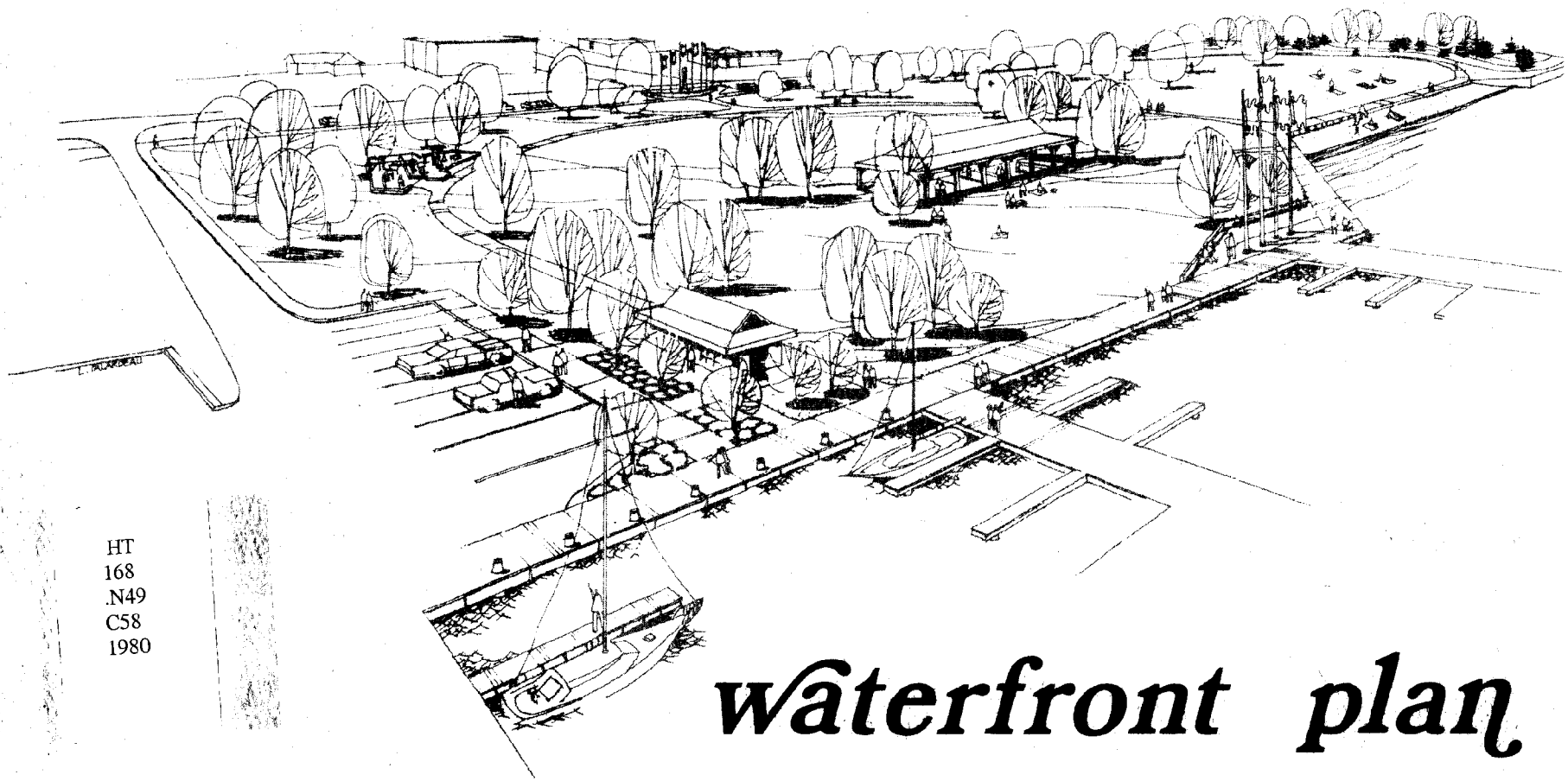
NEW BALTIMORE



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waterfront plan

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City of NEW BALTIMORE

WATERFRONT PLAN

The preparation of this document was financed through a grant provided by the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration, as authorized under the Coastal Zone Management Act of 1972 and administered by the Michigan Department of Natural Resources Division of Land Resource Programs.

City of New Baltimore
City Council
City Planning Commission

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ACKNOWLEDGEMENTS

The City of New Baltimore wishes to acknowledge the excellent cooperation of the many individuals, departments and agencies who aided in the development of this plan. The City Planning Commission is recognized for its many hours of meetings and deliberations with the public on the issue of a potential harbor. Special appreciation is extended to Dr. Bruno Wisney, a former Mayor and Planning Commissioner who met several times with the Consultants and provided much information on existing boating conditions and a harbor of refuge. Recognition is also given to Mr. John Jarzyna, City Assessor, who prepared detailed parcel and property information for this report.

This report was made possible through the cooperation of the Michigan Department of Natural Resources, Division of Land Resource Programs and the Waterways Division. Special mention is given to Mr. David Warner of the Coastal Management Program who reviewed this document and worked directly with the consultants on the study. Appreciation is also extended to Keith Wilson, Jim Ashwood and Sue Lothrop of the Waterways Division who provided economic impact data and boating surveys specifically related to Macomb County and the City of New Baltimore.

Photos assembled for use in this report were provided through the efforts of the New Baltimore City Library, Anchor Bay Beacon, Richmond Review, Mr. Charles Miller, Mr. John Mc Partlind, Mr. Art Hayek and Community Planning & Management. Park concepts and perspectives were drawn by Bills/Childs Landscape Architects.

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COMMUNITY PLANNING & MANAGEMENT, P.C.

January 22, 1980

Honorable Roman Struzynski, Mayor
New Baltimore City Council
New Baltimore Planning Commission

Dear Honorable Mayor, Council and Commission Members:

On behalf of Valentine-Thomas and Associates, Inc. and myself, we herewith submit the Waterfront Plan for the City of New Baltimore. This plan has been drafted according to the provisions of the Coastal Management Program Contract dated March, 1979. Any recommendations or conclusions of this plan are those we have drawn. We hope that after review and public hearing input, the City Council and Planning Commission will revise or adopt part or all of the recommendations of this plan. The Engineers and myself remain available to attend those hearings and to answer any questions which arise.

The preparation of this plan was made possible through a grant provided by the Office of Coastal Zone Management as administered by the Michigan Department of Natural Resources, Division of Land Resource Programs. The Waterfront Plan presents an analysis of waterfront development potentials and problems. It details a number of proposals for potential harbor facilities and it suggests guidelines which should be adopted as a Land Use Plan of the waterfront area. The City has decisions to make on park policy, whether to construct a harbor, and zoning and land use development policies along the waterfront. It is hoped that this plan will provide the basis for those decisions.

The real value of this plan will be determined in the next few months as the City formulates its long range growth policies for the Waterfront Area. We wish to thank the Mayor, the Council and the members of the Planning Commission for the guidance and support that went into the creation of this plan. We look forward to assisting you in this continuing planning process.

Respectfully submitted,

COMMUNITY PLANNING & MANAGEMENT, P.C.

Dennis J. Meagher

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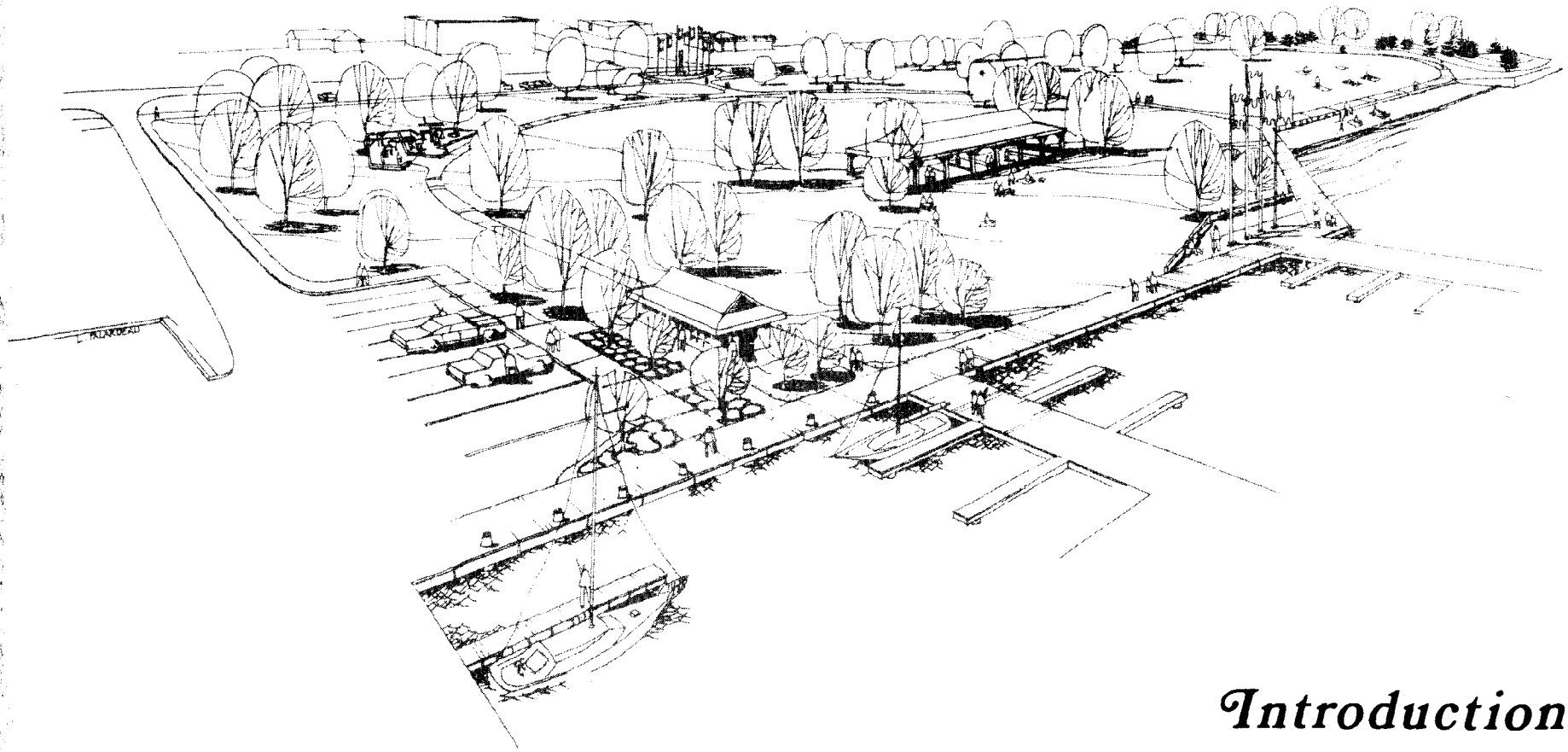


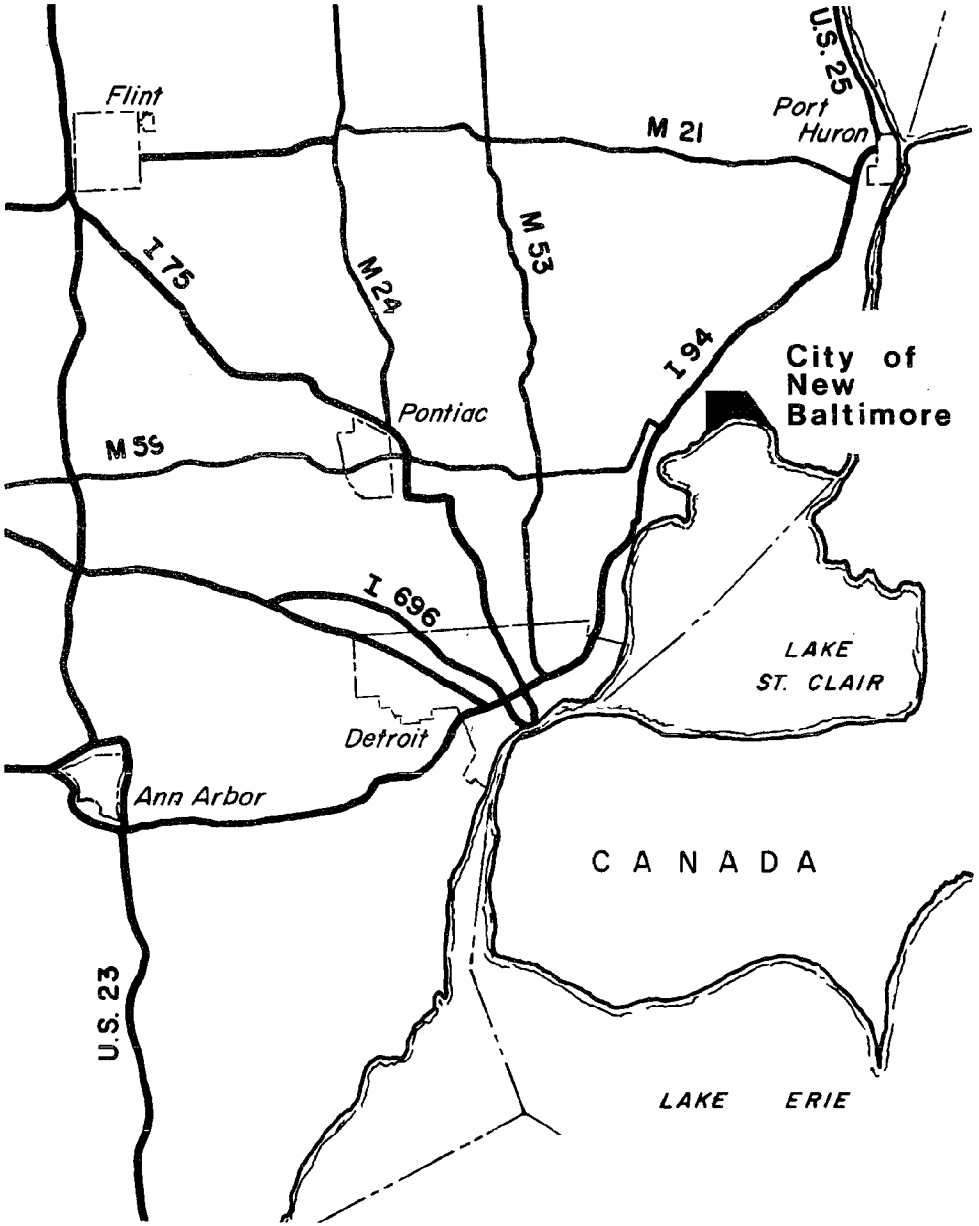
Introduction

Introduction

Over many decades, there has been continual discussion regarding the potential development of the New Baltimore waterfront. In 1970, the engineering firm of Valentine-Thomas and Associates were contracted to prepare a preliminary engineering report for recreational mooring facilities. This report presented a plan for mooring between 160 and 212 boats. The recommendations of the study were never acted upon.

In 1977, the City of New Baltimore Planning Commission received as one of its long range planning assignments the investigation and analysis of a harbor facility and development of a long range plan for the waterfront. Numerous meetings were held with the public and many questions were brought forward. In February of 1978 the Planning Commission submitted a preapplication to the State of Michigan Coastal Management Program for a grant to update the engineering study on the mooring facilities and to develop an overall waterfront plan. The grant was tentatively approved in February of 1979, and the firms of Valentine-Thomas and Community Planning & Management were hired by the City to provide the engineering and planning services. The provision of this grant has permitted an indepth examination of all facets of the waterfront. Questions related to the impact of a harbor on adjacent land uses, upon the City Park or the downtown area had not been answered. In addition, questions regarding the development of the remaining lands along the waterfront needed investigation. This harbor study and land use plan would not have been possible without the assistance of the Michigan Coastal Management Program. The Plan permits the City to establish a development policy based upon facts and research which are available to everyone who wishes to review them. Numerous meetings have been held to discuss the findings of this Plan. Additional meetings will be held before policy discussions are made by the City Council. One of the first steps to be taken by the Council will be a reevaluation of the City's closed park policy. Federal or State funds cannot be used in any park which is not open to the general public. Therefore, unless the City adopts an open park policy, they cannot receive Federal funds for the park or for a harbor facility. Other discussions to be made include:

1) Should the City of New Baltimore promote or seek funding for the development of a boat harbor?
2) Should the City purchase the 1.5 acres of land to the east of the present City Park?
3) If the harbor is constructed, should the dredged material be placed on the Reudisale point or should the spoil be dumped on other inland sites?
4) Should the land use plan for the Waterfront area be adopted by the Council as their policy guideline for development or redevelopment?



Location Map

1

Location & History

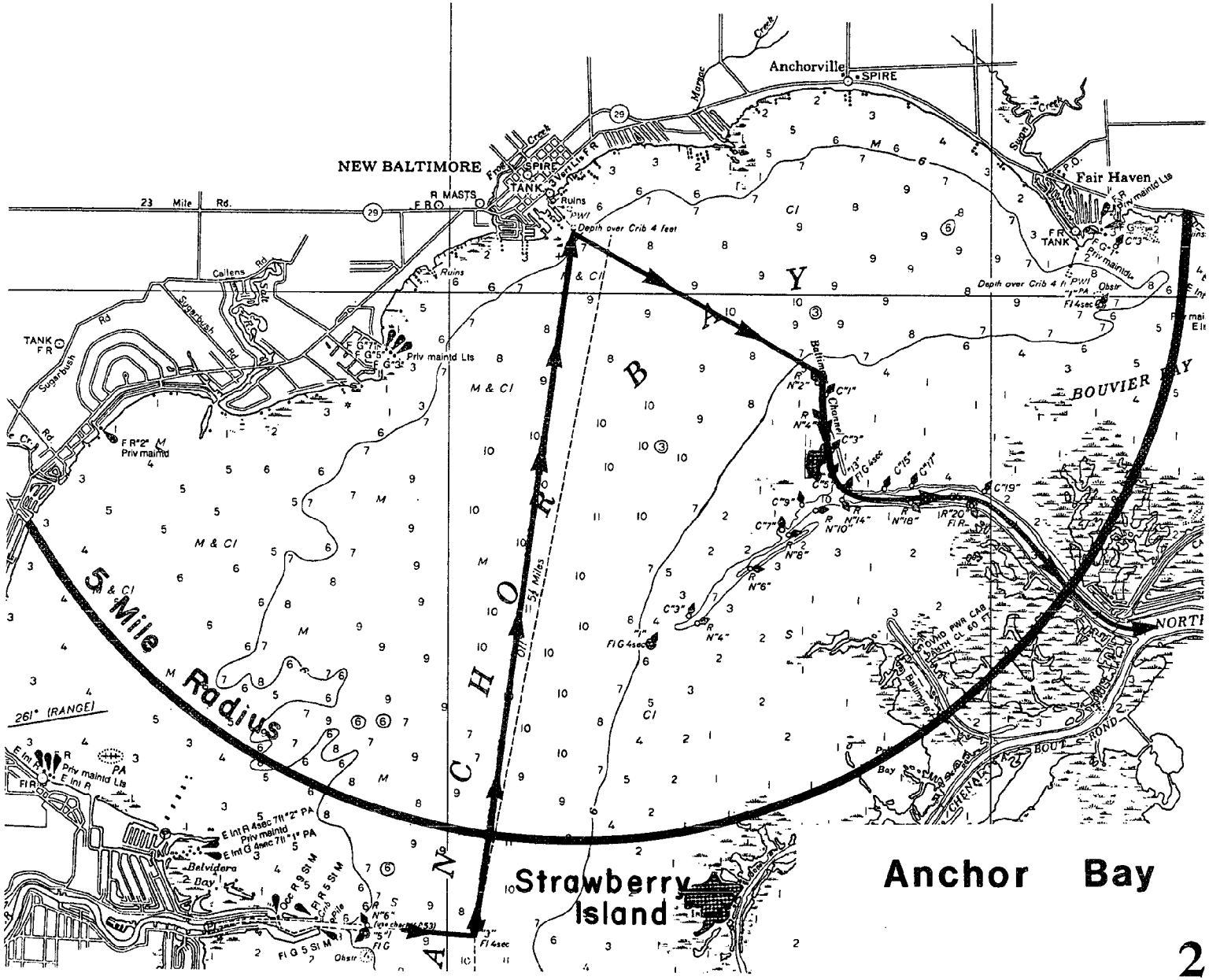
Over the decades, people who have been directly involved in the development of land have often been heard to say that the primary factors involved in any decision to develop or promote land sales are "location, location and location." The most important physical feature affecting the past and the future development of the City of New Baltimore is its location. The City is located on the shoreline of Lake St. Clair midway between the Cities of Detroit and Port Huron. This location places the City outside of the urban density of Detroit but close enough for workers to arrive at their places of employment or shopping without undue time delays or inconvenience. It is recognized throughout the region because of its history, its small town character, its downtown and its location on the water.

The first white settlers came to this area from Canada in the late 1700's and settled along the Crapeau Creek. Most of these settlers were French and some of their French claim land divisions affect land development today. These early French farms started near the river, had a narrow frontage of 400 to 900 feet and extended inland as much as three miles. Is is said that the depth of land ownership was determined by how far a man could plow in a half of a day. They would plow one furrow out in the morning and a second back to his cabin in the afternoon.

The present shape and beginning of New Baltimore came about in 1851 when Alfred Ashley subdivided approximately 60 acres near Washington and Main Streets. The gridiron pattern covered part of the area bounded by Taylor, Hatheway, and Bedford Streets and the shoreline. At that time it was called the "City of Ashley". About ten years later, the name was changed to the City of New Baltimore because of the Baltimore railroad station located between Ashley and New Haven.

Between 1860 and 1880, New Baltimore was the most thriving community in Macomb County. The waterfront with its beautiful harbor was a booming shipping center serving 14 factories, many resort activities and well-known commercial establishments. The area was known for its manufacture of barrel staves, hoops, brooms, bricks, coffins, corsets and creamery products. Lumber products and building materials were shipped by boat from the local mills. The City was shriving with an opera house, salt bath house, boarding houses and saloons, a brewery and dry goods stores. Development was heavily oriented to the waterfront, where shipping piers went a hundred or more feet into the lake. That part of Base Street from Front Street to the lake appears on early maps to have been the Baker Company shipping dock. Over the years this area eventually became a residential street with over 15 homes.

In summary, New Baltimore's greatest asset has been its location. It was founded because it could be reached by water and had the Crapeau Creek as an inland water resource. It developed and flourished because of its shipping and harbor facilities. Today its location, less than three miles from the I-94 freeway and halfway between Port Huron and the City of Detroit, makes it a desirable place to live. (Close enough for employment and major cultural activities but far enough away to maintain a small town atmosphere.) One of the most important features affecting the future of New Baltimore is its location fronting on Lake St. Clair. This asset must be planned to its greatest development advantage.



NEW BALTIMORE
Anchorville
SPIRE
Fair Haven
23 Mile Rd.
Depth over Crib 4 feet
Priv maintd Lts
BOUVIER BAY
5 Mile Radius
261° (RANGE)
Strawberry Island
Anchor Bay
Belvidera Bay

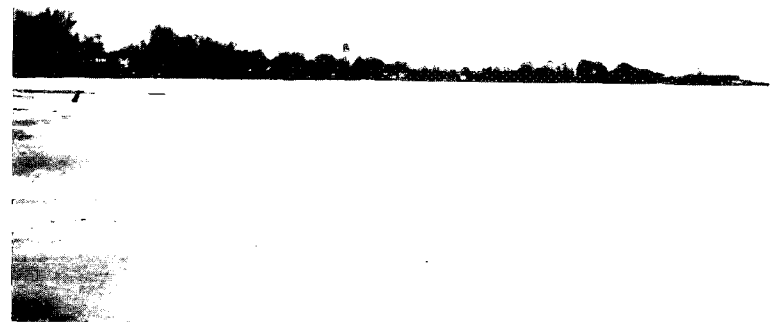
2

Lake St. Clair Resources

The shipping trades have died and industries have moved, but Lake St. Clair today is one of the busiest waterways in the nation. State waterway officials believe as many as 50,000 pleasure boats are either berthed on the Lake or are launched for fishing and recreation trips each season. The fishing trade has never been better. The best catches are for perch, small mouth bass and walleye. Sport fishermen seek huge muskellunge as well as other game fish. The heart shaped lake covers only about 400 square miles but its waters are used annually by 1,500 huge ore carriers, 800 ocean going vessels, and its resources are sought by fishermen, duck hunters, sailboat regattas, powerboat races, ice boat races, and ecologists or sportsmen seeking to preserve areas for waterfowl nesting and fish spawn areas. It is a vital resource which provides pleasure, recreation, employment and an entire ecological water habitat.

The City of New Baltimore has an ideal location on Anchor Bay. From the Clinton River light (buoy marker) is is a direct north compass course of 5.5 miles. The water depth is a minimum of 9 feet throughout this course even at low water datum. A harbor facility at New Baltimore would be less than five miles from 95% of Anchor Bay. It would also be easily accessible since it is not located behind a peninsula or shallow water area or in a narrow channel or river. It is a short distance from the boaters' favorite swimming areas — Baltimore Channel Island 2.5 miles and Strawberry Island 5 miles. Transient boaters may continue on course to the St. Clair River or Port Huron without back tracking (see the sketch). New Baltimore presently has a full service marina facility which provides repair service, boat supplies, salvage and hoist services. The waterfront is less than a block from downtown shopping. One major feature known to all Lake St. Clair boaters is the bright red water tower which has become a navigation landmark. The tower is located on the waterfront within the City Park area. It can be seen or found day and night throughout the entire Anchor Bay.

In 1967, the Macomb County Planning Commission published their Transportation Survey which recognized the water-based recreation potential of Lake St. Clair. At that time there were 50 marinas providing about 5,600 berths located in Macomb County. It was estimated that the 1967 shortage of 5,000 boat slips would grow to about 9,100 boat slips by 1980. According to information collected by the Michigan Waterways Division in 1977, in Macomb County there were two public marinas with a total of 356 boat slips, 49 commercial marinas with 5,396 boat slips and 7 private or club member marinas with 230 boat slips. Therefore, in 1977 there were 58 marinas with a total of 5,982 berths or an increase



of about six percent over the past decade. Table 1 shows the type of mooring facilities and number of boat slips for those counties bordering Lake St. Clair.

TABLE I
Mooring Slip Operation
(1977)

Macomb County	Public - State & Mun.	356	
	Private Clubs	230	
	Commercial Marinas	5,396	
	Total	5,982	Slips
St. Clair County	Public - State & Mun.	252	
	Private Clubs	92	
	Commercial Marinas	2,008	
	Total	2,352	Slips
Wayne County	Public - State & Mun.	922	
	Private Clubs	2,223	
	Commercial Marinas	1,990	
	Total	5,135	Slips

In June, 1979, the Waterways Division of the Michigan Department of Natural Resources published its 1977 Michigan Recreational Boating Survey. Between 1968 and 1977 the number of registered boats in the four county area increased by over 40,000. As shown in Table 2, the number of registered boats in Macomb County increased by over 10,000 or 46 percent. The following table shows the number and size of boats in Macomb County and the surrounding four county urban Detroit area. The four county region accounted for 29% of all boats in the State and 40% of all boats over 20 feet in length.

TABLE 2

1977 Boat Registrations

	20 feet and under	over 20 feet	
Macomb County	25,381	7,244	
Oakland County	44,767	6,313	
Wayne County	68,465	10,407	
St. Clair County	7,215	1,601	
4 County total	145,828	23,964	169,792
State of Michigan total	524,859	60,133	584,992

According to that survey, there were over 32,000 boats registered in Macomb County or 5% of the total boats registered in the State of Michigan. In terms of boats over 20 feet in length, Macomb County has 12 percent of the total boats registered for the State. The 1978 registration for boats over 20 feet was 4,906 or an increase of nine percent over the previous year. In Macomb County alone there were 1,200 more boats registered than there were mooring slips available. It's true that some of these boats are trailered or kept at residences but there are a major percentage of boats moored in Macomb County which are registered in Oakland County or Wayne County. For the three counties there were 19,252 registered boats over 20 feet in length but only 13,469 mooring slips available at marinas or harbors.

The Recreational Boating Survey undertaken by the State was a 20% sample of owners of registered boats over 20 feet in length and a 5% sample of those boats over 20 feet in length. The overall survey had an 88% return with an 81 percent return in Macomb County. Most harbor facilities are used primarily by boats over 20 feet in length. Therefore, this report summarizes the data on the larger boats and where possible relates that data to Macomb County or Southeast Michigan. The following table shows the comparison of 1974 and 1977 storage locations.

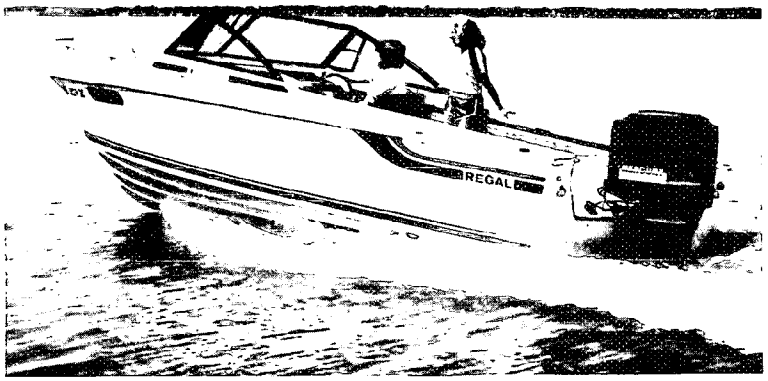


TABLE 3

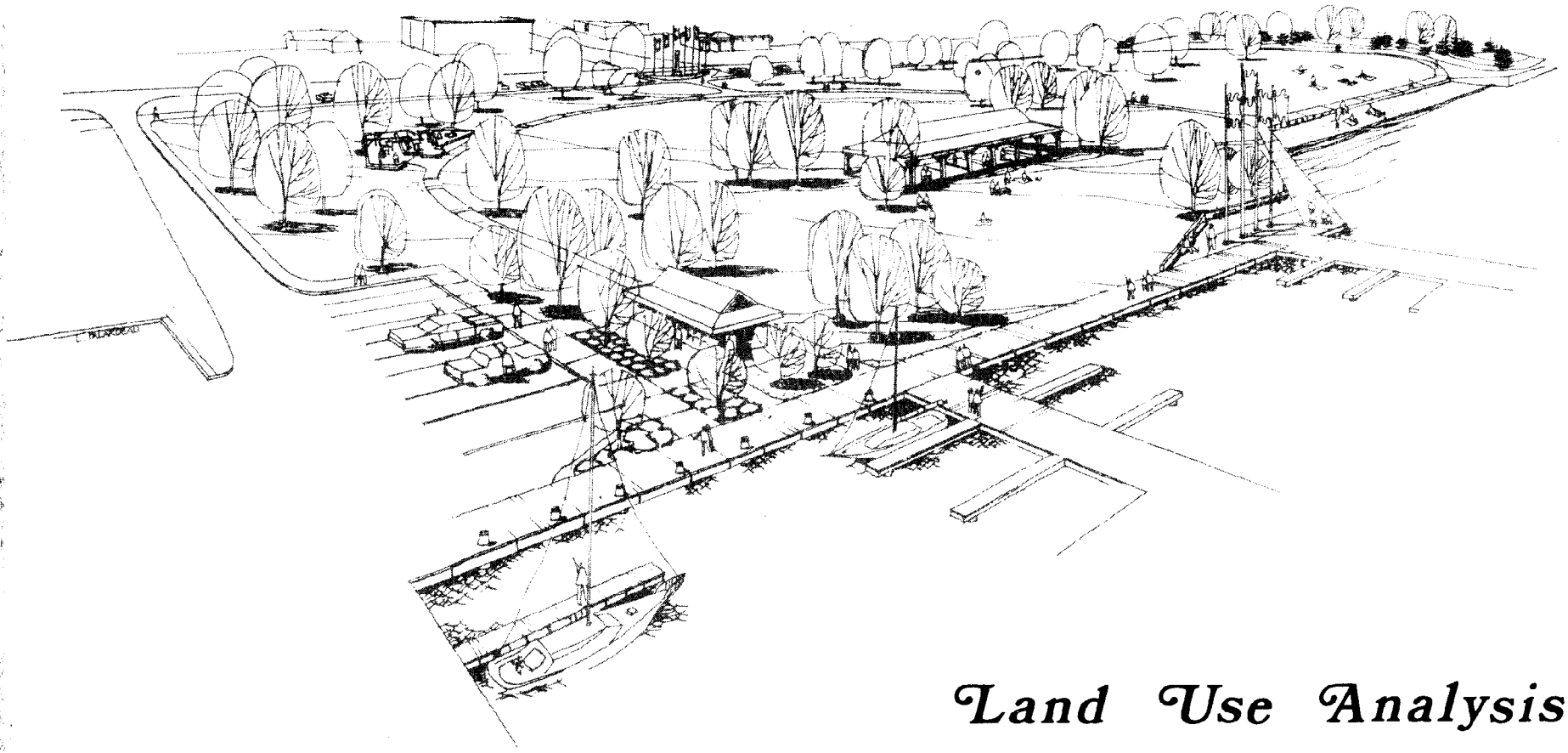
Mooring Facilities by Type (Macomb County)

Boats over 20 feet	Percent 1974	Percent 1977
1. Commercial marina	32.8	29.5
2. Summer cottage	19.9	18.9
3. Water at permanent home	19.9	21.0
4. Boat or yacht club	10.6	8.8
5. Public	6.9	6.3
6. Permanent home not on water	4.7	7.0

As anticipated for the larger boats, most are maintained at marinas or private homes or cottages. It was also noted that only 22% of all boats over 20 feet in length had been transported at least once during the boating season. Statistics were not available for Macomb County but it can be assumed that a higher percentage of residents would be keeping their boats at homes on the water.

In the seven county area of Southeast Michigan (Region I) there were 3,576,800 boat trips which had their origin and destination points within the seven county area. Thirty-seven percent of all trips in the State of Michigan had their origin in Southeast Michigan. Over 96 percent of all boat days starting in Southeast Michigan also had their destination in Southeast Michigan. Over 33% of all the boat launchings (for boats over 20 feet in length) occurred within Southeast Michigan or Region I. In Macomb County, there were 5,283 launches of boats over 20 feet. From 1974 to 1977, Region I increased by 5.2% its share of the total launchings. This region is the most densely populated area of the State and the percentage increase may indicate that people are staying closer to home for their boating pleasures. Macomb County in 1977 registered 823,000 boating days of which 314,000 or 38% were on boats over 20 feet in length. There were an average of 25 days of use per boat in Macomb County.

In summary, the waters around Macomb County are used mainly for recreation. Boating activities are a major part of that recreation use. As pointed out in the 1964 Regional Recreation Plan "The concentration of pleasure boats between Port Huron and Detroit is one of the highest in the United States." New Baltimore has an excellent location on Lake St. Clair for a harbor facility. With the increase in registered boats in Macomb, Oakland and Wayne Counties, there will be an even greater demand for harbor facilities. During the period from 1968 to 1977, boat registrations in Macomb County increased by 46% but the number of public or commercial mooring slips increased by only six percent. It is clear from the various studies and surveys, that additional mooring facilities are in demand. Current trends indicate there will be shorter trips, larger boat size and a return to sailing craft. A City of New Baltimore harbor facility could meet part of that need.



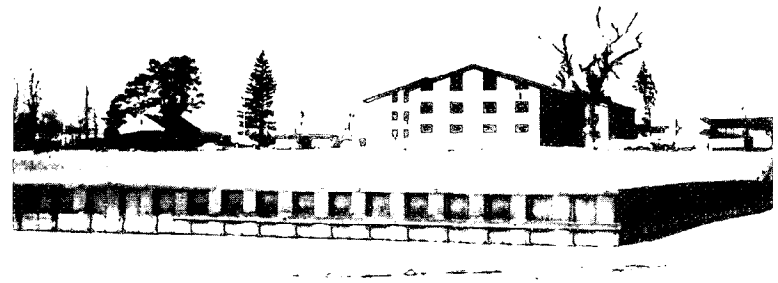
Land Use Analysis

Development Potentials

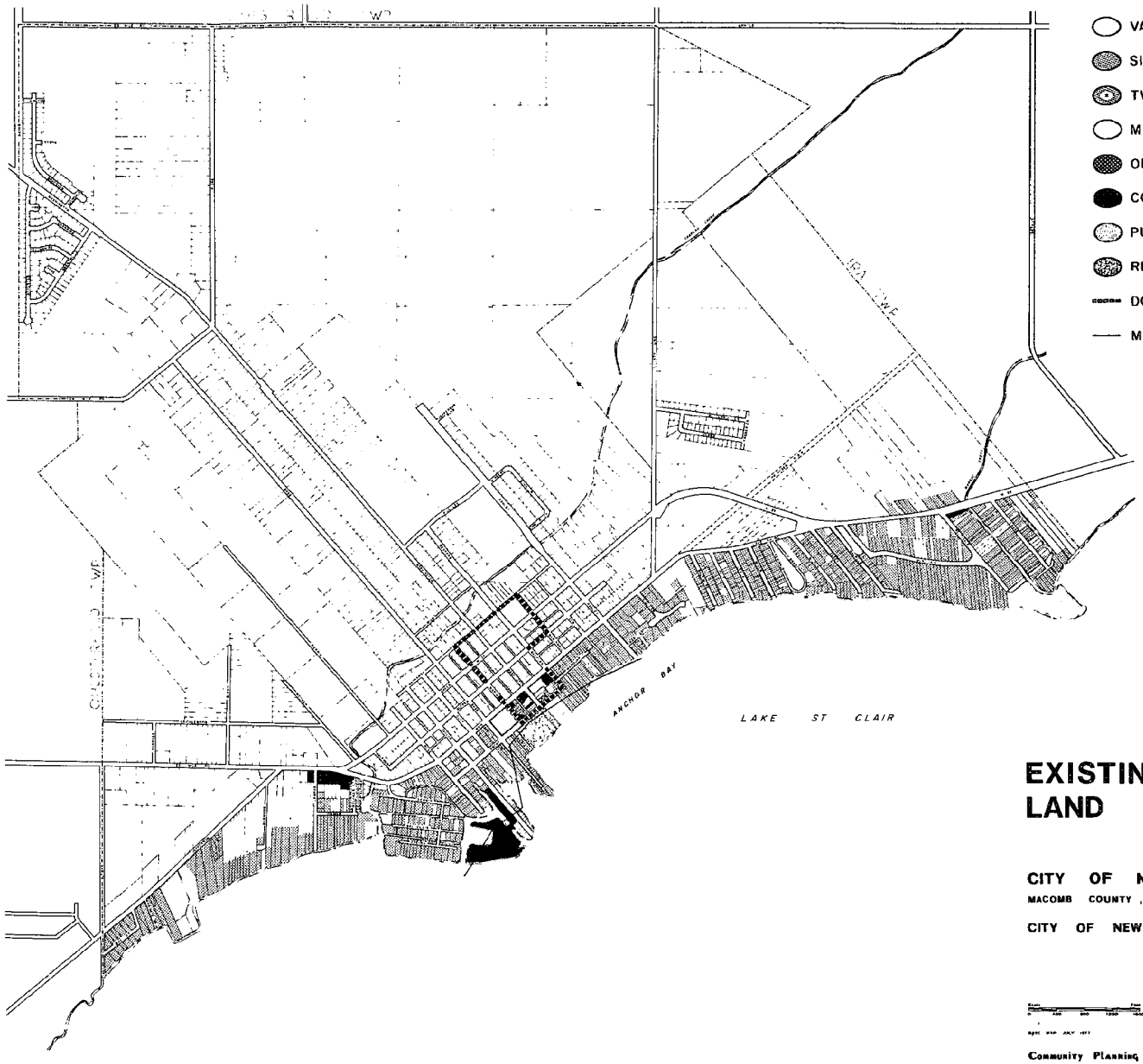
The heart of the waterfront area is located at the foot of Washington Street adjacent to downtown New Baltimore. Walking through downtown you can see the wide expanse of Anchor Bay. For the traveler in a car it is the only area within the City of New Baltimore where the lake can be seen from the vehicle. In terms of historical development, it was this area of the City that was the center of activity. There were wharfs, docks, factories, commercial buildings, dance pavillion and a bustling downtown area all located to take advantage of the lake front. When the shipping interest died, the lake front for the most part was absorbed by single family residences.

Today there are less than 4 acres of land in public ownership on this part of the waterfront. About one-third of that area is used for the water treatment plant, the rest is used as the City of New Baltimore park. The park area is fenced and the gate is locked when the park is closed. There is a dock extending about 130 feet from the shoreline. About ten years ago, the City had constructed boat docks and a pier. The main dock is still in good shape, but the piers have been destroyed by ice and lake storms over the years. Many of the pilings are still in place, and can be seen from the park. West of the dock is an area which is used for the launching of light boats on trailers. The park area is used for swimming, picknicking, shuffleboard and tot lot activities with swings and slides. The City recently constructed an open pavillion for sheltered picnics. Reference should be made to the Existing Land Use Map for the entire waterfront (Map 3) and the detail around the City Park (Map 4). These maps are based on aerial photography, assessing records and field surveys made by the consultants.

To the east of the park property is a vacant parcel of land which has 227 feet of frontage and a potential depth of about 300 feet. According to the owner, this property is available for sale and has been for a number of years. The asking price is in the range of $135,000, or $600 a front foot. Its development potential would be as an addition to the City Park or as multiple family or commercial. If the land were rezoned for multiple family, it would be possible, using the City's existing Zoning Ordinance to construct 20 to 30 apartments on the site. The number would be dependent upon whether they were one, two or three bedroom units. It would also be dependent upon how much land was filled. There may be some potential for commercial development, but there are sites already zoned for commercial, which are available and vacant within the downtown area. Lands to the east of the vacant property are used as single family residential.



The area west of the park is beset with development problems. Maria Street has about 34 feet of right-of-way and although it extends to the lake, is constructed mainly as a driveway to the three residences. Base Street has 80 feet of right-of-way at Front Street but after 100 feet is narrowed to 10 feet of right-of-way. This 10 foot street extends 800 feet and serves 18 residences located on Base Street. It appears from early maps that this entire land area was once a shipping dock and over the years was developed for housing. The housing ranges from new construction of over 2,200 square feet to units with 400 or 600 square feet. Most of the residences were constructed between 1900 and 1930, however, three residences have been constructed since 1950. Most of the lots are 70 feet or less in depth and some are 25 to 30 feet in width. Some of the housing is constructed within 10 feet of the street. Traffic on the road is limited to one lane with parking as another major problem. There is no area for a turnaround at the end of the road. Erosion may also be creating future problems about midway the length of Base Street. The newest and most valuable residential structure is located at the end of the street on a parcel of land approximately 120 feet square.



- VACANT
- SINGLE FAMILY
- TWO FAMILY
- MULTIPLE FAMILY
- OFFICE
- COMMERCIAL
- PUBLIC & SEMI - PUBLIC
- RECREATION
- DOWNTOWN SHOPPING DISTRICT
- MEANDER LINE

EXISTING LAND USE : 1979

CITY OF NEW BALTIMORE

MACOMB COUNTY, MICHIGAN

CITY OF NEW BALTIMORE PLANNING COMMISSION

COMMUNITY PLANNING & MANAGEMENT, P.C.
UTICA, MICHIGAN

SINGLE FAMILY

MULTIPLE FAMILY

OFFICE

COMMERCIAL

PUBLIC & SEMI - PUBLIC

EXISTING LAND USE

CITY OF NEW BALTIMORE

MACOMB COUNTY, MICHIGAN

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0 100 200 300 400

COMMUNITY PLANNING & MANAGEMENT, P.C.
UTICA, MICHIGAN

4

The following map entitled "Development Potentials" indicates areas along the waterfront where there is land to be developed and also areas where problems need to be addressed. Each of these areas will be examined in this section and will be shown as plans in the Land Use Plan section. To the west of Base Street is Taylor Street with a sixty-five foot right-of-way. However, within this right-of-way there are two parallel streets; one serving the homeowners on the west and the second serving the east homeowners and the marina area. Each street deadends and there is no traffic permitted to move from one street to the other. This appears to be a duplication of facilities and costs.

Most of the roads which run to the lake are 600 to 1000 feet long, are limited in right-of-way and have no turnaround areas. Trucks delivering goods, school busses, snow plows and postal deliveries have problems in serving residents living on these roads.

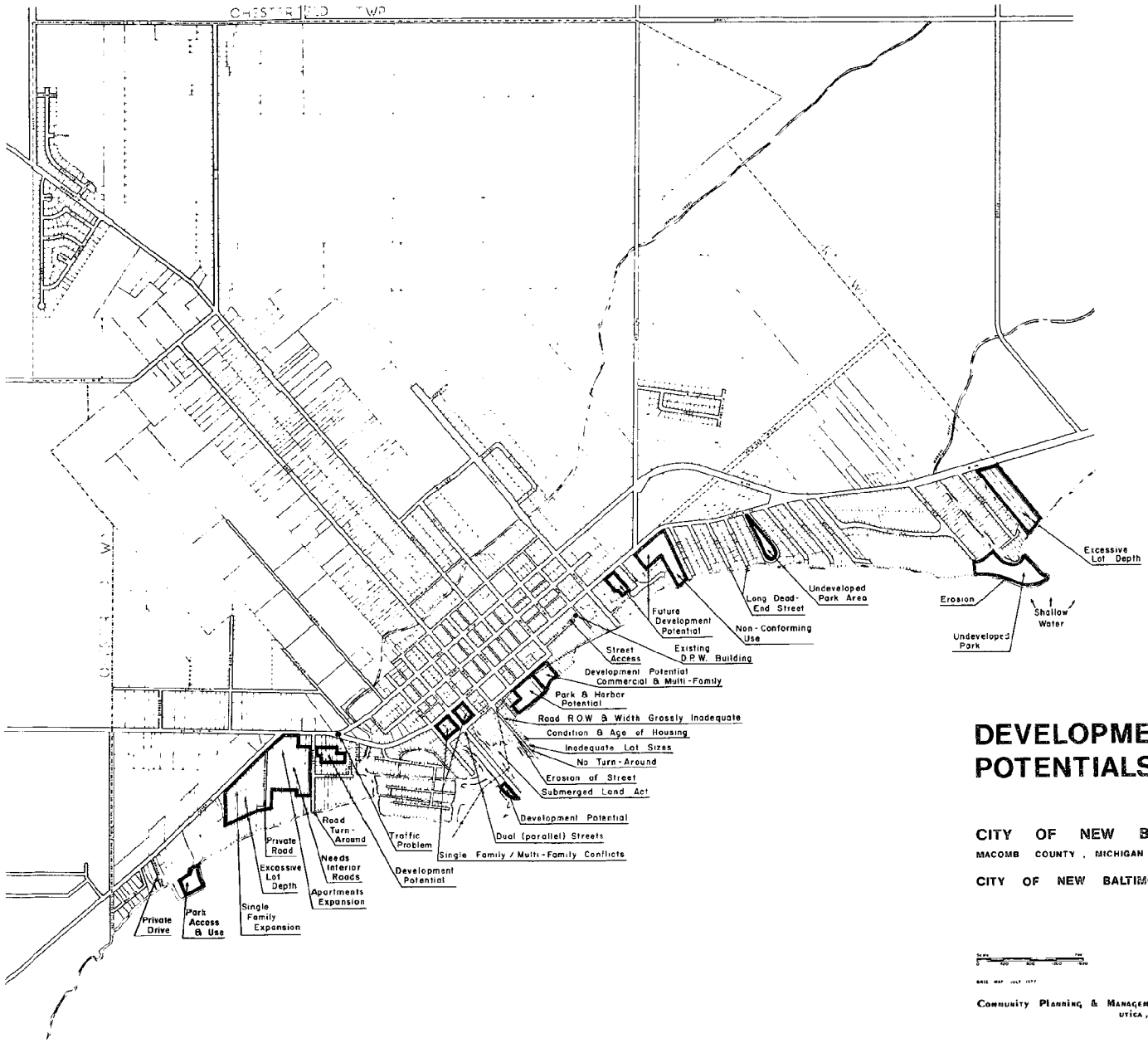
Another situation that is going to cause future development problems is the excessively long and narrow lots which run from Jefferson or Lakeshore to the lake. In some cases, these lots are 50 feet wide and nearly 1000 feet in depth. As land values increase and taxes become an even greater problem, there is going to be an increasing demand to develop other uses for the unused land. The area in the vicinity of Redwood and Lempke is a prime example. The housing is generally located near the lake shore with an individual drive of 800 or more feet. Redwood is a private drive with 30 feet of right-of-way and a one lane dirt road. It is very picturesque but difficult to use during parts of the year as a result of rains or snows. There are nearly 20 acres of land in this area which are under utilized. It may not be necessary to develop these now but over the next 20 years there undoubtedly will be a request for additional single or multiple family development. If the area is to develop without creating greater problems in the future then an interior road system should be developed and the number of curb cuts onto Jefferson should be limited.

Approximately two acres of land lying south of the Anchor Bay and Ville-Du-Lac apartments has been donated to the St. Mary's Catholic Church. The major problem with the use of this property is the access which consists of a 20 foot access easement between the apartments and the carports. Most of the area has been filled land and is not usable for construction of buildings. Therefore, park or recreation use is the most likely future use. However, problems of vandalism and abuses prevalent in non-supervised parks will occur unless the site has controlled access and controlled use. On the north and east end of the City are similar areas of concern: long, dead end streets, lots with excessive lot depth, private streets that lack adequate right-of-way and deadend roads with no turnaround areas. The entire area is zoned for single family development and with the exception of a few nonconforming uses the area is developed with single family residences.

The Brady-Reginald area includes about two acres of land, which are owned by the City. The area is mowed and maintained but there are no park facilities provided. At the end of Reudisale Street are approximately ten acres of City owned land. Less than three acres of this are above the water. Over the years, the land area has eroded and for the area to be usable land fill would be a necessity. The water is very shallow to the south and east of the site (less than two feet over low water datum for the first 2,000 feet into the lake). The Marsac Creek empties into the Lake just north of this point and the water is somewhat deeper (five feet over datum). The canal is also used by boats and mooring is provided along the creek to Jefferson. For the most part, properties on both sides of the Reudisale Point are protected by seawalls. These walls were constructed by the individual homeowners to protect their lands and to reduce erosion. If the City does nothing at all to the Reudisale Point, it will eventually erode to a point where is could affect the adjacent property owners.

In periods of high water and heavy southeasterly winds tremendous damage can be done to the shoreline. These winds during the last part of winter or early spring can cause ice jams, which crush anything in their path. Therefore, any development which is going to take place along the waterfront needs seawall or erosion protection. The adjacent photograph indicates one lone tree approximately a hundred feet from shore. This tree was on the land area which a decade ago was part of the Reudisale Point land mass. As noted above, seawall or erosion protection is going to be needed to either reclaim the land lost at this area or to save the existing land and protect adjacent residential properties.

As indicated on the Existing Land Use and Development Potentials Maps, there are areas throughout the entire length of the waterfront which need specific examination and research. In addition, there are problems with flood hazard areas, land development rights, zoning and utilities. These areas will be analyzed and the Land Use Plan will illustrate at least one potential solution or development plan for consideration.



DEVELOPMENT POTENTIALS

CITY OF NEW BALTIMORE

MACOMB COUNTY, MICHIGAN

CITY OF NEW BALTIMORE PLANNING COMMISSION

BASE MAP JULY 1977

COMMUNITY PLANNING & MANAGEMENT, P.C.
UTICA, MICHIGAN

Riparian Rights

A riparian owner is a person who owns land which includes the shore or bank of a lake or stream. Riparian rights have been defined by the Michigan Supreme Court to include:

1. The right to use the water for such general purposes as bathing, swimming, boating, etc.
2. The right to construct a dock or wharf out to navigable waters.
3. The right of access to the navigable waters.
4. The right to increase the land by the gradual action of natural forces (accretion).

All riparian owners have a right to make reasonable use of the entire surface of a body of water for such purposes as fishing, navigation, swimming, or other public purposes. The right of a riparian owner to use the waters of a navigable lake or stream is qualified by the overriding public trust available to the entire body of water and to the similar rights held by all other riparians on the body of water. On public water bodies such as the Great Lakes or Lake St. Clair these same water surface rights are shared with the general public. However, the general public is not entitled to gain access to that water body over private lands.

The public gained rights to the navigable waters by the virtue of the Northwest Ordinance of 1787. The public rights to navigable waters were extended to the State of Michigan by the Federal Government upon its admission as a state. These rights included title to the submerged lands beneath all navigable waters and an inalienable trust in the overlying waters. In general, the state holds in the public trust the rights in the overlying waters which provide for public navigation, fishery, and other inherent rights of the public. It has been held that the state cannot destroy an individual's riparian rights without compensation. However, it is the general rule that all riparian rights are subject to the public rights. The State has the authority to oppose or permit alterations such as fills and piers in navigable waters in the interest of preserving the public trust in the waters and their reasonable use for navigation, fishing and hunting.

In the State of Michigan, the rights of the riparian owner extend to the water's edge and the public trust responsibility of the State extends to the ordinary high water mark. This means that while the lakes are in their lower stages or lower water level, the riparian has control down to the water's edge but may not alter or place fills or permanent structures on the temporarily exposed land lying between the ordinary high water mark and the water's edge. Any fill or permanent structure placed lakeward of the ordinary high water mark is subject to State regulations

such as the Inland Lakes and Streams Act and the Great Lakes Submerged Lands Act. When one riparian unreasonably interferes with the rights of another riparian to enjoy the use of the entire body of water, as for instance by filling or by an unreasonably long pier, the remedy for such interference is to resort to the courts to seek injunction or other relief. The State may join or initiate such a suit if the rights of the public, as well as riparian owners, are being infringed upon.

Great Lakes Submerged Lands Act

In 1955, the State Legislature adopted the Great Lakes Submerged Lands Act, (Act 247, Public Acts of 1955). This act authorized the Department of Natural Resources to grant, convey or lease certain bottom-lands or unpatented lands belonging to the State of Michigan or held in trust by the State. It also gave the State the right to permit private and public use of waters over submerged patented lands. The act also included those lands which had been filled in from the time that Michigan received statehood and the effective date of the act.

The Great Lakes Submerged Lands Act requires that where bottom-lands were filled prior to 1955 or where the State permits fill, the submerged land must be purchased from the State. As noted in the section on riparian rights, the State of Michigan secured rights to the navigable waters upon being admitted as a State in 1837. These rights included title to the submerged land beneath all navigable waters and the inalienable trust in the overlying waters. A determination as to the shoreline in New Baltimore and the area of rights within the State of Michigan has been made based on maps which were prepared in the late 1850's. In the case of the City of New Baltimore, the map that is primarily used is a map of the City of Ashley dated 1851. The meander line or shoreline is shown on the existing Land Use Map (Map 3) and the Development Potentials Maps (Map 5) in this report. According to the Submerged Lands Act, the State of Michigan has a right and a responsibility to preserve and protect the interest of the general public in the lands and the waters running from this meander line to the high water mark, which for Lake St. Clair has been established by statute to be 574.7 feet above sea level. The Act provides for the sale, lease, exchange, or disposition of land and the private or public use of waters or the filling in of submerged lands whenever it is determined by the Department of Natural Resources that the private or public use of such lands and waters will not substantially affect the public use or the public trust.

Individuals or communities holding riparian lands may apply for a deed or lease to the unpatented bottom-lands whether they are submerged or filled lands. In general, the application is made to the State Department of Natural Resources and the applicant deposits a fee of $50 for each application. The application includes a legal description of the property, the use that will be made of the property and other data that may be required by the State. If the deed or lease or agreement is approved by the State, the applicant is entitled to a credit for the fee deposit. If the department determines that it is in the public interest to grant the applicant a deed or lease, then the department determines the amount of consideration to be paid by the applicant. In general, this fee is equal to 30% of the market appraised value of the bottom-lands. The market value does not include any improvements made on the land. The appraisals are made by the Lands Division of the Department of Natural Resources. Agreements for land or water area may be granted to local units of government for public purposes and contain such terms and conditions which are equitable in view of the public trust. These grants generally are made without consideration to the sale price or market value of the land. If the City of New Baltimore were to seek clear title for the City Park lands near downtown, the City would file an application along with their $50 filing fee and then enter into agreements to maintain that land for public purposes. As such, the only charge would be the filing fee. If the City wished to clear the title, maintain total ownership and restrict use of the land to residents only, it would have the option of applying to the State DNR, paying the application fee and offering 30% of the appraised market value of the land south of the meander line (estimated to be approximately $55,000). It would then be up to the State Department of Natural Resources to determine whether it would be in the public interest to issue a deed or lease for the property to the City of New Baltimore.

A recent survey indicated that there are about 23 persons who have not received clear title to their properties under the Submerged Lands Act. It was also brought to the attention of the City that they have not received clear title for the City of New Baltimore park site on the waterfront. The City is aware of this situation and will be making a decision as to whether to pursue an open or closed park system. Based on that decision, action can be taken to clear the title through the DNR application process.

Flood Hazard Areas

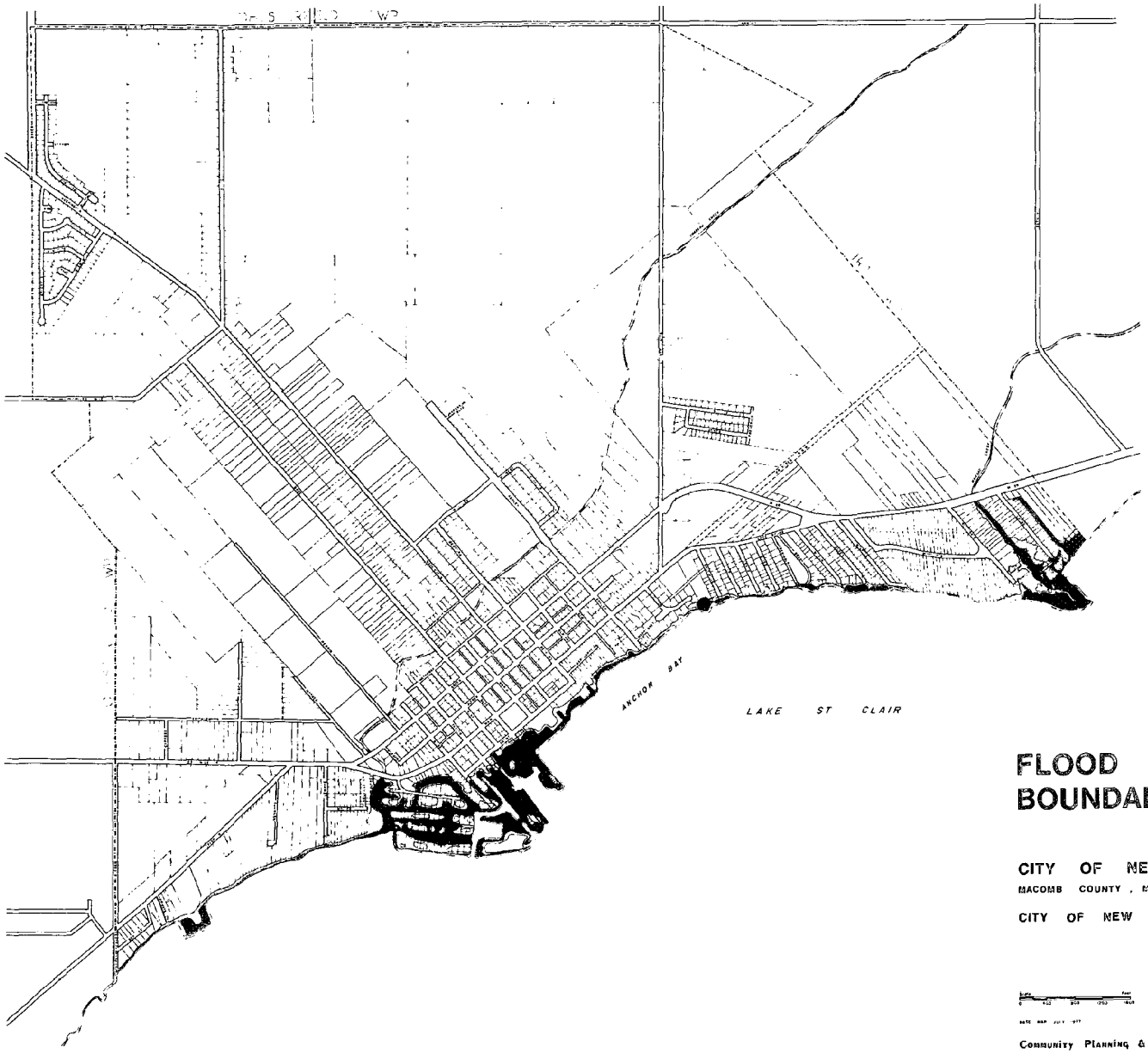
In 1978, the Federal Insurance Administration prepared for the City of New Baltimore a Flood Insurance Rate Map and Flood Insurance Study. A reproduction of this map as it applies to the waterfront area in the City of New Baltimore has been included in this study. The areas of Special Flood Hazard are identified and must receive special consideration prior to any construction or filling of land. As noted on the map, the Reudisale Point and the City Park are the two largest areas identified in flood hazard.

As a part of the National Flood Insurance Program, the City of New Baltimore accepted the Flood Insurance Rate Maps and the Flood Boundary Maps prepared by the Federal Insurance Administration. In addition, the City adopted a Flood Hazards and Flood Damage Prevention Ordinance in August of 1978. The intent of this ordinance is to minimize public and private losses due to flood conditions. In order to accomplish this purpose, the City is restricting or prohibiting uses which might be built within these flood areas and are also controlling the alteration of the flood plains and preventing any filling, grading or dredging, or other types of construction within the flood hazard areas. In general, no structure can be constructed, located, converted, or altered in a flood hazard area without meeting the specific requirements of the City's Flood Damage Prevention Ordinance. If a proposal meets the requirements of this ordinance, a development permit must be obtained before actual construction or development begins. The application for a permit is made to the City and must include drawings which indicate the nature of the use, dimensions, and elevations, the amount of storage area, the amount of fill, and the existing and proposed structures. The City shall review the development to determine that all necessary permits have been received from Federal, State or other local governmental agencies and that the use does not adversely affect the flood carrying capacity of the area. Generally, a use may be permitted only if; one, there is no increase in flood levels as a result of the development; and two, new construction and substantial improvements of any residential or commercial structure shall have the lowest floor level including basement elevated to or above the base flood elevation. In commercial structures, the basement or first floor level as an alternative could be flood proofed to the Federal standards.

This study and the flood insurance program as well as the City's Ordinance were designed to preserve flood plains, minimize property losses due to floods and to assure that future development is not adding to existing flooding problems. Therefore, development which is proposed along the waterfront area must be developed in such a way as to meet or exceed the requirements of this Flood Insurance Program.

Another program which directly affects waterfront property is the State of Michigan Shorelands Protection and Management Act (Act 245 P. A. of 1970). Act 245 mandates the Department of Natural Resources to regulate some of the uses and development within three types of sensitive coast or waterfront areas: high risk erosion, flood risk and environmental. New Baltimore has no known areas of high risk erosion or environmental areas designated by the State of Michigan. In New Baltimore the areas of flood risk are the 100 year flood frequency area. In general, this is the same area as that determined by the Federal Insurance Administration and are the areas designated as Zones A and B on the Flood Boundaries Map. The City's Damage Prevention Ordinance and its work with flood insurance programs dovetail with the State of Michigan Shoreline Protection and Management Act.

Any future developments along the waterfront whether public or private should be examined to determine whether they are in compliance with the ordinances and policies stated in the City zoning ordinances, the Flood Insurance Study, the Flood Hazards and Flood Damage Prevention Ordinance, the Submerged Lands Act, and the Michigan Shorelands Protection and Management Act.



A ZONE

B ZONE

FLOOD BOUNDARIES

CITY OF NEW BALTIMORE

MACOMB COUNTY, MICHIGAN

CITY OF NEW BALTIMORE PLANNING COMMISSION

COMMUNITY PLANNING & MANAGEMENT, P.C.
UTICA, MICHIGAN

Zoning Considerations

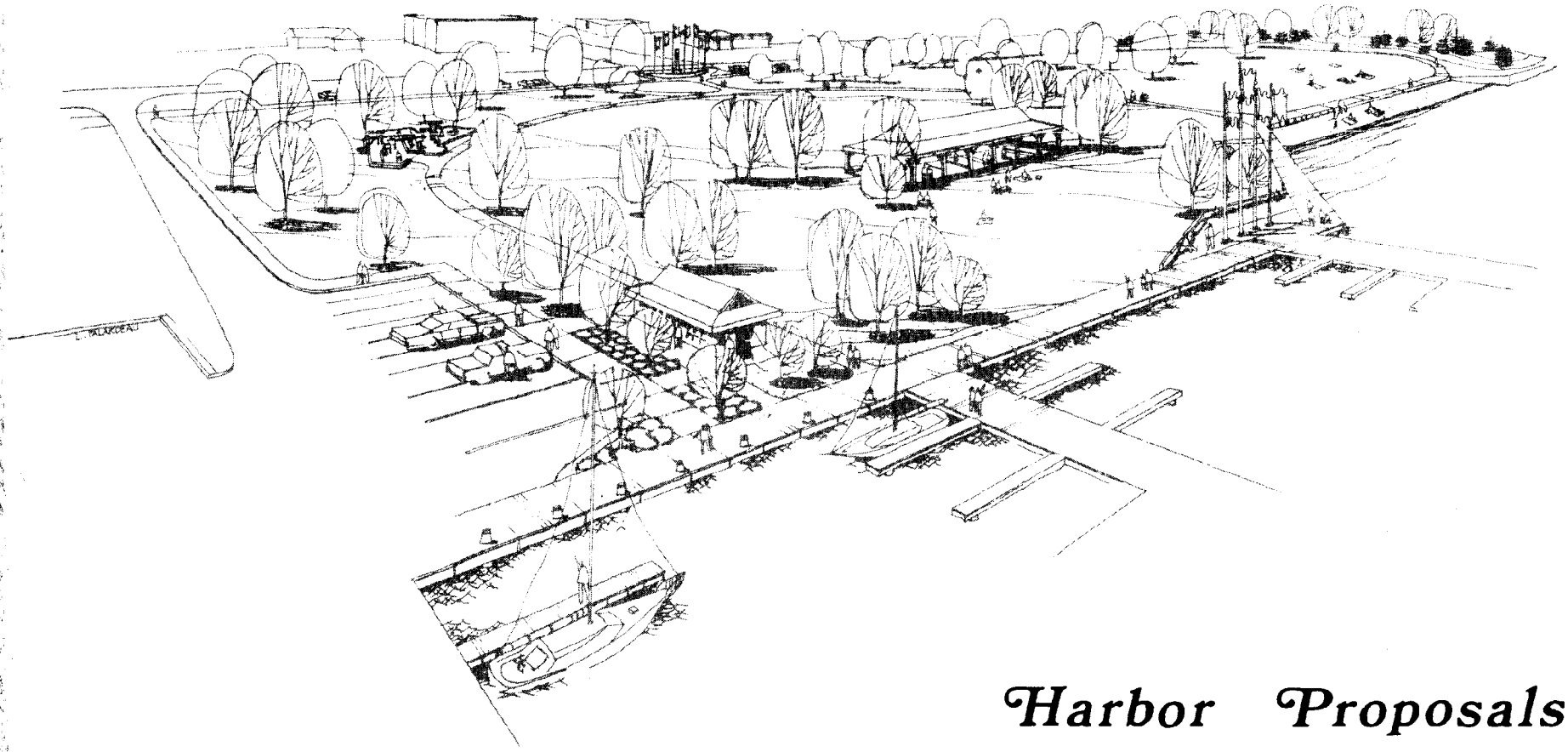
The existing City Zoning Ordinance was adopted in May, 1973. It provides for a Water Recreation Development District for the area near the Schmid Marina and other areas for single and multiple family development. Over 90% of the area is zoned RS-1 Single Family Residential which requires 12,000 square-feet of lot area and 80 feet of frontage. The RS-3 Single Family Residential District requires 70 feet of frontage and a minimum of 8,400 square feet. The minimum house size for a new one story residence is 1,056 square feet in the RS-3 zone. The RM Residential Multiple Dwelling District provides for two family and apartment development. The maximum density permitted ranges from 15 to 20 dwelling units to the acre depending upon the size of the units and number of rooms. Commercial activity is zoned CB Central Business in the Downtown area. This district permits commercial and office but not single or multiple family dwellings. There are two lots zoned HC Highway Commercial at Reudisale and Lakeshore Road. There are two blocks of frontage at Jefferson and 23 Mile Road also zoned Highway Commercial.

This study did not research nonconforming lots or nonconforming dwellings in terms of house size. However, nonconforming uses were located since they can indicate that attention should be given to the zoning in that area. One of the prime nonconforming uses are two-family residences located in RS-1 or RS-3 districts. Since many of the homes along the waterfront are older larger residences, there has been a tendency for people to convert these to two-family. Perhaps future revisions to the zoning ordinance should address the need for two-family development as a special approval permit in the single family district.

Other nonconforming uses include:

1) The apartment complex located at Jefferson and 23 Mile Road is zoned HC Highway Commercial which does not permit residential uses.
2) The first three homes on Attica Street are zoned CB Central Business which does not permit single family use.
3) In the block from Maria to Washington and Front to Main there are 5 single-family residences, one duplex and one multiple-family building which are nonconforming uses.
4) In the block from Washington to Bedford and Front to Main there are two single-family residences and one multiple-family development which are nonconforming uses.
5) In the area between Baltimore and Highview Streets there is a multiple-family and a duplex which are nonconforming uses.

The existing Zoning Ordinance does not appear to hamper the development of this part of the City. There are two or three areas in which the zoning is questionable and these are examined and recommendations made in the Land Use Plan section. The development of a harbor owned and operated by the City could be a Special Approval use in the RS-1 District. It would also be a permitted use in the WD Water Recreation District.



Harbor Proposals

Purpose and Scope

One of the objectives of this waterfront plan was to update a 1972 engineering study made by Valentine-Thomas & Associates of Port Huron. A determination of construction feasibility, recommended plan of development, and estimated costs of providing recreational boating facilities for the City of New Baltimore were addressed formerly and are reevaluated. Results of the investigation will assist this Anchor Bay community in choosing the most viable and practical course of waterfront development.

Site Investigation

Topographic and bathymetric surveys have been made of the area considered most suitable for construction of boating facilities. A copy of this survey for the harbor area is included as Appendix G. The proposed harbor site is located adjacent to the municipal park near the water filtration facility. An elevated water storage tank, swimming area, light-duty docking, steel seawall, and a picnic structure presently are located in the park area. The central business district lies approximately one block to the north.

Similar data has been acquired for Marsac Pointe because of its potential as a dumping site for dredged material taken from the harbor basin. Baselines and project bench marks have been established as have the locations of existing facilities and elevations necessary for development of the sites.

The International Great Lakes Datum (IGLD 1955) for Lake St. Clair is elevation 571.7 feet, as referenced to mean water level at Father Point, Quebec, Canada. All topographic and hydrographic contour elevations shown on appended site plans are IGLD based.

The main project baseline has been reestablished as the centerline of Front Street, a platted street of 70 foot right-of-way. Another reference baseline has been set in the Marsac Pointe area, near New Baltimore's eastern edge. The following bench marks were used for the topographic and bathymetric surveys used in this report: Project Bench Mark #1 - South corner of Main and Maria Streets, on Maria Street face of St. Marys High School, 0.7 feet from the north corner, 3 feet above the ground, being horizontal line of cross on bronze disc set into center of corner stone, Elevation 591.075 feet (IGLD).

Project Mench Mark #2 - Southeast side of Main Street, on top of northeast abutment of bridge over Crapeau Creek, 0.7 feet from south corner, being highest point on top of ½ inch brass bolt set into concrete, inside a square cut in the concrete, Elevation 577.256 feet (IGLD).

Project Bench Mark #3 - Top of "No. 4" on top flange of water hydrant and east side of Reudisale near the street's south end, Elevation 579.23 feet (IGLD).

Soil Investigation

During the construction of the municipal sewerage system in 1960, a total of six soil borings (three to a depth of 14 feet, two to a depth of 25 feet, and one to a depth of 50 feet) were made in the municipal park. The borings logs indicate approximately 8 feet of loose fill overlying an extensive layer of blue clay. The deep soil boring penetrated hardpan at approximately 50 feet.

Shallow test holes augered into the lake bottom near shore have indicated in all cases a relatively thin sand layer of between 6 to 24 inches overlying a blue-gray clay stratum. The largest accumulation of sand is at the present swimming beach with approximately 6 inches of coarse brown sand overlying nearly equal layers of fine gray sand and medium brown sand. From what has been learned it is again recommended that a limited number of additional soil borings be made in conjunction with the preparation of detailed plans and specifications in order to investigate the engineering properties of the native clay at the actual elevations of piling imbedment. Doing so will aid the Engineer in specifying the most economical pile length able to withstand ice uplift forces.

Water Level Fluctuation

Fluctuations in mean lake level may range in duration from a few minutes to several years and determine at what elevation surface waves will be centered. Fluctuations of short durations are commonly due to wind generated waves, wind setup or barometric pressure change. During periods of high water elevation, as witnessed in the early 1970's, wave action has a profound effect on unprotected shoreline and nearshore structures as noted at Reudisale Point. It is for these worst conditions that all harbor protection must be designed. Lake St. Clair levels have been summarized in the following Table 4.

TABLE 4

Lake St. Clair Water Levels

Mean Water Level	573.55 feet
High Water Level	576.3 feet
Seasonal Low Water Level	571.1 feet
Water Level 10/79	574.7 feet

Examination of wind records taken at Selfridge Air Force Base approximately 6.6 miles southwest from New Baltimore have been summarized in Appendix A. Wind data taken between 1936 and 1965 shows predominant winds from the south and southwest. The most prevalent wind is about 10 miles-per-hour from the south. The maximum recorded gust occuring during the generally accepted boating season of June through September was 71 miles-per-hour from the southwest (62 knots) in June 1949. The largest sustained winds recorded which have been used in the wave analysis, are 50 mph.

Using methods developed by the Coastal Engineering Research Center (CERC) for shallow water wave forecasting, waves of 3.2 feet can be expected above mean high water level. Additionally, the shallow depth of Anchor Bay, when accompanied by southerly winds has the effect of piling up water at the windward end. This effect, called wind setup, can at best estimates add another one half foot to the mean water level. Based on this information the top of the breakwalls were designed to be at an elevation of 580.5 feet.

Potential Mooring Facilities

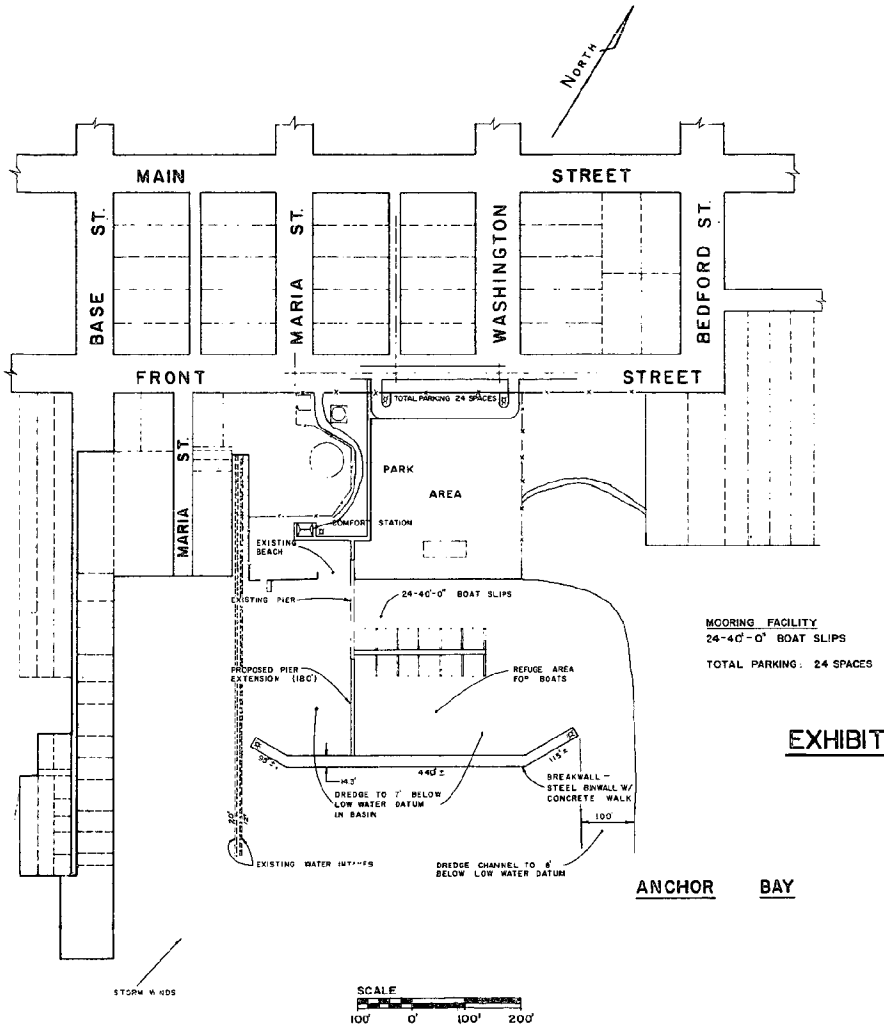
The City of New Baltimore is so situated that with regard to convenient driving time and distance, the greatest use of seasonal facilities will be made by Macomb County residents. Among the several advantages offered by a downtown New Baltimore harbor location are municipal police and fire protection, close proximity to local business, City water, sewer and trash removal services, and ready access to a private marina hoist and repair services. The elevated water tank adjacent to the proposed marina location is well established as a navigational aid to Anchor Bay boaters.

A number of harbor layouts have been proposed and examined by the Engineer, each with certain foreseeable advantages and disadvantages which are discussed below. Specifically examined are three plans including:

1) A 24-slip harbor-of-refuge/park.
2) A 150-slip configuration with an eastern entrance, and a possible 194-slip maximum capacity.
3) The original 212 and 160-slip mooring facilities suggested in the 1972 Valentine-Thomas New Baltimore harbor report.

Exhibit 1 — 24 Boat Mooring Harbor-of-Refuge

Shown as Exhibit 1 or Map 7 is a long-existing plan for 24 transient boat wells and a small harbor-of-refuge. The plan, originally suggested by a long-time New Baltimore boater, Dr. Bruno Wisney, would extend the existing pier lakeward approximately 180 feet to a 650-foot long breakwall/fishing pier. Total project construction cost is the lowest under consideration in this study, estimated in Appendix B at $1,086,700.00. Advantages are retention of an existing swimming beach, provision of refuge slips, little encroachment on the harbor area by many boaters and preservation of the City Park. The principal disadvantage lies in a potential cost to New Baltimore residents. Under current governmental funding programs, some grant monies are available for harbor projects thta can be proven to be, at a minimum, self-liquidating. Presently, fifty percent of harbor construction costs are available through grants from the U. S. Department of Interior Heritage Conservation and Recreation Service (HCRS) and an additional thirty percent may come from the Michigan Department of Natural Resources, Waterways Division on the condition that the facility be economically self-liquidating. Only twenty percent must be financed locally, ideally being financed from the project's own revenues. This small harbor plan does not have the potential to generate enough revenue necessary for local share payments and accordingly, would not be eligible for state funding. Although effective from the design standpoint of serving the community of New Baltimore it is felt that the small harbor plan is economically unfeasible to construct at this time without governmental assistance or major private contributions.



MOORING FACILITY
24-40'-0" BOAT SLIPS
TOTAL PARKING: 24 SPACES

EXHIBIT 1

ANCHOR BAY

PROPOSED BOAT HARBOR
FOR THE CITY OF
NEW BALTIMORE, MICHIGAN

VALENTINE-THOMAS & ASSOCIATES, INC.
REGISTERED PROFESSIONAL ENGINEERS AND LAND SURVEYORS

7

Federal government programs such as the accelerated public works or the local public works programs of the Economic Development Administration could be used if such programs are reinstated and financed. Generally, these programs were funded to spur the construction industries and provide employment during periods of high unemployment. The construction of a break wall could provide short range and long range employment opportunities.

In the past, the Army Corps of Engineers have developed construction projects which included breakwall or harbors of refuge. However, at this time they do not have financing for the feasibility study which would determine whether the Corps would have an interest in the harbor. After funding is approved, the feasibility study would take one to two years to complete. If the project has a high economic benefit, it can be submitted to the Washington Office for construction funding. Corps of Engineers harbor of refuge proposals are coordinated with the State of Michigan Waterways Division and would require 50 percent funding from sources other than the Army Corp of Engineers. It is highly unlikely that any harbor of less than one hundred boat mooring capacity would have a high enough economic benefit or high enough priority by the Waterways Division to press for federal funding.

Exhibit 2 - Enclosed Harbor with an East Entrance

The second harbor design is shown as Exhibit 2 or Map 8. Although much larger than the 24 mooring slip plan in available mooring space, only shoreline area adjoining the existing park is required to provide the proposed 132-30 foot slips, and 18-45 foot mooring slips. Provision for larger craft is available along the south breakwall in the refuge area. The facility has the necessary boat capacity to be self-liquidating, and yet, is quite compact. The harbor entrance would open to the east, requiring venting of the westerly steel breakwall structure to reduce magnification of the prevailing weak westerly current inside the harbor. Toeing inward the easternmost breakwall tip will also reduce these effects. Anticipated cost for the Exhibit 2 harbor plan is $2.65 million with costs itemized in Appendix C. If at some future date the City decides that additional mooring space is desirable, the three proposed piers of Exhibit 2 could be readily extended in length to accommodate 40 additional craft, while still providing an area for storm refuge. This maximum capacity design, Map 9, has an expected total construction cost of $2.88 million if built within the near future (detailed cost estimate included in Appendix C & D).

Exhibit 3 - 1972 VTA Mooring Facility Layout

Re-evaluated from the 1972 New Baltimore harbor report is the 212 potential and 160 slip phased configuration with harbor opening facing Base Street to the west (Map 10). A double sheet pile breakwall extending lakeward 670 feet is similar to that suggested in Exhibit 2 but has main piers stemming from the breakwall parallel, instead of perpendicular to shore. As a principal advantage, a harbor entrance suggested on the west facing might, during stormy weather, be easier to navigate since the entrance would be sheltered by the Base Street extension. The 1972 plan does not, however, provide isolation for Base Street residents nor does it readily isolate boats from New Baltimore's water plant intake lines. If implemented, the beginning of this plan's design must include exact location and profile of the 20 inch intake line, particularly, within the harbor basin. Because no allotment has been made in this $2.72 million 160 slip cost estimate for relocation of the intake line, preliminary probing will determine if considerable added costs could be incurred. Costs are outlined in Appendix E. Construction cost estimates for the same facilities in 1972 were approximately at $1.6 million.

Summary of Costs

While a 24 transient slip harbor-of-refuge would serve New Baltimore residents from a functional standpoint, the Exhibit 1 layout does not meet funding criteria mandated for governmental construction assistance. Because little income could be potentially derived from this refuge facility, the entire construction cost of $1.08 million would have to be generated from local financing and private contributions. Without any apparent method to recoup bond debt service or maintenance costs, this harbor layout is not believed to be economically feasible.

Harbor designs proposed as Exhibit 2 and 3 have essentially the same initial construction costs; costs are outlined in Table 5 and in greater detail in Appendices B through F.

Summary of Construction Costs

	Exhibit 1 (24 slips)	Exhibit 2 (150 slips)	Exhibit 3 (160 slips)
I. Harbor	$ 707,900	$1,293,950	$1,156,900
II. Piers	108,750	649,380	861,700
III. Shore Support Facilities	104,350	302,880	286,440
Engineering & Contingencies	165,700	404,320	414,900
TOTAL	$1,086,700	$2,650,530	$2,719,940

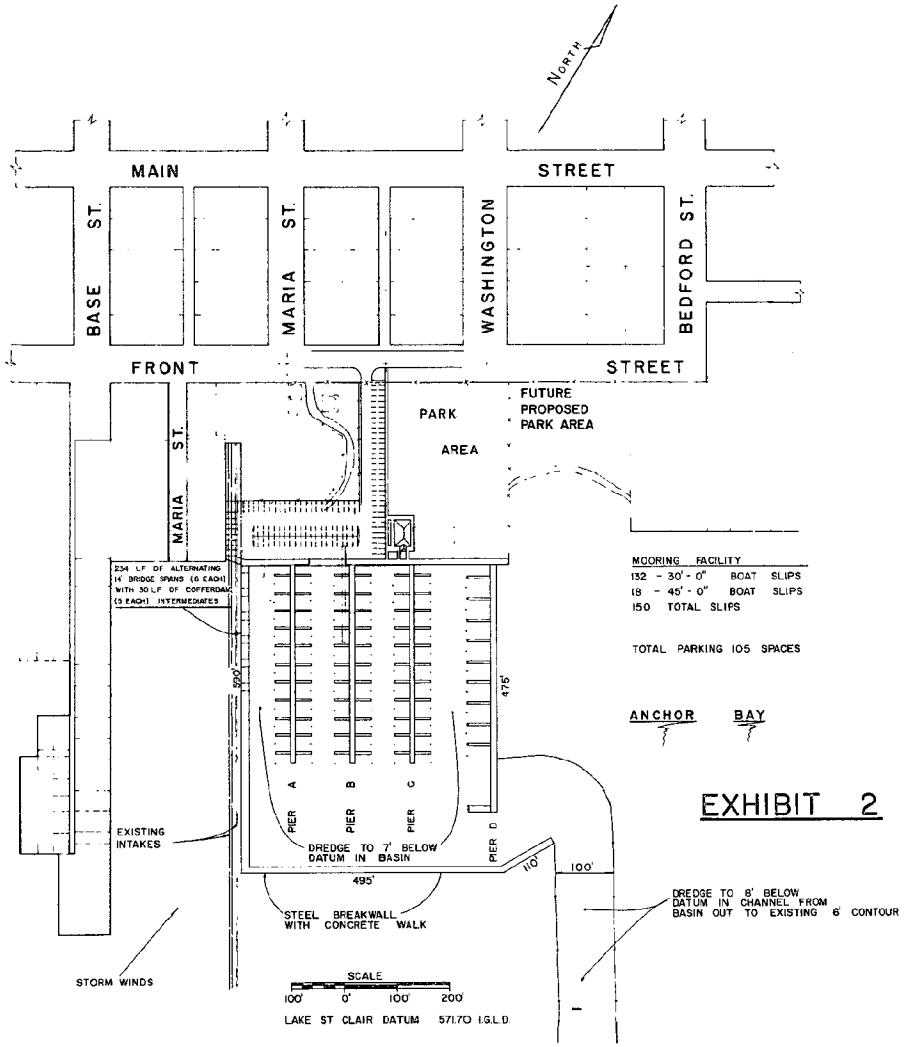


EXHIBIT 2

REVISED	PROPOSED BOAT HARBOR FOR THE CITY OF NEW BALTIMORE, MICHIGAN
	DR. BY P.J.D. / CK. BY / SHEET NO. / OF / CHECKED
	SCALE: / DATE: 1-9-80
	VALENTINE-THOMAS & ASSOCIATES, INC. REGISTERED PROFESSIONAL ENGINEERS AND LAND SURVEYORS 4415 24TH AVENUE, PORT HURON, MICHIGAN 48060 (313) 385-6485
	DWG. NO. / JOB NO. / BK.

8

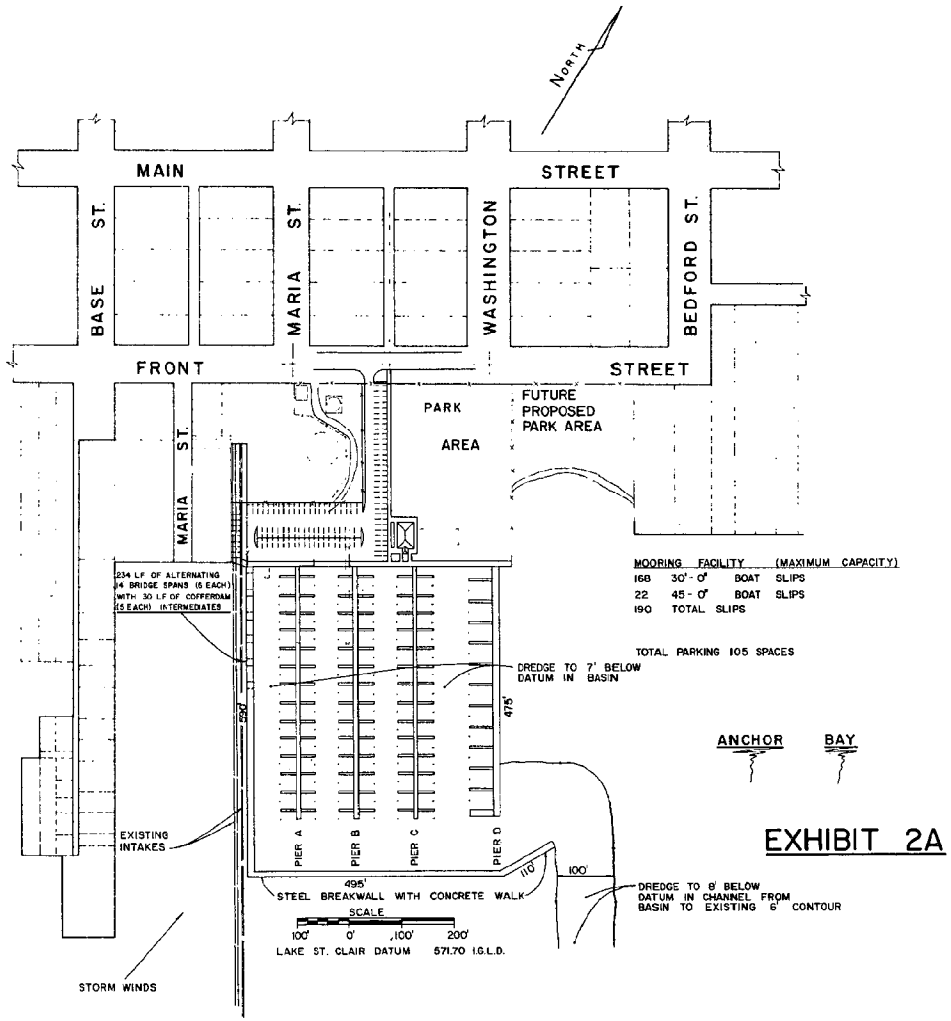


EXHIBIT 2A

REVISED	PROPOSED BOAT HARBOR FOR THE CITY OF NEW BALTIMORE, MICHIGAN
	DR. BY PJB · CK. BY · SHEET NO. OF SHEETS
	SCALE 1" = 100' · DATE 1-9-80
	VALENTINE-THOMAS & ASSOCIATES, INC. REGISTERED PROFESSIONAL ENGINEERS AND LAND SURVEYORS 4400 24TH AVENUE, PORT HURON, MICHIGAN 48060 (313) 385-6620
	SIZE NO. · JOB NO. · SH.

9

Exhibit 3 utilities conventional fixed pile-supported piers throughout, rather than the less-expensive floating piers used for 30 foot mooring spaces in Exhibit 2. The $212,000 pier price differential shown in Table 5 can be attributed to estimated per slip costs of $5,340 and $4,230 for fixed or floating units, respectively. While intital pier construction costs vary, long-term maintenance and replacement costs tend to balance overall. Exhibit 3, as presented, has provision for 59-45 foot and 17-60 foot boats which may be difficult to rent. It seems more reasonable to expect a greater number of smaller slips, as presented in Exhibit 2, to be rented more easily. For both harbor designs operation must be nearly all seasonal rather than transient to be self-supporting. Revenue generated by additional spaces through expansion and storm refuge will help reduce per-slip operation costs.

Harbor dredging and breakwater costs are overall about $140,000 more for Exhibit 2. Contributing to this is 475 lineal feet of extra berakwall costing $237,500 but this amount is offset by dredging that favors an eastern harbor opening. Shore support facility costs shown in Table 5 reflect only $16,000 difference due to unequal paving and sidewalk quantities.

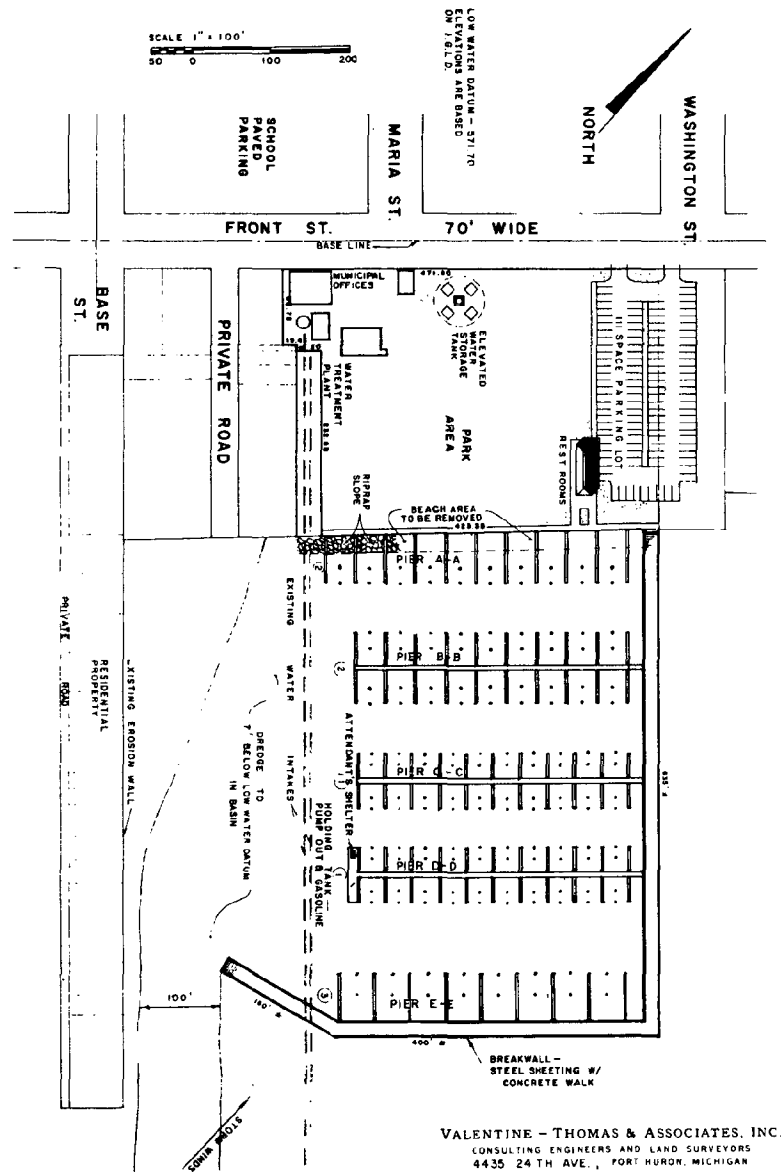
Since each of the harbor designs examined above has intrinsic differences, the harbor configurations cannot be directly compared as being equal. Each uses different design constraints and produces differing functional considerations. Before final design begins, final mix of pier size, pier type, and harbor entrance will be ascertained after the combined contributions of public and State input have been reviewed. With this approach, the best mutually advantageous harbor layout may be constructed to serve the needs of Anchor Bay residents.

Marsac or Reudisale Point

Marsac or Reudisale Point, as it presently exists, is gradually being eroded away. The land area which at one time encompassed approximately 10 acres is now less than 4 acres due to water erosion. The possibility exists to recapture part of this land and bring the area to a suitable elevation for recreational development. This could be accomplished by designating Reudisale Point as a main disposal site for dredge material from the harbor site. All dredging or filling activity, however, is contingent upon the City's receipt of a Corps of Engineer's permit and a determination that the fill meets Environmental Protection Agency (EPA) requirements for toxology. Application for such a permit may in the case of some environmentally sensitive areas require extensive chemical examination of dredge spoil, wildlife inventories and/or endangered species before material may be either dredged or deposited. Submerged lands and the Fish and Wildlife Sections of the DNR will also analyze localized affects, and dependent upon their recommendations, may require an Environmental Impact Statement (EIS) for filling Reudisale Point. Without the permit, dredge material would have to be disposed of inland, with added expenses being shown in Appendix F.

Because the majority of the dredge material is of a high clay content, at least one potential inland use is that as landfill cover material. In disposing of the spoil in this manner, trucking costs may be defrayed by the clays sale price. As noted previously even if Reudisale Point is not used for dredge spoil, it will be necessary to provide some type of protection against erosion.

In the event filling could be made on Reudisale Point, the area could then be developed as an additional municipal park, picnic or swimming area. Additional design considerations for recreation use are contained in the section on the Land Use Plan. The expanded site would cover approximately 6 acres at high water level, allowing adequate room for parking and possibly a launching site for small trailer-drawn boats. Due to the clay nature of the dredge spoil, a sheet pile wall of approximately 1,200 feet is proposed to contain fill material in the designated area. This seawall would be similar to that which protects other residential properties along the waterfront. Doing so will establish a solid boundary between adjacent properties and provide a permanent scenic park. Rip-rap or broken concrete was also considered but the minimal cost differential and the impact on recreation or use of the area indicated that the light sheet pile could provide a better long range solution. Approximate costs of $300,000 are itemized in Appendix E.



TRANSIENT	MOORING	FACILITY
84 - 32'-0"	BOAT SLIPS	①
59 - 42'-0"	BOAT SLIPS	②
17 - 60'-0"	BOAT SLIPS	③
160 - TOTAL	BOAT SLIPS	

PROPOSED BOAT HARBOR

VALENTINE - THOMAS & ASSOCIATES, INC.
CONSULTING ENGINEERS AND LAND SURVEYORS
4435 24 TH AVE., PORT HURON, MICHIGAN

EXHIBIT III
REVISED AUGUST 17, 1972

Plan of Development

The recommended plan of development is to construct either the 150 or 160 boat slip harbor which are depicted in Exhibit 2 and 3. The final determination of which breakwall layout to use should be made after public input has been received and analyzed. Either layout provides the majority of slips for boats in the 30 foot and under class and each layout allows space for increasing harbor capacity to 190 boat slips in the future as the need arises.

Bathymetry indicates that the proposed boat harbor will require a dredged mooring basin and entrance channel. It is recommended that the mooring basin be dredged to a depth of seven foot below the Low Water Datum, and that the entrance channel be dredged to a depth of eight (8) feet below the Low Water Datum. Dredged channel and harbor depth, common to all harbors reviewed here, will require periodic maintenance dredging based on the local rate of sediment transport. Anticipated quantities and associated costs may be addressed in detail as part of the harbor design.

Reference should be made to the Typical Profile which illustrates the amount of dredging necessary and the elevations of the pier, floating docks, and the mean water level.

The harbor breakwall will consist of two steel sheet piling walls backfilled with native granular fill selectively dredged from nearshore dredging. Soil borings, to be taken during the engineering design phase, will determine length and weight of steel sheeting required and also determine if a prefabricated steel binwall system could be installed more economically. Soil tests will also examine long-term settling characteristics of the clayey bottom and its potential importance on design of a prefabricated crib. The breakwall structure is to be topped by an air-entrained concrete walkway. Six fourteen foot wide openings are to be provided through the breakwall along the west side in the vicinity of its shoreward end to allow for water circulation through the harbor. In addition to providing wave protection from storm attack, the breakwall, with its concrete walkway will provide an adequate and scenic area for fishing and leisurely walks along the outer perimeter of the harbor.

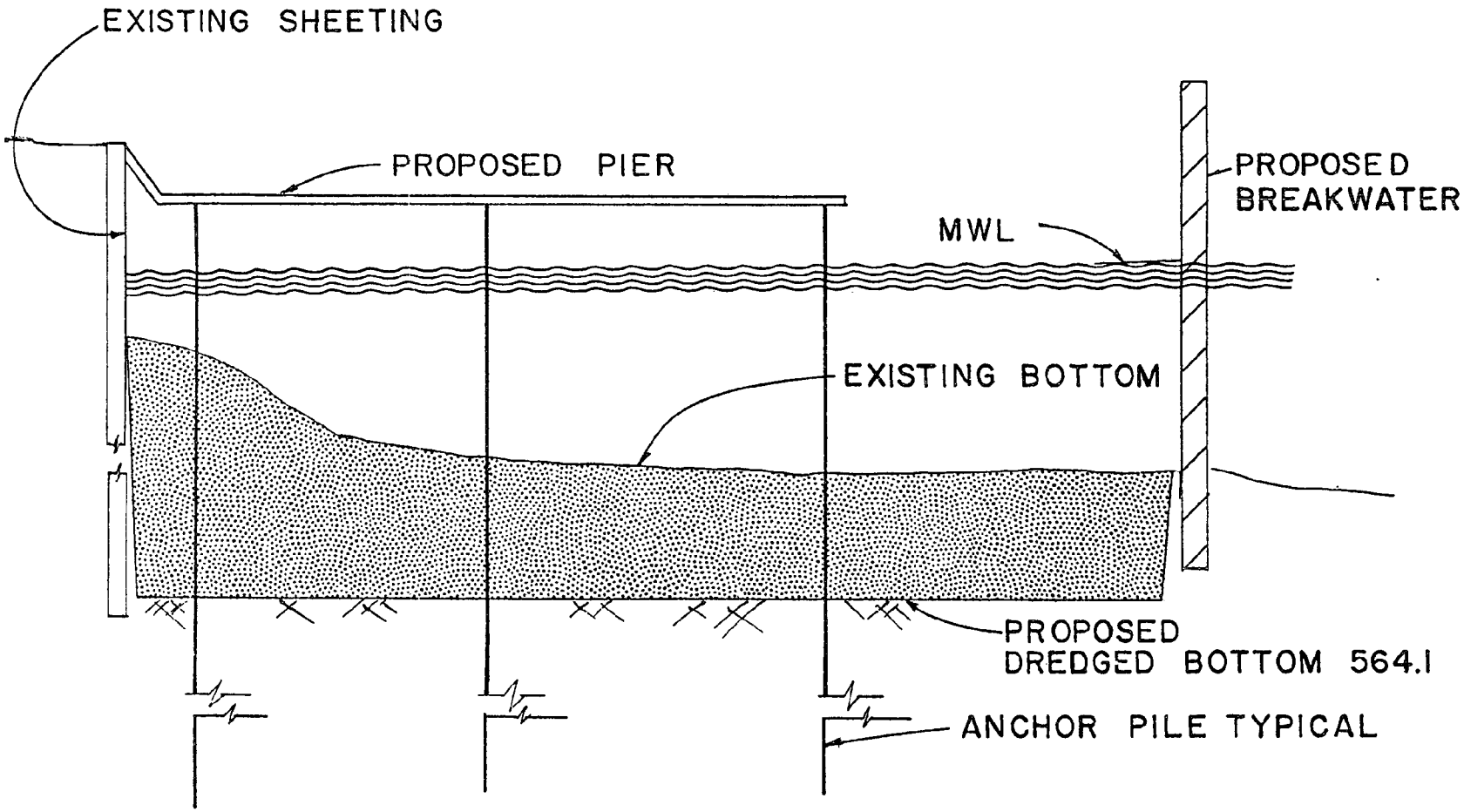
The shoreward side of the mooring basin will utilize the existing steel sheet pile wall for shoreline stabilization. An eight-foot wide concrete walkway will provide ready access to the mooring slips and comfort station.

Piers recommended for the development plan are to be of the floating type for 30-foot slips. Main piers will be secured by 8-inch steel concrete filled guide piles with spring piles provided where shown on Exhibit 2. While not thought to be needed in the sheltered harbor scheme proposed, floating marina docks often require air bubbling or wintertime removal to afford ice protection from moving ice. Bubbling systems also reduce long-term maintenance costs induced by ice jacking of spring pile but add to operation costs. Conventional pile supported, adjustable finger piers will extend perpendicular from the eastern breakwall for the mooring of 42 foot or larger pleasure craft. Main pier designs will provide each slip with water and electrical hookups and a service pier will provide for fuel and sewage pump out services.

Municipal operators of marine fuel dispensing equipment carry liabilities similar to gasoline stations. If damage results because of operator negligence, the City is held libel. As an alternative, fueling facilities may be operated by a private concern under contract for that service and the private operator would assume part of the liability. The City would still be liable as soon as fuel leaves the pump. Added premium costs and liability limits would have to be incorporated into the City's harbor administration cost. The City of St. Clair's insurance for their harbor is less than $1,500 a year for a similar operation.

Immediately lakeward of the existing water filtration plant a parking lot will be provided with capacity for 82 vehicles. Additional parking will be provided for 23 vehicle along the entrance road. The parking areas will have a 6-inch gravel base surfaced with 2½ inches of bituminous concrete. Storm drainage will be discharged through concrete pipe into the mooring basin. A 25 foot wide access road will abut the expanded water filtration facility. It should be noted that an additional 100 or more parking spaces may be available on the west side of Front Street in the school parking lot. If it is desired an additional 20 car parking could be obtained by using forty feet of the westerly portion of the park running from the harbor master office to Front Street. The harbor master's office is similar to that proposed in the 1972 engineering report. Shown as Exhibit 4, the comfort station has been designed to provide facilities for both the harbor and the general public. A typical heating system is suggested to warm the building for spring and fall temperatures. Shrubs and plantings will be placed to accent the structure and lend a pleasing appearance.

Lighting will be of a pole-mounted decorative style necessary for safety in the park and the mooring basin. Colored marking lights are to be provided for guiding boat traffic through the entrance channel.



WATER LEVELS

MEAN WATER LEVEL 573.55 IGLD

SCALES: HOR. 1" = 100' VERT. 1" = 5'

Economic Impact of a Harbor

Very early in the study a meeting was held with the Michigan Waterways Division. Among the information being sought was economic or marketing information relating specifically to boaters. In other words, what economic impact could a proposed harbor or marine facility have on the City of New Baltimore. The Waterways Division has conducted research on the spending patterns of Great Lakes boatmen. Average expenditures per boat were derived for services and goods as well as by boat type (motor and sail) and length. These expenditures were total yearly costs that a typical boater spends at his marina as well as at other harbors. It should be noted that the expenditure rates are only estimated averages. It would have been better if actual patterns and surveys could have been made of Southeast Michigan boat harbors. However, this would be too costly and outside the scope of this study. The Waterways Division prepared a similar study indicating what a typical boater would spend a year and what this could mean to the economy in and around New Baltimore.

The craft related expenditures used for this study were taken from the Waterways Study but were revised to relate directly to a harbor facility which provides only mooring, fuel and pump-out facilities. Table 5 indicates the annual expenditures which could be expected to be made in the vicinity of the City of New Baltimore. These expenditures rates for the most part appear to be conservative rather than on the high side. In some cases only a portion of the annual expenditure is taken since it is assumed that part of the expenditure would be made in the boaters home community or that New Baltimore would capture only a part of the market.

Table 5. — Annual average expenditures by craft type and length. (dollars).

Expenditure Category	Average Expenditures					
	Motor Craft			Sail Craft		
	20-30'	30-45'	45'—	20-30'	30-45'	45'—a
A. Craft Related Expenditures						
Fuel and oil	241.87	474.65	801.98	27.65	84.82	84.82
Annual insurance costs-50%	87.47	151.46	333.00	67.66	159.90	159.90
Slip rental fee	229.81	315.56	554.76	202.50	274.45	274.45
Effluent pump-out	54.02	51.80	128.02	16.42	20.56	30.56
Boating equipment/part 25%	146.05	149.07	252.36	114.00	268.12	268.12
TOTAL	760.12	1142.54	2070.12	428.23	817.85	817.85
B. Personal Expenditures						
Rec. equip./boating related-50%	86.27	84.60	125.57	56.70	61.86	61.86
Rec. expend./nonboating	163.91	104.71	253.40	76.29	185.37	185.37
Boating clothes-50%	53.62	73.58	137.15	40.16	88.48	88.48
Off-craft lodging	29.89	18.08	0.00	50.78	0.00	0.00
Food expend./groceries-50%	112.27	202.94	286.89	90.49	167.12	167.12
Food expend./alcohol	138.65	173.88	144.06	86.76	172.58	172.58
Food expend./prepared meals	168.46	233.35	234.49	118.47	267.72	267.72
Laundry costs	37.59	33.02	44.41	13.22	30.39	30.39
PERSONAL TOTAL	790.66	924.16	1225.97	532.87	973.52	973.52

These average annual expenditures per boat are now related to the number and type of boats anticipated at the proposed harbor at New Baltimore. The existing plans call for 150 or 160 boat slips. The table below lists the size of boat slip, numbers available and type of boat. The type was based on similar facilities in other parts of Michigan.

Table 6. — Anticipated sizes and numbers of boats at the facility

	20'—30'	30'—45'	45—	Total
Motor Craft	100	10	2	112
Sail Craft	30	6	2	38
Total	130	16	4	150

The next step is to determine the total direct expenditures to be derived from the harbor facility. These are sometimes called the first round expenditures because they represent new dollars being introduced into the area. These figures do not represent the total impact, however, since the multiplier effect of those dollars has not yet been accounted for and added to the total. In other words, the economy is stimulated by first, the boater who spends his dollars for goods and services and secondly, by the business which receive the dollars and buy new goods and pay personnel and staff who purchase other goods and services. This respending can take place several times before the money leaves the market place.

Table 7. — Total direct expenditures by craft type and length (dollars).

Expenditure Category	Motor Craft			Sail Craft			
	20-30'	30-45'	45'—	20-30'	30-45'	45'—	Total
A. Craft Related Expenditures							
Fuel and oil	24,187	4,746	1,604	829	509	170	32,045
Annual insurance costs-50%	8,747	1,515	666	2,030	959	320	14,237
Slip rental fee	22,981	3,156	1,110	6,075	1,647	549	35,518
Effluent pump-out	5,402	518	256	493	183	62	6,914
Boating equipment-25%	14,695	1,491	504	3,420	1,609	536	22,255
TOTAL	76,012	11,426	4,140	12,847	4,907	1,637	110,969
B. Personal Expenditures							
Rec. equip./boating related	8,627	846	251	1,701	371	124	11,920
Rec. expend./nonboating	16,391	1,047	507	2,289	1,112	371	21,717
Boating clothes	5,362	736	274	1,205	531	177	8,285
Off-craft lodging	2,989	181	0	1,523	0	0	4,693
Food expend./groceries	11,227	2,029	574	2,715	1,003	334	17,882
Food expend./alcohol	13,865	1,739	288	2,603	1,035	346	19,876
Food expend./prepared meals	16,846	2,333	469	3,554	1,606	736	25,544
Laundry costs	3,759	330	88	397	182	61	4,817
PERSONAL TOTAL	79,066	9,241	2,451	15,987	5,840	2,149	114,734
TOTAL PERSONAL & CRAFT	115,078	20,667	6,591	28,834	10,747	3,786	225,703
GRAND TOTAL OF ALL BOATS	$225,703						

Table 7 shows the direct expenditures totals for each craft type and length category. These figures are derived by multiplying the average boat expenditures shown in Table 5 by the appropriate boat type and size in Table 6. As an example, a 25 foot motor craft will spend an average of $241.87 during a year for fuel and there are 100 motor craft in the 20 to 30 foot range in the proposed harbor. That would total $24,187.00 in gas sales for that size boat. As shown on Table 7, with a boat harbor of 150 boats there would be a potential direct expenditure estimated at $225,703.00. It can be argued that some of this money would not be spent in the City of New Baltimore. However, the City could capture a good part of it if it aggressively sought the recreation and tourist dollar.

Once the direct expenditures have been determined, it is then necessary to obtain the total impact due to the multiplier effect. The procedure is to take the direct expenditures of Table 7 and apply the appropriate multipliers to obtain the total dollar impact. The multipliers from the State Waterways study were used without change for this study. These multipliers may over or under estimate the impact of direct expenditures for any given type of expenditures. However, they do present a picture of the potential impact that might be created with a harbor facility. Table 8 shows the results of the above calculations and summarizes the results. This indicates that boaters spent directly an estimated $225,703 and this resulted in a total economic impact of $450,936 each year.

Table 8. — Net income effect on the economy after application of multipliers (dollars).

Expenditure Category	Direct Expend. Total	Multiplier	Net Income
Marine fuel	32,045	1.8870	60,524
Annual craft insurance	14,237	2.9453	41,932
Slip rental fee	35,518	2.3287	82,710
Effluent pump-out	6,914	2.3287	16,100
Boating equip. total	22,255	1.7250	38,390
Rec. equip./boating rel.	11,920	1.7250	20,562
Rec. expend./nonboating	21,717	1.7250	37,462
Boating clothes	8,285	1.7250	14,292
Off-craft lodging	4,693	2.3699	11,122
Food expend./groceries	17,882	1.4743	26,363
Food expend./alcohol	19,876	1.4743	29,303
Food expend./prepared meals	25,544	2.2705	57,998
Laundry costs	4,817	2.9453	14,187
TOTALS	225,703		$450,936

It should be noted that there were a number of potential economic impacts that were not considered in this study. As noted earlier, this study did not consider launching fees, maintenance cost, off-season storage or boat accessories and supplies. It is quite likely, however, that some of these services and goods would be purchased at existing or future marina or marine supply stores. This study also did not consider any new boat purchases which might be stimulated as a result of the construction of the harbor facility. Based on past studies, construction of a harbor facility would undoubtedly result in the purchase of new boats. However, it is too difficult at this time to determine the number of new craft or whether they would be purchased in the New Baltimore area. Rather than create an inflated or questionable economic impact, it was decided not to include this type of purchase at all.

Another impact to consider is that resulting from the expenditure of construction funds when building the project. Here it must be assumed that Michigan would receive the benefit since we cannot predict who the construction company would be or where he would obtain his resources (i. e., labor, materials, etc.). Construction costs are estimated at $2,500,000 which would correspond to "direct expenditures" used previously. Applying the appropriate multiplier from the Waterways study of 2.8656 results in a net impact of $7,164,000. This would, of course, be a one-shot effect over the construction period.

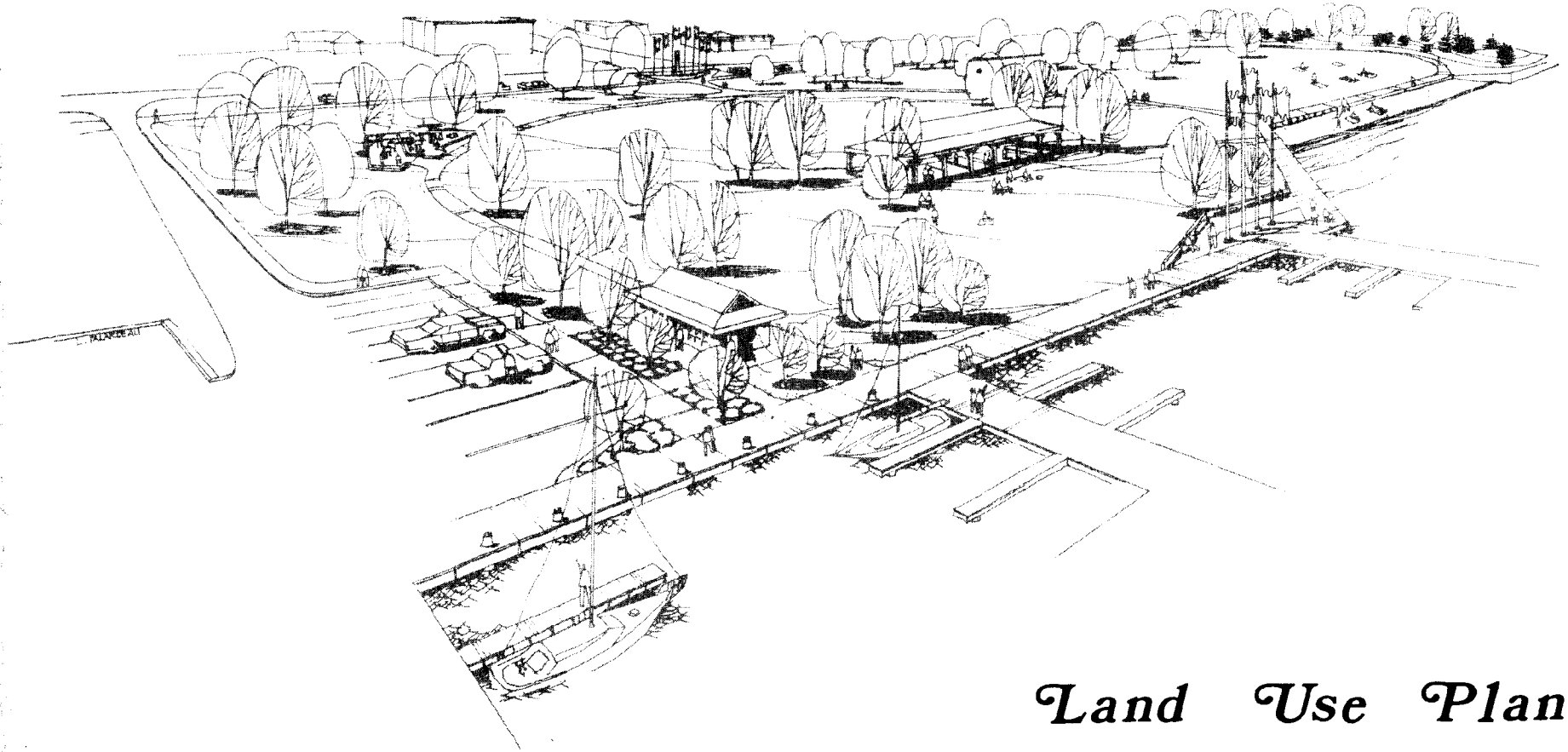
Another benefit of the project is the employment which results from the spending and multiplier effects. To determine this effect, research by the Waterways Division was again utilized. In that study, an estimated $125,214,000 in direct expenditures (not including multiplier) resulted in a total employment effect of 8,931 job to the State's economy, or a ratio of $14,020 for creation of each job. For this project, we have estimated direct expenditures of $225,703. On the basis of the above ratio, we would anticipate a job impact of 16 full-time jobs per year as a result of this project. These are jobs supported by the income produced directly and indirectly from boater expenditures using this facility. The actual number of jobs produced at the harbor alone would probably be one full-time and 4 to 6 part-time. The other jobs would take place in retail and service shops downtown.

To summarize, the economic impact of this project comes from several sources including the direct and multiplier effects from boaters purchasing goods and services, purchase of new boats, resale of boats, construction costs and employment created by income to business patronized by boaters. Nearly one-half million dollars each year could be pumped into the New Baltimore area economy. This could result in a revitalization of downtown New Baltimore.

The existing downtown area of New Baltimore is somewhat typical of small towns. It has the friendly personal character and pride that is known as Main Street U. S. A. It has a charm that

could be fostered and nurtured. Individual store owners have fixed and rehabilitated their stores and have a definite pride in their community. They also have a belief in the future of the downtown area.

On the other side of the coin, there are a few vacant stores, some dilapidated buildings, lack of adequate parking, and a mixture of land uses. Washington Street needs more retail business. It needs street trees or planters, which could tie the area together. It needs a coordinated plan, but most of all, downtown needs an influx of potential customers. A harbor at the edge of downtown could provide that drawing card. Restaurants, ice cream parlors, pizza and hamburger diners, food and grocery, and pharmacies would be the types of stores most likely to increase their business. Small gift or novelty shops could also expect an increase in business. The local marina and hardware shops would probably also absorb some of the boating trade.



Land Use Plan

LAND USE PLAN

CITY OF NEW BALTIMORE

WATERFRONT AREA

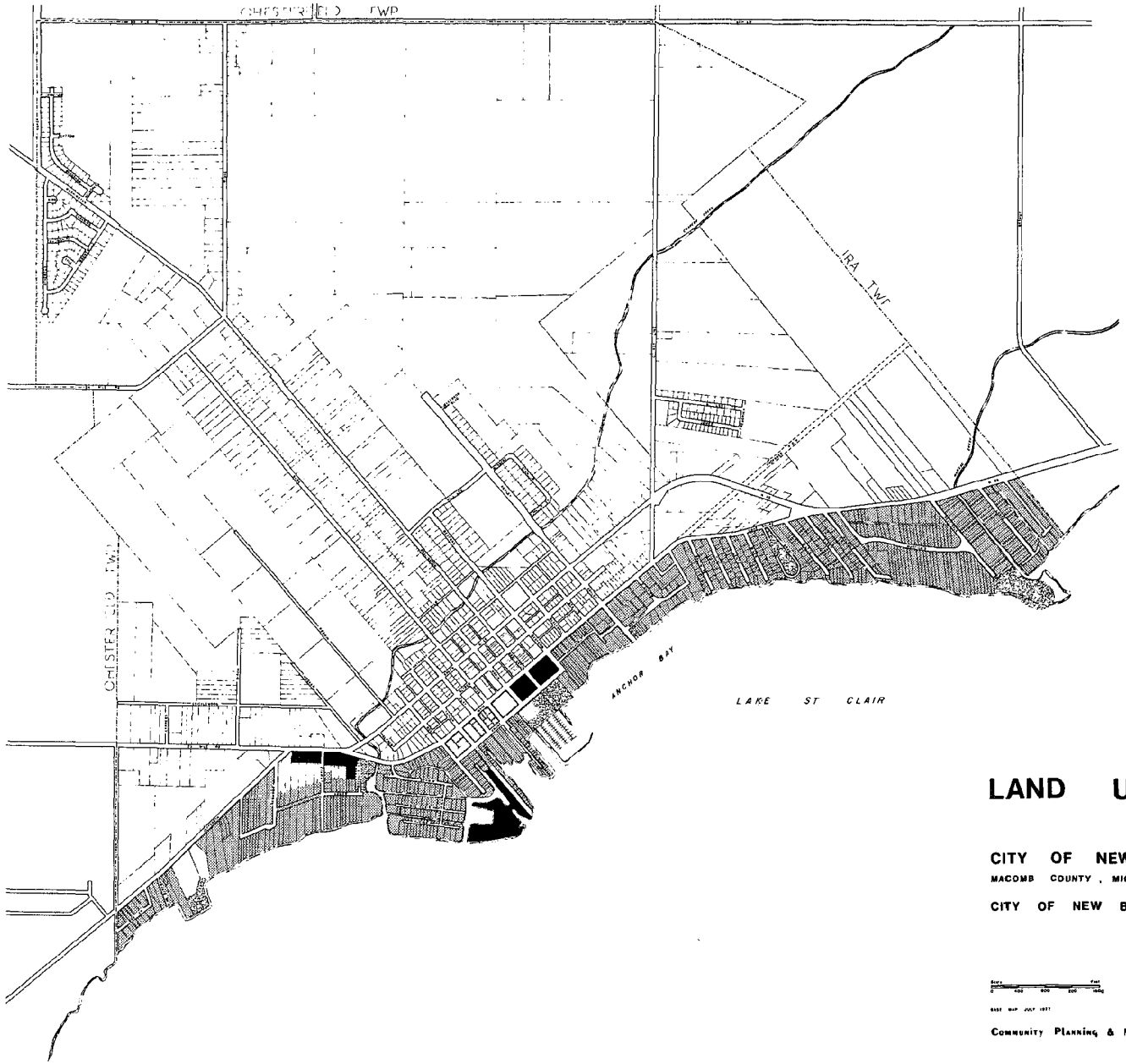
A land use plan is an examination or projection of how a community would like to develop over the next 20 to 30 years. The plan should consider what exists within the community today, what potentially could exist in the future and what steps are necessary to meet that goal. In addition, the plan should also examine alternative growth potentials. The waterfront plan for the City of New Baltimore has been prepared by examining existing land use, existing utilities, flood plain analysis, zoning, condition of homes, age of structures, assessment records, the riparian right of waterfront property, the Submerged Lands Act passed by the State of Michigan, the historical development of the Ctiy, and the lake front potential on Anchor Bay and Lake St. Clair. The Land Use Plan focuses on the potential of this area as a harbor or mooring area for boating activities. Much of the plan phase is developed using this potential harbor. An alternative plan has also been developed assuming that a harbor facility would not be created. For the most part, the alternative of harbor vs. no harbor would effect the park area and the downtown developments. It would also have some effect on the potential park at Reudisale Point.

The potential of a harbor has been detailed in the economic evaluation and in the engineering update prepared by Valentine Thomas. The harbor is an economically feasible project. It can physically be integrated into the existing development on the waterfront. If the vacant land immediately east of the City Park were purchased, the harbor could be built and the City Park and swimming area preserved. The water plant needs to be expanded by approximately 30 feet to the east in order to meet the needs of expansion projected for the next 20 years. Spalding & Dedecker, City Engineers for the water project, have indicated that with the expansion the channel running behind the water plant to the lake would no longer be necessary since flushing of filters and other water purification systems would be made directly into the sanitary sewer system. It is, therefore, recommended that at that point in time the channel be filled and be used as a part of the water treatment area and/or as part of the City Park. At one of the hearings it was noted that part of the canal is owned by the adjacent land owner. His ownership rights would play a major part in determining the future of the canal area.

It is also recommended that the vacant property immediately east of the City Park be purchased as an addition to the park area. The land area should be filled as shown on the Park Proposal sketch. With proper landscaping, land berms and proper design, this area could be an asset to the park and still provide protection and isolation to the neighboring residential properties.

As noted in the economic analysis, if the harbor were constructed with approximately 150 boats, there could be increased direct expenditures of approximately $225,000 and an indirect benefit to the community of nearly $450,000 each year. This can assist in the revitalization of the downtown area. It could provide the impetus for commercial development both in the existing business and in other business which would locate in the area as a result of the added dollars being brought into the community. The tie between the harbor and the economic revitalization of the downtown could be very direct. Over the past few years, businesses have been built in downtown New Baltimore, but for the most part offices and multiple family dwellings are taking space that could be used for retail sales. As noted in the economic study, the downtown is not dead. There is a pride and a desire to revitalize, preserve and enhance the business area. The development of the park, the harbor and the downtown area would all fit together.

As noted in the engineering plan, if the harbor is developed, there would be approximately 70,000 cubic yards of material removed or dredged for the harbor area. It is proposed that this fill be used at Reudisale Point to stabilize the land that is there and to create another park area for the City. Reudisale Point is very shallow and could be used for swimming and picnicking. Two drawings have been prepared by a landscape architect indicating the potential park uses for both the downtown city park and Reudisale Point. These are not the only designs which could be developed but are meant to illustrate what could be done with these various properties.



SINGLE FAMILY

MULTIPLE FAMILY

COMMERCIAL

PUBLIC & SEMI-PUBLIC

RECREATION

LAND USE PLAN

CITY OF NEW BALTIMORE

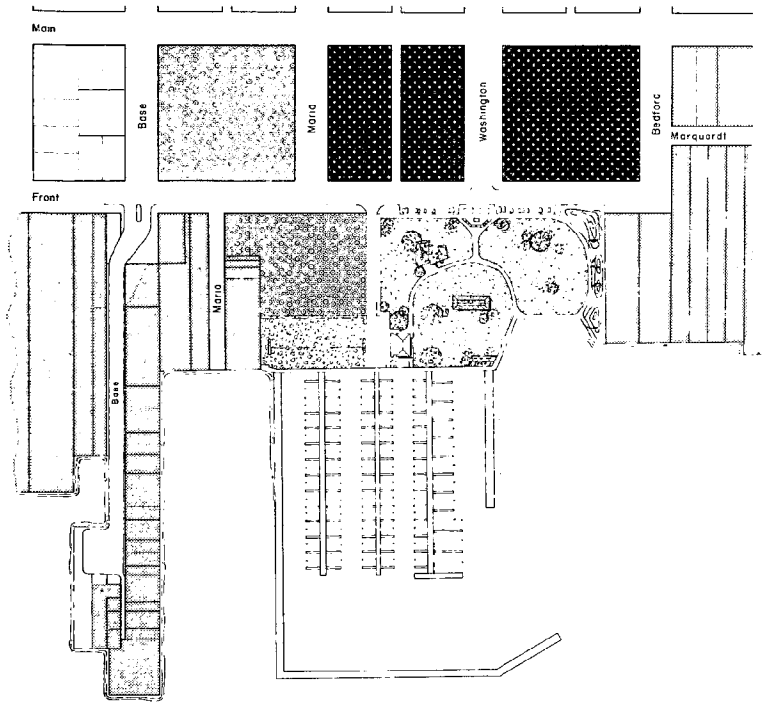
MACOMB COUNTY, MICHIGAN

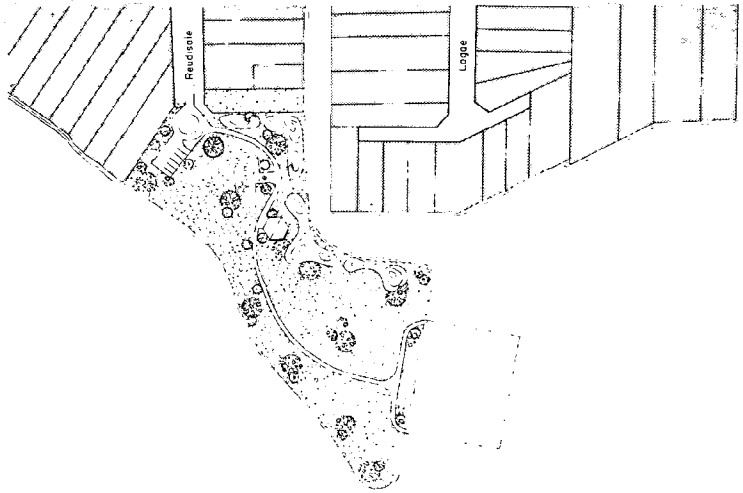
CITY OF NEW BALTIMORE PLANNING COMMISSION

Scale: 0 400 800 1200 1600 Feet

BASE MAP JULY 1971

COMMUNITY PLANNING & MANAGEMENT, P.C.
UTICA, MICHIGAN





SINGLE FAMILY

MULTIPLE FAMILY

COMMERCIAL

PUBLIC & SEMI - PUBLIC

RECREATION

LAND USE PLAN

CITY OF NEW BALTIMORE

MACOMB COUNTY , MICHIGAN

Scale Feet
0 100 200 300 400

COMMUNITY PLANNING & MANAGEMENT , P. C.
UTICA , MICHIGAN

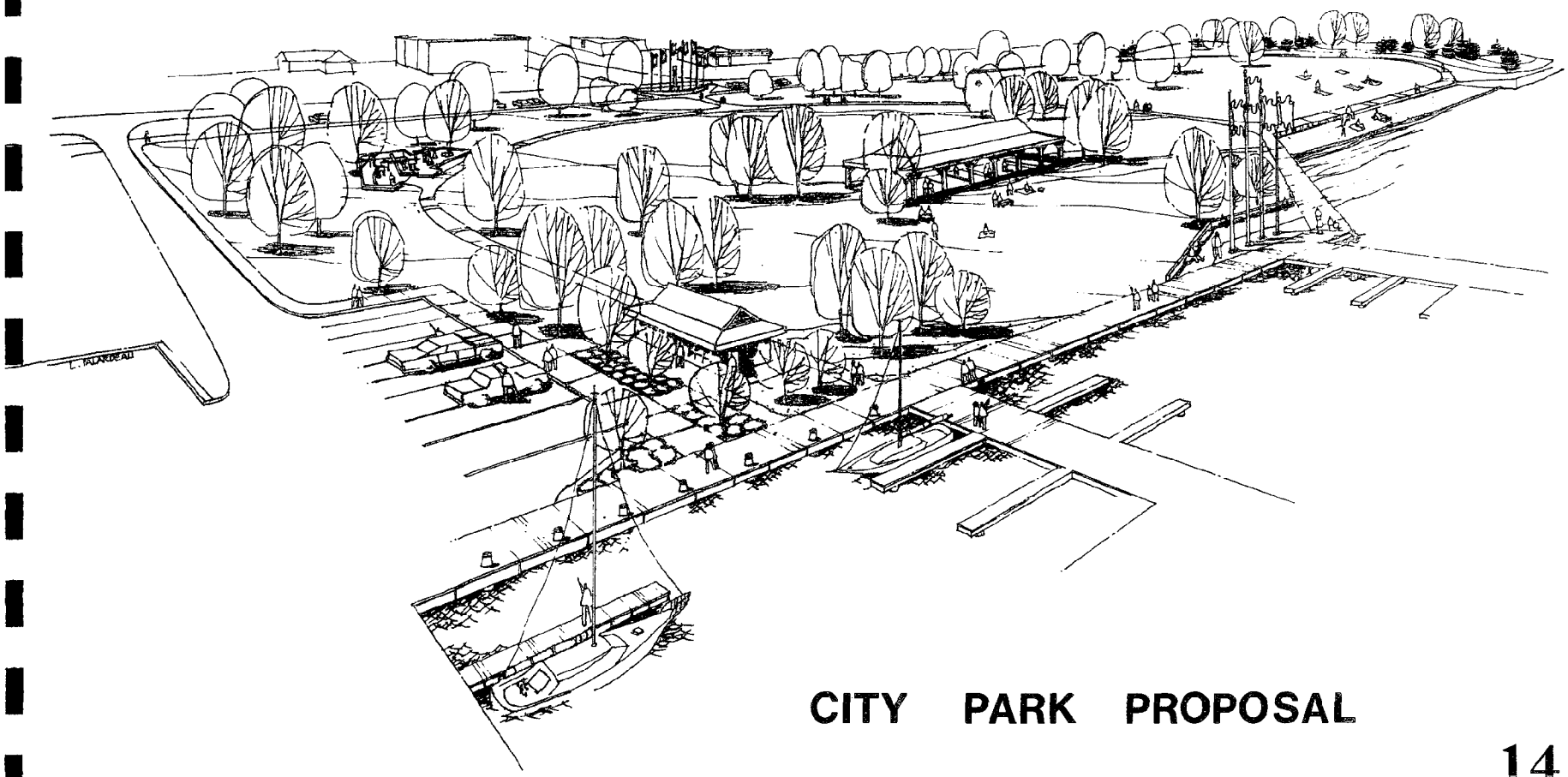
The Land Use Plan of the City Park area indicates potential development that could occur on the waterfront. The water treatment plant has been expanded to meet the demands of the next 20 year expansion program. Base Street is shown with a 40 foot right-of-way and a thirty foot street with a turnaround area. This improvement would require the purchase of one house near Front Street and two cabins in the area of the turnaround. However, it would provide an adequate street which could preserve or increase property values and alleviate some of the traffic problems.

The harbor plan also shows the 150 boat marina and an artist's view of how the City Park could be developed. Looking from downtown towards the park area, people could see the focal point of the City — a park area, a harbor and a scenic view of Anchor Bay. As recommended on the concept sketch, the intersection of Washington and Front Street could be constructed with planting beds, monument plaza and flag pole. The park would have a child play center with swings and play apparatus, picnic areas, the shelter and a grass area for sunbathing. A sand beach area could be provided in front of a low erosion wall. The east side of the property would be provided with a freeform earth mound and planting buffer. Restroom facilities have been provided in the harbormaster building. This type of park would provide for child play areas as well as picnic and observation or passive recreation. It is a park which can complement and highlight downtown and also exist very easily with the proposed harbor.

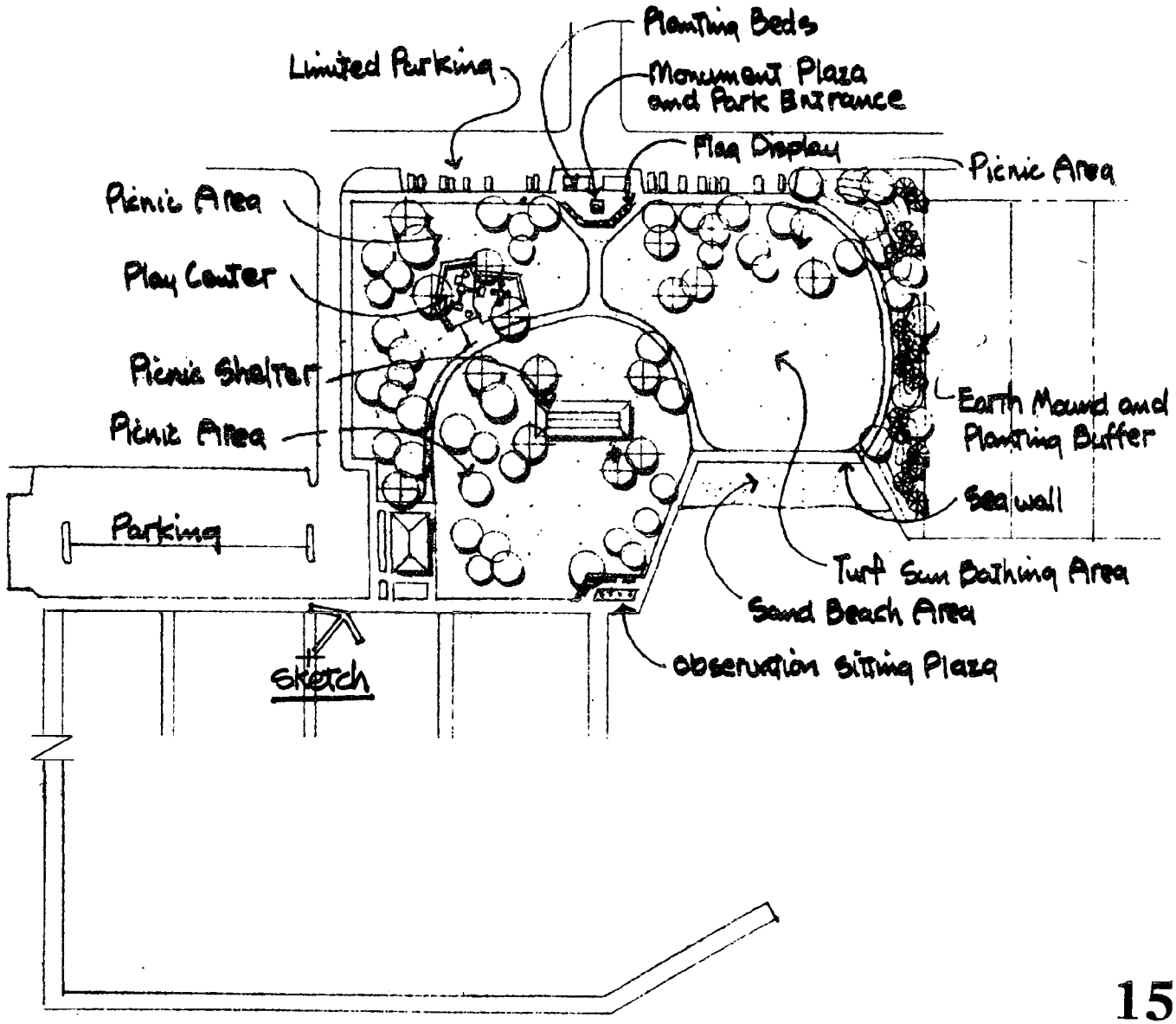
If the harbor facility is not developed, then the city park would more than likely remain at its existing size. In discussions with the owner of the vacant property to the east it has been indicated that the property is for sale and its potential uses are being sought as multiple family or commercial. As shown on the Land Use Plan (Map 15), the property would probably be developed for apartments. There are apartments on the north side of Front Street and the assessed values and asking price of the property would indicate that it could not be used economically for single family development.

It is recommended that the downtown area be developed by encouraging new retail businesses. The present zoning ordinance does not permit multiple family or apartment uses within the central business district. Offices are permitted and are a very necessary part of any shopping district. However, the downtown area needs more retail sales if it is going to survice as a viable business area. As the population of the City increases and demand is made for additional shopping facilities, the City should encourage development to take place within the central business district rather than in strip commercial along the main roads. Such a policy could assist in the revitalization of the downtown and still provide the services necessary to meet future population demands.

Other parts of the plan which need specific mention, include new interior road systems and the encouragement of consolidated areas for commercial use and multiple family use. Wherever possible, the problems and potentials examined in the Land Use Analysis have been graphically portrayed with alternative land uses and a recommendation made on the Land Use Plan. At the far eastern end of the City of New Baltimore adjacent to the City line is approximately an eight-acre area which has excessively long, narrow lots. One method of developing this area might be to provide one street with a T-turnaround at the end. Approximately 15 to 20 dwelling units could be constructed after this type of road system were created. Other designs or development potentials may exist for the series of parcels. However, this is one example of how the area could develop.



CITY PARK PROPOSAL


Planting Beds
Limited Parking
Monument Plaza
and Park Entrance
Flag Display
Picnic Area
Picnic Area
Play Center
Picnic Shelter
Picnic Area
Earth Mound and
Planting Buffer
Sea wall
Parking
Turf Sun Bathing Area
Sand Beach Area
Observation Sitting Plaza
Sketch

As noted in the engineering section of this report a usable land area of six to seven acres could be created at Reudisale Point for use as city park land. This land area would be created from the fill taken as the harbor is created. The primary use for the Reudisale Park would be for picnicking and swimming. As shown on the following sketch (Map 17) and also on the Land Use Plan (Map 14), this area could be developed as a viable neighborhood park and a swimming area. As noted in the engineering study, the shoreline would be stabilized by light sheet piling. The area would then receive about 50,000 cubic yards of fill and then be seeded and landscaped. Ultimately, the park could be developed with a beach area, picnic shelter and play center. Entrance to the park could be controlled by locking the gates to the parking area and the sidewalks. If the land is not reclaimed and filled, then the City should consider a smaller park limited to the land area which would extend from the adjacent properties. That area should be contained by seawalls and developed as a park.

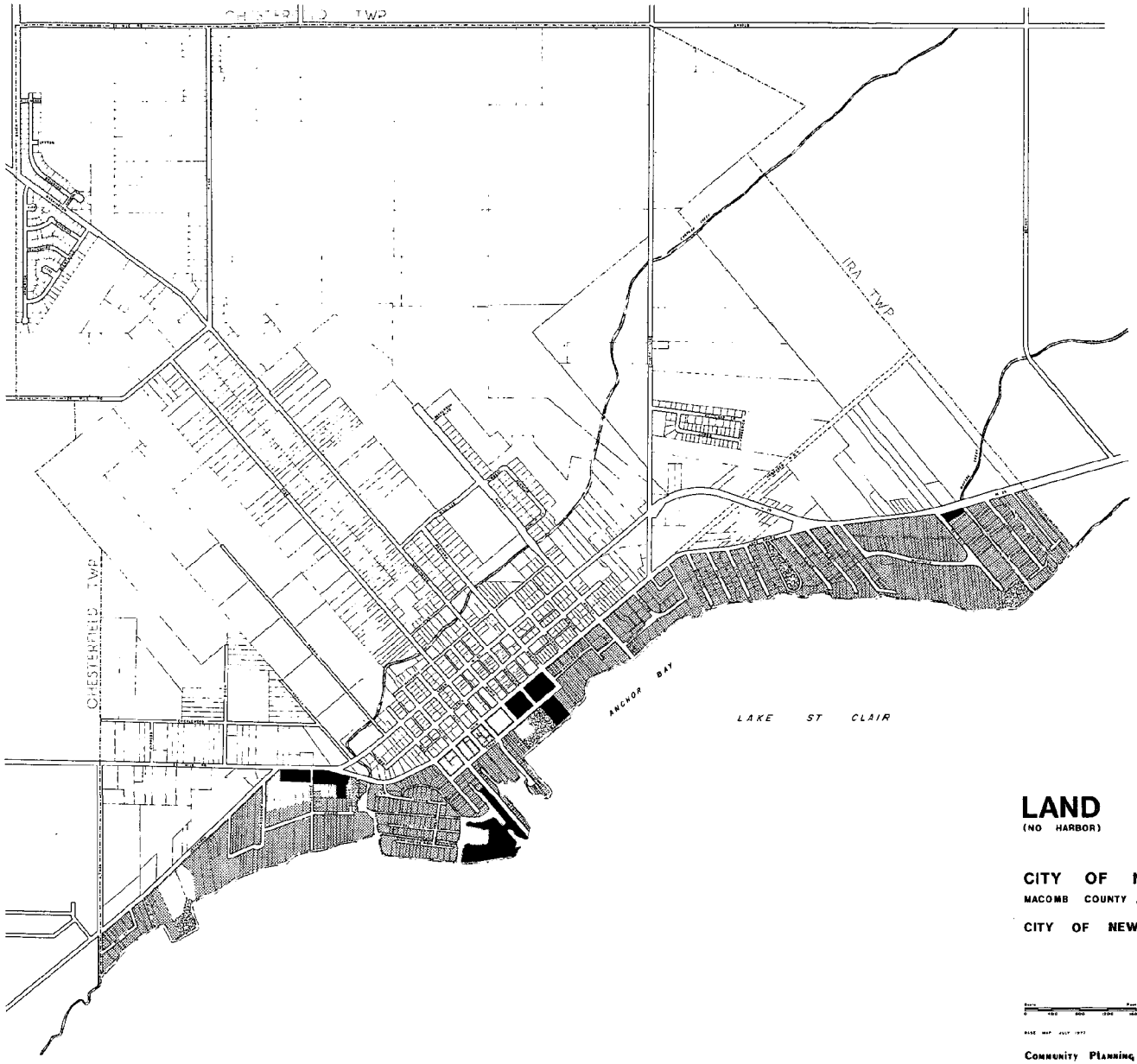
The Brady-Reginald Park is approximately a two-acre area which is well-kept but could use some playground equipment and perhaps picnic tables or stoves. This Brady Park area could serve as a neighborhood park and could be developed to meet neighborhood recreation needs. A neighborhood homeowner's association might wish to participate in the development or be responsible for the programming of facilities at this park.

To the west of Baltimore Street and east of Highview there are approximately seven acres of land which are under-utilized. At the present time there is one single family home about midway into the parcel and a four-family and two-family home located near the waterfront. If a road were brought into this property, it could be developed for single family use. Proper design of this proposed road would help to eliminate the problems caused by deadend roads. A plan has been shown which ties a proposed road into the existing Highview Drive. There is also a possibility that a proposed road might be potentially constructed to tie into the existing Baltimore Street. The Plan promotes the concept that new development should blend in with the existing development and new roads be designed to eliminate deadends wherever possible. Again, this is but one alternative approach. Others should be examined.

The following recommendations are made to indicate one approach to providing a more functional road system. They should not be interpreted as the only approach. Marquardt Court is a fourteen foot wide street betwenn the Highview Subdivision and Ashley Street. Marquardt Court is currently a deadend street which serves six or seven properties. Recommendation is made that this street be brought up to a public street standard of 50 feet of right-of-way which would require the purchase of one

home at the corner of Marquardt and Ashley. Consideration should also be given to connecting Marquardt Court and Highview Drive. Another street connection between Atwood and Ashley Street would require the purchase of one home but would provide approximately a 50 foot right-of-way, better service for several homes and a second outlet for Atwood Street. Recommendation is also made that Marquardt be extended to Atwood, if and when the old DPW building is removed. The extension of the streets would provide better service to existing homes within the area and would also provide better access for fire, police, DPW and road service equipment, easier plowing during the winter, and easier service patterns for postal or other delivery vehicles.

Another land use recommendation is that the area of 23 Mile Road and Lempke be considered for multiple family use. Development of an interior road system would permit single family development on the interior and multiple use at the north end along 23 Mile Road. Upgrading Redwood Court to a public road would also provide a better circulation system and permit future development.



SINGLE FAMILY

MULTIPLE FAMILY

COMMERCIAL

PUBLIC & SEMI-PUBLIC

RECREATION

LAND USE PLAN
(NO HARBOR)

CITY OF NEW BALTIMORE
MACOMB COUNTY, MICHIGAN

CITY OF NEW BALTIMORE PLANNING COMMISSION

BASE MAP JULY 1977

COMMUNITY PLANNING & MANAGEMENT, P.C.
UTICA, MICHIGAN

Implementation of the Plan

The development of a 150 boat slip harbor has been estimated at $2,650,500 and the fill site at Reudisale is estimated at $300,000 for a total cost of $2,950,500. A harbor construction grant should be sought from the State of Michigans Waterways Division. Through this grant, 50% of the cost could be received from the Federal Heritage Conservation and Recreation Services (HCRS), 30% from the State Waterways Division from watercraft gasoline taxes, and the remaining 20% would be the responsibility of the City of New Baltimore. The City share would come from the sale of revenue bonds which would be paid off by the boaters using the facility. If the City could not sell the revenue bonds at reasonable rates and terms or if the revenue bond sale would raise the price of renting the boat slips to excessive levels, then the City could request a Community Facility Loan through the Farmers Home Administration. The City's share could be borrowed at 5% interest on the unpaid balance for a term of 40 years or less.

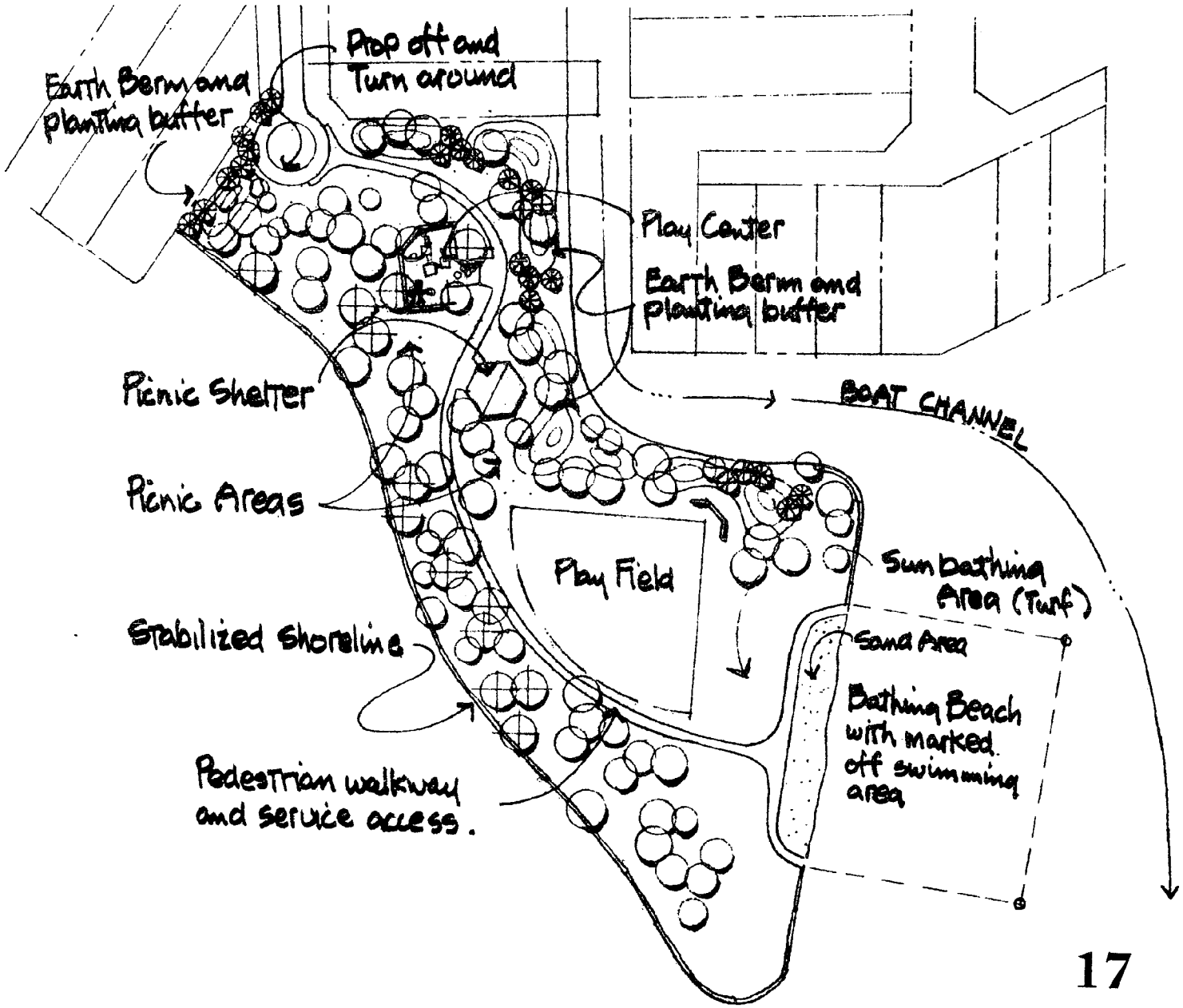
Assuming that Reudisale Point is not used for the disposal of fill a breakdown of the cost and potential funding for the harbor follows:

Total Cost	$2,688,000
HCRS (50%)	1,344,000
Waterways Division (30%)	806,000
New Baltimore (20%)	537,600

The City would own, operate and maintain the harbor. Revenues would be derived from dockage, seasonal rentals, and fuel sales. Expenditures would include repayment of the revenue bonds, fuel purchase, payroll for employees, repairs and capital outlay, electricity and utilities, and insurance. It is estimated that there would be a full-time harbormaster and four to six part-time workers during the summer. Generally, these workers would be college or high-school students. Based on the financial histories of other State constructed harbors, there should be no problem in this harbor producing enough revenue to cover its expenditures. Prior to the sale of revenue bonds, a prospectus would be prepared indicating the ability of this harbor to generate the revenue for the bonds as well as the operation and maintenance costs. There is no foreseeable circumstance where the development of the harbor could create a cost to the taxpayers in the City of New Baltimore.

In an effort to provide some benchmark of revenues and costs the consultants have prepared an estimated budget. It has been assumed that 80% of the total cost would be paid by Waterways and HCRS. The City's 20% share would be $537,600. This amount would be offered as a revenue bond with the revenues from the harbor facilities pledged as payment of the bond. It has been assumed that the bond would sell at a rate of 7% over 40 years. The dept service would be $40,300 per year. The expenses and revenues are estimated as follows:

Bonding Debt Service — 7% for 40 Years		
$537,600 (0.07501) —		$40,300/Year
Operation & Maintenance Costs		
Income From Fuel Sales	4,000	
Miscellaneous Income	2,000	
Insurance	1,500	
Supplies	2,000	
Payroll (Including Harbormaster)	25,000	
Bookkeeping	1,000	
Electricity	6,500	
Trash Removal, Water & Sewer	2,200	
Telephone	200	
Maintenance	2,000	
Sales Tax	2,800	
		$37,200/Year
Total Revenue Required Each Year		$77,500


Drop off and
Turn around
Earth Berm and
planting buffer
Play Center
Earth Berm and
planting buffer
Picnic Shelter
BOAT CHANNEL
Picnic Areas
Play Field
Sun bathing
Area (Turf)
Sand Area
Stabilized Shoreline
Bathing Beach
with marked
off swimming
area
Pedestrian walkway
and service access.

The revenue to be generated from this harbor facility will come from rental of 140 seasonal and 10 transient boat slips. The formula to determine the amount of revenue is based upon a season of 125 days and the fact that rental of wells for boats over 45 feet would pay 1.5 times the 30 foot boat slip rate. The following formula was developed by the engineers to determine the revenue from seasonal and transient rentals. The transient wells were assumed to be full about half the time but to have an average cost return of four times the seasonal rate.

Total Slips	Seasonal	Transient
132—30'	125—30'	7—30'
18—45'	15—45'	3—45'
150 Slips	140 Slips	10 Slips

125x — (2) 7x — (1.5) (15x) — (2) (1.5) (3x) — 170.5x
170.5x—$77,500/Year
x—$454/Year for 30'Slip
$681/Year for 45' Slip

In summary, the harbor would have to charge a minimum of $454 yearly for seasonal rentals of a 30 foot slip. If the City were to charge $500 for seasonal rental of a 30 foot boat slip, this would easily cover start up costs and slips that might not be rented the first year of service. The Consultants surveyed by phone 10 marina facilities located from Port Huron to the City of Detroit. The rates which were quoted were for summer of 1980 seasonal rentals:

Schmid Marina — New Baltimore
- 25' $525
- 30' $650
- 35' $755
- 40' $900
- Waiting list

Riverview Marina — Chesterfield Township
- 30' $575
- 30' and over $700
- Waiting list

Markely Marina — Clinton River
- under 32' or
- 12' beam $700
- 14' beam $800
- Waiting list

North River Road Marina — Clinton River
- all boats $600
- Waiting list

Marinas — St. Clair Shores
- 30' $600-$625
- 35' $625
- 40' $700
- 50' $850
- Waiting list

Port Huron
- 30' $375
- 34' $450
- 42' $650
- Waiting list of over 100 boats

St. Clair
- 32' $395
- 33-45' $665
- Waiting list to get in

Lexington
- 30' $400
- 45' $675
- 60' $950

Cain Marina — Detroit River
- 25-30' $525
- 31-36' $590
- 37-40' $625

DNR Waterways Commission — Recommended Rate Statewide *
- 30' $395
- 42-45' $665
- 60' $930

DNR Transient Rates *
- 20' $ 3.25/night
- 20-30' $ 6.25
- 30-40' $ 9.25
- 40-50' $15.50

*variances above these rates can be granted because other marinas in the area are charging more.

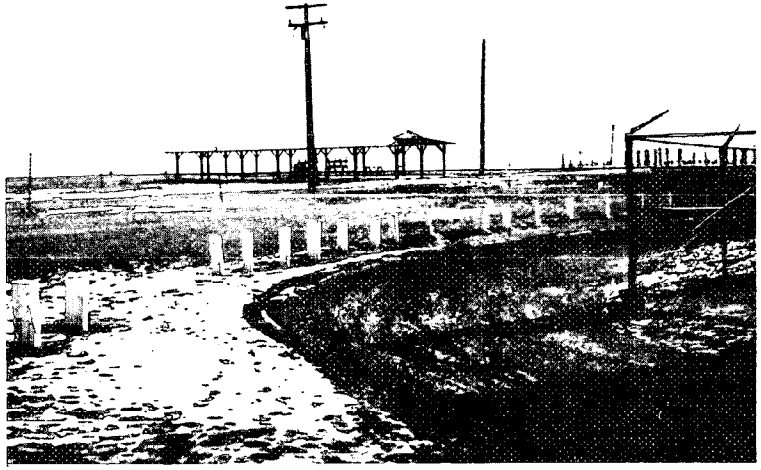
Based on these rates the City should consider a rate in the range of $450-$600 for a seasonal rental of a 30 foot boat slip. The specific rental rates would be determined as part of the final engineering and bonding prospectus.

Other federal funds could be sought from the Land and Water Conservation Fund administered by the State Department of Natural Resources. This fund provides 50% of the cost of acquiring land to be used for recreation facilities or 50% of the cost of developing or constructing recreation facilities. This grant could be used for the development of the City Park, Reudisale or the Brady-Reginald area. Pre-applications must be part of a Recreation Plan for the City and are received by the State of Michigan in March of each year. There may also be some grant money available from the Coastal Zone Management Program to do some improvements along the waterfront or perhaps erosion control at Reudisale Park.

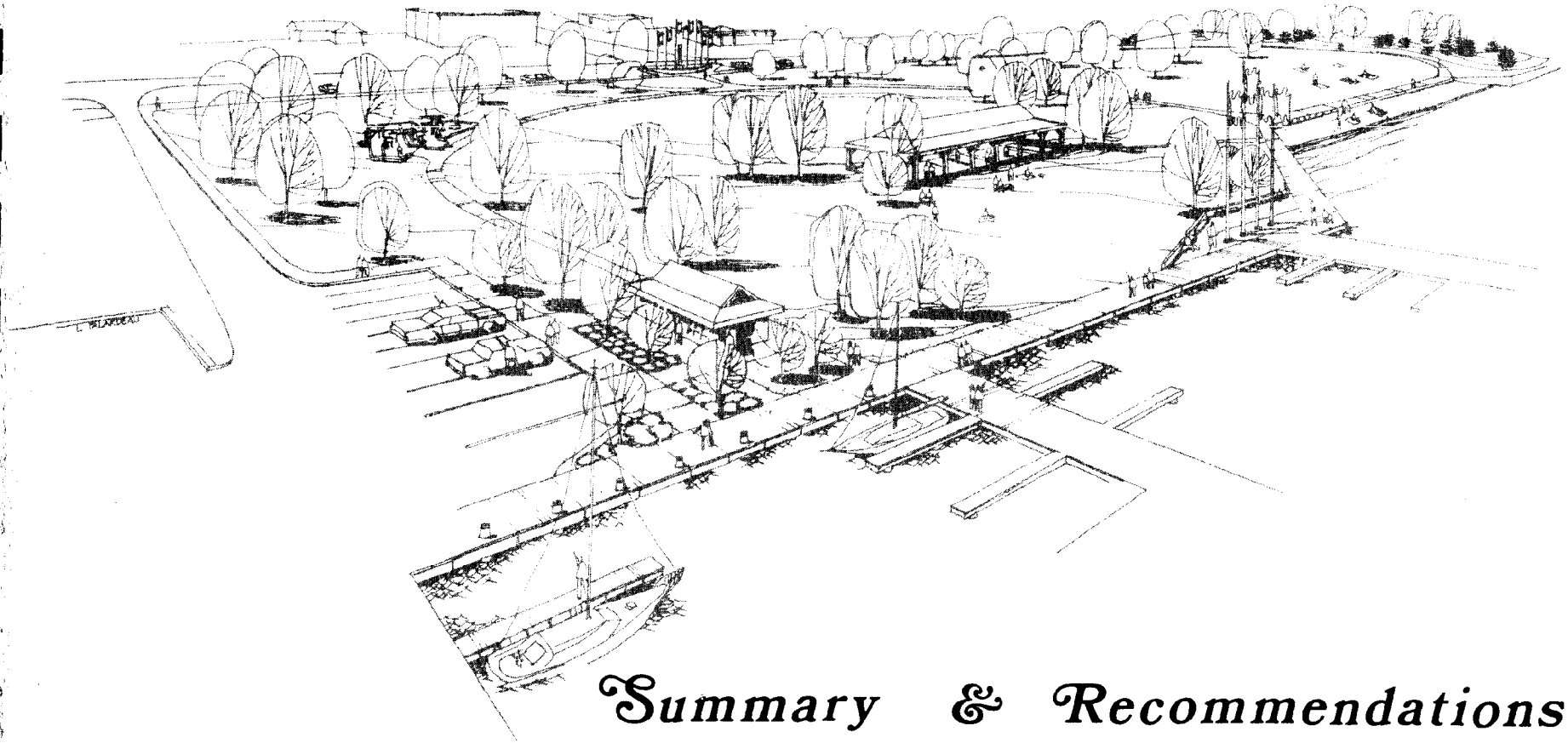
One program which the City should investigate to assist in the preservation and improvement of single family residential housing is the Community Development Block Grant Program (CDBG) of the Department of Housing and Urban Development. Through this program the City could receive grants to rehabilitate housing. Individual homeowners would be eligible for 3% loans or outright grants to hire someone to make repairs such as: new roofs, electricity, plumbing, heating, and most types of code construction. A family of four with an income of less than $15,000 would be eligible for a 3% loan. A family with an income of less than $9,000 would be eligible for a 100% grant for home repairs. This program would be particularly beneficial to the older citizens living on a fixed income or retirement. It could assist the homeowner and also improve the housing stock in the City. This CDBG program could also be used for development of sewer, water, roads or recreation projects where such development is a part of a neighborhood development strategy.

To develop lands and provide new roads it may be necessary to create special assessment districts or to have the developers build the road systems as a part of their new development. In the Base Street area, the City might encourage a special assessment district with the city and the residences which benefit paying the cost of the improvements.

At the regular City Council meeting of July 23, 1979, a resolution was passed that the City Council would use the Waterfront Plan to reexamine and reevaluate its present "closed park" policy. It must be noted that for the City to maintain this policy, they must seek to purchase the submerged lands rights which are held by the State of Michigan. If the City does not change its "closed park" policy, it cannot receive federal funds for the development of the Park or the harbor. Under open park policy, the City could still maintain control and could charge admission if they wished. In fact, the City could charge one admission rate for residents and a slightly higher one for nonresidents (as long as both fees are reasonable). The open park policy would permit federal assistance now as well as in future years.



The development of the harbor and the closed park policy are two issues which the City should have as top priority. Other parts of the Plan could be adopted as the policy or concept for development with the specific design or financing to be determined at a later date.



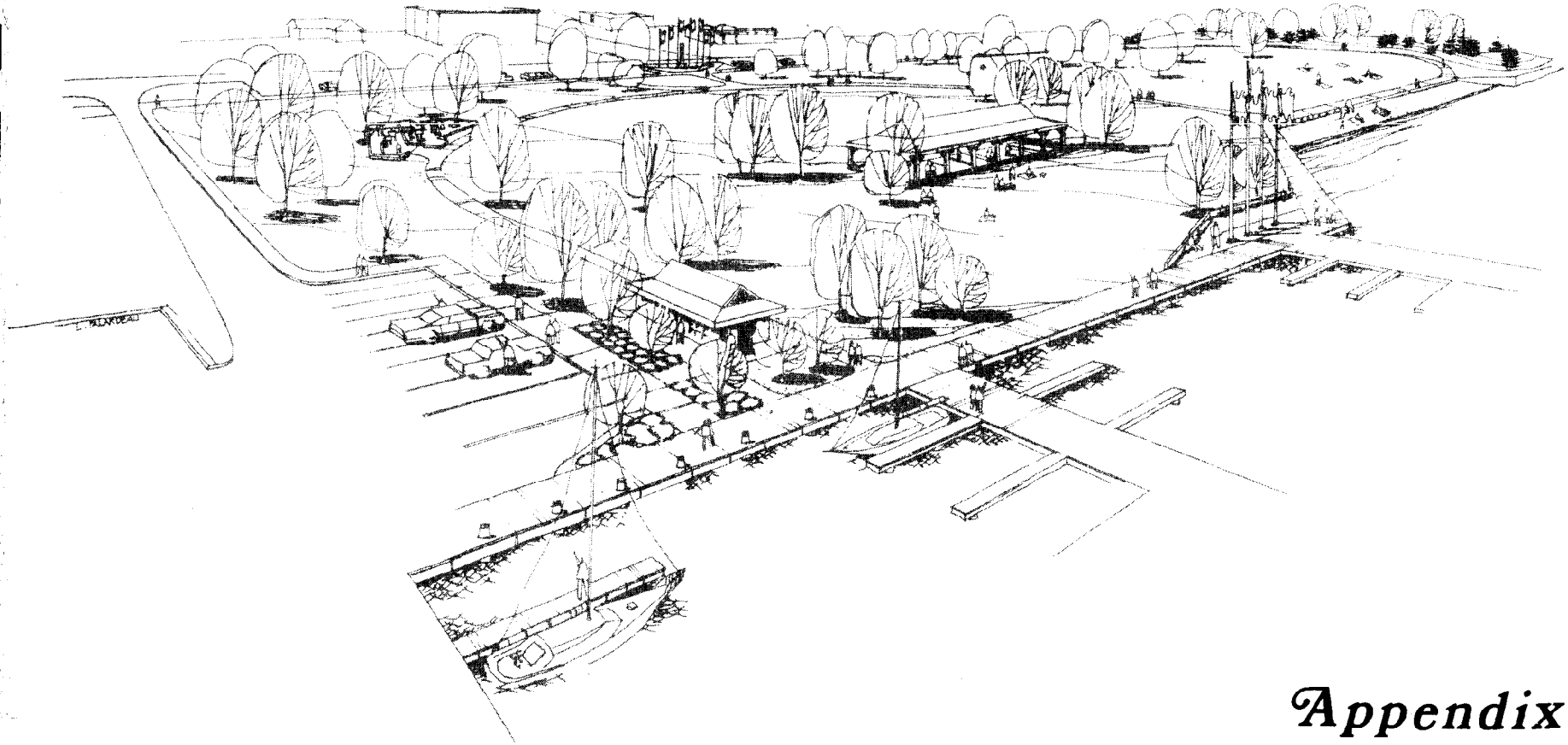
Summary & Recommendations

SUMMARY AND RECOMMENDATIONS

The following summary and recommendations are made by Valentine-Thomas and Community Planning and Management who researched and prepared this Plan. While they do not represent City policy, it is hoped that they will be examined and researched by the City Planning Commission and be adopted or amended by the City Council. The Council has instructed the Planning Commission to hold public hearings and to examine in detail these findings. Based on their study they should make recommendations to the Council. The consulting firms and the State Departments are willing to provide additional information, if necessary.

The following recommendations are submitted for your review and action. Details and background for these recommendations may be found in the text of the Plan.

- The City of New Baltimore should adopt an open park policy. This policy would permit the acquisition and development of parks or recreation facilities using federal or state funds.
- Construction of a recreational boating harbor near downtown New Baltimore is both practical and technically feasible. Either the 150 or 160 boat slip development plan should be actively pursued by making application for the necessary federal and state funds. Cost of the harbor has been estimated at approximately $2.6 million for construction and $37,000 annually for operation and maintenance. Based on these costs the revenue derived from the harbor (estimated cost of a 30 foot boat slip per season $455-$600) will be adequate to pay off the revenue bonds for construction as well as pay for the operation and maintenance of the facility. The harbor proposals blend into the City Park without overpowering the area. In addition, the harbor provides some isolation for the residents on Base Street and provides good storm protection for boaters.
- Construction of a harbor is justifiable because of an overall shortage of available mooring space in Southeastern Michigan. New Baltimore's location on Anchor Bay makes it ideal for a harbor facility. The City is easily accessible by land or water, readily identifiable by its water tower, can service transient boaters without the need to double back, and has downtown shopping facilities near the waterfront.
- Construction may be instituted to a limited degree in phases depending upon availability of finances. An initial phase would establish the mooring basin, entrance channel and breakwall. Asphalt paving, certain landscaping and additional slips can be added later as the harbor becomes established. A preliminary financial analysis, assuming maximum grant assistance, indicates that nearly all of the proposed 150 or 160 mooring slips should be a seasonal rental for the harbor to be cost effective.
- If a harbor were constructed at the downtown location, there could be a direct economic benefit of approximately $225,000 and an indirect benefit of nearly $450,000 annually.
- Development of Marsac or Reudisale Point is potentially advantageous in serving initially as a dumping site for dredge material and, ultimately, as a park area for community residents. Approximately six acres of land area could be provided for picnicking, swimming, sunbathing and games areas. The steel containment wall will define the park boundary and ease the erosion problems of the past. In the event a Corps of Engineers permit cannot be obtained for the dredge spoil or the City does not wish to develop Reudisale Point, then the spoil must be disposed of inland.
- It is recommended that the vacant property immediately east of the City Park be purchased and developed as part of the City Park even if the harbor is not constructed.
- The recommendations of the Land Use Plan should be adopted as a guide for future development either with or without the harbor proposals.
- A City policy should be developed to limit the number of dead-end streets and consider improvements which would provide street continuations or turnarounds. A policy should also be discussed which would increase the right-of-way on private streets to minimum public road standards.
- Base Street should be enlarged to a 40 foot right-of-way and a turnaround should be provided near the end of the street.
- Future development for single and multi-family residences should be considered for the Jefferson-23 Mile Road area. Redwood Court should be expanded to a public street and an interior road network should be encouraged as a part of the new development.



Appendix

DATA PROCESSING DIVISION
ETAC, USAF
ASHEVILLE, N.C. 28801

SURFACE WINDS

PERCENTAGE FREQUENCY OF WIND DIRECTION AND SPEED (FROM HOURLY OBSERVATIONS)

14804 (STATION) MOUNT CLEMENS MICH/SELFRIDGE AFB (STATION NAME) 36-65 (YEARS) ALL (MONTH)

ALL WEATHER (CLASS) ALL (HOURS (L.S.T.))

(CONDITION)

SPEED (KNTS) DIR.	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	22 - 27	28 - 33	34 - 40	41 - 47	48 - 55	≥56	%	MEAN WIND SPEED
N	.9	1.4	2.1	1.1	.2	.0	.0	.0				5.8	8.2
NNE	.5	1.2	1.9	1.1	.2	.0	.0	.0				4.9	8.7
NE	.5	1.1	1.8	.8	.1	.0	.0					4.4	8.1
ENE	.4	1.1	1.3	.5	.1	.0	.0					3.3	7.5
E	.5	1.0	1.2	.4	.0	.0	.0					3.1	7.0
ESE	.3	.7	1.0	.5	.1	.0	.0					2.6	8.1
SE	.5	1.0	2.0	1.0	.2	.1	.0	.0				4.7	8.8
SSE	.4	1.2	2.2	1.3	.2	.0	.0	.0	.0			5.4	9.0
S	.8	1.9	3.4	2.0	.5	.1	.0	.0	.0			8.6	9.2
SSW	.5	1.2	2.0	1.7	.5	.2	.0	.0	.0			6.2	10.2
SW	.8	1.5	2.8	2.4	.8	.3	.1	.0	.0			8.8	10.6
WSW	.7	1.5	2.2	1.6	.4	.2	.0	.0				6.6	9.5
W	1.0	1.8	2.7	1.6	.4	.1	.0	.0				7.7	8.7
WNW	.6	1.5	2.5	1.7	.4	.1	.0	.0				6.7	9.4
NW	.7	1.3	2.3	1.4	.3	.0	.0	.0				6.0	8.8
NNW	.7	1.6	2.4	1.5	.2	.0	.0	.0				6.5	8.7
VARBL													
CALM												8.7	
	9.8	21.0	33.8	20.4	4.6	1.3	.3	.1	.0			100.0	8.2

TOTAL NUMBER OF OBSERVATIONS 251488

DATA PROCESSING DIVISION
ETAC, USAF
ASHEVILLE, N.C. 28801

EXTREME VALUES

SURFACE WINDS
(FROM DAILY OBSERVATIONS)

14804 (STATION) MOUNT CLEMENS MICH/SELFRIDGE AFB (STATION NAME) 46-64 (YEARS)

DAILY PEAK GUSTS IN KNOTS

YEAR \ MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	ALL MONTHS
46												WSW 44	
47	W 39	SSW 45	NNE 53	SSW 59	SW 37	SW 41	N 36				W 46	W 46	
48	E 40			SW 52							SSW 56	SW 52	
49	SSW 72	W 43	SW 54	WNW 49	SSW 55	SW 62	SSE 50	WNW 47	S 36	W 38	SW 41	SSW 47	SSW 72
50	WSW 56	SE 42		WSW 46	WSW 54	SW 37	SW 31	S 34	NW 30	WNW 32			
51			WSW 48	SW 45	S 41	WSW 39	SW 35	WSW 33	SW 41	SSW 43	SW 51	SW 45	
52	SW 43	SW 36	SW 47	SW 38	N 35	W 36	NW 46	SW 28	WNW 34	S 35	SSW 61	SW 30	SSW 61
53	SW 43	SW 52	WSW 42	SW 53	SSW 44	SSW 53	SSW 36	SW 30	SSW 41	NNE 29	SW 36	WSW 50	SW 53
54	WNW 36	SSW 34	SW 50	SW 34		SW 46	NW 36	SW 31	WSW 39	NNE 33	S 29	ESE 31	
55	W 37	NW 33	SW 62	SW 45	WSW 43	SSW 29	W 41	S 44	SW 37	SW 38	SW 51	SW 36	SW 62
56	NNW 36	WSW 46	SSW 57	SW 49	NE 56	SW 42	NW 37	W 48	NNW 31	SW 41	SW 56	SW 37	SSW 57
57	SSW 30	WSW 33	SW 44	SSW 41	SW 37		W 32	WSW 30		NNW 32	WSW 60	SW 36	
58	WSW 35	WNW 39	N 28	WSW 46	W 38	WSW 32	WSW 27	SSW 28	SW 32	W 34	SW 37	WNW 28	WSW 46
59	W 34	W 32	W 51	W 36	WSW 42	N 27			W 36		NNW 27	NW 25	
60	SW 35	N 29	WNW 35	WSW 37	NNW 27		W 35	WNW 24	N 36	NNW 27	W 32	NNW 28	
61	NW 31	N 40	ESE 41	SSW 36	W 32	N 40	W 43	N 29					
62			SE 33	W 37	W 45	WSW 37		NNE 45	N 31	NNW 31	NW 35	NW 33	
63		W 34	WSW 41		WSW 36	SW 52	W 33	NNW 32	S 29	NW 43	WSW 48	NNW 32	
64	23/ 40	32/ 31	23/ 51	24/ 40	24/ 45	24/ 46	24/ 41	19/ 37	36/ 35	32/ 32			
MEAN	40.5	37.9	46.1	43.7	41.7	41.3	37.3	34.7	34.9	34.9	44.4	37.5	58.5
S. D.	10.703	6.584	9.110	7.139	8.195	9.407	6.006	7.706	3.900	5.036	11.369	8.633	8.826
TOTAL OBS.	459	422	493	501	491	447	460	460	412	432	440	487	5504

APPENDIX B

ESTIMATE OF COST
MOORING FACILITIES
CITY OF NEW BALTIMORE, MICHIGAN
EXHIBIT #1 (24 Boat Slips)

I. HARBOR & BREAKWALL

Dredging	41,000 C.Y.	@	$ 8.00	=	$328,000
Breakwater	650 L.F.	@	550.00	=	357,500
Channel Guide Piling	20 Ea.	@	300.00	=	6,000
Lighting for Channel Guides	22 Ea.	@	500.00	=	10,000
Breakwall Lighting	3 Ea.	@	800.00	=	2,400
Soil Borings	LUMP SUM		LUMP SUM		4,000
					$707,900

II. PIERS

Main Pier Extension	180 Ft.	@	180.00	=	$ 32,400
Pier A (245')	LUMP SUM		LUMP SUM		36,750
40 Ft. Finger Piers	12 Ea.	@	3,300.00	=	40,000
Pier Lighting	3 Ea.	@	1,200.00	=	3,600
					$108,750

III. SHORE SUPPORT FACILITIES

Parking Lot	1,000 S.Y.	@	$ 8.00	=	$ 8,000
Bumper Blocks	220 L.F.	@	5.00	=	1,100
4' Concrete Walk	3,000 S.F.	@	2.00	=	6,000
Bathhouse & Comfort Station	800 S.F.	@	80.00	=	64,000
On Shore Electrical	LUMP SUM		LUMP SUM		15,000
Sanitary Sewer	350 L.F.	@	15.00	=	5,250
Water Main	150 L.F.	@	28.00	=	4,200
					$104,350

APPENDIX B

ESTIMATE OF COST
MOORING FACILITIES
CITY OF NEW BALTIMORE, MICHIGAN
EXHIBIT #2 (150 Boat Slips)

I. HARBOR DREDGING AND BREAKWATER

Dredging	47,600 C.Y.	@	$ 8.00	=	$ 380,800
Main Breakwater	1,195 L.F.	@	550.00	=	657,250
East Breakwater	475 L.F.	@	500.00	=	237,500
Soil Borings	LUMP SUM		LUMP SUM		4,000
Channel Guide Piling	12	@	300.00	=	3,600
Lighting for Channel Guide	12	@	500.00	=	6,000
Breakwater Lighting	6	@	800.00	=	4,800
			TOTAL		$1,293,950

II. PIERS COMPLETE WITH WATER AND ELECTRICAL SERVICES

PIER A - 44 Each - 30 Ft. Slips

Pier A (377')	LUMP SUM	@	LUMP SUM	=	$ 169,700
Steel Anchor Pile	12 Ea.	@	$830.00	=	9,960
Wood Spring Pile	22 Ea.	@	300.00	=	6,600
			TOTAL		$ 186,260

PIER B - 44 Each - 30 Ft. Slips

Pier B (377')	LUMP SUM	@	LUMP SUM	=	$ 169,700
Steel Anchor Pile	12 Ea.	@	$830.00	=	9,960
Wood Spring Pile	22 Ea.	@	300.00	=	6,600
			TOTAL		$ 186,260

PIER C - 44 Ea. - 30 Ft. Slips

Pier C (377')	LUMP SUM	@	LUMP SUM	=	$ 169,700
Steel Anchor Pile	12 Ea.	@	$830.00	=	9,960
Wood Spring Pile	22 Ea.	@	300.00	=	6,600
			TOTAL		$ 186,260

APPENDIX B

SUMMARY OF COSTS FOR
HARBOR & FACILITIES

I.	Harbor	$ 707,900
II.	Piers	108,750
III.	Shore Support Facilities	104,350
		$ 921,000
	Engineering Design Phase (6%)	55,200
	Engineering Construction Phase (2%)	18,400
	Contingencies 10%	92,100
	TOTAL:	$1,086,700

APPENDIX C

SUMMARY OF COSTS
FOR HARBOR & FACILITIES

I.	Harbor	$1,293,950
II.	Floating Piers	649,380
III.	Shore Support Items	302,880
		$2,246,210
	Engineering Design Phase 6%	$ 134,770
	Engineering Construction Phase 2%	44,910
	Contingencies 10%	224,600
	TOTAL ESTIMATED COST:	$2,650,500

Estimate of Cost
Mooring Facilities

City of New Baltimore, Michigan
Exhibit #2 - Page 2
APPENDIX C

PIER D (East Breakwater) - 18 - 45' Slips

45' Finger Piers	9 Ea.	@	$5,500.00	=	$ 49,500
Wood Spring Pile	12 Ea.	@	3,600.00	=	3,600
			SUB-TOTAL	=	$ 53,100

SERVICE PIER

Service Dock (45') W/Attendants Shelter	LUMP SUM		LUMP SUM	=	$ 14,500
Gas Service (Complete)					15,000
Pump Out (Complete)					8,000
			SUB-TOTAL	=	$ 37,500
	TOTAL: PIERS				$ 649,380

III. SHORE SUPPORT ITEMS

Comfort Station	1,640 S.F.	@	$ 80.00	=	$ 131,200
Lighting					
Parking Lot & Drive	3	@	$1,200.00	=	3,600
Walkway	2	@	1,000.00	=	2,000
Electrical (on shore)	LUMP SUM		LUMP SUM	=	60,000
Mechanical (on shore)	LUMP SUM		LUMP SUM	=	15,000
Parking Lot & Drive Roads 2" Asphalt	975 S.Y.	@	$ 4.40	=	4,290
8" Aggregate base	975 S.Y.	@	4.00	=	3,900
Parking 2" Asphalt	3330 S.Y.	@	4.40	=	14,650
6" Aggregate base	3330 S.Y.	@	3.00	=	9,990
Bumper Blocks	710 L.F.	@	5.00	=	3,550
3' Wide Reinforced Concrete Walk 6"	4320 S.F.	@	6.00	=	26,000
Concrete Walk 4"	3660 S.F.	@	2.00	=	7,300
8" Sanitary Sewer	300 L.F.	@	20.00	=	6,000
4" Watermain	300 L.F.	@	20.00	=	6,000
10" Storm Sewer	320 L.F.	@	20.00	=	6,400
Landscaping	LUMP SUM		LUMP SUM	=	3,000
	TOTAL: SHORE SUPPORT ITEMS:				$ 302,880

APPENDIX D

ESTIMATE OF COST FOR MOORING FACILITIES

EXHIBIT #2A

40 Boat Slip Addition to Exhibit #2

Floating Pier Extensions
Complete with Water & Electrical Services

PIER A - 12 Ea. - 30 Ft. Slips

Pier A. Extension (102 Ft.)	LUMP SUM		LUMP SUM	=	$ 49,000
Steel Anchor Pile	4 Ea.	@	$830.00	=	3,320
Wood Spring Pile	6 Ea.	@	300.00	=	1,800
Mechanical & Electrical (On Shore)	LUMP SUM		LUMP SUM	=	5,000
					$ 59,120

PIER B - 12 Ea. - 30 Ft. Slips

Pier B Extension (102 Ft.)	LUMP SUM		LUMP SUM	=	$ 49,000
Steel Anchor Pile	4 Ea.	@	$830.00	=	3,320
Wood Spring Pile	6 Ea.	@	300.00	=	1,800
Mechanical & Electrical (On Shore)	LUMP SUM		LUMP SUM	=	5,000
					$ 59,120

PIER C - 12 Ea. - 30 Ft. Slips

Pier C Extension (102 Ft.)	LUMP SUM		LUMP SUM	=	$ 49,000
Steel Anchor Pile	4 Ea.	@	$830.00	=	3,320
Wood Spring Pile	6 Ea.	@	300.00	=	1,800
Mechanical & Electrical (On Shore)	LUMP SUM		LUMP SUM	=	5,000
					$ 59,120

PIER D - 4 - 45 Ft. Slips

45' Finger Piers	2 Ea.	@	$5,500	=	$ 11,000
Spring Pile	2 Ea.	@	300	=	600
					$ 11,600
			Sub Total		188,960
			Eng. Design Phase 6%		11,340
			Inspection 2%		3,780
			Contingencies		18,900
			TOTAL:		$ 222,980

Pier D-D 42 Ea. - 30 Ft. Slips					
Pier Water System	42 Slips	@	$ 600.00	=	$ 25,200.00
Pier Electrical System	42 Slips	@	500.00	=	21,000.00
Piers	22 Ea.	@	4,600.00	=	101,200.00
Main Pier	360 L.F.	@	180.00	=	64,800.00
Spring Piles	40 Ea.	@	300.00	=	12,000.00
			TOTAL	=	$224,200.00
Pier E-E 17 Ea. - 60 Ft. Slips					
Pier Water System	17 Slips	@	$600.00	=	$ 10,200.00
Pier Electrical System	17 Slips	@	500.00	=	8,500.00
Piers	9 Ea.	@	7,000.00	=	63,000.00
Spring Piles	16 Ea.	@	300.00	=	4,800.00
			TOTAL		$ 86,500.00
Service Pier					
Service Dock (70') w/Attendants Shelter	70 L.F.	@	$210.00	=	$ 14,700.00
Gas Service (Complete)	LUMP SUM		LUMP SUM	=	15,000.00
Pump Out (Complete)	LUMP SUM		LUMP SUM	=	8,000.00
			TOTAL	=	$ 37,700.00

III. SHORE SUPPORT ITEMS

Comfort Station	1,640 S.F.	@	$ 80.00	=	$131,200.00
Lighting	LUMP SUM		LUMP SUM	=	15,000.00
Electrical (on shore)	LUMP SUM		LUMP SUM		60,000.00
Mechanical (on shore)	LUMP SUM		LUMP SUM	=	15,000.00
Parking Lot	3,900 S.Y.	@	8.00	=	31,200.00
Sidewalks	5,500 S.F.	@	2.00	=	11,000.00
Landscaping	LUMP SUM		LUMP SUM	=	4,000.00
8" Sanitary Sewer	300 L.F.	@	20.00	=	6,000.00
4" Watermain	300 L.F.	@	20.00	=	6,000.00
12" Storm Sewer	320 L.F.	@	22.00	=	7,040.00
			TOTAL	=	$286,440.00

APPENDIX E

SUMMARY OF COSTS

FOR HARBOR & FACILITIES

EXHIBIT #3

I. Harbor	$1,156,900.00
II. Fixed Piers	861,703.00
III. Shore Support Items	286,440.00
	$2,305,043.00
Engineering Design Phase (6%)	138,303.00
Engineering Construction Phase (2%)	46,102.00
Contingencies (10%)	230,500.00
TOTAL ESTIMATED COST:	$2,719,943.00

APPENDIX E

ESTIMATE OF COST

MOORING FACILITIES

CITY OF NEW BALTIMORE, MICHIGAN

EXHIBIT #1 (163 Boat Slips)

I. HARBOR DREDGING & BREAKWATER

Dredging	58,000 C.Y.	@	$ 8.00	=	$ 464,000.00
Breakwall	1,195 L.F.	@	550.00	=	657,250.00
Soil Borings	LUMP SUM		LUMP SUM		4,000.00
Channel Guide Piling	12 Ea.	@	300.00		3,600.00
Lighting for Channel Guide.	12 Ea.	@	500.00		6,000.00
Rip-Rap	490 S.Y.	@	45.00		22,050.00
			TOTAL:		$1,156,900.00

II. PIERS COMPLETE WITH WATER AND ELECTRICAL SERVICES

Pier A-A 21 Each - 40 Ft. Slips					
Pier Water System	21 Slips	@	600.00	=	$ 12,600.00
Pier Electrical System	21 Slips	@	500.00	=	10,500.00
Piers	11 Ea.	@	4,600.00	=	50,600.00
Spring Piles	20 Ea.	@	300.00	=	6,000.00
			TOTAL:	=	$ 79,700.00
Pier B-B 38 Each - 40 Ft. Slips					
Pier Water System	38 Slips	@	600.00	=	$ 22,800.00
Pier Electrical System	38 Slips	@	500.00	=	19,000.00
Piers	20 Ea.	@	4,600.00	=	92,000.00
Main Pier	360 L.F.	@	180.00		64,800.00
Spring Piles	36 Ea.	@	300.00		10,800.00
			TOTAL		209,400.00
Pier C-C 42 Ea. - 30 Ft. Slips					
Pier Water System	42 Slips	@	600.00		$ 25,200.00
Pier Electrical System	42 Slips	@	500.00		21,000.00
Piers	22 Ea.	@	4,600.00		101,200.00
Main Pier	360 L.F.	@	180.00	=	64,800.00
Spring Piles	40 Ea.	@	300.00	=	12,000.00
			TOTAL	=	$ 224,200.00

APPENDIX F

CITY OF NEW BALTIMORE

ROUDISALE POINTE

ESTIMATE OF BASIC DEVELOPMENT COSTS

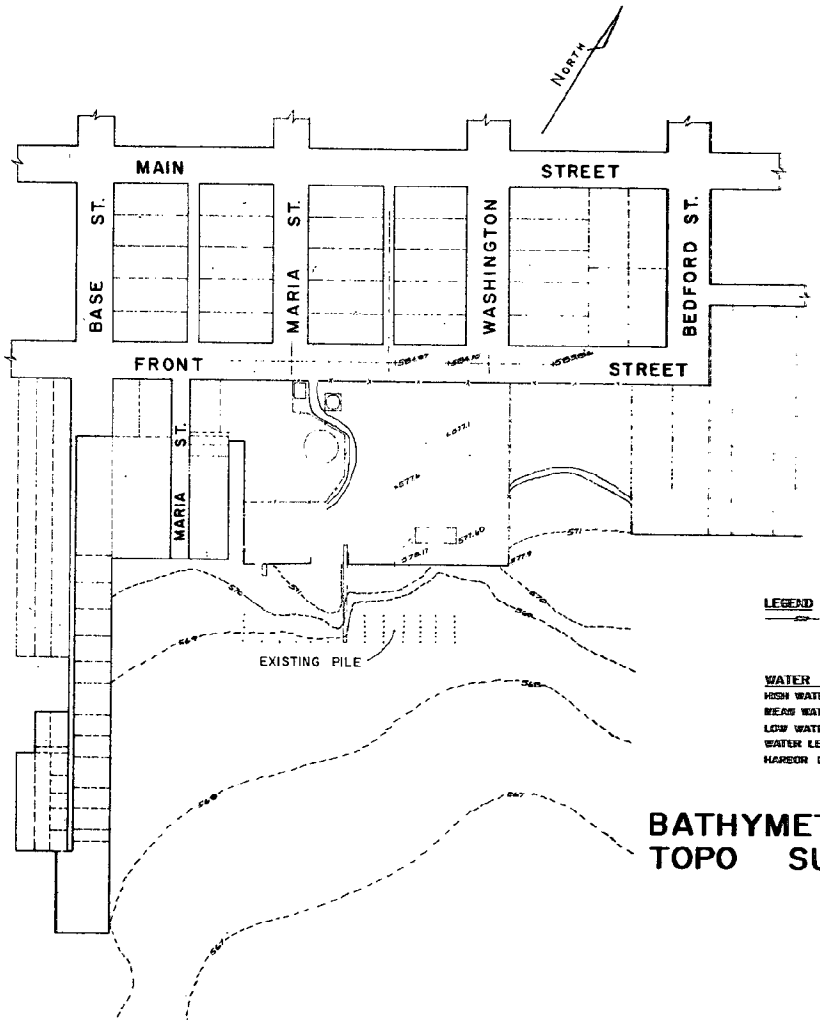
Containment Breakwater	1,200 L.F.	@	$150.00	=	$180,000
Dredging Material (Transportation Costs)	38,000 C.Y.	@	1.00		38,000
Sand for Beach (on shore borrow pit)	5,000 C.Y.	@	5.00	=	25,000
Disposal of Excess Harbor Spoil	6,000 C.Y.	@	2.00	=	12,000
					$255,000
	Contingencies and Engineering 18%				45,900
	Total Basic Development Cost				$300,900

Additional Spoil Transportation Costs

If Roudisale Pointe Not Available as a Disposal Area

	Exhibit 1	Exhibit 2	Exhibit 3
Total Dredge Spoil	41,000 C.Y.	48,000 C.Y.	58,900 C.Y.
Spoil to be Transported	38,000 C.Y.	44,000 C.Y.	52,900 C.Y.
Additional Trucking Costs to Macomb County Landfill @ $2.00/C.Y.*	$76,000	$88,000	$104,000

* This cost may possibly be offset if material is sold as a lining material for area landfills.



LEGEND

EXISTING CONTOURS

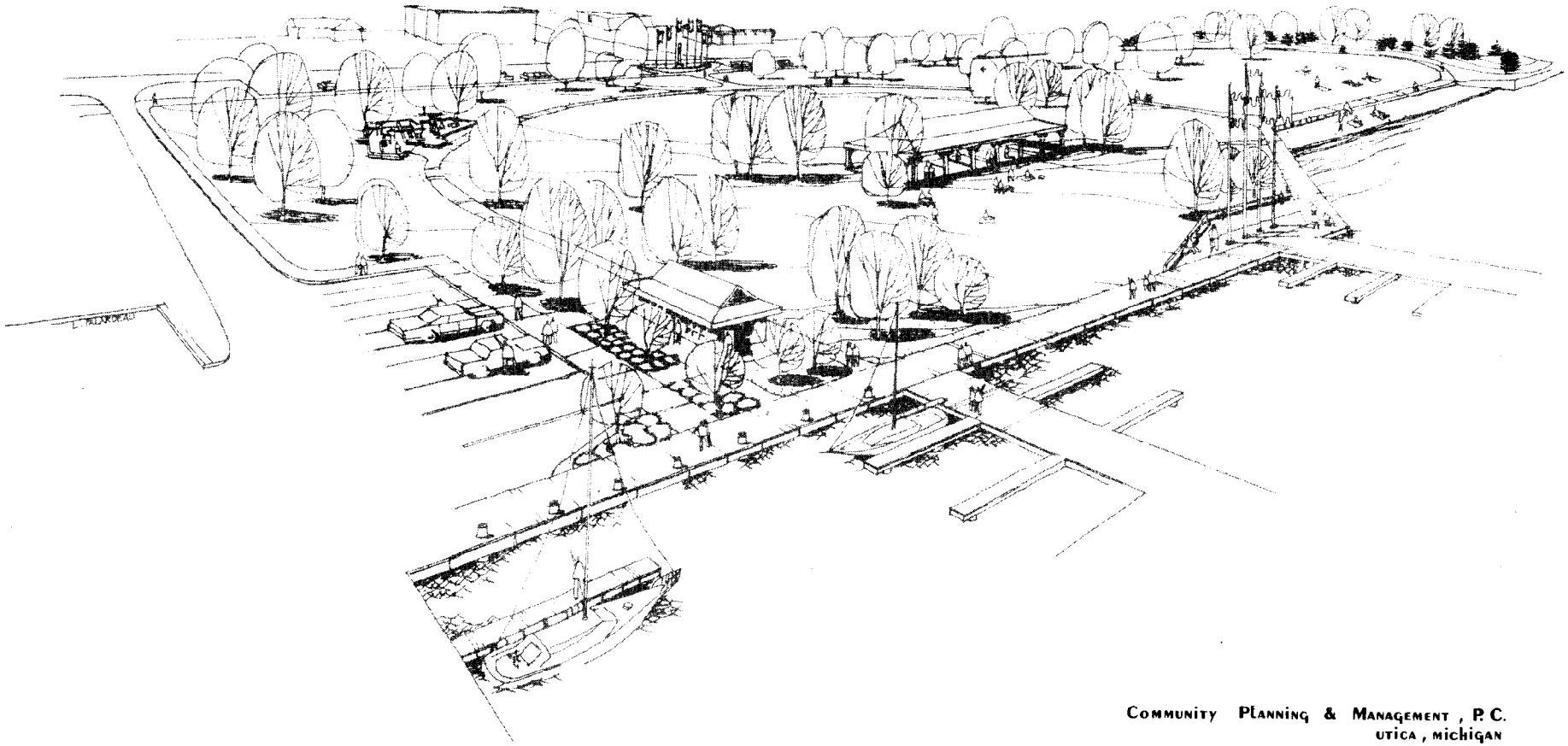
WATER LEVELS

HIGH WATER LEVEL	576.30
MEAN WATER LEVEL	573.55
LOW WATER LEVEL	571.10
WATER LEVEL 10/26/79	574.56
HARBOR DREDGE DEPTH	564.10

BATHYMETRIC & TOPO SURVEY

PROPOSED HARBOR SITE
FOR THE CITY OF
NEW BALTIMORE, MICHIGAN

VALENTINE-THOMAS & ASSOCIATES, INC.



COMMUNITY PLANNING & MANAGEMENT, P.C.
UTICA, MICHIGAN

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