

# *Boyer City,* *Michigan* Marina Master Plan

Final Report  
January, 2005



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Marina / Waterfront / Resort  
Engineering Services • Planning • Development & Construction

# Boyne City Marina Master Plan – Final Report

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- A. PHOTOS – EXISTING CONDITIONS
- B. DETAILED COST ESTIMATES



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## EXECUTIVE SUMMARY

The City of Boyne City retained the services of The Abonmarche Group (TAG) in 2002 to review existing conditions at the F. Grant Moore Municipal Marina and the municipal boat launch on Lake Charlevoix.

Originally constructed in the late 1950's, and added to in the early 1990's, the present F. Grant Moore marina is in need of rehabilitation and expansion. While the newly renovated marina buildings are in excellent condition and adequate to serve the needs of the marina, up to an additional 50 – 55 transient slips are needed to meet probable demand. In addition, the floating dock systems put in place in the early 90's are deteriorating to the point where they will soon be past their useful economic life and cost-prohibitive to maintain. The existing electrical system and outlets serving the marina slips are not up to current standards and must be replaced. The floating wave attenuators installed in the 90's to protect the marina basin from excessive wave action from westerly to northwesterly waves in Lake Charlevoix are inadequate for the wave and ice conditions encountered. They should be replaced with a permanent breakwater structure that will afford protection and last for at least 80 – 100 years.

The existing two-lane boat launch should be expanded to four lanes. A permanent detached breakwater structure should be constructed offshore to protect the launch lanes from waves in the lake. As much additional car-trailer parking as possible should be provided near the site and we recommend that the City consider acquiring the former Boyne City Chemical property for this additional parking.

The existing, floating "Shopper's Dock" just north of the mouth of the Boyne River is experiencing severe maintenance problems and should be replaced with a fixed pier that can withstand the wave and ice conditions encountered. The City has expressed an interest in maintaining short term "shoppers docks" so that area



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boaters and visitors can moor their boats for a short time and visit the downtown area. Additional shopper docks are proposed south of the river -- along the south shoreline of the bay fronting the mouth of the Boyne River.

Finally, TAG recommends that the shoreline around the small bay and marina be cleaned up, protected with stone revetment, and provided with a substantial, paved pedestrian circulation system to tie the improvements together and provide public access and enjoyment of the waterfront.

## **Recommended Plans and Cost Estimates**

Unfortunately, the small bay fronting Veteran's Memorial Park and the existing marina is too small to allow the City to expand the marina to the optimum number of slips – without completely sheltering the bay with permanent breakwaters and filling the bay with boat slips. The center of the bay is too deep for the economic construction of permanent breakwaters and floating breakwaters will not withstand the rigorous icing and springtime ice breakup conditions. Therefore, expansion of the marina in its present location is limited by the existing water and shoreline conditions.

Nevertheless, TAG offers two options for the City to consider for marina expansion (see figures 5 and 6 in the report) and one plan for upgrading the boat launch facility (see figure 7 in the report). These plans and associated cost estimates are as follows:



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<b>Master Plans and Cost Estimates</b>		
<u>Improvement</u>	<u>Impacts</u>	<u>Estimated Cost</u>
Marina Plan A	<ul style="list-style-type: none"> <li>➤ Rebuilt marina slips with an economic life of at least 30 years</li> <li>➤ Permanent breakwater protection for most of the marina</li> <li>➤ Provides 14 additional 40 – foot transient slips, for a total of 56 marina slips</li> <li>➤ Rebuilt public pier for fishing and 10 short-term "shopper's" slips with an economic life of up to 50 years</li> <li>➤ 20 new, 40-foot "shopper's" slips along the south shore of the bay for short-term (hourly) boat berthing visiting boats</li> <li>➤ Beautification of the existing shoreline in the bay, with stone revetment shore protection.</li> <li>➤ Creation of approximately 2300 feet of public sidewalk along the shore and around the marina.</li> </ul>	\$4.1 million
Marina Plan B	<ul style="list-style-type: none"> <li>➤ Same as Option A, except would provide 30 additional transient slips at the marina, for a total of 72 marina slips.</li> </ul>	\$4.4 million
Boat Launch Improvements	<ul style="list-style-type: none"> <li>➤ Doubles the launching capacity of the existing boat launch</li> <li>➤ Provides launch protection from waves</li> <li>➤ Provides 28 additional car-trailer parking spaces</li> </ul>	\$824,000

## Funding

Subject to the receipt of a construction permit for the intended improvements from the Michigan Department of Environmental Quality (MDEQ) and the US Army Corps of Engineers (USACE), the Michigan State Waterways Commission (MSWC) will consider an application for funding grants for the improvements. The MSWC may fund 50% of the project costs related to harbor and marina improvements and 75% of the costs related to boat launch improvements.



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Other funding sources that should be considered by the City include:

- State of Michigan Trust Fund.
- MDNR Grants Management.
- Great Lakes Fisheries Trust which funds improvements that permit increased public fishing access to the waters of Lake Michigan.

## Project Schedule

The following pending favorable support from the permitting agencies we would anticipate the following approximate project schedule.

<i>Approximate Project Schedule</i>	
<u>Activity</u>	<u>Completion</u>
Selection of master plans for the marina and boat launch facilities	September 2003
Apply for permits from the MDEQ/USACE	October 2003
Joint public notice	January 2004
Permit review and processing (Note: this process can take anywhere from 8 months to 2 years depending on the public and agency issues involved.)	January 2005
Budget funding with MDNR and MSWC	April 2005
Obtain component funding from other funding agencies	July 2005
Prepare project construction documents	October 2005
Construction	June 2008



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## I. INTRODUCTION

Situated at the very southeast end of Lake Charlevoix, Boyne City is the southern landside gateway to the main arm of Lake Charlevoix – one of the largest and most beautiful inland lakes in Michigan (See Figure 1).

Lake Charlevoix is approximately 14 miles in length, encompassing approximately 27 square miles of water surface with depths up to 122 feet. The north end of the lake opens to Lake Michigan through the Charlevoix channel and Round Lake. Lake Charlevoix is a spectacular summertime resource for power and sail boating, fishing and swimming. Although it is now at the same elevation as Lake Michigan, Lake Charlevoix was once 5 feet higher than the big lake and is classified as an “inland lake” by regulatory authorities.

Lakeside attractions include the communities of Boyne City, Charlevoix, and East Jordan as well as Young State Park, a 2,678-acre state park approximately 3 ½ miles north of Boyne City.

Boyne City operates the 42-slip Grant F. Moore Municipal Marina within Veteran's Memorial Park and a two-lane public boat launch off North Lake Street, approximately ¼ mile north of the marina. The City also maintains a “Shopper's Dock” for limited, short-term boat parking -- just north of the mouth of the Boyne River.

Because demand, at time, exceeds the capacities of both of these facilities, the City retained The Abonmarche Group to study the City's marina and boat launch facilities and determine the feasibility of expanding the facilities.



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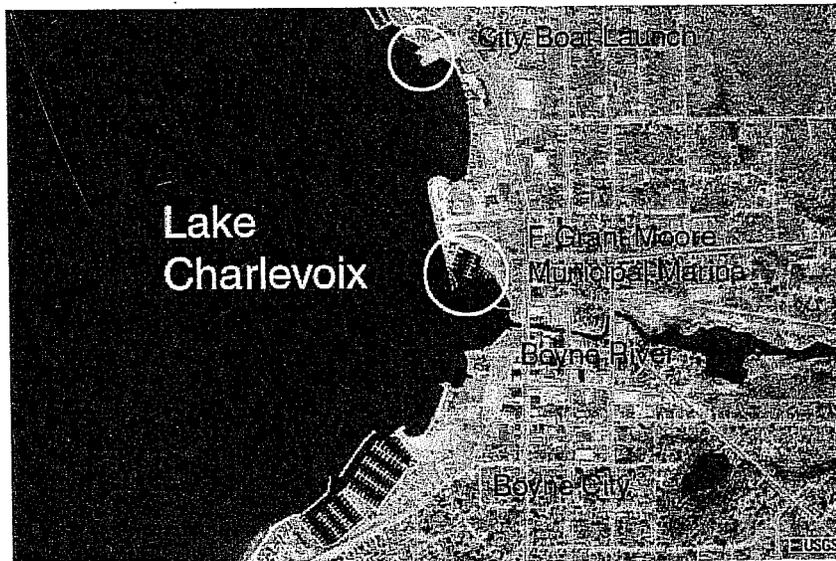
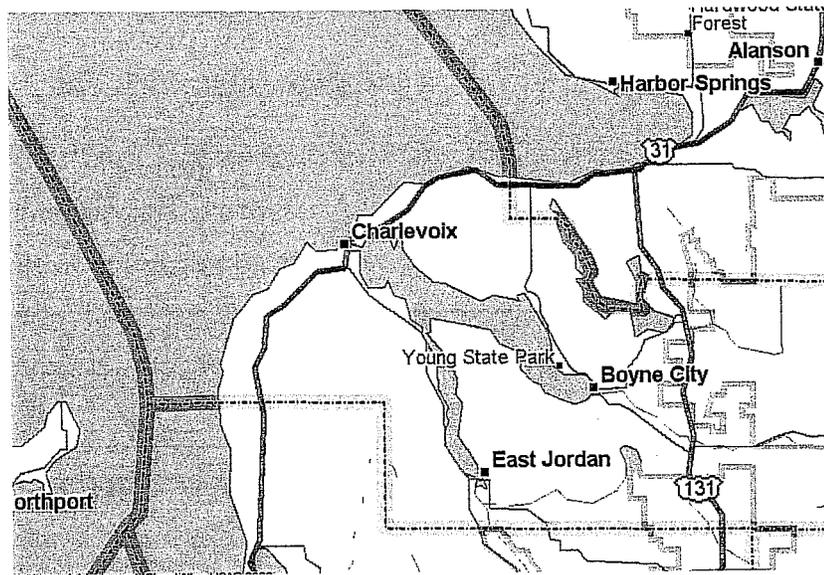


Figure 1 Location Map



## II. EXISTING CONDITIONS

### A. BOYNE CITY MUNICIPAL MARINA

Originally constructed in the late 1950's, the Boyne City F. Grant Moore Municipal Marina is located at 20 State Street, within Veteran's Memorial Park, north of the outlet of the Boyne River (see Figure 2). The marina and Park are located within a small, unprotected bay that once was the focal point of a thriving logging and wood products industry.

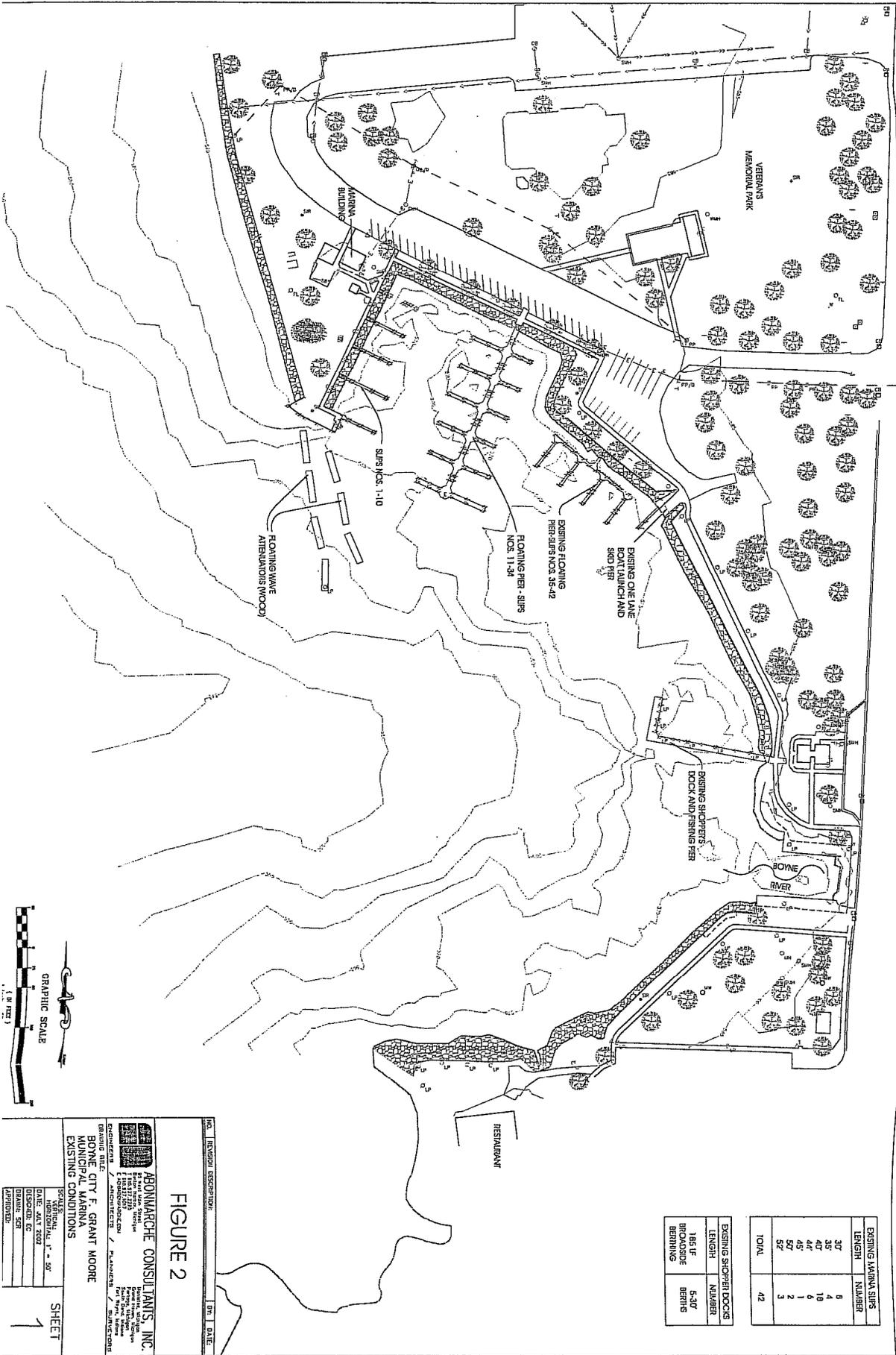
The marina consists of the following:

- A marina service building with office, storage, and restroom facilities for marina patrons.
- Fixed and floating docks with water and electric service.
- Seven wooden, floating wave attenuators placed in a line south of the marina off the small point containing the fixed docks.
- A small boat launch ramp for use by small day boats.
- A covered picnic pavilion with picnic tables and vending machines.
- A portable sanitary pump out.
- Various benches, waste receptacles, and grills throughout the marina grounds.

In addition, the City maintains a floating "shopper's dock" for a limited amount of short-term, broadside boat docking southeast of the marina and approximately 100 feet north of the mouth of the Boyne River.

The marina is operated from about May 15 through October 15 of each year.





EXISTING MARINA SIRES	
LENGTH	NUMBER
30'	8
35'	4
44'	6
45'	1
52'	2
52'	3
<b>TOTAL</b>	<b>42</b>

EXISTING SHOPPER DOCKS	
LENGTH	NUMBER
185 LF	6-347
BROADSIDE	BERTHS

NO. | REVISION DESCRIPTION | DR. | DATE

**FIGURE 2**

**ABONMARCHÉ CONSULTANTS, INC.**

PRINCIPALS / ARCHITECTS / ENGINEERS / PLANNERS  
 BOYNE CITY F. GRANT MOORE  
 MARINA SHORES  
 EXISTING CONDITIONS

VERTICAL SCALE: 1" = 40'  
 DATE: JAN 7 2006  
 DESIGNED: CC  
 DRAWN: ECR  
 APPROVED:

SHEET  
1

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## 1. Shoreline Protection

The shoreline fronting the original fixed slips in the marina is protected by fieldstone revetment and a short section of steel sheet piling around the point just west of the marina building. The upper portion of the fieldstone revetment has stones mortared into place. The remaining portions of the park and marina are protected by limestone revetment in fair to good condition.

A concrete sidewalk around the perimeter of the marina is in fair condition, with miscellaneous cracking and settlement in places.

## 2. Marina Docks and Slips

The marina contains 42 slips, as shown on Figure 3.

- a. Slips 1 – 10 are part of the original construction of the marina and are formed by 3-foot wide fixed piers with 2x8 wood decking on 10-inch steel channel stringers supported by steel H-piles. Wooden mooring piles between the piers are in good condition.

The steel channels have been painted on the outside within the last three years but the interior of the channels have not been painted and are experiencing moderate levels of corrosion. With continued maintenance and painting, these docks have an estimated remaining life of another 12 – 15 years. These slips are served with water and electrical service via a concrete pedestal on the sidewalk fronting each pair of slips.



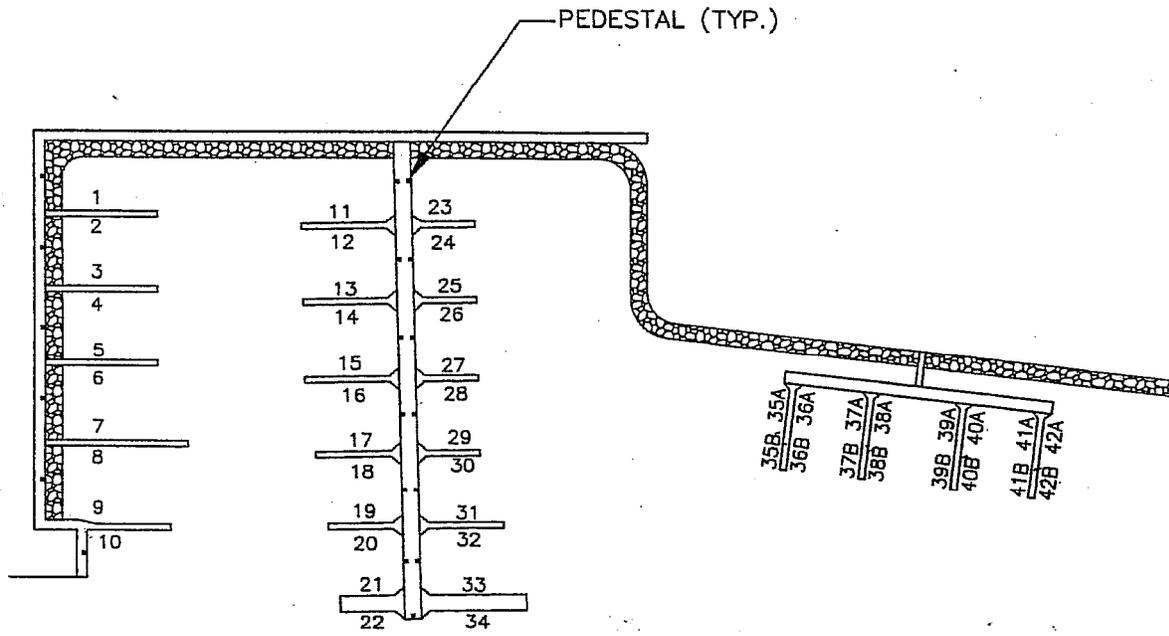


Figure 3 – Existing Slip Layout and Numbers



- b. Slip numbers 11 – 34 were part of an expansion in the early 1990's and are floating wooden docks manufactured by Floatation Dock Systems, Inc. The main pier is 6 feet wide and the finger piers are all 4 feet wide. None of these docks have mooring piles between the slips. The floating pier and docks are in fair condition and are now experiencing some listing – apparently due to degradation of some of the flotation systems. All of the floating docks at this marina have required significant maintenance over the past 3 years and have an estimated economic life of less than 5 years. These piers and docks experience heavy wave and winter ice action and are not considered to be a good design for the conditions encountered. Slips 11 – 34 are served with water and electrical service via a Midwest Utility pedestal fronting each pair of slips.
  
- c. Slip numbers 35A – 42B are located on a floating dock system southeast of the main portion of the marina and constructed in the early 1990's. These slips are not served with water and electrical service. They are also suffering severe maintenance problems and have an estimated economic life of less than 5 years.
  
- d. Floating Wave Attenuators – Seven floating wooden / steel wave attenuators, each approximately 40 feet long by 8 feet wide, were anchored offshore of the marina in the mid-1990's in a staggered pattern, in an attempt to reduce (attenuate) wave action within the marina. These attenuators are in fair condition with some rot, corrosion and collision damage. At the time of our inspection approximately 1-foot waves were impacting the attenuators from the west and the system was experiencing significant movement. These wave attenuators are also incurring severe maintenance problems and have an estimated economic life of less than 5



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years. They are not considered adequate for their intended purpose.

- e. Shopper's Dock – The City maintains a "Shopper's Dock" approximately 100 feet north of the mouth of the Boyne River. This dock is an 8-foot wide, ell-shaped floating wooden / steel pier extending approximately 160 feet into the lake, with a 55-foot ell meant to act as a wave attenuator. This pier is intended for short-term broadside boat docking (less than 2 hours) and for public fishing off the south edge of the pier, facing the mouth of the river. This pier is facing the same difficulties as the other floating systems and has a remaining economic life of less than five years. It is not considered adequate for the conditions encountered.



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A summary of the current marina slips is as follows:

**Table 1**  
**Boyne City Municipal Marina Slip Summary**

<u>Slip Nos.</u>	<u>Length (1)</u> <u>(Feet)</u>	<u>Type</u>	<u>Condition</u>
1 - 6	38'	Fixed (Wood / Steel supt.)	Fair to good
7 - 10	44'	Fixed (Wood / Steel supt.)	Fair to good
11 - 16	44'	Floating (Wood / Steel)	Deteriorating
17 - 18	40'	Floating (Wood / Steel)	Deteriorating
19 - 22	35'	Floating (Wood / Steel)	Deteriorating
23 - 30	30'	Floating (Wood / Steel)	Deteriorating
31 - 32	40'	Floating (Wood / Steel)	Deteriorating
33 - 34	50'	Floating (Wood / Steel)	Deteriorating
35 - 42	44'	Floating (Wood / Steel)	Deteriorating
Shopper's Dock	175' (broadside)	Floating (Wood / Steel)	Deteriorating

(1) Effective pier length at LWD, at 577.5 (IGLD 1985)



## 3. Marina Utilities

- a. Electrical Service – Water and electrical service is provided to slips nos. 1 – 34 at utility pedestals located between opposing slips. Electrical service is 120V / 240V single phase fed by a 600 amp panel (slips 1 – 10) and a 400 amp panel (slips 11 – 34). Voltage measurements averaged 122V throughout the marina. With the exception of slips 1 and 10, all slips are served by 1 – 30 Amp receptacle. Slips 1 and 10 are served by two 30 amp receptacles.

None of the slips meet proposed state standards that have been revised as of 2003. Electrical services must be upgraded to current state standards.

- b. Water Supply – Water supply is from the City water supply and is considered adequate to serve the slips. Slips numbers 1 – 34 have water service at utility pedestals located between opposing slips.
- c. Wastewater Disposal – The marina service building is served by the City sewerage system. The marina operates a portable pump out station to serve boats. The portable pump out is emptied to the City's sanitary sewer system.
- d. Trash Collection – Trash receptacles are provided at strategic locations throughout the marina. Trash is collected daily and disposed of off site.
- e. Telephone Service – A pay phone is provided at the marina building. A standard landline is located in the Harbormaster's office in the marina building. Individual slips are not provided with individual telephone service.



- f. Cable TV Service – The marina is not served by cable TV.
- g. Fueling – The marina does not provide any fueling service.
- h. Fire Protection – Five emergency stations, consisting of a life ring and a fire extinguisher, serve the marina.

#### 4. Marina Service Building

The marina building houses a marina office, storage area, showers and restrooms for marina patrons. The building is in very good condition and is well maintained.

The men's restroom contains 3 lavatories, 2 urinals, and two stools, one of which is handicap accessible.

The women's restroom contains 3 lavatories and 4 stools, one of which is handicap accessible.

There are 4 unisex showers, one of which is handicap accessible.

The marina building is considered adequate to serve the needs of a marina for up to 100 slips, total.

#### 5. Parking

The marina does not have any dedicated parking spaces. The parking lot fronting the marina is part of Veteran's Memorial Park and contains 31 automobile spaces, none of which are marked for handicap use. The lot is of bituminous asphalt, in fair condition, with some cracking and ponding due to poor drainage.



## 6. Other Marina Amenities

A covered picnic pavilion is provided for marina patrons, along with 2 soda vending machines and several grills. The pavilion has wind screens on three sides for protection from winds / rain.

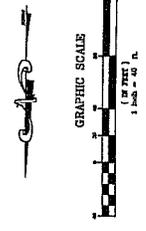
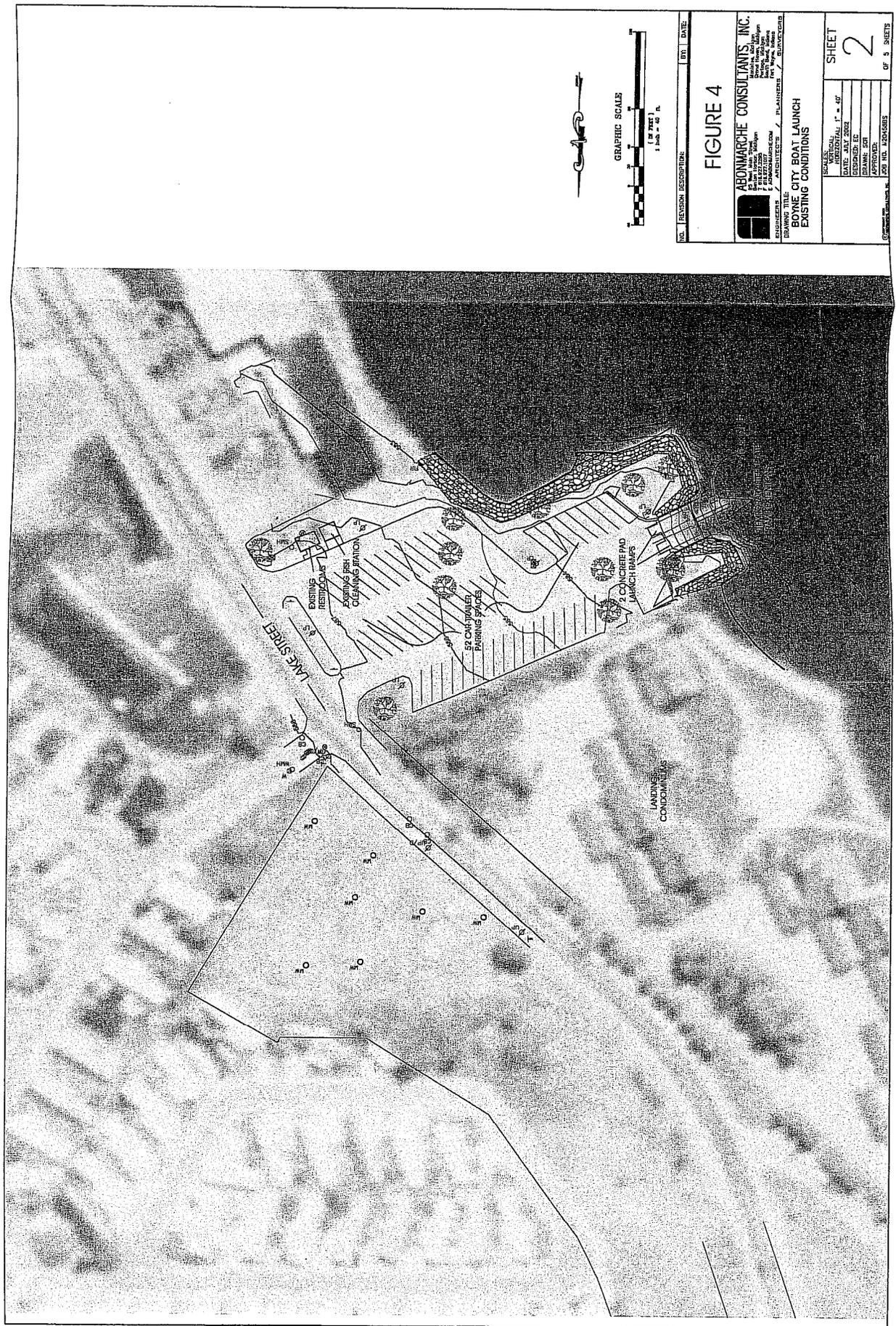
### B. BOYNE CITY MUNICIPAL BOAT LAUNCH

The City operates a heavily used public boat launch approximately ¼ mile north of the marina, off Lake Street (see Figure 4). The launch consists of 2 – 16 foot wide lanes with 1 - 40-foot long skid pier. The launch ramps are cast-in-place concrete and open directly west into Lake Charlevoix with no protection from waves generated in the lake. With existing and potential usage, this launch facility should be expanded to at least four lanes and some form of wave protection should be provided to protect the launch and provide quiet water for boat launching.

At the time of our inspection, there was approximately 4 feet of water at the end of the ramps and steel plates had been placed to extend the ends of the ramps over holes that had been eroded at the base of the ramps by trailer wheels and wave action. The concrete ramps should be extended to a length and depth that prevents boat trailer wheels from going off the ramp.

The boat launch is operated from May 15 through October 15 of each year.





NO.	REVISION DESCRIPTION	BY	DATE
<b>FIGURE 4</b>			
<b>ABONMARCHÉ CONSULTANTS, INC.</b> 2500 Lakeshore Blvd. West, Suite 100 North Vancouver, B.C. V7P 1A1 TEL: 604.261.1111 FAX: 604.261.1112 WWW.ABONMARCHÉ.COM			
ENGINEERS / ARCHITECTS / PLANNERS / ENVIRONMENTAL CONSULTANTS		DRAWING TITLE <b>BOYNE CITY BOAT LAUNCH          EXISTING CONDITIONS</b>	
SCALE: HORIZONTAL 1" = 40' DATE: JULY 2002 DESIGNED BY: [blank] DRAWN BY: [blank]		SHEET <b>2</b> OF 3 SHEETS	

Fifty-two car-trailer parking spaces are provided, none of which are marked for handicap use. There are numerous times during the summer boating season when parking capacity is exceeded and car-trailers must hunt for alternate parking. The parking lot is in fair condition and needs to be re-sealed and re-striped.

Amenities at the launch include restrooms; a 4-station fish cleaning station; a pay phone and an emergency station with one life ring and one fire extinguisher. Fish entrails from the fish cleaning station are bagged and disposed of as solid waste on a daily basis.



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## III. BOATING MARKET ANALYSIS

### A. General Market Conditions

Table 2 shows information on the existing and proposed marinas on Lake Charlevoix, in Charlevoix, East Jordan, and Boyne City.

<u>Location</u>	<u>Marina</u>	<u>Seasonal Slips</u>	<u>Transient Slips</u>
Charlevoix	Charlevoix Municipal Marina	11	53 – 63 <sup>(1)</sup>
	Irish Boat Shop	186	0
	Northwest Marine	207	0 – 25 <sup>(2)</sup>
East Jordan	East Jordan Municipal Marina	28	35
	Four Seasons	12	1
	Swan Valley	10	0
	Mobile Marina Service	Dry Storage	0
Boyne City	F. Grant Moore Municipal Marina	24	18
	The Harborage	227	0 – 6 <sup>(2)</sup>
	Sunburst Marine	0	0 <sup>(3)</sup>
	Landings Condominiums	Private condo use only	
	Proposed – N. Lake Street	113	0
	Proposed – Water Street	38	16
		Subtotal (Existing)	705
	Subtotal (Proposed)	145	16
	Total Possible	850	123 – 164
<sup>(1)</sup> Depending on double berthing			
<sup>(2)</sup> Depending on availability of unoccupied seasonal slips			
<sup>(3)</sup> Has marine services, sales, storage, in / out launching for up to 35 tons.			

Discussions with marina operators indicate that the main boating season in the Lake is short – typically starting in late June and dropping dramatically after the third week in August. All seasonal slips in Lake Charlevoix are typically rented by



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July 1. Charlevoix area marina operators also indicated that there is tremendous pent up demand in Lake Charlevoix for several hundred additional seasonal slips, of all sizes. Several recently proposed marina developments in the Charlevoix area -- that proposed the taking of significant additional lake bottomlands -- have encountered public opposition. Significantly less opposition has been experienced for proposals to excavate marinas into existing shore lands -- i.e. creating additional bottomlands.

Two recently proposed private marinas in Boyne City indicate a market demand in Boyne City for at least 150 seasonal (or condominium) slips -- and particularly larger slips to accommodate boats in the range of 40 to 60 feet.

All surveyed marina operators indicated that the 71 slips reserved for transient boats in the main arm of Lake Charlevoix (53 slips in Charlevoix and 18 slips in Boyne City), as well as the 36 slips in the south arm at East Jordan, are woefully inadequate to serve peak demand. Many boats would like to cruise the quieter, warmer waters of Lake Charlevoix and explore lakeside communities, but are reluctant to do so if transient mooring is not available.

Private marina operators will only accommodate transient boats when their seasonal slips are temporarily vacated. With the short boating season in Lake Charlevoix, economics dictate that private marinas will not provide strictly transient slips.

Recently, it has been the policy of the Michigan State Waterways Commission to not fund additional seasonal slips at Grant-In-Aid marinas (such as the Boyne City Municipal Marina) because they would then be competing with existing (or possible) private sector marinas. Therefore, any Grant-In-Aid slip expansions at municipal marinas now almost exclusively involve additional transient slips. Municipalities that operate public marinas can provide seasonal slips if they fund the entire project. Therefore, any expansion of the F. Grant Moore Marina in



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Boyne City – co-funded by the MSWC – should be dedicated to the transient slip market.

The market for transient slips is difficult to accurately determine in the south end of Lake Charlevoix because of the lack of specific data on transient boat traffic that would travel to Boyne City if additional transient berthing were available. However, marina operators in Charlevoix, and Boyne City indicate that a substantial number of transient boats from Lake Michigan choose not to cruise to F. Grant Moore Marina because of the lack of available transient slips –

especially on busy weekends. We estimate this number at an average of 20 per peak weekend.

If we look at the 450 boats berthed in seasonal slips on Lake Charlevoix – in areas other than Boyne City – we estimate that at least 5%, or approximately 25 boats, would travel to Boyne City and berth for Boyne City area attractions (dining, shopping, golf, waterfront festivals, etc.). In addition, we estimate that an additional 10 - 20 larger boats launched at the Boyne City Municipal Boat Launch would berth for an extended stay at the marina if transient slips were available.

Therefore, we estimate an existing market demand for 55 to 70 transient slips in Boyne City during the peak boating season of late June through the third week in August. With 18 slips dedicated to transient boats, we estimate a current need for 40 - 50 additional transient slips in Boyne City.

If we assume: 1) a 60-day peak boating season in Boyne City; 2) an overall, average season occupancy rate of 70%; and 3) 70 available transient slips in Boyne City, we estimate a total transient market of approximately 2940 boat-days. Neglecting standard MSWC transient berthing rates for the moment, if we assume a transient boat average berthing rate of \$1.25 per lineal foot of boat



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LOA and an average of 32 feet LOA, we can estimate marina slip rental income from transient boats at \$118,000 per season, or, \$1,680 per transient slip.

For comparison, if these same 70, 32-foot slips were leased as seasonal slips at a market rate of \$65 per foot LOA, the marina would realize slip rental income of approximately \$146,000 per season, or, \$2080 per seasonal slip. Thus, we can see the disincentive to private marinas to provide transient slips in this market.

Furthermore, Abonmarche estimates that larger, powered transient boats each carry an average of 2.25 people and each boat spends approximately \$50 per person per day in port (not including fuel, boat maintenance, or outside recreational fees). Thus, we can conservatively estimate an annual direct contribution of at least \$330,000 to the Boyne City economy. Assuming an average regional (IMPLAN) multiplier of 1.9 for this direct income, we can estimate a direct and indirect economic contribution totaling over \$600,000 to the Boyne City community – from these 70 transient slips.



## B. Boyne City Marina Waiting List

The current waiting list for seasonal slips at F. Grant Moore marina indicates some interesting market data, as follows:

**Table 3  
Boyne City Slip Waiting List**

<b>LOA (feet)</b>	<b>Number on Wait List</b>	<b>Percent of Total</b>
<20'	15	16.5%
21' - 25'	34	37.4%
26' - 30'	26	28.6%
31' - 35'	11	12.1%
36' - 40'	4	4.4%
>40'	1	1.1%
<b>Total</b>	<b>91</b>	<b>100%</b>

Over 80% of the boats on the current waiting list for seasonal slips at F. Grant Moore marina (or approximately 70 boats) are smaller boats less than 30 feet LOA. This indicates that a significant market probably exists in Boyne City for a dry storage / launching facility (rack storage) that could economically handle these boat sizes. Abonmarche believes this is not an indication of overall true market demand for the marina, because larger boat owners do not necessarily subscribe to such waiting lists. Land and viewscapes do not exist within Veteran's Memorial Park for a rack storage building and launch well. But a privately developed site north or south of the Park may be possible.



## C. Boyne City Municipal Boat Launch

The City's municipal boat launch on North Lake Street is the only boat launch facility in Boyne City that can handle larger trailer-launched boats – which now approach 36 – 39 feet LOA. The nearest boat launch is at Young State Park, approximately 3 ½ miles north, and that launch, technically, is for Park patrons with boats less than 16 feet LOA.

At a launch fee of \$5, and annual launch revenues of approximately \$10,000, we estimates that at least 2000 boats are launched at this facility. Another 200 – 250 launch passes are sold to City residents who use the launch facility several times per year, with the first launch being free. Therefore, assuming a 100-day peak season for launching, an average of 20 boats per day paid to launch at this facility.

We estimate that 4 – 5 times this number of boats launch on a peak weekend during the summer. With two launch lanes and only 52 car-trailer parking spaces, Abonmarche believes that this launch under-serves the existing and potential markets by a factor of at least two. In addition, this launch could become a vital facility to launch boats for possible sponsored powerboat, sailboat, and fishing boat events that could greatly stimulate the waterside economy of Boyne City.



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Abonmarche also suggests that owners of larger boats, at least, can and should pay more than the \$5 launch fee. We suggest that the City charge what the market will bear (perhaps in the range of \$10 per launch) for this strategic launch so that it can adequately fund maintenance and upkeep of the facility. Future, equitable fee structures and pass systems need to be evaluated by City management.

## IV. MARINA FINANCIAL PERFORMANCE

### A. Five Year Performance

Abonmarche reviewed financial statements from the City reflecting income and expenses pertinent to the marina and boat launch facilities for fiscal years 1998 through 2002 (projected). Table 4 summarizes income and expenses for these years.

<u>Income / Expenses</u>	<u>FYE 1998</u>	<u>FYE 1999</u>	<u>FYE 2000</u>	<u>FYE 2001</u>	<u>FYE 2002</u>
Income:					
Marina	\$70,407	\$69,304	\$57,033	\$76,397	\$82,633
Boat Launch	\$9,144	\$9,296	\$9,708	\$10,080	\$6,358
Total Income	\$79,551	\$78,600	\$66,741	\$86,477	\$88,991
Combined Expenses:					
General	\$34,800	\$34,295	\$48,753	\$61,503	\$75,080
Buildings / Equipment <sup>(1)</sup>	\$30,336	\$36,600	\$21,734	\$54,391	\$70,369
Total Expenses	\$65,136	\$70,895	\$70,487	\$115,894	\$145,449
Net Income:	\$14,415	\$7,705	\$(3,746)	\$(29,417)	\$(56,458)
<sup>(1)</sup> Includes unusual and large capital improvement items, such as dredging, dock repair, ramp repair, etc.					



# Boyne City Marina Master Plan – Final Report

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This data shows that the marina and boat launch have operated at a deficit since FY 1999 – largely due to dredging expenses of over \$75,000 and floating dock repair expenses of over \$50,000. The dredging expenses were necessary because of low water levels, which are now about 4.5 feet below Ordinary High Water elevation of 581.5' (IGLD 1985). The dock repair expenses are due to failing floating docks structures that are not able to withstand the robust (at times) wave and ice forces encountered.

For the past 5 years, the marina has earned \$400,400 from marina and boat launch fees, plus \$23,230 grant-in-aid money for dredging, for a total income of \$423,600. Operating expenses for this period totaled \$468,000. If the (low water) dredging and dock maintenance expenses totaling approximately \$125,000 had not occurred in this time period, the marina and boat launch fund would show a reserve income of approximately \$80,000, or, approximately a net income of \$384 per slip per year, since FYE 1998.

Typically, municipal marinas in Michigan strive to earn a net income of approximately \$1000 per slip per year (neglecting depreciation expensing). Typically, this is achievable with municipal marinas that have at least 100 total slips and a boating season that extends from approximately Memorial Day through Labor Day. With 42 slips and a shorter boating season in Boyne City, it is understandable that the City would not be realizing a target income of \$1000 per slip per year.

## **B. Financial Recommendations**

1. Abonmarche recommends that the City stop the bleeding with respect to floating dock maintenance. The 32 floating slips in the marina can be replaced with fixed, adjustable docks at a cost of approximately \$20,000 per slip, or a total of \$640,000. Assuming the MSWC will eventually fund 50% of this replacement cost, the City's cost share would be approximately \$320,000. The City may wish to finance this replacement,



# Boyne City Marina Master Plan – Final Report

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now, in lieu of spending any additional monies on unrecoverable dock repairs.

2. The existing floating Shopper's Dock can be either removed from service or its life (possibly) extended by adding external flotation assistance and a stronger guide piles system. The cost extending the life of this dock will probably be on the order of \$30,000 to \$40,000, if City forces can be used to install the flotation assistance.
3. No monies should be expended on maintenance of the seven floating wave attenuators.
4. The City should consider charging slip rental fees and boat launching fees in accordance with what the markets will bear. Currently, the City charges Region I state rates for slip rental. Because of the pent-up demand for slips in Boyne City, the City may consider charging Mackinac Island rates, or possibly more. We recommend that boat launch fees be designed such that users pay for the total costs of launch maintenance. In addition, the City may wish to consider means to prevent after hours "free launches" when launch attendants are absent -- such as token-operated swing gates placed at the head of each launch lane.



# Boyne City Marina Master Plan – Final Report

Future, target, operating budgets could be as shown in Tables 5 and 6, depending on the expansion option chosen:

<b>Table 5</b>	
<b>Future Possible Marina / Boat Launch Budget</b>	
<b>Option A – 56 slips total (2003 dollars)</b>	
<u>Income / Expense Item</u>	<u>Amount</u>
<b>Income:</b>	
1. 24, 40-foot seasonal slips @ \$2600 / slip	\$62,000
2. 32 transient slips = 1350 boat-days @ \$40 per boat-day, average	\$54,000
3. 30 Shopper's docks = 5000 dock-hours @ \$2 per dock hour	\$10,000
4. Boat Launch Fees = 2500 launches @ \$10 per launch	<u>\$25,000</u>
Total Income	\$151,000
<b>Expenses:</b>	
1. General Labor, Utilities, Supplies	\$80,000
2. Normal Building / Equipment / Repairs	<u>\$40,000</u>
Total Expenses	\$120,000
Net Income (loss) per year	\$31,000
Or,	\$554 / slip



<b>Table 6</b>	
<b>Future Possible Marina / Boat Launch Budget</b>	
<b>Option B – 72 slips total (2003 dollars)</b>	
<u>Income / Expense Item</u>	<u>Amount</u>
<b>Income:</b>	
1. 24, 40-foot seasonal slips @ \$2600 / slip	\$62,000
2. 48 transient slips = 2016 boat-days @ \$40 per boat-day, average	\$81,000
3. 30 Shopper's docks = 5000 dock-hours @ \$2 per dock hour	\$10,000
4. Boat Launch Fees = 2500 launches @ \$10 per launch	\$25,000
Total Income	\$178,000
<b>Expenses:</b>	
1. General Labor, Utilities, Supplies	\$80,000
2. Normal Building / Equipment / Repairs	\$40,000
Total Expenses	\$120,000
Net Income (loss) per year	\$58,000
Or,	\$805 / slip



## V. SUMMARY OF NEEDS

### A. General

Boyne City's waterfront in and around Veteran's Memorial Park is a spectacular and priceless asset to the Boyne City community. It is a gateway into and out of the City for boaters and it is a magnet for shore-bound people to visit, contemplate, stroll, and enjoy. We believe that the multiple public uses of this asset should be preserved and expanded – for the benefit of all.

These important public uses include the F. Grant Moore Municipal Marina; the Shopper's Dock / Fishing pier near the mouth of the Boyne River; and the Boyne City Municipal Boat Launch. There is a need to renovate, expand, and upgrade these facilities to meet market demands, while upgrading and enhancing general public access and uses along the shoreline of the Park.

Our market analysis suggests that F. Grant Moore Marina could support 75 to 100 transient slips in addition to the 24 seasonal slips it is now permitted to maintain. In addition, the City would like to maintain as many short term "shopper's docks" along the waterfront as possible – to provide short term mooring for area boaters to visit the downtown and waterfront area.

Abonmarche recommends that the shoreline around the bay fronting the Boyne River and Veteran's Park be improved and provided with a continuous pedestrian circulation system (sidewalk) along the shoreline – from the point opposite Water Street to the northern boundaries of the Park. The waterfront along the bay and Park shoreline should mirror and complement the downtown river walk improvements and encourage access and usage by pedestrians, joggers, roller bladers, fishermen, etc.



# Boyne City Marina Master Plan – Final Report

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Our analysis also shows that the boat launch should be expanded to four launch lanes with additional parking for vehicles and boat trailers.

We also recommend that the City evaluate user fees for the marina, shopper docks, and the boat launch and create a fee structure that will provide the necessary income to support and maintain these facilities.

## **B. F. Grant Moore Municipal Marina**

Abonmarche recommends the following improvements to the marina:

1. Replace the existing floating wave attenuators with a permanent, multi-use breakwater structure that can provide more substantial protection to the marina and eliminate the troublesome maintenance problems associated with the floating piers. This breakwater structure should be designed to provide access for pedestrians and fishermen that could fish the deeper, lakeside waters.
2. Replace the existing floating piers and docks with fixed, adjustable piers and docks that can withstand the wave and ice conditions experienced in the bay.
3. Upgrade the existing electrical service to meet current state standards.
4. Add up to 60 new fixed, adjustable transient slips to the marina, or as many as possible, within the space available south and east of the marina.
5. Eliminate the old boat launch in Veteran's Park and direct users to the municipal boat launch off North Lake Street.
6. Provide as much additional car parking as possible in the shore area fronting the old boat launch.
7. Provide a 12-foot wide pedestrian circulation system (sidewalk) along the shoreline fronting the marina and linking pedestrians to a similar sidewalk system surrounding the bay, and north and south of the marina.



## **C. Short – Term “Shopper’s” Docking**

1. Replace the existing floating “shopper's dock” just north of the river mouth with a permanent, fixed, adjustable, multiple-use pier for public access – moved closer to the mouth of the river. This pier should be designed to provide public fishing access toward the river mouth and as many fixed slips as possible for short-term boat mooring.
2. Provide as many fixed adjustable “shopper's docks as possible along the southern shoreline of the bay, fronting Garret's on Water Street restaurant, to the southwestern point of the bay.
3. Continue the waterfront sidewalk system from the marina area, around the bay, across the river, to the southwest point on the bay. Tie into the existing sidewalk systems in Veteran's Park and along Lake Street.

## **D. Boat Launch**

1. Expand the boat launch to four lanes with two skid piers.
2. Extend the new and existing launch pads into the lake to eliminate “holing” at the ends of the pads and provide adequate launch lengths for larger trailered boats.
3. Construct a small, detached breakwater structure approximately 100 feet offshore – parallel to the shore -- to protect the boat launch lanes from heavy wave action.
4. Provide as much additional car-trailer parking as possible.



## VI. RECOMMENDED IMPROVEMENTS

### A. Marina and Waterfront Improvements

Figures 5 and 6 show master plans for two options for improving the marina and waterfront surrounding the mouth of the Boyne River. The only difference between the two is in the number and placement of additional transient slips south of the marina building, and costs.

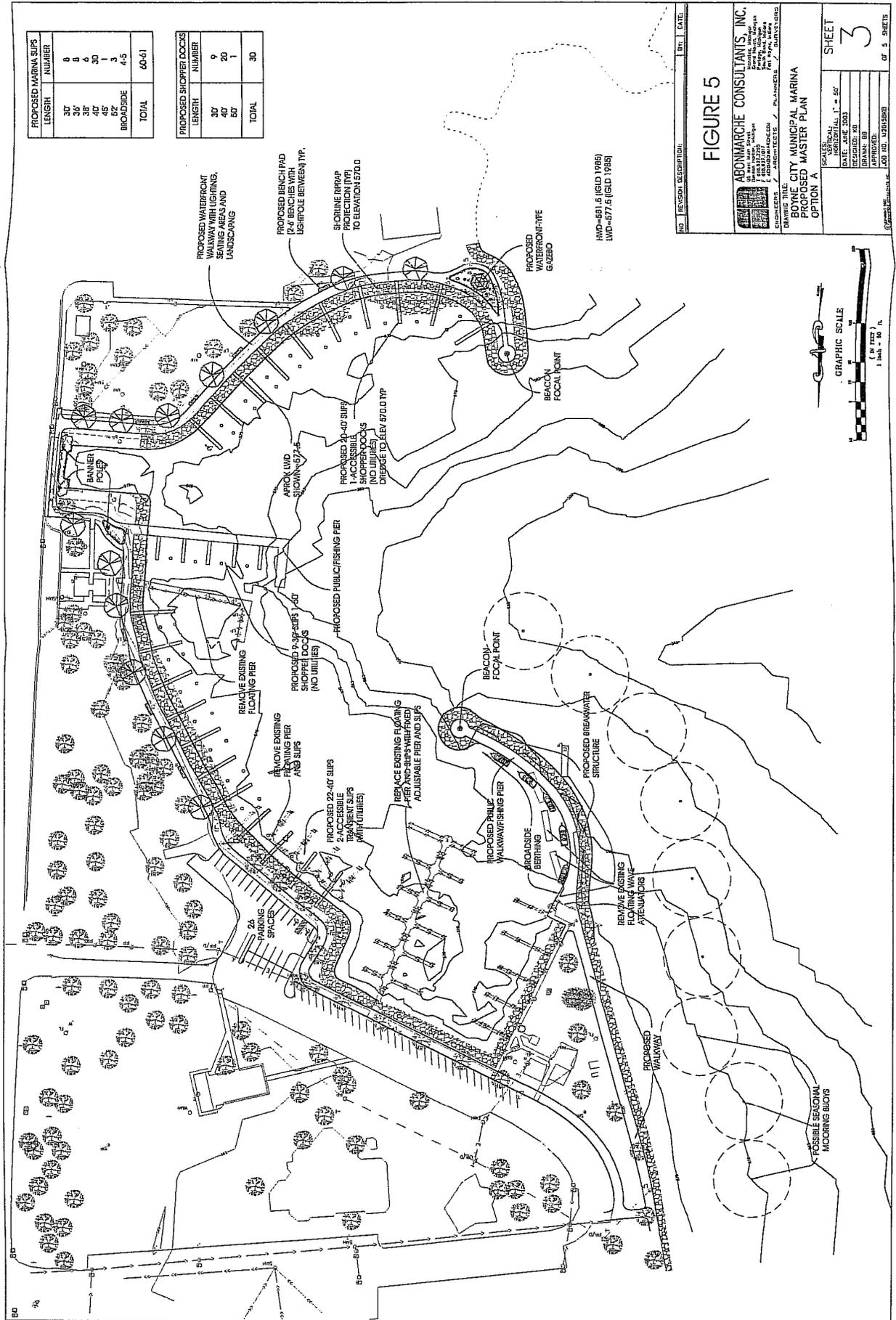
#### Option A

Figure 5 shows Option A, as follows:

1. Remove all existing floating piers, docks and wave attenuators.
2. Construct a 300-foot long permanent, multi-use breakwater structure in front of the marina to protect marina slips from westerly and northwesterly wave action in the lake.

Abonmarche evaluated the use of heavy duty concrete floating wave attenuators to protect the bay and determined that no floating breakwater design would withstand winter / spring ice conditions likely to occur in the lake over the long term. Hence, it is our recommendation to construct a permanent, limited breakwater as shown. This breakwater would be an aggregate- filled vertical sheet pile structure with rock revetment on the exposed lake side of the structure to absorb wave energy. Several recirculation conduits in the breakwater would provide water recirculation and flushing for the marina basin. The leeward side of the breakwater would support broadside boat mooring. A 12-foot wide sidewalk will provide pedestrian access along the breakwater. Four fishing platforms on the lake side of the breakwater will allow fishing access from the breakwater.





PROPOSED MARINA SLIPS	LENGTH	NUMBER
30'	30'	8
35'	35'	8
38'	38'	6
45'	45'	30
52'	52'	3
BROADSIDE	4-5	3
TOTAL		60-61

PROPOSED SHOPPER DOCKS	LENGTH	NUMBER
30'	30'	9
40'	40'	20
60'	60'	1
TOTAL		30

**FIGURE 5**

NO. REVISION DESCRIPTION  
BY: I. CALE

**ABONMARCHÉ CONSULTANTS, INC.**  
 1000 W. WISCONSIN ST., SUITE 200  
 BOYNE CITY, MI 49711  
 TEL: 517.831.2277  
 FAX: 517.831.2278  
 WWW.ABONMARCHÉ.COM

PROJECT NO. 05-001-001  
 DRAWING NO. 05-001-001-001  
 SHEET NO. 3 OF 5 SHEETS

BOYNE CITY MUNICIPAL MARINA  
 PROPOSED MASTER PLAN  
 OPTION A

DATE: 1/18/05  
 DRAWN: DB  
 APPROVED: [Signature]

GRAPHIC SCALE  
 1" = 20' FT.

# Boyne City Marina Master Plan – Final Report

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3. Piers 1 – 10 will remain in their current configuration as fixed piers.
4. The existing, floating slips numbered 11 – 34 would be replaced in their current location with a fixed adjustable piers and docks with up to 3 feet of height adjustability to accommodate lake level fluctuations.
5. The old launch ramp south of the marina would be removed and the shoreline smoothed out and protected with stone revetment.
6. Eleven new, fixed 40-foot adjustable piers would be constructed along the new shoreline, providing 22, 40-foot slips with utilities for transient boat use. This would provide a total of 56 slips and 32 new transient slips.
7. Twenty six parking spaces will be provided in the area formerly fronting the old launch ramp.
8. A 150-foot long, ell-shaped, fixed pier would replace the old Shopper's Dock. The north side of the pier would support 9, 30-foot and one 50 – foot short-term shopper's slips, with no utilities.
9. Ten, new 40-foot fixed, adjustable docks would be constructed along the south shore of the bay – south of the river mouth – to provide twenty new 40 – foot short-term shopper's slips, with no utilities. Two mooring piles per slip will be provided to accommodate small and large boats. These improvements would provide a total of 40 new, short-term shopper docks.
10. The entire waterfront supporting new slips would be dredged to a depth of 7 feet below LWD, or approximately elevation 570 (IGLD 1985).
11. A small rubble mound breakwater structure would be constructed off the southern point of the bay to provide some protection to the new shopper's docks.
12. A 12-foot wide concrete sidewalk would be constructed along the shoreline – from the south beacon point, around the river mouth, north



# Boyer City Marina Master Plan – Final Report

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along the waterfront, around the marina basin and marina building, and connecting to the breakwater sidewalk and north beacon.

13. Appropriate benches, lighting, and landscaping along the sidewalk would complete the plan.

## Option B

Option B shown in Figure 6 is identical to Option A except that the new transient slips between the new Shopper's Dock and fishing pier would be constructed in three, T-pier arrangements, as shown. This would provide 72 total slips and 48 new transient slips to the marina.

### **B. Boat Launch Improvements**

Figure 7 shows the recommended improvements to the boat launch. The existing two-lane launch would be expanded to four lanes, opening directly into the lake as it does now. Approach and exit lanes would be modified to allow car-trailers to enter the launch in the southeast corner of the site and exit from the northeast corner.

The launch ramps would be sheltered from wave action in the lake by an offshore, detached rubble mound breakwater, located parallel to the shore approximately 100 feet offshore from the launch ramps.

If the City can acquire the former Boyne City Chemical property from the current owner, at least 40 car-trailer parking spaces could be created on this site for overflow parking for the boat launch. This property is currently contaminated with subsurface contamination and will soon be remediated by the State of Michigan. The proposed parking lot would be an excellent use of the remediated site because it would essentially seal off any residual contaminants beneath the parking surface. Twelve car-trailer parking spaces will be eliminated as part of the launch ramp expansion, so the inclusion of



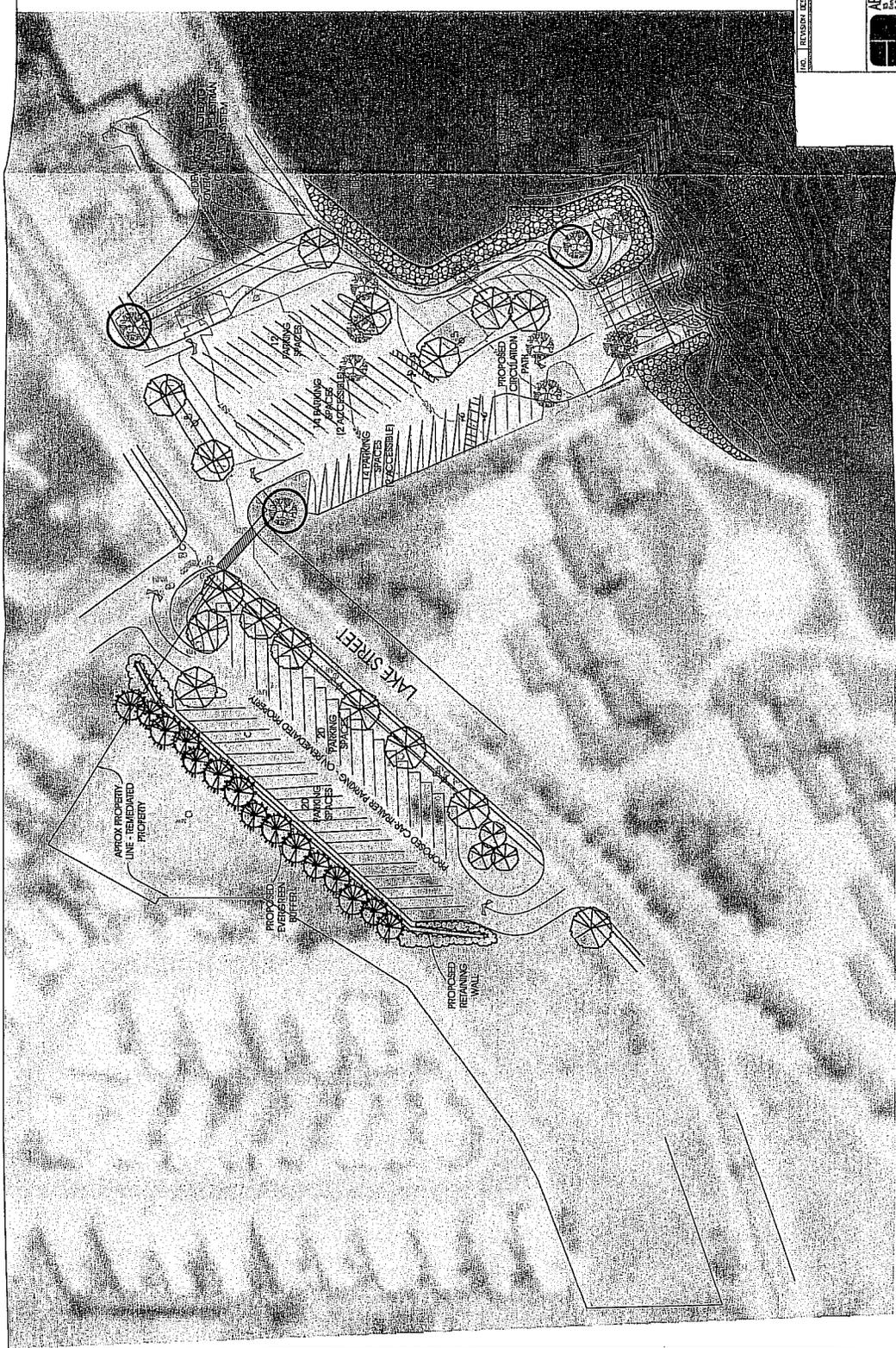
# Boyne City Marina Master Plan – Final Report

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this off-site parking will provide a total of 80 car-trailer parking spaces, or, 28 more than currently exist at the launch ramp.







**FIGURE 7**

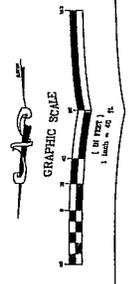
**ABONMARCHÉ CONSULTANTS, INC.**  
 1000 BOYNE AVENUE, SUITE 100  
 BOYNE CITY, MICHIGAN 49616  
 TEL: 519.233.1100 FAX: 519.233.1101  
 WWW.ABONMARCHE.COM

ENGINEER: / ARCHITECT: / PLANNER: / SURVEYOR:

**BOYNE CITY RECOMMENDED BOAT LAUNCH IMPROVEMENTS**

SCALE:	VERTICAL: 1" = 40'
DATE:	JUNE 2003
DESIGNED BY:	AS
APPROVED:	
JOB NO.:	1420458LNC

**SHEET 5 OF 5 SHEETS**



# Boyne City Marina Master Plan – Final Report

## VII. COST ESTIMATES

Detailed cost estimates for the proposed improvements are provided in Appendix B and are summarized as follows:

<b>Table 7</b>		
<b>Plan Cost Estimates</b>		
<b>Improvement</b>	<b>Impacts</b>	<b>Estimated Cost</b>
Marina Plan A	<ul style="list-style-type: none"> <li>➤ Rebuilt marina slips with an economic life of at least 30 years</li> <li>➤ Permanent breakwater protection for most of the marina</li> <li>➤ Provides 14 additional 40 – foot transient slips, for a total of 56 marina slips</li> <li>➤ Rebuilt public pier for fishing and 10, short-term "shopper's" slips with an economic life of up to 50 years</li> <li>➤ 20 new, 40-foot "shopper's" slips along the south shore of the bay for short-term (hourly) boat berthing visiting boats</li> <li>➤ Beautification of the existing shoreline in the bay, with stone revetment shore protection.</li> <li>➤ Creation of approximately 2300 feet of public sidewalk along the shore and around the marina.</li> </ul>	\$4.1 million
Marina Plan B	<ul style="list-style-type: none"> <li>➤ Same as Option A, except would provide 30 additional transient slips at the marina, for a total of 72 marina slips.</li> </ul>	\$4.4 million
Boat Launch Improvements	<ul style="list-style-type: none"> <li>➤ Doubles the launching capacity of the existing boat launch</li> <li>➤ Provides launch protection from waves</li> <li>➤ Provides 28 additional car-trailer parking spaces</li> </ul>	\$824,000

As shown in Appendix B, there are several components to the marina and harbor improvements that can be constructed in several phases, in accordance with available funding sources and schedules.



## VIII. FUNDING CONSIDERATIONS

Funding for the improvements are anticipated to come from a mix of City and outside funding sources. We anticipate that the Michigan State Waterways Commission (MSWC) may fund at least 50% of the costs related to harbor and marina improvements. We also anticipate that the MSWC can fund 75% of the project costs associated with the boat launch improvements.

Other funding sources for non-marina and boat launch related elements of the plan should be explored, including:

- Michigan Natural Resources Trust Fund for public recreation.
- MDNR Grants Management.
- The Great Lakes Fisheries Trust Fund for improvements that provide additional public fishing access.

The Boyne City must fund the balance of project costs not covered by outside funding sources.

The MSWC will consider applications for grant monies after the Michigan Dept. of Environmental Quality and the US Army Corps of Engineers have approved permits for the project(s).



## IX. PROJECT SCHEDULE

Based upon our experience with similar projects and favorable support from the MSWC and the permitting agencies, we could anticipate the following, approximate project schedule.

<b>Activity</b>	<b>Completion</b>
Selection of master plans for the marina and boat launch facilities	September 2003
Apply for permits from the MDEQ/USACE	October 2003
Joint public notice	January 2004
Permit review and processing (Note: this process can take anywhere from 8 months to 2 years depending on the public and agency issues involved.)	January 2005
Budget funding with MDNR and MSWC	April 2005
Obtain component funding from other funding agencies	July 2005
Prepare project construction documents	October 2005
Construction	June 2008

Because of the expenses involved in maintaining the failing floating docks at the marina, the City may wish to accelerate the replacement of these docks as a separate, more urgent project.



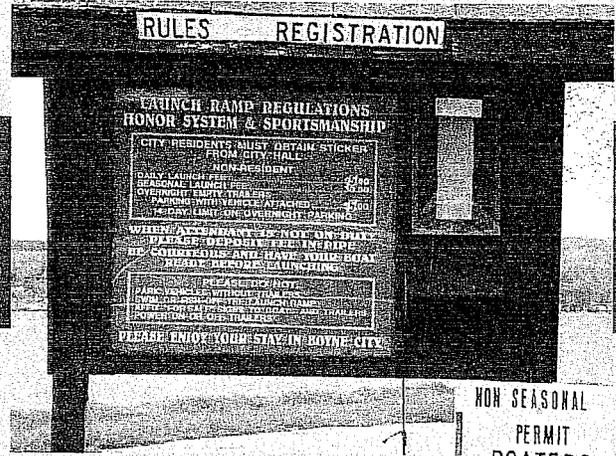


Appendix A – Photos-Existing Conditions



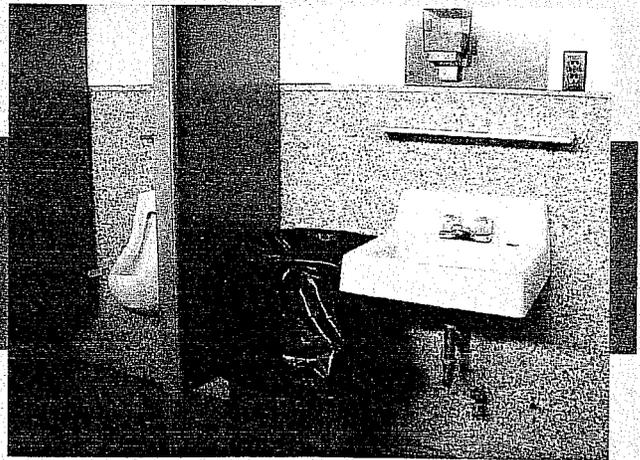
Boat Launch Parking Lot

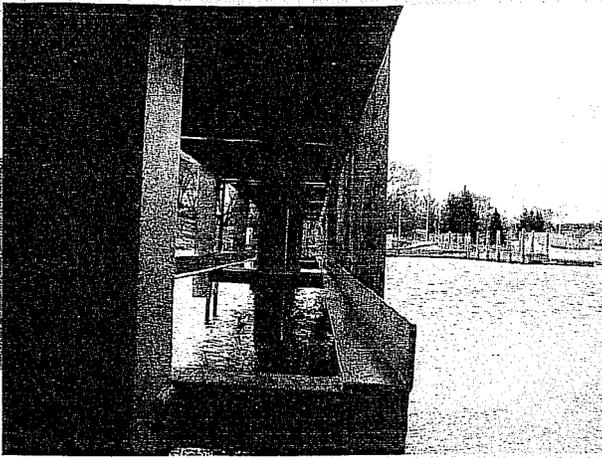
Boat Launch Rules



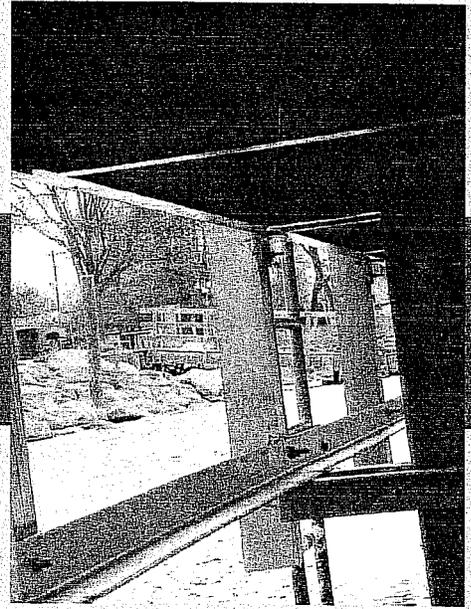
Boat Launch Restroom

Boat Launch Restroom





Fixed Pier Structure

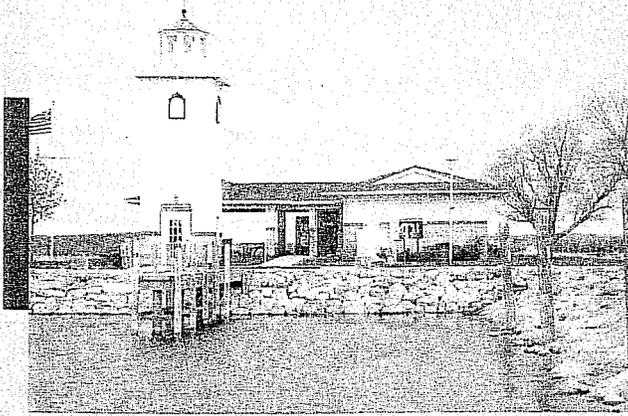


Fixed Pier Structure (Typical)



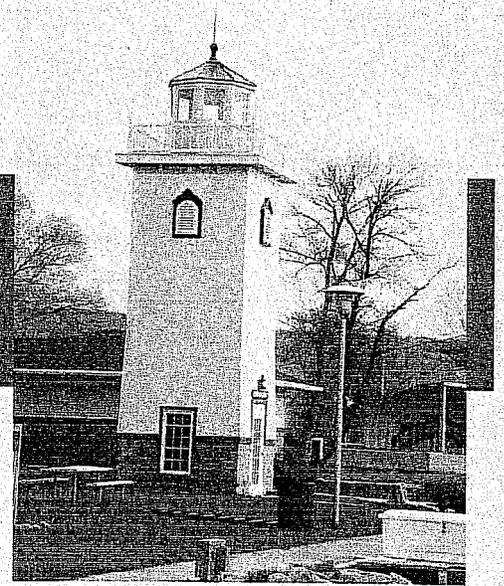
Fixed Pier Floating South





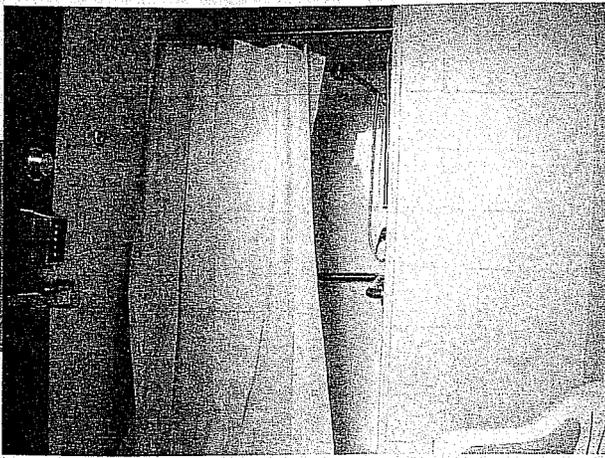
Marina Building

Marina Building - Lighthouse



Marina Building

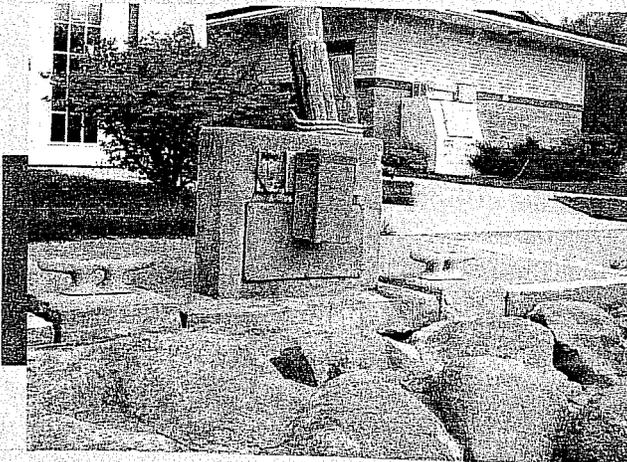




Marina Building Restroom

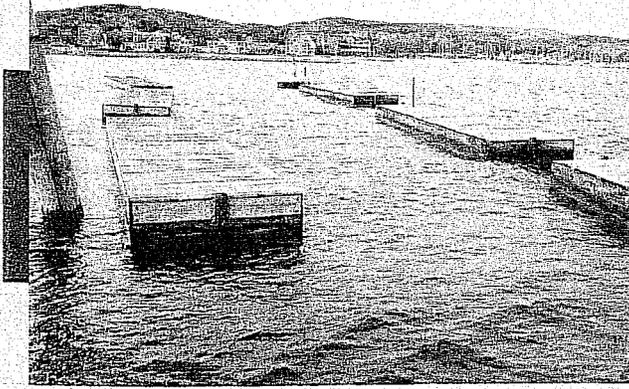


Marina Building Utility Room

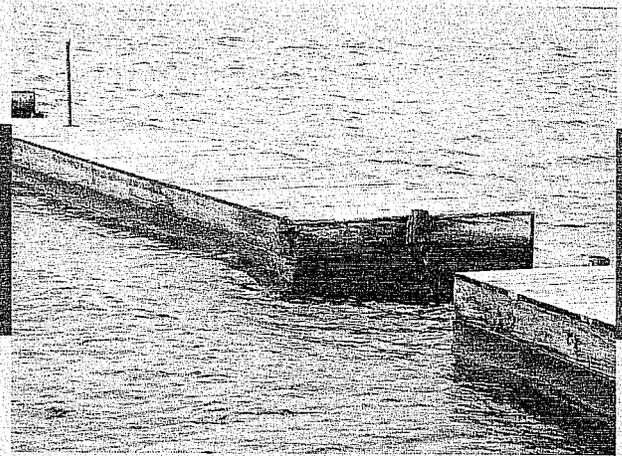


Marina Building

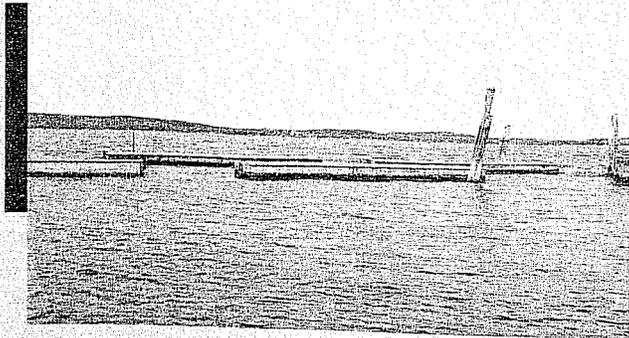




Floating Wave Attenuators



Floating Wave Attenuators



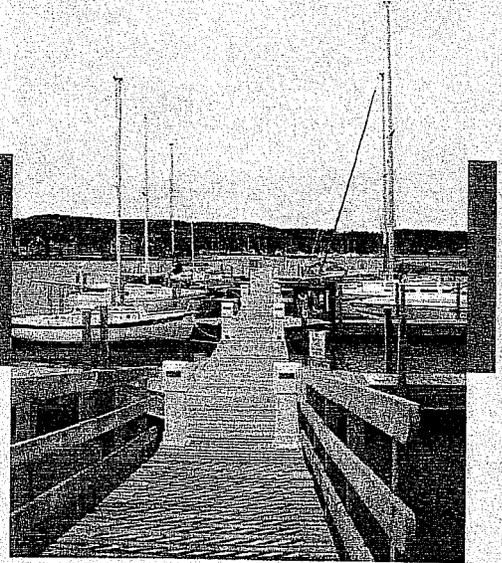
Floating Wave Attenuators





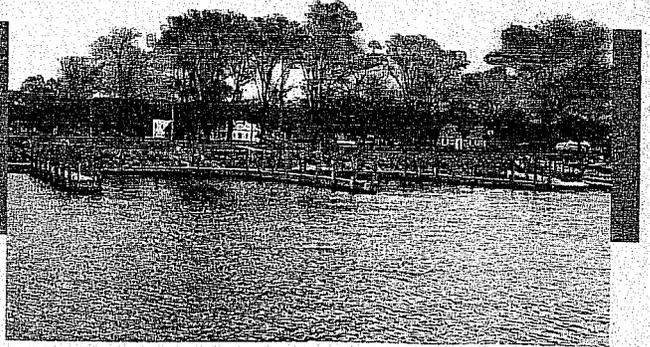
Slips 1 - 10

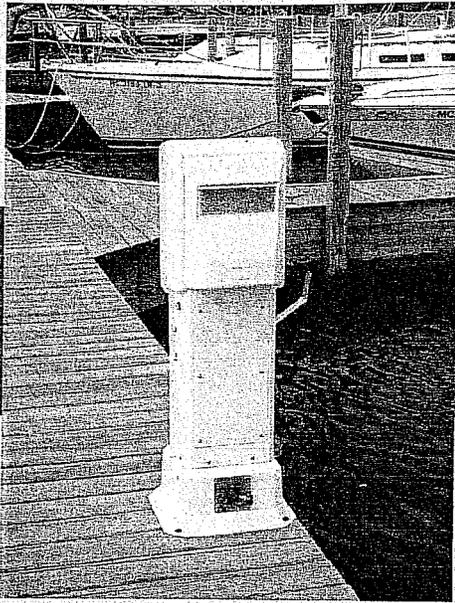
Floating Slips 11 - 34



Floating Slips 11 - 34

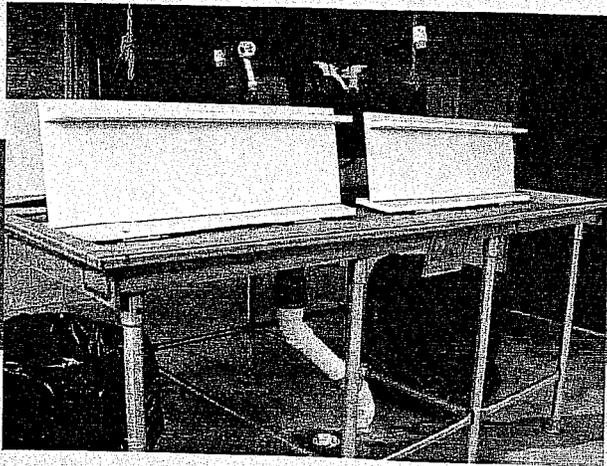
Floating Slips 35 - 42





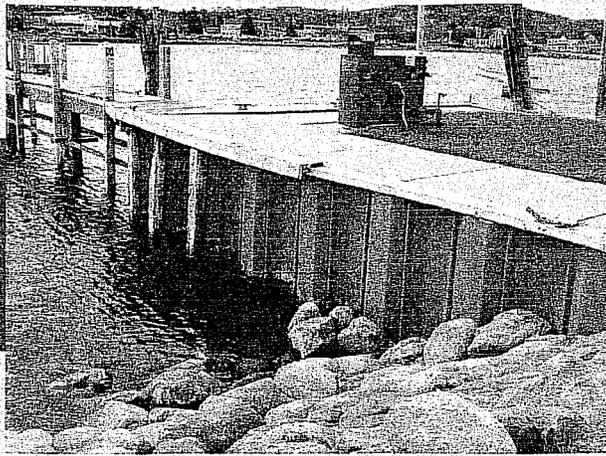
Utility Pedestal - Floating Slip

Emergency Station (Typical)



Fish Cleaning Station





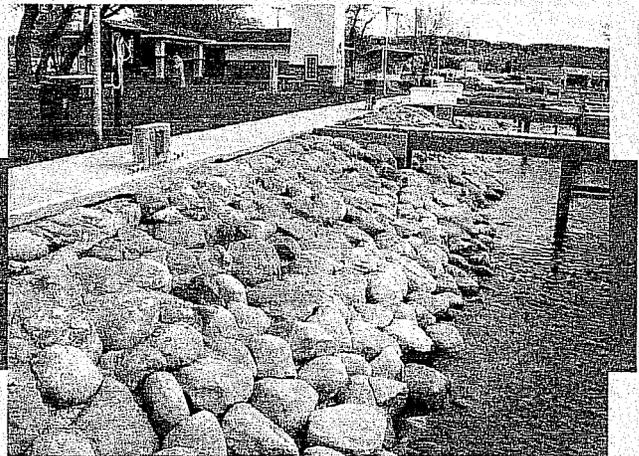
Marina Shoreline

Shoreline Looking North  
Along Park



Shoreline Looking South  
Toward River

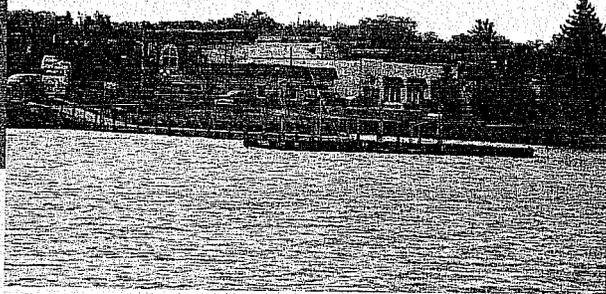
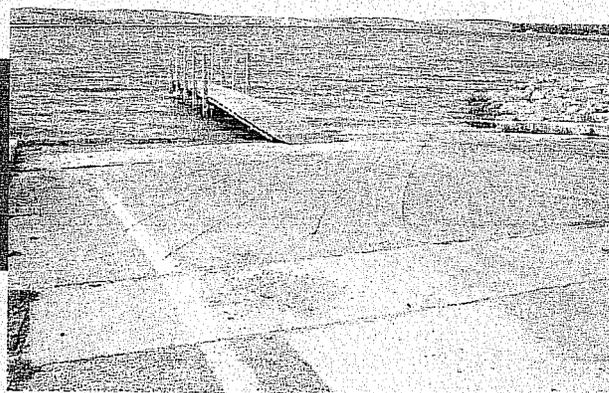
Marina Shoreline  
Looking East





Old Boat Launch -  
Veteran's Park

Boyer City Boat Launch



Floating Shopper's Dock

Floating Shopper's Dock





Appendix B – Detailed Cost Estimates

<u>Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price (\$)</u>	<u>Totals (\$)</u>
<b>A Marina Basin Preparation and Shoreline Protection</b>				
Floating Wave Attenuators Removal	1	ALLOW	5,000	\$5,000
Existing Boat Launch Removal	1	ALLOW	7,500	7,500
Existing Floating Dock Removal	1	ALLOW	10,000	10,000
Dredging to elev. -7 feet LWD	35,000	CYD	12	420,000
Shoreline Revetment	4,200	SYD	50	210,000
				Subtotal
				\$652,500
				Contractor Mobilization (5%)
				32,625
				Engineering & Permitting (15%)
				97,875
				Contingencies (10%)
				65,250
				Total - A
				\$848,250
<b>B New Piers and Boat Slips</b>				
<b>B-1 New marina Slips</b>				
Fixed adjustable slips - Nos. 11-34	3,650	SFT	35	\$127,750
Steel Support Piling	68	EA	1,200	81,600
Mooring Piles	12	EA	1,000	12,000
Fixed Adjustable slips - Nos. 35 - 56	2,464	SFT	35	86,240
Steel Support Piling	66	EA	1,200	79,200
Mooring Piles	22	EA	1,000	22,000
Utility runs and stations	56	EA	4,000	224,000
<b>B-2 New Public / Fishing Pier / Shopper's Docks</b>				
Main Pier	2,600	SFT	40	104,000
30-foot slips (no utilities)	600	SFT	35	21,000
Steel Support Piling	22	EA	1,200	26,400
Mooring Piles	6	EA	1,000	6,000
Railing	510	LF	30	15,300
<b>B-3 New Shopper's Docks - south shoreline</b>				
40-foot slips	2,240	SFT	35	78,400
Steel Support Piling	60	EA	1,200	72,000
Mooring Piles	20	EA	1,000	20,000
				Subtotal
				\$975,890
				Contractor Mobilization (5%)
				48,795
				Engineering & Permitting (15%)
				146,384
				Contingencies (10%)
				97,589
				Total - B
				\$1,268,657

**C New Breakwaters**

**C-1 North Breakwater**

Steel Sheet Piling	32,000	SFT	15	480,000
Sand Fill	3,100	CYD	10	31,000
Rubblemound from elev. 578	5,000	TON	60	300,000
Sidewalk, Concrete	4,100	SFT	\$5	20,500
Fishing Platforms	4	EA.	\$7,000	28,000
Fishing Platform Support Piles	8	EA.	\$1,200	9,600
Lighting	8	EA.	\$2,000	16,000
Hand Railing	720	FT	\$30	21,600
Navigation Light	1	EA.	\$7,500	7,500

**C-2 South Breakwater**

Rubblemound	6,000	TON	60	360,000
Sidewalk, Concrete	1,250	SFT	\$5	6,250
Navigation Light	1	EA.	\$7,500	7,500
Gazebo	1	EA	30,000	30,000

Subtotal	1,317,950
Contractor Mobilization (5%)	65,898
Engineering & Permitting (15%)	197,693
Contingencies (10%)	131,795

Total - C \$1,713,335

**D Boardwalk, parking lot, landscaping**

Boardwalk - 12' wide concrete	27,600	SFT	5	138,000
New Parking Lot Subbase	220	CYD	10	2,200
New Parking Lot Aggregate Base	330	SYD	5	1,650
New Parking Lot Bituminous Asphalt	100	TON	60	6,000
Asphalt Marking	1,170	LFT	1.25	1,463
Landscaping	1	ALLOW	25,000	25,000
Benches with Lightpole	6	EA	4,000	24,000

Subtotal	198,313
Contractor Mobilization (5%)	9,916
Engineering (10%)	19,831
Contingencies (10%)	19,831

Total -D \$247,891

**Grand Total \$4,078,133**

<u>Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price (\$)</u>	<u>Totals (\$)</u>
<b>A Marina Basin Preparation and Shoreline Protection</b>				
Floating Wave Attenuators Removal	1	ALLOW	5,000	\$5,000
Existing Boat Launch Removal	1	ALLOW	7,500	7,500
Existing Floating Dock Removal	1	ALLOW	10,000	10,000
Dredging to elev. -7 feet LWD	35,000	CYD	12	420,000
Shoreline Revetment	4,200	SYD	50	210,000
			Subtotal	\$652,500
			Contractor Mobilization (5%)	32,625
			Engineering & Permitting (15%)	97,875
			Contingencies (10%)	65,250
			<b>Total - A</b>	<b>\$848,250</b>
<b>B New Piers and Boat Slips</b>				
<b>B-1 New marina Slips</b>				
Fixed adjustable slips - Nos. 11-34	3,650	SFT	35	\$127,750
Steel Support Piling	68	EA	1,200	81,600
Mooring Piles	12	EA	1,000	12,000
Fixed Adjustable slips - Nos. 35 - 72	6,415	SFT	35	224,525
Steel Support Piling	84	EA	1,200	100,800
Mooring Piles	34	EA	1,000	34,000
Utility runs and stations	72	EA	4,000	288,000
<b>B-2 New Public / Fishing Pier / Shopper's Docks</b>				
Main Pier	2,600	SFT	40	104,000
30-foot slips (no utilities)	600	SFT	35	21,000
Steel Support Piling	22	EA	1,200	26,400
Mooring Piles	6	EA	1,000	6,000
Railing	510	LF	30	15,300
<b>B-3 New Shopper's Docks - south shoreline</b>				
40-foot slips	2,240	SFT	35	78,400
Steel Support Piling	60	EA	1,200	72,000
Mooring Piles	20	EA	1,000	20,000
			Subtotal	\$1,211,775
			Contractor Mobilization (5%)	60,589
			Engineering & Permitting (15%)	181,766
			Contingencies (10%)	121,178
			<b>Total - B</b>	<b>\$1,575,308</b>

**C New Breakwaters**

**C-1 North Breakwater**

Steel Sheet Piling	32,000	SFT	15	480,000
Sand Fill	3,100	CYD	10	31,000
Rubblemound from elev. 578	5,000	TON	60	300,000
Sidewalk, Concrete	4,100	SFT	\$5	20,500
Fishing Platforms	4	EA.	\$7,000	28,000
Fishing Platform Support Piles	8	EA.	\$1,200	9,600
Lighting	8	EA.	\$2,000	16,000
Hand Railing	720	FT	\$30	21,600
Navigation Light	1	EA.	\$7,500	7,500

**C-2 South Breakwater**

Rubblemound	6,000	TON	60	360,000
Sidewalk, Concrete	1,250	SFT	\$5	6,250
Navigation Light	1	EA.	\$7,500	7,500
Gazebo	1	EA	30,000	<u>30,000</u>

Subtotal	1,317,950
Contractor Mobilization (5%)	65,898
Engineering & Permitting (15%)	197,693
Contingencies (10%)	<u>131,795</u>

Total - C \$1,713,335

**D Boardwalk, parking lot, landscaping**

Boardwalk - 12' wide concrete	27,600	SFT	5	138,000
New Parking Lot Subbase	220	CYD	10	2,200
New Parking Lot Aggregate Base	330	SYD	5	1,650
New Parking Lot Bituminuous Asphalt	100	TON	60	6,000
Asphalt Marking	1,170	LFT	1.25	1,463
Landscaping	1	ALLOW	25,000	25,000
Benches with Lightpole	6	EA	4,000	24,000

Subtotal	198,313
Contractor Mobilization (5%)	9,916
Engineering (10%)	19,831
Contingencies (10%)	<u>19,831</u>

Total -D \$247,891

**Grand Total \$4,384,783**

<u>Contract Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price (\$)</u>	<u>Totals (\$)</u>
<b>A Boat Launch Expansion</b>				
New Boat Launch Subbase	1,500	CYD	10	15,000
New Boat Launch Aggregate Base	4,500	SYD	5	22,500
New Boat Launch Bituminuous Asphalt	750	TON	60	45,000
Boat Launch Asphalt Marking	1,800	LFT	1.25	2,250
Landscaping	1	ALLOW	5,000	5,000
Steel Sheet Pile	800	SFT	30	24,000
Rip-Rap Revetment	1,110	SYD	50	55,500
Skid Pier	2	EA	10,000	20,000
Misc. Grading	1	ALLOW	3,000	3,000
Misc. Pavement Removal	1	ALLOW	1,000	1,000
Concrete Ramp Pavement	500	SYD	20	10,000
<b>B New Parking Lot</b>				
New Parking Lot Subbase	1,600	CYD	10	16,000
New Parking Lot Aggregate Base	5,000	SYD	5	25,000
New Parking Lot Bituminuous Asphalt	700	TON	60	42,000
New Parking Lot Asphalt Marking/Stripping	1,800	LFT	1.00	1,800
Landscaping	1	ALLOW	5,000	5,000
Retaining Wall	1,200	SF	30	36,000
<b>C New Breakwater</b>				
Rubblemound	5,000	TON	60	300,000
Navigation Lights	2	EA.	2,500	5,000
				<hr/>
		Subtotal	\$	634,050
		Contractor Mobilization (5%)		31,703
		Engineering & Permitting (15%)		95,108
		Contingencies (10%)		63,405
				<hr/>
		<b>Total</b>	<b>\$</b>	<b>824,265</b>



# City of Boyne City

Founded 1856

319 N. Lake Street

Boyne City, Michigan 49712  
www.boynecity.com

Phone 231-582-6597  
Fax 231-582-6506

November 12, 2004

Mr. Paul Petersen  
Parks and Recreation Bureau, Boating Unit  
Michigan Department of Natural Resources  
P.O. Box 30257  
Lansing, Mi 48909

ABONMARCHE

NOV 16 2004

RECEIVED

Re: Boyne City Master Plan Addendum

Dear Mr. Petersen

In August 2003 the City of Boyne City submitted for your review and comments it's Final Draft Marina Master Plan Report for the F. Grant Moore Municipal Marina. By correspondence of March 29, 2004 the DNR requested that a Wave Study be developed/performed at the preliminary design phase of the project. By separate correspondence the City has initiated that effort with a grant request to your office for funding participation.

During the intervening time, this project has continued to receive substantial discussion and review with public comments and considerable City Commission time considering available alternatives. As a result of this continued local dialogue, two additional design alternatives have developed that merit consideration. Both are a direct result of public input and City Commission discussion.

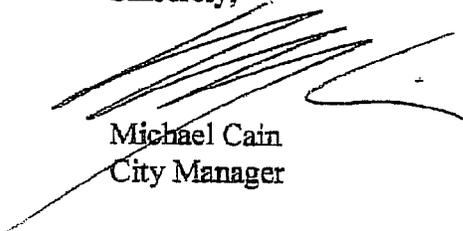
The alternatives are labeled "Figure 7" and "October 26, 2004" respectively. A copy of each is attached. In as much as our consultants, Abonmarche Consultants, Inc. have advised us that three different designs will be subject to the requested Wave Study, the City Commission has requested that these two alternatives be considered in addition to the "Figure 5" option included in the August 2003 Master Plan Report. We understand that considering these additional options in the Wave Study will not affect the price of that review, and will in fact assist in developing a breakwater design most environmentally advantageous while providing the best harbor protection.

In order to consider these additional design options, we understand that the August 2003 Master Plan requires amendment by addendum. Please consider this request to amend the Master Plan to add design options "Figure 7" and "October 26, 2004". With your consent, both will be added to the Wave Study for further consideration.

**Hometown Feel, Small Town Appeal**

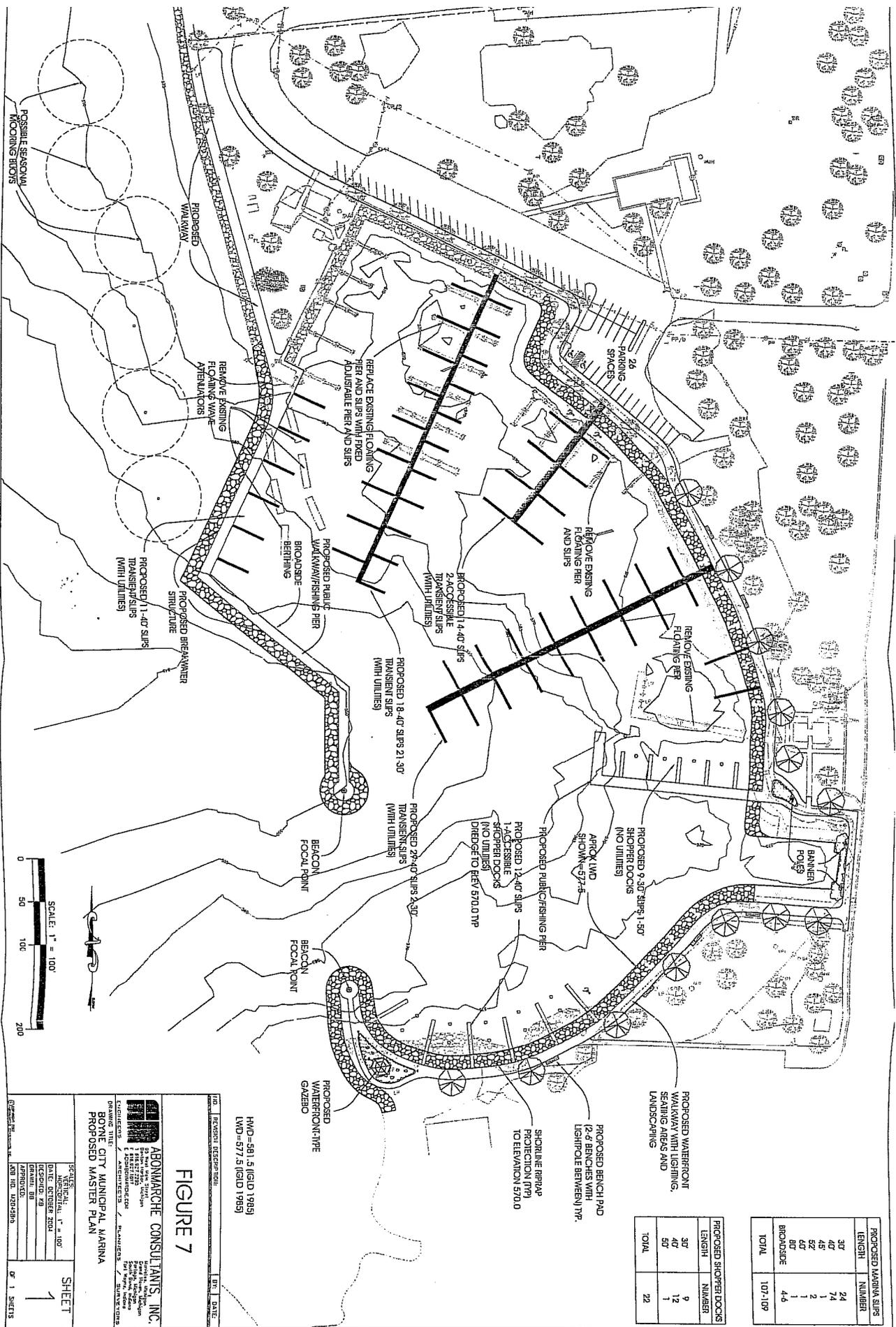
If you have any questions or comments regarding this request, please feel free to contact me or Ben Bifoss at Abonmarche (231) 723-1198. Thank you for your past and continued assistance with this project.

Sincerely,

A handwritten signature in black ink, consisting of several overlapping, slanted lines that form a stylized representation of the name Michael Cain.

Michael Cain  
City Manager

cc: Daniel Reed, Harbor master  
Ben Bifoss, Abonmarche  
File



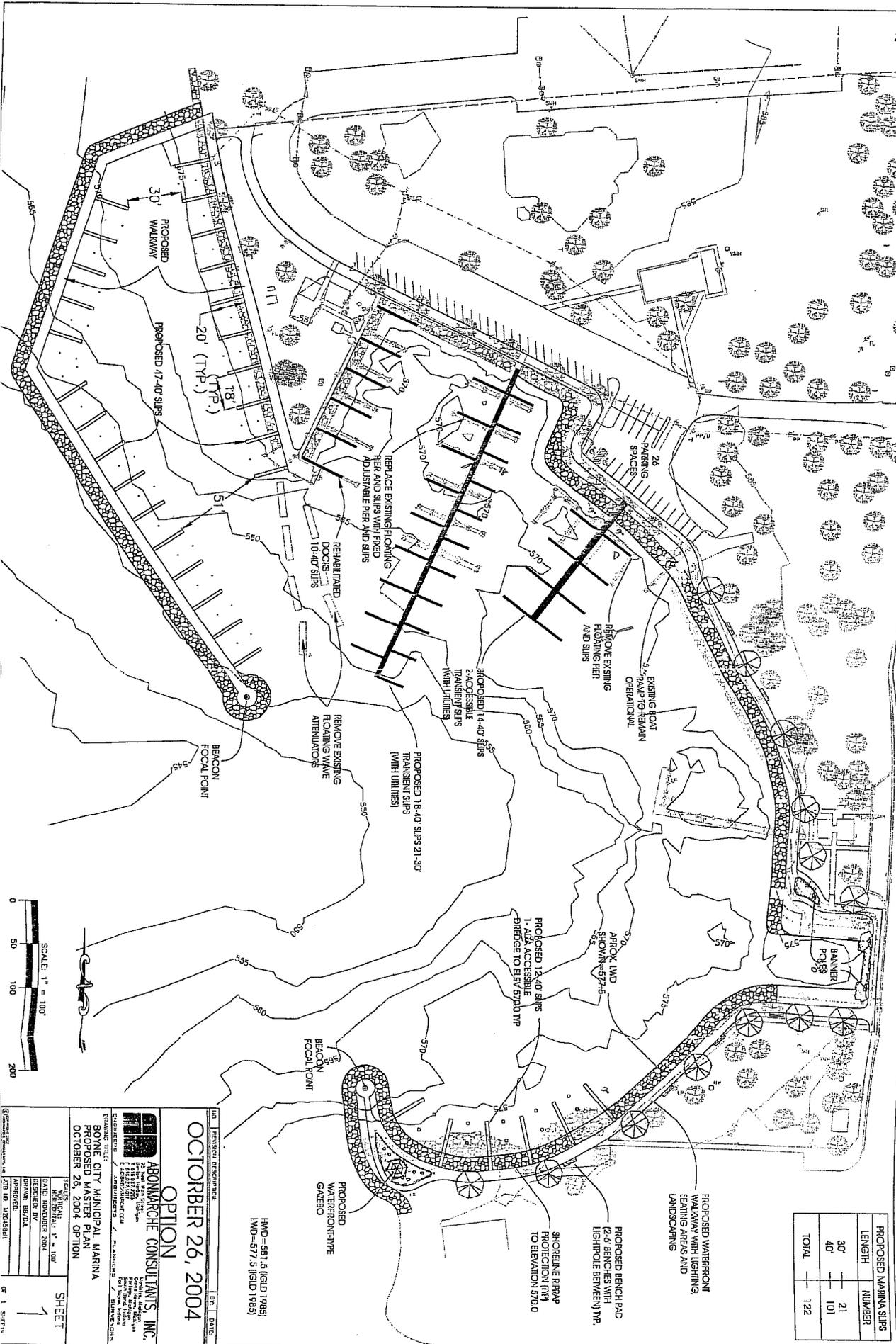
PROPOSED MARINA SLIPS	LENGTH	NUMBER
30'	24	
40'	74	
45'	1	
52'	2	
60'	1	
60'	1	
BROADSIDE	4.6	
TOTAL	107-10'	

PROPOSED SHOPPER DOCKS	LENGTH	NUMBER
30'	9	
40'	12	
50'	1	
TOTAL	22	

**FIGURE 7**

**ADONMARCHÉ CONSULTANTS, INC.**  
 CONSULTANTS  
 BOYNE CITY MUNICIPAL MARINA  
 PROPOSED MASTER PLAN

**SHEET**  
 1  
 OF 1 SHEETS



PROPOSED MARINA SLIPS	LENGTH	NUMBER
	30'	21
	40'	101
TOTAL		122

**OCTOBER 26, 2004**  
**OPTION**  
**BOYNE CITY MUNICIPAL MARINA**  
**PROPOSED MASTER PLAN**  
**OCTOBER 26, 2004 OPTION**

**ABONMARCHE CONSULTANTS, INC.**  
 2000 W. 10th Street  
 Suite 100  
 Lincoln, NE 68502  
 Phone: (402) 441-1111  
 Fax: (402) 441-1112  
 www.abonmarche.com

DRAWING TITLE: BOYNE CITY MUNICIPAL MARINA PROPOSED MASTER PLAN OCTOBER 26, 2004 OPTION  
 DATE: OCTOBER 26, 2004  
 DESIGNED BY: [Signature]  
 DRAWN BY: [Signature]  
 APPROVED: [Signature]  
 SHEET 1 OF 1 SHEETS

12/29/2004 16:31 231-5826506

CITY OF BOYNE CITY

PAGE 02/02

JENNIFER M. GRANHOLM  
GOVERNORSTATE OF MICHIGAN  
DEPARTMENT OF NATURAL RESOURCES  
LANSINGREBECCA A. HUMPHRIES  
DIRECTOR

December 21, 2004

Mr. Michael Cain  
City Manager  
319 N. Lake Street  
Boyne City, Michigan 49712Re: Boyne City Master Plan Alternatives and Preliminary Engineering Study Project  
Reimbursement Requests

Dear Mr. Cain:

Parks and Recreation Division has reviewed the alternative concepts "Figure 7 and October 26, 2004" from your memo dated November 12, 2004, and feel that both concepts may be added to the wave study for further consideration. The October 26<sup>th</sup> concept does not indicate that the "proposed 47 - 40' slips" are transient, which is our hope that the intention is for those to be transient slips?

On another topic, checking through the file, I have noticed that the City of Boyne City has not made a reimbursement request as of yet for the substantially complete Marina Master Plan Study. I would suggest consideration be given to requesting reimbursement for that project in the near future.

Keep in mind when reimbursement is requested that a request letter is needed (indicate total amount and how much (%) is requested as per the terms of the agreement), please include invoices and cancelled checks as well.

If you have any questions, please feel free to contact me. Thank you for your assistance with this project.

Sincerely,

Paul R. Petersen  
Parks and Recreation Division (PRD)  
Waterways Planning Unit  
(517) 335-3033

cc: William Boik, PRD

NATURAL RESOURCES COMMISSION  
Keith J. Charters-Chair • Mary Brown • Bob Garner • Gerald Hall • John Madigan • Frank Wheatlake  
STEVENS T. MASON BUILDING • P.O. BOX 30028 • LANSING, MICHIGAN 48909-7528  
www.michigan.gov/dnr • (517) 375-2329