

Chapter 3 CURRENT CONDITIONS



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This chapter presents information on the characteristics of land, natural features and buildings in Glen Arbor Township. It is based in part on the General Characteristics section in the 1984 Plan, but contains updates and additional information.

Land

Overview

Glen Arbor Township consists of a total area of land and inland lakes, rivers and streams of approximately 39 square miles (24,960 acres). Of this, South Manitou Island is 5,286 acres and rests about 6 miles from the closest mainland point and for most people is accessed by ferry from Leland. The Sleeping Bear Dunes National Lakeshore accounts for 75 percent of the area, (and includes South Manitou Island) and Big and Little Glen Lakes another 17 percent. The privately owned land area of the Township amounts to only about 3,800 acres (almost six square miles).

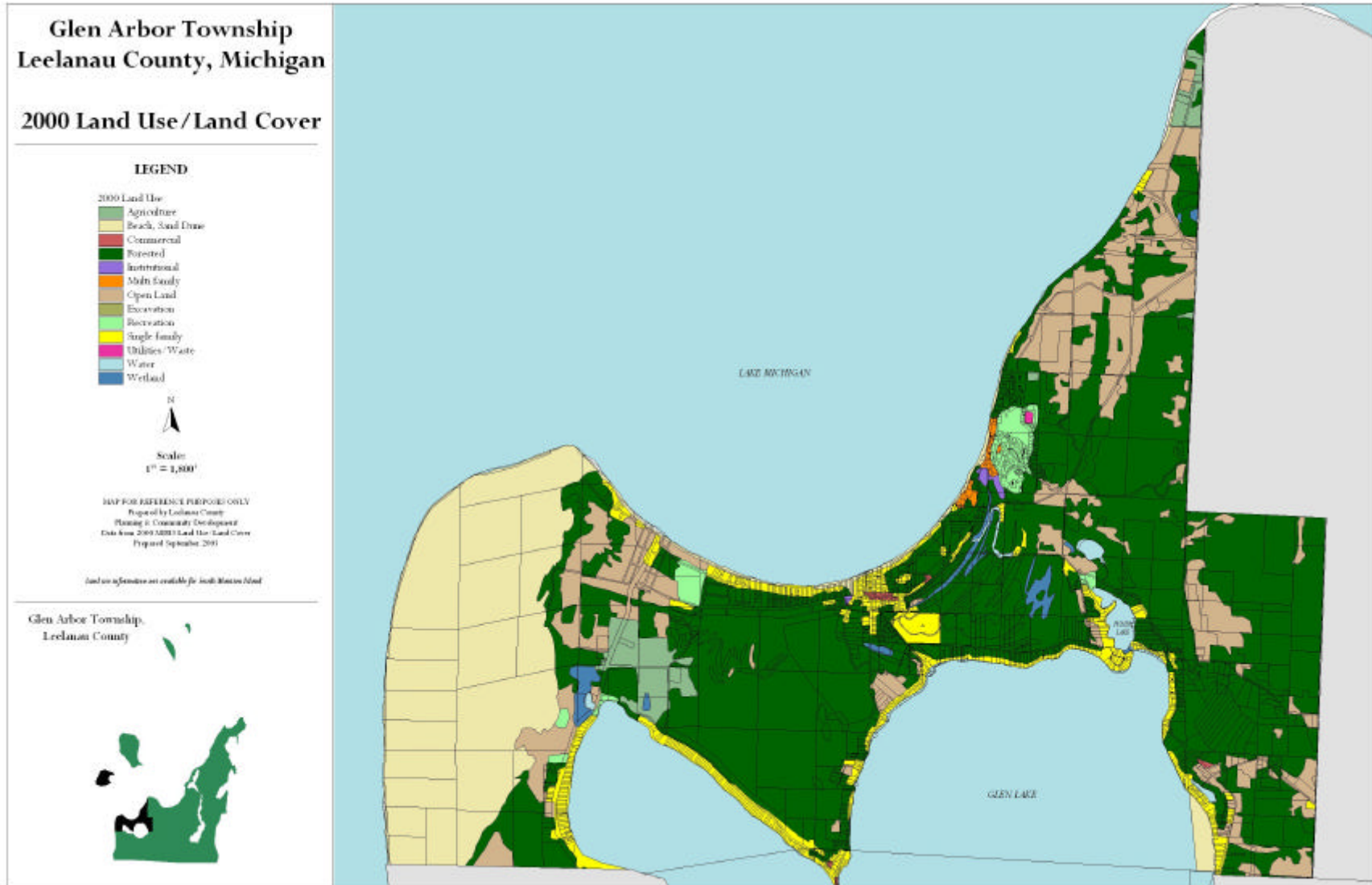
The characteristics that are most representative of the Township include the waterfronts of Glen Lake and Lake Michigan, the Sleeping Bear Dunes, the Crystal River, high hills and steep hillsides and the extensive tree vegetation. These natural features have influenced the major land use patterns in the Township. Residential development is most evident around the Glen Lakes, Fisher Lakes, Lake Michigan, and on high hills, while Glen Arbor village, the Homestead and the Leelanau School are the only concentrations of development. As elsewhere, residential development is attracted to the waterfront for the visual beauty, recreation and serenity associated with it.

Land Use/Cover

Map 3-1, Land Use/Cover shows categories of land use and vegetation cover in 2000. Table 3-1 shows the acres for each category of land use and cover in both 1990 (when the previous land use/cover map was prepared) and 2000.

Table 3-2 shows the change in land use/cover between 1990 and 2000. Notable changes include the conversion of about 60 acres from various undeveloped categories to residential use between 1990 and 2000, and the conversion of a net 270 acres from active agriculture to open, unfarmed land.

Map 3-1 Land Use/Cover (Note: Land use/cover information not available for South Manitou Island)



Source: Leelanau County Planning Department

Table 3-1 Land Use/Cover 1990 and 2000

Land Use/Cover Category	1990 Acres	2000 Acres	Change in Acres
Agriculture	545	280	-265
Beach/Dune	2,671	2,671	
Commercial	18	18	
Forested	6,936	6,901	-35
Institutional	17	17	
Multi-family	31	31	
Open Land	1,874	1,951	77
Recreation	77	203	126
Single Family	690	752	62
Utilities/Waste Disposal	4	4	
Water	6,348	6,348	
Wetlands	96	131	35
Total	19,305	19,305	

Notes:

- Land Use/Cover map numbers based on analysis by the Land Information Access Association
- S Manitou (5,286 acres) was not included in this table as no land use/cover information was available.
- Note that the area for water in Table 3-1 includes all of Big and Little Glen Lakes, although those lakes cross jurisdiction boundaries. Therefore, the total acres for Glen Arbor Township in the table is greater than actual and does not match the acres in Table 3-3, Land Use by Tax Class by Parcel. The total area in Table 3-3 is less than actual because the area in lakes and road rights-of-way are not included.

Table 3-2 Land Use/Cover Conversion 1990-2000

Land Use/Cover Category Conversion	Acres
Agriculture to Open Land	477
Forested to Recreational	3
Forested to Single Family Residential	58
Forested to Wetlands	35
Forested to Open Land	1
Open Land to Ag	206
Open Land to Recreation	127
Open Land to Forested	62
Recreation to Single Family	3

Note: Larger copies of the maps in this Chapter are available for public inspection at the Glen Arbor Township Hall.

Land Use by Tax Class

Map 3-2 shows land use by the classifications used by the tax assessor. This information is different than that in Map 3-1, Land Use/Cover, in that it helps to indicate the potential or lack of potential for development. For example, the Land Use/Cover Map shows large areas of undeveloped woodland in the eastern part of the Township that are classified (as shown on Map 3-2, Land Use by Tax Class by Parcel) as residential for tax purposes, and which could be developed in the future. It is helpful for a community to know how much land of different tax classifications there are and where they are in order to plan for infrastructure, public services and associated land uses, such as commercial land to serve residential development.

The tax classifications include agriculture, residential, commercial, and exempt (publicly owned or other lands not required to pay property taxes, such as federal, state, county and Township-owned lands). The total acres and percentages by tax class are depicted on Table 3-3.

There are only two parcels classified as agricultural with a total of 2 acres in size. The largest tax class is tax exempt land which is about 79% of the total land in the Township (not counting lakes and road ROW – 13,836 acres). The overwhelming bulk of this land is in the National Lakeshore. Residential tax class is second at 3,518 acres. Commercial (128 acres) properties exist in the village area, at the Homestead and at a few other scattered locations (mostly marinas and motels).

Table 3-3 Land Use by Tax Class in Acres

Tax Class Category	Acres	% Total
Residential	3,518	20.1%
Commercial	128	0.7%
Agricultural	2	0.01%
Tax Exempt	13,836	79.1%
Total	17,483	99.91%

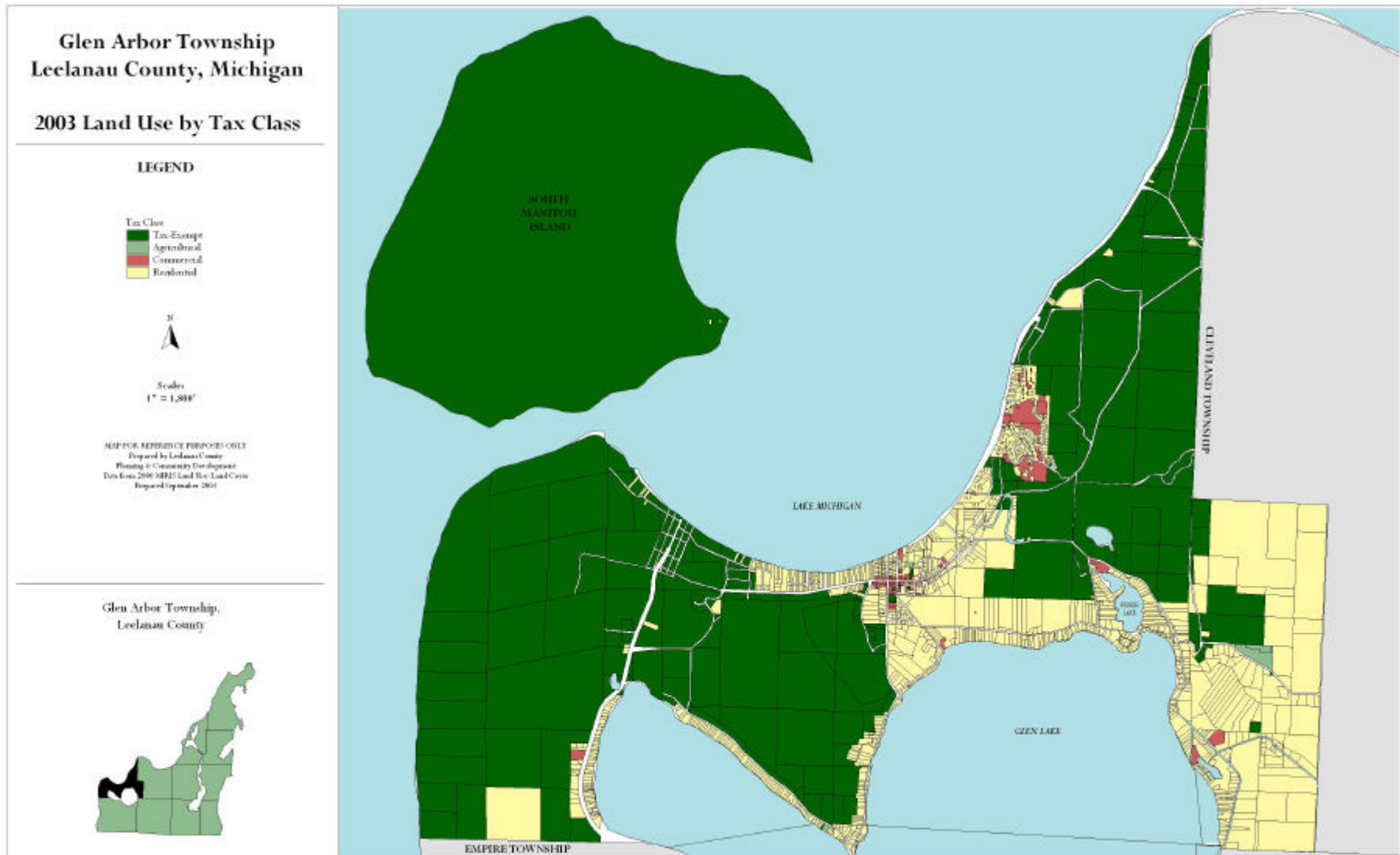
Note: S Manitou Island accounts for 5,286 of the total tax exempt acres.

Total acres in Table 3-3 are less than the actual area of Glen Arbor Township because inland lakes and road rights-of-way are not included and account for several thousand acres. The exact amount is not known as there are no boundaries for those areas on the parcel map.

There are percentage differences between Table 3-3 and Table 2-9, because figures in Table 3-3 are % of total area and in Table 2-9 they are % of tax value.

Source: 2003 Leelanau County tax rolls.

Map 3-2 Land Use by Tax Class



Source: Leelanau County Planning Department

Topography

Glen Arbor Township has remarkably dramatic topography. The predominate land features are dunes and dune ridges. The sand dunes along Lake Michigan and within the Sleeping Bear Dunes National Lakeshore tower hundreds of feet above the beach and inland plains. In some locations the face of the dunes are steep. Inland dune ridges rise over four hundred feet above the level of Lake Michigan and Glen Lake. See Map 3-3.

Relatively flat areas exist between dune ridges and between Glen Lake and Lake Michigan. These flatter areas are where roads and settlements occur.





Dunes and dune ridges are especially sensitive to disturbance. Development for roads, buildings or recreational activities needs to be limited or done very carefully in order to prevent erosion that can pollute streams with sediment. The disturbance of dune ridges can also affect the scenic quality of the Township, which is the backbone of commerce in the community. The most significant hills in private ownership are on the east side of the Township. Vistas toward the west and of the Lakes from this area are excellent with many residential structures already located here. Hillside development that was not designed to blend into the forest could quickly destroy the quality of the view of the hills themselves from other vantage points in the community.

Map 3-3 Topography in Glen Arbor Township



Glen Arbor Township Leelanau County, Michigan

Topography

LEGEND

-  Roads
-  Rivers
-  Township Boundaries
-  Water

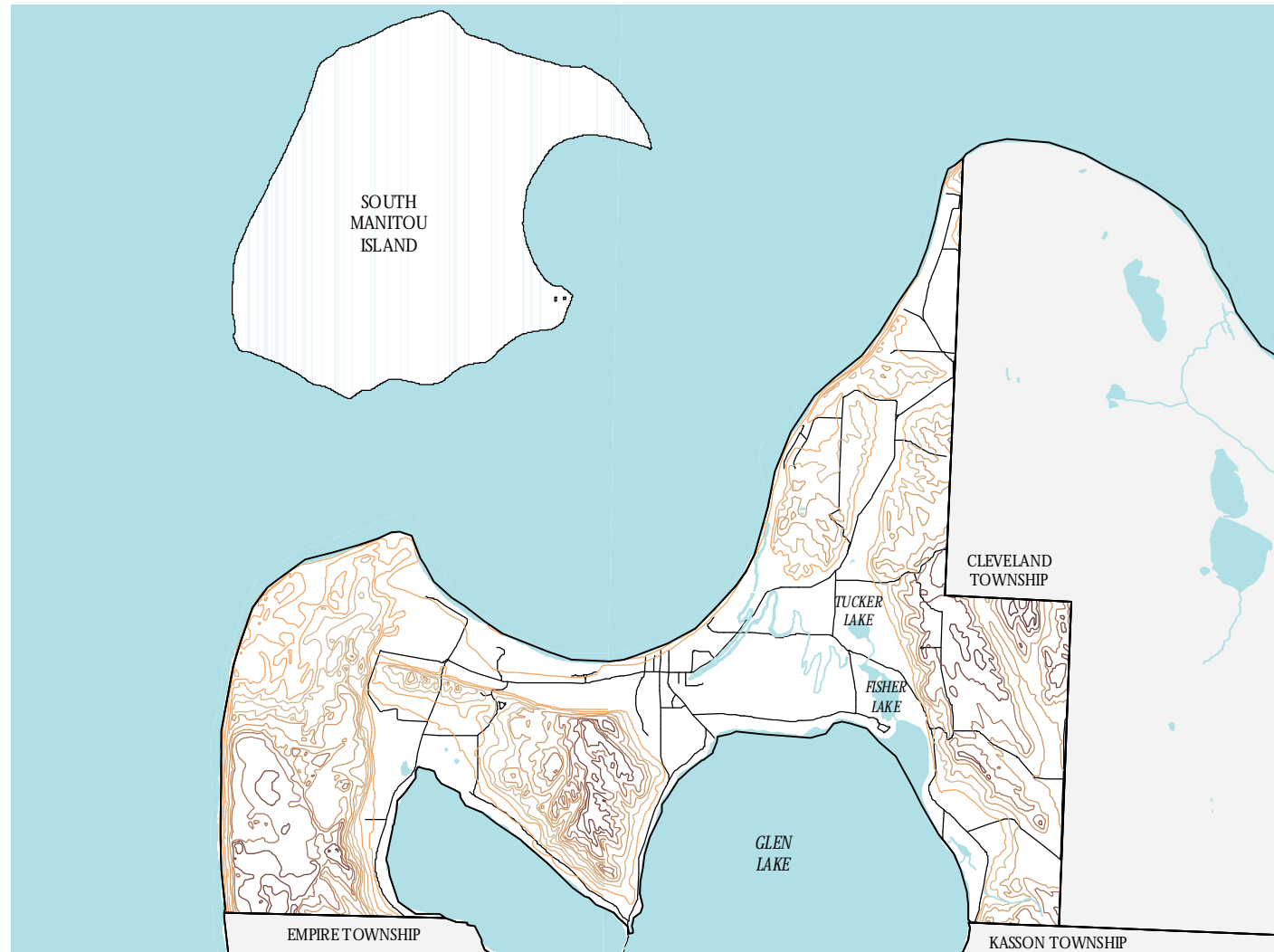
Elevation (in feet)

-  577 - 656
-  657 - 754
-  755 - 853
-  854 - 918
-  919 - 984
-  985 - 1115



For presentation purposes, South Manitou Island appears at the same scale as the mainland, but is not shown in its actual location. No wetlands, land use, elevation, or soils information is available for the island.

MAP FOR REFERENCE PURPOSES ONLY
Prepared by Leelanau County
Planning & Community Development
Data from Michigan Center for Geographic Information
Prepared May 2004



Natural Features

Overview

The natural features of Glen Arbor figure prominently in the lure of the Township as a destination resort and as a place to live. They are given considerable weight in the Vision, Goals, and Objectives of this Plan. Much of the scenery and vistas in the Township are unparalleled. Views of Lake Michigan, the Manitou Islands, the Sleeping Bear dunes and Glen Lake are but a few. Vistas from many points are such that one can view all of these features. Planning and zoning policies should encourage protection, in a reasonable manner, of the wooded areas, the ground water, water quality in lakes and rivers, the wetlands and the dune areas, both as ecosystems and as important scenery.

In addition to Map 3-1 Land Use/Cover and Map 3-3 Topography, two other maps portray natural features which are significant: the Soils with Limitations for Septics Map (Map 3-4) and the Wetlands Map (Map 3-5).

Soils with Limitations for Septics

Large areas of the Township have soils that pose problems for septic systems and residential development. This is due to a combination of factors, including highly permeable soils that permit septic waste to infiltrate to the groundwater without adequate soil filtration, high groundwater or steep slopes. This and related topics are discussed at length in Chapter 4-Significant Issues.

Some areas of the Township depicted as having slight limitations for septs have actually developed severe limitations due to the concentration of septic systems on small lots and because ground water is close to the surface. This is especially true in part of the village of Glen Arbor.

Wetlands

The Wetlands Map (Map 3-5) shows wetland areas that serve to provide wildlife habitat, stormwater storage, water quality improvement, natural scenery and other benefits. Generally these areas exhibit severe limitations for the use of individual waste disposal systems. Many of the wetlands are located along the Crystal River, although there are isolated wetlands elsewhere in the Township. See Photo 3-1.

There are four classifications of wetlands depicted on Map 3-5. These are:

- Aquatic Bed—these are wetlands in which algae or other aquatic plants are rooted in the bottom. They may or may not extend to the surface and “emerge” into the air. Typical plants include Elodea and various Pondweeds.
- Emergent—these are wetlands in which plants grow from underwater into the air. They are better known as marshes and have extensive growth of grass-like plants such as cattails, sedges, reeds and rushes.
- Forested—these are wetlands with extensive tree growth. They likely have water at or near the surface for extended periods. Typical trees include Black Spruce, Arborvitae, Silver Maple and Red Maple.

- **Scrub-Shrub**—these are wetlands that support wet-tolerant shrubs but do not (yet) have trees. They likely have water at or near the surface for extended periods. Typical plants include Button Bush, Leatherleaf, Elderberry, Cranberry and Winterberry.

Hydric soils are also identified on Map 3-5. These are soils that have formed in the presence of water for sustained periods. They can be used to help locate wetlands, especially those that have been disturbed or altered by fill or excavation. Hydric soils may be unsuitable for certain types of development and can be an indicator of high groundwater levels.

Photo 3-1
Wetlands Along the Crystal River



Photo by Mark Wyckoff.

The Land Use/Cover Map (Map 3-1) clearly illustrates that nearly all of the Township land is wooded. This is a characteristic that residents want to maintain and doing so will require efforts to preserve mature trees and the planting of new trees as the primary landscape treatment in areas cleared for development.

Also of significance, from a planning standpoint, are those open areas which are not covered by woodland vegetation because they could be developed for relatively intensive uses (or any use for that matter) without seriously affecting wooded characteristics. However, development in open areas would be highly visible and could detract from the character of the community if not developed in a sensitive manner or screened by thick vegetation. An advantage of the open areas in private ownership, is that they could be used for on-site sewage disposal without the necessity of clearing trees.

Coastal Hazards

Flooding

According to the Federal Emergency Management Agency (FEMA) Flood Hazard Boundary Map, the entire Lake Michigan shoreline in Glen Arbor Township is in a flood zone. It extends from about 50' to about 125' inland from the shoreline. Most of this is beach. There are no other flood-prone areas identified in Glen Arbor Township.

Shoreline flooding occurs most often when Lake Michigan water levels are high. This is a natural, periodic occurrence. In areas where there are bluffs, there may be little or no usable beach. Flooding is most likely to occur during high Lake Michigan levels when there are severe storms or seiches (sudden rises of up to several feet in water level due to wind or changes in atmospheric pressure.) In order to protect both privately owned structures and public health and safety, structures and septic systems should not be placed within the flood zone. FEMA maps are periodically updated and can be viewed on-line at <http://store.msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1>.

High Risk Erosion Areas (HREA)

Eroding areas of the Lake Michigan shoreline are addressed in Part 323, Shorelands Protection and Management, of the Natural Resources and Environmental Protection Act, PA 451, as amended. The Michigan Department of Environmental Quality has prepared maps that identify Lake Michigan shoreline areas that are susceptible to erosion. These maps are based on a variety of factors, primarily past erosion history. The only area in the Township that has a HREA zone identified on the shoreline is an approximately ½ mile segment of shoreline with single family homes between the Homestead Beach Club and the Sleeping Bear Dunes National Lakeshore property along Sunset Shores Drive. Within this area, minimum setbacks for 30 years of protection are 55' and 95' for 60 years. Local governments can assume permitting authority (instead of the MDEQ) for development in HREA zones, if the local ordinance is approved by the MDEQ.

Critical Sand Dunes









Michigan is home to the largest assemblage of fresh water dunes in the world. They support diverse habitats, including forests, interdunal ponds and open dunes. The Sand Dune Protection and Management Act (Part 353, of the Natural Resources and Environmental Protection Act, 1994 PA 451 as amended) was passed to help protect these resources. As a result of the Act, Critical Sand Dunes were mapped, in order to identify areas requiring protective regulation and permits for development. Glen Arbor Township would have the opportunity to assume local permitting authority for Critical Dunes through amendments to the Zoning Ordinance, except that the only area with Critical Dunes in Glen Arbor Township is within Sleeping Bear Dunes National Lakeshore. The National Lakeshore is already active in protecting the dunes.

Map 3-4 Soils With Limitations for Septics

Glen Arbor Township Leelanau County, Michigan

Soil Limitations for Septic Fields

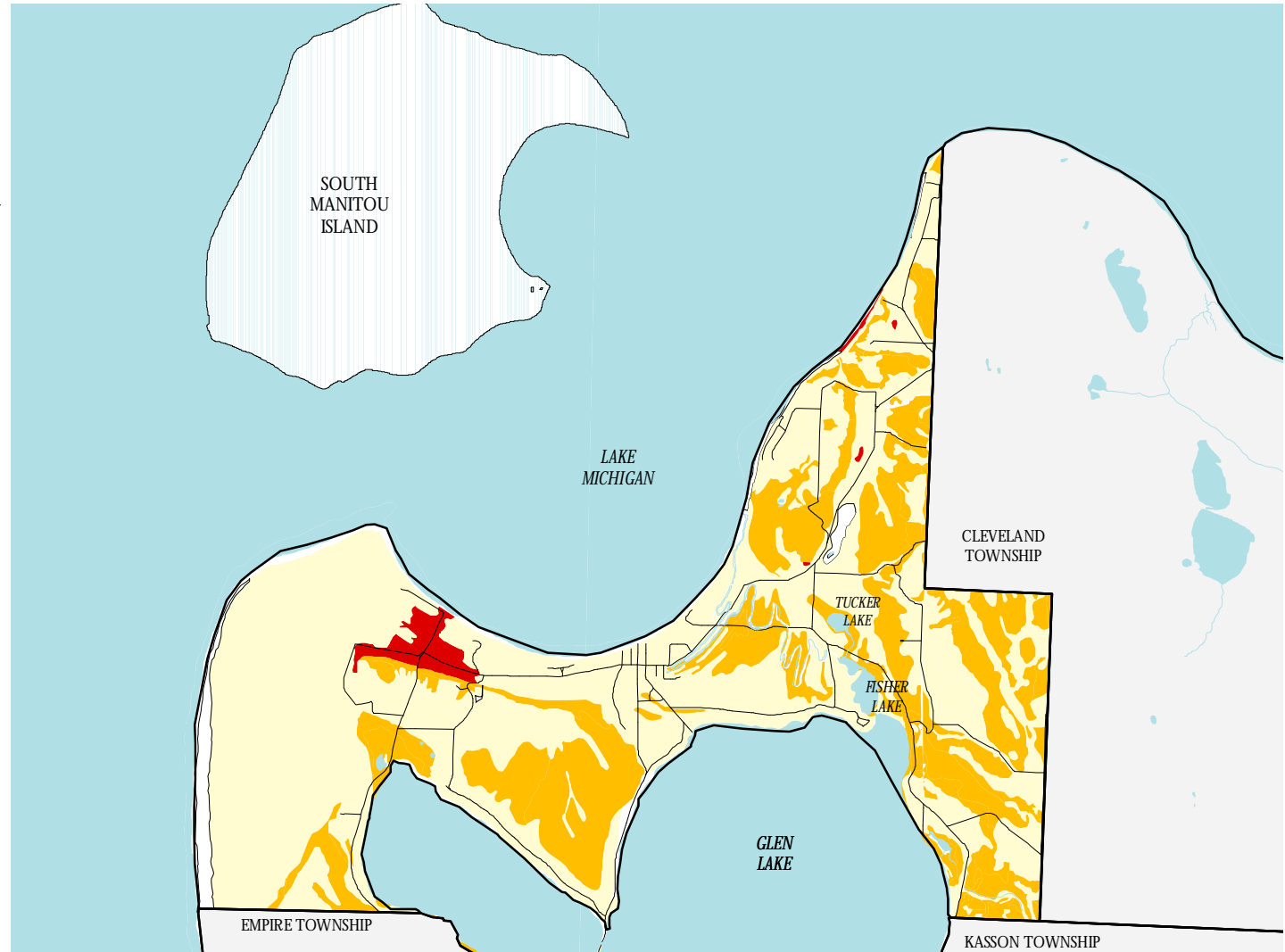
LEGEND

-  Roads
 -  Rivers
 -  Township Boundaries
 -  Water
- Limitations for Septic Fields
-  No information available
 -  Slight limitations
 -  Moderate
 -  Severe



For presentation purposes, South Manitou Island appears at the same scale as the mainland, but is not shown in its actual location.

MAP FOR REFERENCE PURPOSES ONLY
Prepared by Leelanau County
Planning & Community Development
Data from USDA Soil Survey
Prepared May 2004



Map 3-5 Wetlands

Glen Arbor Township
Leelanau County, Michigan
Wetlands and Hydric Soils

LEGEND

- Roads
- Rivers
- Township Boundaries
- Water

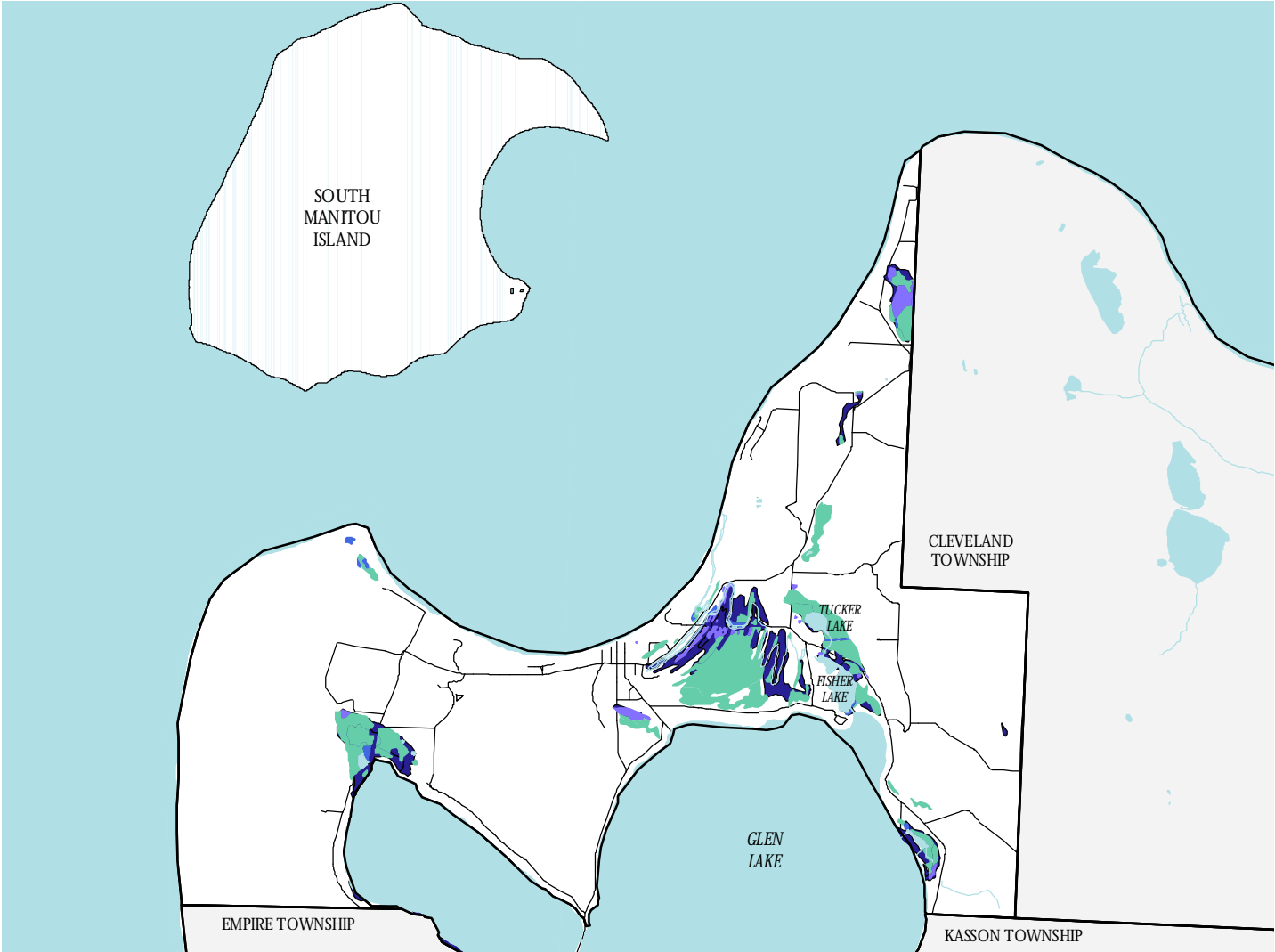
- Wetlands
- Aquatic Bed
 - Emergent
 - Forested
 - Scrub-Shrub

- Hydric Soils
-



For presentation purposes, South Manitou Island appears at the same scale as the mainland, but is not shown in its actual location. No elevation, wetlands, land use, or soils information is available for the island.

MAP FOR REFERENCE PURPOSES ONLY
Prepared by Leelanau County
Planning & Community Development
Data from the National Wetlands Inventory
and USDA Soil Survey
Prepared May 2004



Glen Lakes Water Quality

Most of the following information is from the Glen Lake/Crystal River Watershed Management Plan.

The Glen Lakes are two of the most important natural resources in Glen Arbor Township. Big Glen Lake (4,800 acres) and Little Glen Lake (1,450 acres) are adjacent to each other, but somewhat different in character. Big Glen Lake is a large, deep, oligotrophic to hyper-oligotrophic lake, meaning it is very clear and low in the production of organisms, including plants and fish. See Photo 3-2. This is due to a lack of nutrients in the water that would stimulate the growth of micro-organisms, plants, and other aquatic organisms—the food chain that would support a fishery. Little Glen Lake is shallower and is more productive, with a higher Chlorophyll a reading (1.4 ug/l for Big Glen and 2.4 ug/l for Little Glen). Chlorophyll a is an indicator of nutrients that support life in the lake. Big Glen is also more transparent, with Secchi disk readings of 18.5 ft in 2003 and only 5.4 ft for Little Glen in the same year. Transparency is an indicator of the amount of microscopic life in the lake, and thus of the amount of nutrients in the water. Little Glen supports warm water fish, such as yellow perch, northern pike, bluegill, largemouth and smallmouth bass. However, Little Glen is also an oligotrophic lake, as it has phosphorus levels of only 8 ug/l in spring of 2003 and 10 ug/l in late summer of 2003. Phosphorus levels in Big Glen Lake were 10ug/l in spring and 2 ug/l in late summer of 2003, which is an unexpected anomaly.

Non-native invasive species (plants, fish, mollusks and other aquatic organisms from outside the Glen Lake ecosystem and that have no natural predators in the Glen Lake ecosystem) are a concern for the health of a lake ecosystem. The introduction of such species can alter the balance of plants and animals in the lake, causing a decline in desirable species and sometimes negatively affecting recreational activity in the lake. There are a number of non-native invasive species of concern in Michigan. These include the spiny waterflea, fish hook waterflea, the round goby fish, Eurasian Water Milfoil plant and Zebra Mussels. Zebra Mussels were found in Big Glen, Little Glen Lake and Fisher Lake in 2003. This measure has the potential to clog water intakes for household water supply, irrigation or the cooling water intakes on outboard boat motors. Their sharp shells can be a problem for swimmers. It is possible for a large population of Zebra Mussels to increase the clarity of the lake, but clarity is not a problem for Glen Lake. However, by removing microscopic life, the basis of the food chain for fish, the supply of fish in the lake may fall even further. In lakes that contain enough nutrients to support water-born algae populations, Zebra Mussels are thought to promote the occurrence of blue-green algae blooms that produce toxins that can cause adverse reactions in humans. This is because the Zebra Mussels only eat other species of algae that are the competitors of blue-green algae for whatever nutrients are in the water. With their competition reduced, blue-green algae “bloom,” or expand dramatically in population.

Photo 3-2
Big Glen Lake from Inspiration Point



Photo by Mark Wyckoff.

A study of aquatic plants in both Little Glen Lake and Big Glen Lake has been going on since 2002. Trained volunteers and school students have been involved. While densities of plants are not great in either lake, species are primarily native. No Eurasian Water Milfoil, one of the most prolific non-native invaders, has been found in Little Glen Lake. The study of Big Glen Lake has not yet been completed. Volunteers have been posted at a boat launch site to help ensure that boats being launched are washed to remove pieces of foreign plants or other aquatic organisms that could be transferred to the Glen Lakes.

A shoreline survey was conducted in 2002 to identify locations of Cladophora algae patches in shallow water. Cladophora algae can serve as an indicator of nutrient pollution stemming from erosion, failed septic systems, waterfowl waste, over fertilization of lakefront lawns or other sources of phosphorus overload. While the exact information in the survey is kept confidential, discussion with homeowners revealed many are engaged in practices such as septic tank pumping, limited fertilizer use and an interest in planting natural vegetative buffers that will help limit phosphorus pollution of the lake. Others not engaged in lake-friendly practices learned about their potential impacts on the lake and watershed.

Swimmer's Itch organisms exist in the Glen Lakes. This organism can enter the skin of humans who have been swimming in the Lakes and cause a lingering rash. The extent of the rash can vary, depending on the level of infestation. The organism requires both snails and waterfowl to complete its life cycle. It gets into humans by accident. Limiting the number of waterfowl on the Glen Lakes is important in reducing the potential for Swimmer's Itch, and refraining from feeding ducks and geese is one very important step.

Crystal River

The Crystal River is a pristine stream that winds from the north end of Fisher Lake (attached to Big Glen Lake) through wetlands, a dune and swale area and woods to discharge into Lake Michigan within the Homestead. It is a popular canoeing and kayaking stream. It is visible within Glen Arbor village and along portions of M-22 and County Road 675. See Photo 3-3.

**Photo 3-3
Crystal River**



Photo by Terry Gretzema.

The dune and swale complex along the Crystal River is an important and sensitive ecosystem, and one of the highest quality of such complexes in Michigan. The National Park Service has noted the importance of this habitat along the Crystal River for migratory birds, ducks, mink and weasels, and threatened or endangered species. The dune/swale complex is located wholly

within Glen Arbor Township. Currently, Congress is considering appropriating money to buy land owned by the Homestead along undeveloped parts of the Crystal River and adding it to the National Lakeshore.

Glen Lake/Crystal River Watershed Management Plan

The Glen Lake Association and the Leelanau Conservancy developed a watershed management plan for the Glen Lake/Crystal River watershed in 2002. The Plan was reviewed and accepted by local governments and the Michigan Department of Environmental Quality. This latter step qualifies the area for Clean Michigan Initiative (CMI) funding to implement portions of the Plan.

A watershed is all of the land that drains to a single place, such as an outlet. The watershed of the Glen Lakes drain the slopes into the Lakes and then out to Lake Michigan through the Crystal River. The Glen Lake/Crystal River Watershed extends into four communities: Glen Arbor Township, Cleveland Township, Empire Township and Kasson Township. See Map 3-6. The Watershed Management Plan can be downloaded from:

www.leelanaucounty.com/naturalres0006.asp. Information on best management practices of shore front and river front property to protect Glen Lake water quality can be found at: www.mls wa.org/gla-916/ShorelineMgmt.htm.

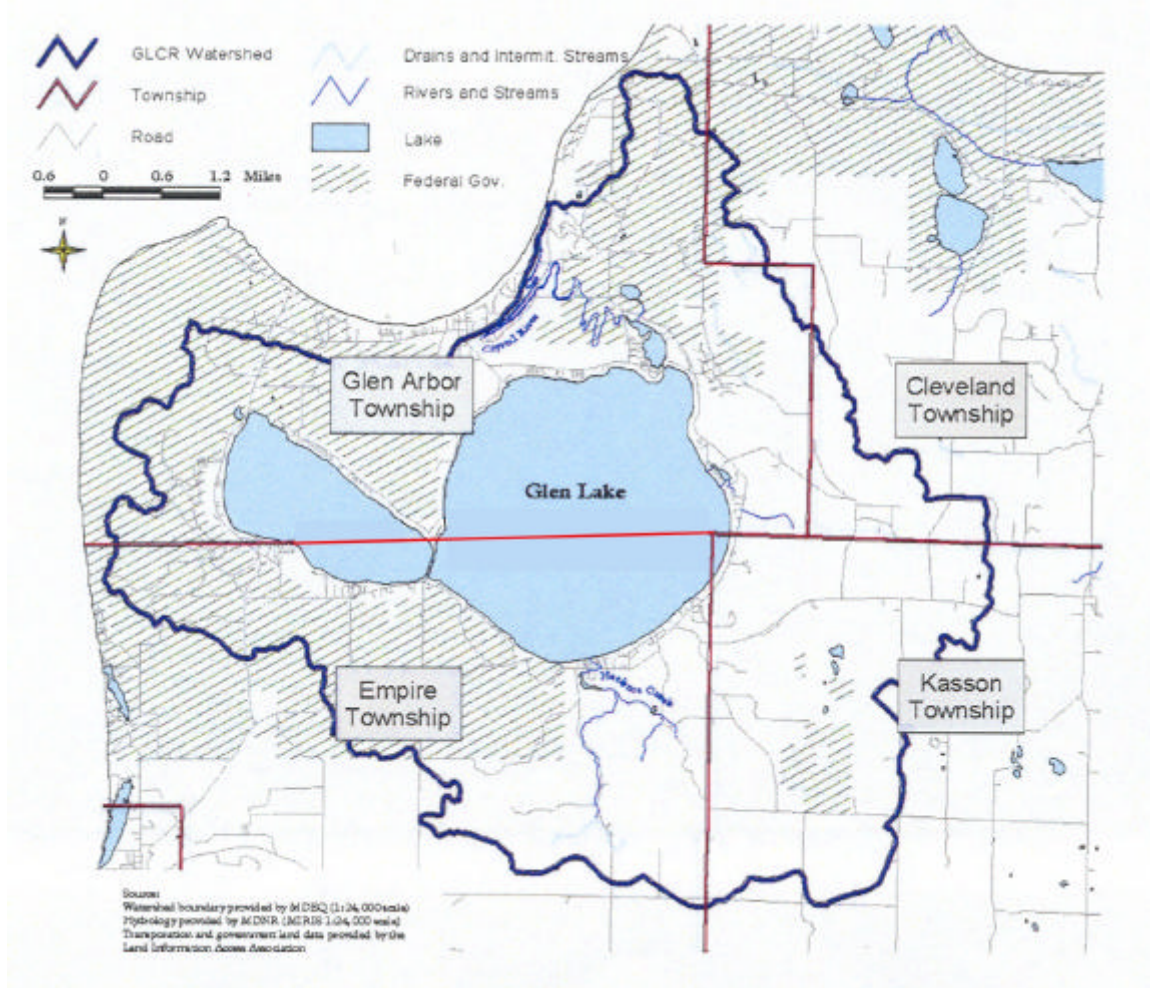
The Watershed Management Plan identifies Hatlems Creek and the Crystal River dune swale complex (described above) as areas requiring more extensive management consideration.

Hatlems Creek is the largest source of surface water flowing into Glen Lake. It is located at the south end of Big Glen Lake and is a coldwater stream and home to a diverse array of mayflies, caddisflies and stoneflies, indicators of high water quality. Hatlems Creek is a trout stream and has annual returns of coho salmon and steelhead. Preservation of the Hatlems Creek corridor is key to the recreational value of Glen Lake. However, the Hatlems Creek corridor is located within Empire Township, requiring Glen Arbor Township to work cooperatively with Empire Township and Kasson Township in order to ensure the protection of Glen Lake and the Crystal River.

The Watershed Management Plan identifies the following as the primary environmental stressors of Glen Lake and the Crystal River:

- Nutrients (phosphorus and nitrogen)
- Exotic species
- Habitat loss
- Sediment
- Harmful bacteria
- Thermal pollution
- Toxic substances.

Map 3-6 Glen Lake Watershed



Source: Glen Lake/Crystal River Watershed Management Plan, modified by Planning & Zoning Center, Inc.

The Watershed Management Plan lists five “designated uses” of the Glen Lake and the Crystal River Watershed. Designated uses are defined by the MDEQ as recognized uses of water established by state and federal water quality programs. An evaluation of designated uses can reveal the water bodies to be either meeting legislated water quality standards, threatened to not meet the standards, or impaired (not meeting the standards). The designated uses of the Glen Lake/Crystal River Watershed are:

- Coldwater fishery
- Total body contact recreation
- Other indigenous aquatic life and wildlife
- Navigation
- Agriculture.

These designated uses are considered threatened from increasing human development along with exotic species introduction and proliferation, but are currently meeting water quality standards.

In addition to the designated uses, the Watershed Management Plan identified desired uses, or ways in which watershed residents might want to use the waters of their watershed. The Watershed Management Plan lists the following community concerns regarding the watershed:

- Wildlife habitat with emphasis on protecting rare, endangered and wetland species.
- Development and implementation of an effective swimmer’s itch management program
- Potable groundwater sources
- Navigable waters that do not exceed carrying capacity limits for use
- Natural and intact riparian corridors with an emphasis on private landowner stewardship and conservation easements
- Agricultural, irrigation and landscaping (including private homeowner) practices that emphasize current best management practices
- Scenic and natural environment.

In order to protect the quality of Glen Lake and the Crystal River, the Management Plan has included the following water quality goals:

- Watershed protection
 - Fish and wildlife
 - Maintain healthy populations
 - Self-sustaining fishery
 - Viewshed protection
 - Preserve scenic hillsides
 - Decrease erosion from recreational use
- High water quality
 - Exotic species prevention
 - Swimmer’s itch management

- Nutrient education
- Toxic substance prevention
- Harmful bacteria prevention
- Maintain safe navigation and recreation
- Native Species Management
 - Maintain low nutrient levels
 - Exotic species prevention
 - Toxic substance prevention
- Outreach and education
 - Increase watershed community awareness and concern for water quality
 - Evaluate effectiveness of outreach efforts.

The Sleeping Bear Dunes National Lakeshore

The Sleeping Bear Dunes National Lakeshore is the dominant land entity in Glen Arbor Township. See Photo 3-4 and Map 3-7. Its presence assures preservation of much of the Township's natural beauty. The Park attracts a large number of visitors, resulting in pressure for additional visitor services from the private sector. Total recreation visits for 2003 were 1,143,857, a small drop from total recreation visits of 1,190,754 in 2002 (National Park Service). Development of the park is guided by the General Management Plan which was approved in 1979 by the Midwest Regional Director of the National Park Service. Drafts of subsequent management plan updates have been prepared, but none adopted.

Physically, the park is divided in two by the Glen Arbor village area and privately owned lands south to Glen Lake. These areas also separate the Dunes and Alligator Hill from the Crystal River, Miller Hill highlands and the meadow and farmlands to the north. Since the business and residential center of the Township lies between these areas, conflicts are created as traffic, both motorized and non-motorized, passes through the village.

A majority of the National Lakeshore's visitor facilities are located to the west of Glen Arbor village. The Stocking Scenic Drive, reconstructed and relocated to Empire Township in 1986, and the Dune Climb will continue to draw a majority of the Lakeshore's visitors. When combined with the Coast Guard Maritime Museum, the Glen Haven historic village, the Little Glen Picnic Area, D.H. Day Campground, various hiking trail systems, and convenient access to Lake Michigan beaches, this area makes a very attractive destination for visitors.

**Photo 3-4
Sleeping Bear Dunes**



Photo by Mark Wyckoff.

The northeastern portion of the Township encompasses the settlement district known as the Port Oneida area, quite distinct and different from the western areas of the Lakeshore. See Photo 3-6 and Map 3-10. Port Oneida is typified by a rural landscape which hosts several old farmsteads. The Lakeshore's goal for management in this portion of the Township is to maintain the pastoral setting and interpret early settlement of the area. To the east, an area encompassing approximately 600 acres is known as the Miller Hill Resource Preservation Area.

Map 3-7 Sleeping Bear Dunes National Lakeshore



Glen Lake Development

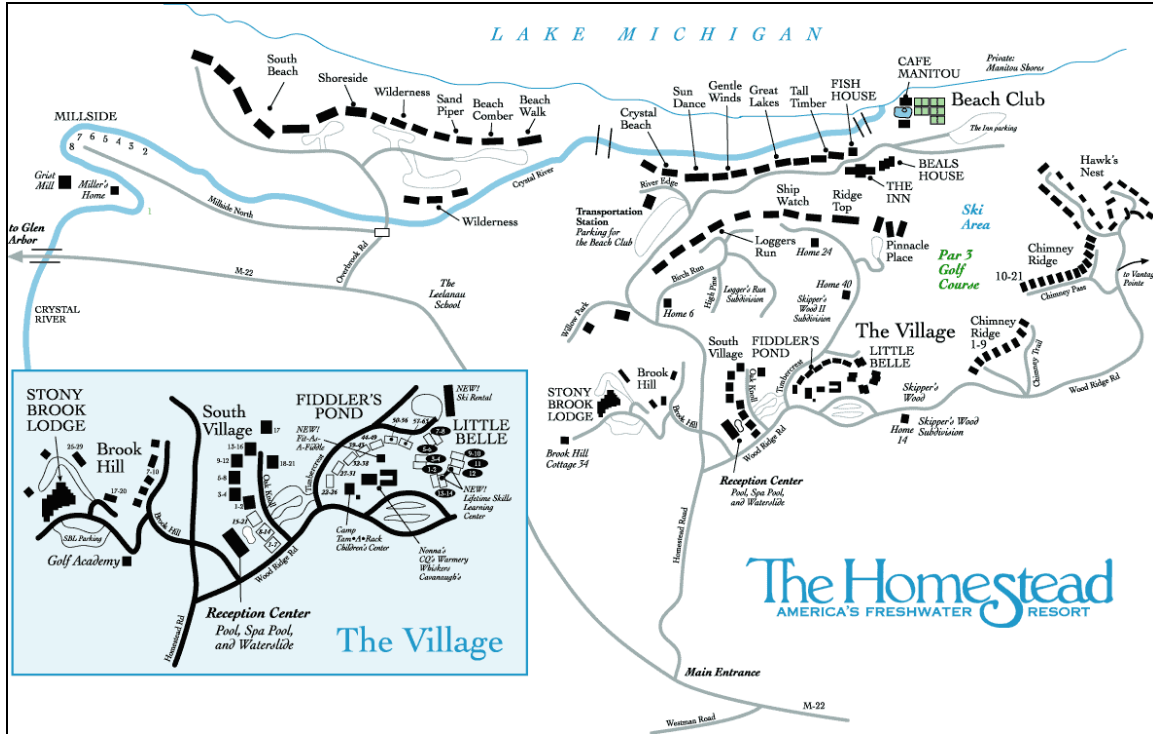
Most of the Township's frontage on Glen Lake has already been developed and is a mixture of year-round and summer homes. Three marinas serve the lake: one at the south end of Lake Street, one at the head of the Crystal River (not a full service marina) and one at "the Narrows". There are several lodges and cottage resorts on the lake and a public access point west of M-22 on Day Forest Road operated by the Michigan Department of Natural Resources. In most areas, adjacent land is near lake level, making access from cottages and homes excellent. The extreme western edge, the Fisher Lake area and the eastern edge of Brooks Lake are somewhat low and contain areas which have severe limitations for septic systems. The lakefront lots are characterized by 100 foot widths with varying depths to adjoining access roads which parallel the shorelines. Lots are very shallow between M-22 and Glen Lake. See the parcel pattern depicted on Map 3-2. In some areas, the cottages are clustered and do not all have direct lake frontage, a characteristic of some of the older areas. Such conditions are most prevalent near the Narrows, at the western edge of the lake and to some extent near Fisher Lake.

There has been considerable change in the character of development on the Glen Lakes in recent years. "Mansionization," or redevelopment of small to medium size cottages and homes to very large, "big footprint" or "Bigfoot" homes, many that can house multiple families at one time have been built. The effect of this change can be to limit views of the water from the road, from adjacent or backlot cottages, to make the waterfront more urban looking, and to intensify the activity level on the lakeshore.

The Homestead

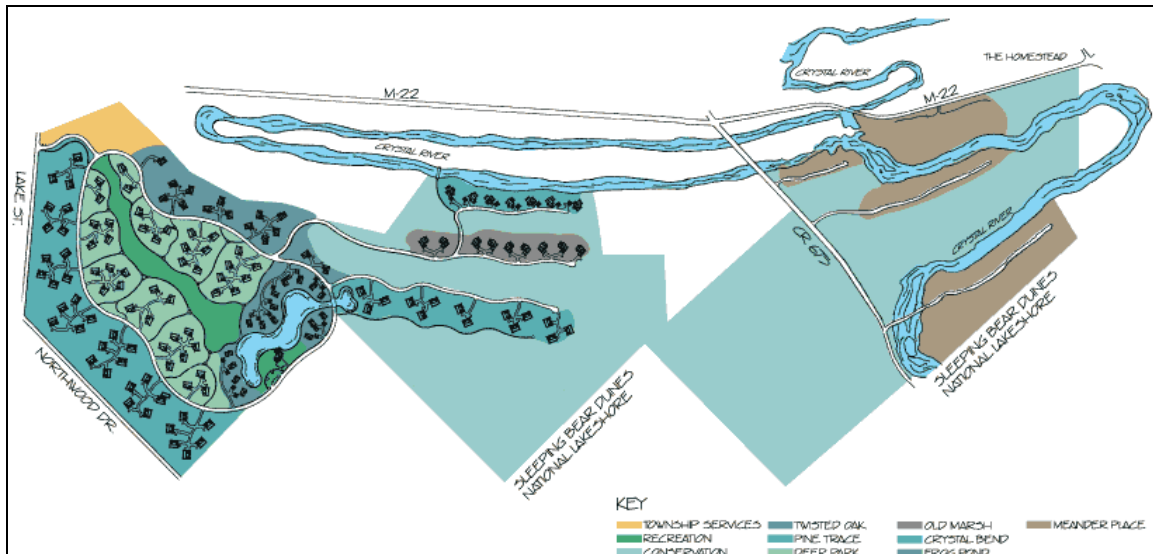
The Homestead is a resort/residential community located in the Township on approximately 500 acres of heavily timbered land with about a mile of beach frontage on Lake Michigan. See Map 3- 8. Great care has been taken in siting of facilities, including over 460 condominiums, 90 lodge units, four restaurants, two conference centers and two large recreational complexes. The facility is the largest single employer and taxpayer in the Township. In addition, a new Homestead development called Woodstone is under development along Lake Street, south of the village. It is slated for 194 dwellings on 204 acres. 98 of those units won't be constructed if 104 acres are sold to the National Park Service. See Map 3-9.

Map 3-8 The Homestead



Graphic courtesy The Homestead website

Map 3-9 Woodstone Development



Graphic courtesy The Homestead website

The Leelanau School

The Leelanau School is a private secondary school which has operated in the Township since 1929. See Photo 3-5. It is located adjacent to and southwest of the Homestead and together they form an important activity center north of the village. The physical connection between this area and the village could be enhanced by bike and pedestrian trails. Facilities include the school itself, and the Leelanau Library and Lanphier Observatory, both of which are open to the public. An annual world affairs symposium attracts speakers from around the world. In addition, an annual arts fair and summer seminar sessions attract experts in the arts and sciences plus many visitors.

Photo 3-5
Leelanau School



Photo by Mark Wyckoff.

Other Land Uses

Township recreation facilities include the tennis courts, basketball court and children's playground, two swimming access sites, a park on top of Miller Hill, DNR launch site on Little Glen Lake, boat launch at Lake Street and the Township Hall gymnasium. These facilities are discussed in more detail in Chapter Four. There are no operating public schools in the Township and therefore no associated playgrounds. Glen Arbor Township school age children

attend the Glen Lake Community Schools, which were consolidated in 1956.

During fishing season, the Township boat launch at the north end of Lake Street is overtaxed, and there is no public parking available for trailers and cars, except in the road right-of-ways. This situation is expected to get worse with the construction of the Le Bear condominium project on the site of the former Le Bear restaurant.

Buildings In Glen Arbor

Historic Sites and Buildings

Glen Arbor Township and the surrounding area have a long history of logging, fishing and farming, with settlement by people of European origin beginning in 1852. As a result, there are a number of historic sites and buildings remaining. Some of these have been neglected over time, in part due to the purchase of many as part of the National Lakeshore. The Lakeshore acquired nearly two hundred historic structures but had no funds to maintain them. While the NPS is mandated to preserve and protect its cultural resources through specific legislation such as the Antiquities Act of 1906, the National Environmental Policy Act of 1969, and the National Historic Preservation Act of 1966 as amended in 1992, lack of adequate funding is a continuing impediment. Recent efforts to preserve many of these structures have been somewhat successful due to increased federal funding, grants from Rotary Charities of Traverse City and the efforts of many volunteers in a local group, Preserve Historic Sleeping Bear. A controversial plan by the National Park Service to implement a national policy to authorize private concessionaires to operate in historic structures in order to provide restoration and maintenance funding has not been carried out in the Glen Haven and Port Oneida Historic Districts.

Photo 3-6
Port Oneida Historic District Farm Buildings



Source: National Park Service

Historic Sites

Many sites have been identified in the Township as having historic significance. The sites have been identified from the Inventory of Michigan's 1975 Historic Preservation Plan and various written material regarding the history of Glen Arbor Township¹ and state and federal online historical references. See Photos 3-6, 3-7 and 3-8. The following have been included:

Sites

- D.H. Day Park (listed in State Register of Historic Markers) now in National Lakeshore
- Dr. Walker's Cranberry Marsh
- Glen Haven Historic District—160 acres and 12 buildings
- Prehistoric Indian Site - Fisher Lake
- Burial Site - Leelanau Schools
- Bluff Burial Site - Port Oneida
- Glen Arbor Cemetery
- Port Oneida Rural Historic District—3,000 acres and 121 buildings and 20 structures (See Map 3-7)
- George Conrad Hutzler Farm on S. Manitou Island
- South Manitou Island Lighthouse Complex and Life Saving Station Historical District—470 acres and 13 buildings
- Forest Haven Cemetery

Buildings

- Andresen House
- Brotherton House
- Bethlehem Lutheran Church
- Sleeping Bear Point Coast Guard Station
- D.H. Day Farm
- Dunn's Centennial Farm
- Ehle & Drumbrille General Store/The Arbor Light
- Glen Arbor School/Now athletic club
- D.H. Day General Store (Frank E. Fischer Store, Fisher was first Glen Arbor Supervisor—State Historic Register)
- Glen Haven Inn—now Sleeping Bear Inn
- Grady's Inn/Sylvan Inn
- G. J. Hutzler's Pig Farm (S. Manitou Island)
- Kelderhouse/Brammer Grist Mill
- Laird Store
- Port Oneida School/Port Oneida Community Club
- Ray House/Julie's Restaurant
- Township Hall

The Township should continue to encourage the preservation of historic buildings and sites.

Attention is drawn to the history of the area each year during the Manitou Music Festival, which holds some of its concerts in cultural and historic locations, such as the Leelanau School, and the Thoreson Farm in the Port Oneida Historic District. In addition, the National Park Service and Preserve Historic Sleeping Bear have led to much greater attention to historic resources in the Township.

¹ Primarily from Beautiful Glen Arbor Township, Facts, Fantasy and Fotos by Robert Rader and the Glen Arbor History Group, 1975.

Photo 3-7
Sylvan Inn, Building on State Register of Historic Places



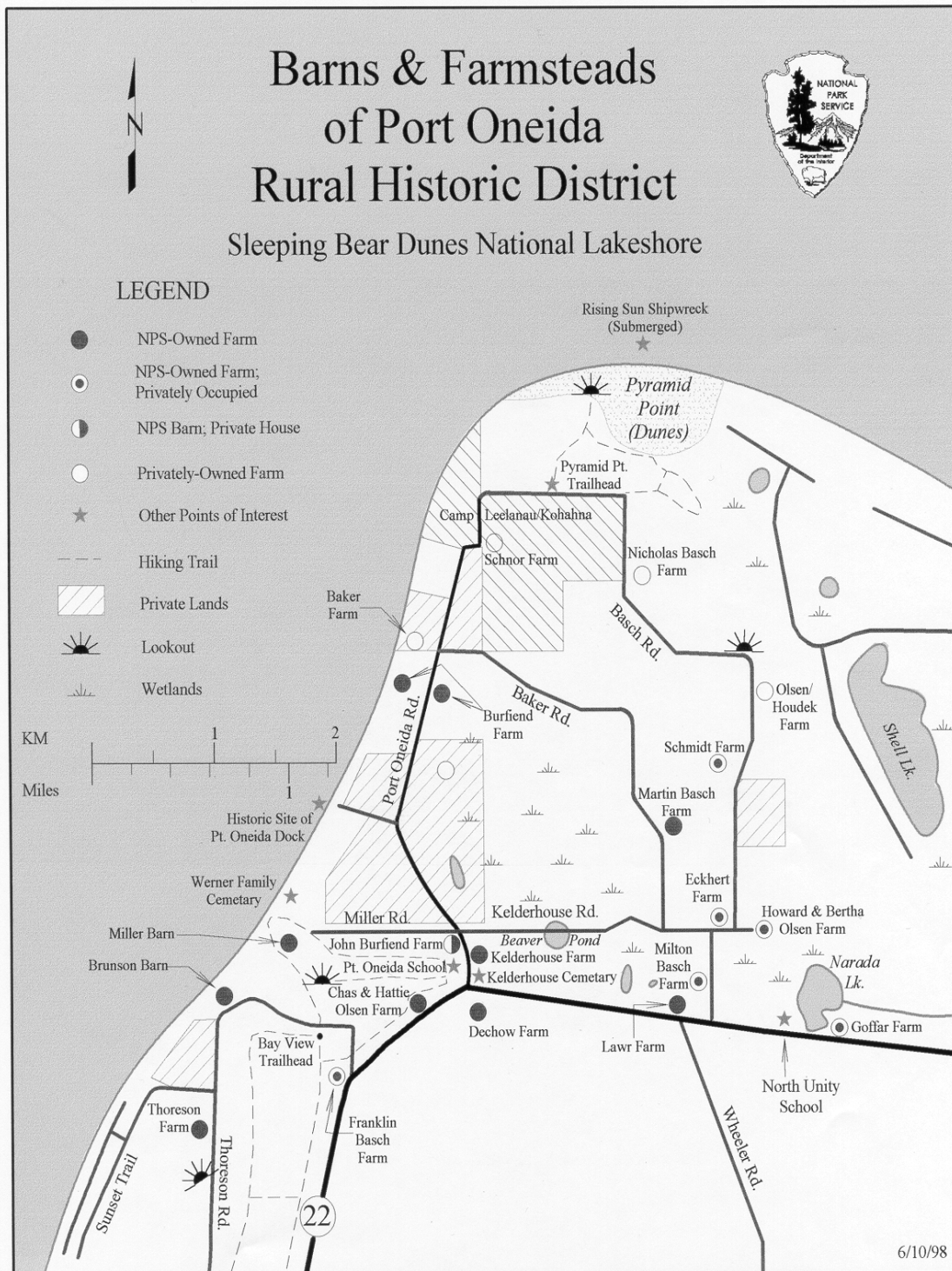
Image courtesy of the Michigan State Historic Preservation Office.

Photo 3-8
Glen Arbor Roller Mills, State Register of Historic Places



Image courtesy of the Michigan State Historic Preservation Office.

Map 3-10 Port Oneida Rural Historic District



Source: National Park Service.

Glen Arbor “Village”

For the purposes of this Plan, the village area is illustrated on Map 3-11 Existing Land Use in the village of Glen Arbor. Buildings of historic significance are also shown. Although this is the most intensively developed area of the Township, there are about 2.4 acres of vacant business land still available and an undetermined, but substantial area of residential land occupied by buildings which could easily be converted to or rebuilt for business use.

The village is the business and governmental center of the Township and includes two churches. The village is not incorporated, so it is a part of Glen Arbor Township. A boat launch ramp to Lake Michigan is presently provided by the Township at Lake Street. Recreation facilities include the Township tennis courts, basketball court, children’s playground and Township Hall facilities.

There is variety in the type and visual character of the buildings in the village. There are residences, businesses, and a few governmental facilities. The Township Hall, post office and volunteer fire department and rescue unit are also located in the village, as are several historic buildings. The visual character of the village is northwoods eclectic, in that there are a variety of architectural styles, some that are rustic and many that have representative materials, colors and details of buildings typical of the region. However, most of the newest buildings have a northwoods character or represent traditional American designs, and public opinion supports encouraging new buildings to have a northwoods or traditional American character. Although it is the center of activity in the Township, the village area remains heavily wooded, and the preservation of this characteristic is important to maintaining the northern Michigan character of the area.

The village experiences congestion in the summer and less activity in the winter. However, it is a prized stop for tourists in any season.

John f:\winword\glen arbor\Final feb 05\Chap 3 Current Conditions –Feb 05.doc

Map 3-11 Existing Land Use Village of Glen Arbor, 2004

