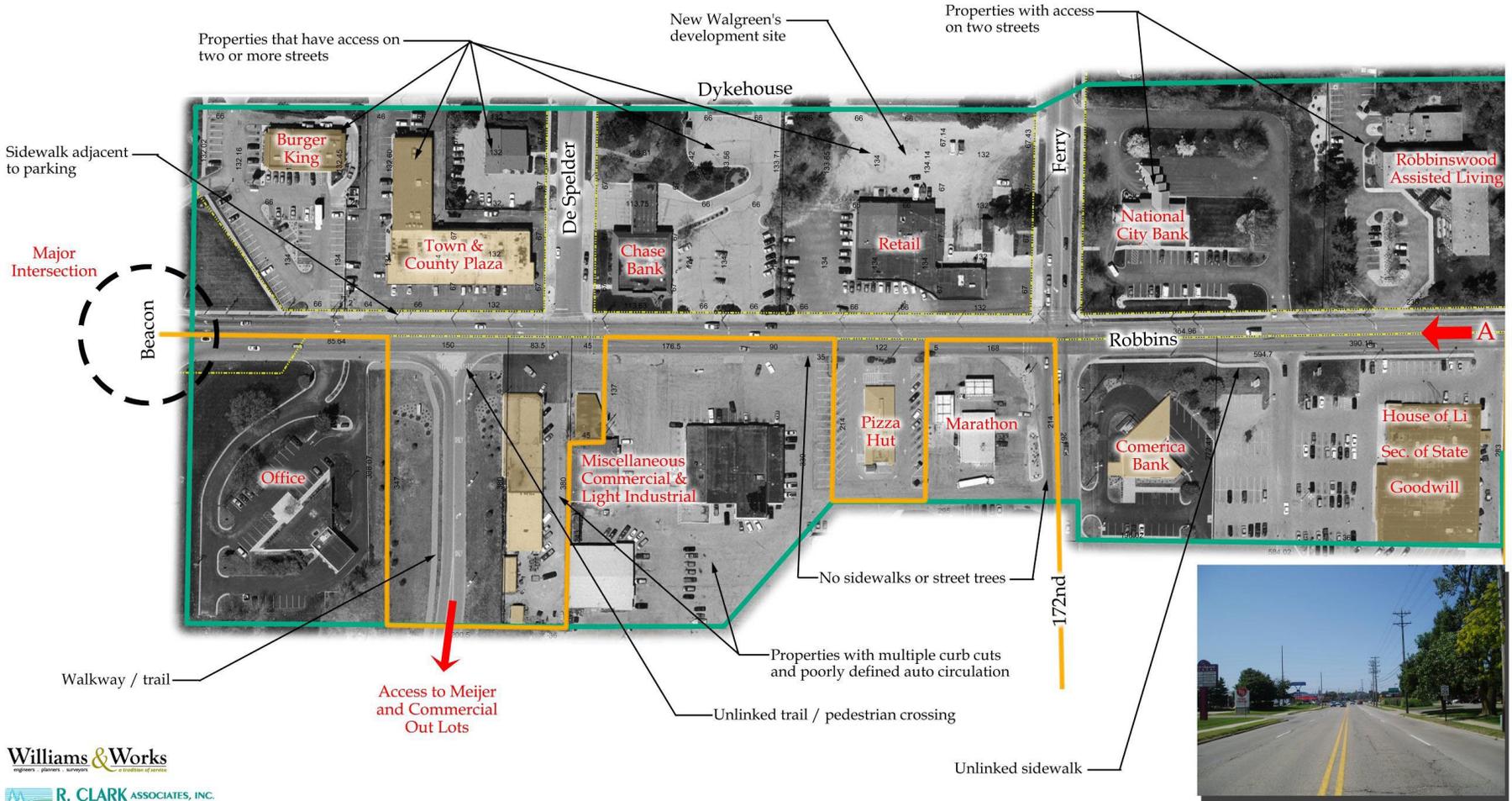


Inventory Notes:

- Power lines are located primarily on the north side of Robbins Rd.
- Continuous sidewalk on the north side of Robbins Rd. only. The south side of Robbins Rd. has two unconnected sections of sidewalk

Analysis Notes:

- Mixture of land uses throughout the corridor
- Large variety of building scales and setbacks
- High volume traffic flows (4 lanes) - no left turn lane
- Large variety of sign sizes



A - Road Profile

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A - Road Profile

Robbins Road Corridor Sub Area - East Site Analysis

Inventory Notes:

- Power lines are located primarily on the north side of Robbins Rd.
- Continuous sidewalk on the north side of Robbins Rd. only.
- No crosswalks provided on Robbins Rd.

Analysis Notes:

- Parcels on the south side of Robbins Rd. are typically larger and deeper than the lots on the north side of the street
- Corridor provides services for a large area (city and township)

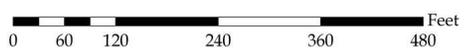


Office buildings with parking in front and various greenbelt widths. No sidewalk on south side of road.

Potential Future Pedestrian Access?

Future Multiple Family P.U.D. Developments (Apartments)

	Robbins Road Corridor Sub Area
	City Limits
	Building Footprint
	Right-of-Way
	Parcel Boundary
	Sensitive Area
	Floodplain (approx)

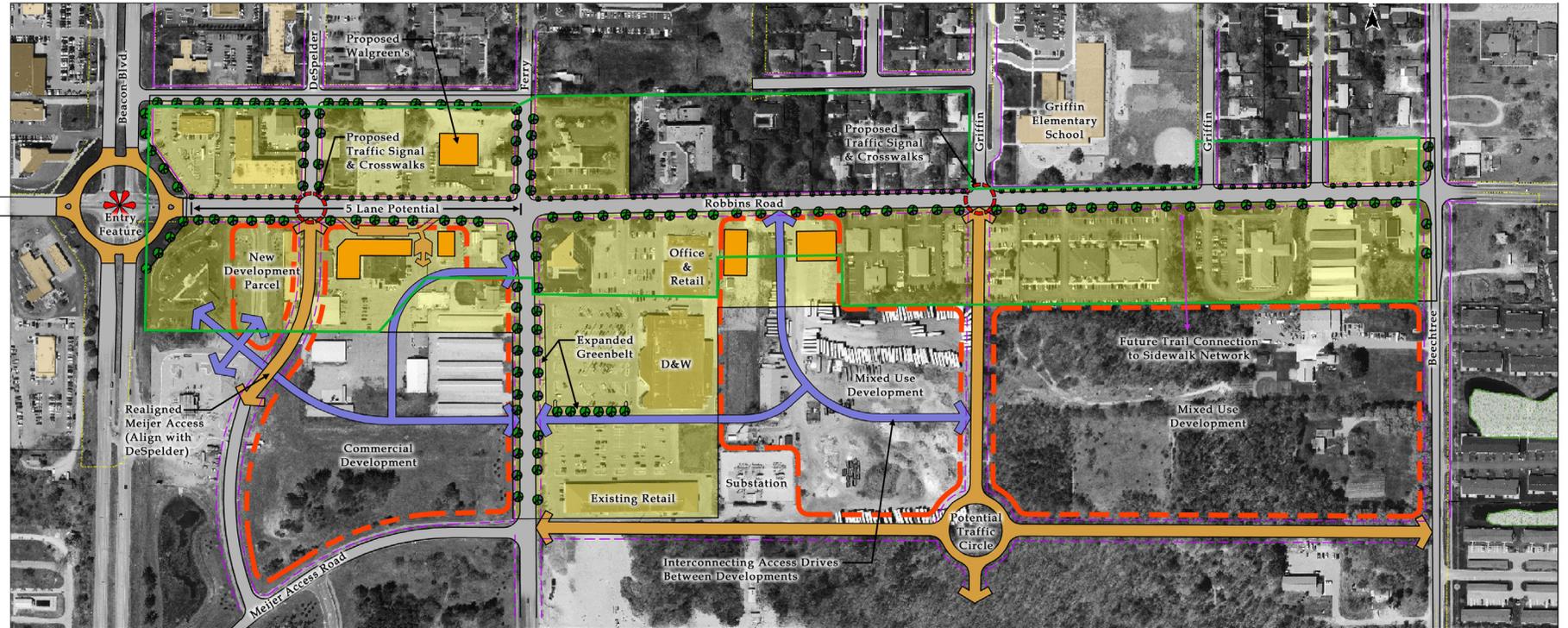


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Robbins Road Corridor Sub Area

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Legend

- Future Development Areas
- Existing Sidewalks
- Proposed Sidewalks
- Existing Roads
- Proposed Roads
- Unification Guidelines Area

