

CITY OF HARBOR SPRINGS

Harbor Springs Harbor Commission

2003 Harbor Plan

October 22, 2003

City of Harbor Springs

Harbor Plan Revision

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INTRODUCTION

The Harbor Plan process was initiated in May of 1981 by the City and the Harbor Commission to gain an understanding of the forces that influence harbor use and, to the greatest extent possible, gain local control of this beautiful natural facility. The Harbor Plan was developed to balance interests, seeking to favor no individual or group.

Following adoption of the Harbor Springs Harbor Plan the Harbor Commission monitored and reviewed the Plan as an active document, and from time to time recommended changes to adapt the Plan to the working environment. In 2002 the Harbor Commission undertook additional study and evaluation of data, demographics, and use patterns in the two decades since adoption of the Harbor Plan.

The Harbor Springs Harbor Plan represents the combined efforts and wisdom of the Harbor Commission, and it has been accepted by the City Council and other stakeholders. This plan has been reorganized to make it less bulky and easier to use. Some historical and background information is now part of the archives and available to those who may be interested.

The focus of the Harbor Plan is the map, which depicts all the working elements of the Harbor Plan. The Harbor Map is updated and reflects any changes that are incorporated into the Plan from time to time. The written document is best viewed as a guide to the Harbor Map. Together these documents serve as a master plan for present and future uses and activities within the Harbor.

HARBOR MAP AND USE PLAN

The accompanying Harbor Map is the focus and working document of the Harbor Springs Harbor Plan. It graphically depicts the elements of the Harbor Plan. Included within this map are: the designated mooring area; the “Slow – No Wake” zones; the development/building limit line for private as well as marina operations; the designated refuge anchorage; key views or vista areas both on the water and ashore; and public walkways.

This Map represents the comprehensive and continuously updated Harbor Plan. It is altered to reflect any changes incorporated into the plan. Any user or potential user of harbor resources within the Harbor Plan area should consult the map.

HARBOR PLAN

The Harbor Plan was originally the result of a step-by-step process undertaken by the Harbor Commission. The Plan incorporates public input, data collected and presented by consultants, and over twenty years of application. It is a living document intended to accommodate changes and to best manage the Harbor resources.

The community role in the Plan development concentrates on the complementary nature of the water use and the land use patterns. The natural beauty and aesthetic appeal of the Harbor/Little Traverse Bay area is a major consideration in the evaluation of uses and development for the Harbor.

Engineering considerations and structural options together with the environmental, planning, and aesthetic considerations present the limiting factors to harbor use.

In the assessment of the Plan the environmental impacts of development in the bay and ancillary on-shore activities together with measures, which may be taken to mitigate or eliminate adverse impacts, are considered.

To a great extent the Plan results are conditioned by the location of the mooring area. The Harbor Plan's limit line is, of necessity, related to the mooring area. The mooring area configuration is the single most significant limiting influence on the Harbor development.

Plan Characteristics and Permitted Uses:

The Plan is essentially a use plan of the Harbor. It addresses all visible objectives of the Harbor Commission and is faithful to the Commission's goal that "...the natural beauty and aesthetic appeal of the Harbor/Little Traverse Bay area will be major considerations in the selection of uses of the harbor and the orderly development of the communities."

The characteristics approved and incorporated into the Plan are:

1. Assure open sight lines from several on-shore and offshore locations.
2. Permit expanded private docking (slips) east of Josephine Ford Park.
3. Encourage and maintain a pedestrian walkway along the shore.
4. Provide and maintain a specific area for anchorage.
5. Reserve the remaining open water area for summer water surface uses.
6. Delineate the "extent of development line" all around the harbor within the jurisdiction of the Plan.
7. Accommodate additional marina boat docking facilities where possible and consistent with other provisions of the Harbor Plan.
8. Discourage concentrated marina/dockage development by the resort associations.

Plan Impacts

The effect of the Harbor Plan is summarized in the following positive and negative impacts:

Long-Term Positive Impacts:

1. The plan will preserve and tend to improve the visual contact with the shoreline from the harbor for both scenic and boating purposes. On shore, the aesthetic perspective of the Harbor will be preserved from several areas along the waterfront and on the bluff overlooking the Harbor. Improving the public view of the Harbor will preserve the resort quality of the area through enjoyment of the beauty of the Little Traverse Bay.
2. The pedestrian walk along the shoreline enhances passive recreational enjoyment of the Harbor and encourages waterfront activities by improving the shore bound user's "contact" with the water. Opening the Harbor for passive recreational use and waterfront activities improves the "public use" value of the water resource, especially during peak use periods and events, such as the 4th of July.
3. Preserving, improving, and maintaining green areas along the waterfront protect the near-shore water quality by filtering surface runoff and discouraging shoreline erosion.
4. Minimizing marina development not only preserves the vista/view of the shoreline and the harbor, but also helps maintain present water flow and sand transport patterns in the Bay and discourages erosion/deposition problems.
5. Controlled expansion of private docking facilities and enlargement of the City Marina for transient users creates a positive economic impact for both retail and service businesses downtown, as well as raising the tax base.
6. Preserving an open area in the Harbor encourages small craft and summer activities, and enhances the appeal of the Harbor as a recreational haven for a variety of water and waterfront activities.
7. Pilings and structural components of marina development and docks promote schooling and pan fish populations.
8. The plan encourages economic growth, yet maintains the natural beauty of the Harbor, and enhances the public use and enjoyment of the water.

Long-Term Negative Impacts:

1. Enlarging the private and public docking facilities increases peak stresses on shoreside facilities and services.
2. Additional boat usage in the Harbor encouraged by the expanded docking facilities will tend to increase water, air, and noise pollution.

3. Expanded berthing facilities will increase boat traffic and may compound marine traffic and safety problems.
4. Increased use, especially during peak-use periods, may impact water quality of the Harbor as a result of illegal and/or accidental sanitary sewage and oily waste discharges, as well as normal “graywater” discharges.

Strict and highly visible enforcement on illegal overboard discharges may minimize the magnitude of this impact.

5. Expansion of docking facilities may cause some increased catchments of flotsam and scum. Storm water run-off and other non-point discharges into the harbor may contain significant concentrations of suspended solids, organic pollutants, oil, grease, and litter, and may cause the gradual degradation of water quality.

The excessive turbidity and loads of oxygen consumptive organic matter during and immediately after a wet weather period may tend to cause unwanted blue-green algae blooms and the dominance of less desirable but hardier plant and animal species. In addition, litter and other floatable materials can become an unsightly nuisance in marina areas if not properly controlled.

This should be monitored and continued installation of storm drain traps should be encouraged to minimize this risk.

Authority for Local Control

The City of Harbor Springs has authority for local control of the Harbor through direct and indirect means as outlined below:

1. Public Act 191, of 1965: Marine Safety Act.

The City has authority, under Public Act 191, the Marine Safety Act, to enforce, out to a distance of ½ mile from the shoreline, criminal laws and municipal ordinances relating to public health, safety, and welfare, and non-structural activities on and in the water.

2. Public Act 247, of 1955: Great Lakes Submerged Lands Act.

The State will look to the City for review and comment on any proposed purchase, leasing, and use of the bottomlands governed by Act 247, the Great Lakes Submerged Lands Act.

The Harbor Plan will be considered by the State in their review of proposed activities, especially in regard to conflicts between uses.

3. Direct Action by the City:

A. Ordinances.

The City may enact an ordinance or code to regulate both structural and nonstructural uses of the Harbor.

The City may also affect existing ordinances or codes as they relate to water based or shore based uses of the Harbor.

B. Litigation.

The City may institute direct legal action under the regulatory powers granted to it by the State to enforce the Harbor Plan. The City could also litigate under the Michigan Environmental Protection Act if environmental consequences were involved in a proposed activity.

4. Indirect Control by the City:

A. Sewer and Water Taps.

The City could conceivably control development in or adjacent to the water by limiting access to water and sewer services.

B. Control of ancillary onshore activities under the City's zoning powers is also effective in Plan enforcement.

IMPLEMENTATION PROGRAM

The implementation of the Harbor Plan was structured to existing state and federal procedures. The Harbor Plan was adopted by the Harbor Commission, and accepted by the Michigan Department of Natural Resources, Little Traverse and West Traverse Townships, and enacted by the Harbor Springs City Council.

From time to time the Harbor Commission and Harbor Springs City Council approve changes to the Harbor Plan.

APPENDIX

Appendix A – Harbor Use

In a strict sense, the Harbor is a protected area of water encompassing 281 acres of water surface. It is a natural, deep-water harbor protected by Harbor Point from prevailing winds and occasional storms. The basic support community for the Harbor consists of the City of Harbor Springs, West Traverse Township, and Little Traverse Township. In the broader sense the Harbor extends to the adjacent waters of Little Traverse Bay, as well as shoreward into its support communities.

The Harbor and adjacent waters have been used as a waterway for the passage of Indians, settlers, and other people. It has been used commercially for the transport of lumber, cement, and other goods, as well as for commercial fishing. Its emphasis more recently has been on resort and recreation uses.

Between 1980 and 2000 the recreational use trend has continued and the Harbor and surrounding waters have been used for sailing, including racing and cruising, power boat cruising, day sailing and power boating, as well as paddle oriented uses. The adjacent land use patterns reveal a continuing intensive use of the shoreline for recreation, residential, and commercial uses.

In the past two decades there have been several significant changes in Harbor uses. Kayaking has become a very popular water sport nationally as well as locally. Similarly, personal watercraft (PWCs) have also become very popular. Both of these are reflected in current Harbor use. Sailing has declined in market share on a national level, but continues a strong presence locally. The Little Traverse Yacht Club sponsors an extensive sail-training program, as well as several local sailboat racing series. In addition, LTYC sponsors a major Great Lakes sailing regatta in late July. In 2002 sailboats comprised 31% of vessels docked or moored in the Harbor.

Wind surfing, though not included in the 1980 plan, was a popular water use activity in the 1970s and 1980s, but has declined recently. However, small sailboats such as Sunfish and Lasers continue to be popular. These shore-based boats are not included in percentage computations.

Powerboats have grown in popularity, as well as in the vessel size. This also appears to be reflected in the local distribution of boating activity. Powerboats represent 69% of vessels moored or docked in the Harbor. There appears to be an increase in the size of powerboats; however, this is not documented.

SCUBA diving does not appear to be a significant activity in the Harbor, but should be included as a possible or occasional use.

As noted elsewhere, recreational fishing activity has declined since the mid 1980s. Presently there are no known charter fishing operations based in Harbor Springs, and only one in the area. Commercial fishing is restricted to Native Americans through Federal treaty provisions. There is no indication of commercial fishing within the Harbor, except when the Native American boat is on the water.

There has recently been at least one charter sailing operation in the Harbor.

Other commercial activity includes a harbor excursion operation aboard the Pointer operated by Stafford's Pier. Additionally, a ferry/excursion operation based in Petoskey has utilized Harbor Springs as a stop and point of interest. However, this operation has been discontinued. While there are presently no Great Lakes cruise vessel operations using the Harbor this has been a notable historical use. A resurgence in the Great Lakes cruise ship industry combined with an easily accessible, deep-water harbor, should flag this as a potential future Harbor use.

Other commercial activities in the Harbor included service vessels operated by both Walstrom Marine and Irish Boat Shop. Walstrom Dock and Dredge operates a tug, two barges, and several smaller service vessels. Additionally, Irish Boat Shop and the City of Harbor Springs operate small barges dedicated principally to serving moorings. The Outfitter operates a land based kayak rental service, using the Ford Park waterfront as its access to the Harbor.

Law enforcement vessels include patrol boats for both Emmet County and the City of Harbor Springs, and occasional visits by U.S. Coast Guard and MDNR vessels.

Harbor uses are impacted by other Little Traverse Bay marina activities. While the Petoskey marina has had a long-term presence, the Bay Harbor marina is new since the original Harbor Plan.

Classification of existing and potential users should include:

<u>Activity</u>	<u>Servicing Harbor Facility & Parking Provider</u>
Pleasure Boat	
Motor—Seasonal	City Dock, Launch Ramp, Marinas and Riparians (1)
Motor—Transient	City Dock and Marinas
Sail—Seasonal	City Dock, Launch Ramp, Marinas and Riparians
Sail—Transient	City Dock and Marinas
Sport Fishing—Shore-Based	City Dock and Marinas
Sport Fishing—Water-Based	City Dock, Launch Ramp, Marinas and Riparians
Water Skiing	City Dock, Launch Ramp, Marinas and Riparians
Wind Surfing	City Dock, Launch Ramp, Marinas and Riparians
Kayaking/Canoeing	City Dock, Launch Ramp, Marinas and Riparians
Personal Water Craft (PWCs)	City Dock, Launch Ramp, Marinas and Riparians
Commercial Boat	
Charter Fishing	City Dock, Launch Ramp and Marinas
Charter Sailing	City Dock, Launch Ramp and Marinas
Excursion	City Dock (2) and Marinas
Passenger Ferry Service	City Dock (2) and Marinas
Marine Construction	Marinas and Riparians (3)
Kayak Rentals	Marinas and Launch Ramp
Commercial Fishing	Marinas and Launch Ramp

Swimming	City Beach, Zoll Street Park and Riparians
Scuba Diving	City Dock, Launch Ramp, Marinas and Riparians
Off-Water Uses	
Outdoor Games	City Parks
Sunbathing	City Beach, Zoll Street Park and Riparians
Walking	Parks and Sidewalks
Bicycling	City Streets and Sidewalks
Picnicking	City Parks, Launch Ramp and Marinas
Food & Beverage	Downtown and Waterfront Businesses
Marina Sales & Services	City Dock, Launch Ramp and Marinas

Notes:

- (1) Riparian ownership is private waterfront property and uses are considered to be limited to the private use of the owners.
- (2) Not permitted from City Dock.
- (3) Where permitted by zoning only.

Parking

Virtually all activities have a vehicular parking component. The City of Harbor Springs Zoning Code requires commercial uses to provide parking in accordance with accepted parking standards. The City also provides parking at the City Dock, the City’s Zorn Park Beach, the Zoll Street area, and Ford Park (Launch Ramp). In addition, the City provides public parking lots in the downtown area and permits on-street parking in many places. The parking requirements associated with the aforementioned uses and activities must be principally provided on-premise at the facility noted. Parking beyond the capacity of the facility flows over to public lots or on-street parking.

Appendix B – Goals & Objectives

The Harbor is a unique natural feature over which the City has only partial control. There appears to be no single environmental or engineering limit to development excepting the water depth, and that can be overcome. The City, Townships, and other stakeholders in the Harbor, must continue to address and control the limits of expansion and use through the Harbor Plan. The plan functionally and aesthetically can continue to grow from the natural characteristics of the Harbor and its surroundings. It will, however, need to take into account local goals and public needs. There should be no complacency.

Objectives and Position Development

The City of Harbor Springs by means of the Harbor Commission using public and professional input developed local objectives and positions for the use of the Harbor. Experience in

application of the plan since 1981 has further refined the original goals and objectives. The following list represents the original and modified goals and objectives.

Appearance

1. A balance should be maintained between appearance, use and development components of the Harbor.
2. Provide visual access to the beauty of the Harbor.
3. The open water portion of the Harbor should be preserved for activities and to maintain the scenic awareness of the Harbor.
4. Visual contact with activities on shore should be maintained as relief from marina development.
5. Maintain vistas between the boats by keeping planned mooring spacing.
6. Maintain and control the harbor appearance.
7. Encourage water/shore interfaces that do not reflect wave/sea activity.
8. Planned water uses should not make the waterfront a less attractive area in which to recreate.

Use

9. Safety should be provided for all users of the Harbor.
10. The Harbor should always be available for shelter as harbor of refuge.
11. Maintain convenient access to Little Traverse Bay and Lake Michigan.
12. Control user speed in the Harbor.
13. The Harbor should not be intruded upon to the extent that basic activities such as pleasure sailing, cruising, kayaking or canoeing, fishing and swimming would be forced out.
14. The plan should encourage the resort associations to continue only limited use of their shoreline and riparian water surface.
15. Harbor use opportunity should be available and as economically competitive as possible.
16. Provide economical moorings so that local residents can still use the Harbor.

17. Provide orderliness to the mooring of non-riparian boats.
18. Certain marginal uses are more a matter of scale than being total objectionable and should be evaluated on an individual basis.

Development

19. Provide the City with the ultimate control over too extensive marina development of the Harbor.
20. Permit more boats to be docked within the Harbor.
21. Maintain a slow to moderate paced development and increased use of the Harbor.
22. The development of the Harbor should be keyed to the overall needs of the Harbor vicinity and proportioned to its growth.
23. Uses and activities should give weight to proposals that benefit the general public over those that favor private interests.
24. On balance, natural features should not be compromised by development proposals.
25. Discourage development that is of a permanent nature.
26. Adequate launching facilities should be maintained as a means for boat use opportunity in the Harbor.
27. Uses requiring intensive automobile parking ashore should be discouraged from using the Harbor or using it as a base.
28. Development should recognize the functional difference of seasonal vs. transient.
29. The acquisition of private property is not a primary objective of the plan, though opportunities should be recognized.
30. The plan should be directed by the limitations of natural features and conditions taking precedence over private development objectives.
31. Maintain the extent of City sponsored buoy moorings.
32. Maintain orderly, planned, and controlled development.
33. The City pier, public promenades, open mooring and landscaped areas are all attractive features of the waterfront.

Appendix C – Population

County and Regional Trends

According to U.S. Census data, the ten county Northwest Michigan Region experienced rapid population growth in the decade preceding 1980. During the decade 1980-1990 this same area experienced a population growth of about 11% to 230,998 people. The 2000 census of the ten county region indicated an increase in population to 281,468 people, a growth rate for the 1990 to 2000 decade of almost 22%.

Table C1 (page 14), “Northwest Michigan Region”, delineates populations and changes from 1930 through 2000 within the ten county region, as well as comparative state and national figures.

Clearly the northwest Michigan region has continued the trend to expand in population at a rate substantially greater than either the State of Michigan or the U. S. growth.

TABLE C1

POPULATION 1930-2000
NORTHWEST MICHIGAN REGION

County	1930	1940	1950	40-50	1960	50-60	1970	60-70	1980	70-80	1990 ¹	80-90	2000 ²	%+- 90-2000
Antrim	9,979	10,964	10,721	-2.2	10,373	-3.4	12,612	21.6	16,194	28.4	18,183	12.3	23,110	27.1
Benzie	6,587	7,800	8,306	6.4	7,834	-5.7	8,593	9.7	11,205	30.4	12,212	9.0	15,998	31.1
Charlevoix	11,981	13,031	13,475	3.4	13,421	-4	16,541	23.2	19,907	20.3	21,473	7.9	26,090	21.5
Emmet	15,109	15,791	16,534	4.7	15,904	-3.8	18,331	15.3	22,992	25.4	25,040	8.9	31,437	25.5
Grand Traverse	20,011	23,390	28,598	22.3	33,490	17.1	39,175	17.0	54,899	40.1	64,283	20.8	77,651	20.8
Kalkaska	3,799	5,159	4,597	-10.9	4,382	-4.7	5,277	20.3	10,954	103.9	13,494	23.2	16,571	22.8
Leelanau	8,206	8,436	8,647	2.5	9,321	7.8	10,827	16.6	14,007	28.8	16,525	18.0	21,119	27.8
Manistee	17,409	18,450	18,424	-1	19,042	3.6	20,093	5.5	23,019	12.9	21,272	-8.2	24,527	15.3
Missaukee	6,992	8,034	7,458	-7.2	6,784	-9.0	7,126	5.0	10,009	40.5	12,146	21.4	14,478	19.2
Wexford	16,827	17,976	18,628	3.6	18,466	-9	19,717	6.8	25,102	27.3	26,370	5.1	30,484	15.6
Region	119,997	129,036	135,388	5.0	139,017	2.7	158,333	13.9	208,288	24.0	230,998	10.9	281,468	21.8
State	4,842,325	5,256,106	6,371,766	21.2	7,823,194	22.8	8,879,862	13.4	9,258,344	4.2	9,298,954	0.4	9,938,444	6.9
U.S.	123,202,624	132,164,569	151,325,798	14.5	179,323,175	18.5	203,211,926	13.3	226,504,825	11.4	248,825,735	9.8	281,421,906	13.1

Source: ² U.S. Census 2000, ¹ Extrapolation from 2000 data

Emmet County’s population increased by 2,048 people to 25,404 between 1980 and 1990 for an increase of nearly 9%, and from 1990 to 2000 it increased by 6,397 people to 31,437 for a growth rate of 25.5%.

Harbor Vicinity Population

The “Harbor Vicinity” is a combination of the City of Harbor Springs, West Traverse, and Little Traverse townships. The following table presents the Harbor Vicinity population and recent growth trends.

Table C2

POPULATION GROWTH TRENDS 1940-2000
West Traverse, Harbor Springs, and Little Traverse

	<u>1940</u>	<u>1950</u>	<u>1960</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>
Little Traverse Twp.	481	575	602	985	1,574	1,805	2,426
City of Harbor Springs	1,423	1,626	1,433	1,662	1,547	1,540	1,567
West Traverse Twp.	<u>245</u>	<u>319</u>	<u>326</u>	<u>420</u>	<u>997</u>	<u>968</u>	<u>1,448</u>
TOTAL	2,148	2,520	2,361	3,060	4,138	4,313	5,441

Source: U.S. Census, Population, Michigan, 1940, 1950, 1960, 1970, 1980, and U.S. Census 1990 and 2000 via Emmet County Planning Department

In the two decades between 1980 and 2000 the population of the Harbor Vicinity increased by 31.5% from 4,138 to 5,441 people. Between 1980 and 1990 the population of this same area grew 4.3% from 4,138 to 4,313 people, and from 1990 to 2000 the population grew again by 26.2% to 5,441 people.

The City of Harbor Springs increased slightly in numbers (see Table C2) from 1980 to 2000, but declined slightly in percent of county population. Both Little Traverse Township and West Traverse Township increased substantially in population numbers (see Table C2) in the same period. While both townships increased in percent of county population the increases were minimal being less than 1%.

It should be noted that physical constraints of the City of Harbor Springs severely limit the opportunity for population growth within the City. The adjacent townships have more land area available for growth and consequently have contributed more to the population growth of the Harbor Vicinity.

Population Composition

It is notable that the number of persons per dwelling has diminished approximately 1/3 person per household since 1980. At the same time the median age has increased approximately 10 years at both the county and Harbor Vicinity levels. Not only does this reflect an aging population, but it suggests that Emmet County and the Harbor Vicinity units are attracting a mature population including retirees.

It is difficult to make a complete comparison of each age category from prior data as the age group categories have been revised for the 2000 Census figures that are used in the accompanying chart, Table C3. However, there is an indication that the older age groups, particularly 65+, are greater than the county average, and the younger age groups are less than the county average. Additionally, the older age groups have increased as a percent of total population from 1980 to 2000. This would seem to substantiate the view that the Harbor Vicinity is becoming a more mature population. This is further confirmed by the median age comparison of the Harbor Vicinity to Emmet County. As noted above, Table C3 indicates that the median age has increased approximately ten years since the 1980 demographics.

TABLE C3¹

AGE GROUPS BY NUMBER AND PERCENT OF TOTAL 2000 POPULATION

Emmet County, Harbor Springs, West Traverse Twp. & Little Traverse Twp.

<u>Age</u> ²	<u>Michigan</u>	<u>Emmet</u>	<u>Harbor Spgs</u>	<u>Little Trav.</u>	<u>West Trav.</u>
		Number(%)	Number (%)	Number (%)	Number (%)
0- 5	672,000(6.8)	1,944(6.2)	5(4.8)	142(5.8)	60(4.1)
5-14	1,492,000(15.0)	4,552(14.5)	200(12.8)	373(15.4)	178(12.3)
15-24	1,364,000(13.7)	3,697(11.7)	117(7.5)	237(9.8)	129(8.9)
25-44	2,960,000(29.8)	8,830(28.1)	358(22.9)	684(28.2)	300(20.7)
45-64	2,231,000(22.5)	7,919(25.2)	444(28.3)	670(27.6)	509(35.2)
65+	1,219,000(12.3)	4,495(14.3)	373(23.8)	320(13.2)	272(18.8)
TOTAL	9,938,000	31,437	1,567(5.0)³	2,426(7.7)³	1,448(4.6)³
<u>% Male/</u>	49.0	49.2	44.9	49.3	50.8
<u>Female</u>	51.0	50.8	55.1	50.7	49.2
<u>Median Age</u>	35.5	38.9	46.6	40.1	47.0
<u>Persons/H.U</u> ⁴	2.56	2.44	2.14	2.47	2.30

1. Combines Tables 3 & 4 of original document
2. U.S. Census age categories modified since 1980
3. Denotes % of Emmet County
4. Denotes persons per household unit. Average family size is approximately ½ person larger.

Source: U.S. Census for 2000 via Emmet County Planning Department

Appendix D – Housing

Housing Unit Measurement

Between 1970 and 1980 Harbor Vicinity communities added 900 units to the county total of 3,600 for 25% share of Emmet County's growth. School enrollment was remarkably stable between 1971 and 1981 showing the strength of age groups in the harbor vicinity.

Between 1980 and 2000 the Harbor Vicinity added 1,219 units. This is an increase in the two-decade period of 48.5%. From 1980 to 1990 the Harbor Vicinity added 631 units for a growth of 25.1%, and from 1990 to 2000 there was an increase of 588 units for a growth of 18.7% to a total of 3,734 housing units for 2000.

The increase in housing units exceeds the population growth. This is probably due in part to an increase in seasonal/vacation dwellings, as well as the decline in household size.

The Harbor Vicinity growth of 1,219 units represents a 20.2 % of the County total of 6,048 for a 20.2% share of Emmet County's growth during the two-decade period. This is down slightly from the 25% share noted in the period 1970 to 1980.

It is notable that Resort Township experienced growth similar to West Traverse and Little Traverse Townships until 1994. From 1995 through 2000 Resort Township issued 566 residential permits³. Some of this certainly reflects the development of Bay Harbor west of Petoskey. Resort Township and Bay Harbor are noteworthy because of the development of a harbor with docking facilities that undoubtedly have some impact on Little Traverse Bay and Harbor use patterns and boat density.

Source: ³ Emmet County Planning Department.

Table D1

HOUSING UNIT MEASUREMENT 1970 – 2000

	<u>1970</u>	<u>1980</u>	<u>1990</u> ¹	<u>2000</u> ²
Emmet County.	8,904	12,506(+40.5)	14,371(+14.9)	18,554(+29.1)
Little Traverse Twp	569	1,065(+87.2)	1,341(+25.9)	1,555(+16.0)
City of Harbor Spgs.	744	849(+14.1)	941(+10.8)	1,086(+15.4)
West Traverse Twp.	304	601(+97.7)	864(+43.8)	1,093(+26.5)
TOTAL*	1,617	2,515(+55.5)	3,146(+25.1)	3,734(+18.7)
(* Harbor Vicinity only)				

Source: ¹ Computation from residential building permits for 1990

² U.S. Census for 2000 via Emmet County Planning Department

Notes: () Indicate percentage change from previous data/column.

Resort and Seasonal Housing

Total housing units in the Harbor Vicinity increased from 2,515 units in 1980 to 3,734 units in 2000, a gain of 1,219 units, or +48.5%. Emmet County showed an increase from 12,506 units in 1980 to 18,554 units in 2000, an increase of 6,048 or +48.4%.

In the same two decade time frame, occupied (year around housing units) increased from 2,192 to 2,290 a gain of only 88 units or 4.0%. Seasonal housing units increased from 647 to 1,293, an increase of 646 units or 99.8%. However, 151 housing units are classified as “vacant” but not seasonal, but is otherwise undefined. This is down substantially from 647 housing units so classified in 1980.

In 1980 occupied and vacant dwellings were combined as “year round” totally 2,195 units, or 87.3% of dwellings. In 1980 there were 320 dwellings classified as seasonal, or 12.7%. Using the same basis of comparison in 2000 occupied and vacant comprised 65.4% of units, down from 87.3%, while seasonal increased to 34.6% from 12.7% in 1980.

Clearly, statistical data indicates that the bulk of growth in the 1980 to 2000 time frame would seem to have been seasonal housing units.

Population growth in the Harbor Vicinity between 1980 and 2000 increased from 4,137 to 5,447, an increase of 1,310 people. Using an average household size of 2.3 persons/household in 2000 this would suggest that approximately 570 occupied housing units were created rather than the 88 suggested from Census data.

Obviously there are inconsistencies in interpretations from the census data available. Part of this may be the result of the manner in which dwelling owners and/or census surveyors classify housing units. Certainly other errors may apply.

Perhaps the three important aspects of this information are: 1) the Harbor Springs Vicinity population has grown by 1,310 people or +31.7%; 2) total housing units have increased by 1,219 units, or a +48.5%; and 3) the ratio of seasonal to year around has increased substantially from 12.7% to 34.6% of total housing units, a ratio of 1:2 seasonal vs. year around.

TABLE D2

HOUSING UNIT OCCUPANCY – 2000
West Traverse, Harbor Springs & Little Traverse

Housing Units	West Traverse	Harbor Springs	Little Traverse	Total Number	Total Percent
Occupied	629	683	978	2,290	61.4%
Vacant	27	64	60	151	4.0%
Seasonal	<u>437</u>	<u>339</u>	<u>517</u>	<u>1,293</u>	<u>34.6%</u>
Total	1,093	1,086	1,555	3,734	100.0%
% Occupied	57.5%	62.9%	62.9%		
% Seasonal	40.0%	31.2%	33.2%		

Source: 2000 U.S. Census data via Emmet County Planning Department.

Appendix E – Population, Housing, & Harbor Growth Projections

Population Projections

Population projections for 2010 and 2020 developed by the Emmet County Planning Department are shown in Table D1. It is projected that the population of the Harbor Springs Vicinity will increase by approximately 8%, 430 people, by 2010, and an additional 14%, 810 people, by 2020.

It is noteworthy that Emmet County Planning Department projections of 1980 for 1990 and 2000 were reasonably accurate, as shown in Table E1 following.

TABLE E1

POPULATION PROJECTIONS

	<u>1980</u>	<u>1990</u>	<u>2000</u>	<u>2010</u>	<u>2020</u>
Emmet County	22,992	25,040 [26,900]*	31,437 [31,200]*	[34,460]**	[39,139]**
Little Traverse	1,573	1,805 [1,973]*	2,426 [2,380]*	[2,692]**	[3,209]**
West Traverse	905	968 [1,136]*	1,448 [1,370]*	[1,608]**	[1,895]**
Harbor Springs	<u>1,561</u>	<u>1,540 [1,570]*</u>	<u>1,567 [1,650]*</u>	<u>[1,573]**</u>	<u>[1,580]**</u>
TOTAL - HSV	4,137	4,313 [4,679]*	5,441 [5,400]*	[5,873]**	[6,684]**

Source: Emmet County Planning Department

Notations: []* Denotes projections 1980

[]** Denotes projections 2002 per Emmet County Planning Department

Housing Unit Projections

The Harbor Vicinity grew by 900 units from 1,600 to 2,500 households between 1970 and 1980, a 56% increase. As discussed in Appendix D, between 1980 and 1990 housing units grew from 2,515 to 3,146, or 631 for a 25% growth, and between 1990 and 2000 housing units grew to 3,784, an increase of 638 units for a 20% growth. It had been estimated in the 1981 document that housing growth would be 400 to 500 units per decade, somewhat less than reported growth of 1269 units during that period 1980 to 2000.

While there are no official projections of future housing, using historical and projected population increases in combination with historical housing unit increases it may be extrapolated that housing units in the Harbor Springs Vicinity may increase by 670 by 2010, and 1886 total by 2020¹

¹Derived by using a ratio of 31.5% for population growth and 47.8% for housing unit growth from past data and applying this to Emmet County population growth projections.

Harbor Boating Growth Projection

As noted in the original Harbor Plan, during the decade 1970 to 1980 seasonal boat berths increased 17.5%, and transient facilities provided by the City at the city dock and Ford Park launching ramp induced a more than twofold use increase with still many boats being turned away.

In 2002 slips available for public use through the marinas totaled 390, a 28% increase from the 305 slips reported in 1981. The increase in slips is a consequence of the expansion of 31 slips at the City Marina, as well as minimal expansion or reconfiguring of docks for public use at both private marinas. Total slips (both public and private) available within the Harbor in 2001 are 553, an increase 23% from the 450 spaces noted in the 1981 Harbor Plan. However, the 305 slips reported in 1981 are not defined causing comparisons to be suspect.

In development of the Harbor Plan the most common request was for a rule-of-thumb that would provide capacity. However there is no methodology that strictly applies to this Harbor because of its expandable character. In the original Harbor Plan (1981) the following formula was used to produce a hypothetical number to be used to measure the point of crowding.

Hypothetical Harbor Capacity based upon inland water standards:

Different boat proportion assumptions changes the hypothetical capacity.

Assumptions: 1 large boat for each small one.

2.0 acres per boat average

5:1 (20%) diversification²

²Assumes four boats at dock/mooring for each boat in use

Harbor Area: $(280 - 40^1)$ acres = 180acres available for boating activity.

¹Designated mooring area

Vessel Use Capacity: 180 acres divided by 2.0 acres/boat = 120

Hypothetical Harbor capacity³: 120 x 5 = 600 vessels

³Total berthing capacity with 120 in use.

As addressed in section F, a physical inventory of berths was taken in 2002. This inventory showed 553 slips and moorings, both public and private, which are delineated in Table E2. This is somewhat less than the 600 vessel hypothetical Harbor capacity projected in the original document.

Table E2
ACTUAL NUMBER OF BERTHS¹

	<u>1981</u>	<u>2002</u>
Private marinas	305	313
Moorings	64	98 (66 City, 32 private)
Riparian	80	65
City dock	<u>45</u>	<u>77</u>
Subtotal	494	553
Estimated launch/day	<u>10</u>	
	504	

¹Physical inventory June 23-29, 2002

In 2002 effort was also given to evaluating the number of vessels in actual use on typical high use days. This is addressed in more detail in section F. From these counts the maximum number of vessels operating within the Harbor was 36. This substantially below the hypothetical vessel use capacity addressed in the original document.

The factor for boats leaving Harbor for the open water of Little Traverse Bay and Lake Michigan was not calculated. As noted in the Marina and Boating Data section there is a projected capacity of nearly 450 boats outside of the “Harbor”. Those in Little Traverse Township on the north shore of Little Traverse Bay, which are estimated at 45, undoubtedly use the harbor as their primary area of operation. Those in Bay View, Petoskey, and Bay Harbor probably use the harbor at some time, though not as their primary area of operation.

In 1981 it was projected that the demand for berths would likely average about 10 per year, or approximately 200 over the two-decade period. Based on available data it appears that the increase has been less than 100 berths within the Harbor. The demand for berths is likely greater than the increase experienced, as suggested by the Harbormaster’s “waiting list” for seasonal slips and moorings. The increase in berths is limited by space, economics, and governmental regulations, while the demand is affected by boating interest and Harbor area growth.

As noted in the original Harbor Plan, everything that exists on and near the Harbor grew because it was or is in someone’s or some group’s interest. The basic economics of development are

important. The harbor's use is seasonal as it relates to water and near shore facilities and very expensive for constructed improvements that cannot be used year around.

Appendix F – Marina and Boating Data 2002

Mooring and Dock Inventory

It is perhaps important to note that the “Harbor” includes the water area and shorefront west of a line from the end of Harbor Point to Artesian Avenue, but not technically the water or shorefront east of Artesian Ave. The present utilized capacity within the Harbor as defined is estimated to accommodate 553 vessels. This includes 455 slips or dock spaces, and 98 moorings, as delineated in the Table F1. In addition there are 35 docks and 45 moorings east of Artesian Ave. However, from a practical standpoint it is probably not realistic to dock vessels east of Artisan Ave.

Private/riparian docks are assigned a potential capacity of 1 boat per 1 dock, excepting where docks have provision for several slips or where more than 1 boat is berthed. Some docks on the north shore, particularly at the eastern end of the Harbor, may not be suitable for extended berthing due to potential wind and wave exposure.

There is the possibility of storing small boats such as dinghies, kayaks, and Sunfish on shore based racks or beaches. This is common practice in the Harbor and adjacent area.

A berthing method not addressed here is boats maintained on trailers. There is simply no way to quantify these, though launchings at Ford Park give some indication of use of trailer-stored vessels. As dock slip and mooring prices increase, combined with lack of availability of on-the-water berthing, this would seem to be an ever more popular method of boating access.

Due to the incomplete or uncertain basis of historical data it is difficult to compare current berthing capacity to prior figures. Moorings at 98 in 2002 appear to be 34% fewer than the 148 noted in the 1981 Harbor Plan. The reason for the apparent decrease in moorings is not evident. A few moorings in the northwest corner of the mooring field were eliminated in conjunction with the city dock expansion; otherwise city-controlled moorings have remained unchanged. Private moorings on both the north and south sides of harbor appear approximately the same as 1981. It may be that moorings east of Artisan Avenue were included in the 1981 data. Neither moorings nor docks east of Artisan Avenue are included in 2002 data, although they were inventoried for future reference.

Slips available for public use through the marinas total 390, a 28% increase from the 305 slips reported in 1981. The increase in slips is a consequence of the expansion of 31 slips at the City Marina, as well as reconfiguring of docks at both private marinas. Slips available within the Harbor (553) are 23% more than the 450 spaces noted in the 1981 Harbor Plan. As with the moorings the 305 slips reported in 1981 are not defined so that comparisons are suspect.

State vehicle registration data indicate that Emmet County had 3,839 boats registered in 1980. This increased by 11% to 4,142 in 1990, and further increased 11.3 % between 1990 and 2000 to

5,347 in 2000. These figures do not delineate type or size of vessels. Further, many vessels belonging to seasonal residents and berthed in the Harbor may actually be registered in other jurisdictions.

Table F1
Harbor Berthing Capacity – Slips/Dock Spaces & Moorings 2002

<u>Slips/Dock Spaces</u>			
<u>Facility</u>	<u>Total Slips</u>	<u>Seasonal</u>	<u>Transient</u>
City Marina	77	31	46
Walstrom Marine	195	195	0 ¹
Irish Boat Shop	118	118	0 ¹
Private/Riparian	<u>65²</u>	<u>65</u>	<u>N/A</u>
Sub Total	455	409	46
<u>Moorings</u>			
<u>Facility</u>	<u>Total</u>	<u>Seasonal</u>	<u>Transient</u>
City Mooring Area	66	66	0 ¹
Private/Riparian	<u>32³</u>	<u>32</u>	<u>N/A</u>
Sub Total	98	98	0
Total	553	507	46

¹Slips or moorings are not specifically dedicated to transient boat use; however, unoccupied slips may be used for transient dockage as available.

²Slips are computed at 1 slip per dock except where additional slips are provided. There are 45 docks on the north shore and 39 docks on the south shore. Not all docks have the capacity for berthing a vessel due to wind/sea exposure

³North side 55 moorings, south side 22 moorings

In addition to berthing capacity within the Harbor itself it may be important to consider other berthing facilities in Little Traverse Bay, which include Petoskey, Bay View, and Bay Harbor. While vessels located in these other areas have less impact on actual Harbor activity there is certainly some overlap.

There is a potential of nearly 400 vessels being accommodated through these remote facilities. As of June 2002 it is estimated that only 175 of these berths are utilized on a seasonal basis, increasing up to 312 during the peak transient period of July 1st through August 15th.

The continued release of slips at the Bay Harbor Marina and the sale of additional slips at the Bay Harbor Yacht Club suggest a future growth potential to 350 seasonal slips with existing infrastructure. Of the slips presently available nearly 300 have been developed since 1981, representing a growth of approximately 370% for outlying berthing capacity.

The Petoskey Marina master plan includes an additional dock with estimated potential of 40 slips, though no timetable has been assigned to construction, or whether these would include transient slips.

Table F2

Bay Berthing Capacity – Slips/Dock Spaces & Moorings
(Excluding Harbor)

Slips/Dock Spaces

<u>Facility</u>	<u>Total Slips</u>	<u>Seasonal</u>	<u>Transient</u>
Petoskey Marina	98	48	50
Bay View	0	0	0
Bay Harbor Marina	156	68 ⁴	88
Bay Harbor YC	118 ⁵	118	0
Bay Harbor – Private	15 ⁶	15	N/A
Total	387	249	138

Moorings

<u>Facility</u>	<u>Total</u>	<u>Seasonal</u>	<u>Transient</u>
Bay View	10 ⁶	10	0
Total	10		

Note: Petoskey and Bay Harbor do not permit moorings.

⁴Three additional slips per year are released to seasonal rentals.

⁵These are condominium docks intended for private ownership. As of June 2002 it appears that 69 are sold but only 43 occupied.

⁶Estimate only.

Transient Dockage

As previously noted, only the City Marina dedicates slips for transient dockage. Both private marinas accommodate transients on a space-available basis using bulkhead space or unoccupied seasonal slips.

There are 77 slips at the City Marina, 31 of which are seasonal, and 46 of which are utilized for transient dockage. Of these approximately 13 were added in 1990 with the floating dock expansion.

The following table indicates transient dockage activity at the City Marina from 1990 – 2001:

TABLE F3
TRANSIENT DOCKAGE- HARBOR SPRINGS

	Year											
	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>
Boats	1,309	1,530	1,767	1,752	1,699	1,786	1,597	1,453	1,551	1,718	1,474	1,384
Boat Days ¹	3,176	3,210	3,422	3,110	3,389	4,578	4,089	4,388	5,108	6,193	5,774	5,206

Source: Harbor Master's Reports, 1992 – 2001

¹Includes each day for which a vessel was assessed transient dockage.

The Harbor Master reports that transient dockage is generally full from late June to early September. Through much of this period a transient waiting list is maintained. Some vessels may be accommodated on unoccupied moorings, and some vessels must anchor in the assigned area at the west end of the Harbor.

The Harbormaster further reports that the fluctuations in Table E3 above are due primarily to: weather, usually a late start due to a cold early summer; fuel prices; and the perception of the national economy.

Vessel Count

During the period June 23-30, 2002, a physical count was taken of all vessels moored or docked within the Harbor. This count includes only seasonal vessels, and does not consider transient vessels. This count was taken primarily to evaluate the mix of types and sizes of vessels. While the total number of vessels gives some approximation of total number of vessels in the Harbor it is likely that not all vessels are in the water at this early date. Further, as the Harbor extends east only to Artesian Avenue vessels docked or moored east of Artesian Avenue are not included in the following table. The total number of vessels docked or moored in the Harbor during this count was 460, of which 69% are powerboats and 31% are sailboats. The table below delineates vessels by type and size.

Adjusting the 1981 data to remove transient vessels and launch ramp considerations indicates there were 461 vessels in 1981, or approximately the same as the current count.

This count is undoubtedly low due to it being conducted before the peak of the season. There were at least 15 empty seasonal slips in the marinas, as well as at least 10 empty moorings. There were also unoccupied private/riparian moorings and docks. It would not seem unreasonable to estimate an additional 50 vessels may be seasonally docked or moored in the Harbor at peak season.

While the private marinas do not maintain waiting lists for slips, the City Marina has a seasonal dockage waiting list of 196 as well as a mooring waiting list of 120. Vessels on the waiting lists do not necessarily represent a new or additional boat, as they may be moored or docked elsewhere in the Harbor or area. Both the Petoskey Marina and the Bay Harbor Marina indicate they also have waiting lists of over 100.

Clearly there is a strong demand for dockage and moorage. It also appears that the availability of additional slips or moorings has an impact on the number of vessels based in the Harbor, and probably on the utilization of the Harbor as well.

Transient dockage is full from July 1st until mid August. Generally there is a waiting list during this period and often there are several vessels at anchor in the west end of the Harbor. There has been a slight trend towards increased transient activity over the past several years. The addition of 31 slips with the municipal dock expansion in 1990 increased transient capacity.

TABLE F4

VESSEL COUNT¹

Vessel Type/Size	Number	% of Total
Power vessels:		
Runabouts - 20' or less	112	24%
Runabouts - More than 20'	67	15%
Power Cruisers – apprx. 30'+	<u>138</u>	<u>30%</u>
Sub Total	317	69%
Sailboats		
Daysailers/racing	62	13%
Sailing Auxiliary (apprx. 30'+)	<u>81</u>	<u>18%</u>
Sub Total	143	31%
Total Vessels Counted	460	
Other (Not using a dock or mooring)		
Kayaks (incl. Canoes)	41	N/A
Dinghies	70	N/A
Sunfish (incl. Lasers, etc)	27	N/A
Personal Water Craft	9	N/A

¹June 23 – 29, 2002

In addition to the above there were 39 vessels docked or moored east of Artesian Ave., as well as 10 dinghies, 17 kayaks, 20 Sunfish, and 1 PWC.

Vessels “In Use” Study

On Saturday, July 6, 2002 a survey was conducted to determine vessels in actual use in the Harbor. This day was selected as typical of early summer use but without the impact of being a holiday, although the proximity to July 4th may have had some affect. This is a single event survey and not necessarily typical of peak summer use patterns.

The weather, always an element of boating use, was sunny and clear all day with temperatures ranging from 55^o at 7:00AM to 80^o mid afternoon. Winds started at light east, diminished to calm late morning, and came up in the afternoon to west 10 mph. In other words, an ideal boating day. Table E5 represents vessels “in use” hourly over the course of the day by type and size. An

inventory of vehicles and trailers at the launch ramp is also included to give some assessment of trailered vessel impact.

The maximum use of the Harbor was 36 vessels at 1:00PM, though afternoon usage remained at or above 30 vessels.

Actual use at the time survey was substantially less than the 120-vessel capacity addressed in the Boating Growth Projections (p. 22). The Harbor did not appear to be crowded during the survey.

Table F5

Vessels “In Use” Survey¹

Vessel Type/Size	Time/Number of Vessels									
	7	8	9	10	11	Noon	1	2	3	4
Dinghies		1	2		1	3	1	3	2	
Kayaks ²		1		1	4	3	2		1	3
Sunfish ³							2	3	2	1
PWC				2	4	1	3		2	3
Power <20'	2		2	7	12	10	13	6	5	6
Power >20'	1		3	1	2	2	3	9	10	12
Power Yachts ⁴		1	5	2	3	2	1	3	5	2
Day Sail						7 ⁵	10 ⁵	3	4	5
Sail Aux (sailing)							1	3	1	3
“ (power)		1	2			1				.
Total	3	4	14	13	26	29	36	30	32	35
Fishing	3		2							
Anchorage	8	8	6	5	4	4	5	5	nc	6
Ramp use	5	6	6	9	19	31	40 ⁶	38 ⁶	nc	29

¹ Conducted July 6, 2002

²Includes canoes and other paddle type vessels

³Includes all small board type sailboats

⁴Live aboard type power yachts

⁵Some vessels sailing to schedules NM race

⁶Launch ramp full with boats waiting to launch or haul

nc not counted

Limits Considerations

The Harbor encompasses 281 acres of water surface. The present designated mooring area covers approximately 40 acres, about 14%. Present commercial docks cover approximately 8 acres, about 3%. Riparian moorings and docks cover approximately 42 acres, or 15%. Therefore remaining water surface not encumbered by docks or moorings is approximately 190 acres or 68%. However, open water defined as that area south of the designated mooring field and seaward of marinas and riparian docks and moorings is approximately 152 acres, or 54%

Even with an increase of over 100 slips and moorings from 450 sites in 1981 to 553 sites in 2001, there is still appears to be opportunity for dock and mooring expansions in the Harbor.

As noted in the projections portion of Section E, Population and Housing Projections, the original Harbor Plan projected a hypothetical Harbor capacity of 600 vessels berthed with 120 vessels in use at peak times. While use in 2002 appears to be approaching these numbers it does not appear that the Harbor is being overcrowded. A strongpoint of the Harbor is the relatively large open water area available for recreational use, in and out traffic, maneuvering, and protection from adverse weather.

Appendix G - Environmental Analysis

FISHERIES, WILDFOWL, MAMMALS, AND ENDANGERED SPECIES

Fisheries: Recreational or sport fishing continues to be a viable water use; however, it appears that recreational fishing activity in the Petoskey/Harbor Springs area of Little Traverse Bay has declined significantly over the period 1980 to 2000. According to the Michigan Department of Natural Resources (MDNR), fishing effort on Lake Michigan has dropped by 50% from 1985 to the early 1990s, and has remained at approximately the same level since. Recreational fishermen suggest that the decline is perhaps higher in Little Traverse Bay.

Based on MDNR data it is estimated that there were approximately 500 fishing boat trips from the Harbor Springs in 2000, including both the launching ramp and fixed base vessels.

MDNR “creel surveys” indicate that Lake Trout and Chinook Salmon have been the principal game fish caught over the past several years. Brown Trout, Rainbow Trout, Coho Salmon, Bass, Yellow Perch, and Whitefish have also been caught in lesser numbers.

MDNR surveys show fish populations in the Little Traverse Bay are composed of planted lake trout, as well as brown trout, salmon, yellow perch, smelt, rainbow trout, alewife, as well as Whitefish, Menominee, burbot, chub, some sisco, and several species of minnows, sculpins, and suckers.

Fish stocking data suggests that fish-planting activity in Little Traverse Bay has been reduced since 1981. Only reduced numbers of Brown Trout, and federal plantings of Lake Trout have occurred in recent years². However, it should be noted that recent plantings have been of larger fish, which presumably have a better survival rate. MDNR experts indicate stocking is coordinated with existing fish populations, and that fish migrating from other planting sites may become part of the catch in Little Traverse Bay.

According to MDNR Fisheries, there is little possibility of resuming commercial fisheries on a large scale in the foreseeable future due to the laws governing fishing methods in both the outer and inner portions of the Bay.

The only commercial (non recreational) fishing in Little Travers Bay is that of Native American fishermen under Federal Treaty provisions. The direct and indirect impact of commercial fishing on recreational fishing is not documented

Wildfowl: Waterfowl activity includes a limited population of year-around Mallard ducks. In recent years a substantial population of Canadian geese has also developed. Summer nesting activity includes Mallards, Mergansers, and Canadian Geese.

Double crested cormorants have become more commonplace in the Little Traverse Bay area in recent years. Though under federal protection these birds are considered to be an invasive nuisance species. They are fish eaters and reductions in fish populations, particularly perch, are often attributed to them.

Waterfowl activity is impacted by extended seasonal icing. Because the Bay and Harbor freeze later in the fall/winter than inland lakes swans and duck populations from inland bodies of water utilize the Harbor in the fall and early winter. Flight ducks also use these waters in late season migrations.

The Bay or Harbor is not utilized for waterfowl hunting activity.

Bald Eagles are also known to inhabit the Little Traverse Bay area.

Mammals: There is no significant population of aquatic mammals in the Harbor. It has been reported that both Muskrats and Mink have been sighted. Presently, there are no special mammalian specie problems known to exist.

Endangered Species: No endangered species are known to inhabit the harbor area.

WATER QUALITY

There is insufficient historical quantitative data to establish long-term trends in the water quality of the Bay and Harbor. However, available data and subjective evaluation does suggest that the water quality of Little Traverse Bay, as well as most other bodies of water in northern Michigan, is excellent.

Nutrients & Clarity: In 2001 the Tappan of the Mitt Watershed Council undertook a comprehensive water quality monitoring program of 42 bodies of water in the northern Michigan area, including Little Traverse Bay. The results of this study for Little Traverse Bay were:

TableG1- Water Quality

2001 Comprehensive Monitoring Results

Little Traverse Bay

Clarity (feet)	Ph	Chloride (Mg/L)	Total Nitrogen (Mg/L)	Nitrate Nitrogen (Mg/L)	Total Phos. (µg/L)
42	8.3	3.0	0.39	0.14	2.3

Clarity is excellent, second only to Grand Traverse Bay, with other bodies of water ranging from 8 to 30 feet. The Ph of virtually all northern Michigan waters is basic (above 7.0) due to the limestone geology, and ranges from 8.17 to 8.67. Chloride levels ranged from 1.4 to 75.0, which are well within limits causing stress to fish or other aquatic organisms. The concentrations of nitrogen and phosphorous and their relationship to each other in the Bay and in most other northern Michigan waters are considered representative of high quality surface water.

According to the Tip of the Mitt Watershed Councils report, “Nutrient pollution is the most serious threat to the water quality of Northern Michigan’s lakes.” Nutrient pollution is associated with fertilizer, faulty septic systems, and storm water runoff.

Point and Non-point Discharge: A “point source discharge” is where the actual source of a pollutant is known, not simply the point at which the pollutant is introduced to the body of water. A “non-point source discharge” is where the actual source of the pollutant is NOT known, even though it may be known where the pollutant is introduced into the body of water, such as through a storm sewer.

There are no known point discharges in the Harbor. Point discharge locations noted in the 1981 document in Little Traverse Bay included Penn Dixie Cement (Bay Harbor), Curtis Wire Products, and the Big Rock Nuclear Plant, which have been discontinued. The City of Petoskey wastewater treatment facility is the only point discharge in 2002.

Non-point discharges include storm water runoff, which as noted above, is probably the most significant pollution threat to water quality, carrying nutrients, oils, and salt into the water, as well as particulate matter and floating debris. Vessel pollution in the form of “gray water” (sink and shower water) discharges, and oil, fuel, and combustion products also represent a potential water pollution sources.

The City of Harbor Springs has undertaken to minimize storm water discharge by installing settling chambers in storm water drains to trap particulate and floating materials.

Appendix H - Standards

Environmental Quality Standards

1. Proposed structures within the Harbor should be of open construction unless alternative constructions methods are demonstrated to be environmentally acceptable. A free surface flow zone of 15 feet extending out from the shoreline should be incorporated into structural proposals to allow natural shoreline currents to scour the shore of floating debris and prevent catchments of these materials in stagnant shoreline pockets.
2. Urban storm water runoff into the bay is likely to be a much greater influence on chemical and biological quality in the bay than is boat density. New development and redevelopment within the watershed, and especially near the shoreline, should incorporate available and innovative technologies to mitigate the impacts of runoff discharges in the bay. Methods to control runoff impacts include greenbelts, grassed drainage ways, screens and/or gravel filters over storm drain inlets, system retention, control of fertilization amounts and timing, street cleaning and litter and leaf pickup programs.
3. Water quality appears to have improved within the Harbor, and water quality testing by the Tip-Of-The-Mitt Watershed Council confirms high quality water in Little Traverse Bay. It would appear prudent that the community continue a limited scope water quality-monitoring program, especially in the northwest corner of the bay where the municipal beach and main storm drainage inputs are in close proximity.