



BEAVER ISLAND MASTER PLAN

DRAFT
JUNE 12, 2017





ACKNOWLEDGMENTS

This Plan was prepared by the Land Information Access Association (LIAA) as part of the Resilient Beaver Island project. A special thank you is owed to the many organizations and individuals that contributed to the planning process.

The Resilient Beaver Island project was funded by 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.

Cover photo courtesy of Bob Tidmore



BEAVER ISLAND MASTER PLAN

THE PURPOSE OF THE RESILIENT BEAVER ISLAND MASTER PLAN IS TO PROVIDE DIRECTION FOR THE GROWTH OF THE ISLAND OVER THE NEXT 20 YEARS AND BEYOND. THE MASTER PLANNING PROCESS ENGAGED HUNDREDS OF RESIDENTS IN PEAINE TOWNSHIP AND ST. JAMES TOWNSHIP TO CREATE ACTIONS THE COMMUNITY CAN TAKE TO INCREASE RESILIENCY, STRENGTHEN THE LOCAL ECONOMY, PROTECT NATURAL FEATURES, AND MANAGE ITS MANY RESOURCES.

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VISION

The community's vision for the future of the Island should form the basis of government decisions moving forward.



CONNECTING WITH NATURE

The natural resources of the Island are discussed throughout the plan, but most especially in Chapter 2.



COMMUNITY ORGANIZATIONS

Community groups and organizations are mentioned throughout the plan, but are described most fully in Chapter 3.



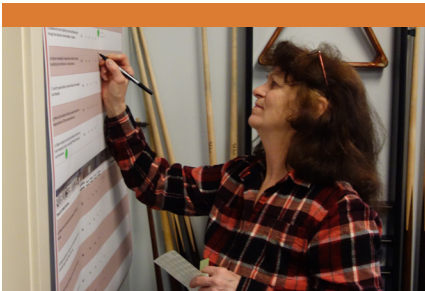
BUILT ENVIRONMENT

Chapter 4 includes topics like land use, roads, ferries, energy, waste, and communications infrastructure.



TOURISM

Tourism is the backbone of the Island’s economy. Useful information related to improving tourism on the Island is included in Chapter 5.



ACTION PLAN

Chapter 6 of the plan identifies actions the Island governments, non-profits, and other organizations can take to achieve the community’s vision for the future.

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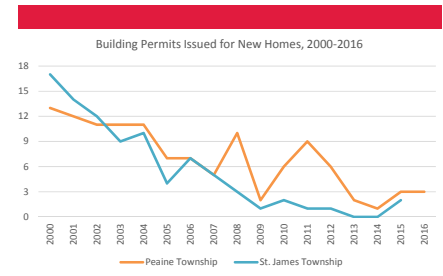
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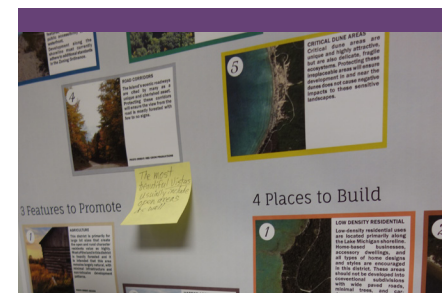
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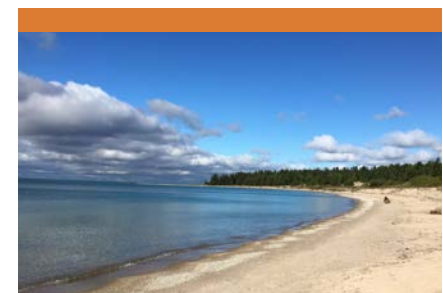
BUILDING PERMITS

Chapter 3 includes tables and figures that explain the current condition of the Island's housing market.



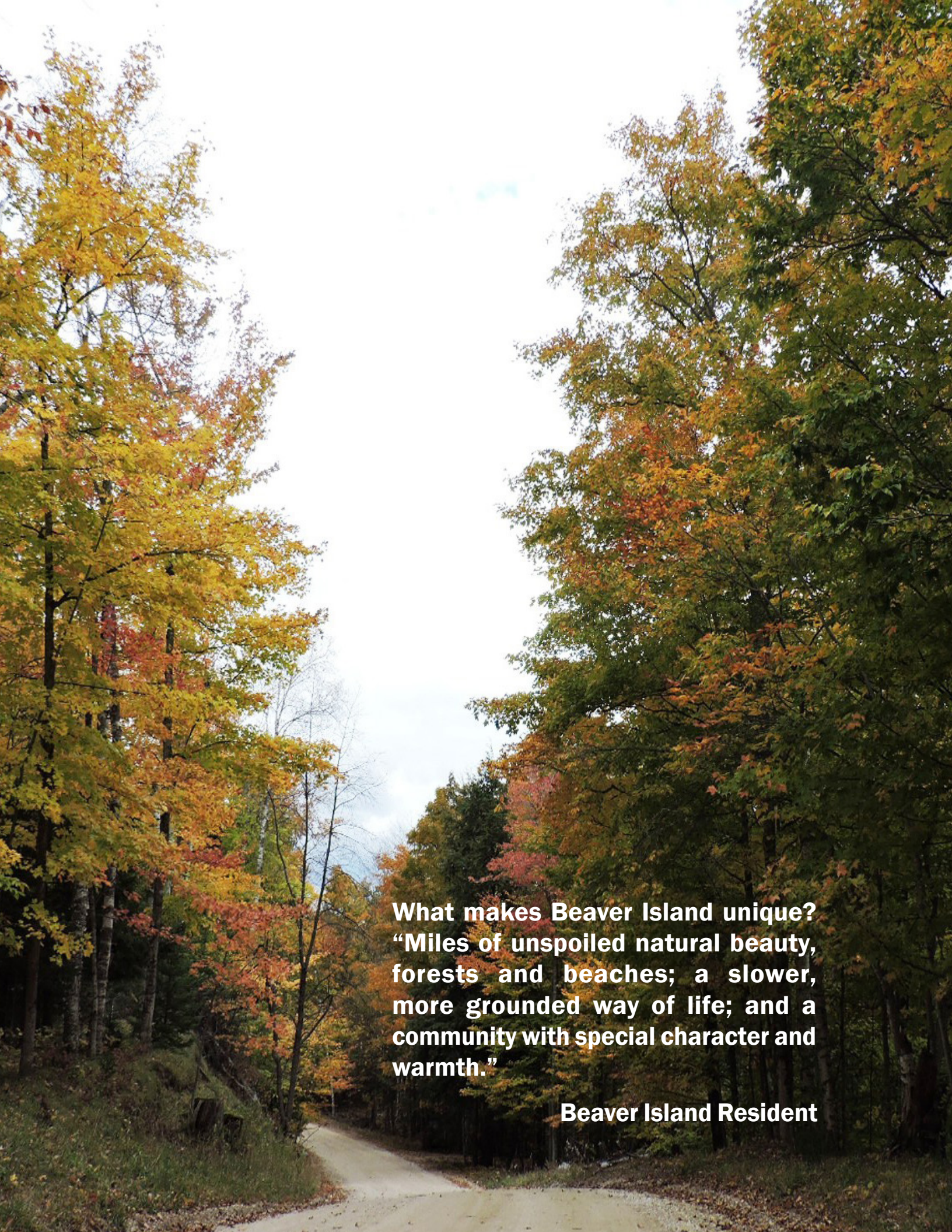
FUTURE LAND USE

Chapter 7 is centered around the Future Land Use Plan, a legally required component of a Master Plan in Michigan. The Future Land Use Plan was created with public input.



ACTION PLAN

Many of the ideas collected in the Action Plan would strengthen the Island's protection of natural assets like dark skies, coastlines, and pristine water quality.



**What makes Beaver Island unique?
“Miles of unspoiled natural beauty,
forests and beaches; a slower,
more grounded way of life; and a
community with special character and
warmth.”**

Beaver Island Resident

CHAPTER 1

ABOUT THIS PLAN

The 2017 Beaver Island Master Plan is a blueprint for the future of the Island. The Master Plan helps shape the future of Beaver Island by summarizing existing conditions and trends, identifying a vision for the future, and prioritizing the actions that should be taken to achieve the community's vision. This Master Plan involved dozens of meetings and the input of hundreds of Islanders.

WHAT IS A MASTER PLAN?

The 2017 Beaver Island Master Plan serves as the official policy guide for the Island's future development and growth, including the management of its many natural resources. In Michigan, master plans serve as a legal basis for zoning, and provide policy guidance for changes to infrastructure, land use, transportation, natural resource management, and other community systems. In general, the Beaver Island Master Plan serves the following purposes:

- Evaluates existing conditions and trends on the Island.
- States the community's long-range vision, extending 20 years or more into the future.
- Provides the flexibility to respond to changing conditions with new resources or innovations that align with the goals of the Master Plan.
- Identifies opportunities for partnerships between residents, community groups, non-profit organizations, and regional entities that help support and participate in plan implementation.
- Identifies where new development should be directed and the general character to which new homes and buildings should adhere.
- Gives guidance to property owners, developers, neighboring jurisdictions, and county and state entities about expectations and standards for public investment and future development.
- Provides guidance for the allocation and spending of funds.
- Guides the day-to-day decisions of the government and the land-use policy decisions of the Planning Commissions and Township Boards.
- Establishes a legal basis for both Peaine and St. James Townships' Zoning Ordinances, capital improvements, land-use policies, and other implementation tools and programs.

A RESILIENCY FOCUS

WHAT IS RESILIENCY?

The Island-wide Master Planning effort on Beaver Island, branded as *Resilient Beaver Island*, was conducted with a focus on building community resilience. Resilience is an umbrella term for the planning and design strategies needed to help communities develop the necessary capacities to meet the economic, social, environmental and climate challenges of the future. **Community resilience** is a measure of the sustained ability of a community to utilize available resources to respond to, withstand, and recover from adverse situations.

Beaver Island has experienced a number of significant changes over the last several years. From fewer young families moving to the Island to changes in the experiences tourists prefer, the Island is already learning to practice resilience by maintaining a stable housing stock and a high quality of life.

Environmentally, a changing climate will mean generally warmer temperatures, increased rains, and more severe storms in the Great Lakes region. For Beaver Island, responding to climate change is a challenge in the short-term and the long-term. It requires officials and community stakeholders to consider how they plan for new development, transportation, infrastructure, natural resource preservation, energy production, and community health.

Social, economic, and environmental changes are explained throughout this plan. The action steps in the Chapter 6 are designed to help the community prepare for and respond to these changing conditions.



INTERCONNECTED TO THRIVE

One important aspect of resilience is the ability of a community to come together around common challenges. One goal of this Master Planning process was to help everyone on the Island come together and participate in discussions about what should be done to ensure the Island's ongoing success. These conversations took place on the project website's weekly questions and surveys, in the Beaver Island Library, the Beaver Island Community Center, government buildings, and in conversations with downtown business owners and employees. The result of this work can be seen in the Action Plan found in Chapter 6, a truly community-based roadmap to a sustainable, resilient future for Beaver Island. Each idea in the Action Plan was submitted by an Islander and was prioritized by the 105 Islanders that took the survey either online or in person at the Master Plan Workshop.

Beaver Island provides a unique quality and pace of life not found on the “mainland.” Islanders submitted comments to the Master Plan website throughout the planning process, many of which highlight the positive benefits of Island life. Quotes from Islanders are included throughout this plan to help illustrate the diversity of opinions about the Island's future.

Beaver Island is surrounded by beautiful views, like this sunset captured by Cynthia Hector.





THE BEAVER ISLAND ARCHIPELAGO

The Beaver Island Archipelago includes 14 islands that vary in size, biodiversity, and ownership. While this Master Plan is focused primarily on Beaver Island, it is important to describe the cultural resources, recreational opportunities, and land ownership of several of the larger islands in the archipelago. Of the Beaver Island Archipelago, most are within Charlevoix County. North and South Fox Islands are part of Leelanau County, Michigan.

BEAVER ISLAND

Located about 30 miles offshore from the City of Charlevoix, Beaver Island is the largest island in Lake Michigan, with approximately 56 square miles of land. Beaver Island is unique for many reasons, including a beautiful natural environment with plentiful sand dunes, beaches and wetlands, a distinctly diverse ecology, and a close-knit community with a proud Island heritage. Beaver Island is the only island in the archipelago home to a permanent population (with the exception of staff of Mirada Ranch on South Fox Island) and scheduled ferry and airline services.

GARDEN ISLAND

Garden Island is 98% owned by the State of Michigan and is overseen by the Michigan Department of Natural Resources (DNR). Once fished, farmed, and logged by Anishinaabe and other groups, Garden Island has a Native American cemetery, an abandoned sawmill, and several standing structures.

HIGH ISLAND

High Island is 100% state land and is currently uninhabited. The island was originally named after a mountainous sand dune on its western edge. In the past, Native Americans and settlers lived on the island in small numbers. The island is occasionally used by researchers, and the DNR owns several cabins currently in disrepair.

HOG ISLAND

Hog Island is the fourth largest island in the Beaver Island Archipelago and is 100% state land. The island is characterized by a number of wetland areas that are home to a variety of rare plants and animals. Hog Island also provides vital spawning ground for perch and small-mouth bass and draws many rare and unique birds during migration.

WHISKEY ISLAND

Whiskey Island is state owned and is uninhabited. Whiskey Island is home to one of most visible shipwrecks in the archipelago, the wreck of the Chandler J. Wells.

NORTH FOX ISLAND

North Fox Island is state owned but has been inhabited by private owners in the past. The island has an operational paved runway.

SOUTH FOX ISLAND

South Fox Island is partially state owned (about one-third) and partially privately owned. The island has a paved runway, a private residence, two lighthouses, and a Native American cemetery for members of the Grand Traverse Band.

OTHER ISLANDS

Other islands in the Beaver Island Archipelago include Gull, Squaw, Trout, Grape, Hat, Shoe, and Pismire.

ARCHIPELAGO

The Beaver Island Archipelago contains 14 islands, varying in size and biodiversity. The State of Michigan has ownership over many islands in the Archipelago due to the variety of threatened, endangered, and rare plants and animals that live on them. For more on the natural resources and environment of Beaver Island and the Archipelago, see Chapter 2.



One of the privately-owned islands in the Archipelago, Squaw Island is renowned for its historic lighthouse built in 1892. A work crew from Beaver Island performed significant preservation work on the lighthouse in 2016. Photo Credit: US Coast Guard Archives



BEAVER ISLAND'S HISTORY

In order to plan for the future of Beaver Island, it is important to understand the Island's past. Beaver Island was first formed by the glacial changes in the Great Lakes region thousands of years ago. Oral accounts show that Native American tribes passed through Beaver Island on journeys through the Great Lakes, leaving many archaeological artifacts behind. In the mid 1700s, the Odawa migrated westward and permanently settled on Beaver Island. European settlers arrived on the Island in the early 1800s and trapped, fished, and logged on the Island. By 1850, settlers were flourishing on the Island.

In 1848, Mormon leader James Strang formed a colony on the Island. The colony contributed to the Island's infrastructure by building roads and homes and cultivating ground. James Strang became the self-proclaimed King of Beaver Island and caused disputes between the Native Americans and other European settlers on the Island. In 1856, this unrest erupted; James Strang was killed and the Mormon colony collapsed.

Irish fishermen and their families began to settle the Island in the mid 1800s. The population of the Island began to grow steadily. Calling the Island "America's Emerald Isle," these families created an Irish culture that still exists today on Beaver

Island. Fishing and logging remained the mainstays of the Island's economy while the Island accepted new groups of immigrants and entered the industrial age.

Tourism began in earnest on the Island in the late 1800s, when local merchants began promoting the Island as a pristine yet rustic destination. Vacation cottages were built in the early 1900s and sold to families from Chicago and other Midwestern cities.

Through this Master Plan, the Beaver Island community is building on its history of innovation by preparing to face new challenges with resolve, while remaining loyal to the environment and the people that make it so unique and special.

Beaver Island faced serious economic challenges in the mid 1900s, when fish population loss caused the commercial fishing industry to decline. The Island struggled to maintain population until the 1970s, when tourism emerged as the economic anchor of the community, and a new generation of cottages and vacation homes were built.

Today, the Island remains among Michigan's most beloved and unique communities. The Island community is mix of newcomers and long-standing families, each bringing a unique perspective. Through this Master Plan, the Beaver Island community is building on its history of innovation by preparing to face new challenges with resolve, while remaining loyal to the

environment and the people that make it so unique.¹

¹ This brief history of the Island was adapted from the webpage <http://www.beaverisland.net/beaver-island-history/>. Many detailed sources of the Island's rich history are available, such as the Beaver Island Historical Society.

PREVIOUS PLANNING EFFORTS

Beaver Island has conducted a number of planning efforts in recent years. This Master Plan seeks to build on those efforts, as each project or program offered something uniquely valuable to the Island. This section summarizes several of the community-wide planning efforts used in the creation of this Master Plan, but may not be a comprehensive overview of all planning efforts conducted on the Island. Information about specific groups working on topics discussed in this plan are described in later chapters (for example, the Beaver Island Transportation Authority's planning work is mentioned in the transportation section of Chapter 4).

TOWNSHIP PLANNING EFFORTS

St. James and Peaine Townships have actively worked to plan together for land use in recent years. The *2006 Beaver Island Master Plan* provided a solid basis for the development of this 2017 Master Plan. Both the *2012-2016 St. James Township Recreation Plan (Draft)* and the *2013-2018 Peaine Township Recreation Plan (Draft)* provide a summary of the recreational assets on the Island and identify desired improvements.

CHARLEVOIX COUNTY PLANNING EFFORTS

Beaver Island is included in all long-range plans produced by Charlevoix County. The *2015-2019 Recreation Plan* provides a concise summary of the recreational assets on the Island and outlines goals for future, while the *2007 Natural Hazards Mitigation Plan* and *2016 Hazard Mitigation Plan* map the Island's critical infrastructure and describes the Island's risk to hazards like wildfires, power failures, and severe weather. The *2009 Future Land Use Map Plan* provides locations of sensitive landscapes on the Island and identifies areas best suited for

"It seems to me that Beaver Island is at a fork in the road, and its future depends on thoughtful consideration of how the Island might continue to support year-round infrastructure while maintaining the quality of life that has always brought people to Beaver."

Beaver Island Resident



Many acres of Beaver Island are state-owned and managed by the Michigan Department of Natural Resources (DNR). The state-owned land, as well as DNR's management goals for the Island, are discussed in greater detail in Chapter 4.

Photo by Tom Hawkins

development, preservation, or recreation. Members of the Joint Planning Commission also attend regular meetings of the Charlevoix County Planning Commission.

STATE AND REGIONAL COLLABORATIONS

Beaver Island has participated in a number of collaborative projects led by state or regional entities. The *2016 Management Plan for State-owned Lands on Northern Lake Michigan Islands* was developed by the Michigan Department of Natural Resources (DNR) through a diverse partnership to identify ways to manage state-owned land in the archipelago more effectively. The *Northern Lake Michigan Islands Collaborative* is a network of many stakeholders and organizations and is an outcome of this DNR process. This network provides an important venue to continue land management discussions with a wide range of interested parties.

The *Great Lakes Unbridged Island Communities* project began in 2015 in collaboration with the Beaver Island Association, the Northland College Center for Rural Communities, and the Michigan Office of the Great Lakes. This project connected Beaver Island to the Island Institute, an organization that works to sustain Maine's many remote coastal islands. This ongoing project has allowed for continued learning between Beaver Island and the Maine islands and sparked the creation of the *2015-2016 Beaver Island Asset Summary*, a document that inventories the many public and private services and amenities on the Island.

VISION STATEMENT

VISION STATEMENT CREATION

The vision statement on the right was written by the Peaine Township and St. James Township Joint Planning Commission based on the public input received during this process and the vision found in the 2006 Beaver Island Master Plan.

The vision statement is an aspirational description of what Beaver Island would like to be over the next 25-30 years. It is intended to guide current and future goals and policies. The actions in Chapter 6 of this Master Plan were submitted by Islanders and crafted by the Joint Planning Commission in order to help the Island achieve this vision.

In 2045, Beaver Island will be a thriving community: economically diverse, socially vibrant, and environmentally rich. High-quality ecosystems will be preserved and managed in a sustainable way, but also leveraged to support ecotourism and economic development. Historic and cultural resources will help define the Island, telling stories of its rich past and attracting visitors and new residents. There will be a diversity of affordable housing options that meet the needs of all residents and pave the way for changing demographics. A connected network of bike paths, sidewalks, and paddling routes will link recreational assets, community services, and residences.



GUIDING PRINCIPLES

GUIDING PRINCIPLES CREATION

The guiding principles for the future of Beaver Island were developed by the Joint Planning Commission based on the public input received during this process and the vision found in the 2006 Beaver Island Master Plan. These guiding principles serve to inform the actions that should be taken in the next 25-30 years. These principles also provided the key areas of attention in the master planning process.

1. Preserve the Island's character, scenic vistas, water quality, high-quality natural ecosystems, and clean environment.
2. Support a comprehensive and collaborative marketing strategy both on and off the island.
3. Invest in technology and public infrastructure that positions Beaver Island to attract young families, retirees, and new business ventures.
4. Ensure that high-quality healthcare is available to all Island residents and visitors at an affordable price.
5. Expand educational opportunities offered within the public school system and to the broader community.
6. Grow the local economy by capitalizing on tourism opportunities, expanding recreation into the shoulder season, and leveraging existing capital to grow businesses.
7. Enhance collaboration and foster open dialogue between the two townships, and between local government and community members. In addition, learn from other communities grappling with similar issues and continue conversations with fellow Great Lakes islands.

The vision statement and guiding principles have a heavy emphasis on protecting the natural features that make the Island unique. This photo was taken by GK Doig at the Fox Lake Public Access Point in October 2016.





From large public gatherings to round table discussions with Island organizations and groups, the Joint Planning Commission was able to hear many perspectives and opinions throughout the planning process. Thank you to all who participated!

A PASSIONATE AND ENGAGED PUBLIC

This planning process sought to bring in the opinions of as many Islanders as possible. Both year-round and seasonal Islanders attended meetings, visited the project website, and submitted ideas and comments to the Joint Planning Commission. Whether submitted online or in person at various meetings, public input was used to build the goals and recommendations of the plan, shape the planning process (including the speakers and activities offered), and direct the efforts of the Joint Planning Commission and the consultant team through each step of the planning process.

IN-PERSON PUBLIC ENGAGEMENT ACTIVITIES

The timeline on the following pages describes the Joint Planning Commission meetings, the large public gatherings, and the stakeholder meetings that were held to inform this Master Plan. In total, the project team conducted [insert total] Joint Planning Commission meetings. In addition, at

least eight stakeholder meetings were held on the Island for various interest groups, as well as three large public gatherings for the process. The results of these public engagement activities can be found throughout the plan, most especially in Chapter 6 where the ideas for the future of the Island are summarized.

JOINT PLANNING COMMISSION MEETINGS

The full planning commissions of Peaine and St. James Townships regularly met jointly throughout the process. This body served as the guiding force behind the plan's development, the structure of the public meetings, and the final review process of the document. All Joint Planning Commission meetings were open to the public, and the notes from the meetings were hosted on the project website.



This photo is from the “Lunch and Learn” event held in October 2016 at Dalwhinnie’s Bakery and Deli in St. James Township. The Master Plan team brought in Sarah Lucas from Networks Northwest to share how other communities are tackling housing challenges.

STAKEHOLDER MEETINGS

The project team also held a number of stakeholder meetings with key interest groups on the Island. The purpose of these meetings was to ensure that a diverse range of opinions were part of the planning process and to better understand the work that various boards and organizations are doing on the Island. Stakeholder meetings were held with the following interest areas and/or groups:

- Business owners and entrepreneurs
- Environment and recreation groups
- Youth and young adults
- Real estate and housing groups
- Transportation groups
- The boards of the Preservation Association of Beaver Island, the Beaver Island Association, and the Beaver Island Community Center

OFF-ISLAND STAKEHOLDERS

The project team also met with a number of regional and county-based groups that have a vested interest in the Island. These meetings helped the project team better understand the regional context of Beaver Island and the array of services that outside organizations (like Charlevoix County) provide to the Island. Meetings were held with the following groups and individuals:

- Michigan Department of Natural Resources
- Charlevoix County Emergency Management Office
- Charlevoix County Planning Department
- Little Traverse Bay Bands of Odawa Indians
- Little Traverse Conservancy

PLANNING PROCESS TIMELINE

This Master Plan was created with input from many groups and individuals on the Island. A number of public meetings were held for the process, as well as monthly Joint Planning Commission meetings open to the public. This graphic outlines the events and activities involved in creating this Master Plan.

In general, three types of meetings were held: Joint Planning Commission Meetings, Stakeholder Meetings, and Large Public Gatherings. Each are described on this timeline in more detail.

- **STAKEHOLDER MEETING**
- **LARGE PUBLIC GATHERING**
- **JOINT PLANNING COMMISSION**

AUGUST 30, 2016

Meetings were held with the Preservation Association, the School Board, the Transportation Authority Board, and the Beaver Island Association Board.



AUGUST 31, 2016

A public kickoff held at the Community Center drew about 45 Islanders. Presentations included an overview of the Master Plan, a summary of Michigan's changing environment, and an overview of the Beaver Island Water Trail project. An activity helped participants brainstorm ideas for the future of Beaver Island.

AUGUST 30, 2016

The Joint Planning Commission began working on the Master Plan by reflecting on the strengths and weaknesses of the 2006 Master Plan.

OCTOBER 2016

The Joint Planning Commission met twice in October to continue work on sections of the Master Plan based on public feedback.

OCTOBER 10, 2016

The Master Plan Workshop meeting collected public feedback from about 30 Islanders. Ideas were listed on posters, and participants had the opportunity to add, remove, and prioritize ideas through a facilitated activity.

OCTOBER 11, 2016

A lunch event was held at Dalwhinnie's Bakery and Deli featuring Networks Northwest on solutions for housing challenges on Beaver Island.

SEPTEMBER 2016

All Islanders were invited to attend a series of stakeholder meetings to develop ideas to address the Island's challenges. Meetings were held for business leaders, environment and recreation groups, youth and young adults, and those working in housing and transportation.

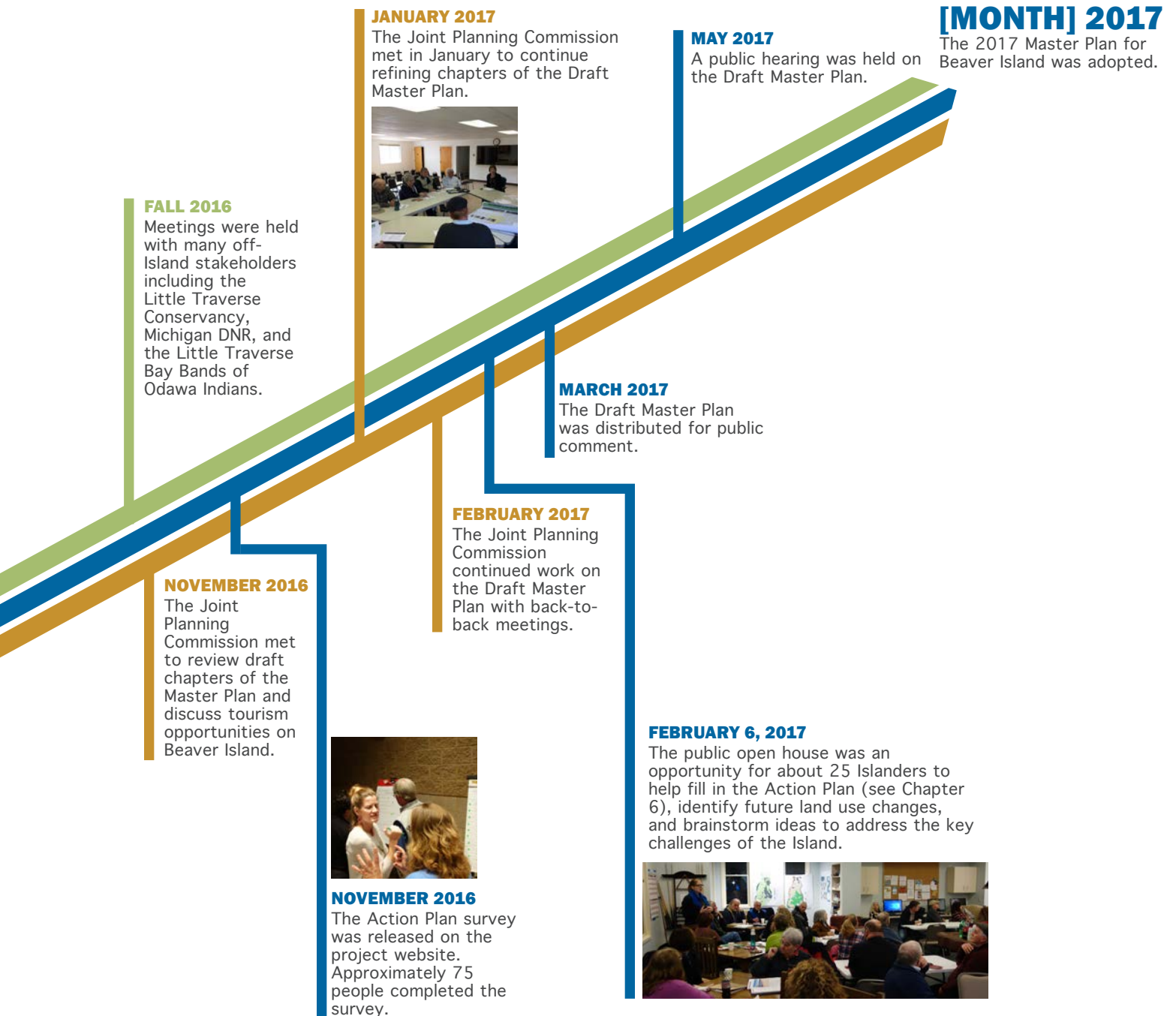


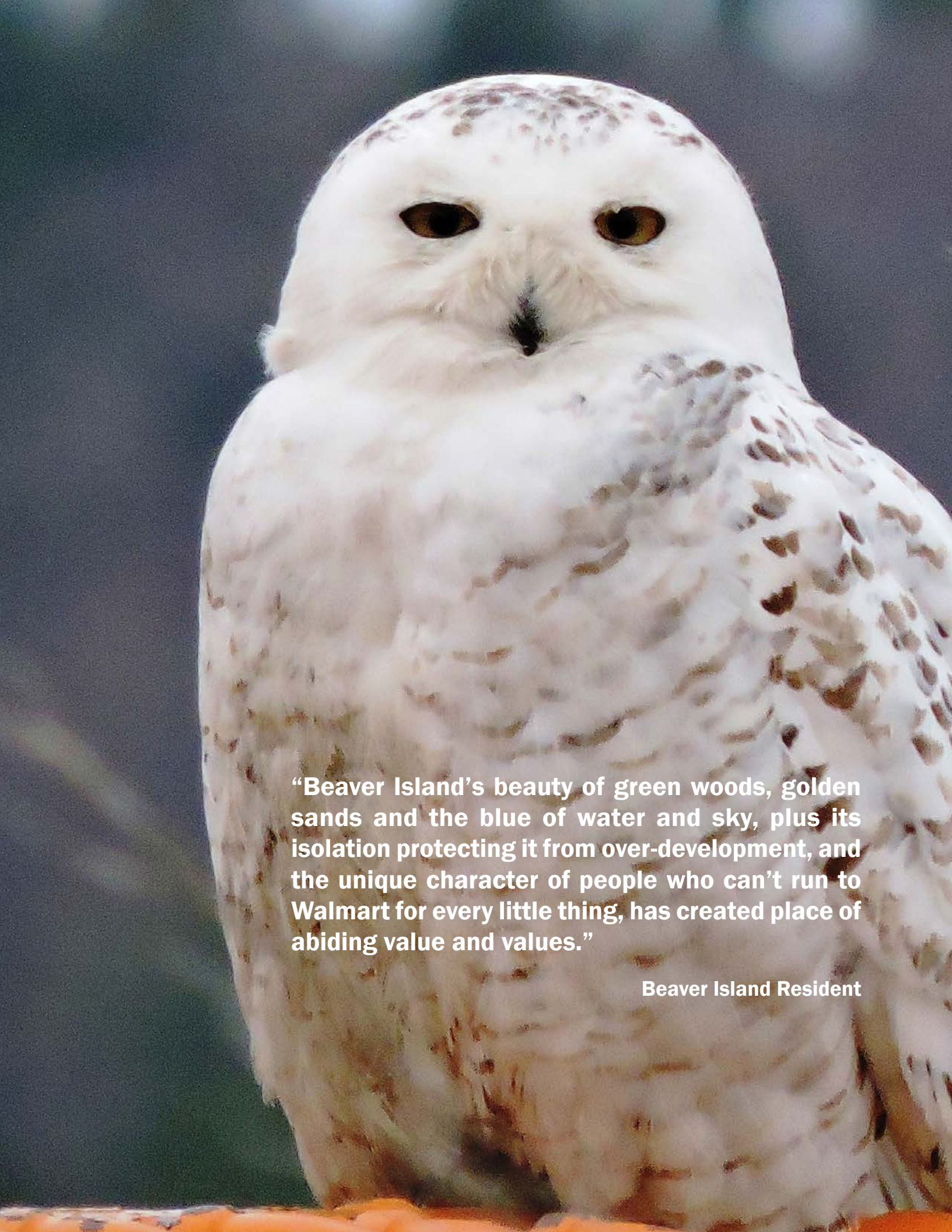
SEPTEMBER 2016

The Joint Planning Commission met twice in September to discuss how the community's input online and at the public kickoff meeting can shape the vision and guiding principles of the Master Plan.

JUNE 28, 2016

The Joint Planning Commission met to learn about the Master Planning process and decided to participate in the Resilient Beaver Island project.





“Beaver Island’s beauty of green woods, golden sands and the blue of water and sky, plus its isolation protecting it from over-development, and the unique character of people who can’t run to Walmart for every little thing, has created place of abiding value and values.”

Beaver Island Resident

CHAPTER 2

NATURAL RESOURCES

This chapter summarizes the existing conditions of Beaver Island’s natural environment and identifies how resources are currently managed. This chapter also provides information on species composition, vulnerabilities, and key resources to protect moving forward. This information was shared with the Joint Planning Commission as part of the process to develop appropriate goals for the future.

Part of the allure of an island is its physical separation from the rest of society. From an ecosystem perspective, an island’s physical separation allows plant and animal communities to grow and change in unique ways, with limited connections to the mainland. When asked what Beaver Island’s greatest asset is, most Islanders highlight some element of the Island’s rich natural environment. In fact, the Island is incredibly ecologically diverse and is home to a wide variety of plants, animals, and ecosystems.

KEY ENVIRONMENTS

The next several pages provide an overview of the rich natural ecosystems on the Island and the plants and animals that inhabit these systems. Understanding existing conditions, even broadly, is useful when prioritizing goals and identifying actions for the Master Plan.



The Island's many beaches provide habitat for some of Michigan's rarest plants, like the Lake Huron tansy. Photo Credit: J. Russell, Michigan Sea Grant.



Coastal wetlands provide unique habitat to plants and animals. This photo is of a coastal wetland area in Paradise Bay.



Iron Ore Bay is a unique shoreland area on the southern coast where Iron Ore Creek, a coldwater creek, runs into Lake Michigan.

ISLAND ENVIRONMENTS

Beaver Island features a number of unique ecosystems, including shoreland areas (dunes, coastal wetlands, beaches), inland lakes, and forested areas.

SHORELANDS

Approximately 40 miles of Lake Michigan coastline help define the unique identity of the Island. Ranging from rock to wetlands and sandy beaches, each coastal area offers a host of ecosystem benefits, unique habitats, and opportunities for humans to explore. A short overview of the types of shorelands and nearshore areas of Beaver Island are covered in this section, including dunes, wetlands and beaches.

DUNES

Healthy, ecologically diverse sand dunes surround the perimeter of Beaver Island, most especially on its western side. These dunes are spectacular natural features, but also very fragile ecosystems susceptible to human and natural disturbances. Beaver Islanders have a strong commitment to managing dynamic coastal dunes to allow their natural processes to shape the landscape and adapt as conditions change. Map 2.1 shows the dunes on the Island.

Michigan law provides for the protection and regulation of a subset of the coastal sand dunes in Michigan; specifically, those that are designated and mapped as Critical Dune Areas by the Michigan Department of Environmental Quality (DEQ). Beaver Island and High Island have designated Critical Dune Areas. Earthmoving, vegetation removal, and/or construction activities within a Critical Dune Area require a permit under state law. St. James and Peaine Townships also each have locally administered Critical Dune Ordinances.

COASTAL WETLANDS

Wetlands on Beaver comprise a vast portion of the interior of the island, near the many inland lakes and especially on the Island's eastern side. Coastal wetlands, in particular, are unique as they have hydrological connection to Lake Michigan and fluctuate with water level changes. Coastal wetlands provide a wide range of important ecosystem services, including filtering and cleaning water naturally; providing critical habitat to fish, reptiles, and amphibians; and reducing the impact of extreme rain events by absorbing flood waters. All coastal wetlands are regulated under state and federal law. Coastal wetlands are also great places for bird watchers to congregate during migration seasons and can be wonderful places for kayaking and other passive recreational activities. Much of the Island's wetlands are in public ownership, though some, like the one pictured above in Paradise Bay, are privately owned or for sale. Map 2.2 shows the approximate location and type of Beaver Island's coastal wetlands.

BEACHES

Many of the Island's beaches are sandy, while others are a mix of rock and gravel deposited by Lake Michigan's strong waves. The Island's beaches draw residents and visitors year-round to watch sunsets, explore the terrain, and look for glimpses of the Northern Lights. The beach areas of the Island also provide important "breathing room" for nearby development, as beaches can drastically inflate and deflate according to water level changes and severe storms on the Great Lakes. The Island's beaches also provide habitat for some of Michigan's rarest plants, such as the pitcher's thistle (*Cirsium pitcheri*) and the Lake Huron tansy (*Tanacetum huronensis*, pictured above).



Lake Geneserath is the Island's largest inland lake and is home to a number of beautiful natural areas, opportunities for fishing, and recreational boating.



The Island's many trails help residents and visitors explore the forested types on the Island. Trails are described in greater detail in Chapters 4 and 5 of this plan.



The beauty of the Island's natural environment was repeated time and again by Islanders as the thing they love most about their community.

Photo Credit: Cynthia Hector

INLAND LAKES AND STREAMS

Inland lakes and streams form a critical network of connected waterways in the interior of the Island, providing important habitat and a variety of recreational opportunities. The main inland lakes include, from north to south: Font Lake, Round Lake, Barney's Lake, Egg Lake, Fox Lake, Greene's Lake, Miller's Marsh, and Lake Geneserath. Prominent streams include Iron Ore Creek and Cable's Creek. The next page describes each inland lake. Inland lakes and streams can also be seen on Map 2.3.

Many types of wetlands surround the inland lakes, including fens and bogs. Each of the Island's wetland communities support unique species of plants and animals. In the past, wetlands were once seen as "swamps" with a negative connotation. Many wetlands were drained and filled for use as agricultural lands or residential development. Beaver Island has proactively preserved and maintained many of its natural wetland areas, allowing the Island to reap the many benefits of access to these unique landscapes. Map 2.4 shows existing wetlands and areas where wetlands might be restored.

FORESTED AREAS

The Island has a number of forest types including boreal, dry-mesic northern, and mesic northern forests. Each of these host a unique mix of tree species. Major forest cover on the Island includes northern hardwoods, lowland deciduous forest, and lowland coniferous forests.

According to Dr. Dave Ewert, Senior Scientist at The Nature Conservancy, "the interior forests of Beaver Island include mixed hardwood forests dominated by sugar maple, dotted with wetlands and small lakes that are often ringed by

tamarack, black spruce, white cedar and other conifers. Small pockets of red and white pine contribute to the diversity of the interior forests. Forests near the immediate shoreline are frequently dominated by spruces, balsam fir, white cedar, pines, and eastern hemlock. Openings, including old fields, pastures and clear-cuts, are scattered around the island." Today, many acres of hunting lands are managed by the DNR and the Island's Wildlife Club. Other areas are used for recreational trails, foraging, and peaceful residential neighborhoods.

"Beaver Island is unique and special because of its biodiversity. The multitude of habitats found on the Island means a multitude of creatures. Every year for decades I have seen a bug or a bird I have never seen before in my life. To me, it is the mixture of all things interacting that makes Beaver Island a special and unique place."

Beaver Island Resident

INLAND LAKES

The Island's many inland lakes provide residents and visitors with opportunities to explore many different types of environments. From fens and bogs to old-growth forests, the areas near the Island's lake are precious to many. This section provides a short description of each inland lake and inventories the amenities available at each.

WATER QUALITY DATA

Currently, water quality data about the Island's inland lakes is not collected and distributed at a large scale. However,

1 Sawyers, J.E., McNaught, A.S. & King, D.K. J Paleolimnol (2016) 55: 97. doi:10.1007/s10933-015-9867-x



Font Lake is approximately 382 acres and is the Island's second largest lake. Part of the western shoreline is dotted with homes, part of the Port of St. James Association, while a publicly-accessible boat launch is available on the north end of the lake. Peaine Township's Font Lake Park is available on the southern end. Photo of a family of common mergansers on Font Lake submitted by Tom Hawkins.



Barney's Lake is about 45 acres in size and is a premier fishing location on the Island. The lake has been stocked in the past with largemouth and small mouth bass and continues to provide habitat for bass, northern pike, and even one reported sturgeon in 2014! An access site is available on the northeastern shore. Photo Credit: BeaverIsland.net

residential development, septic systems, and human activities can trigger water quality problems in inland lakes. At least one scientific study linked an increase in the trophic status in Lake Geneserath to a warming climate and increased residential development.¹ Trophic status refers to the level of nutrients in the lake that can cause excess algae growth and limit the oxygen available for plants and animals. Even with limited available data, there are steps the Island can take to protect water quality (see Chapter 6).



Round Lake is a small lake about 24 acres in size in the central interior of the Island. Round Lake is unique in that it has water only seasonally and does not support fish populations. Round Lake is connected to a wetland complex known as "Cornelius' Swamp" and serves as a stopping point for ducks and geese in the spring. Photo Credit: Tom Hawkins



Despite its name, Egg Lake functions more like a bog than a lake! The lake is hard to access but supports many of the rarest plant species in Michigan. Because of its plentiful biodiversity, many conservation groups have prioritized Egg Lake as an important natural area in need of greater protection from human disturbance. Photo Credit: WorldLakes.org

RECREATION

The recreational amenities and opportunities on the Island are linked, of course, to its many natural resources including its inland lakes, trails, and wetlands. Recreation and tourism are discussed in greater detail in the next Chapters 5 and 6 of this Master Plan.

“...The twin goals of preservation and protection of the environment and of the people needed to support ecotourism are values that must be actively pursued by the Island, Charlevoix County and the State of Michigan.”

Beaver Island Resident



Fox Lake is 75 acres in size and is located in the southwestern interior of the Island. Fox Lake supports a variety of fish as well as two-hearted oaks and a small trail. Fox Lake's public access site is well known for successful fishing and its proximity to "Big Birch," one of the oldest birch trees in Michigan. Photo Credit: GKDoig



Greene's Lake is 62 acres in size and is located in the southwestern interior of the Island. Greene's Lake is shallow and freezes totally most winters. Many rare bullfrogs, insects, and other animals live in the rich wetlands surrounding the lake.



Miller's Marsh is a small lake in a larger wetland complex that is owned by Central Michigan University. The public is welcome to use the Miller's Marsh CMU Trail, a walking path that meanders around Miller's Marsh and through the wetland complex. Many butterflies, plants, and bullfrogs live in this unique natural landscape.



Lake Geneserath is the largest of the Island's lakes. With depths reaching 55 feet, the lake provides many opportunities for fishing species such as bass, northern pike, perch, and bluegill. A public access site and boat launch is available on the north arm of the lake. Some old cottages and new residential homes dot the shoreline, primarily along the eastern side of the lake.



Beaver Island's natural landscapes are truly astounding to visitors and locals alike, from a remnant of an agricultural economy on Beaver Island (top; credit to GKDoig) and beautiful rocky gravel in Iron Ore Bay, to "Big Birch," one of the oldest birch trees in Michigan.

SOILS ON BEAVER ISLAND

Beaver Island was formed by a glacier, and certainly the underlying geography of Beaver Island reflects the history of the Great Lakes themselves. The soil composition of the Island can help inform land use and identify where particular management practices are most appropriate. Some soils are better for development, some are better for farming, and others are best suited to remain undeveloped and unfarmed. There are four main soil classifications, or associations, on Beaver Island (see Map 2.5):

The **Deer Park-Dune Land Eastport Association** which is well-drained, nearly level to very steep sandy soils on beach ridges and dunes. This soil type is found along the coastline and is difficult to farm or build on.

The **Kalkaska-Mancelona Association** which is well-drained to moderately well-drained, nearly level to gently sloping sandy soils on lake plains and valley trains. Much of this soil is forested. This soil type is difficult to farm.

The **Roscommon-Charlevoix-Mackinac Association** which is poorly to moderately poorly drained, nearly level to gently sloping sandy and loamy soils on lake plains. This soil type is conducive to wetland areas and poorly suited to farming.

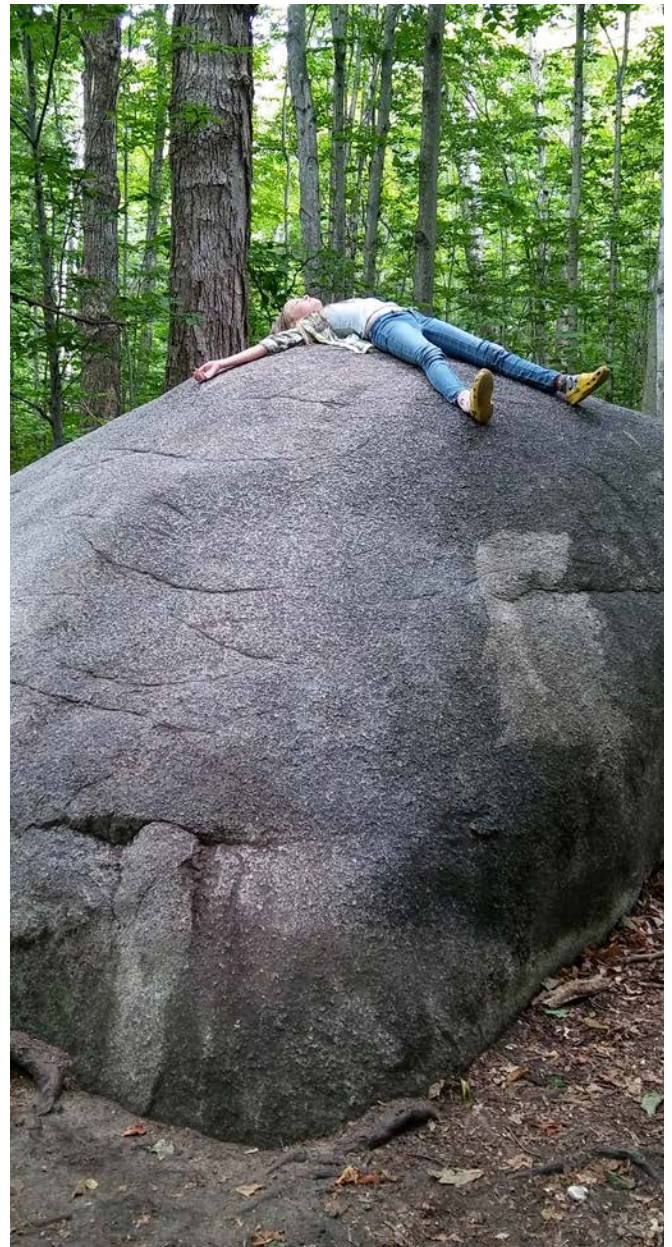
The **Emmet-Leelanau Association** which is well-drained, nearly level to very steep loamy and sandy soils on moraines. This soil type may be suitable for construction and farming.

AGRICULTURAL SOILS

Despite the fact that most of the Island's soil is not suited for farming, agriculture played an important role in Beaver Island's past. Beginning with Mormon settlement, particular areas of the Island were cultivated and farmed. This enabled the Island to support a year-round population in spite of the high cost to transport food from the mainland.

SOIL STEEPNESS

In addition to soil type, soil slope can also be a useful indication of areas where runoff and erosion might be problematic. Map 2.6 shows the Island's soil in terms of the percent of slope. The areas with the steepest slopes are along the northern, western, and southern slopes of the Island as well as the areas surrounding Fox Lake, Greene's Lake, and Miller's Marsh. While an expert is required to determine where soil will allow for development on a particular site, this map can help inform general discussions about land use. This map can also be useful in discussions to identify where erosion could be an issue.



Beyond being a local point of interest, “Big Rock” is actually the largest known glacial erratic on Beaver Island. A glacial erratic is simply a rock that isn’t naturally found in the area. “Big Rock” was carried by a glacier to Beaver Island from north of Lake Superior. It is a type of rock called igneous which is part of the Canadian Shield. Rumor has it that most of the rock’s mass is buried underground!

Photo Credit: Binney Girdler, August 2016.

KEY ENVIRONMENTAL CHALLENGES

Many of the Island's well-loved landscapes are also extremely fragile. Throughout the master planning process, Islanders expressed not only their love for the many natural areas and unique landscapes on Beaver Island, but also concerns about invasive species, rare and endangered species, flooding, coastal hazards, and climate change. This section provides a short overview of each major concern, while the section at the end of this chapter describes management strategies currently employed by various groups and agencies.

INVASIVE SPECIES

Invasive species are non-native plants and animals that are likely to cause harm to the environment or human health. Invasive species are damaging to natural areas when they out-compete native species and spread rapidly. Over time, invasive species can rapidly change the ecosystems that many plants and animals rely upon. Invasive species can also negatively impact property values. Unfortunately, invasive species are a common problem in many Great Lakes

communities. One benefit of living on an island is that it can be more difficult for invasive species to establish colonies. However, once invasives are established, it is more expensive and sometimes impossible to remove them. Therefore, even a few invasive plants can cause significant disruptions to the ecological integrity of an island.

Beaver Island has a strong community of volunteers and activists that donate time and energy to address invasive species. A 2012 survey of Beaver Island identified 23 invasive plant and animal species including crown vetch, garlic mustard, Japanese knotweed, baby's breath, autumn olive, and bush honeysuckles (see the graphic below for details on several of these). Multiple years of concentrated efforts to treat non-native phragmites have virtually eradicated this invasive plant from the Island, but treatment and monitoring must continue into the foreseeable future to effectively contain the few existing stands. Invasives can also be spread by boats and other craft. Boat washing stations and other ideas to stop the spread of invasives are found in Chapter 6.

GARLIC MUSTARD

Garlic mustard (*Alliaria petiolata*) is self-fertile and is very difficult to eradicate once it is established in an area. It spreads rapidly and unfortunately displaces native or other desired plants in a relatively short period of time. Each plant can produce thousands of seeds which can be spread by wildlife, humans, water, or other means. Garlic mustard has been found on the northwest coast of Beaver Island.



AUTUMN OLIVE

Autumn olive (*Elaeagnus umbellata*) is a deciduous shrub that can grow as tall as 20 feet. It is distinguished from other similar shrubs by the silvery scales found on the lower leaf surface. The autumn olive's aggressive proliferation out-competes and displaces native plants by creating dense shade that hinders the growth of plants that require sun. Autumn olive has been found throughout the coastal areas of Beaver.

BLACK LOCUST

Black locust (*Robinia pseudoacacia*) can be found primarily in disturbed habitats, degraded wood thickets and old fields, crowding out native vegetation. It reproduces vigorously via suckering roots and sprouting stumps, forming a vast root system. Mowing and burning are only temporarily effective because of the tree's ability to sprout and spread vegetatively, so chemical treatment is often necessary.



BABY'S-BREATH

Baby's breath (*Gypsophila scorzonifolia*) is originally from Siberia and Eastern Europe and can be found invading dune ecosystems on Beaver Island in destructive ways. Because it has a very deep taproot (up to 12 feet), it can out-compete native plants, many of which have disappeared from Michigan's dunes.

4
PLANT
INVASIVES

RARE SPECIES

Native plants and animals are negatively impacted by human activities, development and invasive species on Beaver Island. There is great need to protect the many threatened, endangered, and rare species in the Archipelago, particularly on the outer islands. To date, no study has been conducted on Beaver Island to inventory its many species. Anecdotal reports suggest that the Island likely has dozens of species not commonly found elsewhere in Michigan. Tourists and residents can cause accidental damage to sensitive areas these species rely upon.

The endangered piping plover is an example of the Island's ability to attract rare birds. It relies on very limited shoreline conditions for nesting habitat. The plover routinely finds nesting areas throughout the archipelago. Recently, a pair successfully nested in a spot that Island volunteers had recovered from invasive species! Many volunteers on the Island have worked to protect native habitats from invasive species, but more monitoring is required to maintain these efforts.

FLOODING

While flooding is a natural process, aging infrastructure and infrastructure that is not properly sited can be severely damaged in the event of a heavy precipitation event, coastal storm, or heavy ice melt. Certain areas of Beaver Island experience recurrent flooding, particularly dirt roads. Culverts that restrict the flow of water, and pavement in areas that promote the speed of runoff, can exacerbate the negative impacts of flooding. Beaver Island can use a number of mapping resources to identify potential areas for flooding including the elevation map, or Digital Elevation Model (DEM), shown in Map 2.7.

COASTAL HAZARDS

Just as living along Lake Michigan is beautiful, it can also be dangerous.

WHAT IS HAPPENING TO THE ISLAND'S BEECH TREES?

Beech bark disease is quickly killing beech trees across northern Michigan. It is caused by an insect named the beech scale that attacks the bark of a tree and creates a wound. Fungi then invade the tree through the wounds and cause cankers to form, eventually leading to death of the tree. While the DNR is actively logging infested beech trees on the mainland, logging beech trees on Beaver Island is cost prohibitive due to the cost of transporting logging equipment and timber. Dead beech trees present a number of hazards. The dead trees are a liability for falling and causing property damage and personal injury. The dead trees will also increase the amount of fuel in the forested areas, increasing the risk of wildfire.



The tree above is infected with the beech scale, as shown by the white woolly appearance on the bark of the tree.

Photo Credit: Wisconsin DNR

In the short term, severe storms can cause high winds and powerful waves to envelop the shoreland. These waves are capable of damaging docks, boats, and piers and can put human safety in danger. Evidence collected over the last several decades shows that severe storms in the Great Lakes region are increasing in both frequency and in intensity due to changing weather patterns (see the next section on climate change).

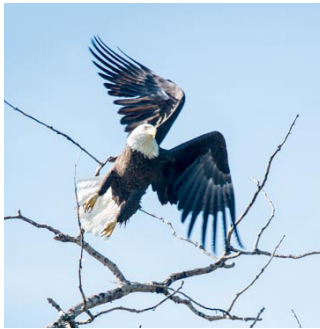
In the long term, decadal lake level changes can create a false sense of security and encourage unwise building practices. When water levels are down for an extended period, lakefront property owners might be tempted to believe their properties have permanently extended. However, fluctuations in water levels are a natural Great Lake process, and higher water levels can erode high bluffs, consume beaches, and stretch the boundaries of coastal wetland systems. It is important for property owners and local governments to understand the dynamic nature of the coastline to prevent development in unsafe areas. Setbacks are one easy way to regulate this development, and this Master Plan recommends that the Planning Commissions in each township evaluate the current regulations regarding lakefront development to determine areas where setbacks should be increased in the future or where additional studies on erosion might be needed. An additional challenge related to coastal areas, especially coastlines with dunes and steep slopes, is the matter of access for fire equipment and emergency services. Dangerous situations can result when narrow, privately-maintained roads restrict the ability for emergency services to access remote locations.

Lastly, extreme storms on Beaver Island have significant impacts on transportation, including boat and plane access. This issue is discussed in more detail in Chapter 4.

TABLE 2.1 ENDANGERED, THREATENED, OR SPECIES OF CONCERN IN CHARLEVOIX COUNTY

	STATE STATUS CODES			
	FEDERAL STATUS CODES			
E= Endangered	LE= Listed Endangered			
T= Threatened	LT= Listed Threatened			
SC= Special Concern				
SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	
<i>Accipiter gentilis</i>	Northern goshawk		SC	
<i>Adlumia fungosa</i>	Climbing fumitory		SC	
<i>Ammodramus savannarum</i>	Grasshopper sparrow		SC	
<i>Appalachina sayanus</i>	Spike-lip crater		SC	
<i>Botaurus lentiginosus</i>	American bittern		SC	
<i>Bromus pumpellianus</i>	Pumpelly's brome grass		T	
<i>Buteo lineatus</i>	Red-shouldered hawk		T	
<i>Calypso bulbosa</i>	Calypso or fairy-slipper		T	
<i>Charadrius melodus</i>	Piping plover	LE	E	
<i>Cincinnati cincinnatiensis</i>	Campeloma spire snail		SC	
<i>Cirsium pitcheri</i>	Pitcher's thistle	LT	T	
<i>Coregonus artedii</i>	Lake herring or Cisco		T	
<i>Cottus ricei</i>	Spoonhead sculpin		SC	
<i>Cypripedium arietinum</i>	Ram's head lady's-slipper		SC	
<i>Dalibarda repens</i>	False violet		T	
<i>Drosera anglica</i>	English sundew		SC	
<i>Euxoa aurulenta</i>	Dune cutworm		SC	
<i>Falco columbarius</i>	Merlin		T	
<i>Gallinula chloropus</i>	Common moorhen		T	
<i>Gavia immer</i>	Common loon		T	
<i>Gymnocarpium robertianum</i>	Limestone oak fern		T	
<i>Haliaeetus leucocephalus</i>	Bald eagle		SC	
<i>Iris lacustris</i>	Dwarf lake iris	LT	T	
<i>Littorella uniflora</i>	American shore-grass		SC	
<i>Microtus pinetorum</i>	Woodland vole		SC	
<i>Mimulus michiganensis</i>	Michigan monkey flower	LE	E	
<i>Myotis septentrionalis</i>	Northern long-eared bat	LT	SC	
<i>Orobancha fasciculata</i>	Broomrape		T	
<i>Pandion haliaetus</i>	Osprey		SC	
<i>Papaipema aweme</i>	Aweme borer		SC	
<i>Physella magnalacustris</i>	Great Lakes physa		SC	
<i>Pinguicula vulgaris</i>	Butterwort		SC	
<i>Pisidium idahoense</i>	Giant northern pea clam		SC	
<i>Planogyra asteriscus</i>	Eastern flat-whorl		SC	
<i>Potamogeton hillii</i>	Hill's pondweed		T	
<i>Pupilla muscorum</i>	Widespread column		SC	
<i>Pyganodon lacustris</i>	Lake floater		SC	
<i>Ranunculus cymbalaria</i>	Seaside crowfoot		T	
<i>Scirpus torreyi</i>	Torrey's bulrush		SC	
<i>Solidago houghtonii</i>	Houghton's goldenrod	LT	T	
<i>Somatochlora hineana</i>	Hine's emerald dragonfly	LE	E	
<i>Stagnicola contracta</i>	Deepwater pondsnail		E	
<i>Stagnicola woodruffi</i>	Coldwater pondsnail		SC	
<i>Stellaria longipes</i>	Stitchwort		SC	
<i>Sterna caspia</i>	Caspian tern		T	
<i>Sterna hirundo</i>	Common tern		T	
<i>Tanacetum huronense</i>	Lake Huron tansy		T	
<i>Trimerotropis huroniana</i>	Lake Huron locust		T	

Source: Michigan Natural Features Inventory, May 2016



In order from top: Bald eagles (species of concern), common loons (threatened), and osprey (species of concern) can be regularly seen on the Island.

Photo Credit: Tom Hawkins

PROTECTING NATIVE SPECIES

The Island has a rare opportunity to protect native species. Islands act as a refuge for native plants and animals, as invasive pests and diseases have more difficulty accessing these locations. The Emerald Ash Borer is one example. This pest has eradicated many, if not all, of the ash trees in the Lower Peninsula of Michigan. This devastating pest has not infiltrated Beaver Island, however! Volunteers continue to set up “purple traps” to provide early detection and rapid response for any Emerald Ash Borers that might reach the Island; to date, none have been detected.

The Island’s ability to protect rare and native species may represent a unique opportunity for the Island to save and preserve Michigan’s natural gems, like the ash tree. This unique opportunity was mentioned time and again during the public process for this Master Plan. For ideas and recommendations on invasive species monitoring and native species protection, see Chapter 6.

LEVERAGING NATURAL RESOURCES

The Island’s many natural resources described in this chapter are used to support the Island economically. Hiking, fishing, kayaking, and birding are all increasingly popular activities on the Island and in the State of Michigan overall. For more on ways that the Island is working to benefit from its natural resources in a sustainable way, see Chapter 5. Chapter 6 contains a list of recommendations and actions the community is taking to better preserve and maximize the benefits that natural resources yield to the Island economy.

Ash trees, like the one pictured below, are becoming increasingly rare on the mainland due to infestations of the Emerald Ash Borer pest. Yet, due to its remoteness, the Island has an opportunity to protect and preserve this beautiful tree.





One of the goals of this Master Plan is to protect the beautiful night skies from light pollution. Chapter 6 contains a recommendation to enforce existing outdoor lighting ordinances.

Photo Credit: Cynthia Hector

“The night sky is phenomenal (where no night lights are on); also our clean air and clean water, our breathtaking natural areas with wildlife, trees, birds, fish; our clean sandy and rocky beaches with wildflowers--some rare--all beautiful--our sand dunes, our boulders left by the glaciers...all of these natural features are Beaver Island’s greatest treasures to be enjoyed, cherished, protected. We who live here are fortunate indeed!

Beaver Island Resident

ENVIRONMENTAL CHALLENGES: LOOKING TO THE FUTURE

One aspect of resiliency is preparing for future changes and new conditions. To be ready for future changes in the environment, Beaver Island will need to employ adaptive management strategies to ensure the long-term viability of Beaver Island’s ecological resources. During the planning process, one stakeholder noted that on an island, ecosystems must evolve, as opposed to migrate. While in other parts of Michigan climate experts expect to see the southern reaches of certain species shift north over time, island ecosystems do not have that option. The following section identifies the changes occurring in the natural environment due to climate variability and describes several potential impacts to natural resources that Beaver Island should monitor and respond to.

WHAT IS CHANGING IN THE NATURAL ENVIRONMENT?

The Great Lakes Integrated Sciences + Assessments Center (GLISA) is a consortium of scientists and educators from the University of Michigan and Michigan State University that is funded by the National Oceanic and Atmospheric Administration (NOAA). GLISA provides climate information and resources for communities across the Great Lakes region. According to GLISA, the Great Lakes region has already experienced a 2.3° F increase in average temperatures since the 1900s. An additional increase of 1.8 to 5.4° F in average temperatures is projected by 2050. Although these numbers are relatively small, they are driving very dramatic changes in Michigan.

Based on the most recent regional climate change maps that are found on GLISA’s website, the climate of Northwest Lower Michigan will continue to warm, with greater increases in average temperatures during the winter months and at night. There are a variety of weather impacts expected with this change in average temperatures. Some of the potential impacts relevant to Beaver Island 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 Lake Michigan and inland lakes.
5. More flooding events with risks of erosion.
6. Increases in frequency and length of severe heat events.
7. Increased risk of drought and wildfire.

WHAT DO THESE CHANGES MEAN FOR BEAVER ISLAND'S NATURAL ENVIRONMENT?

The following section identifies several ways that climate change on Beaver Island is resulting or will result in economic, recreational, or other challenges. This topic is woven into a number of chapters in the Master Plan, and the following section is intended to be a short overview.

MORE EXTREMES

While extreme storms are nothing new in Northwest Lower Michigan, both the rate and severity of extreme storms have already increased and are likely to continue to increase in the region. This change in storm patterns may result in quickly changing temperatures, precipitation, and water levels on Beaver Island. Extreme rainstorms followed by freezing temperatures, for example, have the potential to cause serious damage to pavement and infrastructure. Loss of electricity may occur more frequently, which places vulnerable and isolated populations at increased risk during a storm. For natural resources, extremes in temperatures, precipitation, and water levels can damage coastal wetlands, harm already vulnerable animals and plants, and create an environment for invasive species to thrive. According to one Central Michigan University (CMU) researcher, the extreme water level changes have already resulted in an overall loss of coastal wetlands on Beaver Island.

INVASIVE SPECIES

Invasive aquatic species, like the zebra mussel and the quagga mussel, are able to proliferate in Lake Michigan as water temperatures rise. This could damage the spawning grounds for fish and cause irreparable changes up the food chain to the animals that compete for food (plankton) with these mussels. Invasive plant species (mentioned earlier in this chapter) are also likely to find more suitable conditions as temperatures warm on Beaver Island.

WHITEFISH

Small changes in the chemistry and temperatures of the Great Lakes have big impacts on fisheries. As noted by CMU Biological Station Director Don Uzarski, the observed 2-3° F warming in Lake Michigan has already resulted in a notable decline of the whitefish population. Staff at the Little Traverse Bay Bands of Odawa Indians confirm that fishing yields of whitefish for the tribes are significantly down.

WILDFIRE

As periods of drought and high temperatures increase due to climate variability, chances of severe wildfires increase. Islands by their very nature are more limited when it comes to emergency response, with greater response times and more difficult mobilizations the norm. Even the DNR's routine management of brush removal is more difficult on the Island.

WHAT ABOUT THE "POLAR VORTEX?"

While average temperatures are rising in the State of Michigan, it is also likely that longer durations of extreme cold will continue in parts of the Upper Peninsula and Northwest Lower Peninsula. In 2013, communities throughout the state experienced a record-breaking number of days below freezing. Marquette, for example, experienced 79 consecutive days of freezing temperatures! Many climate researchers believe this was due to a sustained change in the jetstream that allowed cold, polar air to travel farther south. Some researches believe this trend may reoccur in the state due to changes to the ice mass in the arctic, despite an overall rise in temperature.¹

¹ See Cornell University's Climate Change research at: <http://climatechange.cornell.edu/what-is-a-polar-vortex/>



CULTURAL RESOURCES

A CULTURALLY RICH ARCHIPELAGO

The Beaver Island Archipelago is home to a rich array of significant cultural and historic resources. Some of these resources are natural, as opposed to manmade. Others are remnants of past settlements, Native American cemeteries, and sacred sites. The Michigan State Historic Preservation Office (SHPO) has cataloged some significant and cultural resources on the Island, but many private property owners are unaware of what may be on their property. Currently, a total of 141 sites are recorded with the Office of the State Archaeologist (as of July 2016) that are associated with the Beaver Island Archipelago. Of the 141 sites, 123 are classified as originating during the historic period, while 18 are considered prehistoric. The data on the resources is public, although exact locations are not documented in an effort to prevent the misuse of information. Map 2.8 shows that most of the Island has potential for archaeological features, according to the State of Michigan.

The Little Traverse Bay Bands of Odawa Indians (LTBB) is particularly interested in identifying the cultural resources relevant to the Island's tribal history. Currently, LTBB is working to identify the historic and cultural resources that are adjacent to public lands as a way to leverage these assets for public benefit. One strategy LTBB is exploring is a partnership with the Little Traverse Conservancy and others to enact voluntary easements for important cultural resources currently located on private property. This would allow tribal members access to sacred sites for occasional ceremonies, ensure they are protected in perpetuity, and provide tax incentives for private property owners. LTBB is also looking

to create an endowment that can be used to purchase the development rights of sacred sites on Beaver Island.

EXAMPLES OF CULTURAL RESOURCES

Many of the Island's cultural resources are linked to its tribal history. Cultural resources can also be natural resources (such as sweet grass, which considered a sacred plant used in ceremonies and medicine, or black ash trees, which were used in traditional basket making). Historic structures and the locations of past settlements, like fishing villages or farms, are also important to preserve and protect as part of the Island's heritage. In managing these important cultural resources, collaborations between tribal and non-tribal groups are essential to both identifying and preserving the cultural assets of the archipelago. A comprehensive report on the resources of Garden and High Islands was created by Andrews Cultural Resources for LTBB in 2012.¹

THE SOUTH END LIGHTHOUSE

Many Islanders voiced concerns for the preservation and care of the Beaver Island Lighthouse at the south end of the Island during the Master Planning process. The lighthouse was built in 1851 and operated well into the 1950s, helping countless ships navigate the treacherous waters of Lake Michigan. The lighthouse also served as a hunting lodge, and most recently as part of the Beaver Island Lighthouse School. The Lighthouse School was a program run by Charlevoix Public Schools for troubled teens. The campus includes a number of facilities near the lighthouse including tent structures, a

¹ <http://www.beaverislandassociation.org/wp-content/uploads/2015/04/LTBB-Final-Report-on-Cultural-Resources-on-Garden-and-High-Island-2.pdf>





wood shop, and several cabins. Unfortunately, the school announced its closure in 2016 due to inadequate funding caused by changes in federal legislation. The lighthouse's fate is once again uncertain. Many Islanders emphasized the importance of maintaining the lighthouse while lamenting the loss of the school program. The Island has an opportunity to secure the public's access to and care for the lighthouse itself, while the campus may be repurposed into something new. Chapter 6 contains recommendations for this area.

The Beaver Island Lighthouse in 1930 and today. Photos Courtesy of the US Coast Guard (Left) and Networks Northwest. The 1906 net shed (Below) with its original siding made from Island cedar, now houses many historical artifacts in the Island's Marine Museum operated by the Beaver Island Historical Society.



MANAGING NATURAL RESOURCES

Many groups and agencies are collaborating to protect the diverse natural resources on Beaver Island, each with a strong presence on the Island and a unique role in fostering healthy ecosystems.

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

The Michigan Department of Natural Resources (DNR) owns approximately 12,400 acres of land on the Island, or about one-third of the total area (see Chapter 4 for more discussion of land ownership). The DNR recognizes the important role the State can play in helping communities manage their natural resources to promote economic and community development while still fostering high-quality natural resources. Consequently, the DNR takes a collaborative approach to manage its land on the Beaver Island Archipelago.

NORTHERN LAKE MICHIGAN ISLANDS COLLABORATIVE

To form the basis of input for the Management Plan for State-Owned Lands on Northern Lake Michigan Islands, the DNR formed a network of local groups including local units of government, tribal governments, and other interested stakeholders. The management plan provides a vision and identifies actions for the future management of state-owned lands in the Archipelago. Meanwhile, the network of organizations (called the Northern Lake Michigan Islands Collaborative) meets regularly to discuss ongoing management issues and implementation of the management plan. The Collaborative has also formed a number of working groups to study special topics, including cultural resources through the Landscape Level Planning Committee.

TRIBAL GROUPS

The Little Traverse Bay Bands of Odawa Indians and the Grand Traverse Band of Ottawa and Chippewa Indians both have a long history of subsistence fishing in the offshore waters of Lake Michigan and take great care to manage the fisheries in a sustainable manner. Although there is no reservation land on Beaver Island, many of the surrounding islands have reservation land or important tribal resources.

The Little Traverse Bay Bands administer the State Historic Preservation Office (SHPO) office for the region, and are also responsible for cataloging and tracking all cultural and historic resources on Beaver Island. Many of these resources have strong connections to the natural environment.

A diverse network of organizations is required to manage the Archipelago's vast number of environmental and cultural resources. When organizations are able to coordinate management of natural areas with the public's interest in mind, a community is able to better respond to challenges and changes in the natural environment.

CENTRAL MICHIGAN UNIVERSITY

Beaver Island is home to the Central Michigan University (CMU) Biological Station. The CMU Biological station manages two facilities on the Island, owns a number of acres, and conducts a variety of research focused on the water resources and ecological systems on the island. CMU brings in students and staff to explore and study the Island through summer programming. Data collected on the Island is published in a number of studies and reports by CMU scientists, including studies of the inland lakes, coastal wetlands, and nearshore waters.

LITTLE TRAVERSE CONSERVANCY

The Little Traverse Conservancy manages four nature preserves on the Island. The preserves are open to birders and hikers, and the Little Traverse Conservancy has worked with the DNR and other groups to secure conservation easements on many acres of privately-owned land on the Island. A conservation easement is a voluntary legal agreement between a landowner and a qualified organization in which a landowner agrees to permanently protect the natural environment. Sometimes an easement prohibits new construction, the removal of vegetation, or other changes from occurring on the land.

VOLUNTEER ORGANIZATIONS AND OTHER GROUPS

In addition to the governmental agencies and NGOs cited above, residents of Beaver Island are deeply committed to fostering high-quality natural resources in a sustainable manner. A variety of formal and informal island groups volunteer regularly to protect and enhance natural resources on the Island. A few examples include the Wildlife Club, the Beaver Island Association, and the Preservation Association of Beaver Island.

MAPS IN THIS CHAPTER

The maps for this chapter are included on the following pages. This page provides a brief description of each map, while data sources and other information can be found on each map.

MAP 2.1 BARRIER DUNES

This map shows the land on Beaver Island designated as a barrier dune by the State of Michigan.



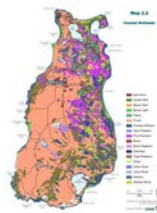
MAP 2.5 SOIL ASSOCIATIONS

This map shows the four main soil associations on the Island.



MAP 2.2 COASTAL WETLANDS

This map shows coastal wetlands by scientific type on Beaver Island. The types were determined by vegetation by Michigan Technological Research Institute.



MAP 2.6 SOIL PERCENT SLOPE

This map shows the areas where soils have a relatively high percent slope.



MAP 2.3 INLAND LAKES AND STREAMS

This map shows the location and names of the Island's lakes and major streams.



MAP 2.7 DIGITAL ELEVATION MODEL

This map shows the elevation of the land on the Island.



MAP 2.4 WETLANDS AND POTENTIAL WETLAND RESTORATION AREAS

This map shows three types of wetlands on the Island and indicates areas where wetlands might be restored.



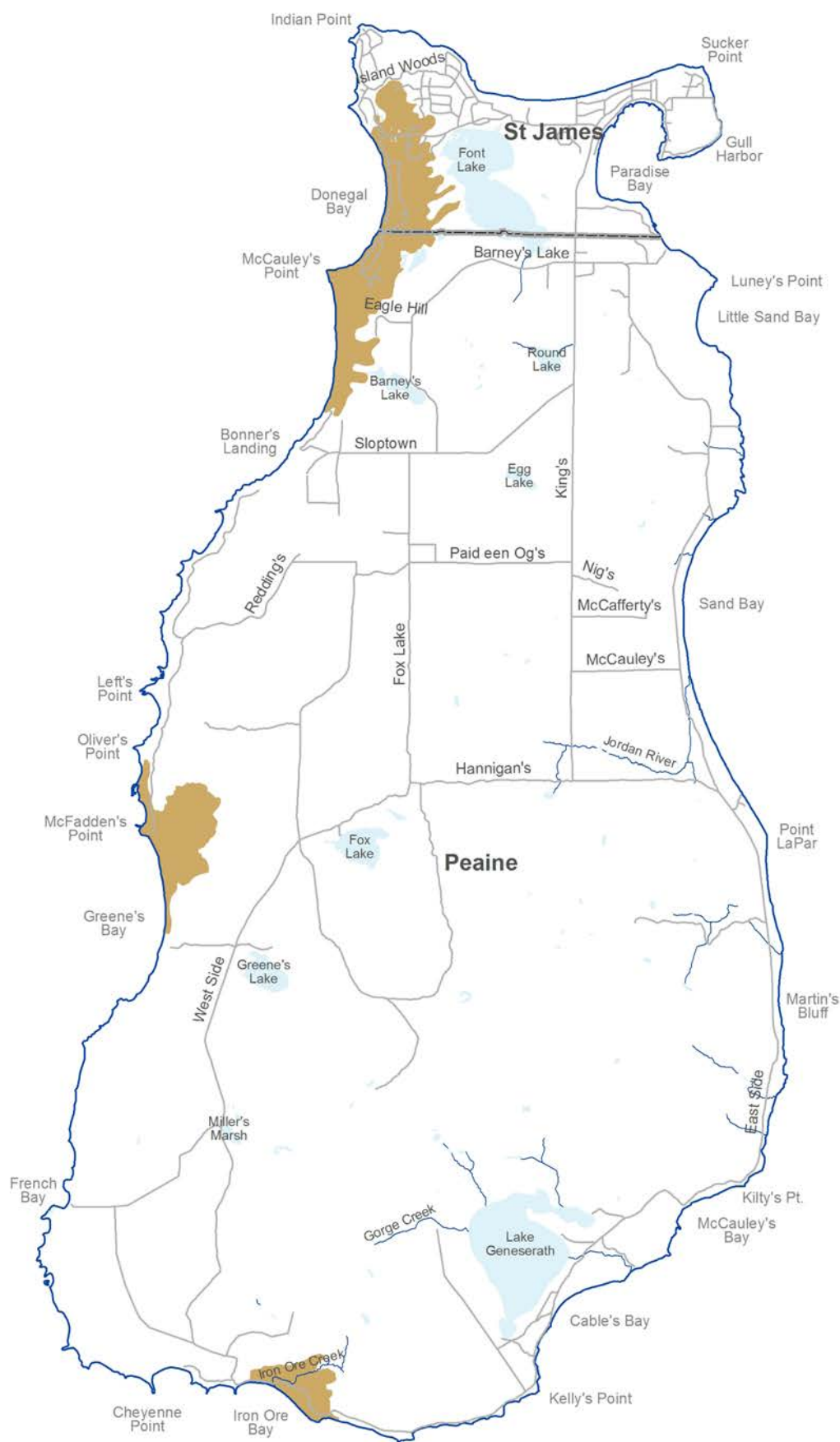
MAP 2.8 POTENTIAL FOR ARCHAEOLOGICAL FEATURES

This map shows the areas that have a high likelihood of containing archaeological features.

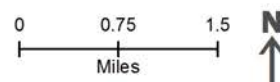


Map 2.1

Barrier Dunes

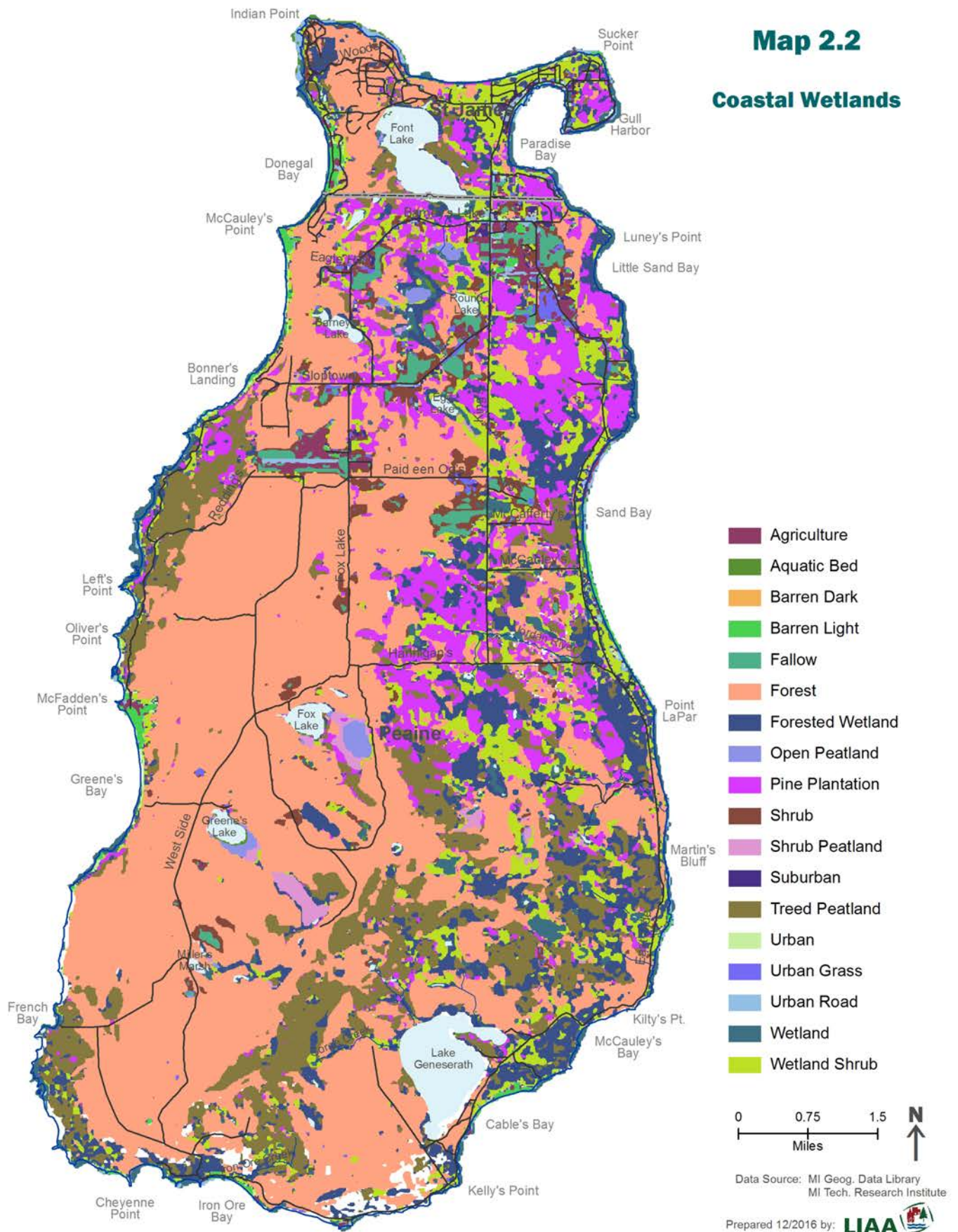


 Barrier dunes



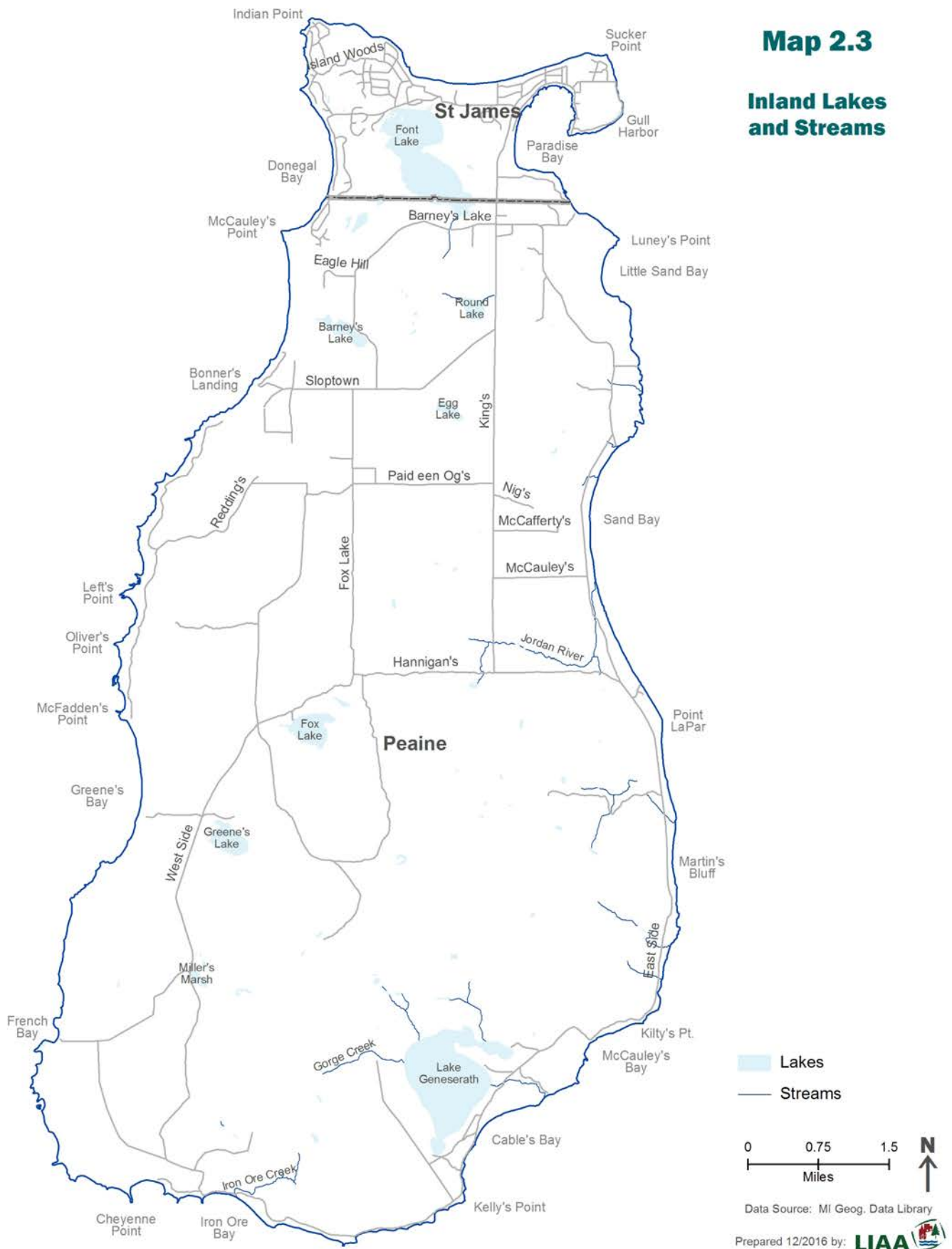
Data Source: MI Geog. Data Library

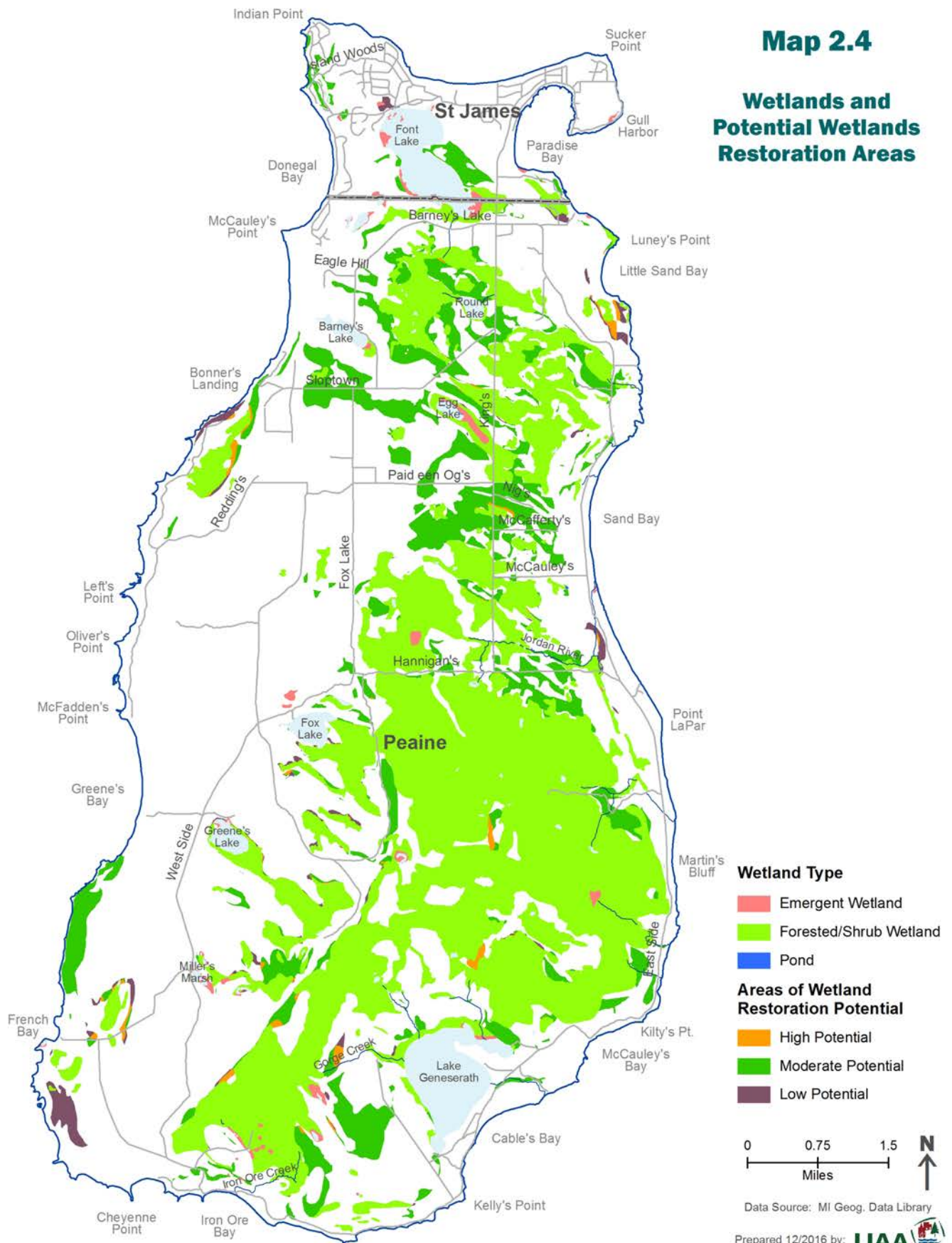
Prepared 12/2016 by: **LIAA** 

Map 2.2**Coastal Wetlands**

Map 2.3

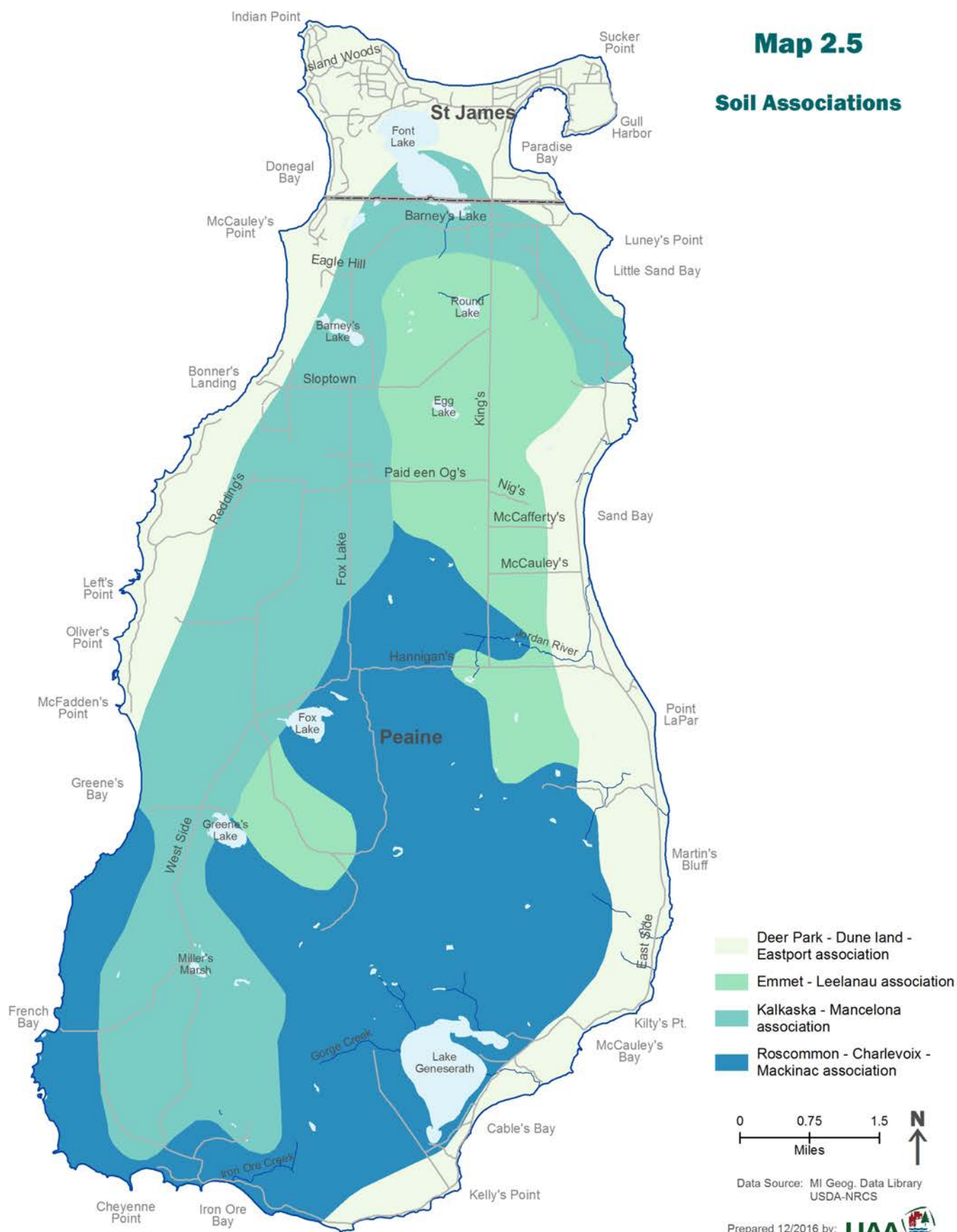
Inland Lakes and Streams



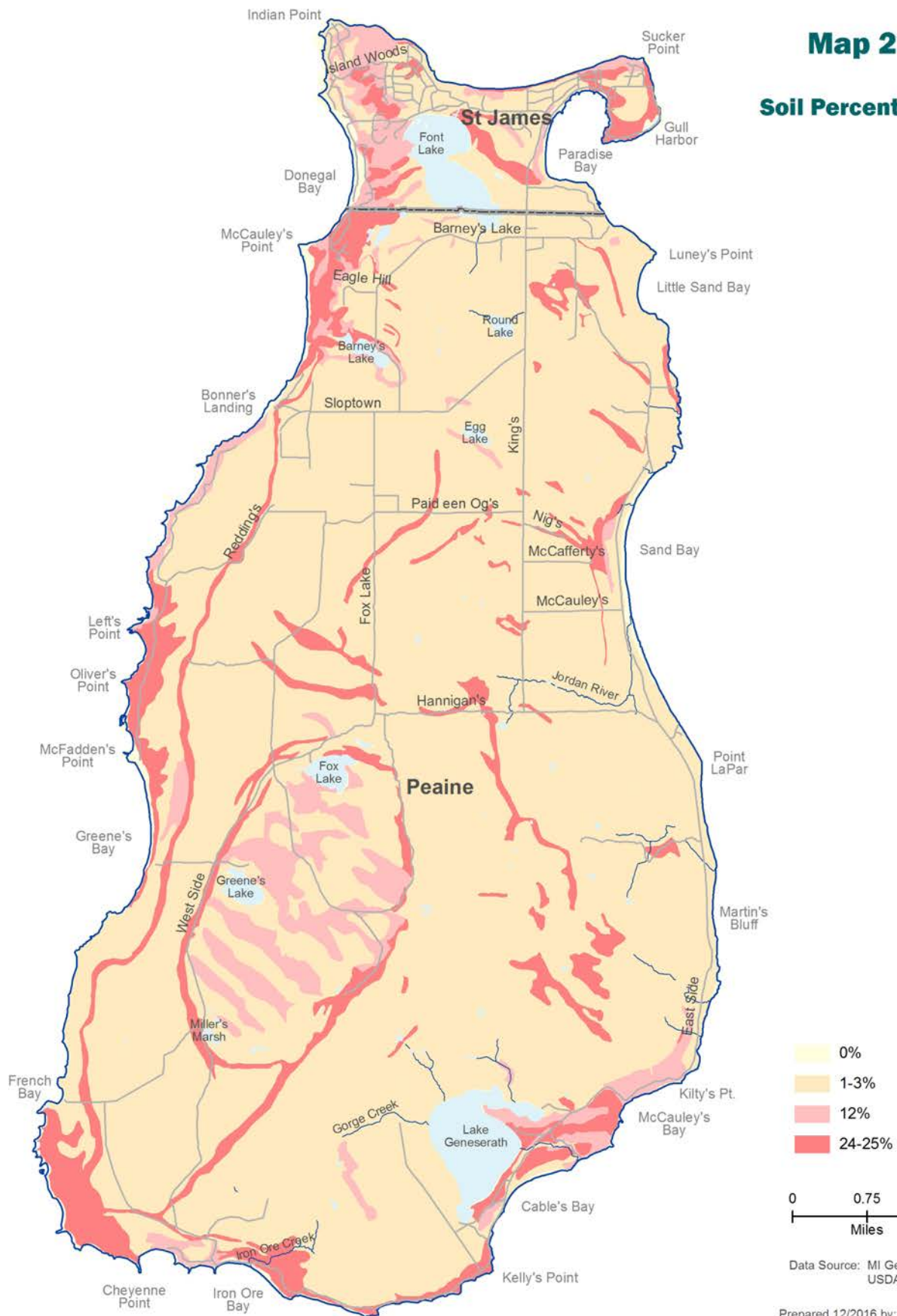
Map 2.4**Wetlands and
Potential Wetlands
Restoration Areas**

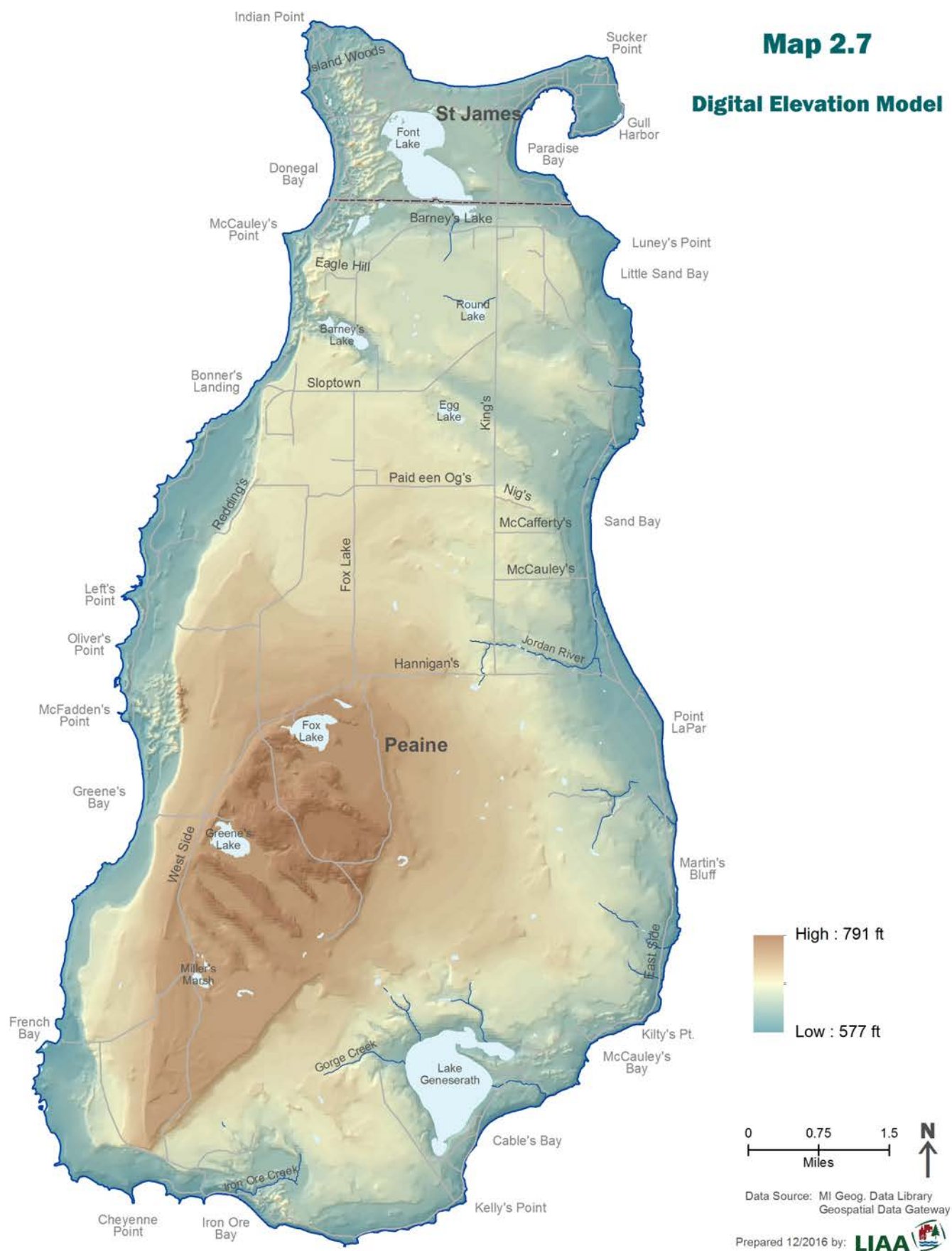
Map 2.5

Soil Associations



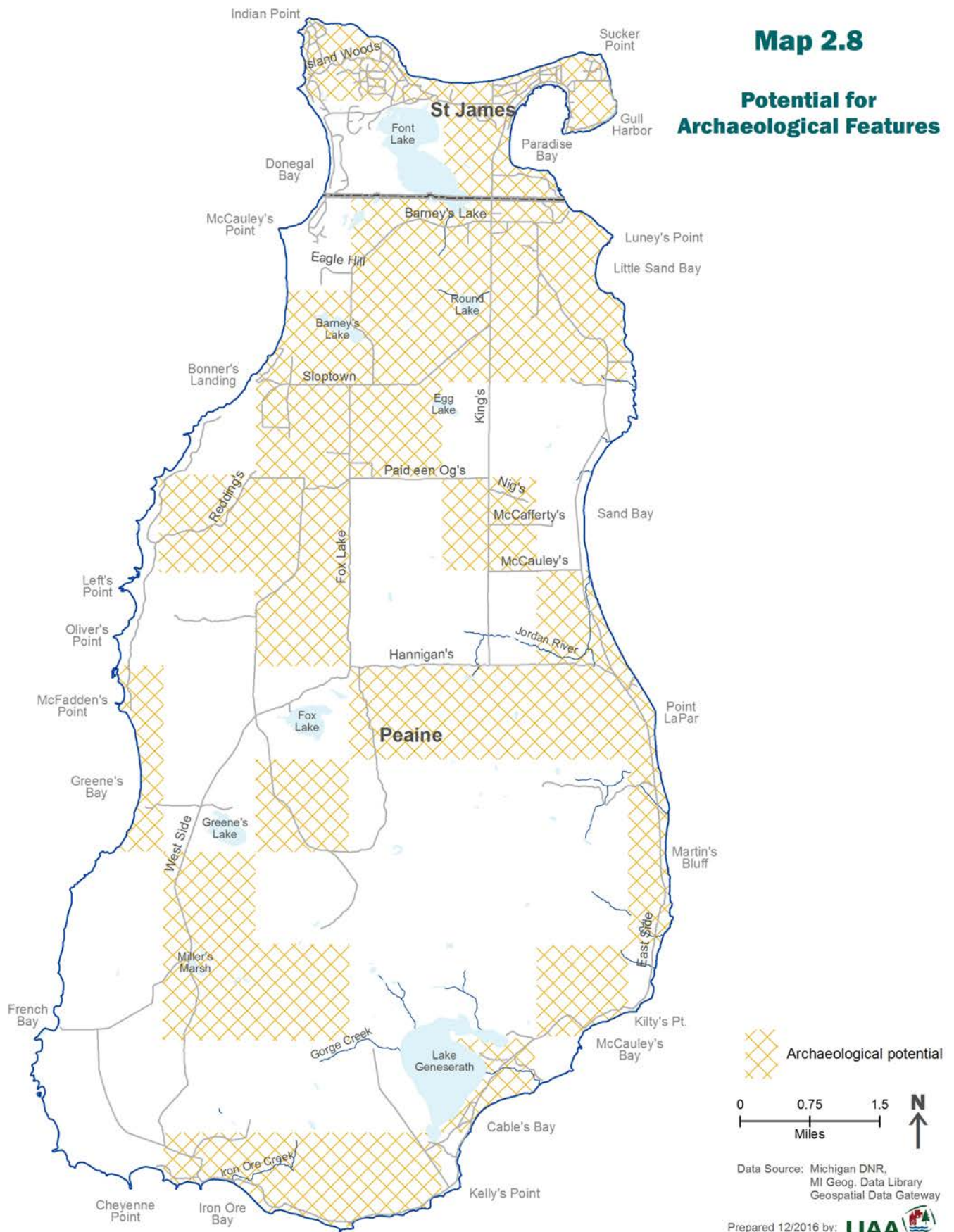
Map 2.6
Soil Percent Slope

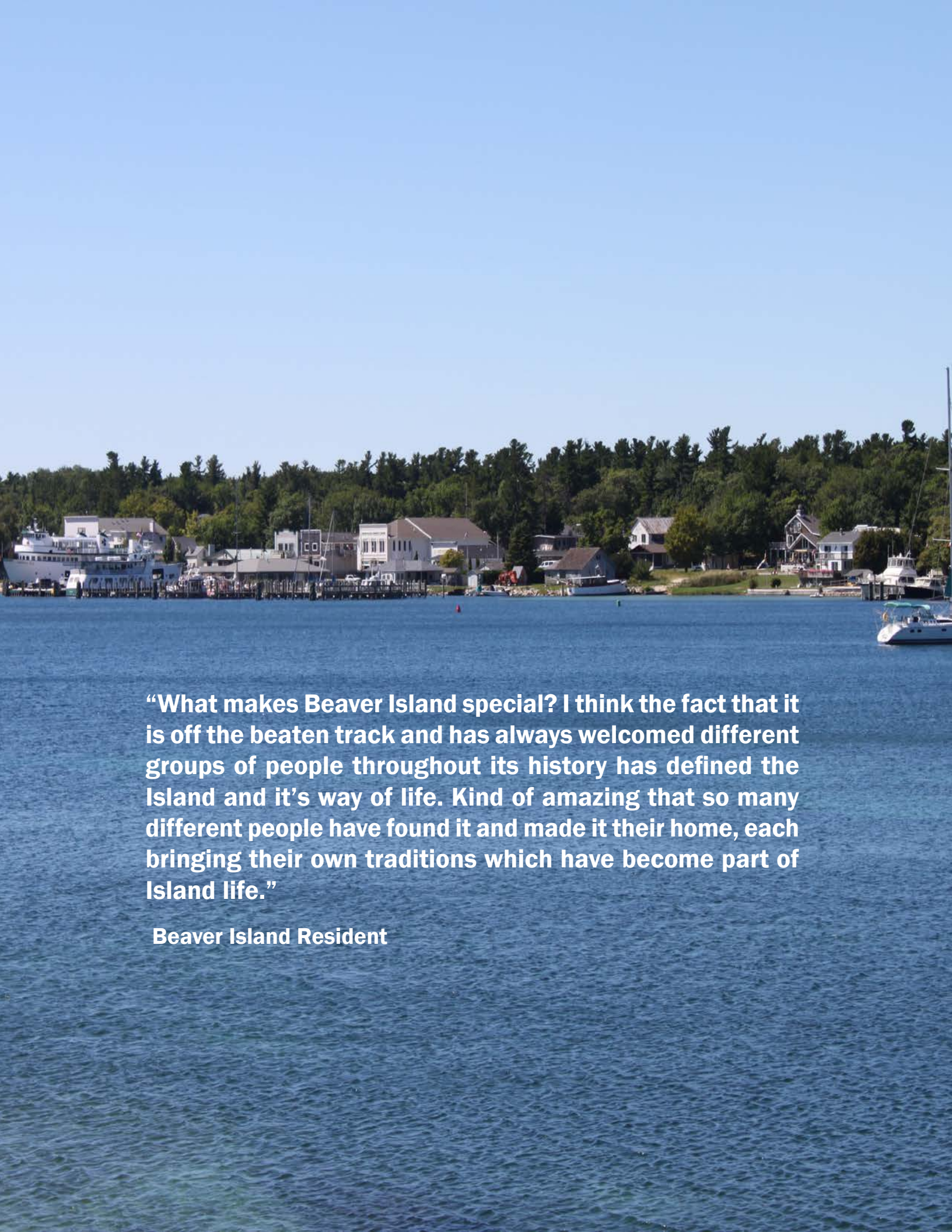




Map 2.8

Potential for Archaeological Features





“What makes Beaver Island special? I think the fact that it is off the beaten track and has always welcomed different groups of people throughout its history has defined the Island and it’s way of life. Kind of amazing that so many different people have found it and made it their home, each bringing their own traditions which have become part of Island life.”

Beaver Island Resident

CHAPTER 3

POPULATION AND HOUSING

This chapter begins by summarizing demographic trends on the Island, including population, age and education. Next, this chapter discusses changes to the Island's households and housing stock. This chapter then identifies the public and community-wide services available to Islanders. Lastly, the key challenges related to these topic areas are identified.

DEMOGRAPHIC CHARACTERISTICS

Through a series of tables, the next several pages show overall demographic characteristics of the Island's population. In general, each table in this chapter uses data collected from 2010 through 2014 by the American Community Survey (a United States Census Bureau product) to represent current conditions on Beaver Island with the most recent data available. Census data from the 2000 Census is used as a point of comparison, and a change in both number and percentage (using a percent-change formula) is also given where appropriate. The information selected is useful for understanding the current conditions of the population, as well as planning for housing and service needs.

UNDERSTANDING CENSUS DATA

The following pages show a number of datasets related to Beaver Island's population. All of this data comes from the United States Census Bureau. While the U.S. Census collects information every 10 years (2000 data is used here), the American Community Survey, also conducted by the U.S. Census Bureau, collects data on a rolling (continuous) basis throughout each year. The American Community Survey summarizes data into 5-year ranges, producing confident estimates for 2010 to 2014. The tables on the next few pages display a number, a percent (where relevant), and a percentage change from the first year (2000 data) to the current conditions (2010-14 data). For example, Table 3.1 on the next page shows the number of residents in each township of Beaver Island for each year, and the percentage change between years.



Islanders posed for portraits to be included in the Master Plan.

POPULATION GROWTH

Table 3.1 shows the change in the Island's total population from 2000 to 2014. In general, the Island grew significantly (by over 35%) between 1990 and 2000. Both St. James and Peaine Townships grew during this time period, but Peaine Township's growth outpaced growth in St. James Township. Between 2000 and 2014, population has continued to grow on the Island, but at a slower rate. Approximately 46 new people moved to the Island in recent years, and the Island's population grew by about 8.3%. This runs contrary to county and state trends, as both Charlevoix County and the State of Michigan have lost population since 2000.

Seasonal populations were counted slightly differently in the 2000 Census versus the 2010-2014 American Community Survey, and this may have an impact on the total population numbers. Please see the section on housing later in this chapter for more information on seasonal residents.

It is difficult to say with certainty whether the Island's population will grow or shrink in coming years. Demographic, economic, and political changes may influence the Island in the next 5 to 10 years. One method to estimate future population is called a *population projection*, wherein a predicted growth rate is applied to a community's existing population. Table 3.2 shows a population projection for

TABLE 3.1 POPULATION, 1990-2014

	1990	2000	2014	% CHANGE 1990 TO 2000	% CHANGE 2000 TO 2014
Peaine Township	128	244	280	90.6	14.8
St. James Township	276	307	317	11.2	3.3
Beaver Island	404	551	597	36.4	8.3
Charlevoix County	21,468	26,090	26,038	21.5	-0.2
State of Michigan	9,295,297	9,938,444	9,889,024	6.9	-0.5

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

TABLE 3.2 PROJECTED POPULATION

	ACTUAL POPULATION		PROJECTED POPULATION			% CHANGE 2014 TO 2030
	2014	2015	2020	2025	2030	
Peaine Township	280	280	281	284	286	2.1
St. James Township	317	317	318	321	324	2.1
Beaver Island	597	597	599	605	609	2.1
Charlevoix County	26,038	26,032	26,127	26,371	26,579	2.1

Source: American Community Survey (2010-2014); Institute for Research on Labor, Employment, and the Economy, University of Michigan, March 2012.

Beaver Island that relies on the predicted growth rate for Charlevoix County. In other words, Table 3.2 shows what Beaver Island's population might be if the Island grows by the same rate as national data suggests Charlevoix County might grow.

According to this table, the Island might expect to gain a small number of new residents before 2030. Growth on Beaver Island has historically exceeded the rate of growth in Charlevoix County, but it is possible that this trend may diverge in coming years. An aging population with fewer younger people living on the Island, economic challenges to job growth, and access to healthcare are serious concerns that are likely to impact the Island's future growth if not adequately addressed. Each of these issues are addressed in the Action Plan.

AGE

Table 3.3 shows the age distribution of Beaver Island's residents from 2000 to 2014. In general, the table shows that the Island has fewer residents in the youngest age ranges in 2014 than in 2000. The number of residents in the age ranges over 45 years old has grown remarkably, while age ranges representing young families (0-9 and 25-44) have declined. An aging population has implications for housing, schools, health services, recreational amenities, and many other aspects of the community.



An Arthritis Foundation Exercise Program event held at the Beaver Island Community Center (above). Many Island organizations offer activities and services to aging residents. Photo Credit: Beaver Island Community Center

TABLE 3.3 AGE DISTRIBUTION OF BEAVER ISLAND, 2000-2014

	2000		2014		CHANGE, 2000 TO 2014	
	#	% OF TOTAL	#	% OF TOTAL	#	% CHANGE
5 and under	23	4.2	8	1.3	-15	-65.0
5 to 9	24	4.4	19	3.2	-5	-20.4
10 to 14	45	8.2	53	8.8	8	17.4
15 to 19	31	5.6	33	5.5	2	6.5
20 to 24	14	2.5	14	2.3	0	-0.6
25 to 34	24	4.4	8	1.4	-16	-65.7
35 to 44	88	16.0	47	7.9	-41	-46.6
45 to 54	87	15.8	101	16.9	14	16.3
55 to 59	48	8.7	55	9.2	7	14.5
60 to 64	48	8.7	58	9.7	10	20.6
65 to 74	78	14.2	135	22.6	57	73.1
75 to 84	35	6.4	54	9.0	19	53.9
85 and over	6	1.1	12	2.0	6	99.3
Total Population	551	100.0	597	100.0	46	8.3

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

AGING POPULATION

Beaver Island has seen fewer young families move to the Island in recent years. This has been identified as a key issue on the Island. The goals and actions of this Master Plan are designed to help make the Island an attractive place for young families while providing for high quality of life for aging residents.

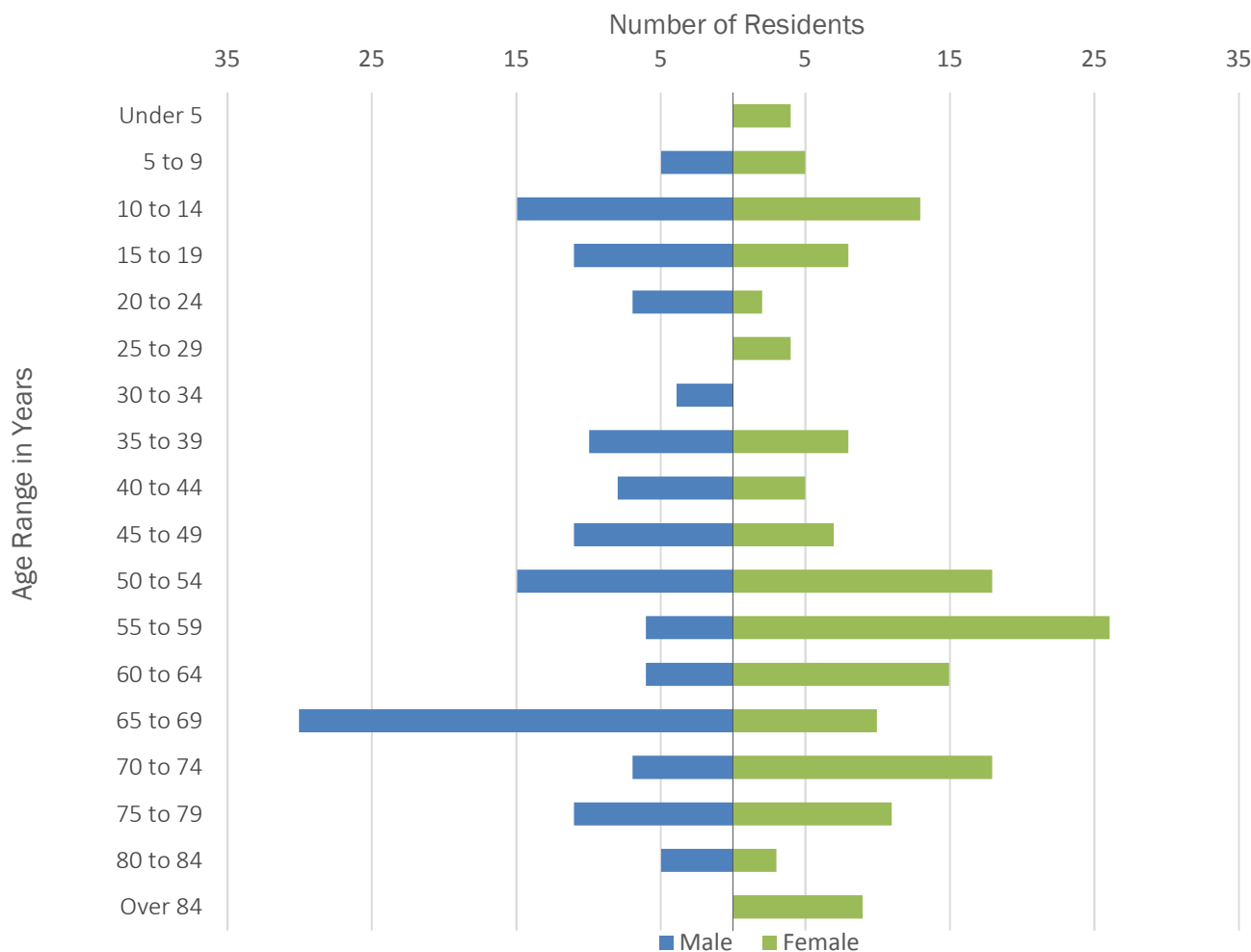
TABLE 3.4 MEDIAN AGE, 2000-2014

	2000	2014	% INCREASE, 2000 TO 2014
Peaine Township	49.5	58.2	17.6
St. James Township	45.6	54.8	20.2
Charlevoix County	39.1	46.4	18.7
State of Michigan	35.5	39.3	10.7

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

While some of this change can be attributed to the natural aging of long-term residents of the Island, Table 3.4 shows that the Island in general has aged more rapidly than the State of Michigan overall. Table 3.4 shows the median age of each Township on the Island in 2000 and in 2014. In 2000, the median age of Peaine and St. James Townships were 49.5 and 45.6, respectively. In 2014, the median age of each Township increased by at least 17% to 58.2 and 54.8, respectively. Figure 3.1 shows the number of residents by age and sex on the Island in 2014. This figure clearly shows the age distribution of the Island and the small number of young adults and children compared to those in older age groups.

FIGURE 3.1 NUMBER OF RESIDENTS BY AGE AND SEX, 2014



Source: U.S. American Community Survey (2010-2014)

RACE

Table 3.5 shows that Beaver Island's racial makeup has not changed dramatically in recent years. Of the Island's 597 residents counted in the 2010-2014 American Community Survey, 583 self-identified as white alone. Non-white populations on the Island include several Hispanic, Native American or Alaska, Asian, or biracial residents.

EDUCATION

Educational attainment is another measure of the community's economic condition. Having a college education is associated with greater economic stability, positive health outcomes, and a number of other social and economic benefits. Table 3.6 shows the highest level of education received by adults over 25 on the Island. For example, as of 2014, 21.5% of adult over 25 in Peaine Township had at least a bachelor's degree. This table shows that Beaver Island's population, especially within Peaine Township, has a higher percentage of residents with bachelor's degrees or graduate or professional degrees than Charlevoix County or the State of Michigan overall. In fact, the percentage of residents with a graduate or professional degree is Peaine Township is double that of the State of Michigan.



The Beaver Island Community School's motto is "customized learning in a unique island community." This educational asset aims to prepare Island students for college and vocational programming.

TABLE 3.5 POPULATION BY RACE

	2000		2014		# CHANGE 2000 TO 2014
	#	% OF TOTAL	#	% OF TOTAL	
White Alone	541	98.2	583	97.7	42
Hispanic	1	0.2	1	0.2	0
Native American or Alaskan	6	1.1	4	0.7	-2
African American	0	0.0	0	0.0	0
Asian	0	0.0	5	0.8	5
Other Race Alone	0	0.0	0	0.0	0
Two or More Races	3	0.5	4	0.7	1
Total Population	551	100.0	597	100.0	46

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

TABLE 3.6 HIGHEST LEVEL OF EDUCATION RECEIVED AS OF 2014, BY PERCENT OF ADULTS OVER 25 YEARS OLD

	DID NOT GRADUATE HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE OR ASSOCIATES DEGREE	BACHELOR'S DEGREE	GRADUATE OR PROFESSIONAL DEGREE
Peaine Township	1.8	24.7	31.9	21.5	20.2
St. James Township	11.7	35.2	30.0	14.6	8.5
Charlevoix County	8.7	31.6	32.6	16.6	10.5
State of Michigan	10.7	30.2	32.7	16.1	10.3

Source: American Community Survey (2010-2014)

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 in developing a Master Plan. The information in this section draws from Census data, regional studies conducted by Networks Northwest, and building permit data from St. James and Peaine townships. As much as possible, the data is selected to show the most recent and accurate information available.

VACANCY AND SEASONAL HOUSING UNITS

Table 3.7 summarizes several key data trends, including the number of housing units occupied by an owner or renter, used seasonally, or vacant on the Island between 2000 and 2014. This information is collected by the U.S. Census Bureau and reflects that responses of those that completed a census survey form. Therefore, the information in the table likely does not identify the true number of housing units, but may capture changes over time to the Island's housing stock.

SEASONAL HOMES

Other traditional data sources, such as occupancy permit records or housing surveys, are not currently available for Beaver Island. Therefore, the information in Table 3.7 is the best information available to understand trends in the seasonal housing market on the Island, excepting anecdotal reports. In general, it appears that most of the housing growth on Beaver Island in the last decade has been in homes used only seasonally. These homes may be used by either a renter or the owner. About 70% of the Island's units

HOUSING GROWTH

Home construction and contracting work remains a staple of the Island's local economy. Changes in the type and number of homes in demand requires the home construction industry be able to adapt. The economy of the Island, including its labor force, is described in more detail later in this chapter. A number of recommendations for strengthening both housing and the local economy are included in the Action Plan (see Chapter 6).

were seasonally used in 2014. This represents an increase over 2000, when around 63% of the Island's homes were occupied seasonally according to the U.S. Census Bureau.

VACANCY

Table 3.7 also captures some information about housing vacancy on the Island. Here again, traditional data sets typically used by planners (such as U.S. Postal Service data) were not available for the Island. According to U.S. Census data, vacant units that are not seasonally used increased slightly between 2000 and 2014, with an additional 26 housing units classified as vacant. This could mean homes are vacant due to substandard conditions, a pending sale, or any number of reasons.

TABLE 3.7 HOUSING CHARACTERISTICS OF BEAVER ISLAND, 2000-2014

	2000		2014		CHANGE (2000 TO 2014)	
	#	% OF TOTAL HOUSING UNITS	#	% OF TOTAL HOUSING UNITS	#	% CHANGE
Owner Occupied	234	31.6	244	23.7	10	4.3
Renter Occupied	24	3.2	24	2.3	0	0.0
Vacant, Not Seasonal	20	2.7	46	4.5	26	130.0
Seasonally Used	463	62.5	714	69.5	251	54.2
Total Housing Units	741	100.0	1028	100.0	287	38.7

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

BUILDING PERMITS ISSUED

Table 3.8 shows the number of building permits issued by the Zoning Administrator within each Township from 2000 to November 2016. Figure 3.2 is a graphical representation of the number of building permits for new homes granted in the same time period. The table shows two categories of permits: the total count for homes, and the total number of permits issued for new secondary buildings or significant renovations, such as an addition or significant upgrade.

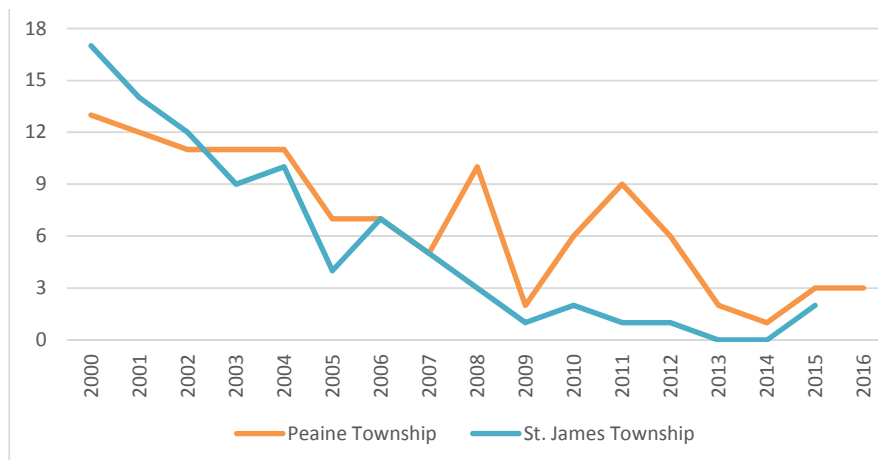
In general, since 2012, permits for 15 new homes have been issued in Peaine Township, while St. James Township has issued permits for 6 new homes. This information seems to support anecdotal observations that housing growth has slowed in recent years compared to decades past, and that Peaine Township is experiencing a greater influx of new homes and construction than St. James Township. The issuance of a building permit, however, does not always mean that a home has been constructed.

TABLE 3.8 BUILDING PERMITS ISSUED ON BEAVER ISLAND SINCE 2000

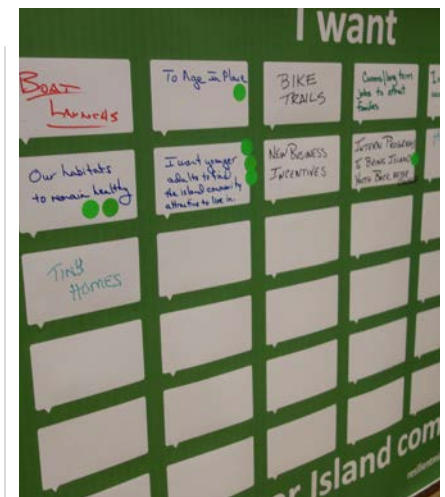
	PEAINE TWP		ST. JAMES TWP	
	HOMES	SECONDARY BUILDINGS AND RENOVATIONS	HOMES	SECONDARY BUILDINGS AND RENOVATIONS
2000	13	29	17	24
2001	12	27	14	16
2002	11	31	12	8
2003	11	28	9	14
2004	11	17	10	20
2005	7	22	4	16
2006	7	20	7	11
2007	5	24	5	11
2008	10	18	3	9
2009	2	17	1	8
2010	6	19	2	9
2011	9	18	1	10
2012	6	15	1	13
2013	2	15	0	12
2014	1	8	0	11
2015	3	14	2	12
2016	3	3	3	6

Source: Beaver Island Zoning Administrator

FIGURE 3.2 BUILDING PERMITS ISSUED ON BEAVER ISLAND



Source: Beaver Island Zoning Administrator



Many residents expressed opinions on what the Island's housing stock should look like in the future. These and other recommendations were reviewed by the Joint Planning Commission. See Chapter 6 for recommendations.

PROPERTY VALUES

Table 3.9 shows the taxable value of the properties in Peaine and St. James townships. This information is from the Charlevoix County Equalization Office and is organized by property types including agricultural, commercial, industrial and residential. For Beaver Island, taxable values have declined between 2010 and 2016. This is likely caused by the Great Recession and its long-term and delayed impact on values in the region. However, the value of non-residential property (in sum) has risen on the Island since 2010.

Table 3.10 shows the taxable values of residential properties on the Island for each year from 2010 to 2015. The total taxable value for residential properties within each township has generally declined during this time period, which is in line with Charlevoix County trends.

PROPERTY TAX REVENUE

One important implication of property values is the amount of money generated for local public services through tax revenue. Table 3.11 shows some of the services on the Island that rely on property tax dollars from either or both

THE GREAT RECESSION

Beaver Island might feel as if it's a world away, but the Island's local economy and housing market are still impacted by national trends. Beginning in 2009 and 2010 with the Great Recession, the housing market on Beaver Island began to change. Demand for new housing slowed, and anecdotal reports state that the construction industry suffered on the Island as a result. However, in recent years, housing growth on islands throughout the country have been impaired by a number of causes beyond the national economy. These include a relatively high cost of living and transportation, limited access to services, and demographic changes such as an aging population. The recommendations of this plan (Chapter 6) are designed to help the Island become more resilient to these changes.

TABLE 3.9 TAXABLE VALUES ON BEAVER ISLAND, BY PROPERTY TYPE IN 2010 AND 2016

	2010		2016		CHANGE (2010 TO 2016)	
	PEAINE	ST. JAMES	PEAINE	ST. JAMES	PEAINE	ST. JAMES
Agricultural	355,000	0	438,300	0	+83,300	0
Commercial	1,868,200	7,114,300	2,127,300	8,368,200	+259,000	+1,253,900
Industrial	851,700	0	1,056,800	0	+205,100	0
Residential	102,897,700	64,639,400	80,605,900	52,865,400	-22,291,800	-11,774,000
Total Real Property Values	105,972,600	71,753,700	84,228,300	61,233,600	-21,744,300	-10,520,100

Source: Charlevoix County Equalization Office

TABLE 3.10 PROPERTY TAX VALUATIONS FOR RESIDENTIAL PROPERTIES, 2010-2015

	2010	2011	2012	2013	2014	2015
Peaine Township	102,897,700	111,758,100	107,361,200	89,986,000	83,078,700	82,871,700
St. James Township	64,639,400	63,693,200	61,078,000	53,220,800	50,628,200	52,106,600
Charlevoix County	2.278 Billion	2.283 Billion	2.158 Billion	1.197 Billion	1.982 Billion	2.059 Billion

Source: Charlevoix County Equalization Department

townships. Of course, property taxes fund a number of services not listed on Table 3.11, including state and county services such as transit, recycling, senior services, and the Beaver Island District Library. Table 3.11 shows the local property tax revenues for each township government and the Beaver Island Community School in recent years.

HOUSEHOLD SIZE

The U.S. Census asks a number of questions related to household size, type and age. This information describes the types of households that live on Beaver Island and how households have changed in recent years. Table 3.12 shows the average household size (i.e., the number of people in each household) within each township, Charlevoix County, and the State of Michigan in 2000 and in 2014. The average household size on the Island slightly grew during this time period, while averages in the county and state slightly shrank. Peaine Township's average household went from 2.03 persons to 2.13 persons, while St. James grew from 2.22 to 2.25.



The Planning Commissions on the Island have encouraged the construction of unique and eclectic homes through the St. James and Peaine Township Zoning Ordinance.

TABLE 3.11 PROPERTY TAX REVENUE, YEAR END 2010 - 2017

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Peaine Township	*	258,513	233,286	209,980	*	188,000	334,486
St. James Township	180,209	*	*	*	*	*	226,532
Beaver Island School District Local Revenues	1,557,179	1,497,668 (June Amended)	1,511,662 (Final Amended)	1,974,665 (Proposed)	1,470,088 (Final Amended)	1,412,976 (June Amended)	

Source: Charlevoix County Apportionment Reports and Township Budgets

*Data not available

TABLE 3.12 AVERAGE HOUSEHOLD SIZE, 2000 TO 2014

	2000	2014	CHANGE, 2000 TO 2014
Peaine Township	2.03	2.13	0.10
St. James Township	2.22	2.25	0.03
Charlevoix County	2.48	2.45	-0.03
State of Michigan	2.56	2.52	-0.04

Source: US Decennial Census (2000) and American Community Survey (2010-2014)



NUMBER OF HOUSEHOLDS

Table 3.13 shows that in general, the number of year-round households on Beaver Island grew slightly from 2000 to 2014. This seems consistent with county trends. While the total population of the Island grew about 8.3% from 2000 to 2014 (see Table 3.1), the number of households on the Island grew by only 3.8%. This seems consistent with other trends toward fewer single households and a growing household size on the Island.

TABLE 3.13 NUMBER OF HOUSEHOLDS, 2000 TO 2014

	2000	2014	CHANGE, 2000 TO 2014
Peaine Township	120	127	7
St. James Township	138	141	3
Charlevoix County	10,400	10,518	118

Source: US Decennial Census (2000) and American Community Survey (2010-2014)

HOUSEHOLDS LIVING WITH CHILDREN

One major concern repeated at public meetings during the planning process is an overall loss in young families compared to the past few decades. Table 3.14 confirms that Beaver Island had fewer households on the Island with children under 18 than in 2000. The decline in these households is consistent with trends in the county and the state overall. In fact, Michigan had about 176,000 fewer households with children under 18 in 2014 compared to 2000.

TABLE 3.14 HOUSEHOLDS LIVING WITH CHILDREN UNDER 18, 2000 TO 2014

	2000		2014		CHANGE (2000 TO 2014)	
	#	% OF TOTAL HOUSEHOLDS	#	% OF TOTAL HOUSEHOLDS	#	% CHANGE
Peaine Township	21	17.5	18	14.2	-3	-14.3
St. James Township	35	25.4	24	17.0	-11	-31.4
Charlevoix County	3,529	33.9	2,682	25.5	-847	-24.0
State of Michigan	1,347,469	35.6	1,171,331	30.6	-176,138	-13.0

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

HOUSEHOLDERS LIVING ALONE

National and state housing experts report that there is an overall trend toward more householders living alone. Interesting, this is not the case on Beaver Island according to the U.S. Census. Table 3.15 shows that the number of households consisting of persons living alone has not changed in St. James Township and has decreased slightly in Peaine Township. This may be supportive of anecdotal evidence that more retired couples have moved to the Island in recent years.

TABLE 3.15 HOUSEHOLDS OF PERSONS LIVING ALONE, 2000 TO 2014

	2000		2014		CHANGE (2000 TO 2014)	
	#	% OF TOTAL HOUSEHOLDS	#	% OF TOTAL HOUSEHOLDS	#	% CHANGE
Peaine Township	41	34.2	36	28.3	-5	-12.2
St. James Township	48	34.8	48	34.0	0	0
Charlevoix County	2,623	25.2	2,913	27.7	290	11.1
State of Michigan	993,607	26.2	1,106,257	28.9	112,650	11.3

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

HOUSING ORGANIZATIONS

The Port of St. James Association and the Forest View Community are two examples of housing organizations that provide some services to residents on the Island. Accommodations for tourists and other seasonal visitors are described in more detail in the recreation and tourism section of Chapter 5.

PORT OF ST. JAMES ASSOCIATION

The Port of St. James Association is a Property Owner's Association consisting of around 1,000 properties in the northwest portion of the Island. Properties within the Association are subject to a restrictive covenant that controls the use and some elements of a structure's design. The Association also manages a number of common areas for Association members including a campground, beach, hiking trail, and the Mt. Pisgah dune area (pictured below).

FOREST VIEW COMMUNITY

The Forest View Community is an affordable, six-unit apartment complex located on Carlisle Road West in St. James Township. The Beaver Island Community Development Corporation financed the complex through a grant and a loan. The complex offers housing for qualifying seniors with low to medium incomes. The apartment complex is currently operating at 100% occupancy.



Forest View Community (above) is a six-unit affordable apartment complex on Beaver Island. Photo Credit: Northernhomes.org. The Mt. Pisgah sand dune area (below) is owned by the Port of St. James Association. Photo Credit: News on the 'Net.





Many of the Island's homes are nestled away behind scenic forest roads, especially in Peaine Township (above). Town living provides an opportunity for waterfront views and boat access in St. James Township (left).

HOUSEHOLDER AGE AND TENURE

Tables 3.16 and 3.17 provide an overview of the number of householders in each Township according to their age and whether they rent or own a home. An aging population and a trend toward fewer families were identified as key challenges on the Island during the planning process for this Master Plan; Tables 3.16 and 3.17 help explain how the housing market is impacted by these demographic changes. It is important to note that this information comes from the U.S. Census Bureau and is determined by residential surveys. Therefore, the statistics are likely not perfectly accurate, but the data can still be used to inform general trends. Tables 3.16 and 3.17 show the following trends.

- Fewer householders under age 55 live in owner-occupied homes in 2014 than in 2000. This may be a result of residents in this age range leaving the Island, existing residents aging in place on the Island, or a combination of both.
- More householders over 55, especially from ages 65 to 74, live in owner-occupied homes. This may be a result of new residents in this age range relocating to the Island, existing residents aging in place on the Island, or a combination of both.
- Overall, the number of new householders in owner-occupied homes has grown only slightly from 2000 to 2014 (from 111 to 118 in Peaine Township and 123 to 126 in St. James Township).
- Far more householders live in owner-occupied units than rented units. This is true in 2000 and 2014.
- Renting householders are more evenly spread across age groups, especially in St. James Township, compared to householders in owner-occupied units. In other words, there are both younger and older renters on the Island.
- The same number of renting householders live on the Island from 2000 to 2014.

HOUSING DATA

Data on housing trends for local governments is typically obtained through a number of sources, including Zoning Administrators, County Assessors, Building Departments and the Post Office. Data for Beaver Island was limited, but the limited information available confirms what many Islanders have reported: fewer young people, and more older people, are occupying homes on the Island.



TABLE 3.16 AGE OF HOUSEHOLDERS IN OWNER-OCCUPIED UNITS, 2000 TO 2014

AGE OF HOUSEHOLDER	2000		2014		CHANGE (2000 TO 2014)	
	PEAINE	ST. JAMES	PEAINE	ST. JAMES	PEAINE	ST. JAMES
15 to 24	2	0	0	0	-2	0
25 to 34	3	4	0	4	-3	0
35 to 44	20	26	5	8	-15	-18
45 to 54	28	24	16	19	-12	-5
55 to 64	27	26	37	29	10	3
65 to 74	21	28	42	32	21	4
75 to 84	8	12	17	25	9	13
85 and over	2	3	1	9	-1	6
Total Householders in Owner-Occupied Units	111	123	118	126	7	3
Total Householders in All Units	120	138	127	141	7	3

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

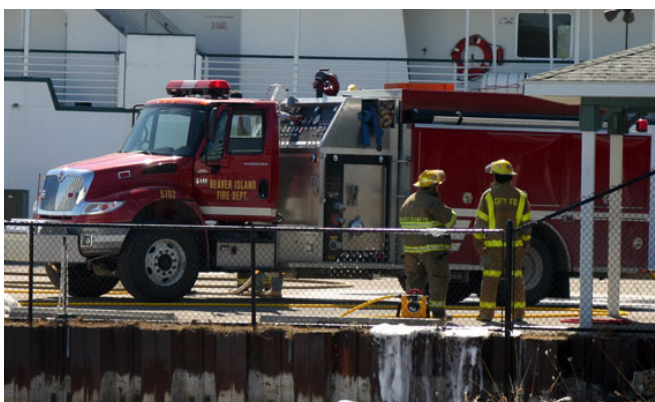
TABLE 3.17 AGE OF HOUSEHOLDERS IN RENTER-OCCUPIED UNITS, 2000 TO 2014

AGE OF HOUSEHOLDER	2000		2014		CHANGE (2000 TO 2014)	
	PEAINE	ST. JAMES	PEAINE	ST. JAMES	PEAINE	ST. JAMES
15 to 24	1	2	0	0	-1	-2
25 to 34	2	2	0	0	-2	-2
35 to 44	2	4	0	6	-2	2
45 to 54	1	3	7	5	6	2
55 to 64	1	0	0	1	-1	1
65 to 74	1	1	2	3	1	2
75 to 84	1	3	0	0	-1	-3
85 and over	0	0	0	0	0	0
Total Householders in Renter-Occupied Units	9	15	9	15	0	0
Total Householders in All Units	120	138	127	141	7	3

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

SOCIAL AND COMMUNITY SERVICES

A number of social and community services are available to Island residents. The Island's network of social services helps strengthen overall community resilience and provides a safety net and enrichment opportunities for Island residents and guests. This section of the Master Plan is meant to provide several examples of community services, not an exhaustive inventory of every program that may be available. Public utilities and waste services are described in more detail in Chapter 4, while organizations that promote tourism and recreation are identified in Chapter 5.



The Beaver Island Fire Department consists of many volunteers, a Fire Chief, and two Assistant Fire Chiefs. The Department operates two firehouses on the Island, one in downtown St. James and a second several miles from downtown. The Beaver Island Fire Department services between 15 and 25 calls on average each year. Photo Credit: News on the 'Net



Millages in each Township support the Beaver Island District Library. The library is staffed by one full-time director and several part-time staff. The library strives to provide programming and services for everyone on the Island, including children and youth. The library facility also offers wireless Internet services to the public. Photo Credit: BeaverIsland.Michlibrary.org

JOINTLY SUPPORTED TOWNSHIP SERVICES

Peaine Township and St. James Township jointly own several services, including the Beaver Island Fire Department, the Beaver Island Emergency Medical Service, the Beaver Island District Library and the Beaver Island Historical Society. Each of these are integral to the health, safety and enrichment of Island residents.

Healthcare on the Island rose to the forefront as a major concern of Islanders during the planning process. This issue is included in the list of key challenges at the end of this chapter.



The Beaver Island Emergency Medical Service (EMS) operates under the joint-township Beaver Island Emergency Services Authority. In 2016, a millage proposal passed in St. James Township to allow for Advanced Life Services to continue on the Island. Beaver Island EMS contracts with Island Airways to provide emergency air medical evacuation to mainland facilities. In 2015, EMS responded to nearly 100 calls.



The Beaver Island Historical Society preserves the cultural history of Beaver Island by operating four historic sites on Beaver Island for the public: the Mormon Print Shop Museum, the Marina Museum (pictured above), Protar's House, and Heritage Park. The Historical Society currently has plans to expand the Mormon Print Shop Museum to house new, interactive exhibits.

OTHER SERVICES

A number of social and community services are provided to Island residents through Charlevoix County. These include sheriff services and the Commission on Aging, in addition to waste and road services (discussed in greater detail in Chapter 4). The U.S. Postal Service and Beaver Island veterans services are also discussed on this page.

COMMUNITY SERVICE RECOMMENDATIONS

One key concern repeated by many during the planning process for this plan was the need for existing community services to collaborate instead of compete. There are many examples of collaboration on Beaver Island, and one could argue that Island life makes it necessary to work together! For recommendations on how the Island might encourage greater collaboration between groups, see Chapter 6.



The St. James Township Governmental Center houses the offices of the township supervisor, clerk, and treasure and is also the location of the Charlevoix County Sheriff Substation which includes office of the sheriff, EMS services, and several other community services. One deputy lives on the Island year-round, while a second is typically assigned to the Island during the summer months. Photo Credit: News on the 'Net



Beaver Island taxes support Charlevoix County's Commission on Aging services for the Island. One part-time staff member on Beaver Island helps to provide senior meals, special events, and other services to the Island's seniors. However, services on the Island have decreased in recent years as addressed later in this chapter. Photo Credit: News on the 'Net



The United States Postal Service operates daily mail service through the Beaver Island Post Office and Island Airways. The Post Office building is a unique and historic structure located in downtown St. James.



Beaver Island veterans are supported by Post 46 of the American Veterans, Inc. (AMVETS). This veterans service organization provides a scholarship fund for students at the school and various community projects, including the construction of the Beaver Island Veterans Memorial Park in downtown St. James. Photo Credit: Bob Tidmore



The Preservation Association of Beaver Island led the effort to create the Beaver Island Community Center.



The Beaver Island Association Board provided valuable feedback to help create this Master Plan. All groups mentioned in this chapter were invited to join a number of stakeholder meetings.



The Rural Health Center serves visitors and Island residents with a number of healthcare services and programs. Photo Credit: BeaverIslandGems.com

COMMUNITY ORGANIZATIONS

Identifying non-governmental, community organizations in the Master Plan is one step toward building community resilience, as achieving the community's vision for the future involves collaboration among Island organizations. This section identifies several large organizations that work community-wide. Organizations related to economic growth and tourism, including recreation groups and special event organizations, are described in more detail in Chapter 5.

THE PRESERVATION ASSOCIATION OF BEAVER ISLAND

The Preservation Association of Beaver Island (PABI) was formed to preserve the history, culture and environment of Beaver Island. PABI has worked on several initiatives in recent years, most notable being the Beaver Island Community Center. The Center offers community programming for all ages including yoga, movies, concerts, and a community room open to everyone. The Community Center also supports the tourism industry on the Island and is discussed more in Chapter 5.

THE BEAVER ISLAND ASSOCIATION

The Beaver Island Association (BIA) was first formed in 1988 as the Beaver Island Property Owners Association. The group formed as a way to respond to a number of challenges the Island was facing, and provided education to residents as well as representation for its members about various environmental, economic, and social issues. The BIA continues as an active group in the community to represent its members, work with the local governments on key issues, support the local economy, and advocate for the natural environment.

CHURCHES AND RELIGIOUS GROUPS

The Island is home to a wide range of churches and organizations that offer religious services and support. Many of the Island's churches also provide vital community services to the public. Churches on the Island include the Beaver Island Christian Church, Holy Cross Catholic Church, St. James Episcopal Church, and Lighthouse Fellowship.

TRIBAL GOVERNMENTS

In addition to providing services to tribal members, the Little Traverse Bay Bands of Odawa Indians and the Grand Traverse Band of Ottawa and Chippewa Indians provide vital community development support and natural resource protection to the Beaver Island community. These tribal governments have provided grant funding and support to a number of Beaver Island initiatives, including an inventory of cultural resources on Garden and High Islands (see Chapter 2), and support for educational efforts and veterans.

FOOD PANTRY

The Beaver Island Food Pantry is run by volunteers from a number of local groups and churches. The Food Pantry provides food to those in need on the Island at the Gregg Fellowship Center.

COMMUNITY HEALTH

The Beaver Island Rural Health Center is a non-profit organization that provides several regular medical services to Island residents and guests. The Health Center employs two full-time nurse practitioners, and doctors from the mainland hold office hours on the Island twice per month.



The Beaver Island Community school has 51 students for the 2015-2016 school year. Photo Credit: <http://beaverisland.k12.mi.us>



The CMU Boathouse is an easily recognizable building located on Paradise Bay.



The CMU Biological Station on the eastern shore of the Island includes research facilities and classrooms. Photo Credit: Central Michigan University

EDUCATIONAL RESOURCES

There are several educational facilities on the Island that provide services to Islanders and university students. The Beaver Island Community School and Central Michigan University's Biological Station are discussed in this section.

BEAVER ISLAND COMMUNITY SCHOOLS

Education for the youth of Beaver Island is provided through the Beaver Island Community School, part of the Charlevoix-Emmet Intermediate School District (ISD). Staffing, curriculum development, and student achievement are all particular concerns of school districts in rural or isolated locations, and the Beaver Island Community School Board has been working to ensure that each student is provided a high-quality education on the Island with enrichment opportunities not easily found elsewhere. Robotics, storytelling, radio communications, and other special skills have been offered to Island students in recent years. Enrollment in recent years has stabilized around 50 students, which is a decrease from years past. Enrollment

numbers from recent years are shown in Table 3.18. This is consistent with the demographic trend of fewer young families on the Island. The Charlevoix-Emmet ISD has also decreased in enrollment between 2010 and 2015. With fewer students, community support for the school is increasingly important. Education for youth on the Island is included in the discussion of key challenges at the end of this chapter.

CENTRAL MICHIGAN UNIVERSITY BIOLOGICAL STATION

Central Michigan University (CMU) owns and operates the CMU Biological Station on the eastern shore of the Island and the CMU Boathouse on Paradise Bay. These facilities provide summer courses for CMU college students and serve as a base for researchers studying the Great Lakes and Beaver Island. CMU benefits the Island through scientific research, economic investment from students and guests, and by providing public lectures and enrichment events.

TABLE 3.18 SCHOOL ENROLLMENT

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
BI Community Schools	65	69	60	69	58	51
Charlevoix-Emmet ISD	9,924	9,866	9,618	9,372	9,164	9,034

Source: Michigan School Data as found on MISchoolData.org

“We need affordable housing on the Island for senior citizens and for new people just starting out. Not everyone can afford to buy or rent [with the] options we have available.”

Beaver Island Resident



KEY CHALLENGES IN THIS CHAPTER

The information in this chapter identifies the major demographic and housing trends on Beaver Island and inventories a number of social services and community assets. Many of the Island’s key challenges are related to these topic areas. The following list of key challenges was written with significant public input and was discussed at stakeholder meetings, Joint Planning Commission meetings, and large gatherings throughout the process.

- The Island has drawn fewer young residents, especially homeowners, to the Island in recent years. At the same time, the population has continued to age, and additional older, often retired, households have moved to the Island.
 - The impacts of an aging population are felt in the housing market, where fewer young families have purchased homes in recent years. Anecdotal reports state that more homes are for sale, as vacation or seasonal homes are not passing from one generation to the next as they did in the past.
 - The impacts of fewer young families are felt in the school district, which has experienced a decline in enrollment.
 - The impacts of an aging population are felt by social service providers and health care providers who will need to prepare for the additional demand created by the elderly population. This challenge is exacerbated by a decline in service availability from Charlevoix County’s Commission on Aging.
- The Island’s appeal as a vacation community creates affordability challenges for year-round renters and seasonal workers.
- The future of the Island is reliant, in part, on its ability to provide for adequate emergency healthcare, especially as the needs of the elderly population increase.
- Accurate data on the Island’s conditions can be difficult to find. This creates a gap in information available to local decision makers and potential investors.
- A wealth of community organizations, non-profits, and public agencies provide services to the Island. The quality of communication and collaboration between these groups varies and should be improved overall.
- Many community organizations lack the capacity, leadership skills, or knowledge to apply for grants or access other valuable resources.

Islanders created a list of ideas and priorities to address each challenge. These ideas can be found in Chapter 6.

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EMERALD ISLE

“It’s all about infrastructure. Either tourism or permanent residents need well-maintained roads, clean water, affordable housing, and businesses that they can frequent.”

Beaver Island Resident

CHAPTER 4

BUILT ENVIRONMENT

This chapter summarizes current conditions on Beaver Island related to the built environment. This includes overviews of the way land is currently used on the Island, the Island’s transportation network, and the Island’s energy and communication infrastructure. The chapter ends with identifying the key challenges related to these topics including bike-lane expansion, the need for emergency planning, broadband and high-speed Internet availability, and waste and debris removal.

LAND OWNERSHIP

This section provides a short overview of the major tax-exempted land owners on Beaver Island and the Beaver Island Archipelago. Map 4.1 at the end of this chapter shows the parcels on Beaver Island that are owned by governmental or natural conservation groups. There are a number of government and conservation landowners on the Island, but it is important to note that just because land is tax exempt does not mean it is open to the public. The following provides a short description of the major public landowners on Beaver Island and the Beaver Island Archipelago.

BEAVER ISLAND ARCHIPELAGO

Although this Master Plan only guides decisions for Beaver Island, the entire Archipelago is significant to many government agencies and conservation groups that also own land on Beaver Island. The government and conservation groups that have ownership of the Archipelago are discussed briefly in this section.

- About 5,000 of the 5,080 acres of **Garden Island** are owned by Michigan Department of Natural Resources (DNR) and administered by the Wildlife Division.
- **High Island, Hog Island, Whiskey Island and North Fox Island** are entirely owned by the DNR.
- About 40%, or about 1,250 acres, of **South Fox Island** are owned by the DNR.
- **Gull Island, Pismire Island, Hat Island and Shoe Island** are federally owned and part of the Michigan Islands National Wildlife Refuge, which is administered through the Seney National Wildlife Refuge of the U.S. Fish and Wildlife Service.



The Michigan Department of Natural Resources owns much of the forest land in the southern portion of Beaver Island.



The Beaver Island Lighthouse School property is leased to Charlevoix Public Schools. Unfortunately, the school closed in 2016. The Lighthouse on this property is a cultural resource, as described in Chapter 2.



Each township on Beaver Island has a Township Hall and several other properties. Township parks are described more in Chapter 5 in the discussion of recreation and tourism.

BEAVER ISLAND LAND OWNERSHIP

Approximately 40% of Beaver Island, or about 14,400 acres, is owned by governments or conservation groups. This section describes the areas of the Island belonging to these public interest groups. This information is also shown on Map 4.1 at the end of this chapter.

STATE OF MICHIGAN

Approximately one-third (12,533 acres) of Beaver Island is owned and managed by the Michigan Department of Natural Resources (DNR). Most of the DNR's land is on the southern end of the Island. DNR's holdings include approximately 12,400 acres of diverse forests including northern hardwoods, lowland deciduous, and lowland coniferous forest types. DNR also manages a number of public access sites at Lake Geneserath, Green Lake, and Bonner's Landing. Additional management considerations on DNR land include historic and cultural sites like the Mormon homesteads, hiking trails as mapped later in this chapter, old well sites, infrastructure at Martin's Bluff, and a number of sensitive landscapes home to threatened, rare, and endangered species.

The DNR's land consolidation strategy may allow the DNR to sell non-contiguous land in the future. This is important as several important pieces of DNR land are scattered throughout the Island, especially on the western coast. Chapter 7 includes a goal that the St. James and Peaine Township work to acquire any DNR land that is sold.

COUNTY AND LOCAL

A number of properties on the Island (totaling 188 acres) belong to various Charlevoix County departments, including the County Road Commission, the County Substation,

and the Lighthouse School property at the south end of the Island. The Lighthouse School closed in 2016 and is described in more detail in Chapter 2.

St. James Township, Peaine Township, and the Beaver Island Community School own property on Beaver Island. Lands in this category total 712 acres, or about 2% of the Island. This category does not include lands owned by Island non-profits or NGOs such as the Preservation Association of Beaver Island. Local organizations are described in more detail in Chapter 3.

TRIBAL GOVERNMENTS

Both the Grand Traverse Band of Ottawa and Chippewa Indians (GTB) and the Little Traverse Bay Bands of Odawa Indians (LTBB) own several small properties on Beaver Island. Totaling approximately 34 acres, the land includes areas conserved in perpetuity due to the presence of cultural or sacred sites.

OTHERS

As discussed in Chapter 3, Central Michigan University (CMU) owns approximately 478 acres of land on Beaver Island including the Miller's Marsh Preserve, the CMU Biological Station, and the CMU Boat House.

The Little Traverse Conservancy (LTC) owns several areas of land on the Island totaling approximately 483 acres. LTC's holdings include a number of trails and pathways, some of which are open to the public. Most of LTC's land holdings on the Island are open to the public, including nature preserves of Barney's Lake, Little Sand Bay, Conn's Cove, Erber, and George and Althea Petritz.



There are several commercial properties in downtown St. James that offer services to residents and visitors. Chapter 5 describes these amenities in more detail.



Residents of Beaver Island enjoy the quiet solitude of nature on the many waterfront and wooded lots available for residential development.



Public amenities such as the Iron Ore Bay beach are included in tax-exempt lands.

PROPERTY CLASSES

Property classes are one way of understanding the potential use and ownership of property. The St. James and Peaine Township Property Tax Assessor assigns a property class code to each property on the Island. Map 4.2 shows the broad categories of property class codes likely pertaining to their use: agricultural, commercial, industrial, residential, and tax exempt. Table 4.1 shows the total acreage and percent of land on the Island in each of these categories. In general, most of the land on the Island is coded residential. About 1.1% of the Island is coded as commercial or industrial, while 12.1% is coded as agricultural. Tax-exempt includes land owned by the government and tribal agencies, and land used primarily for educational, non-profit, or religious purposes. About 29.1% of the Island's land is exempt. Because tax codes are applied to an entire parcel, the tax code does not correspond exactly to the way a parcel is used. For example, a parcel classified as agricultural may also have a home on site.

TABLE 4.1 ACREAGE OF LAND BY CLASS CODE ON BEAVER ISLAND, 2016

	ACREAGE	% OF TOTAL LAND
Agricultural	4,404	12.1%
Commercial	378	1.0%
Industrial	22	0.1%
Residential	19,865	54.4%
Tax Exempt	10,646	29.1%

Source: Charlevoix County Tax Assessor

LAND USE ON BEAVER ISLAND

Map 4.3 shows the historical parcels, or plat map, for Beaver Island. While this map is included primarily because of its interesting history and original references to Island landmarks (such as “Big Beaver Island Harbor”), it also highlights the way government defines land ownership. Straight parcel lines form the bounds of a property owner's private land, but in reality these straight lines often cut across meandering streams, rocky bluffs, high hills, and changing terrain. Lake Michigan's changing water levels and waves hardly obey private property, and a property on the coast might experience a net gain or loss in land over time.

The previous sections of this plan describes the way land is divided, coded, and owned by various property owners and entities, while the next section of the plan describes the way land is used by both humans and the natural environment. Chapter 2 contains more detail on Beaver Island's environmental systems, including forests, wetlands, dunes and beaches. The next section relies on land-use analyses conducted in 1978 and 2010 to show how land use has changed on the Island over time.

LAND USE COMPARISON STUDY

Map 4.4 shows seven categories of land use on Beaver Island in 1978. This information was gathered by the Michigan Geographic Data Library and is based on aerial imagery. The land uses are likely not 100% accurate, but can help paint a general picture of how land was used in 1978. According to this map, roughly 900 acres, or 2.4% of the Island, were built-up with development (including homes, infrastructure, or buildings) in 1978.

Map 4.5 shows the same seven categories of land use on Beaver Island in 2010. This information was created by the Little Traverse Bay Bands of Odawa Indians using a similar methodology to the map created in 1978 (Map 4.4). While some of the definitions of the categories may differ between the two years, Maps 4.4 and 4.5 are largely comparable. In 2010, roughly 4.8% of the Island was built-up with development including homes, infrastructure, or buildings.

Table 4.2 shows the acreages of land classified into the seven categories in 1978 and 2010. It is important to emphasize that while these numbers are specific, they may not be completely accurate and should be taken as a general indication of how land use may have changed over time. Overall, urbanized land has roughly doubled in size, from around 900 to 1,800 acres. This is consistent with the Island's population growth during this time period (see Chapter 3). It is easy to see by comparing Maps 4.4 and 4.5 that new residential development has occurred along the shoreline, especially in Peaine Township, since 1978. However, land that is now urbanized was once something else. The amount of agricultural and grass and shrub land all decreased in acreage from 1978 to 2010.

TABLE 4.2 ACREAGE OF LAND BY LAND USE, 2010

	1978 ACRES	2010 ACRES	CHANGE FROM 1978 TO 2010
Urban and Built-Up	895	1,803	102%
Agricultural	536	432	-19%
Grass and Shrub	3,962	903	-77%
Forest	28,523	29,213	2%
Water	1,059	1,080	2%
Wetlands	2,090	2,867	37%
Barren Land	333	1,079	224%

Source: Little Traverse Bay Bands of Odawa Indians

DETAILED 2010 LAND USE

Map 4.6 shows a more detailed version of Map 4.5 by dividing the seven broad categories into additional land-use classifications. This map served as a representation of the way land is used on Beaver Island and helped guide discussions to create the Action Plan and Future Land Use Plan discussed in Chapters 6 and 7.

Table 4.3 shows the number of acres and percent of the Island's land in each category corresponding to Map 4.5. According to this analysis, most of the Island is forested, with 54.7% of the Island in the upland forest category and 23.3% in the lowland forest category.

TABLE 4.3 DETAILED LAND USE, 2010

LAND USE	ACRES	% OF TOTAL LAND
Single Family Residential	1,247	3.3%
Commercial, Services, Institutional	111	0.3%
Other Retail, Services	88	0.2%
Air Transportation	290	0.8%
Roads and Utility Lines	4	0.0%
Extractive	63	0.2%
Agriculture	447	1.2%
Upland Grass and Shrubs	903	2.4%
Upland Forest	20,428	54.7%
Clearcut	57	0.2%
Water	1,080	2.9%
Lowland Forest	8,713	23.3%
Wetland	2,867	7.7%
Shoreland	1,079	2.9%

Source: Little Traverse Bay Bands of Odawa Indians

TRANSPORTATION

A healthy transportation system provides a number of ways for people and goods to move around a community and travel to surrounding places. For many communities this simply requires roads and sidewalks, but on Beaver Island, vital transportation modes include airplanes, ferries, buses, cars, bicycles, and even snowmobiles! This section provides an overview of the current conditions and planned improvements for the Island's transportation network.

ROADS

Map 4.7 at the end of this chapter shows the roads on the Island according to Michigan's classification system of county primary roads, county local roads, and other road types. Primary roads are those the county considers of greatest general importance. Overall, there are about 10 miles of county primary roads on Beaver Island including King's Highway, McCauley, and parts of East Side Road and Fox Lake Road. County local roads consist of roads maintained by a county but are not part of the primary road system. There are about 80 miles of county local roads on the Island as shown on Map 4.7. In addition to the county roads, the Island has a number of private roads. Some of the Island's private roads are shown as "unknown" on Map 4.7, while others may not be mapped.



This section of the chapter describes the various ways to reach the Island and get around on the Island. From boats to planes to buses, cars and bikes, Islanders and visitors use many modes of transportation!



COUNTY ROAD COMMISSION

Only a few of the Island's roads are paved with blacktop: King's Highway (from the north end to McCauley Road) and the major intersections along King's Highway (East Side Drive, Paid een Og's, and Sloptown). All of the public roads on the Island are maintained and managed by the Charlevoix County Road Commission through the Charlevoix County Road Commission Beaver Island Garage. Beaver Island property owners pay for this service with tax dollars. Currently, the garage is near downtown St. James

on Bay Street, but there are plans to relocate the garage to a redeveloped Charlevoix County structure on Donegal Bay Road. This new structure will house the Charlevoix County Sheriff's Office and County Transit in addition to the Road Commission. The Charlevoix County Road Commission currently employs three full-time, year-round employees on the Island to maintain the county roads.



The Charlevoix County Road Commission also maintains the culverts and infrastructure that supports the Island's roads. The County recently received a tribal grant to resize the culvert connecting Iron Ore Creek to Lake Michigan, in order to promote better fish passage and restore the Creek's connection to the Lake. This improvement also made the road less likely to flood and increased road safety. Partners involved on this project included Conservation Resource Alliance, Grand Traverse Band of Ottawa and Chippewa Indians, Trout Unlimited, Michigan Department of Natural Resources, Natural Resources Conservation Service, Little Traverse Bay Bands of Odawa Indians, and the Charlevoix County Community Foundation.



The County Road Commission works hard to maintain the Island's roads in the winter. Sometimes, winter lasts until April or even May! This photo is of King's Highway in March 2011. Photo Credit: News on the 'Net

FUTURE IMPROVEMENTS

The Road Commission has no major improvements planned for the Island's roads in the near future, including no plans to pave additional roads. Many Island residents have strong opinions about whether additional roads should be paved, but the cost of materials and transporting equipment to pave roads, in addition to the ongoing cost of maintenance, make it improbable that additional roads will be paved without private support.

ROAD MAINTENANCE

Road maintenance on Beaver Island varies according to the season and road material. The Island's dirt roads are regularly treated in order to control blowing dust. The County Road Commission uses a mixture of calcium chloride concentrated to 38% to treat dirt roads. This mixture is more expensive to purchase, but is less cost-prohibitive to transport to the Island than other methods. The high concentration of calcium chloride used on the Island's roads requires less frequent treatment than mineral brines typically used on the mainland. During the winter months, these roads are scraped and occasionally sanded.

The paved roads on the Island are occasionally treated with salt, although transportation of salt is very costly. Relatively little salt is used on the Island's roads; most roads are scraped and sanded. All salt and maintenance materials must be transported to the Island on the ferry, requiring the Commission to send materials in advance. Past winters have made the repair of large equipment and shipment of supplies to the Island difficult.

There are a number of seasonal roads on the Island that are too narrow for the Commission's equipment to maintain in the winter.

PRIVATE ROAD IMPROVEMENTS

There are a number of private roads in each Township. Several private roads have been upgraded with funding from property owners and occasional Township investment.

PUBLIC TRANSPORTATION

Public transportation is provided by Charlevoix County Transit. On Beaver Island, the transit system operates on an on-call basis within its posted hours. Table 4.4 shows the number of passengers of Charlevoix County Transit on Beaver Island each year from 2010 to 2016. Regular passengers range from youth up to age 60, while seniors are included in those age 60 and above. Seniors and disabled riders pay discounted fares, and the Charlevoix County Commission on Aging has paid the fare for seniors for the past several years. In general, the total number of rides taken on County Transit has steadily declined on the Island the last several years. Senior and disabled ridership has decreased overall, but saw significant increases between certain years, especially between 2014 and 2015.



TABLE 4.4 PASSENGERS OF CHARLEVOIX COUNTY TRANSIT ON BEAVER ISLAND, 2011 TO 2016

	2011	2012	2013	2014	2015	2016*
Senior Passengers	1,133	440	733	568	999	965
Disabled Passengers	497	315	242	214	382	189
Senior Disabled Passengers	94	132	153	91	76	8
Other Passengers	3,523	2,226	2,212	1,324	1,014	1,013
Total Passengers	5,249	3,113	3,340	2,197	2,471	2,175

Source: Charlevoix County Transit; *2016 Data from January-September



TRAILS

Trails on Beaver Island are used for hiking, biking and snowmobiling. While some use trails primarily to recreate, the Island's trail systems are an important piece of the Island's transportation network.

Trails were a common discussion topic during the Master Planning process. From confusion over which trails are open to the public to debates over appropriate use of various trails, this topic proved to be of great interest to many on the Island.

Trails not only define the recreational habits for many Islanders, but they also support the economic base on the Island for tourism. Many visitors on the Island use the trails for birding, snowmobiling, and activities in summer and winter. The Master Planning process sought to clearly map the trails on the Island, provide a number of ideas on ways to mediate conflict related to trail use, and create a plan to strengthen this on the Island.

The Island's trail network provides opportunities for recreation, sightseeing, tourism, and even

“I love the idea of using the island's natural areas minimally. Trails for hiking and biking are in line with that idea.”

Beaver Island Resident

“You can walk 500 miles on Beaver Island and never see the same tree twice... Would you destroy the wildflowers to put in a separate bike lane?”

Beaver Island Resident

transportation. Several of the trails are along or on main roads, such as East Side Road. These trails are on narrow gravel roads shared with vehicles, and can cause concerns for cyclists or hikers due to safety, dust, or seasonal conditions of the roads.

This Master Plan identifies a number of recommendations supported by Island residents to improve, maintain, and advertise trails (see Chapter 6). Implementing these recommendations will take cooperation with many parties including the DNR, each Township, and property owners. Trails, and opportunities to improve trails, are discussed in more detail in Chapter 5. A map is provided in Chapter 5 of the Island's trail networks.

For the purposes of transportation, it is important that the Island identify areas where trails are used as a major transportation route. Several trails are used by vehicles for emergency access, tours of the Island, or other purposes that might be better served by roads. Popular trailheads on the Island also might require parking areas in the future to avoid roads being blocked by cars.

AIR TRANSPORTATION

There are two airports on Beaver Island. Each provides regular, year-round passenger flight service from the City of Charlevoix and chartered locations elsewhere in Michigan and the Midwest. The following section provides a short overview of each of the Island's airports. Estimates on the number of passengers flown to and from the Island via air transportation are included in the discussion of the tourism industry in Chapter 5. The location of each airport is shown on the map of the Island's critical infrastructure (Maps 4.9 and 4.10) discussed later in this chapter.

BEAVER ISLAND AIRPORT

Beaver Island Airport is a public airport that is jointly owned by St. James and Peaine Townships. The Beaver Island Airport was established in 1945. In 2014, a new terminal building was constructed (as pictured on the right). Beaver Island Airport is now operated by Fresh Air Aviation based out of Charlevoix. Fresh Air Aviation provides year-round passenger flight service between Charlevoix and Beaver Island in addition to charter flights, lighthouse air tours, and shipping services.

WELKE AIRPORT

Welke Airport is a privately-owned airport on Beaver Island. Welke Airport is owned and operated by Island Airways. Island Airways provides passenger and freight service between Beaver Island and Charlevoix, in addition to perishables, United States Postal Service mail, and shipping services including prescription medication. Island Airways also provides emergency medical transportation to Charlevoix Airport using specialized equipment.



Passengers of one of the Island's two airlines are able to see spectacular views of Lake Michigan and the Beaver Island Archipelago!



WATER TRANSPORTATION

Ferry service has long been a critical mode of transportation to and from the mainland for both people and goods. Large goods, construction materials, vehicles, and other freight are shipped on one of two currently operating ferries.

THE EMERALD ISLE

The Emerald Isle is the larger of the two ferries and is also the newest, launched in 1997. The Emerald Isle can hold a maximum of 298 passengers and is capable of carrying large amounts of freight, including up to 20 vehicles at a time.

THE BEAVER ISLANDER

The Beaver Islander was built in 1962 and is the smaller of the two ferries. This vessel is capable of carrying 200 passengers and 10 vehicles at a time. The Beaver Islander runs primarily during busy summer weekends when additional capacity is needed.

FERRY MANAGEMENT

Two organizations are involved in the management of Beaver Island's ferry system: the Beaver Island Boat Company (BIBCO) and the Beaver Island Transportation Authority (BITA).

BIBCO was formed in 1984 and provides scheduled fixed-route ferry service between Charlevoix and Beaver Island. BIBCO owns the Beaver Islander and operates both ferries.

BITA was established by St. James Township in 1993 under Michigan's Public Transportation Authority Act (PA 196 of 1986) to form a transit system in the greater Beaver Island area. BITA owns the Emerald Isle and contracts operations of the ferry to BIBCO. BITA makes decisions regarding the maintenance and funding of the Emerald Isle, and receives federal and state dollars to maintain the ferry. BITA is managed by a board of directors and an executive director.



MARINAS ON BEAVER ISLAND

The Beaver Island Municipal Dock is in downtown St. James Township on Paradise Bay. This public marina can accommodate small to medium-size boats and yachts and includes a lounge, bathrooms, and a picnic area. The number of visitors using the Municipal Marina has been of concern in recent years. Even during the high season, occupancy rates at the marina are below those in Charlevoix, Traverse City, and other regional tourist destinations. In 2017, it is hoped that participation in the DNR's Central Reservation System will improve occupancy rates. At least 50% of the slips have to be kept available on a first-come, first-served basis to maintain "harbor of refuge" status (see photo caption).

Beaver Island Marina is a privately-owned marina in downtown St. James and the only provider of marine fuel on the Island. This marina has slips, a car rental service, a ship store, and an auto and boat repair service.

HOW MANY PEOPLE RIDE THE FERRY?

The Island's ferry system certainly provides an economic boost to the Island. When the Beaver Island Boat Company succeeds in increasing ridership through marketing strategies or other efforts, the Island benefits. The number of passengers is one way to measure the strength of the tourism economy on the Island. The number of passengers in recent years is discussed in more detail in the section on tourism statistics in Chapter 5.

Traveling to the Island by boat allows visitors to experience the Island's remote beauty in a unique way. Reaching the Island from Charlevoix takes about two and a half hours on the ferries.

The Beaver Island Harbor on Paradise Bay is also a federally-designated "harbor of refuge," a safe location for boaters to shelter in bad weather.





Beech bark disease is likely to have a long-term impact on fuel wood supplies on the Island, affecting households that heat with wood.



Interest in alternative energy is growing on the Island. Holy Cross Catholic Church recently installed a geothermal system.

UTILITIES AND ENERGY ON BEAVER ISLAND

Because of Beaver Island's remote location, energy and communications infrastructure are of vital importance. This section provides an overview of services on the Island such as water, power, fuel, waste management, and communications including telephone and Internet availability. Each of these services has implications for appropriate emergency planning on the Island, as discussed at the end of this chapter.

ELECTRICITY ON BEAVER ISLAND

Electricity is provided by Great Lakes Energy, the third-largest electric provider in Michigan. Great Lakes Energy provides power to most of Emmet, Charlevoix, and Antrim Counties as well as Beaver Island. The Island is fed through its main underwater line extending from Cross Village in Antrim County.

The Island's electricity usage has increased in both the summer and winter months in the past 10 years. According to a representative from Great Lakes Energy, the total kilowatts used on the Island has grown by the following rates.

- Compared to 2007, the Island uses 1.3% more electricity in the summer and 4% more electricity in the winter.
- Compared to 2012, the Island uses 1.1% more electricity in the summer, and 3.9% more electricity in the winter.
- Compared to 2014, the Island uses 2.6% more electricity in the summer, and 8.7% more electricity in the winter.

Overall, this means demand for electricity in the winter months has grown much faster than demand for summer electricity. Winter heating is likely the main cause of this demand.

In 2014 and 2015, the Island used the most electricity in the month of February, likely due to the bitter cold winter temperatures experienced in those years. In 2016, the Island used the most electricity during the month of July. The summer weekend with the highest electricity use has been the weekend of July 4th for the past several years. This information supports the reports of Island hotels and businesses that July 4th weekend is the peak of tourist season on the Island.

The Island currently consumes about half of its electrical usage capacity with its current infrastructure.

POWER OUTAGES

The Island's electric infrastructure is capable of operating entirely on generated power. In other words, in the case of emergencies, the Island's backup generators will power the Island. Great Lakes Energy conducts assessments of its infrastructure every three years to determine where equipment may need to be upgraded. Great Lakes Energy may be making upgrades to the generator plant on the Island in the next five years to ensure that backup generated power is as reliable as possible. This would be a positive improvement for the Island, especially as the number of extreme storms are expected to increase in northern Michigan, increasing the risk for power outages.

Great Lakes Energy maintains the vegetation near power lines by performing regular trimming of vegetation and yearly inspections for dead trees and other hazards. Great Lakes Energy has a full-time and part-time employee on the Island to provide immediate service.



ISLAND ENERGIES

Island Energies provides car fuel, diesel, aviation fuel, and propane to the Island. Island Energies also operates one of two gas stations on Beaver Island. Fuel is transported to Beaver Island from Manistique on the *PetroQueen* barge, which is capable of holding 32,000 gallons of fuel in five compartments. The *PetroQueen* was made in Michigan in 2015 to meet new regulations requiring fuel barges to have a double hull to protect against hazardous spills.

Before Lake Michigan freezes over during the winter months, fuel is stockpiled on the Island. If fuel reserves run low, ice-breaking vessels are needed to allow for additional trips to resupply fuel. In years past, fuel has sometimes needed to be rationed on Island. Winter residents are encouraged to keep an extra tank of gas on hand, as many residents live a considerable distance from the grocery store and other necessities located in downtown St. James.

WATER SUPPLY

Property owners and businesses on the Island rely on private wells for drinking water supply. No comprehensive testing of the water supply on Beaver Island has been conducted in recent years, although the Michigan Department of Environmental Quality has done some sampling on the Island in the past. The Health Department of Northwest Michigan requires that new septic systems and water wells meet certain requirements. Map 4.8 shows the locations of water wells on Beaver Island from digitized records; it is likely that there are other well locations that are not yet part of the digital data set, so not every well on the Island is shown on this map.

SEPTIC SYSTEMS

Waste is treated through privately-owned septic systems on individual properties for most of the Island. Particular soils on the Island may or may not tolerate traditional septic tanks. See the soil discussion in Chapter 2 for more information on the Island's soil types.

The downtown businesses and several homes near downtown St. James are on a shared community septic system. In 2001, the Township secured a bond to construct the septic system. This system allows downtown businesses to grow with less concern for expanding individual septic tanks. If properly maintained, the community septic system reduces the risk of septic failure of the systems elsewhere in the coverage area. The maintenance and inspection of this septic system is managed by St. James Township. Parcels connected to the community septic system pay additional taxes in order to repay the municipal bond issued to construct the septic system. The septic system has required some significant maintenance, including the repair of a major pipe freeze event in 2014.

Island Energies makes regular trips to the Upper Peninsula for fuel.



The health of the Island's drinking water relies in part on maintaining clean ground water.



The Beaver Island Transfer Station and Recycle Center provides opportunities for recycling various items including tin, aluminum, books, paper, glass, plastics, returnables, and more!

WASTE MANAGEMENT

Recycling and the wise disposal of waste is a necessity for life on Beaver Island. The Island has invested in the Beaver Island Transfer Station facility so that residents and visitors can affordably dispose of trash and recycle materials whenever possible. Throughout the Island, businesses have installed waste disposal stations encouraging residents and visitors to sort recyclables for easier processing at the transfer station. The transfer station can also process larger loads like appliances, mattresses, or other household items. To do so, the Transfer Station holds large debris until it can fill a crate that is then sent to the mainland.

The disposal of vehicles, building materials, and other large debris is of concern to many on the Island. The expensive removal of these items was identified as a key challenge to achieving the community's vision of a clean island. This topic is discussed more at the end of the chapter.



To recycle large appliances, the transfer station holds the appliances until it has enough to fill a crate to send to the mainland for processing (above). Many Island facilities promote recycling, including the Beaver Island Community School (bottom left) and Central Michigan University (bottom right).



“Bring affordable and reliable true broadband Internet to all of Beaver Island so 21st century people can make a living here.”

Beaver Island Resident



COMMUNICATION INFRASTRUCTURE

Inadequate broadband or high-speed Internet availability was one of the top concerns raised by Islanders during the planning process for this Master Plan. The Island currently has two communication towers along with other communication-related infrastructure on the Island. This section briefly outlines this infrastructure and the major organizations providing communication services on the Island. The section at the end of this chapter provides more context and detail on the challenges related to expanding high-speed Internet.

TELEPHONE SERVICES

TDS Telecommunications Corporation provides landline services to Beaver Island. Telephone lines were first installed on the Island around 1903. Despite the proliferation of cell phones, many households on Beaver Island still use landlines due to poor cell reception, particularly on the southern half of the Island.

CELLULAR AND INTERNET SERVICES

To date, AT&T and Verizon each have antennas on Beaver Island. Many Islanders raised concerns during the planning process for this Master Plan that cellular strength on the Island is poor or unavailable in many locations. This is discussed more at the end of this chapter.

TDS and satellite service providers offer Internet services on Beaver Island. Many Islanders raised concerns throughout the planning process that current offerings are not fast enough or available everywhere on the Island. This challenge is described in more detail at the end of this chapter.

Many places on the Island offer wireless internet services including the Beaver Island Library, the Beaver Island Community Center, and the Municipal Dock. Many Island businesses and lodging facilities offer WiFi internet to their guests, and a number of private cottages on the Island have home wireless networks. The Island's communication infrastructure is included on the maps of critical infrastructure described in Chapter 4.

KEY CHALLENGES IN THIS CHAPTER

A number of key challenges related to the topics in this chapter were discussed during the Master Planning process as outlined briefly below.

CELLULAR AND INTERNET SERVICES

Due to its remote location, Beaver Island is not fully covered by adequate cellular phone service. Cell phone service is reportedly good in and near downtown St. James, but other areas have limited coverage, particularly the southern half of the Island. This is problematic, especially for tourists that are not aware of their network's coverage on Beaver Island. To date, AT&T and Verizon each have antennas on Beaver Island.

Many Islanders raised concerns throughout the planning process about insufficient Internet services on the Island. This problem not only impacts those who live on the Island, but many feel poor access to high-speed Internet is holding the Island back economically. In an age where an increasing number of jobs can be worked from any location with a good Internet connection, the Island's continued growth may be hampered by inadequate Internet access. A number of organizations on the Island have invested their time to research this issue and identify the barriers to increasing accessibility to high-speed Internet on the Island.

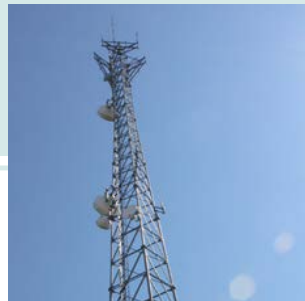
Many Island businesses and non-profits offer wireless Internet services, including the Beaver Island Library, the Beaver Island Community Center, the Shamrock Restaurant, the BeachComber, Harbor Market, and the Municipal Marina. Many of the Island's hotels also provide this service.

According to a widely-shared survey conducted by the Beaver Island Association in 2016:

- 72.7% of survey respondents think it is important for Beaver Island to have Internet access comparable to that available in larger communities.
- 46.1% of survey respondents have no service on their cell phones at the place they stay on Beaver Island.

BROADBAND ON BEAVER ISLAND

Rural communities around the country are recognizing the value of high-speed Internet for economic development. Broadband service was identified as a key challenge on the Island during public forums with the Michigan Office of the Great Lakes and the Island Institute. Central Michigan University constructed a microwave link to the mainland and is providing service to several non-profits and the Beaver Island Community Schools in addition to CMU facilities. Service is unstable, but improvements are being made. Island groups are exploring ideas like these to apply community-wide, although there are a number of regulatory and programmatic barriers.



Inadequate broadband access and poor cellular reception are connected problems that weaken the Island's resiliency to economic trends and continued health for an aging population.

EMERGENCY MANAGEMENT AND SAFETY PLANNING

Emergency management is the planning and preparation for natural or man-made hazards such as severe storms, long periods of power outages, transportation failures, or other events that threaten the health and safety of the population. Planning for emergencies on Beaver Island is handled primarily through the Charlevoix-Cheboygan-Emmet Tri-County Office of Emergency Management. The Tri-County Office of Emergency Management has produced a long-term hazard mitigation plan to reduce potential damages by building partnerships, identifying hazard priorities, and recommending actions that might lessen the impact of a disaster.

Beaver Island presents unique challenges for emergency management planning. Residents and visitors are only able to reach the Island by air transportation during a large portion of the year. In the case of a large-scale emergency on the Island, such as a wildfire or other threat, first responders and evacuees would face long delays. Remote areas on the Island itself can be hard to reach. The 2016 Tri-County Hazard Mitigation Plan identifies peak weekends for tourist activity on the Island (Homecoming Weekend, Independence Day), describes the

damages that past storms have caused, and lists storm damage, large events that could strain emergency services, and wildfires as the greatest threats facing Beaver Island from an emergency management perspective. Ideas to improve local emergency planning are included in Chapter 6.

Local groups can also play a role in planning for better safety on Beaver Island. Public facilities and related equipment should be kept in good working condition, and emergency equipment such as lifesaving gear or rescue equipment should be made available wherever appropriate. The Beaver Island Human Services Commission recently identified a list of possible ways to increase the safety of Islanders. These include:



Accommodating bicycles was a key concern raised during the master planning process (left). The need for comprehensive emergency planning and safety audits were another key concern. The Island has some emergency equipment installed like the example above.

- Placement of life rings, backboards, and emergency call systems at public beaches, especially on beaches with limited cellular reception like Iron Ore Bay.
- Construction of stairs or the closure of the northshore bluff at St. James Township Campground.
- Addition of safety measures along the municipal dock, such as a small lip, that could prevent wheelchairs from rolling into the water.

One step toward creating a comprehensive local emergency plan is to understand the locations of the Island's critical infrastructure. Transportation to and from critical locations is important during an emergency, and Island groups should work to ensure that critical buildings and services are able to continue activity during emergencies. Critical infrastructure in high-risk erosion or flooding areas should be evaluated for potential retrofitting that could ensure the continuity of services during an emergency or natural disaster. Maps 4.9 and 4.10 show the locations of some of the Island's critical infrastructure.

Chapter 6 contains additional recommended actions for Island-wide emergency planning efforts.

BIKE PATH CONSTRUCTION

Many groups and individuals on the Island have expressed a desire to see additional protected bike lanes on the Island, especially along main roads in downtown St. James and along King's Highway. Though many residents and visitors hike and bike along the Island's roads, the Island's road are designed primarily for use by cars. Dirt roads also present challenges to cyclists. It is not clear whether creating additional bike lanes is a feasible option, but there are certainly opportunities for the Island to become more bike friendly. Connecting existing bike paths with signage, marking bike lanes on paved roads, and increasing education and awareness around cyclists are several examples of strategies the Island could employ while still investigating the construction of new, Island-wide bike paths.



Beech Bark Disease has impacted many of the Island's Beech trees, as discussed in Chapter 2. Downed and dying trees are a hazard to power lines, roads, and other important infrastructure discussed in this chapter.

ROAD IMPROVEMENTS

Road improvements, especially the paving of additional roads, is a challenge for the Island. First, there is significant debate and conflict around whether the paving of additional roads fits the character of the Island. Many cherish the Island's rustic roads, some of which are famous for their natural beauty, including a nearly 10-mile stretch of West Side Road from Paid een Og's to the South End Light (a state-designated Natural Beauty Road). Other residents express concern over dangerous road conditions and excessive wear-and-tear on vehicles. Additional paving of roads would create some environmental problems (removing vegetation, for example) while improving others (less dust and reduced need for dust control). Second, there are significant cost barriers due to the Island's remote location. The transportation of heavy equipment and materials needed to pave and maintain paved roads may be cost-prohibitive. Several improvements to the road system are currently underway, including the replacement of the Island's road signs.

ENERGY COSTS AND ALTERNATIVE ENERGY

The high cost of transporting energy to the Island is an ongoing concern for many. Despite the enormous ingenuity companies have used to transport fuel and electricity to the Island, power outages and fuel shortages have occurred in the past. Extended shortages in energy can put already vulnerable populations on the Island at increased risk and cause other challenges for people on the Island. Reliance on fossil fuels to produce fuel and power also contribute to ongoing environmental challenges. To help address these challenges, the Beaver Island Joint Planning Commission desires to encourage the use of alternative energy for property owners on Beaver Island. Not only does this fit the rustic nature of "living off the grid" that many Islanders cherish, but the production of alternative energy through solar or small-scale wind production are viable alternatives for several Northern Michigan communities. The recommendations in Chapters 6 and 7 are designed to help the Island promote these concepts and pilot them in public projects.

SEPTIC AND WATER QUALITY

With the increase of rain events expected in Northwest Lower Michigan, many experts, including the Michigan Department of Health and Human Services, are concerned about the impacts of septic leakage on water quality. Many property owners do not know the location or quality of old septic systems or drainage fields on their properties. Before health codes required permitting of these systems, many may have been placed close to drinking water, inland lakes, or other resources. As precipitation events increase, more toxins are flushed into our waterways, and septic infrastructure can be strained by wetter, heavier soil. These concerns have caused many local governments in Michigan to begin regulating the condition of septic systems.

Michigan is currently the only state in the country that does not require some type of inspection on a septic system after its initial construction. Several townships and counties have adopted requirements that septic systems be inspected for damages and leakage at the point of a property's sale to a new owner. This strategy allows the buyer and seller to privately negotiate the repairs of a system. There are a variety of strategies local governments can use to better understand the impacts that septic systems may be having on water quality as identified in Chapter 6.

REMOVAL OF LARGE DEBRIS

One guiding principle of this Master Plan is the goal of having a clean, pristine Island. One obstacle to achieving this vision is the presence of large debris that the Beaver Island Transfer Station and Recycling Center cannot

currently accept. Unused vehicles are the largest example of debris that is cost-prohibitive to send to the mainland for recycling. The cost of transportation has remained higher than the potential profit from scrap metal or reselling parts. The Joint Planning Commission identified this as a large challenge on the Island, and devoted time to discussing and researching opportunities to provide property owners with an affordable way to dispose of large debris. Enforcing blight ordinances and exploring grant programs to incentivize the disposal of debris are included in the list of recommendations in Chapter 6.



Watching the Emerald's Isle arrival in summer 2009. Photo Credit: Brother Roman Jarosz, FSC

“Cars and metal can be removed by scrappers on the island. The townships should offer free barge space for metal scrappers one or two times a year to incentivize them to remove debris. (It's) cheaper if scrappers do it instead of the transfer station.”

Beaver Island Resident



Keeping the Island clean and free of large debris is a primary goal of this Master Plan. See Chapter 6 for additional recommendations.

MAPS IN THIS CHAPTER

The maps for this chapter are included on the following pages. This page provides a brief description of each map, while data sources and other information can be found on each map.

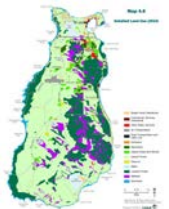
MAP 4.1 CONSERVATION AND GOVERNMENT LANDOWNERS

This map shows the land on Beaver Island owned by large conservation groups and government entities.



MAP 4.6 2010 DETAILED LAND USE

This map shows a more detailed version of Map 4.5 by dividing the general land use categories into more detail.



MAP 4.2 PROPERTY CLASSES

This map shows the parcels on Beaver Island according to their classification by the assessor's office as agricultural, commercial, residential, industrial, or tax exempt.



MAP 4.7 ROAD CLASSIFICATIONS

This map shows the roads on Beaver Island according to county, local, and general type.



MAP 4.3 1901 PLAT MAP

This map shows the 1901 parcels along with the names of major landmarks, landowners, and other interesting information.



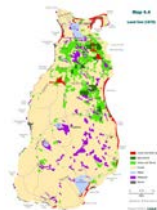
MAP 4.8 WATER WELLS

This map shows the locations of water wells on Beaver Island.



MAP 4.4 1978 LAND USE

This map shows Beaver Island according to general land use categories in 1978.



MAP 4.9 CRITICAL FACILITIES

This map shows the location of critical infrastructure and facilities on the entire Island.



MAP 4.5 2010 LAND USE

This map shows Beaver Island according to general land use categories in 2010.



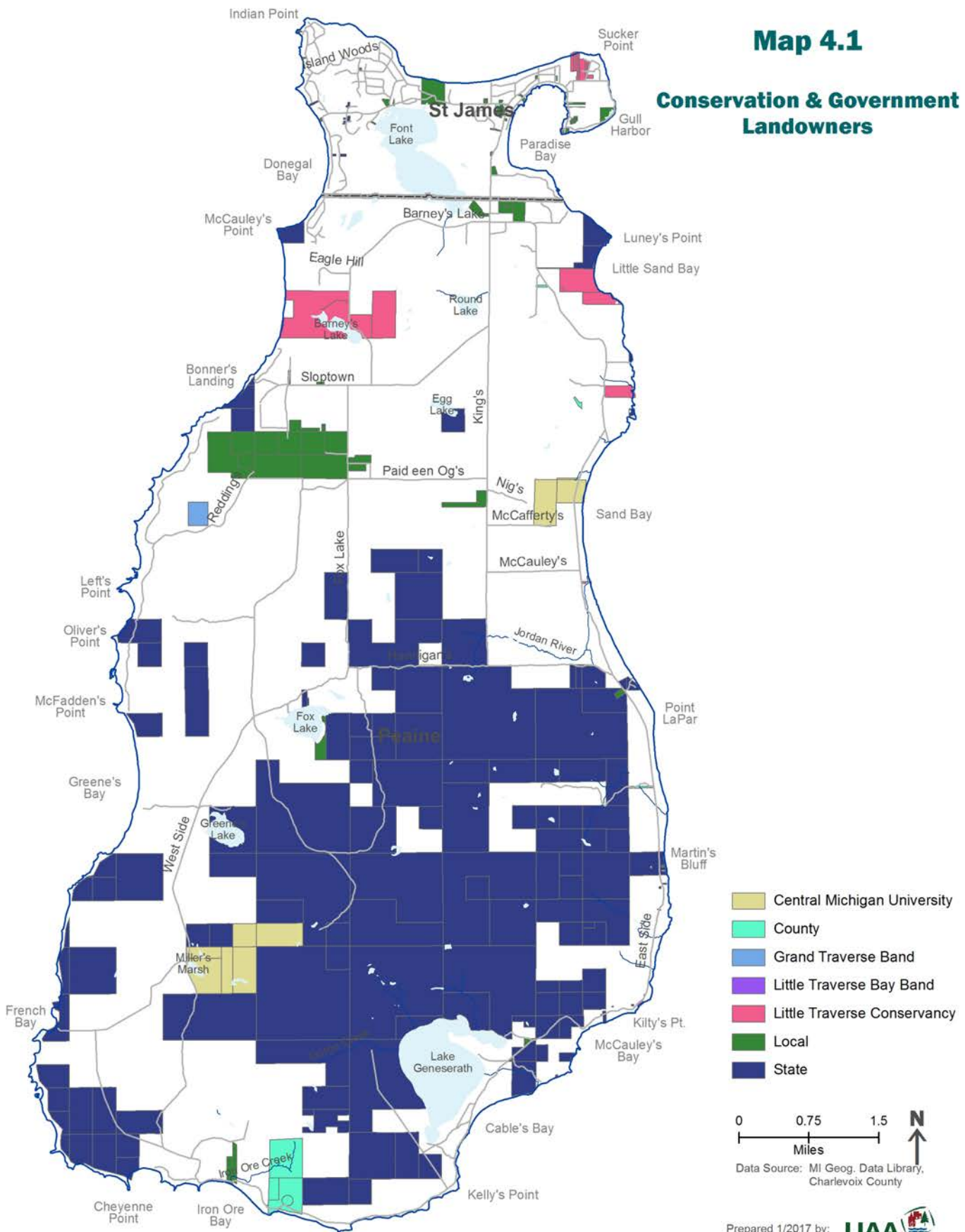
MAP 4.10 CRITICAL FACILITIES DETAIL

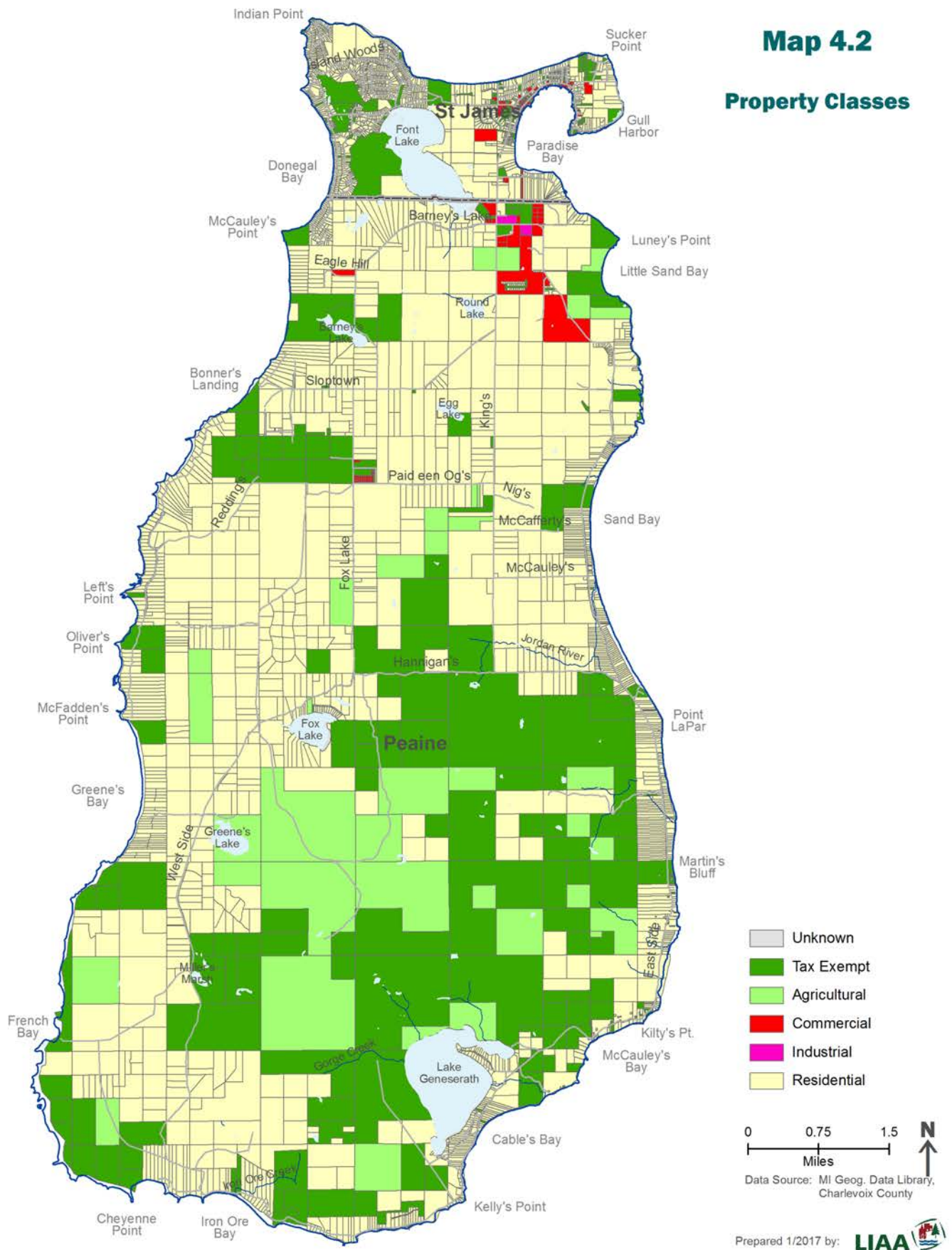
This map shows the location of critical infrastructure and facilities in St. James Township.



Map 4.1

Conservation & Government Landowners



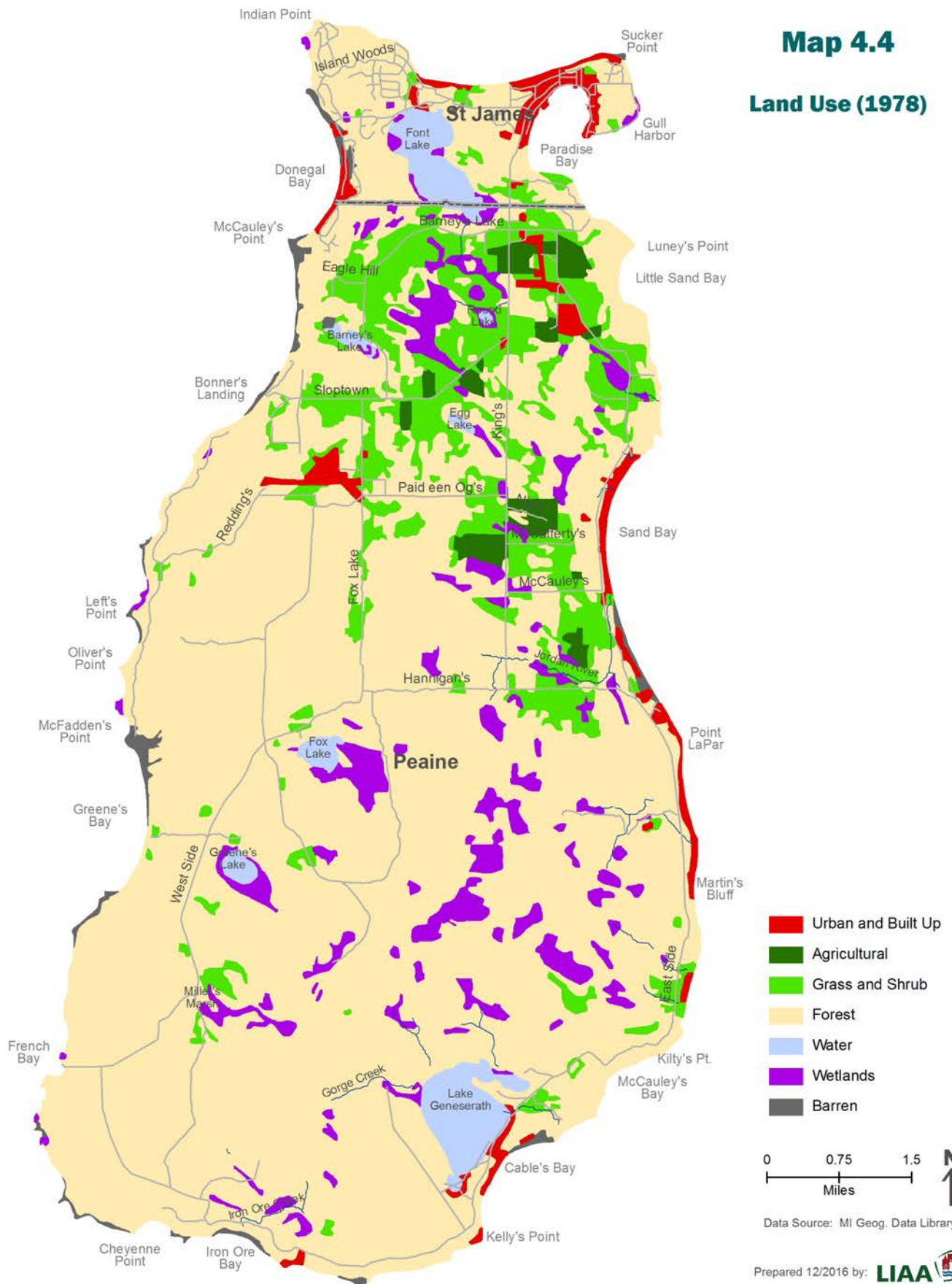
Map 4.2**Property Classes**



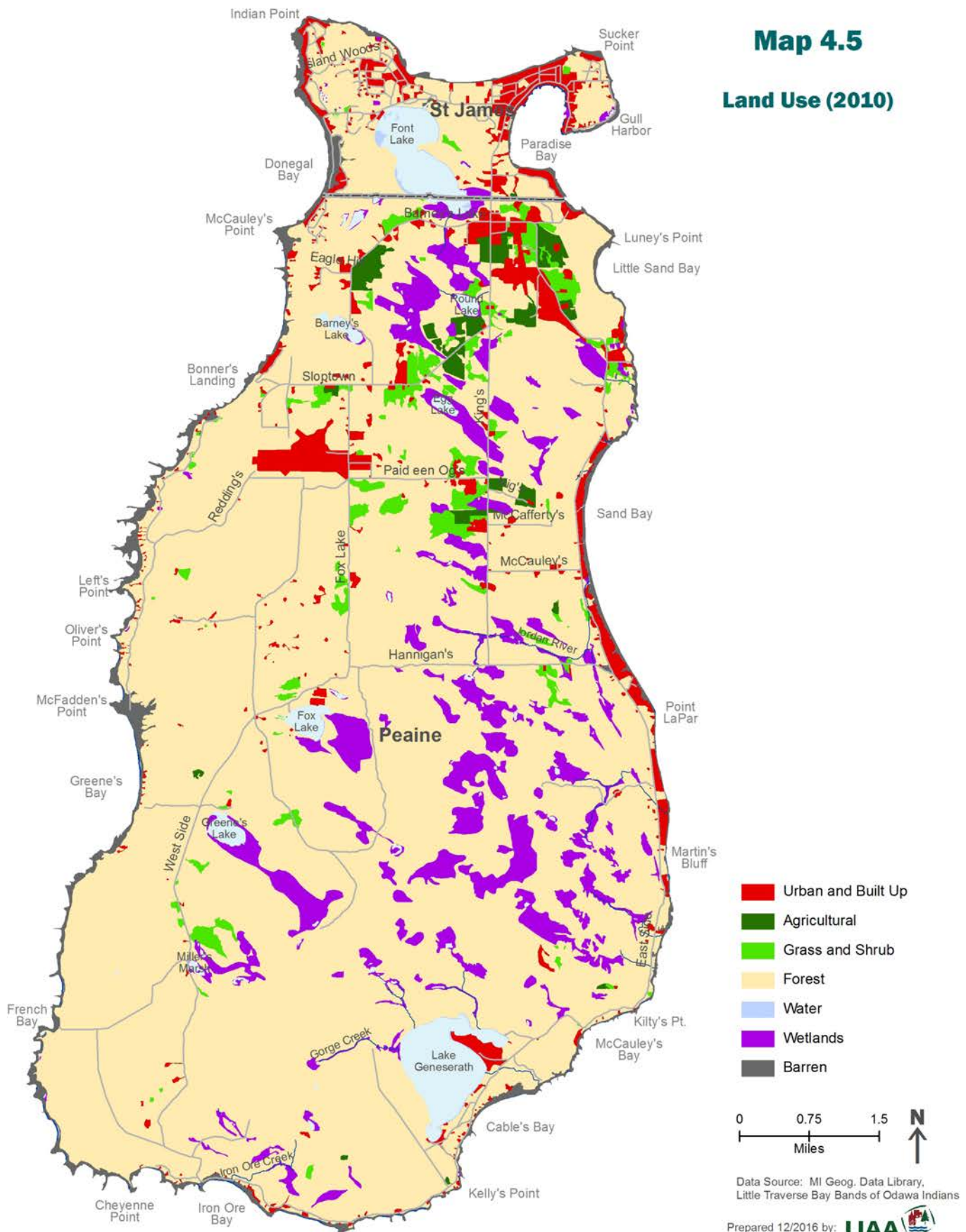
Data Source: MI Geog. Data Library

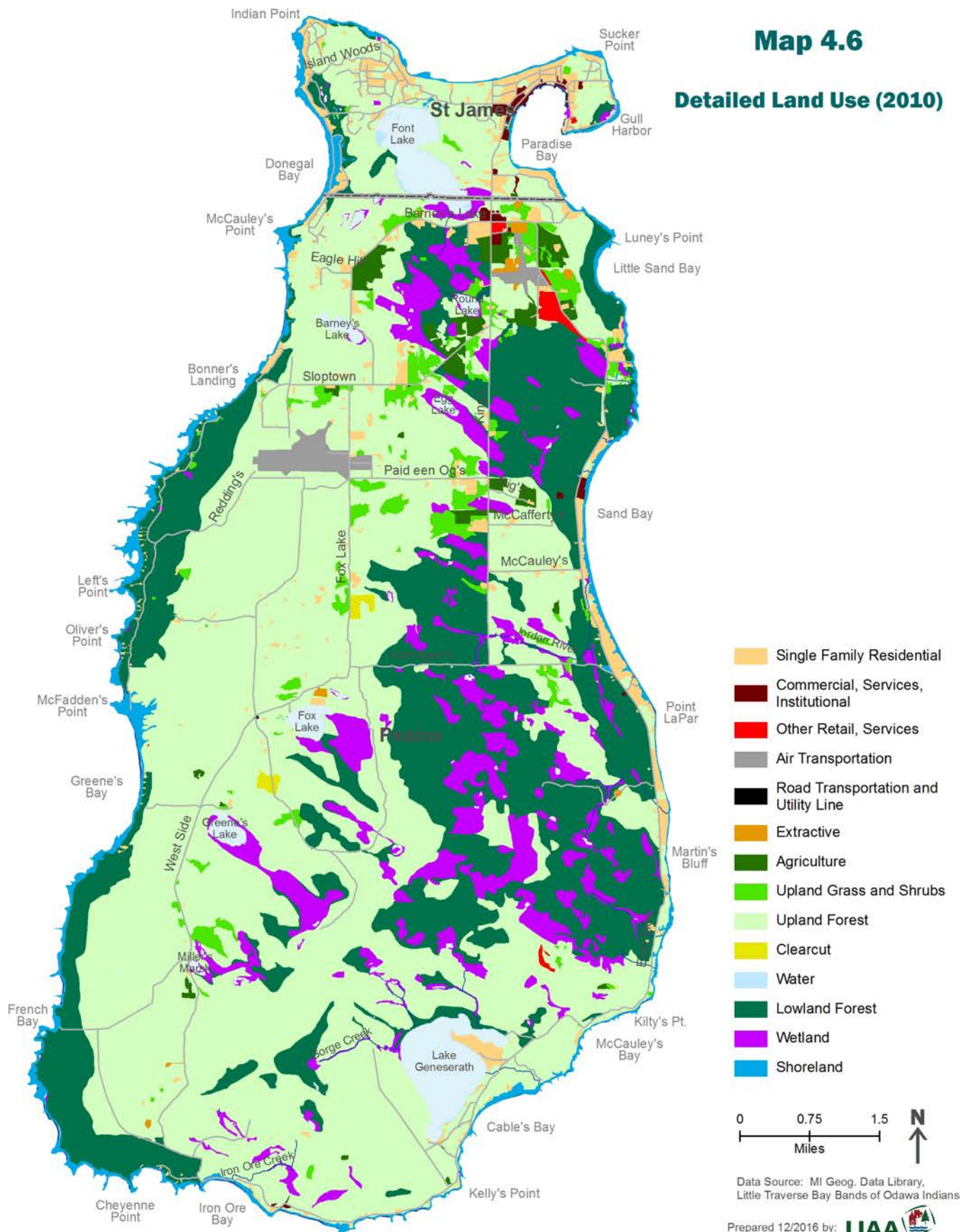
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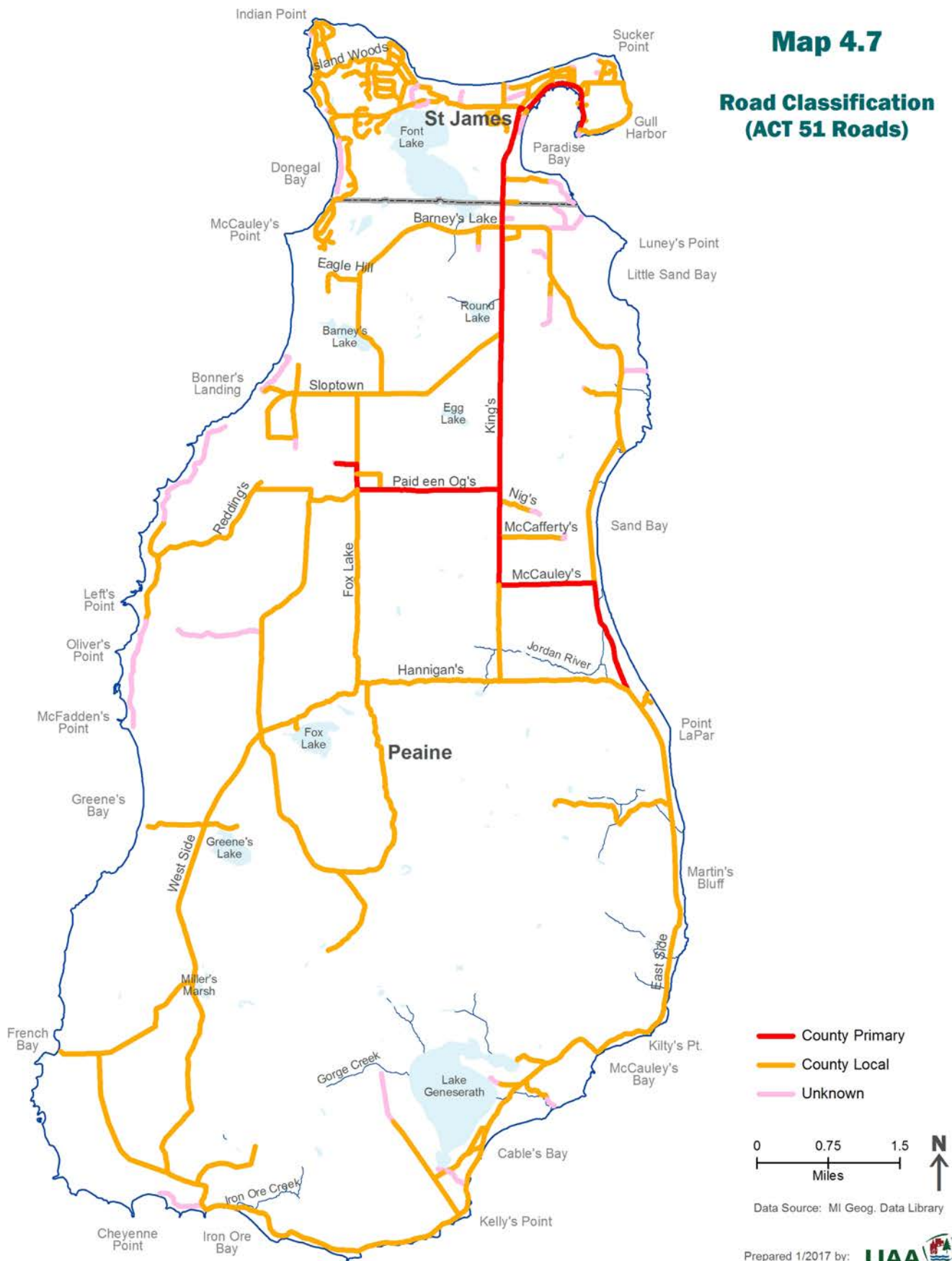
Map 4.4
Land Use (1978)



Map 4.5
Land Use (2010)

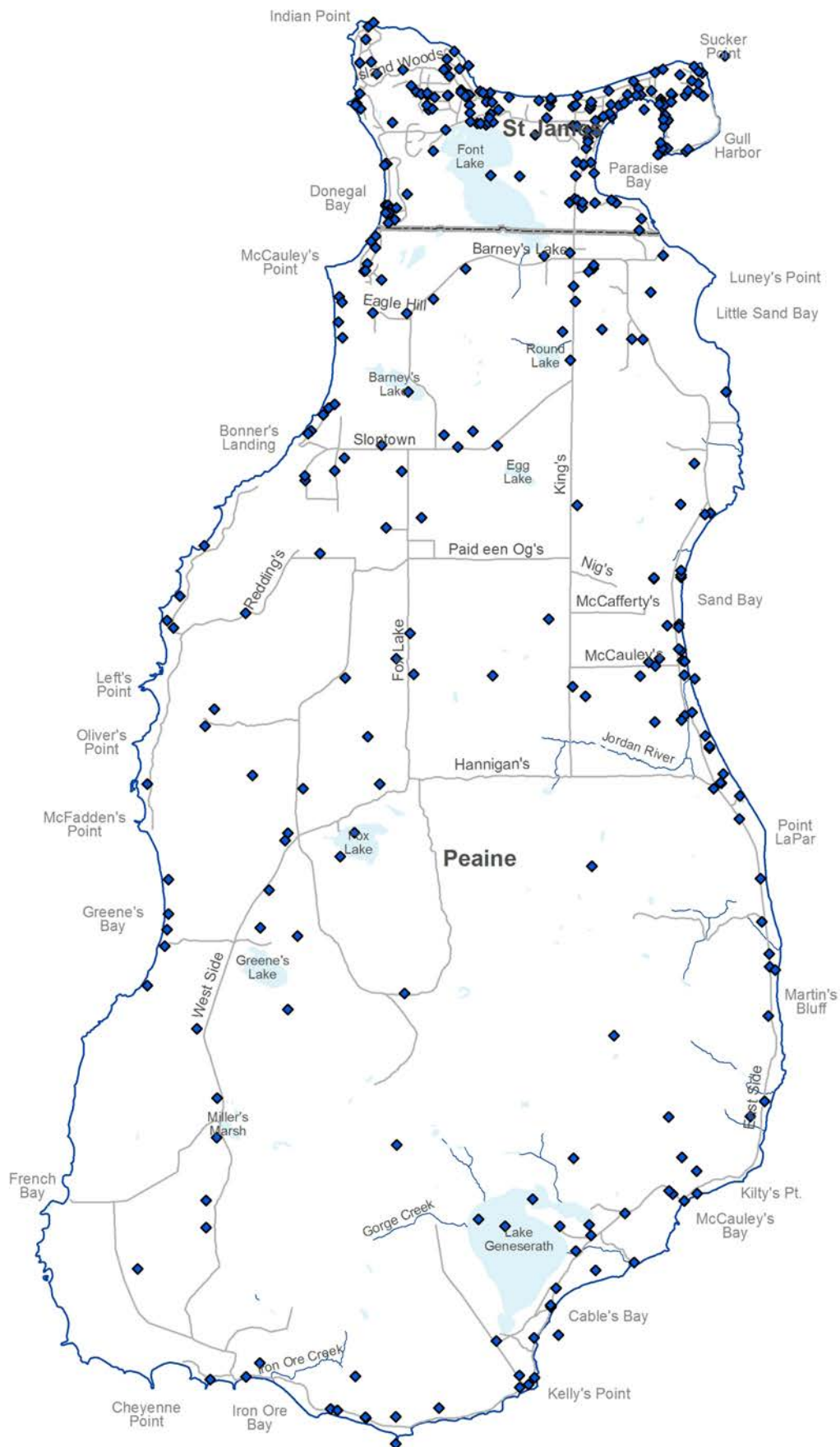


Map 4.6**Detailed Land Use (2010)**



Map 4.8

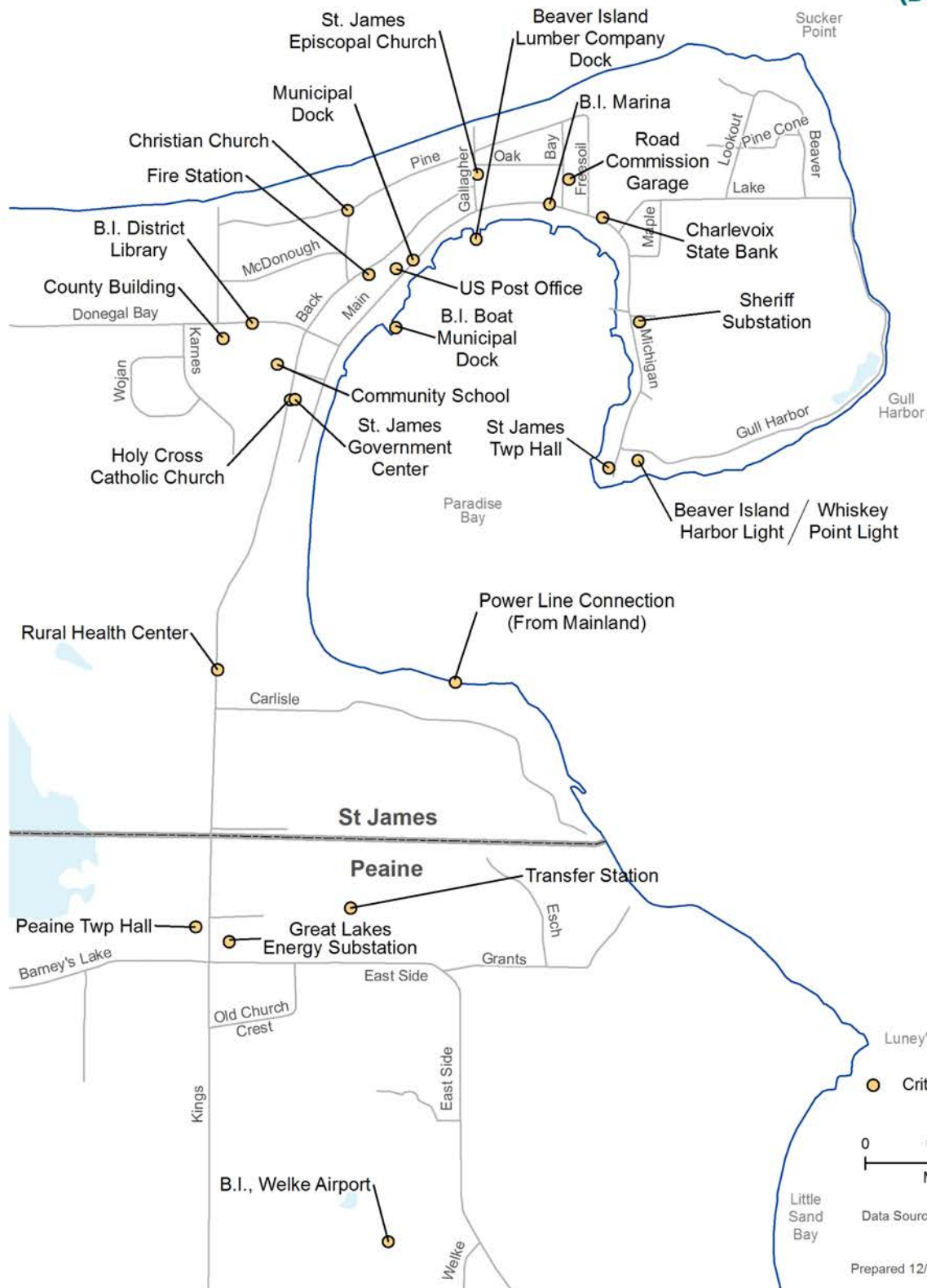
Water Wells






Map 4.10

Critical Facilities (Detail)





“I hope the Island can work together, seasonal and year-round people, to develop a strong economic future for the Island. Economy can’t be solely based on such a short-term tourist season. In the meantime, the Island needs to recognize that it is a tourist destination and really needs to improve its ability to meet the needs of tourists.”

Beaver Island Resident

CHAPTER 5

ECONOMY AND TOURISM

This chapter summarizes current economic conditions on Beaver Island including unemployment, median income, and information related to the Island's tourism economy. This chapter inventories the Island's economic assets and challenges, along with the various groups and organizations active in promoting tourism on the Island.

ECONOMIC INDICATORS

An indicator is a gauge that says something important about a community's condition, much as a thermometer helps identify whether a person is healthy or sick. The indicators used to show the economic condition of a community can vary depending on the community's key industries, recent challenges, and other factors. For this chapter, economic indicators were selected based on reports produced by the Island Institute. Economic indicators include median income, unemployment, and the percentage of the workforce that relies on various industries.

UNDERSTANDING ECONOMIC DATA

Through a series of tables, the next several pages show overall characteristics of the Island's economy. In general, each table in this chapter uses data collected from 2010 through 2014 by the American Community Survey (a United States Census Bureau product) to represent current conditions on Beaver Island. Census data from the 2000 Census is used as a point of comparison, and a change in both number and percentage (using a percent change formula) is also given where appropriate. In some cases, we also use economic statistics published by the Environmental Systems Research Institute (ESRI) that are estimates, based on Census data, for the year 2016. The information selected is useful for understanding the general conditions of the Beaver Island economy.

UNEMPLOYMENT ON BEAVER ISLAND

Table 5.1 shows the percentage of the Island's workforce that was unemployed in 2000 and in 2016. It is important to note that while this data is published and reputable, it is based on estimates and studies rather than on a survey of every person in the community. Therefore, these numbers should support an overall picture of the Island's economy rather than an exact number. In general, unemployment on the Island has become a much more serious issue in recent years. The percentage of the workforce that is unemployed has increased on Beaver Island.

In discussions with Island business leaders during the development of this Master Plan, several reasons for increasing unemployment were identified. First, the Island's housing construction industry slowed in 2009 through 2015 due to the Great Recession. Second, the tourism and service industry is also unable to offer many full-time, year-round positions. A third reason may be that increased use of online services such as Amazon has reduced demand for goods to be sold on the Island.

MAJOR INDUSTRIES

Table 5.2 shows the percentage of the adult workforce that is currently employed by industry. This information was published as an estimate for the year 2016 based on recent U.S. Census data. Table 5.2 is a snapshot in time that shows the current mix of industries on the Island. In general, this information shows that the service industry is the backbone of the Island's economy, with about 46% of the Island's adult workforce in each Township working in this tourism-related industry. The construction industry is the second largest employer on the Island, with about 15% of the adult workforce in each Township. With over half of the Island workforce dependent on these two industries, it is important that Island work to strengthen and enhance these industries on the Island wherever possible. It is also important that the Island work to identify new industries that might present opportunities for Islanders. Many entrepreneurial ideas were discussed during the planning process, as identified in Chapter 6.

WHO IS THE ISLAND'S WORKFORCE?

The demographic trends in Chapter 3 showed that many of the people who have moved to the Island in the past several decades are retirees and empty nesters. However, there are also many working people and creative entrepreneurs on the Island. From jewelers and hairdressers to homebuilders and musicians, Beaver Island is home to many talented individuals looking to make a living for their families. The recommendations in Chapter 6 include a number of ways to support entrepreneurs and new businesses on Beaver Island.

TABLE 5.1 PERCENT OF WORKFORCE UNEMPLOYED, 2000 TO 2016

	2000	2016	CHANGE, 2000 TO 2016
Peaine Township	0.0%	4.2%	+4.2%
St. James Township	2.2%	3.9%	+1.7%

Source: US Census Bureau (2000) and ESRI Business Analyst (2016)

TABLE 5.2 PERCENT OF ADULT WORKFORCE BY INDUSTRY, 2016

INDUSTRY	2016	
	PEAINE	ST. JAMES
Agriculture	0.0%	0.6%
Construction	14.5%	15.0%
Manufacturing	0.7%	0.6%
Wholesale Trade	0.0%	0.0%
Retail Trade	8.0%	8.1%
Transportation/Utilities	21.0%	21.4%
Information and Technology	4.3%	4.0%
Finance and Real Estate	2.9%	2.3%
Services	45.7%	45.7%
Public Administration	2.9%	2.3%

Source: ESRI Business Analyst (2016)

HOUSEHOLD INCOMES

Median household income is a commonly-used economic indicator that gauges the approximate spending power of households. Table 5.3 shows the median household income in each Township and in Charlevoix County in 1999 and 2014. This information comes from the U.S. Census Bureau, and the 1999 values were adjusted for inflation in order to be easily comparable to 2014 values. In general, the spending power of households increased significantly in Peaine Township and decreased slightly in St. James Township between 1999 and 2014. Charlevoix County overall experienced a severe decline in median household income between 1999 and 2014. This might suggest that Beaver Island's households have weathered recent economic challenges with more resilience than other communities, or that households unable to cope with economic decline (e.g., loss of jobs, unemployment) have left the Island.

Table 5.4 shows the percent of households on Beaver Island within each income range. This information is an estimate for the year 2016 based on U.S. Census Data. In general, the two Townships have a similar income distribution, with most households making between \$35,000 and \$99,999 annually.

TABLE 5.3 MEDIAN HOUSEHOLD INCOME, 1999-2014

	1999 IN 2014 DOLLARS*	2014	% CHANGE 1999 TO 2014
Peaine Township	\$41,446	\$47,031	+13.5%
St. James Township	\$47,151	\$46,250	-1.9%
Charlevoix County	\$56,538	\$46,709	-17.4%

*1999 dollars were adjusted for inflation according to the Bureau of Labor Statistic Inflation Rate Calculator; Source: U.S. Census Bureau (2000), American Community Survey (2010-2014)

TABLE 5.4 PERCENTAGE OF HOUSEHOLDS BY INCOME RANGE, 2016

INCOME RANGE (DOLLARS)	2016	
	PEAINE	ST. JAMES
Less than 15,000	10.1%	10.6%
15,000 to 24,999	12.5%	12.2%
25,000 to 34,999	11.3%	11.1%
35,000 to 49,999	20.2%	20.1%
50,000 to 74,999	23.2%	23.3%
75,000 to 99,999	11.3%	11.6%
100,000 to 149,999	7.7%	7.4%
150,000 to 200,000	3.0%	2.6%
Over 200,000	0.6%	1.1%

Source: ESRI Business Analyst (2016)

“The Island needs community education on economic development through sustainable agriculture and renewable energy projects. Worker-owned cooperatives in these areas would provide jobs, attract younger people to the Island, and create community and economic development.”
Beaver Island Resident

A VISION FOR TOURISM

CREATING A VISION FOR TOURISM

This planning process involved a number of discussions to identify the appropriate intensity of tourism on the Island. There are examples of tourism-dependent communities throughout the country of varying scales. In Michigan, Mackinac Island stands out as an example of a robust tourism economy. Mackinac Island has large-scale attractions, significant commercial activity including nightlife, specialized shopping, and many modern facilities. However, the vision for the tourism industry on Beaver Island is different than that of Mackinac Island.

In general, this Master Plan's vision for the future of the tourism industry on Beaver Island is based on a rustic, rural experience that prizes solitude and appreciation of the Island's natural resources and culture. Unique, homegrown events such as music and food festivals (and of course the St. Patrick's Day Parade!) encourage visitors to come enjoy the Island's culture. Island businesses should be welcoming, friendly places that help visitors get the true sense of the Island. Additionally, the use of the Island by visitors should not damage the natural resources that make the Island unique to begin with.



TOURISM ON BEAVER ISLAND

Like many Northern Michigan communities, tourism is the backbone of Beaver Island's economy. This Master Plan includes a number of recommendations and ideas for strengthening the Island's tourism economy in Chapter 6. Chapter 2 offers an inventory of natural features and attractions that draw tourism. This section inventories the many organizations and commissions that contribute to the Island's tourism economy and help support local businesses that serve visitors to the Island.

TOURISM STATISTICS

It is difficult to know the exact number of tourists that visit the Island each year. No comprehensive study has been done to identify the number of visitors each season, but many Island groups keep a count of visitors to various places and events. The Beaver Island Transportation Authority also records the number of tickets sold for the ferries, and each airline knows the number of passengers. Taken together, this information can supplement the anecdotal reports of businesses in helping to identify whether the number of tourists has increased or decreased in recent years.

- The Beaver Island Community Center counts the number of people that visit the center. In general, from 2013 to 2016, the number of visits to the Community Center has slightly decreased in recent years.
 - The number of visits is highest in the summer. In 2014, summer visits accounted for 18,133 visits to the Community Center. In 2015 and 2016, the number of visits dropped to 14,624 and 13,724 respectively.
- The Preservation Association of Beaver Island notes that large events hosted by the Community Center, such as Baroque on Beaver, have seen increases in attendance in recent years.
- The Beaver Island Music Festival is the Island's largest event. The Festival has grown steadily each year. In 2016, 2,055 people attended the four-day event. This is an increase over 2014 and 2015, which drew 1,687 and 1,981 people respectively. About 10% to 15% of attendees are Island residents.
- Ridership on the two ferries has increased in recent years during the peak summer season. In July 2015, 10,292 trips were taken (each way counts as one trip) on the two ferries. In July 2016, this number grew to 11,233, an increase of about 9%. The number of vehicles transported during the summer months has also increased.
- In 2015, Island Airways flew about 29,000 passengers back and forth from Beaver Island to various destinations including Charlevoix, Manistique, and Traverse City.
- The Beaver Island Chamber of Commerce estimates that about 50,000 people visit Beaver Island each year.

In general, it seems that tourism overall has increased in the past decade compared to years past. Some business owners and leaders in the community report that tourism has struggled as a result of the Great Recession, but appears to be rebounding in the past several years. Economic challenges related to tourism, such as constraints to the growth of the tourism industry, are described at the end of this chapter.

Photo Credit: Cynthia Hector



TOURISM AND RECREATION ASSETS

Most of the natural features and resources listed in Chapter 2 could be repeated in this chapter as assets essential to the Island's economy. Inland lakes, wetlands, forests, and the shoreline all provide opportunities for visitors to enjoy the natural beauty of the Island. The next several pages inventory the various facilities that support the Island's tourism economy. These include a number of cultural and historic sites, special events, organizations, and accommodations and services primarily for visitors.



The Beaver Island Marine Museum was originally built as a net shed in the early 1900s and first used as a museum in 1976. The museum has two floors of exhibits that tell stories about shipwrecks, Coast Guard rescues, ship building, Island vessels, and even diving. The museum is staffed and maintained by volunteers from the Beaver Island Historical Society.



The Protar Home is one of two sites on Beaver Island registered on the National Register of Historic Places. Maintained by the Beaver Island Historical Society, the historic home and tomb of Feodar Protar draws visitors interested in learning more about this cherished philanthropist and important figure in Beaver Island's history. Photo Credit: News on the 'Net

CULTURAL AND HISTORIC SITES

Cultural resources on Beaver Island include natural areas important to Native American tribes, historic structures built by early settlers, and a number of museums that seek to preserve the Island's history. Many of the Island's cultural resources were described in Chapter 2 when discussing the importance of preserving the environment. However, the Island's natural and cultural resources are also important draws for tourists. Institutions such as the Mormon Print Shop and Museum and the Marine Museum are important tourist attractions.



The Mormon Print Shop and Museum was built in 1850 by the Island's Mormon settlers. The building is now used as the Beaver Island Historical Society's main museum, with exhibits on important historical figures as well as diaries and other artifacts. The Beaver Island Historical Society is fundraising for an expansion of this museum, which will be renamed the Museum of Island Life. This expansion will invite more people to come visit the Island.



Heritage Park is maintained by the Beaver Island Historical Society and located on Donegal Bay Road. The park features several historical items, including the generator that first provided power to the Island and an old tilt-wheel grader. These outdoor exhibits are easily seen from the bike path and the library.

SPECIAL EVENTS

Special events draw thousands of visitors to the Island each year. The largest events on the Island are highlighted on this page, though there are others organized by various volunteers and organizations. This Master Plan inventories these special events so as to acknowledge the immense contribution these events have on the Island's economy. It is important that the Island support these events however possible, whether through marketing, designating space, or other strategies as listed in Chapter 6.



Baroque on Beaver is a musical festival and concert series that draws thousands of visitors and musicians from Michigan and beyond. The event is hosted by the Beaver Island Cultural Arts Association and is held in various locations throughout the Island. Photo Credit: Beaver Island Beacon

“For the future of the Island, I envision more tourism and more families moving here, but there has to be a reason to bring them here.”
Beaver Island Resident



Homecoming is an Island-wide event held each year with a large festival, food, music, and the famous softball tournament. The event is held at the Bud McDonough Memorial Ball Park, Holy Cross Church, and other locations throughout the Island. Photo Credit: BeaverIsland.org



The Beaver Island Music Festival is held each year at the Beaver Island Hideaway Campground. The Music Festival draws thousands of people to come hear bands and musicians over three days in July each year. Photo Credit: BIMF.net



Beaver Island's St Patrick's Day and Fourth of July holidays both offer parades and activities. The Fourth of July weekend on Beaver Island is widely regarded as the busiest weekend on the Island for tourism. Photo Credit: BeaverIsland.org

NATURAL ASSETS AND TOURISM

Beaver Island's many parks, trails, and natural areas form the basis of the Island's tourism industry. A number of organizations and initiatives have formed to help leverage natural areas for increased tourism on the Island. Several of those organizations and initiatives are highlighted here, while a number of ideas for leveraging natural areas for tourism are described in Chapter 6.

TRAILS

As described in Chapter 4, there are many paths and trails on the Island that support, hiking, biking, cross-country skiing

and motorized activities. Some trails are well-marked and on public property, while others are unmarked and meander through both public and private property. Some paths were once logging roads now used for hiking. One separated trail along Donegal Bay Road connects the library and several hotels with downtown. Additionally, most of the Island's roads are used by for walking and biking. Map 5.1 at the end of this chapter was created as a summary of several other trail maps. One goal of the Joint Planning Commission in the future is to build on Map 5.1 and create an updated map that can be used for marketing and planning.



Beaver Island has long been a critical stopover for migratory birds flying up Lake Michigan on their way to northern breeding grounds. As a result, the Island attracts many “birders” who seek to see and photograph rare and uncommon bird species. In 2014, a formal birding trail was established around the Island. The trail includes 34 designated spots in which birds have been known to locate. The Island hosts an annual birding event, Warblers on the Water, that features field trips, demonstrations and presentations. Map 5.2 shows the Beaver Island Birding Trail stops.



In the fall of 2016, local officials, in cooperation with the DNR and the Little Traverse Bay Bands of Odawa Indians, began work on developing a formal water trail around Beaver Island. It is anticipated the water trail will have trailheads and resting locations at intermittent locations around the Island.

ECONOMIC BENEFITS OF TRAILS

Trails and outdoor recreation opportunities can attract new visitors, support the existing tourism industry, and spur new business opportunities. In fact, the outdoor recreation industry is one of the leading economic drivers in the United States in terms of consumer spending. On Beaver Island, the impact of outdoor recreation reaches far beyond the recreation industry, directly supporting other sectors like accommodations, food services, and retail trade. According to a 2012 report from the Outdoor Industry Association, 6.1 million Americans work in the outdoor recreation industry. In Michigan, the outdoor recreation industry generates \$18.7 billion in consumer spending annually.¹ The continued success of this industry in Michigan depends on the wise management of natural lands and waters.

WATER TRAILS

Paddlesports, including stand-up paddleboarding and kayaking, is one of the fastest-growing recreational activities nationwide. The Outdoor Industry Association notes more than 21.7 million people — or 7.4% of Americans — participated in paddling activities in 2014. Kayaking, which is the most popular form of paddling, had approximately 13 million participants in 2014. Kayaking is becoming more popular in America, with 4.4% of Americans kayaking in 2014 compared to 3% in 2010. Surveys show that kayakers tend to be evenly represented across age groups, but tend to be more highly educated with relatively higher incomes. The average kayaker goes on about eight kayaking trips each year.

The *Michigan Blue Economy* report states that the small but growing canoe and kayak industry annually contributes roughly \$140 million to Michigan's economy.² Local water trails have also been proven to yield economic benefits. In 2013, the Huron River Watershed Council conducted an economic impact analysis of the Huron River Water Trail. The analysis found that the water trail generates more than \$49.5 million annually from current users! The analysis also discovered paddlers traveled an average of 117 miles for an overnight trip.³

According to a report from the River Management Society, "(T)owns that already have dining, lodging and rental

services are more likely to see an increase in paddlesports tourism when they advertise and promote their water trail, as contrasted with communities that market their water trail, but do not provide standard amenities for paddlers."⁴ The report also defines amenities that tend to attract new audiences most effectively. These include access to the water, outfitters, lodging, dining, integrated recreation (such as hiking and biking paths), other activities (such as museums and interpretive centers), and proximity to other places to recreate.

Using the basic elements of the Trail Town strategy, local officials and economic development officials can help create local and regional tools for trail-based economic development.

TRAIL TOWNS

This Master Plan identifies ways for Beaver Island to capitalize on its trail systems to maximize trail-based tourism for future economic development. The Island should consider borrowing the concept of a "Trail Town." The Trail Town concept was first developed by the Allegheny Trail Alliance for communities along the Great Allegheny Passage, a 150-mile multi-use trail. A Trail Town community meets the needs of both trail users and residents of the community, and it has the physical amenities that support trail users (such as accessible launches). A Trail Town also has the business amenities to support

day-trip users (e.g., kayak rental) and overnight trail users (e.g., campground, casual restaurant and laundromat). Using the basic elements of the Trail Town strategy, local officials and economic development officials can help create local and regional tools for trail-based economic development.

BASIC ELEMENTS OF A TRAIL TOWN STRATEGY

- Entice trail users to get off the trail and into the town.
- Welcome trail users to your town by making information about the community readily available at the trail.
- Make strong and safe connections between your town and the trail.
- Educate local businesses on the economic benefits of meeting trail tourists' needs.
- Recruit new businesses or expand existing ones to fill gaps in the goods or services that trail users need.
- Promote the "trail-friendly" character of the community.
- Work with neighboring communities to promote the entire trail corridor as a tourist destination.

1 https://outdoorindustry.org/pdf/OIA_OutdoorRecEconomyReport2012.pdf

2 <http://michiganblueeconomy.org>

3 <http://www.hrwc.org/>

4 <http://www.river-management.org/assets/WaterTrails/economic%20argument%20for%20water%20trails.pdf>

TOURISM AMENITIES

This section provides an overview and general assessment of the Island's tourism-related amenities and services. The Island's economy depends on the health of the tourism industry. Many ideas to improve the tourism industry are included in Chapter 6. Implementing these ideas will require creative partnerships and collaborations between many of the groups and organizations discussed here and in the next section.

ACCOMMODATIONS

Beaver Island has a handful of lodging accommodations, including motels, B&Bs, and rental homes. During summer weekends, most of the rooms on the Island are full. In fact, when there is a large event like Independence Day or even a large wedding, it can be difficult to find rooms on the Island. If the Island is looking to build on the summer tourism industry, more hotels and accommodations will be needed. During the winter months, only one motel

currently stays open. Sometimes, residents of the Island occupy the motel throughout the winter in order to be closer to downtown, have more access to services, and avoid paying costly heating bills.

In recent years, a number of homeowners have turned to rental agencies and online services to rent out their units. Homes on the Island do not currently need a permit from the Townships to rent rooms on a short-term basis, and there is no cap on the number of homes that can be used as short-term rentals. There are approximately 100 rental properties currently available on the Island.

Many of the Island's lodging has historic origins, including a unique property that was once a former lodge that was owned and operated for 70 years as a summer retreat house by the Christian Brothers religious order.



CAMPGROUNDS

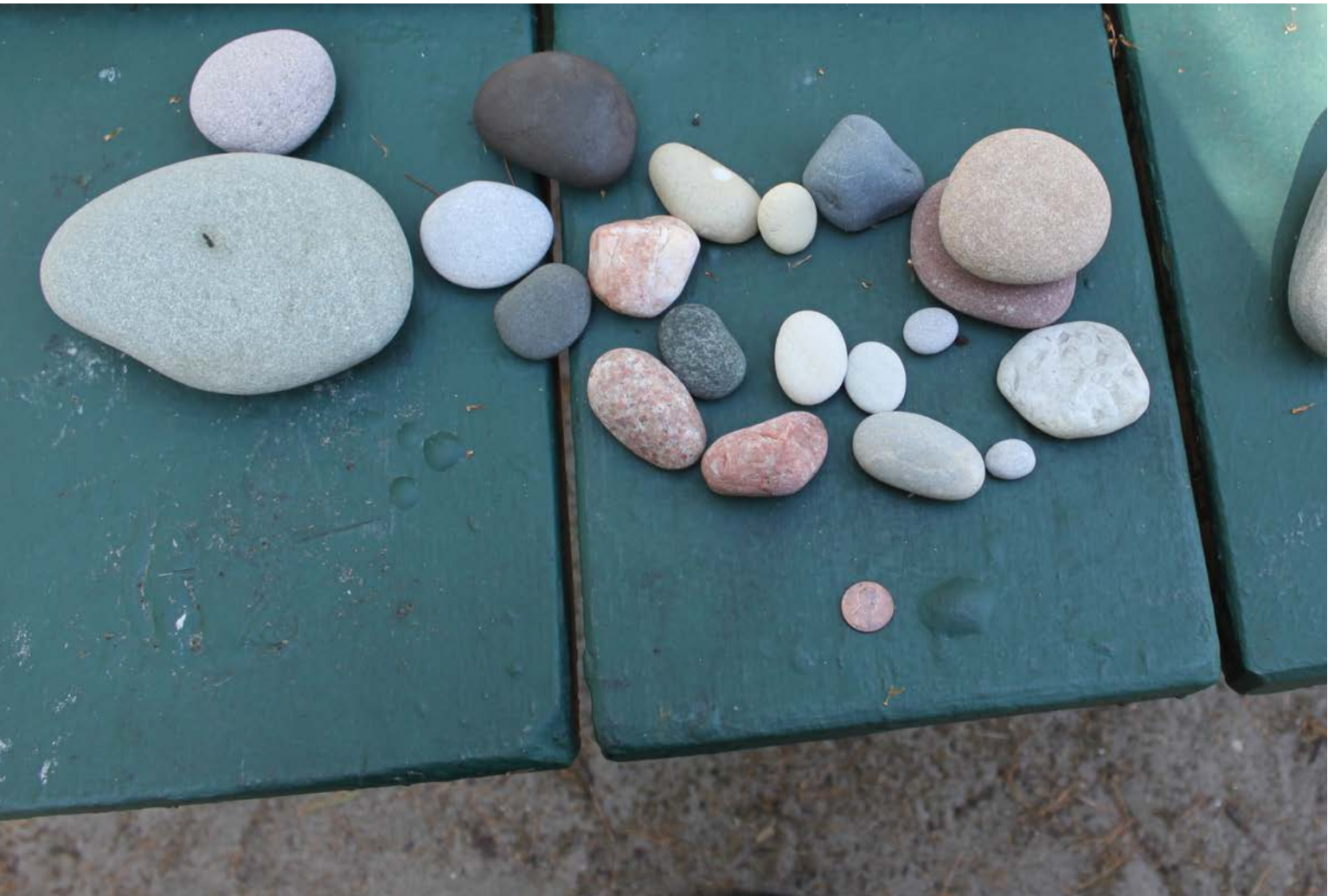
There are also a number of campgrounds on Beaver Island. Two campgrounds are publicly owned by the Townships and are described more in the inventory of public recreational facilities at the end of this chapter. The St. James Township Campground and the Bill Wagner Peaine Township Campground offer a total of 34 rustic campsites with picnic tables, fire rings, and potable water. There are no showers, electricity, or modern restrooms available. The Michigan Department of Natural Resources manages the Beaver Island State Forest Campground at the southern end of the Island with 22 rustic campsites.

The Port of St. James Association campground is privately owned and is available only to association members. The Beaver Island Hideaway Campground is located off West Side Road and offers fire rings, picnic tables, and amenities such as a disc golf course, sports fields, and accommodations for large groups.

RESTAURANTS AND OTHER SERVICES

Beaver Island has around ten food service and drink establishments clustered on Main Street and Michigan Avenue in St. James Township, offering a range of dining experiences from casual to sit down dinners. The majority of restaurants maintain seasonal hours and are closed after Labor Day (September) through Memorial Day (May) during the winter months. Groceries and other wares can be purchased at a locally-owned and operated market that is a full-service Spartan affiliate grocery store. Visitors who don't bring their car over on the ferry can rent a vehicle at two rental locations in St. James. As of summer 2016, limited taxi services are available on the Island as well.

The Brothers Place offers a unique screened-in porch for guests (left). Treasures collected by campers at the Bill Wagner Peaine Township Campground in the summer of 2016 (below).





The Beaver Island Toy Museum is a unique shop owned by a local artist and is a mainstay of the Island.



Donegal Danny's is located on Carlisle Road and is well known to most Islanders.



The Community Center is a hangout spot for all ages and provides a number of informational services to visitors.

RECREATION AND TOURISM GROUPS AND BOARDS

Many organizations and coalitions have formed over the years to enhance Beaver Island's tourism industry. A number of these groups are mentioned elsewhere in this plan because of their involvement in other community activities. This section is meant to highlight the many groups and organizations responsible for managing tourism opportunities, reducing the negative impact of tourism on natural areas, marketing tourism opportunities, and improving the experience of visitors to Beaver Island. Each group has activities and projects in mind for the future. This Master Plan seeks to offer support to these various activities and projects, in so far as they promote the holistic growth of the tourism industry on the Island. The photos on this and the next page highlight several of the Island's many businesses and establishments.

BEAVER ISLAND CHAMBER OF COMMERCE

The Beaver Island Chamber of Commerce is charged with providing information about the Island and its businesses in both print and online. The annual Visitors Guide provides maps, guides and tourist information (e.g., transportation options, accommodations, shopping, restaurants, etc.). All this information, along with links to videos, a listing of special events, a message board and other material, can be found on the Chamber's website, beaverisland.org. The Chamber of Commerce also organizes and sponsors several popular events on the Island every year, most notably the Fourth of July parade and the "Bite of Beaver" in the fall. The Chamber of Commerce is located just north of the ferry dock along Main Street.

BEAVER ISLAND COMMUNITY CENTER

The primary role of the Beaver Island Community Center is to provide a central meeting place for Island residents. The Community Center also hosts movies, plays, concerts, a teen center, and local events. Due to its location directly across from the ferry, its welcoming storefront and staff, comfortable sitting areas, free Internet access, information materials (e.g., brochures, maps), and its designation as a trailhead for the birding trail, the Community Center has become the unofficial hub for information about the Island for both residents and tourists.

BEAVER ISLAND CULTURAL ARTS ASSOCIATION

The Beaver Island Cultural Arts Association was created in 2006 to promote, present and encourage participation in the cultural arts of the Beaver Island community. The Association's signature event is the annual Baroque on Beaver Festival, which runs over a 10-day span from the last weekend of July through the first weekend of August.

BEAVER ISLAND HISTORICAL SOCIETY

The Beaver Island Historical Society was founded in 1957 to collect and share the history of Beaver Island. The Historical Society currently operates two museums on the Island, the Mormon Print Shop and Museum and the Marine Museum; and two additional historical sites, Heritage Park and the Protar Home. The Historical Society offers several resources and services to Island visitors, including genealogical research free of charge, copies of archival photos, and a series of historical journals and other books for purchase. Additionally, the Historical Society hosts several events throughout the year to celebrate the Island's history.

BEAVER ISLAND HUMAN SERVICES COMMISSION

The Human Services Commission is an eight-member committee charged with addressing the emotional and physical needs of Island residents and visitors. One of the core missions of the commission is to support the economic vitality of the Island by ensuring services are available and accessible. In that vein, the commission has worked to make trails around the Island more accessible to people of all ages and abilities.

BEAVER ISLAND MUSIC FESTIVAL

The Beaver Island Music Festival began as a small passion project and has grown into a large, three-day event each summer that draws thousands of people. In addition to hosting the festival, the Beaver Island Music Festival is a non-profit organization that also seeks to educate musicians and enhance musical opportunities on the Island.

BEAVER ISLAND NATURAL RESOURCES AND ECOTOURISM STEERING COMMITTEE

The Beaver Island Natural Resources and Ecotourism Steering Committee was established by Peaine Township and St. James Township in 2011 to help develop special plans and projects for the Island. The committee consists of members from several Island organizations, the DNR, the Little Traverse Bay Bands of Odawa Indians, and interested citizens. The committee has worked on a number of important projects that contribute to the preservation of the Island's environment, including the development of a plan to identify and eradicate invasive species from the Island as well as a natural resource management plan. More recently, members of the committee have begun an effort to develop a water trail around the Island.

BEAVER ISLAND WILDLIFE CLUB

The Beaver Island Wildlife Club (BIWC) is one of longest continually active organizations on Beaver Island. For more than 70 years, BIWC has worked to preserve and enhance fish and wildlife habitat throughout the entire Beaver Island Archipelago. Several of the Club's most successful conservation efforts and programs have been in place for many years. For example, BIWC's fish-stocking program has created an excellent walleye fishery in Lake Geneserath. For several years, BIWC worked to reintroduce wild turkeys to the Island. Today, the Island has a robust wild turkey population that is continuously monitored and maintained by Club members. BIWC has worked with the DNR to encourage private landowners to create food plots for both deer and turkey, and to record the annual deer harvest. These collaborative efforts has allowed the DNR and BIWC to make more informed decisions about the management of the deer population on the Island. Recent cooperative efforts with the USDA Wildlife Division resulted in the reduction of double-crested cormorants and the resurgence of smallmouth bass populations on the Island.



Dalwhinnie's Bakery and Deli boasts a large front porch overlooking the harbor.



Paradise Bay Gifts is a souvenir shop and outfitter, providing rentals of bikes, kayaks, and paddling equipment.



Happy Paddle is a rental shop located in the harbor area of St. James. The shop offers recreational equipment and guided tours of the Island.

RECREATIONAL FACILITIES

One purpose of a Master Plan is to inventory the community facilities and amenities that are currently available in order to better plan for the future. While Beaver Island has many natural areas used for rustic tourism such as hiking and fishing, there are a number of more traditional recreational amenities such as playgrounds, ballfields, and parks. Table 5.5 on this and the next page list the recreational facilities included in the draft recreation plans for St. James and Peaine Townships. Maps 5.3 and 5.4 show the locations of the points listed on Table 5.5

RECREATION PLANS

Because St. James and Peaine Townships are recreation-based communities, they have drafted recreation plans to guide the development of public facilities. These plans should be legally adopted and should meet the requirements of the Michigan Department of Natural Resources to qualify the Townships for DNR grant programs.

TABLE 5.5 RECREATIONAL FACILITIES (PART 1 OF 2)

NAME	APPROXIMATE LOCATION AND SIZE	OWNERSHIP	USE	ACCESS
Jewell Gillespie Park	St. James Harbor, nearly 1 acre	St. James Twp	Harbor beach with playground equipment, parking lot, road	Public
Beaver Island Yacht Dock	St. James Harbor, 1 acre	St. James and Peaine Twps	Docks, picnic tables, small building with showers, restrooms, greenspace	Open to boaters; public access
Bud McDonough Ball Field	St. James Harbor, 1.5 acres	St. James Twp	Softball field	Public
Beaver Island Veterans Memorial Park	St. James Harbor, 0.5 acre	St. James Twp; on lease from Wolverine Power	Benches, harbor overlook, monuments, flagpoles	Public
St. James Township Campground	Northern shore, 42 acres	St. James Twp	12 campsites, pit toilets, hand water pump	Public
Font Lake Boat Launch	Northern shore of Font Lake; small strip of lakefront lots across road	St. James Twp and Charlevoix County Road Commission	Boating	Public
Harbor Light Park	St. James Harbor at Whiskey Point, 1 acre	St. James Twp	Beaver Harbor lighthouse, lake frontage	Public
St. James Township Hall	St. James Harbor, 0.25 acre	St. James Twp	Meeting room	Limited
Tennis Courts and Park	West of downtown, 2 acres	St. James Twp	2 tennis courts, 1 picnic table, small park	Public
Vacant Harbor Lot	St. James Harbor, 106 feet of frontage	St. James Twp	Open public space	Public
Donegal Bay or "Sunset Beach"	2 lakefront lots on the western shore	St. James Twp	Greenspace, access to beach	Public
Paradise Bay Park	St. James Harbor, south of ferry dock	St. James Twp	Sitting park, benches, flower garden	Public
Gull Harbor Natural Area	North of St. James Harbor, 14 acres	St. James Twp	Trails, ponds	Public
Heritage Park	Donegal Bay Road near library	St. James Twp; on lease to the BI Historical Society	Outside historical exhibits	Public
Iron Ore Bay	600 feet of lakefront, 22 acres, south end of Island	St. James and Peaine Twps	Beach, picnic table	Public
Marine Museum	St. James Harbor	BI Historical Society	Museum, indoor and outdoor displays	Public
Print Shop Museum	Downtown St. James	BI Historical Society	Indoor displays	Public
Petriz Nature Preserve	27 acres, 500 feet of shoreline	Little Traverse Conservancy	Walking path for access	Public
Beaver Island Community Schools	Harbor area, 2 acres	BI Community Schools	Soccer field, gymnasium, playground	Limited; some public use
BI Community Center	Harbor area, 0.5 acre	Preservation Association of BI	Facility with auditorium, kitchen, game area	Public

Source: Draft recreation plans for St. James Township and Peaine Township

TABLE 5.5 RECREATIONAL FACILITIES (PART 2 OF 2)

NAME	APPROXIMATE LOCATION AND SIZE	OWNERSHIP	USE	ACCESS
Donegal Bay Road Bike Path	Inland, connects from St. James Twp Campground to Gull Harbor Natural Area, 2+ miles	St. James Twp through easement rights on private properties	Asphalt bike path	Public
Boat Launch Site	Gallagher Avenue and Main Street	Charlevoix County Road Commission	Boat ramp	Public
Former DNR Land and Building	St. James Harbor, house and frontage	St. James Twp; formerly Michigan DNR	Maintained by St. James and Peaine Twps and used by County Sheriff	Limited
Peaine Township Hall	Kings Hwy	Peaine Twp	Meeting rooms and kitchen	Meetings, community events
Peaine Township Park and Font Lake Access	Inland, west of Peaine Twp Hall	Peaine Twp	Picnic tables, covered shelter, outhouses, boardwalk to Font Lake	Public
Beaver Island Golf Course	Kings Hwy	Private	9-hole golf course, driving range, club and cart rental	Public; fee
Bill Wagner Campground	East side of Peaine Twp on Lake Michigan, 14.7 acres	Leased by DNR to Peaine Twp	Primitive campsites, outhouses, fire pits, beach access, boat ramp for small boats	Public; camping fee
Beaver Head Lighthouse	South End Road, Peaine Twp, 45 acres	Charlevoix Public schools	52 steps to tower; steps to rocky beach	Public
CMU Biological Station	East Side Drive	Central Michigan University	Beach frontage, trail, guided nature tours	Public
Kuebler Trail	Access on Allen's Lakeview Rd, Sloptown Rd	Private ownership and Little Traverse Conservancy	4 miles of trail, old narrow-gauge railroad bed	Public for hiking
McCauley's Point	South end of Donegal Bay, 0.4 sq mi	DNR	Rocky beach access, shorebird habitat, Pitcher's thistle	Public
Barney's Lake Nature Preserve	Barney's Lake Rd, interior woods and 2,200 feet of lake frontage, 120 acres	Little Traverse Conservancy	Canoe, kayak and rowboat storage; fishing; hiking trail through woods	Public; no hunting or ORVs
Bonner's Bluff State Beach (Bonner's Landing)	At the end of a private road off Sloptown Rd, 0.5 x 0.2 mi	DNR	1,500 feet of public beach on Lake Michigan	Public; access over private land
Miller's Marsh	West Side Drive, 230 acres	Central Michigan University	Diverse ecosystem includes a wetland dominated by sedges, turtles, and a beaver lodge; 1-mile walking trail, picnic table, outhouses	Public
French Bay Road and French Bay South and North	Off of West Side Drive, Peaine Twp, 0.6 x 0.45 mi (South), 0.2 x 0.45 (North)	Part private ownership and part DNR	Trail known for dwarf iris, rocky Lake Michigan bay, 0.45 mi of shoreline	Public
Greene's Lake Public Access	Greene's Lake Rd	DNR	Fishing	Public
Fox Lake Public Access	Fox Lake Rd	Peaine Twp	Inland lake, fishing, kayaking, canoeing, picnic table, outhouse	Public
McFadden's Point	On Greene's Bay, 0.5 x 0.25 mi	DNR	Ecologically important for rare parabolic dunes	Public; access over private land
Oliver's Point	West side off of Mrs. Redding's Trail, 0.5 x 0.4 mi	DNR	Trail to Lake Michigan, public beach, 0.4 mi of shoreline	Public; access over private land
Little Sand Bay	Off of East Side Drive, 60 acres, 1,300 feet of lake frontage	Little Traverse Conservancy	Parking lot, trail, boardwalk, Lake Michigan beach, bench	Public
Martin's Bluff	East Side Drive	DNR	Trail along bluff, picnic table, rope railing to beach below	Public
Lake Geneserath Public Access	Off of East Side Drive, south end of island	DNR	Public boat launch, large fishing lake (489 acres), outhouse, trail	Public
Cable Creek Trail and Cable Bay Beach	0.2 miles of shoreline	DNR	Scenic trail, picnic table, beach, bridge over creek	Public

Source: Draft recreation plans for St. James Township and Peaine Township

“Create a mobile kiosk/booth that could be set up in various towns or events to promote the Island. Keep the Island as it is: an escape from commercialization and hustle and bustle.”

Beaver Island Resident



The Beaver Head Lighthouse and Signal Station is the second Island site registered on the National Register of Historic Places. The Lighthouse's future is uncertain given the recent closure of the Lighthouse School. However, this important site could serve as an additional tourist attraction on the Island if public access and restoration is prioritized.

KEY CHALLENGES IN THIS CHAPTER

The economic challenges on Beaver Island are often related to the Island's reliance on tourism. Changes in the housing market, as well as the regional economy, also have an impact. A short summary of the challenges related to topics described in this chapter is listed below.

MARKETING THE ISLAND

Currently, marketing the Island is primarily handled by the Beaver Island Chamber of Commerce. However, through this planning process, many Island businesses and organizations expressed ideas to market the Island through new avenues such as web and video and with more contributions from other Island organizations.

In order to effectively market the Island, it should be clear who the primary audience is. In other words, who is most likely to come visit Beaver Island? Map 5.5 helps answer part of this question, although more work should be done on this topic. A drive-time assessment is a common way to understand who is most likely to visit a tourism destination. Using Charlevoix as the destination, people living within a 60 minute, 120 minute, and 180 minute drive time were mapped. The journey to Beaver Island from Charlevoix would represent additional time, either 2.5 hours on the ferry or about 20 minutes for a flight. It seems reasonable that a vacationer would be willing to travel about 1-2 hours for a day trip, and longer for a weekend trip. Map 5.5 shows that the population centers of Petoskey and Traverse City are easily within day-trip distance of Beaver Island, while Ludington, Bay City, and parts of the Grand Rapids area are more likely to come for a weekend. Southeast Michigan, where the majority of Michigan's population lives, would be most likely to visit the Island as part of a longer trip. Drive-time assessments don't tell the whole story, but they are a useful way to begin to understand the population that may visit a tourist destination.

Marketing the Island to tourists, outdoor recreation enthusiasts, and families continues to be a challenge for the Island. A number of ideas are included in Chapter 6 for ways to strengthen marketing of the Island.

PUBLIC ACCESS CONFUSION

The ownership of recreational land is another challenge on Beaver Island. Many of the Island's trails are not clearly marked as public (or private), and it is often confusing and unclear for visitors who want to hike or bike the trails. Boat launches, public parks, and other public sites are often not signed, and locations suitable for public parking (especially for boats) are equally unclear. One of the outcomes of this Master Plan is a set of maps describing the public land on the Island, but Island groups and government leaders need to take a leadership

role in creating a comprehensive wayfinding strategy. Many ideas for communicating information to tourists is included in Chapter 6, although not all of these ideas are popular. Creating a kiosk in downtown St. James with clear information on accommodations, recreation amenities, and transportation was particularly controversial, with many Islanders fearing such an addition would change the rural and rustic experience of the Island.

JOB GROWTH

Job growth, especially to support young families, is a continued challenge on the Island. Outside of the service sector, a number of construction jobs, entrepreneurial businesses, and natural-resource jobs such as logging have traditionally helped families work on the Island year-round. Today, jobs in many of these industries have declined, just as they have in the region and the nation as a whole.

Some thoughts have turned to the Island's natural lands and Island culture for new ideas on possible exports for the Island. Artisan foods, furniture, and even alcohol have been discussed in recent years as possibly viable industries. However, new businesses need a supportive environment, and a cohesive effort to attract new business leaders has yet to be sustained on the Island. Chapter 6 contains a number of ideas and partnerships that could be formed to help connect job-seekers and entrepreneurs to opportunities on the Island.

TRAIL PLANNING

Although additional trail development around Beaver Island has been cited as a high priority, questions regarding which organization(s) would be responsible for funding, maintaining and managing the trail systems have been raised. Each of these questions are very important and should be addressed for each trail type (e.g., land, water) before existing trails are improved or additional trails are developed. Several needs identified in this planning process include:

- Maintain and groom trails for particular uses
- Create trailheads and clear markings for tourists looking to access trails
- Better understand and map the public trails available
- Purchase several existing private trails in order to better connect existing public trails
- Protect sensitive landscapes near trails and proposed trail expansions from unwise intensity and type of use
- Accommodate bicyclists through a separated bike path
- Educate tourists on the seasonal conditions of the trails

DETERMINING APPROPRIATE TRAIL CAPACITY

One fundamental question and dilemma that is often cited by land, resource and trail managers is: *How do we determine the maximum amount and type of visitor use that a resource can accommodate while still achieving and maintaining desired*

resource conditions and a visitor experience consistent with the purpose for which the resource was established? In other words, how do we promote and enhance trails on the Island without “killing the goose that lays the golden eggs?” One way to determine if the Island has balanced the needs and activities of all trail stakeholders is to establish and monitor expectations for the trail systems. For example, if solitude is important to Islanders on the trails, periodic assessments could be conducted to count the number of other parties encountered while hiking the Island's trail systems. Trail maintenance could be monitored by counting the number of miles impassable in the spring due to mud, erosion, or other conditions. Trail planning on Beaver Island should begin with a discussion of the type of experience desired on the Island's trails and with the development of a set of indicators that could be used to measure the desired experience.



MAPS IN THIS CHAPTER

The maps for this chapter are included on the following pages. This page provides a brief description of each map, while data sources and other information can be found on each map.

MAP 5.1 TRAILS

This is a working map of existing public trails on Beaver Island, though it may not be complete.



MAP 5.4 RECREATION FACILITIES (DETAIL)

This map shows the recreation facilities in St. James Township's harbor area, as noted in the draft recreation plan for St. James Township.



MAP 5.2 BIRDING TRAIL

This map shows the locations of the Beaver Island Birding Trail stops.



MAP 5.5 DRIVE-TIME ASSESSMENT

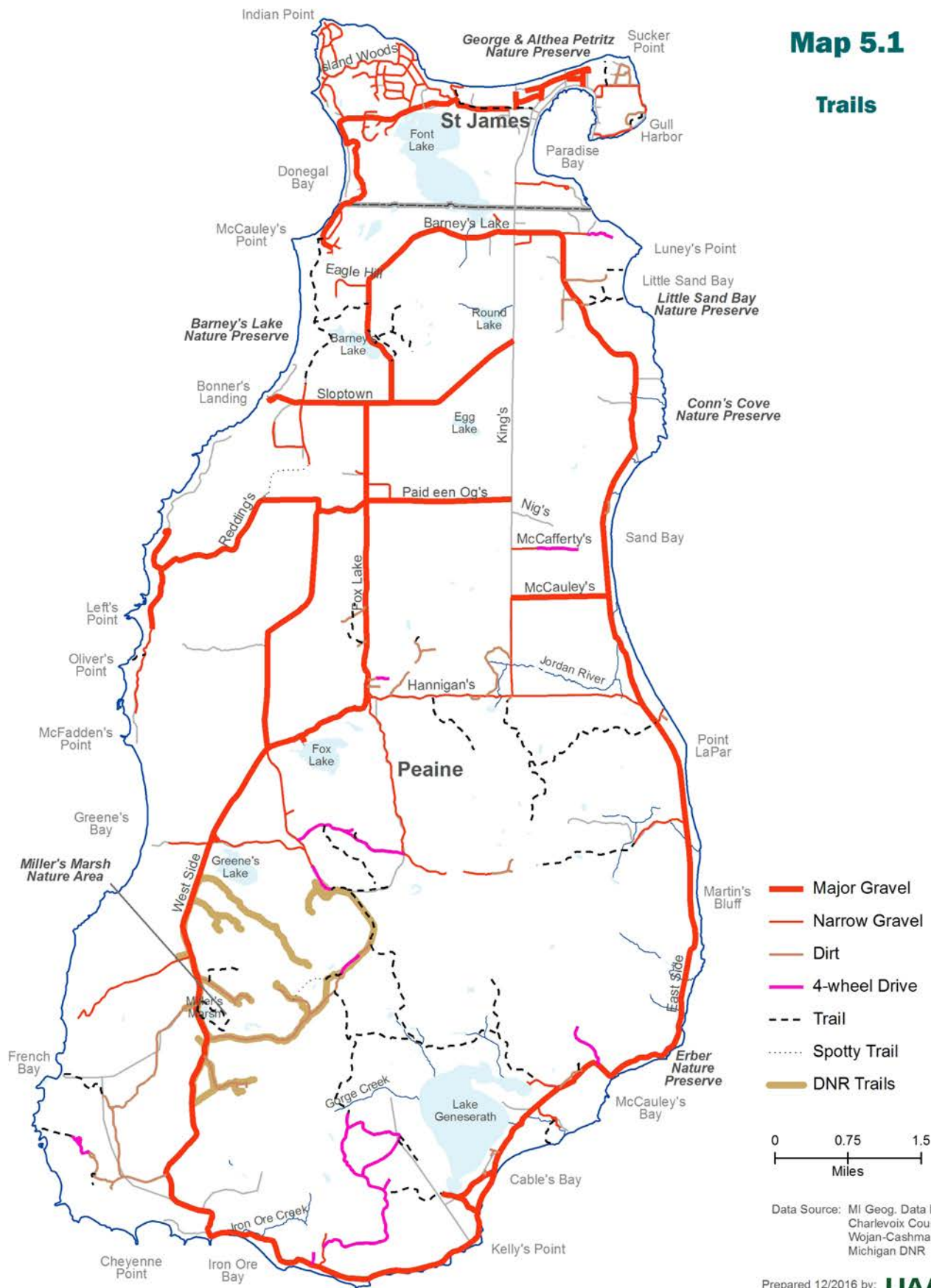
This map shows the areas within a 60, 120, and 180 minute drive of Charlevoix.

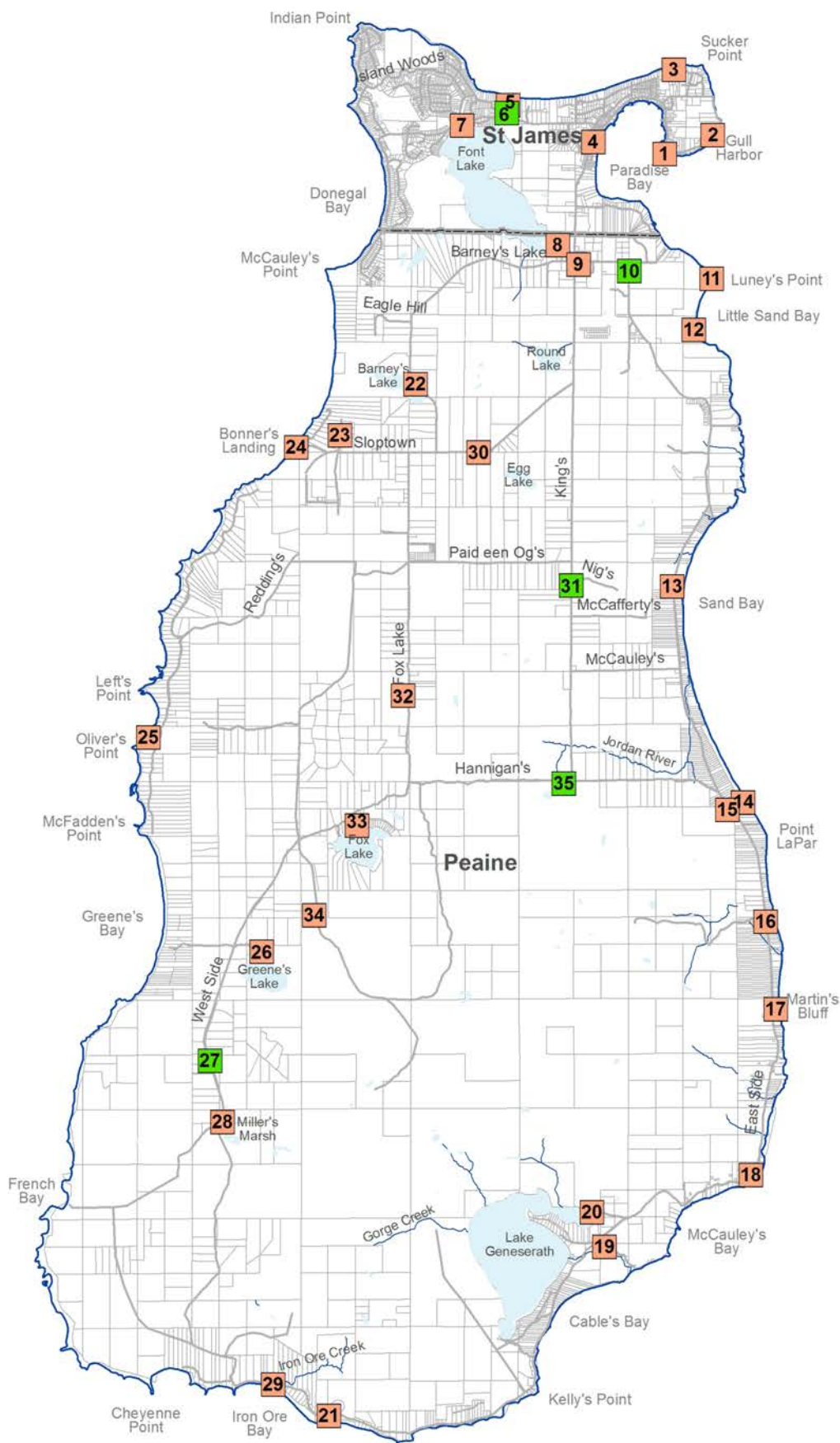


MAP 5.3 RECREATION FACILITIES

This map shows the recreation facilities on the Island as noted in the draft recreation plans for St. James and Peaine Townships.



Map 5.1**Trails**



Map 5.2

Birding Trail

North End Birding Sites

- 1 - Beaver Island Lighthouse
- 2 - Gull Harbor Natural Area
- 3 - George and Althea Petritz Preserve
- 4 - Chimney Swift Tower
- 5 - St. James Township Campground
- 6 - Indian Point
- 7 - Font Lake (Public Boat Launch on Donegal Bay Rd.)
- 8 - Font Lake (Peaine Township Park)
- 9 - Holy Cross Cemetery

East Side Birding Sites

- 10 - "East Side Drive - Bobolink Bend"
- 11 - Luney's Point
- 12 - Little Sand Bay Preserve
- 13 - Paula Simpson Trail / CMU / Old Burke Farm
- 14 - Bill Wagner Campground
- 15 - Seven Bridges Trail
- 16 - Johnny Martin's Trail
- 17 - Martins Bluff
- 18 - Erber Preserve
- 19 - "Cable's Creek Road - Warbler Alley"
- 20 - Lake Geneserath Public Boat Launch
- 21 - Beaver Head Lighthouse

West Side Birding Sites

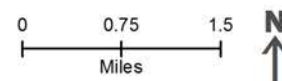
- 22 - Barney's Lake Preserve
- 23 - Protars Tomb / Kuebler Trail
- 24 - Bonner's Bluff Landing
- 25 - Oliver's Point via Mrs. Redding's Trail
- 26 - Greene's Lake
- 27 - Tara's Meadow
- 28 - Miller's Marsh
- 29 - Iron Ore Bay

Central Birding Sites

- 30 - Microwave Tower on Sloptown Road
- 31 - King's Highway Wetland
- 32 - Black Hills Clearing
- 33 - Fox Lake
- 34 - Camp #3 Clear Cut
- 35 - Hannigan's Road

■ Go Out and Explore

■ Observe from Roadside



Data Source: MI Geog. Data Library
Charlevoix County GIS
Beaver Island Birding Trail

Prepared 12/2016 by: **LIAA**

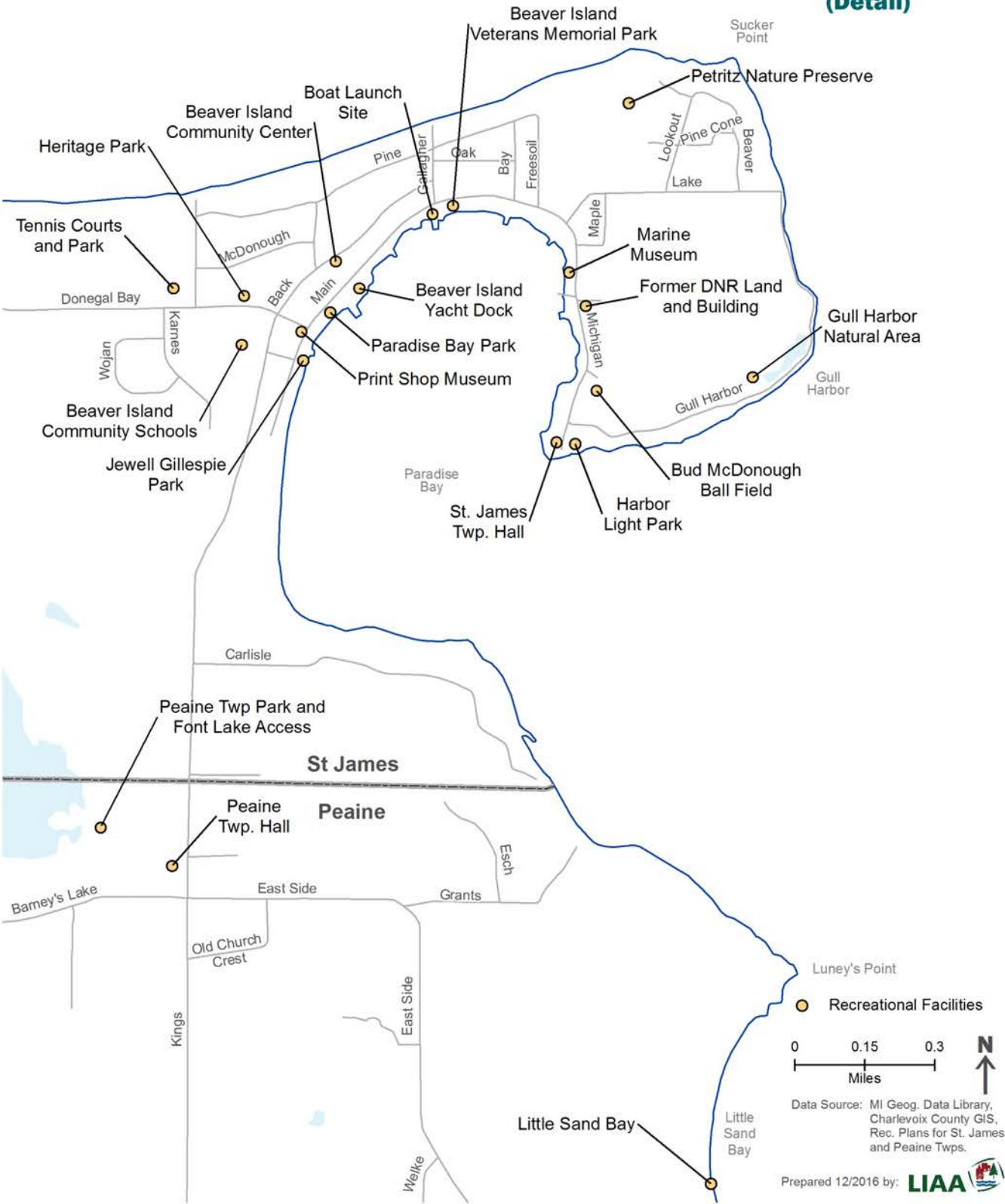
Map 5.3

Recreational Facilities



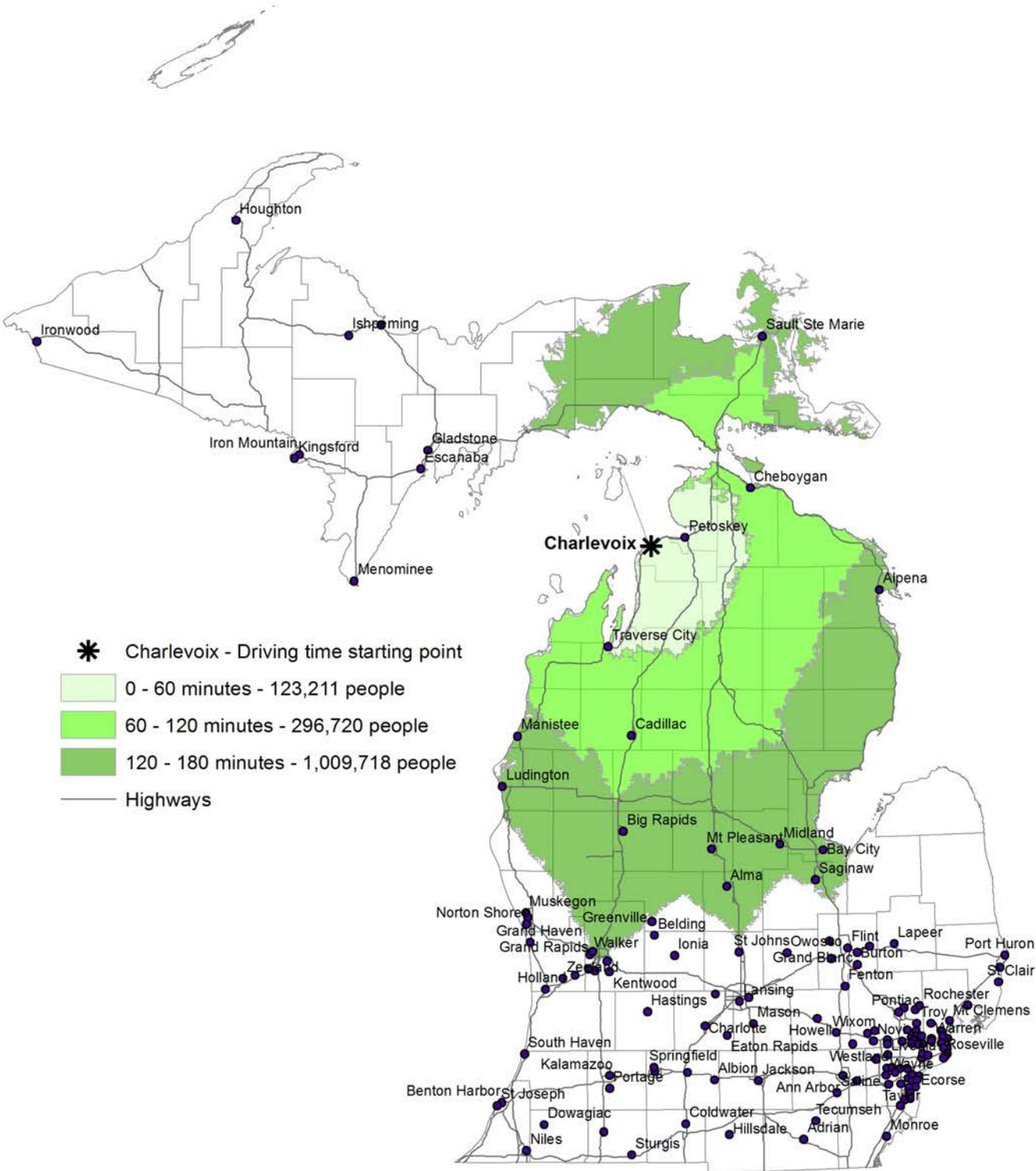
Map 5.4

Recreational Facilities
(Detail)



Map 5.5

Drive Time Assessment



"These Master Plan activities give all residents and seasonal property owners a unique opportunity to [create] the future desired vision for the Island to be used by the township boards, should they choose to use them."

Beaver Island Resident

COMMUNITY SERVICES

IDEAS FOR STRENGTHENING BEAVER ISLAND'S COMMUNITY SERVICES

TRANSPORTATION

James and Peaine Townships should plan together for shared improvements to infrastructure.

Add bike racks to the County transit vehicles.

Explore alternative funding models for managing the Emerald Isle.

Subsidize the cost of getting to and around Beaver Island through fare discounts, travel packages, or coupons.

Improve knowledge of transportation modes for tourists by putting clear information in a kiosk downtown.

Look for opportunities to make the Island more walkable and bikeable.

Work with the Sheriff's office to protect lands that are inappropriate for ORV and snowmobile use.

COMMUNICATIONS

Use the Beaver Island Association's Broadband survey results to identify the community's needs and prioritize funding.

Offer educational forums on the importance of Broadband for local officials and institutions.

Recruit a local grassroots group that is willing to work together to increase Broadband accessibility.

Identify "case study" communities similar to the Island that have increased Broadband access.

Explore fiber optic installation through rural economic development grants.

Inform tourists of the area on the Island that lack cellphone reception.

PUBLIC SERVICES

Obtain new and replacement signage for Township roads.

Explore options to improve the Transfer Station so as to process large metal items, like cars.

Update the sign ordinances in each Township to be legally enforceable.

Provide public trash and recycling cans in the Downtown area, especially near the boat dock.

Continue to support municipal programming at Community

EMERGENCY PLANNING

Reduce the number of flights impaired by bad weather through runway improvements at the public airport.

development in hard-

tions to

CHAPTER 6 ACTION PLAN

This chapter contains an Action Plan for the future of Beaver Island. The Action Plan was developed by Islanders, with actions added online and in person at various meetings throughout 2016. The Action Plan, along with the future land use and zoning plans in the next chapter, serve as the mechanisms for implementing the community's vision for the future of the Island.

PURPOSE OF THE ACTION PLAN

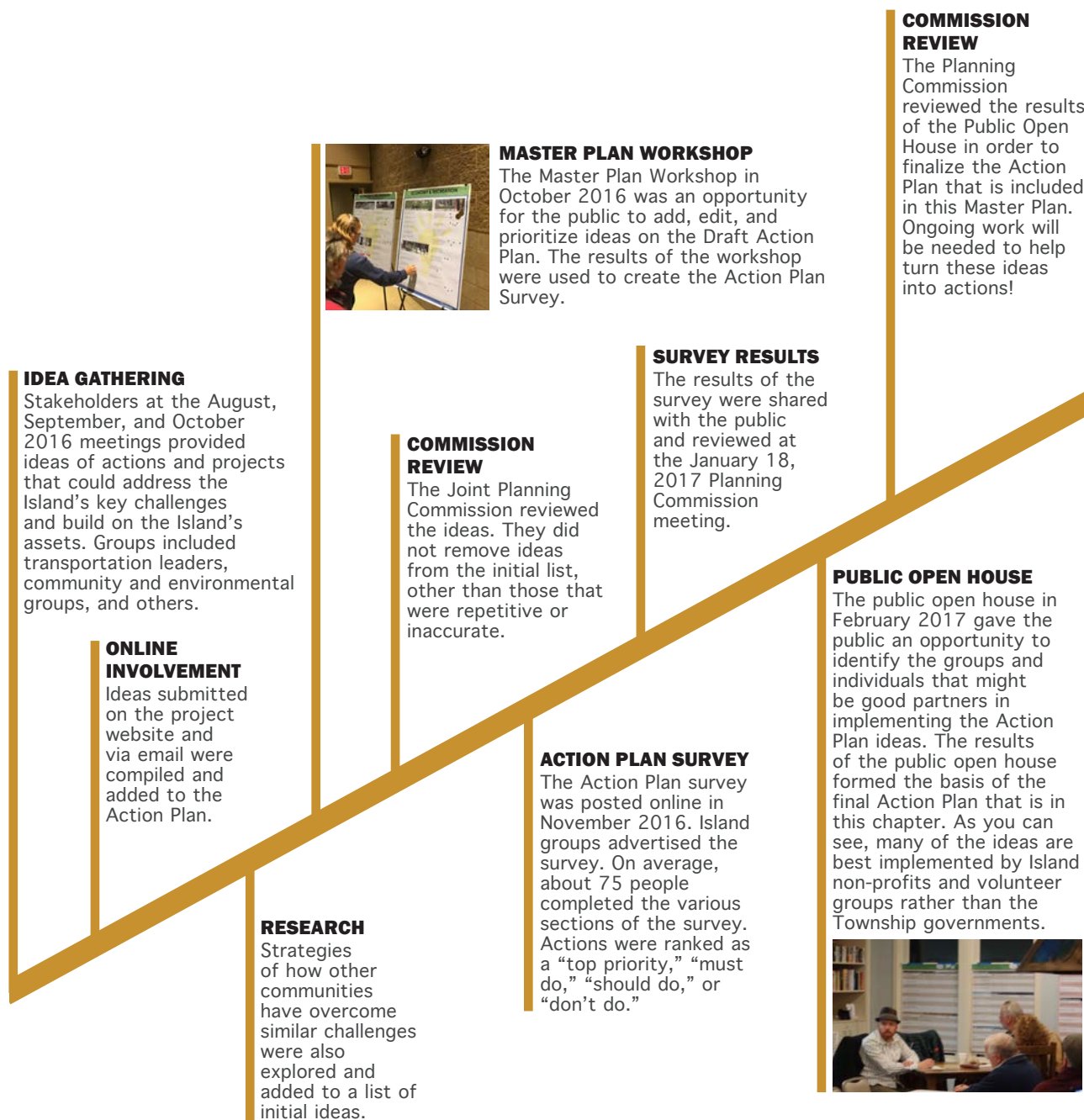
The primary function of this Master Plan is to guide the preservation, development, and enhancements desired by the public on Beaver Island. This Master Plan identifies a vision for the future and a series of guiding principles to be followed when making decisions regarding preservation and development (see Chapter 1). The action steps in this chapter of the Master Plan were written and prioritized by Islanders and are meant to provide guidance for the future planning of Beaver Island.

Islanders frequently cite projects and initiatives that the Island's strong network of both government and non-government groups have led. Many of the Island's most cherished institutions and events are organized, funded and owned by private citizens, non-profit organizations and volunteers. This Action Plan was created to identify how these groups and networks might be able to collaborate with local officials and each other to invest time, research, funding, or other support in order to improve quality of life and the preservation of rural character on the Island. In addition, the Action Plan reflects the data gathered during the Master Plan process. In other words, if implemented, the Action Plan holds promise to help the Island overcome key challenges, and improve the quality of life for current and future generations of Islanders.

This Action Plan was shared widely with the Island and the groups mentioned in this chapter as noted on the timeline on the following page. The Action Plan first lists the ideas that would require direct government leadership in a color-coded table by topic area. The second section of the Action Plan lists ideas that would also require some township or government support, but rely most heavily on community partners to implement.

ACTION PLAN PROCESS TIMELINE

The Action Plan was created as part of the Resilient Beaver Island project. The Action Plan is a crucial piece of the overall Master Plan, as it identifies priority ideas for improving and maintaining quality of life on the Island. The graphic on this page outlines the major steps involved in creating the Action Plan.

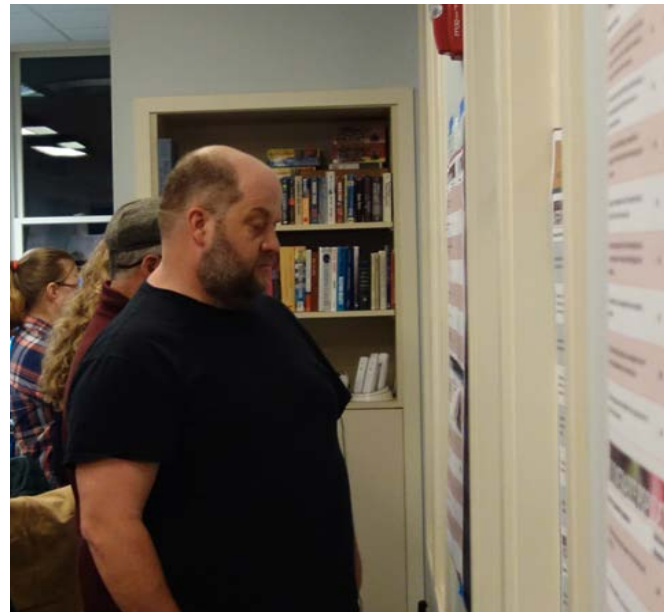


READING THE ACTION PLAN

Each idea submitted by the public was reviewed and discussed by the Joint Planning Commission and the public through the process described on the previous page. The ideas were categorized into topic areas and formatted into the tables and lists included in this chapter.

PARTNERSHIPS

Each idea is given a priority (high, medium, or low) and at least one suggested partner who might be best suited to take the lead on the idea. It is important to note that just because an organization is listed as a possible partner, it does not necessarily mean the organization has committed to take on the responsibility associated with each task. Many of the ideas will require significant time, cost, research and collaboration in order to implement wisely. ***Including an idea in this Action Plan does not commit the government or the partners listed to funding or working on the idea.*** The organizations listed as possible partners are simply suggestions, submitted by citizens, as to who might be best positioned to take on a task or is already working on a task. It is the responsibility of the Joint Planning Commission to continue work on the Action Plan by contacting the various Island groups and initiating the process to determine the most viable path forward to implement the ideas in this plan. Ideas may evolve over time or be found unsuitable for the Island in the future.



Islanders working on the Action Plan at the February 6, 2017 meeting. The purpose of this meeting was to identify the partners that might be best suited to work on the ideas submitted by the public in November 2016.



ACTION PLAN

IDEAS FOR GOVERNMENT ACTION

This Action Plan does not commit the government or the partners listed to funding or working on the idea.

ECONOMY AND RECREATION

Ideas for Paradise Bay	Priority	Timeframe	Possible Partners
a) Improve the boat docks to be more flexible to changes in water levels.	Medium	Medium	Michigan Coastal Zone Management Program; Michigan Small Harbors Coalition; Army Corps of Engineers
b) Build a new public boat ramp/launch and a new fishing pier.	Top	Medium	Michigan Coastal Zone Management Program; Michigan Small Harbors Coalition; Army Corps of Engineers; cruiseship companies; fishing groups; festivals and events such as the Tall Ship Festival
c) Designate areas for public parking for boaters, and install signs to clearly mark the waterfront areas for public use, boater parking, and boat launching.	Medium	Short	St. James Township Planning Commission; St. James Township Board
d) Create conceptual designs for downtown and the harbor area that show what future improvements might look like.	Medium	Medium	St. James Township Planning Commission; Michigan Coastal Zone Management Program
e) Provide directional signs or a kiosk to welcome tourists that arrive downtown, at various beaches, and throughout the Island.	High	Short	St. James Township Planning Commission; Peaine Township Planning Commission; Preservation Association of Beaver Island; Beaver Island Association; Island Institute
f) Make the harbor area even more “charming” with holiday street lights, landscaping, and beautification projects.	Medium	Medium	St. James Township
g) Update the downtown public restrooms.	Medium	Medium	St. James Township; Beaver Island Historical Society
Ideas for Tourism	Priority	Timeframe	Possible Partners
a) Construct showers and improve restrooms at the Township campgrounds.	Medium	Medium	St. James Township; Peaine Township
b) Construct docks on the inland lakes.	Medium	Medium	St. James Township; Peaine Township; Beaver Island Association; Wildlife Club
c) Increase the capacity for tourism by encouraging new hotels/accommodations. This might be through tax abatements for new hotels, incentives for upgrades to existing hotels, and ensuring zoning is not a barrier to new construction.	Low	Long	St. James Township; Peaine Township; Chamber of Commerce; hotel and business owners
d) Create more universally accessible areas for recreation at the beaches, the marina, campgrounds, and in park areas.	Medium	Medium	St. James Township; Peaine Township; Planning Commissions; Michigan Department of Natural Resources; recreational grants through the State of Michigan
Ideas for Trails	Priority	Timeframe	Possible Partners
a) Fund a seasonal position to maintain trails. Maintenance might involve marking, mapping, and grooming trails for their appropriate year-round and seasonal use (ORV, snowmobile, biking, walking, etc.).	Top	Long	St. James Township; Peaine Township; Michigan Department of Natural Resources; Chamber of Commerce; Beaver Island Community School; Wildlife Club
b) Support land acquisition by the MDNR and others to connect existing trails.	Medium	Long	St. James Township; Peaine Township; Little Traverse Conservancy, Tribal Groups, Michigan Department of Natural Resources
c) Create a separated bike path along King’s Highway.	Medium	Long	St. James Township; Peaine Township; Charlevoix County Road Commission
d) Look for ways to accommodate bicyclists through separate paths, bike lanes, and signs where appropriate.	High	Medium	St. James Township; Peaine Township; Planning Commissions; Charlevoix County Road Commission

ACTION PLAN

IDEAS FOR GOVERNMENT ACTION

NATURAL AND CULTURAL RESOURCES			
Ideas for Water Quality	Priority	Timeframe	Possible Partners
a) Require additional inspections of septic systems on private property and of the community septic system in St. James Township.	Medium	Short	Charlevoix County; Planning Commissions; Zoning Administrator; Tip of the Mitt Watershed Council
b) Look for ways to improve existing requirements for a vegetative buffer on properties adjacent to lakes and streams.	High	Short	Planning Commissions; Beaver Island Association; Northern Lake Michigan Islands Collaborative; Michigan Department of Natural Resources
c) Review existing regulations for impervious surfaces permitted on waterfront lots to ensure they are restrictive enough to prevent water quality decline.	High	Short	Planning Commissions
Ideas for Resource Management	Priority	Timeframe	Possible Partners
a) Provide affordable options for removing junk cars and large debris.	Top	Medium	Townships governments; Beaver Island Transfer Station; Beaver Island Transportation Authority; scrapping companies
b) Enforce code violations for blight removal and strengthen code requirements.	High	Medium	Township governments
c) Protect tree canopy near the Island's forested roads.	High	Short	Township governments; Charlevoix County Road Commission
d) Protect air quality through increased dust control.	High	Medium	Township governments; Charlevoix County Road Commission
e) Enforce noise ordinances for fireworks, ORV use, and other loud disturbances.	Medium	Medium	Township governments; Charlevoix County Sheriff
f) Remove beech trees killed by Beech Bark Disease before damage to homes and other trees can occur.	Medium	Medium	Township governments; Michigan Department of Natural Resources; Charlevoix County Road Commission; loggers; property owners
g) Evaluate coastal setbacks and erosion rates to determine where new buildings should be set farther back from the water.	High	Medium	Township governments; Central Michigan University; Michigan Coastal Zone Management Program
h) Provide washing stations for boaters to clean crafts.	Medium	Medium	Township governments; Michigan Coastal Zone Management Program; Tribal groups; Beaver Island Association
i) Protect dunes and beaches with educational signs at public access points.	High	Medium	St. James Township; Peaine Township; Northern Lake Michigan Islands Collaborative; Beaver Island Association; Chamber of Commerce
j) Enforce dark-sky protections to protect nocturnal habitat.	Top	Medium	St. James Township; Peaine Township; Planning Commissions; Northern Lake Michigan Islands Collaborative; Headlands International Dark Sky Park; Beaver Island Association
k) Identify and fix culverts that are damaging fish migration and health.	High	Medium	St. James Township; Peaine Township; Charlevoix County Road Commission; Conservation Resource Alliance; Tribal groups
l) Protect tree canopy, especially near streams and rivers.	High	Short	Planning Commissions; Little Traverse Conservancy; Michigan Department of Natural Resources; Beaver Island Association
m) Manage the marina and near-shore areas for additional fish habitat (no hardened structures that heat water, etc.).	Medium	Medium	St. James Township; Peaine Township; Michigan Department of Natural Resources; marina operator
n) Require that new developments be provided with information about how property owners can protect native species, wildlife, and sensitive landscapes on their property.	Top	Short	Planning Commissions; Beaver Island Association; realtors

ACTION PLAN

IDEAS FOR GOVERNMENT ACTION

HOUSING			
Ideas for Affordability	Priority	Timeframe	Possible Partners
a) Incentivize affordable monthly rentals for those looking to try out life on Beaver Island with little risk.	Medium	Long	Township governments; Beaver Island Association; hotels; realtors
b) Alleviate cost burdens on low-income households by subsidizing housing costs through energy efficiency and home repair programs.	Medium	Long	Township governments; Michigan State Housing Development Authority; Great Lakes Energy; Northwest Michigan Community Action Agency
c) Lower the minimum building size through proactive zoning to enable tiny home development.	Top	Medium	Planning Commissions
d) Designate an area of land for micro-housing. Location should be near existing infrastructure and perhaps on lots unsuitable for traditional development.	Medium	Medium	Construction business owners; Port of St. James Property Owners Association; Beaver Island Association
e) Maintain the quality and appearance of existing subsidized housing.	High	Long	Planning Commissions; Beaver Island Community Development Corporation
f) Start an affordable housing committee endorsed and supported by the Townships.	Medium	Short	Township governments; realtors
g) Explore opportunities to house more labor on the Island, such as a cooperative housing model. This process could start with a town hall meeting with property owners, township officials, and business owners to formulate a plan.	Medium	Medium	Township governments; business owners; property owners; seasonal employees
Ideas for Energy Efficiency	Priority	Timeframe	Possible Partners
a) Encourage private property owners to retrofit homes with local programs.	Medium	Medium	Great Lakes Energy; Northwest Michigan Community Action Agency
b) Allow and incentivize small-scale wind and solar on private property.	Top	Medium	Planning Commissions; Great Lakes Energy; Island Institute
c) Pilot clean-energy projects in public buildings.	High	Long	Township governments; construction business owners; Beaver Island Community School

ACTION PLAN

IDEAS FOR GOVERNMENT ACTION

COMMUNITY SERVICES

Ideas for Emergency Planning	Priority	Timeframe	Possible Partners
a) Reduce the number of flights impaired by bad weather through precision instrument approach improvements at both airports.	Medium	Medium	Township governments; Beaver Island Airport; Fresh Air Aviation; Island Airways
b) Ensure new development in hard-to-reach areas takes steps to reduce fire risk.	Medium	Short	Planning Commissions; Beaver Island Fire Department; Michigan Department of Natural Resources; Michigan Coastal Zone Management Program
c) Ensure Advanced Life Support and Emergency Medical Services are available on the Island.	Top	Short	Township governments; Beaver Island Emergency Services
d) Create a local emergency plan and rehearse existing plan for Island evacuation and sheltering.	Medium	Medium	Township governments; Beaver Island Fire Department; Beaver Island Emergency Services; County Transit; County Emergency Management; County Planning Department; airports; Beaver Island Rural Health Center; Beaver Island Community School
e) Improve communications infrastructure for EMS, including regular community updates and infield access to Internet and communication tools.	High	Medium	Township governments; Charlevoix County; medical providers
Ideas for Transportation	Priority	Timeframe	Possible Partners
a) The two Townships should plan together for improvements to infrastructure with a Joint Capital Improvement Plan.	Top	Medium	Township governments; Charlevoix County
b) Add bike racks to the Charlevoix County Transit vehicles.	Medium	Medium	Township governments; Charlevoix County
c) Explore alternative funding models for managing the Emerald Isle.	Medium	Long	Beaver Island Transportation Authority; Beaver Island Boat Company; St. James Township; Office of the Great Lakes; Northern Michigan Great Lakes Island Collaborative
d) Look for opportunities to make the Island more walkable and bikeable.	High	Long	Township governments; Michigan Department of Natural Resources; recreational clubs
e) Protect lands that are inappropriate for ORV and snowmobile use.	Medium	Medium	Michigan Department of Natural Resources; Charlevoix County Sheriff
f) Obtain funding and modify the ferries to be able to run more frequently (daily or twice daily) through the spring and fall seasons.	Medium	Long	Michigan Department of Transportation; Beaver Island Transportation Authority; Beaver Island Boat Company
g) Explore opportunities to create a deep harbor launch on the Island for easier access by freighters, the US Coast Guard, and cruise ships.	Medium	Long	Island Energies; marina and harbor business leaders; Michigan Department of Transportation; Township governments; Michigan Coastal Zone Management Program; Army Corps of Engineers
Ideas for Public Services	Priority	Timeframe	Possible Partners
a) Explore options to improve the Transfer Station so as to process large metal items, like cars.	Medium	Long	Township governments
b) Update the sign ordinance to be legally enforceable.	Medium	Short	Planning Commissions
c) Provide public trash and recycling cans in the downtown area, especially near the boat dock.	Medium	Medium	Township governments; Transfer Station

ACTION PLAN

IDEAS FOR GOVERNMENT ACTION

LEADERSHIP AND SOCIAL SERVICES

Ideas for Leadership	Priority	Timeframe	Possible Partners
a) Review progress on the Master Plan's goals each year and revisit/revise the Master Plan as needed.	High	Long	Planning Commissions
b) Support the continued work of the Island Institute and the Office of the Great Lakes.	High	Long	Township governments; Preservation Association of Beaver Island; Beaver Island Association
c) Include representatives from all Township boards and commissions in the Northern Lake Michigan Islands Collaborative.	Medium	Medium	Northern Lake Michigan Islands Collaborative
d) Consolidate the two Townships into one township government.	Top	Long	Township governments; Michigan Townships Association; Charlevoix County
e) Require Township boards and commissions to write yearly reports published for community use.	High	Long	Township governments
Ideas for Social Services	Priority	Timeframe	Possible Partners
a) Advocate for increased services for vulnerable populations, such as those requiring in-home senior care.	High	Medium	Township governments; Charlevoix County Commission on Aging; Beaver Island Rural Health Center; medical care providers; Beaver Island Human Services Commission
b) Identify the needs of vulnerable populations like the disabled, low-income, and elderly.	High	Short	Township governments; Charlevoix County; Health Department; Island churches; Beaver Island Human Services Commission
c) Form a neighborhood "buddy network" to help ensure that care is provided to residents who may be isolated, especially in the winter months.	High	Short	Township governments; Charlevoix County; Health Department; Island churches; Beaver Island Human Services Commission
d) Continue to support extracurricular programming at the Beaver Island Community School.	High	Long	Beaver Island Community School; residents and Island non-profits; special interest groups and clubs

ACTION PLAN

IDEAS FOR COMMUNITY ACTION

This section contains ideas that had broad community support in the Action Plan survey but appear to require tremendous support, funding, and leadership from non-governmental groups on or off the Island. The ideas on the previous pages are those that the Township governments would be best suited to lead (with the assistance of other partners); the ideas that follow below could be led by others with the formal support of the Townships (e.g., by submitting a grant application, providing funding, or providing complementary projects or programs).

IDEAS FOR MARKETING

- Undergo a branding process to develop a slogan and logo for the Island.
- Comprehensively market the Island's year-round opportunities.
- Market hunting and fishing on the Island.
- Market the Island toward middle-aged couples and empty nesters, outdoor enthusiasts, professionals who could work remotely via the Internet, young families, and to those looking to host corporate retreats and professional conferences.
- Create an Island office or kiosk in a prominent area of Charlevoix's main street to better promote Beaver Island.
- Subsidize the cost of getting to and around Beaver Island through fare discounts, travel packages, or coupons.
- Improve knowledge of transportation modes for tourists by putting clear information on a kiosk downtown.

MARKETING PARTNERS:

Chamber of Commerce; Preservation Association of Beaver Island; Beaver Island Community Center; all Island businesses; Island Institute; special event groups like Baroque on Beaver and the Beaver Island Music Festival; Pure Michigan; Traverse Magazine.



Beaver Island resident Cynthia Hector helps complete the Action Plan found in this chapter.

ACTION PLAN

IDEAS FOR COMMUNITY ACTION

“A water trail around the island would be amazing! Arm visitors with a rented kayak, a map and various stopping points as they paddle around the Island and they will have a ball.”

Island Resident

“While promoting offseason activities, we have very limited rooms and eating establishments that limit this potential.”

Island Resident

IDEAS FOR TOURISM

- Develop a water trail around the Island with access points and safe refuges for kayakers and paddlers.
- Support the expansion of the Beaver Island Birding Trail, especially in the shoulder seasons of spring and fall.
- Increase access to and quality of fishing.
- Focus on improving tourism experiences in the “shoulder” seasons of spring and fall.
- Assess the quality of visitor experiences through surveys conducted on the boats, planes, and at the Community Center.
- Provide rental options for winter sporting equipment.
- Create winter festivals and events.

TOURISM PARTNERS:

Township governments; Beaver Island Association; Michigan Department of Natural Resources; Northern Lake Michigan Islands Collaborative; Beaver Island Wildlife Club; Beaver Island Chamber of Commerce; Preservation Association of Beaver Island; Happy Paddle; Island Institute.

IDEAS FOR ECONOMIC GROWTH

- Grow and export products such as juniper berries and hops.
- Market and sell agricultural products with a special “Beaver Island” brand.
- Regenerate cranberry bogs on the Island for foraging or agricultural growth.
- Explore opportunities to manage habitat to improve the quality of the hunting experience.
- Program a family camp or summer camp with amenities for family camping.
- Equip entrepreneurs with resources on creating and funding startups, writing business plans, and applying for grants.
- Attract Internet-based businesses to the Island.
- Explore economic ventures that utilize the skilled labor on the Island, such as the exporting of woodworking products, furniture or other artisan products.
- Invest in a technical career center or cooperatively-owned “maker space” on the Island with equipment, skill-sharing, and educational classes.
- Advertise apprenticeship opportunities on the Island with plumbers, carpenters, electricians, and other trade jobs.
- Host an annual workshop or training for those in the hospitality industry.
- Consider opportunities for commercial forest harvest and develop a long-term sustainable forest management plan

BUSINESS AND ECONOMIC GROWTH PARTNERS:

Chamber of Commerce; Northern Lake Michigan Islands Collaborative; Michigan Department of Natural Resources; Wildlife Club; Preservation Association of Beaver Island; churches and religious groups; Michigan Department of Natural Resources; Whiskey Point Brewery; Rotary clubs; Northwest Michigan Industrial Association; Beaver Island Community Schools; Beaver Island Association; existing businesses and special events groups.

ACTION PLAN

IDEAS FOR COMMUNITY ACTION

NATURAL RESOURCES

- Widely share knowledge and data about the water quality of the Island's inland lakes.
- Stock native fish in inland lakes that are more tolerant to warm water as lakes continue to warm.
- Work with MDNR to fund forest adaptation projects, focused on trees most at risk of disease or decline due to climate change.
- Continue to map the locations of invasive species with an understanding of areas more at risk of future infestation.
- Coordinate with the Beaver Island Community School to incorporate environmental education.
- Work with MDNR to assess wildfire risk and identify actions to reduce the risk.
- Survey the archipelago's plant and animal species.
- Monitor and evaluate the impact of deer browse on forest vegetation in a survey area

NATURAL RESOURCE PARTNERS:

Tribal governments; Township governments; Wildlife Club; Michigan Department of Natural Resources; Central Michigan University; Charlevoix County Sheriff; Beaver Island Fire Department; Island Institute; the Nature Conservancy; CAKE Cooperative Invasive Species Management Area; Tip of the Mitt Watershed Council; Conservation Resource Alliance.

CULTURAL RESOURCES

- Secure cultural easements for ceremonies in sacred spaces. A cultural easement is a voluntary legal agreement that preserves culturally or historically significant sites on privately-owned land.
- Review the state-documented cultural resources on the Island and add to the list as needed.
- Inventory historic structures in disrepair and identify priorities for reuse and preservation including the Beaver Head Lighthouse and fog signal building located at the south end of the Island.
- Protect and preserve the lighthouse at the south end of the Island.
- Honor the Island's use by Native Americans and other groups through interpretative, bilingual signage along paths and trails.
- Develop a management plan for the Island's cultural resources.

CULTURAL RESOURCE PARTNERS:

Amik Society; Beaver Island Historical Society; Northern Lake Michigan Islands Collaborative Cultural Subcommittee; Tribal governments; Preservation Association of Beaver Island.



Beaver Island's work to remove invasive Phragmites stands as a national example for how a community can overcome this significant challenge. Ongoing invasive species monitoring and removal was identified as a high priority by Island residents.

ACTION PLAN

IDEAS FOR COMMUNITY ACTION

“Reliable Broadband service is needed for the school, telemedicine, visitor work, recreational assistance, and home based businesses.”

Island Resident

“I think it would be nice to have a small gym on the island, or even more activities at the school. For example, during the summer months, could there be one weeknight for open basketball and another weeknight for pick-up volleyball? Would be a great way to meet more people on the Island and bring the community together.”

Island Resident

INTERNET AND COMMUNICATIONS

- Use the Beaver Island Association’s Broadband Survey results to identify the community’s needs and prioritize funding opportunities.
- Offer educational forums on the importance of broadband for local officials and institutions.
- Recruit a local grassroots group that is willing to work together to increase broadband accessibility.
- Identify case-study communities similar to the Island that have increased their broadband access.
- Explore fiber optic installation through rural economic development grants.
- Inform tourists of the areas on the Island that lack cellphone reception.
- Research opportunities to leverage franchise agreements and other funding mechanisms to increase the quality of services.
- Increase cell phone signal strength and extend coverage.

INTERNET AND COMMUNICATION PARTNERS:

Beaver Island Association; WVBI Radio; Preservation Association of Beaver Island; medical providers; Central Michigan University; Connect Michigan; Chamber of Commerce; Great Lakes Energy; Island Institute.

NON-PROFIT LEADERSHIP AND SOCIAL PROGRAMMING

- Consolidate surveys and current initiatives led by various groups in a common location, accessible to newcomers looking to volunteer their time or resources.
- Provide education on grant writing, conflict resolution, and networking support for government and non-government leaders alike.
- Work to increase communication across Island groups and to create supportive networks for special-events marketing and enrichment opportunities.
- Increase awareness and support of the Beaver Island Food Pantry.
- Increase education about foraging opportunities on the Island.
- Provide childcare options, such as in-home daycare and after-school care.
- Provide pediatric services and women’s services on the Island, such as monthly visits from providers.
- Provide regular programming for children and youth such as weekly dance classes or skill-based activities.
- Create programming to get residents active in sports and exercise, especially in the winter months.
- Invest in fitness equipment and/or a community gym.
- Affiliate the Rural Health Center with a mainland hospital.

NON-PROFIT LEADERSHIP AND SOCIAL PROGRAMMING PARTNERS:

Preservation Association of Beaver Island; WVBI Radio; Beaver Island Community Center; Charlevoix County Community Foundation; Beaver Island Association; Beaver Island Community School; Beaver Island Human Services Commission; Island churches; Beaver Island Food Pantry; Charlevoix County Commission on Aging; Beaver Island Rural Health Center.

ACTION PLAN

IDEAS FOR COMMUNITY ACTION

OTHER IDEAS FOR COMMUNITY DEVELOPMENT

The following list shows the ideas that received more “don’t do” responses than the other priority options. Many of these ideas also had significant numbers of votes ranking them as top, high, or medium priorities. In other words, Islanders likely feel strongly about a number of these topics, and more community discussions are needed before pursuing any action on these ideas.

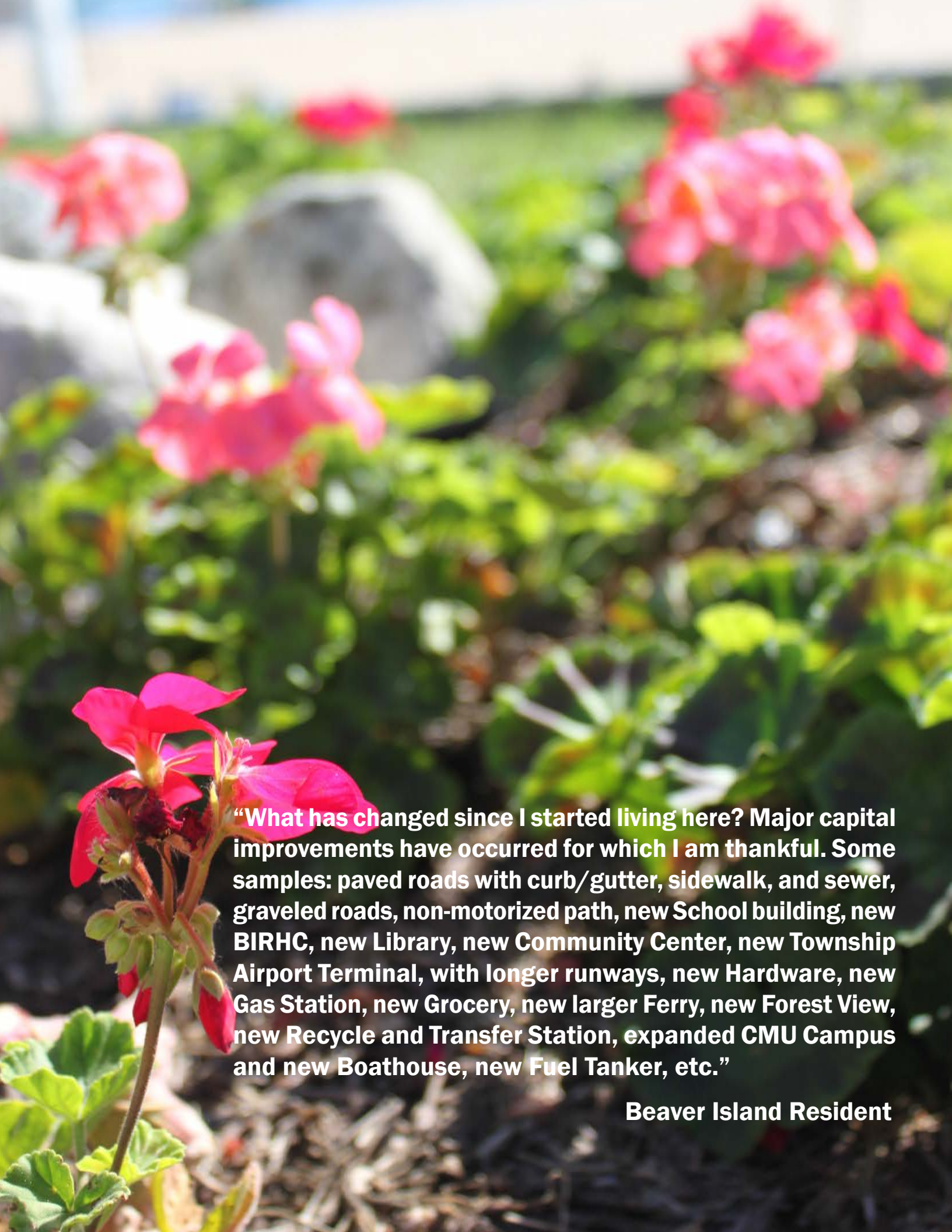
- Increase nightlife on the Island with events and later hours for businesses and restaurants.
- Market the Island specifically toward those looking to “live off the grid.”
- Support sustainable commercial logging on Beaver Island.
- Protect cultural assets through conservation easements (not for public access).
- Obtain new and replacement signage for Township roads.
- Consider the development of a community land trust to ensure long-term affordability of properties even as they sell.
- Hire a full-time Island Manager responsible for managing Joint Township projects and pursuing grant opportunities.

FULL SURVEY RESULTS

The full list of survey results, including the number of responses received for each idea, is included in Appendix A.

This Action Plan was written by the Joint Planning Commission using Island-generated ideas and survey results.



A photograph of a garden with several bright pink flowers in the foreground and background. The flowers are in various stages of bloom, and the background is softly blurred, showing more greenery and a few more pink blossoms. The lighting is bright, suggesting a sunny day.

“What has changed since I started living here? Major capital improvements have occurred for which I am thankful. Some samples: paved roads with curb/gutter, sidewalk, and sewer, graveled roads, non-motorized path, new School building, new BIRHC, new Library, new Community Center, new Township Airport Terminal, with longer runways, new Hardware, new Gas Station, new Grocery, new larger Ferry, new Forest View, new Recycle and Transfer Station, expanded CMU Campus and new Boathouse, new Fuel Tanker, etc.”

Beaver Island Resident

CHAPTER 7

FUTURE LAND USE AND ZONING PLAN

This chapter includes two components legally required to be included in local Master Plans in Michigan: a future land use plan and a zoning plan. Each of these serve to help Beaver Island’s leaders integrate the public’s input into local policies and ordinances.

ABOUT THIS CHAPTER

According to the Michigan Planning Enabling Act, a Master Plan in Michigan must contain a future land use plan and a zoning plan. These are each important tools for taking the public’s input and ensuring it is reflected in the legal ordinances that shape development, environmental protection, transportation, and other policies on the Island. In general, the *future land use plan* depicts the preferred, general composition of land uses and seeks to answer the question, “How should land be used in the future?”

The *zoning plan* is designed to identify amendments to the Peaine and St. James Township Zoning Ordinance that would be supported by the public’s vision identified in this Master Plan.

RELATIONSHIP TO THE MASTER PLAN

The Master Plan describes the Island’s vision for the future, including a vision for the way land is used and developed. As a key component of the Master Plan, the future land use plan is the framework upon which land use and policy decisions should be based.

The zoning plan then identifies areas where existing zoning is inconsistent with the objectives and strategies of the Master Plan. The zoning plan is designed to guide the development of the Zoning Ordinance, based on the recommendations of the Master Plan. As the primary implementation tool for the future development of the Island, the Zoning Ordinance contains written regulations and standards that define how properties in specific geographic zones can be used and how they can look.



The next several pages identify the feature to protect, the characteristics to promote, and the places to build on Beaver Island. The shoreline (left) is an example of a feature to protect, while a view of the water in the St. James Harbor area (above) is a characteristic to promote.

FUTURE LAND USE PLAN

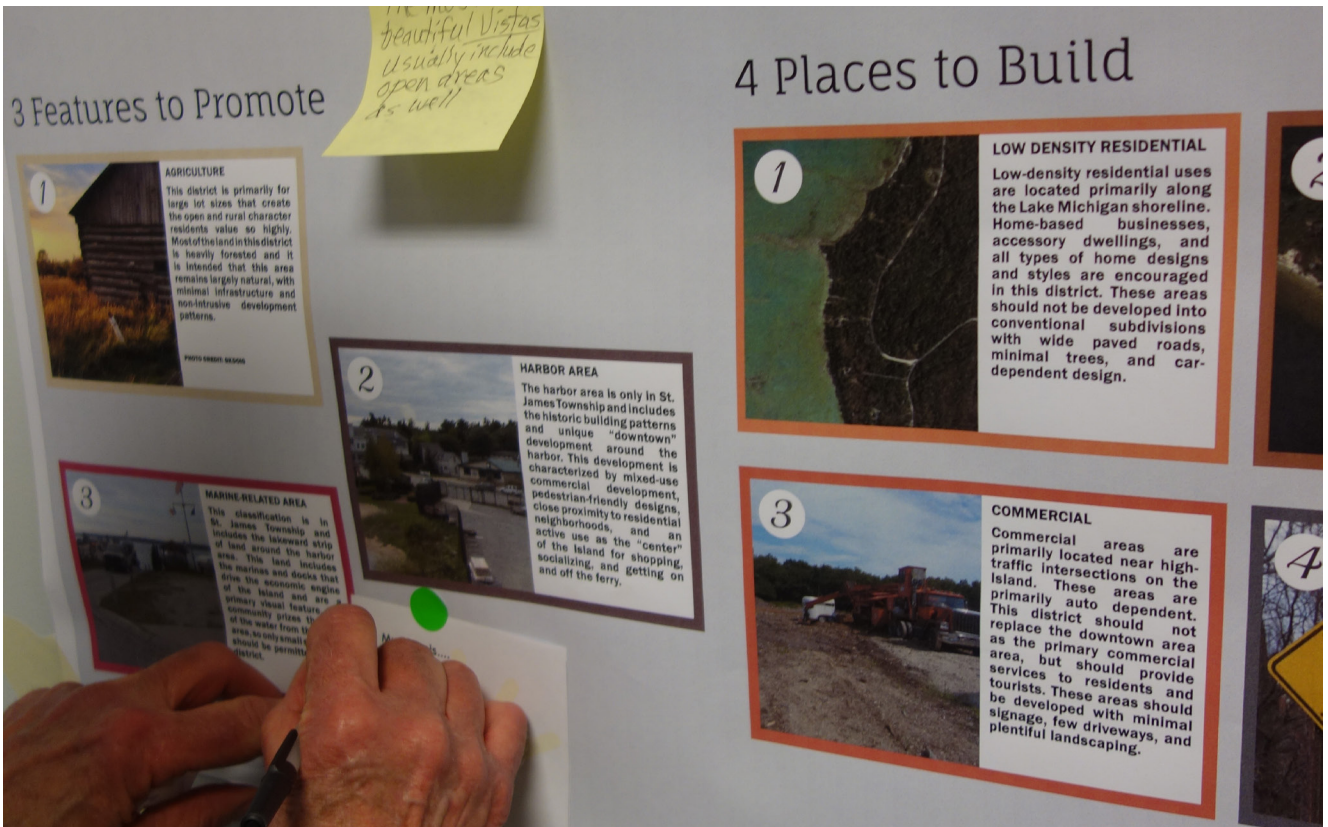
Developing a future land use plan is an important component of any master planning effort. The future land use plan depicts the general preferred organization of land uses in the community. This plan for Beaver Island was developed with careful consideration of several factors, including existing land use patterns, demographic trends, the location of environmental features, desired community character, public input from the planning process, and the availability of utilities and road infrastructure. The future land use plan guides the development of the zoning plan and ultimately influences changes that may be made to the Zoning Ordinance.

There are two key elements to a future land use plan: the future land use map (Maps 7.1), which designates specific land uses that are to occur on certain parcels or areas of the Island; and the future land use text, which defines the map's classifications and summarizes the map's overall purpose.

THEMES OF THE FUTURE LAND USE PLAN

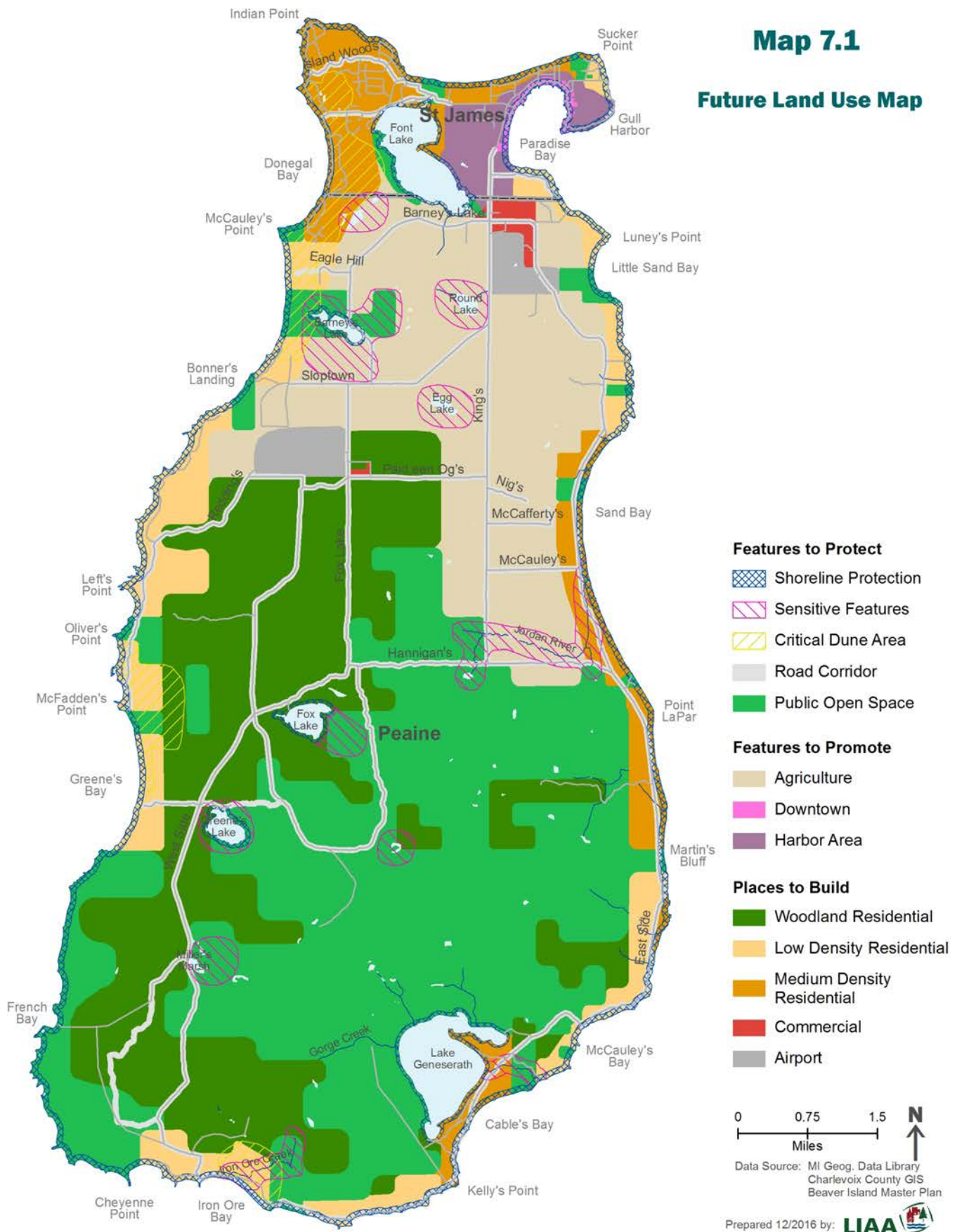
In general, the land use patterns and trends identified in earlier chapters are largely consistent with the way land is currently zoned. The Planning Commissions and Township Boards have done considerable work to ensure that a number of community values — including environmental protection, water quality preservation, and rural character — are reflected in the Zoning Ordinance.

This 2017 Master Plan generally upholds the broad categories identified in the 2006 Master Plan, with some changes to reflect more accurately the way land should be used in the future. The next several pages clearly describe each classification on the future land use map and outline any changes that have been made to the 2006 future land use plan.



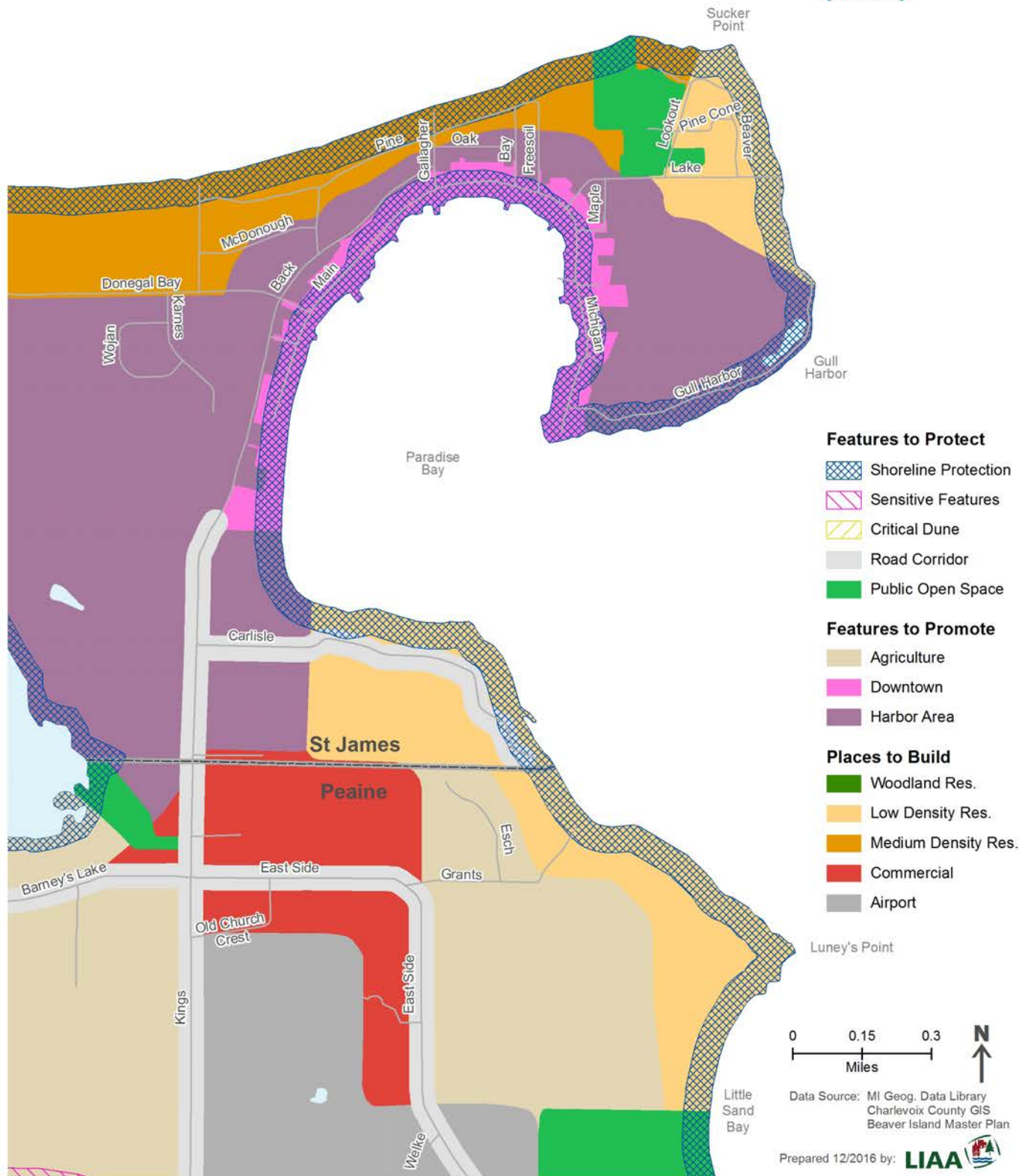
The Future Land Use Plan was created using the public input gathered at the February 6, 2017 open house. Additional public meetings were held with the Joint Planning Commission to create the updated 2017 Future Land Use plan.

Map 7.1
Future Land Use Map



Map 7.2

Future Land Use Map (Detail)



5 FEATURES TO PROTECT

1



SHORELINE

The shoreline includes the land 25-feet landward of the ordinary high water mark of Lake Michigan. Protecting this area from over development and visual degradation will preserve sensitive environmental features, scenic views, and public accessibility to the waterfront.

HOW DO WE PROTECT THE

SHORELINE?

- Keep the existing protections listed in the Zoning Ordinance including a vegetative buffer, a 100-foot setback from the ordinary high water mark line, and limitations on building size and number allowed close to the shoreline.
- Evaluate areas where erosion and coastal flooding are concerns. Possibly increase the setback in these areas.
- Prohibit expansions of seawalls or other shoreline hardening structures.
- Regulate the number of properties that can share a single access point to the water.

PUBLIC OPEN SPACE

Public open space includes publicly-owned land and conservancy lands. Public land on the Island provides many opportunities for residents to recreate and is the cornerstone of the Island's tourism industry.

HOW DO WE PROTECT PUBLIC OPEN SPACE?

- Encourage connections between existing public lands with trails and acquisition. If public land is sold, the Township governments should prioritize the acquisition of public land. This is especially true in light of the Michigan Department of Natural Resources current land consolidation strategy that might allow non-contiguous land to be sold.
- Encourage joint planning for the future of public lands and the maintenance of parks and trails into recreation plans.
- Densities and uses of future development on public lands should be consistent with the area.

2



3



CRITICAL DUNES

Critical dune areas are unique and highly attractive, but are also delicate, fragile ecosystems. Protecting these irreplaceable areas will ensure development in and near the dunes does not cause negative impacts to these sensitive landscapes.

HOW DO WE PROTECT CRITICAL DUNES?

- Encourage public ownership of dunes as land becomes available.
- Work with land conservancies and other groups to protect sensitive areas.
- Stay well-informed on State of Michigan regulations for these areas and be familiar with any potential changes to regulation. As of 2012, this means the Townships cannot enact restrictions on critical dune development that are more restrictive than the State of Michigan's regulatory requirements.

Photo Credit: News on the 'Net



SENSITIVE FEATURES

Sensitive features include a number of areas surrounding the Island's inland lakes and streams such as wetlands, rare forest types, and other fragile ecosystems. Protecting these areas will ensure development does not cause harm to these sensitive areas while protecting the Island's water quality and recreational opportunities.

HOW DO WE PROTECT SENSITIVE FEATURES?

- Create an updated inventory and map of sensitive features
- Work with land owners to place these lands in conservancies in exchange for development rights in other less-sensitive areas.
- Maintain and/or strengthen existing zoning standards, including buffers around sensitive areas and restrictions on building size.
- Determine appropriate intensity and type of recreational uses on these lands.
- Reduce light pollution to encourage dark skies.

ROAD CORRIDORS

The Island's scenic roadways are cited by many as a unique and cherished asset. Protecting these corridors will ensure the view from the road is mostly forested with few to no signs.

Photo Credit: Red Crow Productions

HOW DO WE PROTECT ROAD CORRIDORS?

- Work with loggers to create reasonable and sustainable forestry requirements for replacing downed trees, regulating clearcutting, and screening development.
- Revise the sign regulations in the Township Zoning Ordinance to be legally enforceable and consider aesthetic standards.
- Promote shared driveways to reduce the number of access points along roads.
- Continue requiring deep setbacks from the road.
- Maintain existing Natural Beauty Roads as designated by the State of Michigan. Seek to expand the number of roads with this designation.



3 FEATURES TO PROMOTE

1



AGRICULTURE

The agriculture district includes the land on the Island that is more likely to be farmed due to the presence of tillable land, historic farms, or active farming uses today. This district is intended to encourage agricultural use and preserve larger tracts of land for the reestablishment of agricultural activities and large lot residential development. This district contains much of the open and rural land that residents value. There are a mix of uses in this district including non-intrusive residential, recreational, and community facilities.

HOW DO WE PROMOTE THE AGRICULTURE DISTRICT?

- Maintain existing zoning regulations for large minimum lot sizes and deep setbacks.
- Allow and promote clustering of development to preserve open space and sensitive landscapes.
- Continue to promote home-based businesses in this district and allow for accessory buildings and units.
- Minimize the number of public infrastructure investments made in this area. No significant expansion of infrastructure should be promoted.
- Allow for and encourage roadside stands.

Photo Credit: GKDoig

HARBOR AREA

The harbor area is only in St. James Township and includes the development and developable land within an easy walking distance of downtown. This district is characterized by mixed-use commercial development, pedestrian-friendly designs, and residential neighborhoods. Commercial development in this district should provide services to residents and visitors. Development in this district should compliment downtown's use as a central gathering place for residents and visitors. This district is a little larger than it was in the 2006 Master Plan because what is now designated as the Downtown Area is a little smaller than the Marine-Related Area it replaced.

HOW DO WE PROMOTE THE HARBOR AREA?

- Use flexible parking standards, remove mandatory parking minimums, and designate areas for public and boat parking.
- Encourage the development of land in this district for housing, commercial, and a mix of uses.
- Encourage foot traffic with pedestrian-friendly design.

2



3



DOWNTOWN

Main Street is considered the downtown corridor of Beaver Island, and for many Islanders this stretch is the primary hub for essential goods, services, entertainment, and community activities. The concept of a designated downtown area is derived from the 2006 Master Plan Future Land Use Plan. The Downtown Future Land Use Area includes all parcels that front Main Street, and are differentiated as inland or lakeside harborfront properties.

The downtown area includes historic buildings and building patterns, as well as unique, pedestrian-scaled development around the harbor. The parcels that lay inland of Main Street are characterized by mixed-use commercial development, pedestrian-friendly designs, and residential neighborhoods. It is intended that this development pattern continue and intensify in the future on the harborfront side of Main Street.

Many of the parcels on the lakeside strip of land are used for marinas, docks, and other marine-related infrastructure on St. James Harbor. These uses support the Island's economy and are a primary visual feature of Island life, and particularly welcoming to visitors arriving by boat. Development in this area should be carefully planned and considered to protect scenic views of the water, accentuate the historic downtown character, and prioritize public access and use of the harbor.

HOW DO WE PROMOTE THE DOWNTOWN AREA?

- Develop a community vision for the size, scale, and type of appropriate development and public infrastructure in the downtown through a design charrette that considers the conversion of land uses from marina-related to something else.
- Allow new development on the lakeward side of Michigan Avenue that considers the public's view and access to the water, and that accentuates the area's walkable, downtown character.
- Promote the acquisition of new public lands and the enhancement of existing public lands through signage, dock and launch improvements, and other public projects.
- Prioritize historic preservation in this area. Restrict alterations of historic structures while promoting a lively historic district. To do so, blighted structures need to be demolished or improved.
- Develop standards that retain and enhance the marine-related character of downtown development.
- Use flexible parking standards, remove mandatory parking minimums, and designate areas for public and boat parking.
- Promote residential uses in the second floors of shops and commercial buildings on Michigan Avenue.
- Encourage foot traffic with pedestrian-friendly design.

5 PLACES TO BUILD

1

WOODLAND RESIDENTIAL

This area has the lowest density of residential development of any area on the Island. Most of the land in this district is heavily forested and it is intended that this area remains largely natural, with minimal infrastructure and non-intrusive development patterns. Property owners are permitted to use land in this area for agriculture.

HOW DO WE SUPPORT

WOODLAND RESIDENTIAL AREAS?

- Continue to allow residential development to occur at densities consistent with the Agricultural District in the Zoning Ordinance.
- Identify areas where wildfire risk is a serious concern. Properties within high wildfire risk areas can be encouraged or required to take steps to reduce risk, such as fuel breaks near buildings.

LOW-DENSITY RESIDENTIAL

Low-density residential uses are located primarily along the Lake Michigan shoreline. Home-based businesses, accessory dwellings, and all types of home designs and styles are encouraged in this district. These areas should not be developed into conventional subdivisions with wide paved roads, minimal trees, and car-dependent design.

HOW DO WE SUPPORT LOW-DENSITY AREAS?

- Continue current zoning standards to encourage a mix of amenities in this district, such as parks, preserves, trails, and home-based businesses.
- Encourage cluster development to preserve natural features.

2

3

MEDIUM-DENSITY RESIDENTIAL

The medium-density residential areas are primarily located in St. James and Peaine Township and areas along the Lake Michigan shoreline. This district allows for a greater number of homes per acre. This district should retain a pedestrian-scale design with amenities for bikers and walkers, affordable housing options such as accessory dwelling units, and a mixture of home styles.

HOW DO WE SUPPORT MEDIUM-DENSITY AREAS?

- Encourage connections to trails and other public amenities.
- Continue allowing and encouraging accessory dwelling units. Consider lowering the minimum living area requirement.
- Encourage unique building types and designs.



COMMERCIAL

Commercial areas are primarily located near high-traffic intersections on the Island. These areas are primarily auto dependent. This district should not replace the downtown area as the primary commercial area, but should provide services to residents and tourists. These areas should be developed with minimal signage, few driveways, and plentiful landscaping.

HOW DO WE SUPPORT COMMERCIAL AREAS?

- Require standards for building design, site design, and landscaping to ensure commercial uses fit the aesthetics of the Island.
- Coordinate access and driveways to encourage limited impervious surfaces.
- Promote commercial buildings with multiple uses.
- Support well-planned, concentrated development by limiting the amount of land in this district.

AIRPORT

The airports on Beaver Island provide many essential services. There is primarily rural development near the airports, which is ideal in the future to prevent sprawling development near these commercial hubs. Additionally, the areas near the airports should remain low density and low intensity to remain compatible with the approach of airplanes.

Photo Credit: Tom Hawkins

HOW DO WE SUPPORT AIRPORTS?

- Seek funding for runway improvements that would reduce the number flight impacted by weather.
- Encourage airports to have updated and modern facilities.
- Retain two airports on the Island; a third is not needed at this time.
- Evaluate the existing zoning and land uses near the airport and make adjustments as needed to ensure compatibility. Investigate uses for the areas near the airports that would not conflict with the airport's use. This might include trails or recreational land uses the public could enjoy.





The Marine-Related District is intended to preserve the public's view of the water.



The Public Lands and Facilities District accommodates publicly-owned land such as the Beaver Island Public Library.



The Beaver Island Transfer Station is currently zoned for Industrial use. This district helps ensure that neighboring properties are safe from excessive noise and odor.

ZONING PLAN

The Townships on Beaver Island regulate land use through a jointly adopted Zoning Ordinance. The zoning plan serves as the basis for the Zoning Ordinance in that it depicts the various zoning districts and their use, as well as standards for height, bulk, location, and use of buildings and premises. The zoning plan also identifies changes that should be made to the existing Zoning Ordinance as a result of a master planning process. These can be changes to either the zoning map or the requirements of existing or new zoning districts.

EXISTING ZONING CLASSIFICATIONS

The Michigan Planning Enabling Act requires the zoning plan to inventory the community's existing zoning districts. The following section summarizes the existing zoning districts on Beaver Island. Table 7.1 provides an overview of several key standards for new development in each zoning district. This section is meant to provide a general overview of the Township zoning districts and standards. In order to review zoning definitions, standards, and regulations in full detail, please see the Peaine and St. James Township Zoning Ordinance.

RESIDENTIAL DISTRICTS

A number of uses, most notably home occupations and accessory dwellings, are permitted in the residential districts. There are four residential districts identified in the Zoning Ordinance:

- R-1 Single-Family Residential District — This district provides for a stable and sound low-density residential environment. The regulations of this district encourage proper development of land abutting lakes and waters to avoid pollution and preserve lakefront and waterfront properties. This district is primarily located along the waterfront at the south and west ends of the Island in Peaine Township and on the north side of the Island in St. James Township. Currently, 5.5% of the Island's land is zoned R-1.
- R-2 Single-Family Residential District — This district is similar to R-1 in that it provides for a stable and sound residential environment. The density of development in this district is higher than the R-1 district. The R-2 district is primarily located around the north side of Font Lake, the northeast corner of the Island (near Lookout Point), and along the east side of the Island adjacent to the shoreline. Currently, 4.6% of the Island's land is zoned R-2.
- R-3 Manufactured Home Development District — This district provides for the creation of manufactured home developments. The R-3 district allows for a relatively high density of homes on smaller lots than the other residential districts. However, the standards for development in this district are intended to result in high-quality residential units that would have minimal adverse impacts on the natural environment. There is currently no land on the Island zoned in this district.
- R-4 Multiple Family Residential District — This district is intended to provide for the creation of multiple-family and two-family dwelling units. The Zoning Ordinance regulates the amount of open space, off-street parking, distance between buildings, maximum density permitted, and the maximum lot coverage in order to preserve the natural environment and ensure that development in this district is compatible with nearby residential uses. There is currently no land on the Island zoned in this district.

COMMERCIAL AND INDUSTRIAL DISTRICTS

There are two commercial districts on the Island that support the reasonable expansion of business services, as well as an industrial district.

- **C-1 Resort Commercial District** — This district provides for businesses primarily designed to meet the needs of tourists and the resort industry on Beaver Island. Permitted uses include souvenir shops, restaurants and taverns, excursion businesses, and other uses as listed in the Zoning Ordinance. Residential uses are allowed through a Special Use Permit. Currently, about 7 acres of land is zoned in the C-1 District, including several parcels along Donegal Bay Road and along the north shore of the Island.
- **C-2 General Commercial District** — This zoning district provides for the general commercial needs of the community. In general, C-2 land should be located near existing retail service centers in the rural areas of the Island. In addition to the uses allowed in C-1, the C-2 district allows for automobile sales and repairs, equipment storage, nursery and garden shops, and other uses listed in the Zoning Ordinance. Currently, about 147 acres of land is within this district. This district is primarily located in the “Four Corners” area of the Island, at the intersection of Barney Lake Road and King’s Highway.
- **I Industrial District** — This district accommodates the needs of industrial uses while providing that nearby properties are not exposed to unreasonable noise, dust, vibration, or other negative impacts associated with industrial activities. This district includes, for example, lumber yards, manufacturing facilities, and public utility buildings. Currently, about 12 acres of land is within this district. There is only one parcel zoned within this district currently, and it is located in the “Four Corners” area of the Island.

NATURAL AND RURAL DISTRICTS

There are several districts on the Island that are designed primarily to protect and preserve the natural features that make the Island a unique, rural place to live and visit. These districts include:

- **A Agricultural District** — This zoning district is the largest on the Island, with 45% the Island’s land. While much of this land is not being farmed, the intent of the Agricultural District is to allow for the reestablishment of agricultural uses by preserving large lots. Residential uses are generally permitted in this district, provided they remain at low densities and keep a relatively far distance from the road. Most of Peaine Township’s privately owned land is zoned in this district.
- **PLFD Public Land and Facilities District** — This district is intended to regulate the buildings, land, and uses on properties owned or leased by the Township governments, other government agencies, or public institutions. This includes land such as the Beaver Island Fire Station, the Public Library, and the Michigan Department of Natural Resources Land concentrated in the southern half of the Island. Currently, 36.3% the Island’s land is zoned in this district.



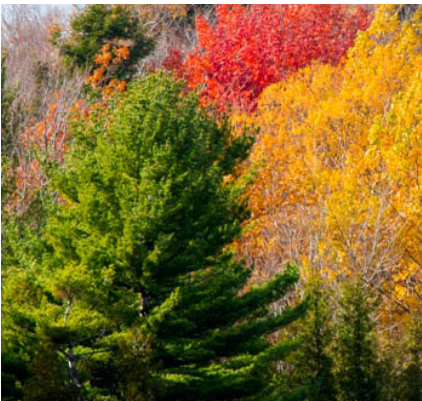
The Beaver Island Lodge is an example of a property within the C-1 Resort Commercial District.



Much of the Island’s land is within the Agricultural District.



The St. James Township Campground is another example of land in the Public Land and Facilities District.



Many of the zoning districts require forested lots to remain mostly forested. This means that homes will continue to be screened from the road, providing the scenic views that many Islanders cherish.

Photo Credit: Tom Hawkins



The Marine-Related District encourages the preservation of the Island's working waterfront, such as the stockyard, boat storage, and marinas.



The Harbor District contains much of the land traditionally thought of as "downtown." The Zoning Ordinance requires that the architectural character of any new development enhances the charming aesthetic of this area.

- **CD Critical Dune District** — This district was created to protect the unique and irreplaceable dune land on Beaver Island. This district is consistent with the State of Michigan's Critical Dune Program that regulates the type of development that is permitted in critical dunes. In general, one single-family house is allowed on each lot in this district, with some provisions for guest houses and other accessory dwellings. Currently, 3% of the Island's land is within this district, primarily located along the northwest shoreline of the Island.

SPECIALIZED DISTRICTS

There are a number of districts on the Island that support specialized uses in unique areas of the Island. Specialized districts include the following:

- **AA Airport District** — This district accommodates the two airports on Beaver Island by regulating the use of airport lands to ensure that any development is compatible with airport uses. This includes land used for airports, runways, terminals, hangars, fueling, and other similar uses. Currently, 1.4% of the Island is within the Airport District.
- **AB Airport Protection District** — This district regulates the type of land uses and development patterns that are compatible with flight paths. Currently, no land on the Island is zoned within this district, although if airports expand in the future, this district could be applied to surrounding land to ensure the safety of the community and prevent hazards related to aircraft operation.

- **MR Marine-Related District** — This district is intended to preserve the historical uses and appearances related to the waterfront in St. James Harbor. Covering the strip of land nearest the water in the harbor area, this district requires that development be related to marine operations, such as fishing, swimming, docking, and sightseeing. One priority within this district is that a view of the water be retained as much as possible from Main Street. Many of the existing retail uses in this district are nonconforming uses. Currently, 12 acres of land is zoned within this district.
- **H Harbor District** — This district promotes the welfare of the harbor area by protecting its mixed-use character, preserving the architectural character of existing structures, and ensuring new development is compatible with the historic character of this district. Commercial uses such as banks, offices, museums, and restaurants are encouraged in this district. A number of residential uses are permitted by right or with the granting of a Special Use Permit. Currently, 321 acres of land is zoned within this district.

OTHER ZONING CONCERNS

The previous pages identify each zoning district on the Island. The Townships on Beaver Island have also accommodated several additional zoning concerns in the Zoning Ordinance. The section is not meant to be fully comprehensive, and more information is available in the Peaine and St. James Townships Zoning Ordinance.



Protecting sensitive coastal landscapes from encroaching properties and development is an important goal of the Zoning Ordinance.



Zoning is one tool that can protect water quality of inland lakes and streams. Water quality was an important concern raised by many Islanders during the master planning process.



Zoning can also help discourage blight and unsightly storage of large debris. Chapter 4 contains an overview of waste management on the Island.

- Currently, properties that abut Lake Michigan must follow additional regulations to ensure properties remain safe from coastal damage and that sensitive coastal ecosystems are adequately buffered from development.
- Those wishing to install a telecommunication tower must comply with additional regulations to ensure the type, size, design, and location will have limited visual impact on the community and not interfere with aviation.
- Those wishing to install an alternative energy wind tower must meet particular restrictions as noted in the Zoning Ordinance. However, these towers are generally encouraged on the Island. Other alternative energy methods are similarly encouraged, and the following section identifies the Joint Planning Commission's goal of incorporating these methods into future zoning amendments.
- Encourage alternative energy through zoning. Allow by right a number of non-intrusive alternative energy installations such as small-scale solar or geothermal. The Joint Planning Commission should work closely with the Building Inspector and Zoning Administrator to identify appropriate changes to ordinances and codes.
- Evaluate the Zoning Ordinance to determine if coastal setbacks are restrictive enough to prevent homeowners from experiencing harm, given the climate trend of increasingly severe coastal storms and increased erosion risk.
- Review the Zoning Ordinance sign regulations to ensure the signage requirements are legally enforceable given changes in federal law.
- Consider the water protection recommendations identified in the 2011 Charlevoix County Local Ordinance Gaps Analysis conducted by the Tip of the Mitt Watershed Council. Possible Zoning Ordinance changes address shoreline protection, impervious surfaces, stormwater control, soil erosion and sedimentation, septic systems, wetlands, and groundwater.
- Develop a community vision for the size, scale, and type of appropriate development and public infrastructure in the downtown through a design charrette.

FUTURE CHANGES TO THE ZONING ORDINANCE

In order to remain consistent with the community's vision for the future of the Island as identified in this Master Plan, and to remain consistent with changes in national and state laws pertaining to zoning, a number of zoning ordinance amendments may be necessary. The following list identifies several opportunities to amend the Peaine and St. James Township Zoning Ordinance to be consistent with the goals and vision set forth in this Master Plan and to be consistent with changes in law.

TABLE 7.1 ZONING DISTRICTS ON BEAVER ISLAND, 2016

ZONING DISTRICT	TOTAL ACRES	MINIMUM LOT SIZE	MAXIMUM DENSITY (UNITS* PER ACRE)	MAXIMUM HEIGHT (FT.)	MINIMUM LIVING AREA (SQ. FT.)	MINIMUM REAR SETBACK (FT.)	MINIMUM SIDE SETBACK (FT.)	MINIMUM FRONT SETBACK (FT.)	MAXIMUM LOT COVERAGE (% OF LOT)
R1 Single Family Residential	2,021	100,00 sq. ft.	0.4	35	768	35	25	35	-
R2 Single Family Residential	1,671	15,000 sq. ft.	2.9	35	600	35	10	25	-
R3 Manufactured Home Development	0	10 acres per park; 5,000 sq. ft. per unit	8.7	35	600	20	10	20	-
R4 Multiple Family Residential	0	-	-	40	500	40	30	40	15
C1 Resort Commercial	7	-	-	35	600	35	10	25	-
C2 General Commercial	147	-	-	35	600	25	10	25	-
I Industrial	12	1 acre	-	40	-	25	20	50	-
A Agricultural	16,284	10 acres	0.1	35	600	100	25	50	-
PLFD Public Land and Facilities	13,276	-	-	35	-	35	10	25	-
AA Airport	502	-	-	25	-	10	10	-	-
AB Airport Protection	0	10 acres	0.1	35	600	100	25	50	-
MR Marine Related	12	-	-	16	-	25	10	25	50
H Harbor	321	10,000 sq. ft.	4.4	40	600	35	10	25	40
CD Critical Dune	1,137	100,000 sq. ft.	-	35	768	35	25	35	10

Source: Peaine and St. James Township Zoning Ordinance, Adopted April 26, 2004

*Density was calculated based on the number of residential units permitted per acre according to the minimum lot size.

Accessory and secondary buildings were not included in the calculation of density.





APPENDIX A ACTION PLAN SURVEY RESULTS

The Action Plan survey was posted online and in various Island locations in November 2016. Around 75 people completed the various sections of the survey including questions on topics like trails, economic development, and government leadership. The survey results were used to create the Action Plan in Chapter 6 of the 2017 Beaver Island Master Plan.

ABOUT THE SURVEY

See Chapter 6 of the 2017 Master Plan for survey methodology and detailed information on the process to create the survey questions.

Ideas for Economy & Recreation

Ideas for Paradise Bay		Total Responses	Must Do	Should Do	Don't Do	Top Priority
a)	Improve the boat docks to be more flexible to changes in water levels.	68	13	35	15	5
b)	Build a new public boat ramp/launch.	67	14	24	16	13
c)	Build a new fishing pier.	72	9	33	23	7
d)	Designate areas for public parking for boaters.	74	13	41	12	8
e)	Clearly mark, with signs, the waterfront areas for public use and boat launching.	79	19	38	10	12
f)	Create conceptual designs for downtown and the harbor that show what future improvements might look like.	71	17	25	19	10
g)	Welcome visitors with a gateway or attractive art installation.	75	16	23	33	3
h)	Provide directional signs or a kiosk to welcome tourists that arrive downtown and at various beaches and throughout the Island.	85	26	18	21	20
i)	Make the Harbor area even more "charming" with holiday street lights, landscaping, and beautification projects.	77	12	27	26	12
j)	Update the downtown public restrooms.	81	24	29	14	14
Ideas for Marketing		Total Responses	Must Do	Should Do	Don't Do	Top Priority
a)	Undergo a branding process to develop a slogan and logo for the Island.	69	20	23	21	5
b)	Comprehensively market the Island's year-round opportunities.	77	25	25	8	19
c)	Market hunting and fishing on the Island.	69	17	22	21	9
d)	Market the Island toward those looking to live "off the grid".	67	9	23	30	5
e)	Market the Island toward middle-aged couples / empty nesters.	68	13	29	16	10
f)	Market the Island toward outdoor sports enthusiasts.	74	28	25	7	14
g)	Market the Island to professionals who could work remotely via the Internet.	78	28	20	9	21
h)	Market opportunities to host corporate retreats and professional conferences.	75	21	23	17	14
i)	Create an Island office or kiosk in a prominent area of Charlevoix's main street to better promote Beaver Island.	71	20	18	18	15
j)	Promote Beaver Island as a great place for families to live.	75	20	21	11	23
Ideas for Tourism		Total Responses	Must Do	Should Do	Don't Do	Top Priority
a)	Construct showers and improve restrooms at the Township campgrounds.	75	22	35	11	7
b)	Develop a Water Trail around the Island with access points and safe refuges for kayakers and paddlers.	74	25	25	5	19
c)	Support the expansion of the Beaver Island Birding Trail, especially in the shoulder seasons of spring and winter.	71	25	27	10	9
d)	Construct docks on the inland lakes.	68	12	27	24	5
e)	Increase access to and quality of fishing.	65	14	31	15	5
f)	Increase the capacity for tourism by encouraging new hotels/accommodations.	63	15	19	17	12
g)	Focus on improving tourism experiences in the "shoulder" seasons of fall and spring.	71	19	27	5	20
h)	Assess the quality of visitor experiences through surveys conducted on the boats, planes, and at the Community Center.	67	20	25	9	13
i)	Increase nightlife on the Island with events and later hours for businesses and food.	64	18	21	21	4
j)	Provide rental options for winter sporting equipment.	66	20	31	11	4
k)	Create winter festivals and events.	67	26	25	14	2
l)	Create more universally accessible areas for recreation at beaches, the marina, campgrounds, and in park areas.	63	17	29	12	5

*Red text indicates a duplicate row.

Ideas for Economy & Recreation					
Ideas for Nature-Based Economy					
	Total Responses	Must Do	Should Do	Don't Do	Top Priority
a) Support sustainable commercial logging on Beaver Island.	66	8	26	29	3
b) Grow and export products such as juniper berries and hops.	67	7	42	11	7
c) Market and sell agricultural products with a special "Beaver Island" brand.	66	11	33	10	12
d) Regenerate cranberry bogs on the Island for foraging or agricultural growth.	67	12	41	10	4
e) Explore opportunities to manage habitat to improve the quality of the hunting experience.	63	8	25	16	14
f) Program a family camp or summer camp with amenities for family camping.	64	14	26	11	13
g) Allow downed or dead wood to be removed for use at homes or campsites.	67	23	25	10	9
Ideas for Trails					
	Total Responses	Must Do	Should Do	Don't Do	Top Priority
a) Fund a seasonal position to maintain trails.	80	17	45	12	6
b) Support land acquisition by the DNR and others to connect existing trails.	78	20	34	12	12
c) Mark, map, and groom trails for their appropriate use (ORV, snowmobile, biking, walking, etc.).	84	29	30	8	17
d) Clearly mark the seasonal conditions of trails on maps and tourist information.	75	21	32	9	13
e) Create a separated bike path along King's Highway.	75	13	26	22	14
f) Look for ways to accommodate bicyclists through separate paths, bike lanes, and signs where appropriate.	78	27	27	15	9
Ideas for Business Growth					
	Total Responses	Must Do	Should Do	Don't Do	Top Priority
a) Equip entrepreneurs with resources on creating and funding startups, writing business plans, and applying for grants.	71	20	26	13	12
b) Attract Internet-based businesses to the Island.	72	23	21	9	19
c) Explore economic ventures that utilize the skilled labor on the Island, such as the exporting of woodworking products, furniture, or other artisan products.	69	22	28	6	13
d) Invest in a technical career center or cooperatively-owned "maker space" on the Island with equipment, skill-sharing, and educational classes.	66	19	27	13	7
e) Advertise apprenticeship opportunities on the Island with plumbers, carpenters, electricians, and other trade jobs.	70	20	32	8	10
<i>f) Assess the quality of visitor experiences through surveys conducted on the boats, planes, and at the Community Center.</i>	64	14	26	9	15
<i>g) Increase nightlife on the Island with events and later hours for businesses and food.</i>	64	15	20	23	6
<i>h) Provide rental options for winter sporting equipment.</i>	67	19	35	9	4
i) Host an annual workshop or training for those in the hospitality industry.	65	19	22	14	10
<i>j) Create winter festivals and events.</i>	69	24	26	11	8

* Red text indicates a duplicate row.

Ideas for Natural and Cultural Resources

Ideas for Water Quality		Total Responses	Must Do	Should Do	Don't Do	Top Priority
a) Require additional inspections of septic systems of private property and the community septic system in St. James Township.		63	13	19	16	15
b) Look for ways to improve existing requirements for a vegetative buffer on properties adjacent to lakes and streams.		60	20	17	13	10
c) Widely share knowledge and data about the water quality of the Island's inland lakes.		63	26	15	6	16
d) Regulate the amount of impervious surface permitted on waterfront lots (i.e., roads, buildings, driveways).		59	21	17	15	6
Ideas for Habitat Protection		Total Responses	Must Do	Should Do	Don't Do	Top Priority
a) Provide washing stations for boaters to clean crafts.		53	15	20	12	6
b) Survey the archipelago's plant and animal species.		57	12	26	10	9
c) Protect dunes and beaches with educational signs at public access points.		60	24	18	9	9
d) Enforce dark sky protections to protect nocturnal habitat.		61	17	17	15	12
e) Identify and fix culverts that are damaging fish migration and health.		59	26	18	7	8
f) Protect tree canopy, especially near streams and rivers.		54	22	16	8	8
g) Manage the marina and near-shore areas for additional fish habitat.		53	19	20	10	4
h) Require that new developments are provided educational materials about how private property owners can protect native plants, animals, and preserve the environment on their land.		58	15	20	10	13
Ideas for Resource Management		Total Responses	Must Do	Should Do	Don't Do	Top Priority
a) Provide affordable options for removing junk cars and large debris.		63	21	20	1	21
b) Enforce code violations for blight removal and strengthen code requirements.		64	29	8	8	19
c) Protect tree canopy near the Island's Forest Roads.		60	24	18	8	10
d) Protect air quality through increased dust control.		55	20	24	4	7
e) Enforce noise ordinances for fireworks, ORV use, and other loud disturbances.		55	13	17	11	14
f) Remove beech trees killed by Beech Bark Disease before damage to homes and other trees can occur.		56	13	26	12	5
g) Evaluate coastal setbacks and erosion rates to determine where new buildings should be set farther back from the water.		59	17	16	12	14
Ideas for Climate Adaptation		Total Responses	Must Do	Should Do	Don't Do	Top Priority
a) Stock native fish in inland lakes that are more tolerant to warm water as lakes continue to warm.		57	9	32	14	2
b) Work with DNR to fund forest adaptation projects, focused on trees most at risk of disease or decline due to climate change.		58	20	20	10	8
c) Continue to map the locations of invasive species with an understanding of areas more at risk to future infestation.		62	22	19	5	16
d) Coordinate with the Beaver Island Community School to incorporate environmental education.		63	23	22	6	12
e) Work with DNR to assess wildfire risk and identify actions to reduce the risk.		63	17	25	7	14
Ideas for Cultural Resources		Total Responses	Must Do	Should Do	Don't Do	Top Priority
a) Secure cultural easements for ceremonies in sacred spaces. A cultural easement is a voluntary legal agreement that preserve cultural or historically significant sites on privately owned land.		56	14	25	11	6
b) Review the state-documented cultural resources on the Island and add to them as needed.		61	14	33	11	3
c) Protect cultural assets through conservation easements (not for public access).		52	13	16	20	3
d) Inventory historic structures in disrepair and identify priorities for reuse and preservation.		62	22	23	7	10
e) Protect and preserve the lighthouse at the south end of the Island.		63	24	10	0	29
f) Honor the Island's use by Native Americans and other groups through interpretative, bilingual signage along paths and trails.		56	15	20	16	5
g) Develop a management plan for the Island's cultural resources.		58	15	17	11	15

Ideas for Housing						
Ideas for Affordability						
a) Incentivize affordable monthly rentals for those looking to try out life on Beaver Island with little risk.	Total Responses	Must Do	Should Do	Don't Do	Top Priority	
	61	12	25	16	8	
b) Alleviate cost burdens on low-income households by subsidizing housing costs through energy efficiency and home repair programs.	64	19	26	15	4	
c) Lower the minimum building size through proactive zoning to enable tiny-home development.	69	10	24	11	24	
d) Designate an area of land for micro-housing. Location should be near existing infrastructure and perhaps on lots unsuitable for traditional development.	63	10	23	19	11	
e) Consider development of a community land trust to ensure the long-term affordability of properties even as they sell.	49	8	19	21	1	
f) Maintain the quality and appearance of existing subsidized housing.	64	26	23	11	4	
g) Start an affordable housing committee endorsed and supported by the townships.	63	18	24	15	6	
Ideas for Seasonal Housing						
a) Explore cooperative models to maintain and care for rental properties designed for summer laborers.	Total Responses	Must Do	Should Do	Don't Do	Top Priority	
	56	14	27	11	4	
b) Research opportunities to house more summer labor on the Island.	60	13	27	9	11	
c) Encourage additional lodging and accommodations on the Island.	55	15	16	12	12	
Ideas for Energy Efficiency						
a) Encourage private property owners to retrofit homes with local programs.	Total Responses	Must Do	Should Do	Don't Do	Top Priority	
	53	16	20	12	5	
b) Allow and incentivize small-scale wind and solar on private property.	61	17	17	10	17	
c) Pilot clean-energy projects in public buildings.	57	20	18	7	12	

Ideas for Community Services						
Ideas for Transportation						
a) St. James and Peaine Townships should plan together for shared improvements to infrastructure.	Total Responses	Must Do	Should Do	Don't Do	Top Priority	
	67	23	16	3		25
b) Add bike racks to the County Transit vehicles.	58	16	34	6		2
c) Explore alternative funding models for managing the Emerald Isle.	56	19	21	9		7
d) Subsidize the cost of getting to and around Beaver Island through fare discounts, travel packages, or coupons.	63	16	21	12		14
e) Improve knowledge of transportation modes for tourists by putting clear information in a kiosk downtown.	64	21	23	8		12
f) Look for opportunities to make the island more walkable and bikeable.	66	28	15	7		16
g) Work with the Sheriff's office to protect lands that are inappropriate for ORV and snowmobile use.	69	16	25	12		16
h) Obtain funding and modify the ferries to be able to run more frequently (daily or twice daily) through the spring and fall season.	60	13	22	18		7
Ideas for Emergency Planning						
a) Reduce the number of flights impaired by bad weather through runway improvements at the public airport.	Total Responses	Must Do	Should Do	Don't Do	Top Priority	
	53	9	23	16		5
b) Ensure new development in hard-to-reach areas takes steps to reduce fire risk.	49	16	18	13		2
c) Ensure Advanced Life Support services are available on the island.	62	12	7	6		37
d) Rehearse the Emergency Plan for island evacuation and sheltering.	53	20	21	7		5
e) Develop a new Disaster/Emergency Plan for the island.	55	21	22	7		5
f) Ensure EMS services remain on the island.	62	19	7	5		31
g) Improve communications infrastructure for EMS. This includes providing regular community updates and infield access.	55	19	16	6		14
Ideas for Communications						
a) Use the Beaver Island Association's Broadband survey results to identify the community's needs and prioritize funding.	Total Responses	Must Do	Should Do	Don't Do	Top Priority	
	59	20	18	7		14
b) Offer educational forums on the importance of Broadband for local officials and institutions.	54	18	19	10		7
c) Recruit a local grassroots group that is willing to work together to increase Broadband accessibility.	56	18	18	5		15
d) Identify "case study" communities similar to the island that have increased Broadband access.	60	28	17	7		8
e) Explore fiber optic installation through rural economic development grants.	60	22	14	7		17
f) Inform tourists of the areas on the island that lack cellphone reception.	54	15	21	12		6
g) Increase cell phone signal strength and extend coverage	66	17	8	5		36
Ideas for Public Services						
a) Obtain new and replacement signage for Township roads.	Total Responses	Must Do	Should Do	Don't Do	Top Priority	
	53	9	18	22		4
b) Explore options to improve the Transfer Station so as to process large metal items, like cars.	61	11	30	11		9
c) Update the sign ordinances in each Township to be legally enforceable.	55	10	25	19		1
d) Provide public trash and recycling cans in the Downtown area, especially near the boat dock.	62	19	27	6		10
e) Continue to support extracurricular programming at the Beaver Island Community School.	59	23	21	7		8

Ideas for Social Services and Leadership					
Ideas for Leadership					
	Total Responses	Must Do	Should Do	Don't Do	Top Priority
a) Consolidate surveys and current initiatives led by various groups in a common location, accessible to newcomers looking to volunteer their time or resources.	62	27	28	6	1
b) Prioritize, instead of replicate, projects led by non-governmental groups on the Island. Do this in an inclusive manner, perhaps facilitated by an outside party.	61	32	19	9	1
c) Provide education on grant writing, conflict resolution, and networking support for government and non-government leaders alike.	59	23	24	7	5
d) Hire a full-time Island Manager, responsible for management of joint Township projects and pursuit of grant opportunities.	58	14	12	18	14
e) Support the continued work of the Island Institute through the Office of the Great Lakes.	53	18	17	8	10
f) Include representatives from all Township boards and commissions in the Northwest Michigan Island Collaborative.	34		21	10	3
g) Consolidate the two Townships into one Township government.	67	10	8	13	36
h) Require Township Boards and Commissions to write yearly reports published for community use.	59	29	9	7	14
i) Review progress on the Master Plan's goals yearly and revisit/revise as needed.	66	32	14	5	15
Ideas for Vulnerable Populations					
	Total Responses	Must Do	Should Do	Don't Do	Top Priority
a) Increase awareness and support of the Beaver Island Food Pantry.	64	27	29	7	1
b) Increase availability and funding of in-home senior care.	68	29	17	6	16
c) Increase education about foraging opportunities on the Island.	58	14	25	17	2
d) Identify the needs of vulnerable populations like the disabled, low-income, and elderly.	65	23	23	6	13
e) Form a neighborhood "buddy network" to help ensure that care is provided to residents who may be isolated, especially in the winter months.	65	27	23	4	11
Ideas for Family Support					
	Total Responses	Must Do	Should Do	Don't Do	Top Priority
a) Provide childcare options, such as in-home daycare and after-school care.	61	15	35	9	2
b) Provide pediatric services and women's services on the Island, such as monthly visits from providers.	65	20	34	5	6
c) Provide regular programming for children and youth such as weekly dance classes or skill-based activities.	64	17	32	11	4
d) Create programming to get residents active in sports and exercise, especially in the winter months.	66	16	33	9	8
e) Invest in recreational equipment and/or a community gym.	62	14	26	11	11
f) Affiliate the Rural Health Center with a mainland hospital.	59	22	7	5	25

