Preliminary Reconnaissance Report

Rochester Harbor New York

US Army Corps
of Engineers
Buffalo District

March 1993

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) **Preliminary Reconnaissance Report, Rochester Harbor, New York**		5. TYPE OF REPORT & PERIOD COVERED **Preliminary** 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s)		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS **U.S. Army Engineer District, Buffalo** **1776 Niagara Street** **Buffalo, N.Y. 14207-3199**		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE **1993** 13. NUMBER OF PAGES **29**
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Small Boat Navigation
Wave Surge
Rochester Harbor

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

A number of potential alternatives were investigated by the U.S. Army Corps of Engineers to reduce wave surge problems and damages at Rochester Harbor, N.Y. Rochester Harbor is located on the south shore of Lake Ontario at the mouth of the Genesee River in central New York State. The primary problem investigated was wave surge created by storms with strong northeast winds. However, based on a preliminary analysis and Department of the Army policy, there are insufficient benefits to warrant federal interest to continue study of the wave surge problem at Rochester Harbor.

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DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

REPLY TO
ATTENTION OF

PUBLIC NOTICE OF COMPLETION OF THE PRELIMINARY RECONNAISSANCE REPORT FOR ROCHESTER HARBOR, NEW YORK (Wave Surge Problem)

This is a public notice that the Preliminary Reconnaissance Report for Rochester Harbor, New York has been completed by the District Engineer at Buffalo, New York and the Division Engineer at North Central Division, Chicago, Illinois, of the U.S. Army Corps of Engineers. A number of potential alternatives were investigated to reduce possible wave surge problems at Rochester Harbor, New York. There were sufficient benefits identified to show at least two alternatives were economically feasible. However, insufficient high priority benefits were substantiated to warrant a Federal interest to continue study of the wave surge problem.

AUTHORITY

This report was initiated in response to a resolution by the Senate committee on Environment and Public Works, 101st Congress, Second Session (Adopted March 27, 1990). The resolution is quoted as follows:

"Resolved by the Committee on Environment and Public Works of the United States Senate, that the Board of Engineers for Rivers and Harbors is hereby requested to review the report of the Chief of Engineers on Rochester Harbor, New York, published as House Document number 409, 86th Congress, Second Session, and other pertinent reports, with a view to determining the need for providing further improvements to the existing Federal navigation project, particularly with respect to wave surge conditions."

In addition, this preliminary investigation was directed by Department of Army policy to concentrate on high priority outputs (i.e. commercial navigation) to determine if such outputs are sufficient to justify pursuing a full Reconnaissance Study.

BACKGROUND

Rochester Harbor is located on the south shore of Lake Ontario at the mouth of the Genesee River. The navigable portion of the river extends about three (3) miles upstream from the lake. The harbor has an authorized entrance channel depth of 24 feet below Low Water

Datum (LWD), a river channel depth of 23 feet below LWD upstream to the Stutson Street bridge, a river channel depth of 21 feet below LWD to the upstream limit of the project, and two turning basins of 23 and 21 feet below LWD. The Federal project is currently maintained to a depth of 20 feet below LWD in the entrance channel and 19 feet below LWD in the river channel and outer turning basin. The inner turning basin is not maintained. The project also includes parallel piers at the mouth of the Genesee River, about 450 feet apart, with the west pier 3,036 feet long and the east pier 2,699 feet long. Historically the river from the Stutson Street highway bridge north to the confluence with Lake Ontario has experienced both commercial and recreational activities. Over the years, there have been shipyards, foundries, railroad terminals, yacht clubs, the Rochester-Monroe Country Port Authority, a resort and an amusement park located in this reach of river. Currently this portion of the river is predominately bordered by marinas, yacht clubs and city-owned land consisting of a boat launching ramp and beach park on the west bank. There are 893 permanent-based slips in seven private marinas. In addition, there are four launch ramps sites with seven launch ramp lanes. Pier fishing is available on both the U.S. east and west piers.

The primary problem investigated was wave surge created by storms with strong northeast winds. Since Rochester's parallel sheet-pile walled piers extend northeast into Lake Ontario, no protection is provided from northeast storms. As a result, the piers channel wave energy further upstream and exacerbate the waves by reflecting them within the harbor, thereby increasing the potential for damage to structures and boats using the areas adjacent to the river.

In May 1987, the Corps conducted an Initial Appraisal Report (under Section 107 of the 1960 River and Harbor Act) of possible improvements for recreational navigation. However, the report concluded that no improvements were warranted, since no economically viable alternatives were identified.

Since completion of the Initial Appraisal Report, the city of Rochester has developed plans for a $100 million waterfront revitalization along the lower reaches of the river, the area most affected by lake surges during storms. The development is keyed to the construction of measures that would reduce the wave surge and city representatives have indicated that such development is critical to the continued economic vitality of Rochester.

PLANS CONSIDERED

Four alternatives plans to reduce the wave surge problem were investigated. Two plans were similar to those considered during the Section 107 initial appraisal. Other plans were developed to identify a solution that would either be more effective or have a lower cost. Although none of the plans investigated would reduce the **wave height** by 75 percent, the **wave energy** would be reduced by between 75 and 97 percent. Also wave energy levels correlate more closely to the actual damage than wave height levels. Therefore, a conservative figure of 75 percent reduction in wave energy was used to estimate the impact that potential plans would have on existing damages.

Plan 1 - Rubble Mound Facing - This plan consists of constructing a rubble mound facing along both piers. The stone facing attenuate the waves as they propagate up the channel. It was estimated that this plan would reduce the wave height that propagate up the channel.

Plan 2 - Extension of West Pier and Facing - This plan consists of construction an 800 foot rubble mound pier extension off the end of the west pier along with 500 feet of rubble mound facing on the west pier. The purpose of the pier extension is to absorb most of the wave energy at the entrance to the harbor. This plan is slightly more effective than plan 4.

Plan 3 - Detached Offshore Breakwater and West Pier Facing - This plan is similar in concept to plan 2, except that an 800 foot offshore breakwater aligned perpendicular to the piers is also included. It is expected that the effectiveness of this plan will be similar to plan 2.

Plan 4 - Spur Breakwaters - This plan consists of constructing three pairs of rubble mound spur breakwaters extending outward from the existing piers. The cumulative effect of the spurs will result in a significant level of wave height reduction.

ANALYSIS OF PLANS

The benefits for the analysis, grouped into low (recreational) and high (commercial) priority outputs, are the same for all plans.

A number of potential alternatives were investigated to reduce wave surge problems at Rochester Harbor, New York. However, insufficient benefits were identified in the report to warrant the need for further improvements to the existing Federal navigation project at this time. In addition, recent private construction of a breakwater at one of the major marinas will reduce wave surge related damages occurring at one location within Rochester Harbor. Analysis of the impact of benefits related to this construction indicates that sufficient low priority (recreational) benefits remain to show economic viability for two plans (plans 1 and 4). However, insufficient high priority benefits were substantiated to warrant a Federal interest to continue study of the wave surge problem.

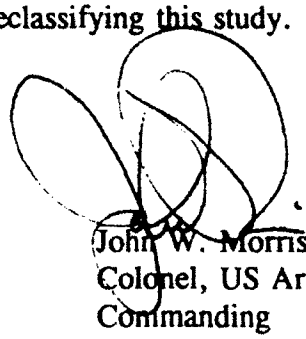
RECOMMENDATIONS

The city of Rochester has provided a Letter of Intent, dated February 19, 1992, to cost-share future studies and the proposed project. However, based on this preliminary analysis and Department of Army policy, there are insufficient benefits to warrant Federal interest to continue study of the wave surge problem at Rochester Harbor, N.Y. Therefore, the selected plan is the No Action plan.

PUBLIC COORDINATION

Copies of this Preliminary Reconnaissance Report will be provided to other Federal, State, County, and local agencies and offices that were active in the development of this report. Copies of this report will be distributed to local libraries, where they will be available for review by the general public. Additional copies of the report can be obtained (for the cost of reproduction) from the U.S. Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161; (703) 487-4650.

Comments are requested, no later than 45 days following the date of this notice. All comments will be considered as a part of reclassifying this study.



John W. Morris
Colonel, US Army
Commanding

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1 Introduction

1.1 Study Purpose: This letter report was initiated in response to a resolution by the Senate committee on Environment and Public Works, 101st Congress, Second Session (Adopted March 27, 1990). The resolution is quoted in the shaded area.

> "Resolved by the Committee on Environment and Public Works of the United States Senate, that the Board of Engineers for Rivers and Harbors is hereby requested to review the report of the Chief of Engineers on Rochester Harbor, New York, published as House Document number 409, 86th Congress, Second Session, and other pertinent reports, with a view to determining the need for providing further improvements to the existing Federal navigation project, particularly with respect to wave surge conditions."

In addition, this preliminary investigation was directed to concentrate on high priority outputs (i.e. commercial navigation) to determine if they are sufficient to justify pursuing a Reconnaissance Study. This letter report answers the question, "Are there sufficient benefits to justify a project, and are there significant benefits coming from high priority categories to warrant further Corps of Engineers participation?"

1.2 Study's Scope: This preliminary investigation was limited in scope at the direction of higher authority, until the question of justification could be answered. Funds were limited to $75,000 and the agreed upon direction of the investigation was to determine the nature and magnitude of the potential high priority outputs attributed to reducing the wave surge problem at Rochester Harbor.

Only limited plan formulation and engineering analyses were done. The engineering investigation was limited to reviewing previous plans and developing a very preliminary estimate that would be illustrative of what it might cost to reduce the wave surge problems in Rochester Harbor. Consequently, the working papers which support this preliminary analysis are not included as an appendix to this report.

These working papers are available for review; however, to hold the cost of this investigation down, they have not been organized into an appendix format. In addition, the Corps of Engineers is appreciative of the city of Rochester who did most of the primary data gathering necessary to estimate the benefits.

1.3 Background: Rochester Harbor is located on the south shore of Lake Ontario at the mouth of the Genesee River. The navigable portion of the river extends about three (3) miles upstream from the lake. The harbor has an authorized entrance channel depth of 24 feet below Low Water Datum (LWD), a river channel depth of 23 feet below LWD upstream to the Stutson Street bridge, a river channel depth of 21 feet below LWD to the upstream limit of the project, and two turning basins of 23 and 21 feet below LWD. The project is currently maintained to a depth of 20 feet below LWD in the entrance channel and 19 feet below LWD in the river channel and outer turning basin. The inner turning basin is not maintained. Historically the river from the Stutson Street highway bridge north to the confluence with Lake Ontario has experienced both commercial and recreational activities. Over the years, there have been shipyards, foundries, railroad terminals, yacht clubs, the Rochester-Monroe Country Port Authority, a resort and an amusement park located in this reach of river. Currently this portion of the river, (Figure 1), is predominantly bordered by marinas, yacht clubs and city-owned land, consisting of a boat launch ramp and beach park on the west bank. There are 893 permanent-based slips in seven private marinas. In addition, there are four launch ramps sites with seven launch ramp lanes.

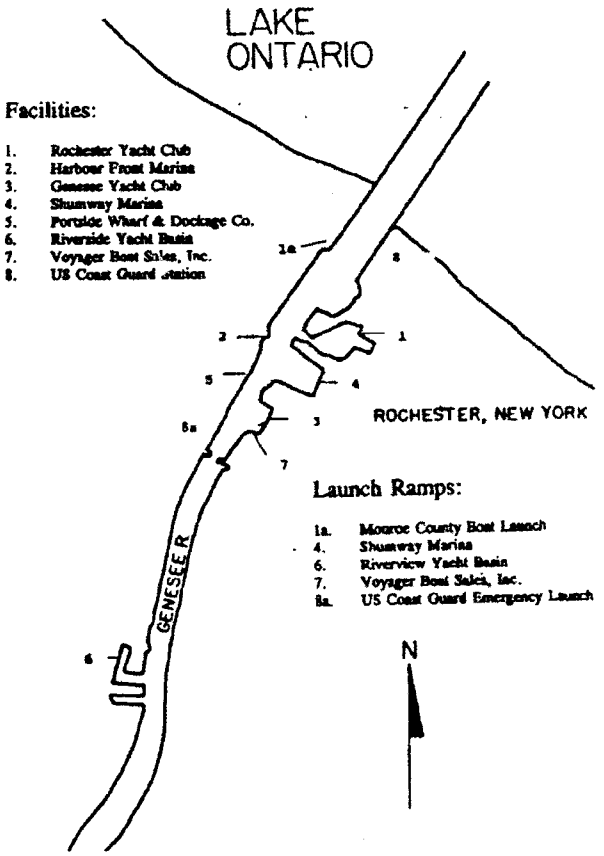


Figure 1 - Location of Marinas and Ramps

Pier fishing is available on both the U.S. east and west piers. The piers are of sheet

pile construction, stone filled with a concrete cap. A total of 5,770 feet of fishing access is available on these two piers. Combined with other fishing sites, there are about 6,240 feet of fishing access. This, coupled with a New York State fish stocking program (salmon & trout), makes recreational fishing at Rochester an important commodity.

In May 1987, the Corps did an Initial Appraisal Report under Section 107 of the 1960 River and Harbor Act of possible improvements for recreational navigation. The results of that analysis were negative because of lack of economic justification. This was a very limited investigation completed with little field investigation. The existing Federal improvements at Rochester Harbor were solely for commercial navigation. However, the primary commercial traffic at the harbor is the annual movement of about 240,000 tons of cement. Although cement is the only commercial commodity of significance, the regional impact of losing this commodity is so serious that maintenance of the commercial harbor remains justified.

The city of Rochester has plans for a $100 million waterfront revitalization along the lower reaches of the river which is dependent upon construction of a Federal project to reduce the wave surge problem. Unfortunately, this is the area most affected by lake surges during storms. The development is keyed to the construction of measures that would reduce the wave surge. City representatives have indicated that such development is critical to the continued economic vitality of Rochester. Their studies indicate that there is significantly more demand for berths for recreational craft than there are currently available.

2 Problems and Needs

2.1 Surge Problem: The primary surge problem is created by storms with strong northeast winds. Since Rochester's parallel sheet-pile walled piers extend northeast into Lake Ontario, they provide no protection from northeast storms. In fact, they channel the wave energy further upstream and exacerbate the waves by reflecting them within the harbor. This causes significant damage to structures and boats using the areas adjacent to the river.

While northeast winds are not the prevailing winds in Rochester, when they occur, they often produce some of the largest waves (up to 8 feet). Because of Rochester's location on the south shore of Lake Ontario, northeast winds have about 70 miles of lake in which to fetch waves. This, combined with the fact that the northeast storms often last for several days, results in the largest waves having unhindered access to Rochester's harbor. The orientation and sheet-pile construction of the piers makes the situations worse by reflecting and amplifying the waves. This results in very rough and dangerous conditions along the piers, where the small boats moor until the storm is past. According to the city of Rochester, the wave conditions in the Federal turning basin opposite the old Port Authority can be worse than those in the lake.

The District received survey questionnaires from 47 boaters who reported storm damage to their boats. The Rochester Yacht Club did not participate in the survey; therefore, it is expected that there are more boats being damaged than were surveyed. This survey did not address those boaters that use Rochester as a harbor of refuge. Considering that small craft using Rochester as a harbor of refuge would tend to moor to the piers, Rochester's ability to function as an adequate harbor of refuge is in question during northeast storms. This is exacerbated by the fact that the existing marinas are also restricted from mooring boats during these storms. Consequently, boats that use the harbor for refuge, often experience damage.

Damage is not limited to just those seeking shelter. The marinas experience damage to their facilities, experience damage to their customer's boats, and expend significant resources tending the boats during storms. In addition to storm damage, the marina's business is restricted because they have docks that they can not use and because their existing slips must be wider to afford adequate protection during storm surges. This has reduced the number of slips which they can operate.

The Coast Guard, which operates a station on the east bank of the Genesee River, had to move the location of their emergency craft to the west side of the Genesee River because of the wave problems in the lower river. This has significantly increased the Coast Guard's response time for emergencies because they now must drive across a swing bridge to get to their rescue boat. This has resulted in response times as long

as one hour.

Further, the primary commercial user, cement boats, will not enter or leave the harbor during northeast storms. Although these delays do not appear to be significant, they do illustrate the seriousness of the problem.

2.2 Community Plans: The city of Rochester plans to develop a small boat harbor with 75 slips near the site of the old Port Authority and build 230 boat slips along the west bank of the river (see Figure 2 on the next page). However, the surge problem is so severe in this area that the plans are not feasible without additional protection. In addition, the existing local marina's business is restricted because of the severe waves which occur during northeast storms.

The planned development includes a hotel complex which will be integral with the small boat harbor. The City expects a significant portion of the hotel's traffic to be from recreational boats. They also expect the hotel to be used extensively by boaters that use Rochester as a harbor of refuge during lake storms. In fact, the City noted that the storms that cause the worst surge often last several days. Consequently, they expect boaters who are escaping a bad storm to spend the night. Also of interest is that the City expects to attract significant Canadian boaters from Toronto, who can come to Rochester, spend the night, and possibly do some shopping.

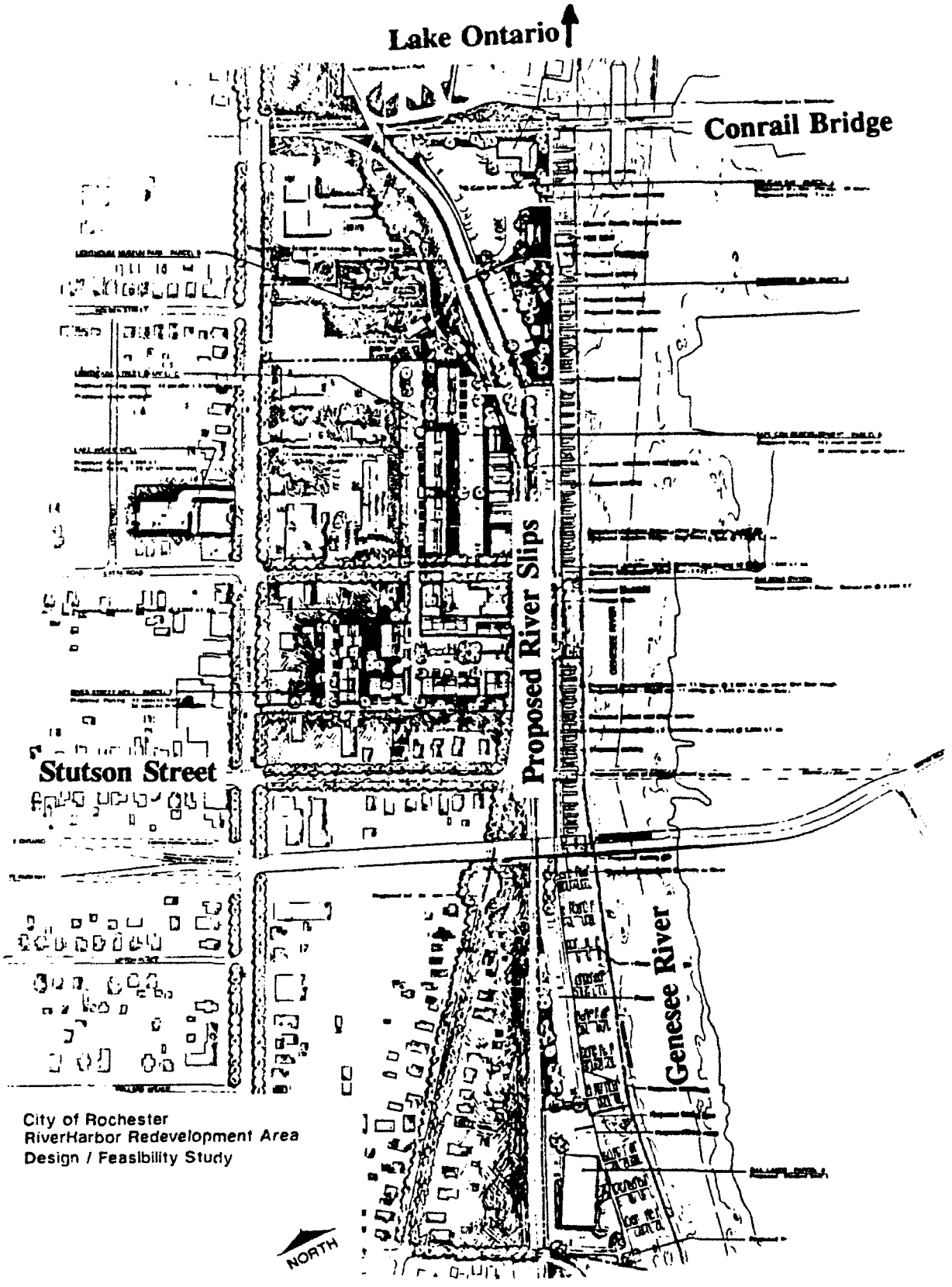


Figure 2 - Proposed Plans for River Slips

3 Investigations & Evaluation

The investigation was limited to estimating the potential benefits and reexamining the alternatives previously formulated. The District developed a survey questionnaire to assist in estimating the total damages. The administration of the survey and all the data gathering was done by the City. Because of the City's assistance, the District was able to develop a much better estimate of the total damages. The District did limited plan formulation and engineering for this Preliminary Reconnaissance Investigation. The alternatives which are used in this report are based on either the previous Section 107 or the judgement of the District's Coastal Engineering staff. The cost estimates are only preliminary and are intended only for the purpose of determining the order of magnitude necessary to solve the problem. No environmental review was done, and coordination was limited to the potential local sponsor, the city of Rochester.

3.1 Benefit Methodologies: The commercial activity in Rochester Harbor consists of: charter boats, fishing (both recreational and subsistence), and marinas. Each of these suffer damages during storms, with northeast storms being the most serious. The benefits associated with these were estimated by comparing the damages that would occur with a project to those damages that would occur if no project were built. Although limited detailed plan formulation was done for this preliminary analysis, the District's technical staff is confident that a project could be designed to reduce the damages by 75 percent based on a correlation to wave energy. The District relied on the experience of its coastal engineers to estimate the 75 percent reduction because sufficient study funds were not available to do the necessary frequency analysis to develop a relationship between wave height and damage. Also the District used the data as it was received in the damage surveys.

3.1.1 Recreational Boating - The benefits associated with recreational boating were measured based on the concept of "willingness to pay". The net "willingness to pay" values used in this analysis were obtained from a survey conducted in the fall of 1988 in Olcott Harbor, N.Y. The City's surveys identified a total fleet of 1,149. Although there is no change in trailer drawn boats expected between the "with" and "without" project conditions, trailer drawn boats are expected to benefit from the project. Based on trends in boater registrations, the District estimated that there is a deficit of about 350 slips in the county area around Rochester. Although one of the marinas has slips available, they are not used because of the surge problem. This report presumes that additional slip development along the Genesee River would only occur with a federal project in place.

3.1.2 Recreational Fishing - The benefits associated with recreational fishing were calculated based on seasonal peak and non-peak fishing days. It is important to

Table I - Unit Day Values for Recreational Fishing as per FY-91 U.S. Army Corps of Engineers Guidance

	Type	Peak $	Non-Peak $
Without Project Conditions	General Recreation	$ 4.20	$ 4.20
	Specialized (Salmon)	$ 16.16	$ 16.16
With Project Conditions	General Recreation	$ 4.77	$ 4.77
	Specialized (Salmon)	$ 17.22	$ 17.22

note that the peak fishing was salmon fishing. The benefits were calculated based on unit day values. The unit day values used are shown in Table I. The peak and non-peak values are assumed identical because interviews with area people indicated that the fishing conditions are not crowded. The unit day value was applied to the number of fishing visits estimated under the "with" and "without" project conditions. Fishing visits were estimated based on: length of fishing access, one fisherman per 60 feet, a turnover rate of 2 per day, and a season length from 1 April to 15 October. Consequently, increases in accessible fishing areas will result in an increase in the fishing benefit.

3.1.3 Charter Boats - There are 50 charter captains operating on the Genesee River. There are six full time operators, with the remainder being part time charters. Of the 50 charters operating, 23 of them operate from trailer drawn boats. The benefits calculated for charter boats were based on differences in net incomes between the "with" and "without" project condition.

3.1.4 Subsistence Fishing - The benefits for subsistence fishing which was considered a high priority output were done in accordance with ER 1105-2-100. Increases in this category are directly attributable to increased access to the water.

3.1.5 Damages Avoided - The damages avoided fall into two categories: physical storm damage to boats and marinas; and the loss of revenue to marina operators.

Storms damage the facilities of the marinas and boats of the individual boaters. To estimate these damages the District developed a questionnaire. The questionnaire was distributed with the help of the city of Rochester. Based on the questionnaire and damage data collected by the City, the District developed an estimate of the total damages sustained by marinas and individual boaters. The District received

completed survey questionnaires from 47 boaters who reported physical damage to their boats. The average boat damage was $1,040. The damages ranged from $25 for snapped lines and tie downs to $6,500 for hull damage. The District also received damage information from the three primary marina operators. The District did not receive responses from members of the Rochester Yacht Club or boaters that routinely seek refuge in Rochester Harbor. No adjustment was made to estimate damages suffered by those boaters. In addition, the information obtained from the boaters was assumed to be an average annual damage.

The marinas lose business because of the wave surge problems. They are unable to use all their docks because they are not adequately protected. Additionally they must space their docks/slips wider than normal because the wave surge causes such rough conditions in their marinas. This results in a continuous loss of income to the marina operators. The increased revenues, which the marinas projected if the surge was

Table II - Assumed Average Annual Damages Reported by Three Marinas Surveyed at Rochester Harbor.

Assumed Average Annual Damages at Marinas			
Types of Damages	**Marina 1**	**Marina 2**	**Marina 3**
Lost dockage (Net Income) *	$ 59,400	$ 69,000	0
Maintenance Costs	$ 30,000	$ 75,000	$ 15,000
Boat Tie-downs	$ 10,000	0	$ 2,500
Monitoring Wave Surge	$ 75,000	0	$ 2,500
Total	**$ 174,000**	**$ 144,500**	**$ 20,000**

*** Note: The gross (lost dockage) income was adjusted by the associated costs (Marina 1 = $ 24,000 and Marina 2 = $ 34,900) to achieve the net (lost dockage) income. The associated costs represent items, such as, operation and maintenance costs.**

controlled, were adjusted by removing the associated costs of attaining the usage. The result was counted as a high priority benefit and is summarized in Table II.

Damages to public facilities were also included in this damage category. They were estimated to be $16,000. The primary contributors to this damage category are the U.S. Coast Guard station and debris removal.

3.1.6 Harbor of Refuge - Some benefits for a Harbor of Refuge at Rochester

Harbor were taken. Since boaters consider Rochester a Harbor of Refuge, the actual benefit may be greater, because for northeast storms it is not safe to tie up in the Federal turning basin or along the U.S. Piers.

3.1.7 Breakwater Cost Avoided - The State of New York plans to build a breakwater to protect their boat launching ramp, under without project conditions. If the Corps constructs a project to protect the harbor from wave surge, this breakwater will not be required.

3.2 Plans: Four alternative plans, to reduce wave surge problems, were investigated. The plans are shown on plates 1-4 at the end of this report. Two plans were similar to those considered during the Section 107 initial appraisal. Other plans were developed to identify a solution that would either be more effective or have a lower cost. Although none of the plans investigated would reduce the **wave height** by 75 percent, the **wave energy** would be reduced by between 75 and 97 percent. Also wave energy levels correlate more closely to the actual damage than wave height levels. Therefore, a conservative figure of 75 percent reduction of wave energy was used to estimate the impact the plans would have on existing damages. The Corps relied on the experience of its coastal engineers to estimate the 75 percent reduction because sufficient study funds were not available to do the necessary frequency analysis to develop a relationship between wave height and damage. Also the Corps used the data as it was received in the damage surveys.

Plan 1 - Rubble Mound Facing - This plan consists of constructing a rubble mound facing along both piers. The stone facing attenuate the waves as they propagate up the channel. It was estimated that this plan would reduce the wave height that propagate up the channel by approximately 60 percent.

Plan 2 - Extension of West Pier and Facing - This plan consists of construction an 800 foot rubble mound pier extension off the end of the west pier along with 500 feet of rubble mound facing on the west pier. The purpose of the pier extension is to absorb most of the wave energy at the entrance to the harbor. This plan is slightly more effective than plan 4, see Table III.

Plan 3 - Detached Offshore Breakwater and West Pier Facing - This plan is similar in concept to plan 2, except that an 800 foot offshore breakwater aligned perpendicular to the piers is also included. It is expected that the effectiveness of this plan will be similar to plan 2, see Table III.

Plan 4 - Spur Breakwaters - This plan consists of constructing three pairs of rubble mound spur breakwaters extending outward from the existing piers. The cumulative effect of the spurs will be a wave height reduction of approximately 70

percent.

Rudimentary wave calculations were done to estimate the overall effectiveness of each plan. All plans will reduce the 20-year boating season wave heights to four feet or less within the turning basin and upstream. Table III shows the impact each plan will

Table III - Range of Expected Wave Heights within the Harbor, in feet.

Condition	2-Year	20-Year	100-Year
Existing	3-6.5	4-9½	5-10½
Plan 1	1½-3	1½-4	2-4½
Plan 2	½-1½	1½-3	2-4½
Plan 3	½-1½	1½-3	2-4
Plan 4	1-2	1½-3	2-4

have on the wave heights in the harbor. It should be noted that wave heights near the piers can be higher due to reflection. None of these plans are expected to have an adverse impact on commercial navigation.

Table IV - First Costs and Average Annual Costs of Plans, Sept. 1991 price level, based on 8 3/4 percent discount rate.

First Costs and Average Annual Costs of Plans				
	Plan 1	**Plan 2**	**Plan 3**	**Plan 4**
First Cost	$5,200,000	$8,300,000	$8,300,000	$3,300,000
Average Annual Cost	$ 554,000	$ 884,000	$ 884,000	$ 351,000

3.3 Costs: Very preliminary cost estimates were developed for each plan to establish the magnitude of the project necessary to solve the surge problem. Table IV shows the estimated cost of each plan and its equivalent average annual cost.

Corps of Engineers guidance provided after the submittal of the draft preliminary reconnaissance report to higher headquarters, changed the discount rate from 8 3/4 percent to 8 1/2 percent. This change will result in slightly reduced average annual costs.

3.4 Economic Analysis: The benefits for this report were grouped into low (recreational) and high (commercial) priority outputs and are of identical magnitude for all plans. The average annual low priority (recreational) benefits for boating and fishing were substantial. Although two plans (1 and 4) have been identified as being economically feasible, analysis and review of the high priority benefits failed to provide sufficient economic justification for any of the plans to warrant further Federal involvement. The data was not sufficiently developed to provide enough benefits for Federal support any of the proposed plans. The U.S. Army Corps of Engineers has determined that sufficient justification for continuing study does not exist and that further expenditure of Federal funds is not warranted.

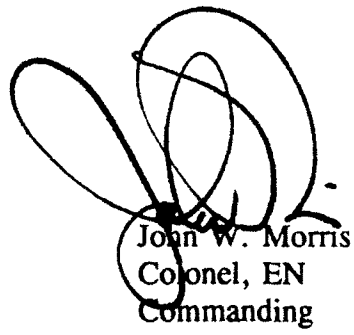
4 Conclusions

The project has a viable local sponsor, the city of Rochester, who has worked closely with the District to gather the data to produce this report. The city of Rochester has provided a Letter of Intent, dated February 19, 1992, to cost-share future studies and the proposed project.

A number of potential alternatives were investigated to reduce wave surge problems at Rochester Harbor, New York. However, insufficient benefits were identified in the report to warrant the need for further improvements to the existing Federal navigation project at this time. In addition, recent private construction of a breakwater at one of the major marinas will reduce wave surge related damages occurring at one location within Rochester Harbor. Analysis of the impact of benefits related to this construction indicates that sufficient low priority (recreational) benefits remain to show economic viability for two plans (plans 1 and 4). However, insufficient high priority benefits were substantiated to warrant a Federal interest to continue study of the wave surge problem.

5 Recommendations

The city of Rochester has provided a Letter of Intent, dated February 19, 1992, to cost-share future studies and the proposed project. However, based on this preliminary analysis and Department of Army policy, there are insufficient benefits to warrant Federal interest to continue study of the wave surge problem at Rochester Harbor, N.Y. Therefore, the selected plan is the No Action plan.



John W. Morris
Colonel, EN
Commanding

Correspondence

Letter of Intent

CENCD-PE-PD-PF (CENCB-PE-PF/25 Sep 91) (1105) 10th End
Mr. Glanz/cld/(312) 886-6050
SUBJECT: Preliminary Reconnaissance Report, Surge Problem
Rochester Harbor, New York (CWIS #10332)

Cdr, North Central Division, U.S. Army Corps of Engineers,
111 North Canal St., Chicago, IL 60606-7205 3 DEC 1992

FOR Cdr, Buffalo District, ATTN: CENCB-PE-PF

1. The HQUSACE review comments on the supplemental economic analysis documentation (9th endorsement) are referred. After supporting three unsuccessful efforts to convince HQUSACE that there is justification for continuing the Rochester Harbor study, we have concluded that further expenditure of funds is not warranted. We think it unlikely that you would be able to develop an acceptable, high priority output project for implementation.

2. The information you provided during advance coordination of the HQUSACE memorandum (18 November 1992, existing supplemental information) failed to identify any new data or justification for the need for further improvements at Rochester as was requested in the 9th endorsement. Therefore, you should provide the results of the work accomplished to the local government for their use.

3. Following that you should await further guidance on study termination based on our 4 November 1992, request to HQUSACE to reclassify the Buffalo, New York (NFTA) study (also authorized under Section 103 of WRDA '90).

4. The HQ, NCD, POC is Mr. Christopher Glanz, CENCD-PE-PD-PF, (312) 886-6050.

FOR THE COMMANDER:

JOHN P. D'ANIELLO, P.E.
Director, Engineering and
Planning Directorate

13 Encls
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13. nc

CF (wo/encls):
CECW-PC

City of Rochester

FAX (716) 428-6042
TDD/Voice 232-3260

Bureau of Planning
Department of
Community Development

City Hall, Room 010-A
30 Church Street
Rochester, New York 14614-1290

January 14, 1992

David McPherson
Project Manager
U.S. Army Corps of Engineers
Buffalo District
1776 Niagara Street
Buffalo, New York 14207-3199

Dear Dave:

Enclosed is an article dated January 3, 1993 which appeared in the Rochester Democrat and Chronicle and which dealt with the construction of a $230,000 breakwall by Shumway Marina, located on the east bank of the Genesee River, just north of Stutson Street. The article documents some of the problems that Frank Shumway has had in recent years regarding the river surge problem and his efforts to deal with it. As you can see from the article, he has or is spending a great deal of money to try and solve this problem as it relates to his own business operation. He has lost many customers in the meantime and has suffered some financial losses as well. I thought the article might be useful to you in further explaining or documenting, to those that are still unconvinced, some of the cost benefits that would arise out of the construction of a surge protection structure at the mouth of the Genesee River. As you know, Shumway Marina's situation with respect to the surge problem is by no means unique.

If possible, I would appreciate an update on the status of the Corp's river surge study and a description and timetable for the next phase or phases of the project that you expect to undertake. Your thoughts or current reading on how likely the construction of an actual project is would also be appreciated. Please let me know as soon as possible. Thanks.

Sincerely,

Doug Benson
Associate City Planner

DSB:d
DEC/BOP
enclosure

xc: L. Stid, Director of Planning

Winter hotlines
Mon. County fishing: 716-987-8800
Wayne County: 315-946-5466
Orleans County: 716-682-4223
Rare bird alert: 716-461-9593

OUTDOORS

Local
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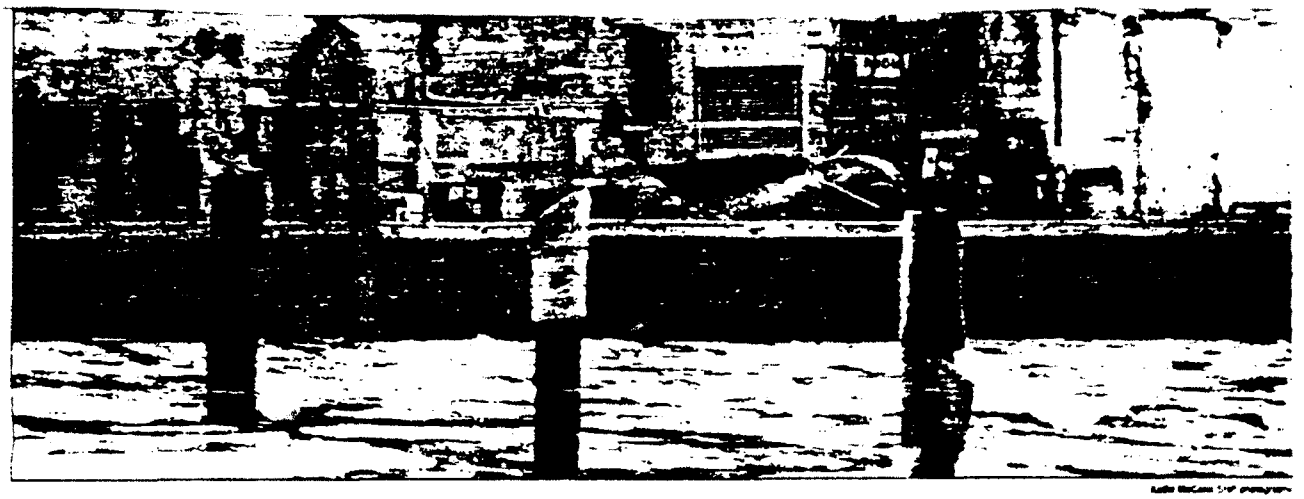
Sunday

SUNDAY, JANUARY 3, 1993 Democrat and Chronicle



Workers with Dissen and Juhn Corp. of Macedon drive steel pilings to construct four steel-and-concrete breakwalls on the east side of the Genesee River at Shumway Marine

Marina girds for river's surge

Dock breakwall for Shumway's costs $230,000

By Jim Cooter
Staff writer

A Rochester marina owner is spending almost a quarter of a million dollars to protect his business from the effects of storm surge on the Genesee River.

Frank Shumway Jr., president of Shumway Marine on the river's east side at the Port of Rochester, is installing four steel reinforced concrete breakwalls at the mouth of the marina's boat basin.

Water surge in the river, most pronounced during storms out of the northeast, has resulted in several hundred thousand dollars of damage to boats and equipment at the marina the last several years, Shumway said.

Surge is the rise in water level of the river from waves generated up to 60 miles north into Lake Ontario. It can vary the water level of the river two feet or more in heavy storms.

"I couldn't wait any longer," Shumway said. "For years we've been waiting for something to happen with a breakwall out by the pier. But the surge problem has been costing us business. We had to do something."

Shumway's boat basin, between the marina's main buildings and the old Conrail railroad right-of-way to the north, can accommodate 212 boats.

Three years ago, Shumway said, he had a waiting list for customers. This month between 40 and 50 slips remain unreserved.

"We've lost business because of it," he said. "Opening up Irondequoit Bay has had some effect on us, but not like the surge problem."

Shumway Marine is the Rochester area's largest marina. Several dozen of its customers own boats in the 30- to 50-foot range.

"Customers who report damage from storm surges," said Sandy Converse, marina business manager, "have had thousands of dollars worth of damage to their boats. One customer who owned a 38-foot powerboat had more than $4,000.

"He's gone."

Even Shumway's boat had damage. Repairs to his 25-foot Bertram totaled more than $4,000, she said.

"Every time there's a storm out of the northeast," Converse said, "you have to be out there and babysit your boat."

Shumway said one storm generated so much water surge two years ago that it toppled a crane off a barge on the west side of the river.

Damage to piers, docks, breakwalls, underwater slabs and warehouses have been reported by other facilities along the mouth of the river, including Ontario Beach Park, the Monroe County water quality monitoring station, the county boat launch on the river's west side, the Rochester Yacht Club and O'Loughlin's Restaurant.

Even the U.S. Coast Guard Station is affected. During a northeast storm, the Coast Guard moves its 44-foot motor life boat upriver to a more sheltered site.

"I don't sleep well nights when the wind's out of the northeast," Shumway said. "Surge is especially damaging to sailboats because of their keels."

Converse said one 37-foot sailboat sustained $6,500 worth of damage over two seasons. Another, a 41-footer, sustained $2,600. Both were tied up along Shumway's 'B' dock, on the southern side of its basin near its boat hoist.

"There's a real safety concern, too," Converse said. "When people are tending their boats until 3 a.m., they get tired and weak. Sooner or later someone is bound to be seriously hurt."

Four five-foot-wide breakwalls are being constructed across the end of the marina's four dock sections, at the same height as existing docks.

They vary in length from 75 to 199 feet, allowing access to the basin through three 44-foot-wide areas.

"We could have made the openings smaller for boats, but we also need to get a barge and dredge in there," Shumway said. "We could narrow them up as much as 20 feet if we had to."

Since the marina was built 25 years ago four breakwalls of varying sizes and strengths have been destroyed by the river.

I was a member of the Local Waterfront Redevelopment Pla and the county's commission on th waterways," Shumway said, "an both placed a top priority on build ing a breakwall to reduce the surg

"We're still waiting."

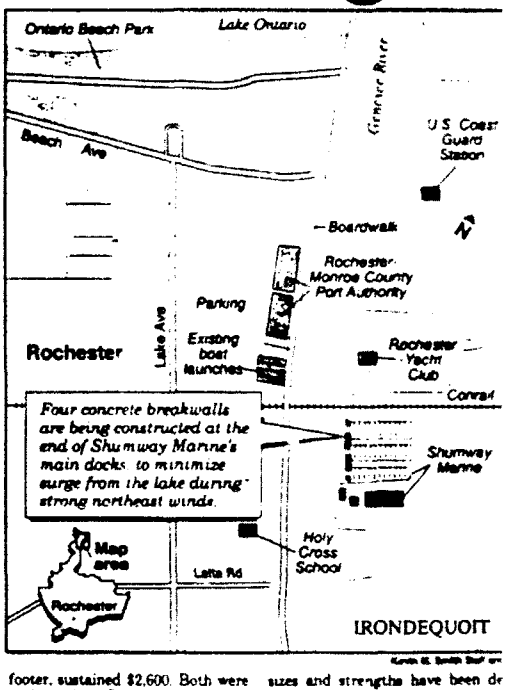
Shumway said he polled his cu tomers a year ago to determine the primary concerns, and surge dam age was No. 1 by far.

"The sheer force of the water ha been such that none of the ol breakwalls we had were lasting Shumway said. "This time we using a double-cell steel design.

"It should virtually eliminate th problem."

Marine contractors Dissen an Juhn of Macedon, Wayne Count are doing the work. The contract for $230,000. Completion is sche uled for April 1.

Don Stevens, crew foreman, welds top of piling during construction.



MONROE COUNTY

Department of Parks

Robert L. King
County Executive

Dean D. Spong
Director of Parks

November 16, 1992

John Morris, District Commander
U.S. Army Corps of Engineers
Buffalo District
1776 Niagara Street
Buffalo, New York 14207-3199

Re: **Monroe County Boat Launch - Ontario Beach Park**

Dear Mr. Morris:

The Monroe County Parks Department supports efforts to provide surge protection for the Genesee River at Lake Ontario.

Our position relates to the continuing surge problems experienced at the Monroe County boat launch facility on the Genesee River at Charlotte. Since construction of the boat launch in 1983, the water movement in the river has scoured and undermined the facility, requiring continuous monitoring and substantial on-going repairs.

In 1989, the Parks Department had to replace the entire center ramp which had deteriorated due to severe undermining. This repair was completed by Parks personnel at an estimated cost of $25,000. We expect these types of repairs and costs to be on-going as long as the river surge remains a problem.

The river surge was also identified as a problem in the 1988 Ontario Beach Park/Port of Rochester Master Plan. The plan recommended that the boat launch be protected from river surge by a pier structure estimated to cost $365,240 in 1987. If the Army Corps does not take action to address the surge problem, the County will have to commit resources to protect its investment at the boat launch.

We would prefer a solution to the river surge that addresses the entire river, rather than just the launch facility, as this would benefit all property owners in this area. The cost savings to the County in capital improvements and on-going maintenance would be substantial.

171 Reservoir Avenue • Rochester, New York 14620 • (716) 256-4954 • Fax (716) 256-4968

Please contact me should you require further information on this subject.

Sincerely,

Dean David Spong
Director of Parks

DDS:lcj

cc: Thomas P. Ryan, Mayor
Jeffrey Swain, Commissioner of Community Development
David McPherson, U.S. Army Corps of Engineers
William Foster, Deputy County Executive
Rocco DiGiovanni, Director of Planning and Development
David Rinaldo, Park Planner
Dennis Vercolen, Superintendent of Parks

City of Rochester

TDD Voice 232-3260

Thomas P. Ryan, Jr.
Mayor

City Hall, Room 307-A
30 Church Street
Rochester, New York 14614-1284
(716) 428-7045

February 19, 1992

Colonel John Morris
Commander, Buffalo District, U.S. Army Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207-3199

RE: ROCHESTER SURGE STUDY

Dear Colonel Morris:

The City of Rochester has received a letter from Mr. George Brooks, P.E., Chief, Engineering and Planning Section of the U.S. Army Corps of Engineers Buffalo District, in which he requested information about our intentions regarding future cost-sharing activities for the Rochester Surge Study. As you know, this study is investigating the surge problem in the Genesee River and will recommend potential solutions.

The City is very interested in this project. The City's development plan for the River Harbor Area, as outlined to the Corps in our Local Waterfront Revitalization Program (LWRP), cannot be fully implemented without a surge protection structure in the Genesee River. The proposed 75-slip transient marina and 230 boat slips along the west bank of the river cannot reasonably be constructed and maintained unless a surge protection structure is built at the river outlet.

Based on information in Mr. Morris' letter, as well as discussions between City and Corps of Engineers staff, it is our understanding that:

(a) A Draft Preliminary Reconnaissance Report for the Rochester Surge Study has been completed which indicated favorable cost/benefit ratios for potential projects.
(b) The next phase of the study is the Reconnaissance Phase which is completely federally funded. The Recon Phase is expected to take 12 to 18 months to complete and should be finished by the end of 1993.
(c) At the end of the Reconnaissance Phase, a non-Federal sponsor for the project will be identified. This sponsor could include the City of Rochester, Monroe County and the State of New York, as well as local towns.
(d) The non-Federal or "local" sponsor will be asked to sign a Cost-sharing Agreement for completion of the Feasibility Phase of the study. As the non-Federal sponsor, the City and any other local sponsors will be required to bear 50% of the cost of the Feasibility

Phase. One-half of that cost may be in-kind services. The specific in-kind services to be provided and their dollar value will be negotiated as part of the Agreement. A current estimate of the local sponsor (City) share of the Feasibility Phase is $500,000, with $250,000 of that total being in-kind services. It is estimated that the local sponsor will be asked to contribute some money for the Feasibility Phase during the 2nd quarter of calendar year 1993.

(e) The local sponsor will also be asked to share in the costs of project construction. The local share could be over $1,000,000, depending on how the project is defined.

The City acknowledges and understands our responsibilities regarding potential cost-sharing for this project. The City is capable of executing the necessary agreements and can provide its share of project costs as outlined above. We will be undertaking discussions with Monroe County, the State of New York and local towns regarding a project partnership which will share local sponsor costs for design, engineering and construction. If agreements with other potential local project sponsors cannot be reached, however, the City is prepared to be designated as the sole local sponsor, commit to its share of project costs, sign the necessary Cost-Sharing Agreement, and undertake the project with the Corps.

If you have any questions about our committment to this project, or feel that any of the information outlined above regarding the sequence of project events is incorrect, please call Larry Stid, Director of Planning, at (716)-428-6953, or Doug Benson, Associate City Planner, at (716)-428-6824. We look forward to continued cooperation with your office and the Army Corps of Engineers in the speedy completion of this important study and project.

Sincerely,

Thomas P. Ryan, Jr.
Mayor

TPR:d
0034D/OIS

xc: C. Lindley, Deputy Mayor
J. Swain, Commissioner, Department of Community Development
L. Stid, Director of Planning
D. Benson, Associate City Planner
G. Brooks, P.E., Army Corps of Engineers
D. MacPherson, Project Manager, Army Corps of Engineers