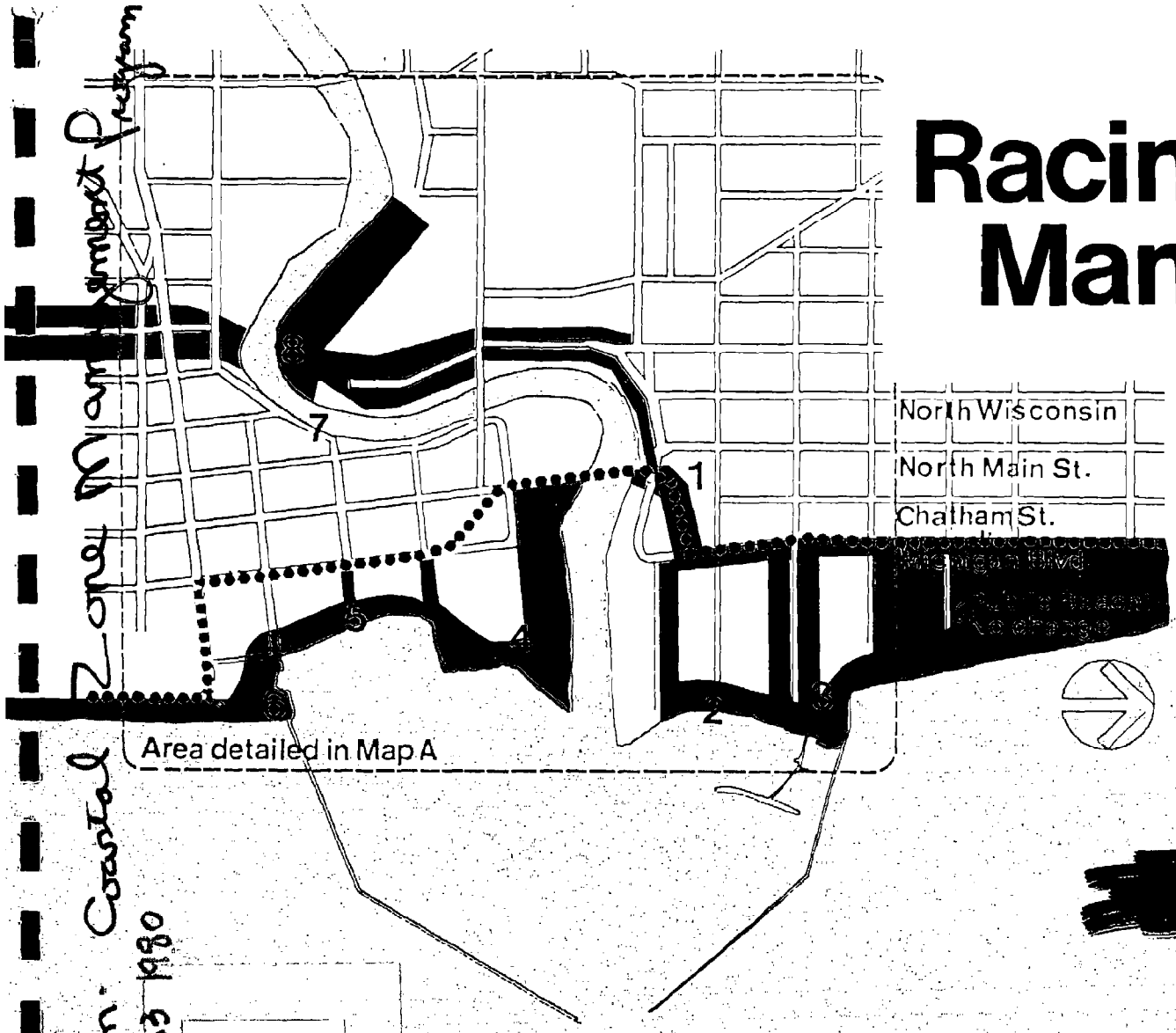
Racine Harbor Management Study



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Wisconsin. Coastal Zone Management Program
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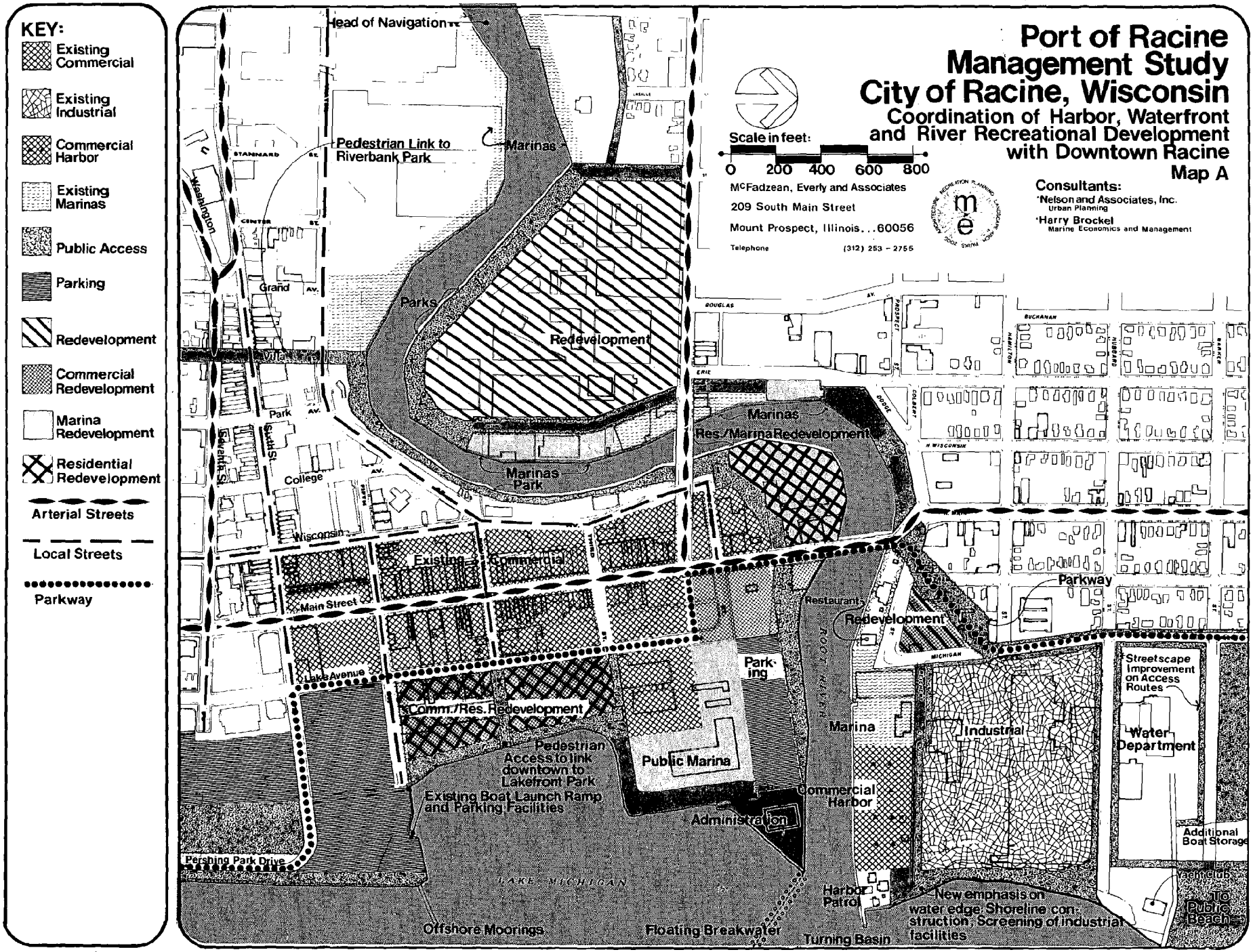

KEY:
Existing Commercial
Existing Industrial
Commercial Harbor
Existing Marinas
Public Access
Parking
Redevelopment
Commercial Redevelopment
Marina Redevelopment
Residential Redevelopment
Arterial Streets
Local Streets
Parkway
Port of Racine
Management Study
City of Racine, Wisconsin
Coordination of Harbor, Waterfront and River Recreational Development with Downtown Racine
Map A
Scale in feet:
0 200 400 600 800
McFadzean, Everly and Associates
209 South Main Street
Mount Prospect, Illinois...60056
Telephone (312) 253 - 2755
Consultants:
Nelson and Associates, Inc.
Urban Planning
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Pedestrian Link to Riverbank Park
Marinas
Parks
Redevelopment
Marinas Park
Marinas Res./Marina Redevelopment
Existing Commercial
Main Street
Lake Avenue
Comm./Res. Redevelopment
Pedestrian Access to link downtown to Lakefront Park
Existing Boat Launch Ramp and Parking Facilities
Public Marina
Parking
Restaurant
Redevelopment
Parkway
Marina
Industrial
Commercial Harbor
Administration
Streetscape Improvement on Access Routes
Water Department
Additional Boat Storage
Yacht Club
To Public Beach
Harbor Patrol
New emphasis on water edge. Shoreline construction. Screening of industrial facilities
Turning Basin
Floating Breakwater
Offshore Moorings
Pershing Park Drive
LAKE MICHIGAN
Washington
Grand
Park
College
Wisconsin
Sixth St.
Seventh St.
Villa
Stannard St.
Center St.
Douglas
Erie
Buchanan
Michigan
Root River

Racine Harbor Management Study

US Department of Commerce
NOAA Coastal Services Center Library
2234 South Hobson Avenue
Charleston, SC 29405-2413

Consultants:

- **Nelson and Associates, Inc.**
  Urban Planning
- **Harry Brockel**
  Marine Economics and Management

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In Cooperation with:

THE WISCONSIN COASTAL MANAGEMENT PROGRAM

Financial assistance for this study has been provided through the Wisconsin Coastal Management Program, by the Coastal Zone Management Act of 1972, administered by the Federal Office of Coastal Zone Management, National Ocean and Atmospheric Administration. The Wisconsin Coastal Management Program is administered in the office of Coastal Management, Wisconsin Department of Administration.

McFadzean, Everly and Assoc.

209 SOUTH MAIN STREET, MOUNT PROSPECT, ILLINOIS 60056
Established in 1935 Telephone 312 · 253 · 2755

THIS IS OUR
45 TH
ANNIVERSARY

May 12, 1980

Mr. James J. Blazek, P.E.
City Engineer
Engineering Department, City Hall
730 Washington Avenue
Racine, WI 53403

Dear Mr. Blazek:

It is with pleasure that we submit herewith the Harbor Management Plan for Racine, Wisconsin.

We, together with our consultants, Harry Brockel and William Nelson and Associates, have enjoyed the process of working with you and the other members of the Harbor Development Committee on this project.

It is our hope that this document will prove to be a useful tool in your on-going efforts to improve Racine and its waterfront.

Sincerely,

Robert E. Everly, P.E.
McFADZEAN, EVERLY AND ASSOCIATES

REE/he

Preface

STATEMENT OF PROBLEM

Much of Racine's waterfront is a mess. South of the Root River, prime lakefront property and riverbank property is made up of used car lots, vacant property, and industrial storage areas.

The downtown portion of the Root River is, for the most part, inaccessible to the public.

Immediately north of the Root River, a blighted area disrupts what should be a natural link between the intensity of Downtown, the activity along the river, and the panorama of Lake Michigan.

One of Racine's most splendid assets, the beautiful stretch of park and beach between the Racine Yacht Club and the Racine Zoo, is handicapped by its relative inaccessibility. An awkward circulation system complicates access by car. Continuous access by pedestrians or bicycle riders to the shoreline just north of the old Coast Guard Station is inhibited by lack of paved roads, paths and other amenities. What would logically be a continuous stretch of public shoreline (it is in fact, all publically owned) between the old Coast Guard Station and the Racine Zoo, is physically blocked.

In brief, much of Racine's waterfront is ugly. And it is fragmented. That ugliness and fragmentation can be very costly to Racine.

A few years ago, Tenneco, the corporate conglomerate of which J. I. Case Co. is a major subsidiary, gave serious consideration to locating its headquarters in Racine. Ultimately, they turned Racine down and built a handsome skyscraper elsewhere.

We don't know all of the factors that contributed to that decision. Suffice it to say, however, that in our interview with Case officials, the ugliness of the surrounding environment was the major reason given for a reluctance to recommend major new corporate investment in downtown Racine.

It seems reasonable to assume that J. I. Case is not the only firm that perceives Downtown Racine in that way, and makes their investment decisions in accord with that perception.

Racine has paid, appears to be paying, and may continue to pay a very high price for the appearance of ugliness and fragmentation. The interface of Downtown and waterfront only works in spots, such as existing boating facilities, or the Chartroom Restaurant. Overall, the interface of Downtown and the waterfront, just doesn't work. It's too chopped up. It doesn't fit together.

It is perhaps difficult to put a precise dollar figure on what this ugliness, choppiness, lack of fit between Downtown and waterfront has cost Racine. But a hundred million dollars in capital investment is probably a conservative ballpark figure. And that's just bricks and mortar. How many jobs were not created? How much money didn't flow into the local economy?

Whatever the dollar cost, Racine has paid dearly for its neglect of the waterfront. Not that serious efforts have not been made. A far-sighted acquisition plan for lands adjoining the waterfront is being carried out by the City's Community Development Department.

A handsome comprehensive master plan for the central city area was prepared by highly qualified planners in 1975.

Still, something seems to be missing. Some critical mass needs to be achieved. Some catalyst is needed to pull together enough existing components of the city into a coherent whole, big enough and visible enough to make the critical difference. Hence, these recommendations.

Recommendations: We suggest the following limited and specific actions be taken:

1. Unify all harbor management functions, including safety operations, under the County Parks Department.

2. Maintain the existing commercial docking facility at the Pugh wharf.

3. Develop new marina facilities to generate increased boater spending in Racine.

a) 300 new private slips on the Root River, using portions of the Western Publishing Tract and the J. I. Case tract for land based support.

b) Convert part of the storage area of the Wisconsin Natural Gas Company to marina use.

c) Quadruple the mooring capacity of Racine Harbor by installing self-amortizing star moorings.

d) Consider eventual use of floating star moorings in Pershing Harbor.

e) Experiment with a floating tire breakwater (F.T.B.) in the southern portion of Racine Harbor as an alternative to the more costly Corps of Engineers breakwater.

4. Encourage development of Case property as high density housing with marina services.

5. Maintain existing Marquette Street, State Street and Main Street Bridges.

6. Implement eleven development projects for a waterfront-oriented park system (refer to Map C).

A. North of Root River (see maps D and E).

1. Parkway linking Main Street Bridge and beach.

2. North Harbor Waterfront Park.

3. Link between Waterfront Park and beach.

B. South of Root River (see map F).

4. Marina, Waterfront Park Administration, Park and Trail along Root River.

5. Downtown Waterfront Park.

6. People Park by existing boat launch ramp.

C. Root River (see maps G, H and I).

7. Waterfront Trail to link with Root River Corridor.

8. Linear or Cluster Parks on Case property.

D. Pershing Park, Gateway Technical Institute and Harbor (see map C).

9. Pershing Park Shoreline.

10. Overflow launch ramps.

11. Overlook Parking south of Roosevelt Park.

These actions are intended to accomplish several goals. Economically, they are intended to generate private investment in the redevelopment of Downtown and the North Side. They are intended as the catalyst that will tip the visual balance from ugliness, fragmentation and neglect to beauty, rational relationship and an environment that looks as if someone cares about it.

The potential economic benefits are made up of more than just capital investment in new buildings or the adaptive re-use of existing buildings.

By expanding the number of boats that can be moored along the Root River, the Racine Harbor and Pershing Harbor, Racine can generate a substantial inflow of dollars into the community from boaters. Although marina users spend more than the owners of trailerable boats, there are more of the latter than the former. Total expenditures in Racine will be greater from launch ramp users because there are so many more of them.

The potential economic consequences of the actions we are recommending are only part of their purpose. We are also concerned with the public good. That may be expressed in terms of the attractiveness of the overall urban environment, public access to the river and lake, number of miles of continuous, water-oriented trails and other factors.

The overall goal of the public good as it relates to the waterfront is clearly stated in the Land Use Plan for the City of Racine:

"The Root River and Lake Michigan, together with appropriate shorelands, are regarded as major recreational and scenic resources, which are to be protected from pollution and encroachment and made accessible to a maximum number of persons."

We agree. That goal needs to be achieved by specific actions. Our recommendations spell out those actions. The physical consequences of these recommendations can be quantified:

..941,500 square feet of newly developed waterfront park system.

..A continuous waterfront trail system that may eventually link with a proposed 11-mile county trail system along the Root River Environmental and Recreation Corridor.

The economic consequences can also be quantified:

..100 million in private investment in Downtown and North Side redevelopment.

..Conversion of industrial land uses to high density residential, condominium, marina and business use. Industrial land often sells for $15,000 an acre. High density residential /commercial/marina property can sell for as much as $300,000 an acre.

There are other consequences which are more difficult to quantify. The quality of life does not reduce to a cash nexus. What value do we assign to the pleasure of moving unimpeded along the diverse environment of both the urban and

natural shoreline of the Root River and Lake Michigan? How can we put a dollar value on the refreshment of the spirit which comes from walking through a Downtown and its waterfront endowed with historical meaning and natural beauty?

Conversely, how do we count the cost to our sensibilities of having to live in an environment that is ugly and disorienting?

Racine's waterfront has its problems. But they are solvable. There are substantial rewards, both economically and otherwise, for taking action to solve those problems.

In the hope of improving the economic prospects of Downtown Racine and the North Side, as well as improving the overall quality of life in Racine by integrating the waterfront into the overall urban fabric, we respectfully submit these recommendations.

Warren Wood

Warren Wood
Vice President
McFadzean, Everly and Associates

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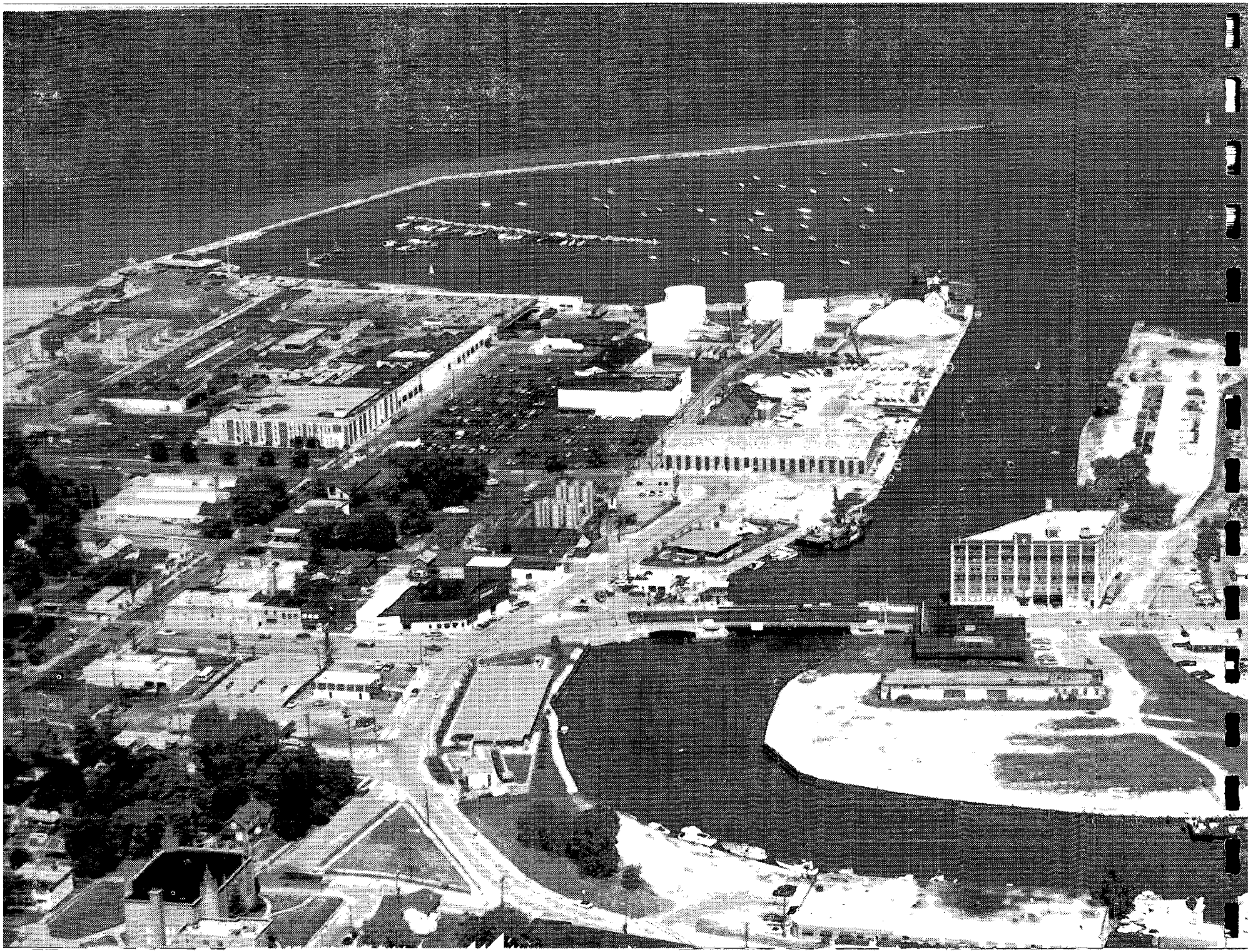


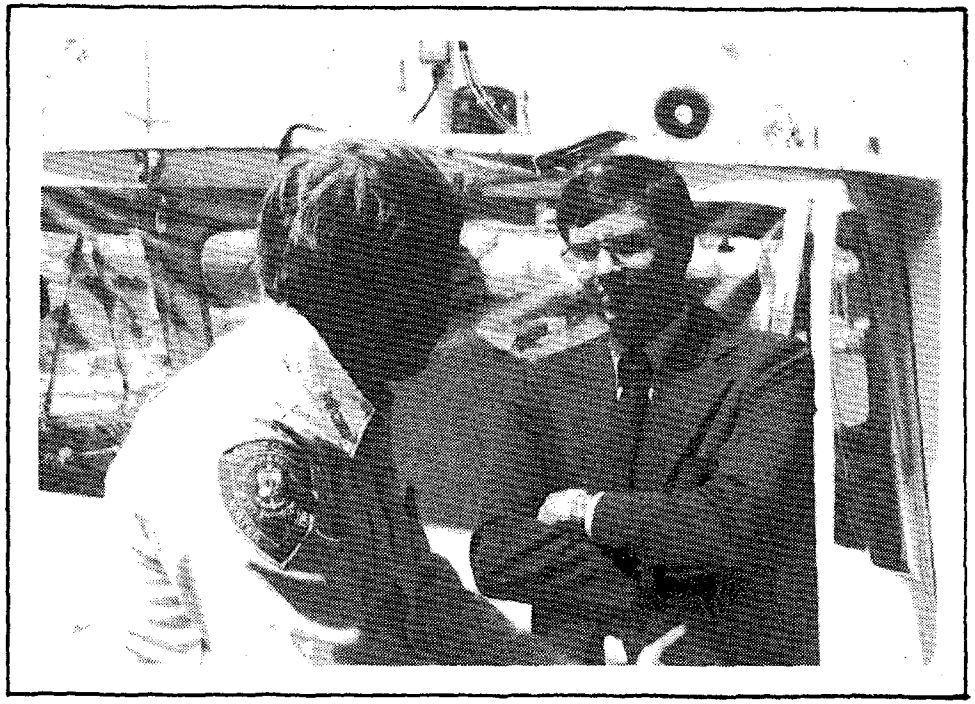
Port of Racine Management Plan

View east of northern portion of Racine Harbor. Along the shoreline, from the left, are: southern tip of public beach, Racine Waterworks and Racine Yacht Club, Walker Manufacturing, Pugh gasoline storage tanks, old Coast Guard Station (Racine County Harbor Patrol), salt pile at commercial wharf, Pugh's Peerless Marina, site of now completed Charthouse Restaurant, treatment plant, Main Street Bridge. Airpix aerial photos courtesy, Mr. Thomas Wright, Racine Community Development Department. (Photos taken July 22, 1977.)

1

Unify all harbor management functions, including safety operations, under the County Parks Department.

The water safety operation (Harbor Patrol) is already operated by Racine County. To simplify and coordinate waterfront management, we suggest that all harbor management functions be unified under the County Parks Department. This seems particularly logical in view of the fact that many of the waterfront users will be, not just city residents, but residents of Racine County.



DESCRIPTION OF THE EXISTING ARRANGEMENTS

The Racine harbor presently functions through a variety of private and public accommodations. They are described in each of the following categories.

Commercial Harbor

The City of Racine has a statutorily organized Harbor Commission, but it currently functions in only a minimal way because the only facilities for commercial water commerce are not public but are privately owned and managed -- the Pugh wharf along the north side of the Root River confluence with Lake Michigan.

In fact the Harbor Commission has not met for over a year. The limited authority granted to such a Commission under 30.37 of the Wisconsin Statutes does not allow the Commission to expand into other harbor activities such as pleasure boating, recreational fishing, or management of water safety. The County may not organize a harbor commission so long as the City has one.

Details of the function of the Pugh wharf are described in the chapter outlining Racine's present and prospective commercial harbor traffic.

Water Safety

Upon closing of the U.S. Coast Guard facility at Racine the County of Racine assumed the operations, using the same physical facilities on the east end of the Pugh wharf, and maintaining the same kind of boats. The County officers are trained to function as would the Coast Guard, and in fact maintain a close liaison with the Coast Guard stations at Milwaukee and Kenosha. Officers work long extended schedules in the boating season in exchange for time off during the winter.

Yacht Club

A private yacht club leases city land at the north end of the inner harbor. In addition to the club building which includes a restaurant, piers are maintained by the club as well as some off-shore can moorings. Silting north of the breakwater has filled in what once was a crane operation by the club for placing into and removing boats from the lake. The club does not offer drydock or maintenance.

Boat Launch Ramps

Both public and private launch ramps serve the Racine Harbor for trailerable boats. The City of Racine operates the highest volume facility on the lakefront in the south corner of the inner harbor. Several private ramps are located along the Root River in connection with more extensive private marina services.

Marinas

No public marina exists at Racine, in contrast to the public marinas prevalent at Chicago and Milwaukee.

A major 200+ slip marina is currently under consideration by the City of Racine in connection with a U.S. Corps of Engineers proposal to build breakwaters inside the existing outer breakwaters, to create a more sheltered harbor under certain wind conditions. All planning on the marina has presumed it would be public.

All marinas presently serving Racine are privately operated, and all except the yacht club are on the Root River. Some maintain slips in the river and some also offer drydock storage. Some of the can moorings in the inner harbor are placed by the river marina operators. Maintenance is offered and is reported to be able to compete very well with Chicago marinas because total labor charges are lower at Racine.

Parks and Recreation

The Lake Michigan coastline of Racine has extensive public park space, though none of it occurs within the confines of the harbor breakwaters, nor along the Root River in the Downtown area.

Immediately to the north of the harbor is the swimming beach. South of the breakwaters, in the general vicinity of the Gateway Technical Institute, is Pershing Park which provides views of the Lake.

Fishing by non-boaters is done from the breakwaters, with parking taking place near the private Racine Yacht Club to the north, and in the boat launch area to the south.

While the City has a well established city park system, the County parks department has gradually been assuming responsibility for parks of a regional nature, such as golf courses. The lakefront area represents a management issue as to whether it most equitably should be operated by the City or whether because of its regional appeal it should be transferred to the County.

PROPOSED MANAGEMENT PLAN

In Racine's case the key management issues are two in number: to relate private and public responsibilities, and to establish among the public agencies a suitable role for each.

Our recommendations are as follows:

Private Harbor Facilities

All existing private facilities are functioning well, both as independent operations, and in their relationships to the public functions of the harbor.

No evidence was advanced, nor did our research uncover, any reasons to discourage continuation of the private commercial wharf or the private marina and yacht club operations. Local Government accepts and supports their existence, and has no desire to usurp their functions.

There is an adverse aesthetic aspect of the salt pile and petroleum storage tanks on the private commercial wharf which will be difficult to minimize. It is probably an unavoidable price that must be accepted in exchange for keeping a commercial wharf. At least the east facing shore can and should be improved by the public as recommended later in this report.

In the case of the private marinas on the Root River, some expansion room remains, and they should be allowed to achieve that expansion as economic conditions permit, subject only to our later comments on the need for some park space access to the river for non-boater, and continued normal city controls through zoning.

Some pause before more private expansions occur is likely as the boating market goes through some adjustments. These adjustments, according to interviews with the marina operators, relate to possible trends away from the largest boats with their fuel consuming engines, away from motor craft in general to sailboats, and away from polyester and similar petroleum derived hull materials to other materials, including a return to wood.

In the case of the Racine Yacht Club, it occupies a key tract of shoreline which will always be immensely attractive to the public and over which the public should rightfully always have paramount responsibility and control. Nevertheless the club performs a semi-public function and shields the taxpayer from some of the private expenses of mooring boats in the harbor. Other communities have seen the wisdom followed by Racine in allowing such a private use of public lands, and the arrangement continues to work well.

The greatest danger is that the public eventually may inadvertently yield up its responsibility and control, finding itself in difficult straits to reassert its rights. Therefore, use by the yacht club of this strategic public location should only be by moderate term renewable leases that spell out clearly several basic public policy issues.

The most essential policy issue is that the land is recognized to be public and the paramount rights to the land remain with the public. Non-discrimination practices should be required of the club through the lease, as well as the club's cooperation with the public in matters of safety, coordinated harbor operations, and recognition by the club of its aesthetic responsibilities.

Public Harbor Facilities

Commercial - City Harbor Commission

In a preceding recommendation we are endorsing continuation of the private commercial wharf. Our projections indicate activity of the wharf will remain limited for the foreseeable future. These factors, coupled with the current and past inactivity of the City Harbor Commission, cause us to recommend that the Commission be disbanded.

A County harbor commission can be organized under the Statutes if the city commission disbands. However, in the next section we are recommending an expanded County recreational role on the lakefront. Therefore, rather than create a harbor commission that must be coordinated with the County park commission, we suggest here that the park commission assume the single role for all harbor functions, including the safety patrol. Liaison with the Coast Guard, with the commercial wharf, and with the upstream marinas should be vested in the County park commission. Should barge transportation expand in the Racine Harbor, requiring the need again for a harbor commission, organize one under the County, keeping it tightly coordinated with the park commission, such as by appointing the same members to each.

Recreational

Boaters and fishermen travel substantial distances to enjoy their sport. As a result Racine's harbor ramp and mooring facilities provide service to users coming from far beond the City limits. In fact, at present the moored type of boats in the harbor and river are predominantly from out of state.

This pattern of usage raises the fundamental question of whether the City alone can or should try to operate a recreational harbor.

The safety operations are already a County function. The County is also the logical provider for specialized recreation facilities serving many municipalities. A harbor would fall into that class.

From a purely land use standpoint the City has the greatest stake in the harbor area, and rightfully should want to retain certain kinds of controls for itself over the harbor.

But the recreational aspects of a harbor take on a proprietary function in which the City need not necessarily exercise a paramount role, especially if the operation must be subsidized.

Our analysis of the Corps of Engineers plan is that it will take very substantial subsidy by the sponsoring governmental unit. User revenue will only pay a minor fraction of capital and operating cost. Even an alternate plan we suggest that is fiscally less demanding, will only break even on user revenue.

For these reasons we recommend that the City, through long term lease, negotiate to have the County become the provider of lakefront recreational opportunities.

The purpose of going the route of a lease rather than outright deeding title to the land is to retain for the City certain controls over use of the land in which it rightfully should continue to be interested. These include some of the powers often expressed through zoning and planning laws such as aesthetics, and include other practical matters such as utility easements.

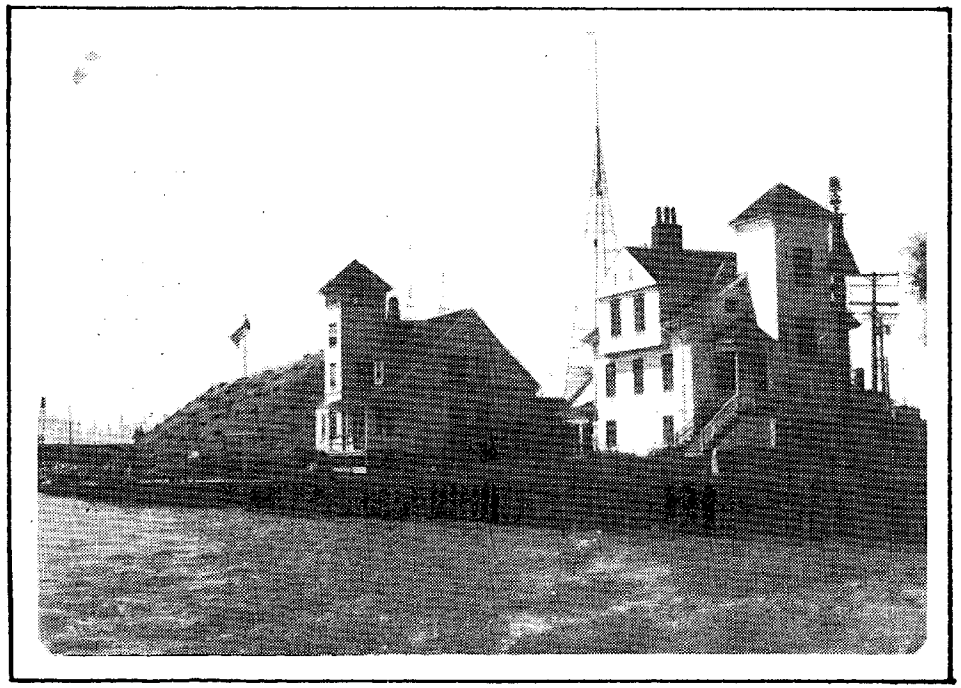
These series of recommendations if followed will make the County the principal lakefront agency, with important continued roles for private facilities, and retaining for the City those crucial controls it would want to exercise to assure compatibility of its lakefront to the downtown and other nearby land uses.

Waterborne Commerce Potential

2

View west of Racine North Side. Commercial wharf with salt pile and Pugh gasoline storage tanks are at bottom edge of photo.

Maintain existing commercial docking facility.



View northwest of Pugh wharf with salt pile behind Harbor Patrol station.

It is natural and logical for a community located on a navigable waterway, to aspire to expand its commerce, to profit from maritime activity, and to flourish as a trading and mercantile center, not only for its own environs, but perhaps for a sizable hinterland as well.

For some communities these aspirations are well-founded; for other they can be quite illusionary. In all cases, before a locality deepens its channels, purchases costly waterside sites, builds even more costly port facilities, and launches port promotional programs, it would be well-advised to survey its possibilities in optimistic but totally realistic terms.

It is our purpose to survey the potentials for Racine's port in such optimistic but pragmatic manner.

THE GREAT LAKES TRADE

For about a hundred years, from 1850 to the 1950's, the Great Lakes teemed with a great and colorful variety of shipping. Small ships and small ports had a role in that busy era of diversified shipping, which embraced the age of sail and steam and the opening of new frontiers and vast resources, mineral and agricultural.

During the first half of the 20th century, the fleets which plied the Great Lakes included package freighters, bulk carriers, self-unloaders, passenger ships, car ferries, barges, auto carriers, and Great Lakes/canal motorships. There were huge fishing fleets. There were "crane ships" for handling pig iron, steel and scrap. Small package freighters specialized in hauling salt or fruit. There were sand dredges which served as carriers for the sand and gravel they lifted from the lake bottom.

As the petroleum age arrived, the tanker came on to the Great Lakes scene in numbers, but these too are waning as pipelines displace them. In 1960, 97 tankers were listed in Great Lakes registry; by 1980, fewer than 30 will still be operative, and mostly in Canadian ports.

In 1930, the Lake Carriers Association listed 921 ships, U.S. and Canadian, plying lake waters. Of these 832 were freighters, rated for carrying capacity, at an average of 5400 tons per vessel.

By 1978, the grand roster of 921 ships in lake waters had dropped to 312 ships of all types -- 609 of these ships had gone into history, mostly via the scrapping process.

Fleet trip capacity rose from 4.5 million tons to more than 5 million tons, with only 40% of the number of bottoms. Trip capacity per ship had leaped from 5400 tons to 17,700 tons. The transition can be summed in the simple phrase "Fewer and much larger ships."

By the middle 1970's, the passenger ship had vanished from lake waters. So had the package freighters; the auto carriers; most of the "crane ships," for pig iron, steel and scrap. Long gone were the lake/canal motorships which had linked the Lakes with the Atlantic seaboard via the New York State Barge Canal System. The car ferries on Lake Ontario, Lake Michigan and the Detroit River were called a "vanishing species," with only a few survivors extant. The lake tanker fleet is declining rapidly in numbers.

In 1930, men to the number of 25,000 found lucrative employment as the officers and seamen who manned the lake fleets. Now that roster is down to 10,000, and dwindling as automated ships are built and the 1000-foot leviathans replace smaller lake bulk carriers.

Particularly in American waters, lake shipping has principally been a reflection of the needs of the steel industry -- which is the big transporter of iron ore, taconite, coal and limestone. These commodities provide seven-eighths of lake bulk cargo volume, with grains averaging about one-eighth.

Many older ships of moderate size are gone. Some usable older ships have been "jumboized" to sizes beyond the 730-foot length preferred for the Lakes/St. Lawrence River trade. Most important of all to lake shipping economics is the emergence of the thousand-foot giant laker, with beam of 105 feet and about 60,000 ton carrying capacity, double that of the 730-footer that preceded it. A supersize lock at Sault Ste. Marie became the key to this newest technological development in lake shipping. Too big to transit the Welland Canal or the Seaway locks, these giant ships are landlocked into the four upper Great Lakes. Obviously, few ports on the lakes are designed to serve the new 1000-footers and their 32-foot draft requirements.

Earlier in this century, Racine like other lake ports, shared in a varied and colorful lake trade. Coal and building materials were active. Large passenger ships ran between Racine and Milwaukee. The port was active in the fruit trade, in fisheries, and in other kinds of lake traffic.

Given the composition of the Great Lakes fleet and traffic patterns, and the great loss of diversity that has occurred, it is apparent that Great Lakes traffic is now predominantly iron ore, taconite, coal and limestone, primarily for the steel trade and for coal-burning utility plants. The remaining traffic is concentrated in building materials (limestone, slag, cement, sand) and petroleum (gasoline and fuel oils), and grain. The latter trade is functional only in ports that have marine shipping or receiving elevators.

The passenger trade is extinct; carferries a vanishing species. The automobile carriers are gone. Iron, steel and scrap are decreasing on the lakes, even as steel production reaches new heights. The lake transport system trends rapidly and primarily to mass movement of industrial raw materials. Practically all other traffic has vanished from the lakes, due to changed methods, ship obsolescence, or successful competition by land route carriers.

A recent development is a successful barge technology -- machinery from Milwaukee to Chicago and beyond; petroleum; steel from the south end of Lake Michigan to receiving ports like Milwaukee.

THE SEAWAY TRADE

Although Racine as a port has not had an active role in Seaway shipping, it may be useful to document this aspect, the trends in Seaway trade, and current effects on Lake Michigan ports.

Many ports on the Great Lakes, large and small, visualized economic bonanzas to come from the opening of the St. Lawrence Seaway in 1959. The fact remains that the two commodities primarily moving on the Seaway are iron ore (or taconite) moving into the lakes from Eastern Canada; and grain, moving easterly to St. Lawrence River transshipment points, or overseas in direct bottoms. Iron moving west and grain moving east has created a balanced trade opportunity for goodly numbers of lake bulk carriers, U.S. and Canadian, with ships of correct Seaway operational dimensions. Iron ore and steel ports are obviously the principal participants.

General cargo tonnage, to which many lake ports large and small aspired for prestige and for economic reasons, reached a peak of 8,582,000 tons in 1971. In 1978, when Seaway tonnage reached a new peak of 63 million tons, approximately 60 million tons were bulk and only about 3 million tons were general cargo.

A little recognized aspect of the Seaway general cargo trade is that this is predominantly composed of iron/steel imports into the lake region from overseas competitors to the lakes mills. In 1974, when Seaway general cargo was 4,522,000 tons, 80% of it was iron/steel imports. In 1976, before "trigger pricing" was introduced to protect domestic steel, 73% of Seaway general cargo was iron/steel.

With this predominance of iron/steel imports as the major component of Seaway general cargo, it is obvious that the lake ports are competing for a relatively small tonnage of the prestige types of general cargo traffic: autos, machinery, textiles, foodstuffs, wines, liquors, and the spectrum of manufactured or processed goods.

The Seaway has meaning for those lake ports with steel mills, or with export grain elevators, or those that are regional distribution centers such as Toronto or Chicago. For most other ports, its potentials never were realized or have declined as at Milwaukee. Seaway general cargo peaked from 1968 to 1972, but fell off rapidly thereafter, for reasons that summarize as follows:

Fast containership competition on the ocean trade routes.
Hard-core competition from Atlantic and Gulf ports, experienced and highly professional in their marketing endeavors.
Dramatic development and expansion of competing salt water ports.
Rail rate structures favorable to salt water gateways.
Flight of American flag ships from the Seaway trade route.
U.S. Department of Defense resistance to use of lake ports.
Trends to new ships too big and too deep for Seaway locks and channels.
Seaway seasonal limitations, unacceptable to some shipping lines and many major shippers.
Rising costs to build and operate ships for a seasonal trade.
Impact of the interstate highway system which provided a high-speed linkage between midwest shippers and ocean ports with a broader base of shipping services.
Rising Seaway pilotage costs, lockage charges, and tolls.
Multiple ports of call in the lakes, versus trend to centralizing ports of call in the oceans.
Lock and canal navigation, versus trend to high-speed ocean express steamer service.
Rising operating costs, especially fuel and crewing.
Land bridges, notably Canadian National Railway from Halifax to Detroit-Chicago-St. Louis, paralleling the Seaway.

Beginning in 1967, two dramatic technological developmens changed the face of world shipping. One was the fast containership which by the early 1970's was handling over half of world general cargo. The other was the advent of the "supership," first tankers

and then other bulk carriers. The new shipping technologies swept the globe, leaving the Seaway far behind, unable to serve the new concepts in tankers, bulk carriers, fast and large containerships, LASH vessels, cryogenics, and other specialty cargoes. Great fleets of ships appeared on the oceans, too large to transit the Seaway, while the trend was repeated in the lakes themselves, with giant bulk carriers too large to transit the Seaway outward, and bound within the upper lakes for the foreseeable future.

As evidence of the decline in Seaway opportunities for lake ports, and especially the secondary and tertiary ports, we cite the following.

In 1969-1970, Milwaukee was served by 54 separate ocean lines or services, operating to practically all parts of the world. Sixty ocean shipping services made Chicago their westerly terminus in the Seaway trade. Current issues of the JOURNAL OF COMMERCE list only a handful of lakes-ocean services.

Several Russian and German lines, which operated in the Seaway trade, terminated service after the 1978 season. To summarize, Chicago and Milwaukee, which had up to 60 regular ocean services in 1969/1970, now have at very best, about ten services, some of which do not qualify as liner services.

U.S. FLAG SERVICE IN THE SEAWAY TRADES

American-flag steamship services, operating on "essential trade routes" as determined by the U.S. Maritime Administration, are eligible for substantial federal financial assistance. These include construction differential subsidy when new ships are built; operating differential subsidies to offset U.S. higher operating costs; and mortgage assistance in financing vessel construction at very low interest rates, with mortgage guarantees by the government.

Several essential trade routes have been established for Seaway trade lanes. Despite this inducement, American-flag lines have been diffident in getting into Seaway operations, or staying in them. A number of lines have come and gone, including Grace Lines, American Export Lines, Moore-McCormack, the Great Lakes Bengal Line, Waterman Steamship Lines, Farrell Lines, and M S T S (Military Sea Transport Service, U.S. Department of Defense).

As of 1979, the only American flag service in the Seaway is Lykes Brothers, currently advertising tri-weekly service to the Mediterranean (Red Sea, Persian Gulf, Indian Ocean ports on inducement). It is reported that this service has been well received, and cargo offerings substantial. Occasionally Lykes has had to supplement the service with extra sailings.

Thus, of eight American-flag services that have ventured into lakes ports and midwest trade, there is one lone survivor, Lykes.

Many midwest shippers, including prominent Racine exporters, sincerely desirous to support lake ports and the Seaway, state that the paucity of regular services on usable schedules, has compelled them to turn to ocean gateways in order to secure choice of services and regularity of sailings, adequate to their needs. In other words, the more Seaway steamship services shrink, the more uphill becomes the battle to persuade the shipper to support Seaway service.

Increasingly, the Port of Chicago, in spite of its tremendous loss of Seaway general cargo and shipping services, is emerging as the "load center" for southern Lake Michigan. Certain ships for example which call at Chicago, do not make Milwaukee a port of call, despite its past history and strength as an attractive general cargo port.

For "outports" their role in the Seaway shipping picture must be as "ports of call on inducement." In order to attract an ocean vessel, an attractive parcel of cargo must be available; if it is, and conditions are right, a ship will make the call. Special ores for example are moving out of Ludington on ocean ships; frozen cherries from Muskegon; beans from Bay City; cherries from Traverse City. Special lots of machinery are sometimes involved in special ports of call, inward or outward.

It used to be that a cargo offering of 300 to 500 tons or more could qualify for an inducement call by a salt-water ship. Today the tonnage of cargo is less important than the revenue needed to justify the call. The ship needs to be assured of $30,000 or $50,000 (or more) to justify a special call at an "outport." In other words, a modest tonnage of high-rated cargo, or a large tonnage of low-rated cargo, will induce a liner or a tramp to call at an outport not in its regular itinerary.

Currently, there are no indicators to suggest a role for Racine in serving ocean ships or Seaway cargo. Therefore, this element can be eliminated in planning the future of Racine's waterfront lands.

WATERBORNE COMMERCE POTENTIAL FOR RACINE HARBOR, WISCONSIN

During the 10 years 1968-1977 (latest available) commercial tonnage at the Port of Racine was approximately 123,000 tons in 1968; peaked at 124,533 tons in 1971; and has declined steadily since then, raching a new low figure of 53,768 net tons in 1977.

The U.S. Corps of Engineers statistics for 1977 list as commerce at Racine, two items as follows:

Fresh and frozen vegetables	358 tons
Meat, fresh, chilled, frozen	3,233 tons

The Racine Harbor Master confirms that in 1977 no ocean vessels called at Racine, and no such commerce was handled at the port. These commodities apparantly are listed in error, and perhaps should have been credited to Kenosha, which handles refrigerator cargo. If this assumption is correct, the 53,768 tons of commerce credited to Racine should be reduced by 3,591 tons, to a net of 50,177 tons.

During the 10-year period, commerce declined 56.1% from 1968 to 1977.

In recent years, commercial cargo has been limited to two commodities, petroleum products and salt, presumably for highway winter salting purposes. In 1977 (latest available) petroleum deliveries by water were 32,508 net tons; and salt equalled 17,588 net tons. These two items provided 50,096 tons, out of the total harbor commerce of 53,786 tons, or about 94%. The other 6% consisted of miscellaneous small tonnages. (See footnote regarding possible statistical error.)

Commercial fisheries, due to environmental constraints, have declined almost to the vanishing point. Only 13 tons of fresh fish are credited to Racine Harbor according to 1977 statistics on waterborne commerce.

Commercial vessel movements at Racine Harbor have declined precipitously during the 10-year period reviewed (1968 is not available). In 1969, there were 1,277 vessel arrivals at the port; by 1977, there were only 125, a decrease of about 90%. These figures may appear startling, but they are explained by a drop of more than 50% in commercial cargo tonnages, plus the almost total discontinuance of commercial fisheries. Goodly numbers of fish tug movements early in the decade accounted for the early high number of vessel arrivals; their cessation largely accounts for the current low level of vessel arrivals at this port.

It should also be noted that the commercial cargoes of petroleum and salt are delivered by barge and by lake bulk freighters of moderate size. Salt is delivered by self-unloading bulk freighters with long discharging booms. These self-unloaders can flexibly deposit bulk cargo like salt in any open dock area their booms can reach. Where water depths are limited, they can position themselves in available deep-draft channel areas, somewhat offshore, and still position their booms to advantage for cargo discharge.

Both types of commercial cargo still visible at Racine Harbor, salt and petroleum, are served at the Pugh wharf at the river/harbor entrance. Salt is deposited at or near the dock face, and petroleum is piped a relatively short distance to an adjacent oil tank farm. Thus a single commercial berth is adequately serving the needs of the two commodities which survive as the commercial base of Racine's harbor traffic.

FUTURE POTENTIALS FOR RACINE HARBOR

Racine Harbor is 26 miles south of the Port of Milwaukee; 10 miles north of the Port of Kenosha; and 64 miles northerly of Chicago, which is overwhelmingly the load center for the lake, ocean and river commerce converging on Lake Michigan.

Although the commerce of the Port of Milwaukee has dropped sharply in the last 10 years, from the 7-million ton range to the 3.5 million ton range, it is still the most important harbor on Lake Michigan, north of Chicago.

Only 10 miles to the south of Racine lies the Port of Kenosha, whose port commerce is unique in that it consists entirely of high-grade general cargo moving on ocean vessels in the St. Lawrence Seaway trade. The auto industry based on Kenosha generates import and export traffic in a volume sufficient to make Kenosha a port of call for ocean lines serving Lake Michigan. These calls and aggressive promotion have led to supplementary movements of foodstuffs moving under government aid programs. A substantial movement of frozen meats has been established, competitively with the Port of Milwaukee. Thus, whereas Seaway traffic has no role in the Port of Racine, it is the dominant factor at a port only ten miles south of Racine.

The Racine area is an important producer of goods for export, including wax products, printing, farm implements and parts, auto parts, hardware and machinery. Because of reduction in shipping services in the Seaway trade, and for other reasons, much of Racine's export cargo moves via seaboard gateways. Some Racine export cargo gravitates (and has traditionally done so) via the Port of Milwaukee. Despite its eminence as a generator of high-value export goods, it is significant that Racine has not been a port

of call for Seaway shipping, and has looked to other ports, lake or ocean, to serve its needs. There are no indicators pointing to any change in this pattern. In assessing its port future, Seaway shipping will not be a factor for the foreseeable future.

As to commerce internal to the Great Lakes, Racine like other secondary ports, has found its lake-borne commerce shrinking, for reasons documented above. The lake trades are centering around five bulk commodities: iron ore, taconite, limestone, coal and grain. The first four relate almost entirely to centers of steel production, or to coal-burning utilities. The fifth, grain, centers at lake ports with shipside elevators. At present, Racine has no direct relationship with any of these factors.

As noted, its waterborne commerce base is now limited to two commodities, bulk salt and petroleum. The volumes needed are adequately served at a single wharf facility.

Viewing the Lake Michigan and Great Lakes shipping scene, three areas of change and possible growth opportunity are visible:

(1) Given the international oil dilemmas, and public challenges to nuclear power, it is inevitable that coal must assume a larger role in U.S. energy requirements. Low-sulphur coal from western origins is clearly destined for major use, especially for utilities, and probably for large-scale industry. The port of Superior, Wisconsin, is now a shipping point for western coal to utility plants in the lakes region. Lake Michigan ports may well become involved. Given the pattern of mainline railroad service, it would seem that Green Bay or Milwaukee would have primacy for such an opportunity. However, if Racine desires to continue as a commercial port, or to expand that function, it should follow developments and prepare to participate in regional planning for such eventualities.

(2) A successful barge shipping technology is developing on Lake Michigan, and cross-lake barge service is under discussion. Barges can be served in shallow-draft ports, and berthing facilities can be much more compact than those required for major vessels. Racine should have an agency, or resources, capable of following barge service developments and capitalizing on them. Barges can with facility serve for petroleum, building materials, steel, machinery, implements and similar traffic identified with Racine area industrial flow both in and out.

(3) The world demand for North American grain is expanding steadily, and grain volume through lake ports has doubled. The Lake Michigan area is strategically located to serve a significant grain producing area, and growth is indicated. Racine has no participation in this trade, and is not an obvious choice for a deep-water grain

elevator, but a discussion of port potentials would be incomplete without this citation of lake port opportunity.

Racine's present (and consistently declining) commercial harbor commerce is adequately served by a single wharf facility. A balanced waterfront plan should make provision for at least one major deepwater berth (21-foot draft or better) with no less than 600 lineal feet of frontage assigned, to serve medium-size lake freighters and present and potential barge service.

Ideally, such a facility should have both rail and highway interchange capabilities. There are no present indications of need for cranes or other cargo handling apparatus. There are no present indications of need for salt-water vessel berths or cargo handling facilities.

Table 1

COMPARISON OF WATERBORNE COMMERCE

AT THREE PORTS

1968-1977 INCLUSIVE

(all in net tons)

	MILWAUKEE	RACINE	KENOSHA
1968	6,302,718	122,571	47,030
1969	6,826,686	115,373	39,187
1970	6,980,045	117,377	24,696
1971	5,660,299	124,533	78,621
1972	5,373,630	100,192	103,648
1973	5,635,524	93,443	44,142
1974	4,263,862	74,726	82,528
1975	3,508,683	77,337	59,118
1976	3,546,707	57,243	84,378
1977	3,946,382	53,768	80,454

SOURCE: Annual Reports of Waterborne Commerce of the U.S. U.S. Corps of Engineers (for the years noted).

Table 2

RACINE HARBOR - VESSEL TRAFFIC - INBOUND

1969-1977 INCLUSIVE

Year & Draft	Passenger & Dry Cargo	Tankers	Towboats	Barge Tanker	Total
1968	N o t A v a i l a b l e				
1969 20' and less	1230	45	--	2(dry cargo)	1277
1970	1473	40			1513
1971 22' and less	1401	42			1443
1972 22' and less	946	43			989
1973 22' and less	723	39			762
1974 21' and less	685	38	1	1	725
1975 15' and less	599	8	16	15	638
1976 24' and less	249	--	15	13	277
1977 24' and less	97	--	16	23	125

SOURCE: Annual Reports of Waterborne Commerce of the U.S. U.S. Corps of Engineers (for the years noted).

Fishing and Boating Recreation Potential

3

View east of Downtown Racine and boat launch ramps.
Note tents in parking lot set up for salmonorama.

This chapter will be presented in three sections:

1. A discussion of the broad aspects of boating and fishing in the United States and Racine's environs;

2. The specific projections of marina and launch facilities prepared for Racine by the U.S. Corps of Engineers in 1974;

3. Existing and saturation capacity of Racine to physically accommodate boating.

1. An Overview of Boating and Fishing Recreation

Racine's use of its harbor for commercial purposes has progressively declined, as previously discussed and documented. Conversely, the Racine waterfront, both river and lake, has developed intensively for recreational boating and for fishing. In economic terms, it appears that the pleasure boat is today a far greater stimulus to Racine's economy, than its commercial cargo traffic, now limited to only two bulk commodities, in diminishing volume.

To bring into focus Racine's economic stake in pleasure boating, this discussion will sketch the historical growth of this activity, nationally, statewide, regionally, and locally, as to Racine.

In a recent address before a coastal recreational conference in South Carolina, Mr. Patrick Doyle, an executive of Outboard Marine Corporation, summarized the national perspective:

"The recreational boating business is comprised of 19,000 firms engaged in producing and selling marine products. This consists of 16,500 retail dealers and 2,500 marine product manufacturers. It provides jobs for 1/2 million employees, with sales exceeding $5 billion. Other facts showing the vitality of this industry include an annual payroll exceeding $2.5 billion. The value of all engine-powered boats in the nation represents an asset of $15 billion. Of great significance, ... more than 54 million Americans go boating at one time or another, each season."

At the beginning of this century, "yachting" was a pleasure identified with the wealthy of this and other countries. At one end of the spectrum was the humble fisherman in his rowboat; at the other extreme, the steam yachts of the most affluent. The outboard motor did not exist, and middle-class ownership of motorboats, cabin cruisers, and sailing craft was rare. In the last several decades, the mass production of outboard motors and boats have combined with the factors of reduced working hours, longer vacation periods, the long holiday weekend, and rising affluence, to make boating, crusing, sailing, and offshore fishing a whole new area of escape for lower and middle class Americans. A simple comparison of U.S. population and recreational boat ownership will verify that boating has progressed at a spectacular rate of growth.

From 1910 to 1979, U.S. population increased approximately 140%.

From 1913 to 1978, U.S. ownership of pleasure craft of all types, increased about 2820%. As population somewhat more than doubled, boat ownership increased by more than 28 times the 1913 factor.

The wide distribution of boats across all social levels is evidenced by these spectacular data (1978 figures of the National Association of Boat and Engine Manufacturers).

Table 3

Year	U.S. Population (Rounded)	U.S. Recreation Boats Owned	
1910	91,972,000	400,000	(1913)
1920	105,711,000	--	N/A
1930	122,775,000	1,500,000	
1940	131,619,000	--	N/A
1950	151,326,000	3,510,000	
1960	179,323,000	7,000,000	
1970	203,212,000	8,810,000	
1979	219,000,000 *	11,270,000	(1978)

*US Census unofficial estimate

Recreational boats on all waters of the U.S.	11,270,000
Inboard motor boats	1,140,000
Outboard motor boats	6,600,000
Sailboats (without inboard power)	880,000
Rowboats, canoes, miscellaneous	2,650,000
Outboard motors owned	7,880,000
Inboard marine engines, gas and diesel	1,225,000
Boat trailers owned	4,150,000
Marinas and boat yards	4,700
Yacht clubs	1,300
Estimated number of persons boating, 1978	56,350,000
Retail expenditures for new and used boats, accessories, fuel, supplies, docking, maintenance, storage, repairs, etc.	$6,690,000,000

Despite the seasonal limitations of climate in the Great Lakes region, Minneapolis/ St. Paul, Chicago, Detroit, Milwaukee, Buffalo, Duluth, Cleveland and Grand Rapids are among the principal market areas for outboard motor sales. In 1978, these Great Lakes cities accounted for sales of 47,100 outboards.

Of the 7,880,000 outboards currently owned, 413,000 are registered in Wisconsin, more than 5% of the national total, this in a state with 2.16% of the nation's population.

Wisconsin is a peninsula, bounded by two of the Great Lakes and by the Mississippi River. It has more than 8,000 inland lakes and many kinds of rivers. The commitment to water recreation is evidenced by these comparisons from the National Association of Boat Manufacturers and "The Marine Market" 1977:

WISCONSIN MARINE MARKET

2.16% of U.S. population
5.2% of outboard motor purchases
6.0% of outboard boat purchases
5.3% of boat trailer purchases
2.06% of U.S. buying income

These figures evidence Wisconsin citizen interest in the enjoyment of the water resources which bless the region.

More and very useful data can be derived from a 1977 state study "Demand and Supply of Recreation in Wisconsin's Coastal Counties," published by the Wisconsin Doastal Zone Management Program. Dr. Ayse Somersan, University of Wisconsin Economist, was project director.

The study found that boating, fishing and shoreside hiking are the fastest-growing recreational interests in Wisconsin shore counties. "In the coastal counties, boating on an average weekend day is projected to more than double between 1970 and 1980." (Page 1, summary) Specific references to Racine County in this study have been valuable for this analysis.

Questionnaires to official bodies elicited advice that both boating and fishing facilities in Racine are overcrowded. Fishing facilities in particular were described as insufficient and crowded. In the Upper Great Lakes region, surveys of outdoor recreation between 1972 and 1980 were projected as 3.5% for fishing and 5.5% for boating.

In Racine County, 1971/1973, Wisconsin DNR records report 22,604 boat licenses issued, 94% to individuals, and 6% to fleets (3 or more boats under one ownership). For the entire state, boat licenses totalled 285,222.

On a summer weekend day, the study found that in Racine County, in 1970, 1543 residents and 1122 non-residents participated in boating, for a total of 2665 persons. By 1980, a growth of 115.9% is predicted for Racine, to involve 3311 residents and 2442 non-residents on a typical weekend summer day. The Racine growth forecast is consistent with that for 15 Wisconsin coastal counties, the high being 117% for Ashland, the low 109.5% for Ozaukee.

The study found that in 1970, non-resident boating in Racine County was 42.1% of the total. Of the 15 coastal counties, 7 had higher rates of non-resident participation and 7 had lower, Racine being exactly the median county in this respect.

In 1973, fishing licenses sold in Racine County were 92% resident, 8% non-resident, of a total 16,470 licenses issued in Racine. However, a 1970 survey showed on a typical day, a higher non-resident participation (939 resident, 1227 non-resident). By 1980, a growth of 83.5% is projected for fishing in Racine county. (page 32-34 ibid).

As to physical facilities, the survey found (1976) the following:

Wisconsin Lake Superior Shore	9 marinas	576 slips
Upper Lake Michigan shore (6 counties)	31 marinas	1220 slips
Lower Lake Michigan shore (4 counties)	7 marinas	1394 slips
Totals	47	3190

Wisconsin Lake Superior Shore	48 boat ramps
Upper Lake Michigan shore	161 boat ramps
Lower Lake Michigan shore	36 boat ramps
Total	245 (149 publicly owned)

The study pointed to the problems of seasonality in Wisconsin waters, with facilities generally inadequate for peak demand on holidays and periods of good weather. All marinas surveyed were at full capacity, and all had waiting lists of applicants. Currently, at Milwaukee County public park marinas, with only county residents eligible, the waiting period for a slip is 3 to 4 years.

The sport of fishing is almost inseparable from boating in Wisconsin waters. A typical fisherman may fish from a river bank, a lake shore, a Great Lakes harbor breakwater, or dock. He may fish from a rowboat in tranquil waters, troll via outboard, fish from a cabin cruiser, or go out to deep water in a charter boat. One must therefore assume that much boating action is related to the pursuit of fishing.

In fiscal 1977, Wisconsin had 1,475,833 paid fishing license holders, about 2/3 resident, 1/3 non-resident. The state derived over $9 million from sale of fishing licenses, permits, tags and stamps. (Wis DNR records)

In addition to the vast number of private boats involved in fishing, the state in 1976 had 142 charter boat fish fleets of which 3 were in Racine, 7 in Kenosha, and 29 in the Milwaukee area. (Wis. DNR records)

*****

To summarize, the Wisconsin involvement in recreational boating: as of December 31, 1978, the state had 384,201 boats registered (all over 12 feet long); the state has 48 boat builders; 106 firms making boat trailers, motors, and marine accessories; and 20 fish tackle manufacturers. Marine dealers total 854. Employment in these fields is estimated at 15,000 persons.

Marine product retail sales are at a $200 million per year level, and another $200 million is estimated as the cost of servicing the recreational fleets. Three million dollars in fuel taxes is derived annually by the state from marine fuel sales.

Boaters and fishermen spend large sums in ancillary services such as clothing, groceries, beverages, hardware, bait and tackle. Sport fishing centers are characterized by concentrations of hotels, motels, resorts, restaurants, taverns, gift shops, sport goods stores, and fuel vendors. Such developments are highly visible at all lake shore areas identified with offshore sport fishing, and is a direct economic result of the introduction of new species of game fish into Lake Michigan waters.

Various state agencies have attempted to evaluate the economic impact of sport fisheries in Wisconsin. The Recreation Resources Center of U W Extension, through Dr. Ayse Somersan, projects $514 million as the current level of expenditures by fishermen in Wisconsin. The estimate is based on the number of fishing licenses issued; an assumed average expenditure of $20 per day; and an assumed nine fishing ventures per season by each licensee. This totals $234 million. A multiplier factor of 2.2 would total $514 million expenditures for sport fisheries in Wisconsin, an estimate which Dr. Somersan considers quite conservative.

2. Corps of Engineers' Harbor Demand Projections for Racine and Existing Boating Activity

Noting the surge in recreational boating activity in Lake Michigan, the U.S. Senate committee on Public Works in 1963 asked for a study of the need for "additional small craft harbors on the west shore of Lake Michigan between Kenosha and Kewaunee, Wisconsin."

Responding to the resolution by the Senate committee, the U.S. Corps of Engineers commenced a comprehensive series of studies, public hearings and investigations some details of which are still in progress and will not be completed until 1981.

In January of 1974 the Corps produced its "Lake Michigan Regional Boating Survey and Analysis" which in effect is a market analysis and projection of boating activity and needs.

A period from 1970 to the year 2000 was covered.

The study surveyed existing marina and launch ramp facilities for boats along the Wisconsin coastline, and also conducted a survey sampling of boaters in a "demand area" that the Corps defined as the band one or two counties deep along the west shore of Lake Michigan starting at the Indiana state line and extending to Door County. (See map)

Sufficient demand was uncovered that the study proposed expanding existing harbor capacities as well as building all new harbors not then in existence. Two of the new harbors would be between Racine and Milwaukee at Bender Park and at Sheridan Park.

The amount of added space at Racine therefore would depend upon whether the other expansions and other new harbors take place.

If no new harbors are built the Corps produced the accompanying "Table 5" for Kenosha and Racine combined which projects the 1980 excess demand over their 1972 inventory at 440 berths and 13 launching lanes.

Table 4 Recreational Boating Demand Area

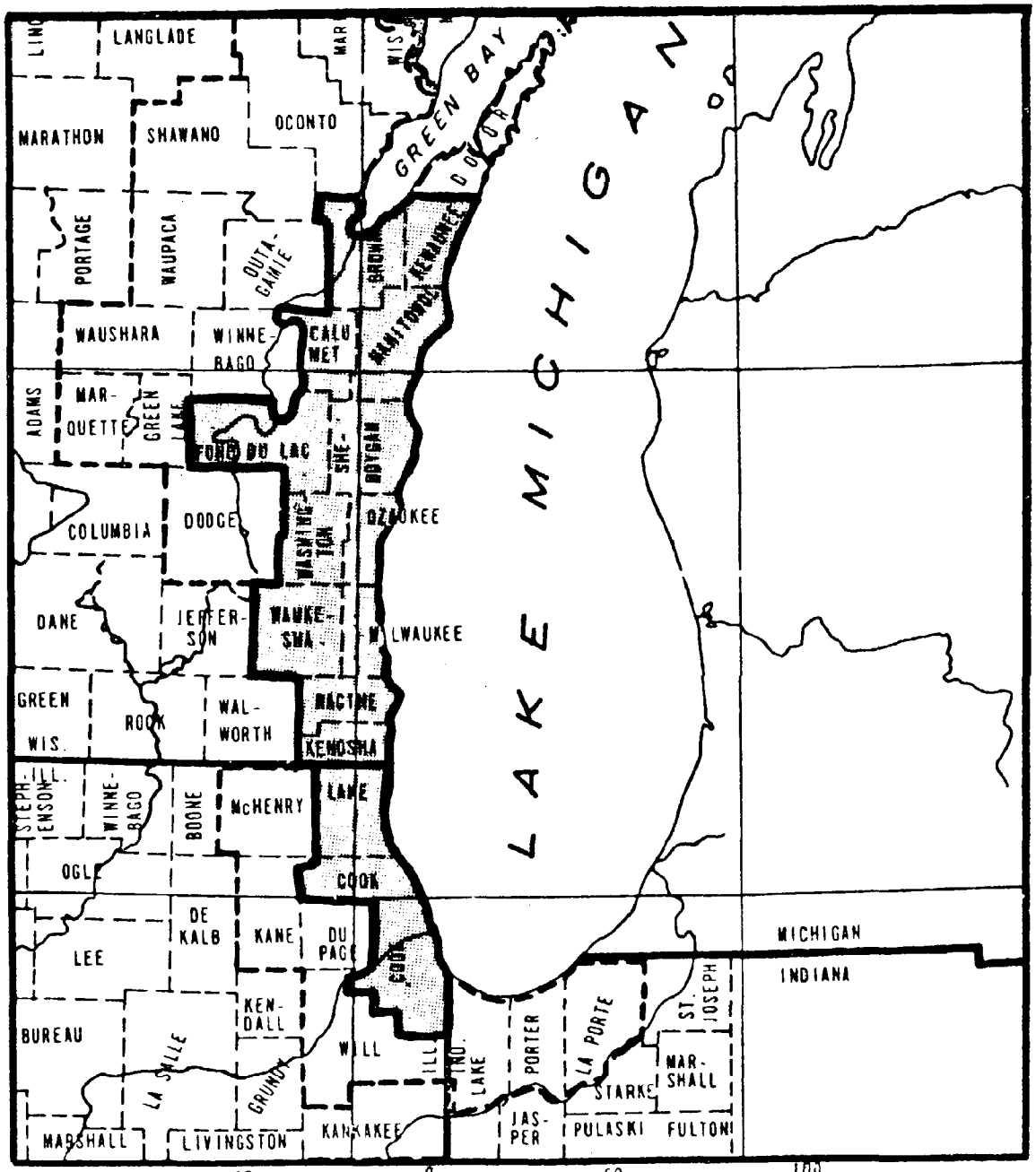


FIGURE C-1

RECREATIONAL BOATING DEMAND AREA

Table 5

Table 5 Projected excess demand for recreational boat facilities at existing harbor sites, 1980-2000

Harbor or harbor group	1980		1990		2000	
	Berths	Launching lanes	Berths	Launching lanes	Berths	Launching lanes
Kenosha & Racine	440	13	770	17	1,015	21
Milwaukee and South Milwaukee	415	7	665	10	910	12
Port Washington	185	7	350	11	485	12
Sheboygan	160	6	310	11	440	15
Manitowoc and Two Rivers	170	2	325	4	450	5
Kewaunee and Algoma	110	6	210	12	280	14
Totals	1,480	41	2,630	65	3,580	79

Table 6

Table 6 Projected excess demand for recreational boat facilities at existing harbors and four new harbor sites, 1980-2000

Harbor or harbor group	1980		1990		2000	
	Berths	Launching lanes	Berths	Launching lanes	Berths	Launching lanes
Kenosha & Racine	310	10	540	12	700	15
Bender & Oak Creek (new)	245	5	420	7	575	9
Milwaukee	225	3	350	5	480	6
Doctor's Park (new)	160	3	260	5	355	5
Port Washington	110	5	220	8	305	9
Sheboygan	110	5	220	9	310	12
Haven (new)	85	2	170	4	240	5
Manitowoc & Two Rivers	85	1	165	1	230	2
Point Beach (new)	75	2	145	4	200	5
Kewaunee & Algoma	75	5	140	10	185	11
Totals	1,480	41	2,630	65	3,580	79

As further shown on the map-table "Appendix 1, D-13" taken from the Corps report, Racine is assigned 200 of the 440 berths and 2 of the launching lanes.

If, however, all four new harbors are built as suggested by the Corps, then the demand at Racine and Kenosha is reduced as shown in "Table 6" from the Corps report. The 1980 excess demand is reduced to 310 berths and 10 launch lanes from 440 berths and 13 lanes in Table 5.

Applying that percentage reduction of 30% to map-table D-13 would imply that Racine's excess demand for 1980 would be:

Racine 1980: 140 more berths 1-2 more launch lanes

The Corps construction plan currently under consideration at Racine is at the full 200 berths and 2 lanes. This probably reflects the slow progress at the other "new" harbor sites, the difficulty of building 140 berths now and adding only 60 later, and the fact that by 1990 excess demand at Racine and Kenosha is projected to be up another 200 berths and 2 launch lanes even if all the other "new" harbors are constructed. In the decade after 1990 another 160 berths are supportable, as are 3 more launch lanes, for both cities combined.

Except for the table-map D-13, the Corps report tended to combine all the Racine and Kenosha figures. In that one exhibit Kenosha is given the larger share of the excess demand. It can be surmized this skewing is based upon Kenosha's closer proximity to the huge Chicago market, and Kenosha's smaller existing inventory of moorings.

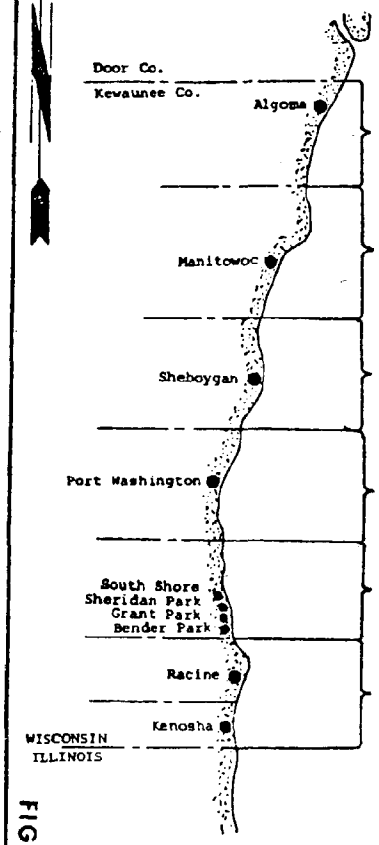
The Racine Harbor in 1972 is credited by the Corps with 50 moorings at or near the Yacht Club and 235 in the Root River, plus 6 launch lanes. This compares with 140 moorings at Kenosha and a launching ramp.

At this time the Racine storage capacity is quite a bit higher according to the September 1979 inventory done as part of this study. (see accompanying table) We counted about 80 boats moored in the north harbor, and 90 in the south harbor, plus 240 in the Root River, a total of 410.

This does not include another 172 boats stored on land, giving Racine a measured activity of 588.

Table 7

HARBOR SITES CONSIDERED FOR THE REVISED PRELIMINARY FEASIBILITY REPORT



Projected excess demand for recreational boat facilities, 1980-2000

	1980		1990		2000		Design facilities	
	Berths 1/	Launching lanes	Berths 1/	Launching lanes	Berths 1/	Launching lanes	Berths 1/	Launching lanes
Algoma	110	6	210	12	280	14	60 - 90	2
Manitowoc	170	2	325	4	450	5	300	2
Sheboygan	160	6	310	11	440	15	300	8
Port Washington	185	7	350	11	485	12	180	6
South Shore	415	7	665	10	910	12	450	6
Sheridan Park							-	5
Grant Park							-	4
Bender Park							250	4
							700	19
Racine	440	13	770	17	1,015	21	200	2
Kenosha							200-450 / 400-650	6-10 / 8-12

1/ Includes slips and open moorings

FIGURE D-1

Appendix 1
D-13

Table 8

BOAT INVENTORY, RACINE WISCONSIN
SEPTEMBER, 1979

HARBOR		
Yacht Club		39
Open Water Moorings, North	38	
South	93	
Sub-Total	131	
Harbor Total		170
ROOT RIVER, MOORINGS & SLIPS		
Pugh Peerless Marina		12
Palmer Johnson		75
The Wharf		15
Davy Jones Locker		14
Mauer Charter		4
Harbor Light		6
Azarian		120
River Total		246
TOTAL WATER BERTHS		416
ROOT RIVER, DRY DOCK STORAGE		
Pugh Peerless Marina		130
The Wharf		42
		172
BOATING SEASON CAPACITY:		588

Note: Palmer Johnson offers winter storage for 145 boats. Weiss has plans for 85 slips on the Root River at Main Street. These are not counted in the above inventory.

The September 1979 inventory confirms the basic demand for 1980 forecast by the Corps in 1974. Taking their 285 credited berths plus a 1980 excess demand forecast of 140 if other harbors are being built, to 200 if no new harbors are evident, the 1980 Racine demand ranges from 425 to 485 berths. Our actual "in the water" survey counted 416. Dry storage brings the total to 588.

The following table summarizes this comparison of 1979 berths being utilized, with forecast demand for 1980 made by the Corps of Engineers:

1979 Inventory		1980 Corps Forecast Demand	
Harbor	170	285	1972 Existing
River	246	140-200	1980 Excess Demand
Water Berths	416	425-485	Water Berths

(+dry dock 172 = 588)

If the 200-slip harbor marina under consideration is now built at Racine according to the Corps plan, the net gain in the south harbor would be about 107 slips over the present 93 open water moorings; raising Racine's capacity to 523 berths in the water, and 695 counting summer dry dock storage.

In addition, as detailed in the next section, the Root River still has unused berthing capacity of several hundred slips east of the Marquette bridge, including such proposals as the Weiss "condominium" berth concept.

While the Corps' forecasts demand of another 100-160 berths at Racine between 1980 and 1990, and another 80-120 between 1990 and 2000 a case can be made that with dry dock storage Racine is already at its 1990 forecast demand. (The above figures take one-half the combined Kenosha and Racine forecasts as the Racine share).

Another caution that must be raised is that the Corps' boater surveys were all prior to the 1974 "fuel crunch." The 1979 "fuel crisis" proved that only a minority of people took the '74 crunch seriously, but marina operators are now reporting a more noticeable uncertainly among their customers.

At least one Racine marina operator reported some difficulty this year in getting all his slips rented for the season (at $600 + per berth).

However, it is always possible that the long term energy adjustments in the United States will result in recreation being sought closer to home. Thus, Lake Michigan boating at the metropolitan centers may change form (from large motors to small, and from motor ships to sailboats) but on an overall basis continue to grow. This growth would probably be at the expense of inland lakes farthest away from population centers.

3. Saturation Capacity for Boating at Racine

Three areas have been measured under the saturation analysis: A. the Root River, B. the present main harbor, and C. what we call the Pershing Park harbor, which is the partly sheltered water lying south of Gateway Technical Institute. Each is discussed separately as to moored boat capacity, plus a section D. directed at the launch ramps in the harbor and at Pershing - GTI.

A. Root River

Within the Root River the measurement of saturation capacity consists of relating three evaluations:

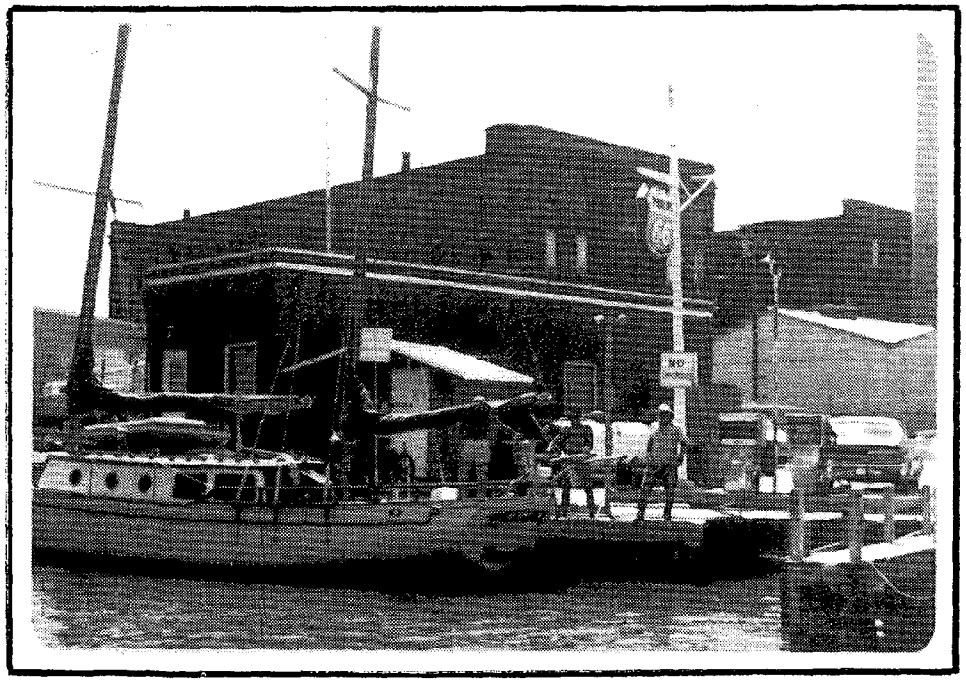
1) Whether to keep Marquette Avenue as the head of river navigation.
2) Remaining space in the river for more slips.
3) Correlation of potential additional river slips with support space on land principally for parking but also for legitimate competing land uses such as park space for non-boaters.

We recommend that Marquette remain the head of navigation. So much capacity exists downstream of the bridge in relation to projected demand levels the next 20 years that there is no economic justification for replacing the Marquette bridge structure just to open more river upstream for boating.

Between the Marquette bridge and the Main Street bridge, where there are presently 236 water moorings, spaces exist for another 300 slips. The two largest parcels of land to provide support space for these additional moorings have to be the former Western Publishing tract, and the yet to be redeveloped J.I. Case tract. The Weiss tract at Main Street is the only other significant piece.

Some of the additional slips along the railroad side of the River will have to be reached by tender boat from the other shore due to lack of space in the railroad area for parking, and the higher ultimate need, we believe, to devote such a linear space to public park access rather than boater parking.

Develop new marina facilities to generate increased boater spending in Racine.



While the remaining capacity of the river downstream of Marquette is thus substantial, being roughly double its present utilization, we do not recommend any changes to the Main Street Bridge. Presently the bridge allows passage of boats in the river at intervals every 20 minutes of the hour, thus forcing some queueing of boats. This queueing has become a boating fact of life, and is not the source of discontent as far as we could determine.

Gradually doubling river mooring will increase the queues. But reconstruction of Main Street to a higher grade over the river would be so costly and so disruptive of adjacent land uses as the roadway is lifted and slope embankments or retaining walls are installed, that the cost would be prohibitive in relation to the benefit of reducing or eliminating the queues.

To the extent that the queues become offensive to boaters, through natural selection, moorings in the river will peak, and the surplus boaters will seek moorings in the harbor.

B. Racine Harbor

Measurement of the Racine Harbor's capacity to moor boats has been done under two alternate approaches:

1) Shore-connected piers with slips, plus limited open water moorings.
2) High density open water moorings, with limited shore-connected piers.

The shore-connected piers offer the boater the conveniences of electrical power and boat access by foot, without the need for jitney or tender boat. However, such slips are expensive to provide since they require dredging close to shore and installation of shoreline bulkheading, as well as a wave absorbing breakwater.

The open water moorings being suggested in this study (star moorings such as are being used in Chicago's harbors -- see photos elsewhere in this report) consist of floating piers that radiate from an octagonal center ring. They yield densities per acre comparable or exceeding shore connected pier systems, but to date they don't offer electricity, and they require the inconvenience of jitney or tender boats for access. However, they are a much cheaper installation, not requiring shore dredging for example, and can be paid for without general taxpayer subsidy. They can in all likelihood also exist without further breakwater construction, though floating breakwaters to take the "chop" out of the water would be helpful.

Either system is potentially limited by available automobile parking space, especially when measured in competition with the launch ramps for trailerable boats. We found, however, that limitations of space would be reached first in the water, not on the land.

For the shore-connected pier approach, measurements in the south harbor were of the Corps of Engineers plan plus a preferred variation suggested by the Racine City planning department.

The north portion of the harbor was not measured for additional shore-connected piers because no breakwater protection is being planned for the north portion, and because after analyzing the cost of breakwaters in the south portion in relation to boating revenue, we could not even recommend those south breakwaters currently under consideration.

Presently with the breakwater system that does exist, the yacht club reportedly suffers $10,000 to $20,000 per year in ice damage to their fixed pier installation. The capacity measurement below therefore holds their pier count to its present level.

The Corps design and its City plan variation offer about 100 to 150 mooring spaces more than the open water moorings that currently occur in the south harbor. The essential difference between the Corps and City plans is that the City planners move the slips (and hence their demand for on-shore parking) away from the west shore nearest downtown, northerly over to the Gas Company peninsula along the Root River. This puts the boating parking onto the south shore of the Root River, leaving the prime lands of the west harbor shore for public park and for downtown expansion.

Thus, the Corps of Engineers proposal or the City plan variation, plus the Yacht Club slips and open water moorings in the north part of the harbor, produce a saturation capacity for the harbor of:

260 Shore connected pier slips
40 Open Water Moorings
300

These 300 spaces represent an increase of 130 more moorings than currently exist in the harbor.

*****

The floating pier star mooring approach being offered as an alternative in this report produces about 4 open water moorings in place of each single mooring that can now

exist under the 360 degree rotation about an anchorage commonly in use today. The star piers offer 16 moorings per single set.

Because of this 4 to 1 increase in density, we found that the star moorings could equal or exceed the overall density of a shore-connected system in the Racine Harbor.

In the south portion of the harbor for example, where the fixed pier plan with breakwaters produces 220 slips, floating sets of star moorings, allowing space for floating tire breakwaters along the edge of the dredged turning basin, could produce slips for 400-650 boats.

The north portion of the harbor could provide space for just over 200 boats compared to the 80 moored there now.

Thus, the high density floating pier system of 16 moorings per set is capable of providing the Racine Harbor with the following saturation capacity:

40	Shore-connected pier slips (Yacht Club)
600-820	Open Water "star" Moorings
640-860	

This compares with 170 at present, and 300 under the dominantly shore-connected pier system.

C. Pershing Park - Gateway Technical Institute Harbor

As with the main Racine Harbor, the Pershing - GTI area could be evaluated in two ways -- for a fixed shore-connected pier system with some open water moorings, or with the all-open water mooring plan just discussed.

A complete fixed system was done years ago presented in master plan form by the well known Burke firm of Chicago. A brief examination of it will reveal that the enormous water area within the off shore breakwaters, south of Pershing Park-GTI allows for a capacity even larger than the main Racine Harbor itself.

This study has not pursued such a plan because the projections show it would not really be needed for at least two decades or longer; the unfavorable cost factors showing up in the main Racine Harbor plan will be a burden to the Pershing GTI area as well; and finally because extensive litigation may remain before riparian rights of private landowners in the area can be obtained.

The high density open water floating mooring plan produces a capacity of 500 berths in that portion of the Pershing - GTI Harbor lying north of the first opening in the breakwater. It is not necessary to evaluate the next harbor section to the south since the projections indicate that not even the northerly 500 could be absorbed before the year 2000 unless most other harbor expansions in the Corps study do not proceed.

The accompanying table summarizes the proceding discussions. It shows the water-moored saturation capacity of Racine's three locations:

the Root River,
the main harbor, and
the north section of the Pershing Park - GTI harbor,

It shows that Racine has the physical space to expand its total in-the-water mooring capacity from the present inventory of about 400 boats, to anywhere from around 900 berths to 1900 berths.

These increases are from double the present storage to almost 5 times the present storage. This wide range depends basically upon whether to go with a fixed shore-connected pier system or to a high density off-shore floating system in the present main harbor, and whether to open up all the Pershing Park - GTI harbor to moored boating.

This study is recommending the high density open water "star" mooring system in the present main Racine Harbor, not because of the higher yield, but because of better economics. In fact the highest possible yields in the Root River and the main harbor are not needed because they exceed the projections of demand for berths. On this basis, the Pershing Park - GTI harbor area can be held in reserve, but probably not developed for moored boats before the turn of the century.

D. Launch Ramps for Trailerable Boats

Compared to berths for moored boats, estimating the need for and managing the use of launch ramps to handle trailerable boats is much more difficult.

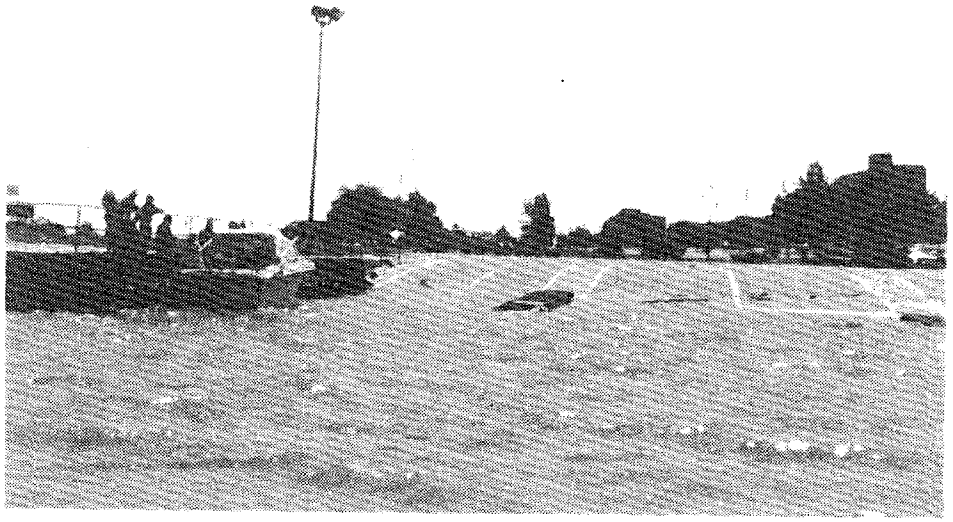
With a moored berth, they are rented on a seasonal basis and once all the spaces are filled boaters have to look elsewhere or get on the waiting list for a future year. The maximum possible demand is known at any particular harbor. If on a pleasant weekend a great many owners of berthed boats show up, the delays experienced tend to be minor. Perhaps there is a very brief delay in the parking lot, or while waiting for a tender boat to ferry them to and from an open water mooring, or if berthed in the Root River, waiting for the cycle that opens the Main Street Bridge.

Needed: An 8-lane launch ramp in Pershing Harbor as an alternate and overflow of the existing ramp.

The six lanes in the existing ramp are sometimes inefficient because of "swell" which lifts and drops boats from their trailers as launching or retrieval are taking place.

Since the proposed ramps in Pershing Harbor would face south, they should be free of adverse wave conditions on exactly the days when the ramps at the main harbor, which face north, are experiencing launch difficulty.

The existing Gateway Technical Institute parking lot is vacant exactly when boaters need it -- summer days, and weekends May through October.



But the activity at launch ramps by its very nature, is inherently difficult, because boaters have to queue up to get into the water, and inherently more volatile because there is no defined number of boaters "assigned" to a particular harbor. The range of demand can be enormous.

For example, the Boater Survey by the Corps of Engineers shows that the typical ramp-user boats 20 times a season and rotates between 2 to 3 different harbors or inland lakes during a season. Thus, on a "balanced" weekend all the trailer boaters might be distributed to each harbor or inland lake in proportion to each site's relative launch capacities, and delays at each site are tolerable.

But on any given weekend, perhaps related to fishing conditions, to weather or to both, any one launch facility can be deluged with trailered boats seeking to launch. Delays are interminable, parking gets overloaded, and some boaters are turned away all together, never getting a chance to enter the water.

This overloading potential is greatest on weekends because, as the Corps survey discovered, 4 out of 5 -- or 80%, of trailer boaters only seek a launch site on weekends. Only 1/5th are able to boat on weekdays or on evenings of weekdays.

The Corps of Engineers estimates capacity of a launch ramp to be 35 to 45 boats per lane per day. On that basis, the 8 public lanes projected by the Corps as the demand at Racine in 1980 translates out to 280 to 360 boats per day. Presently Racine operates 6 public launch lanes, all on one ramp in the south corner of the main harbor.

By 1990 the demand at Racine is projected to support 9 to 13 lanes and 10 to 16 lanes by the year 2000.

Staff familiar with operation of the publicly operated 6 lanes indicate siltation often forces the launch ramp to operate with less than 6 lanes. This makes peak conditions all the more crowded. In order to prevent the need for frequent dredging, they suggest the establishment of an opening through the present breakwater out to the lake in order to allow natural currents to flush the ramp area.

Another factor that prevents the launch lanes from operating efficiently is the occasional condition of "swell" where wave-like undulations of the water surface lift and drop the boats from their trailers as launching or retrieval are taking place, making the whole operation more difficult. The Sea Grant Program of the University of Wisconsin is monitoring the harbor and confirms that "swell" can be one of Racine Harbor's unpleasant characteristics.

Since certain weather conditions can thus affect the usability of Racine's launch ramps, this only tends to make the good weather weekend all the more subject to overloading as boaters learn to avoid the harbor on days when swells are occurring.

Under the Corps of Engineers plan currently under consideration, the launch lanes would be expanded from the present 6 to the 8 called for in their 1980 projections, and the "swell" conditions would be addressed by the installation of the inner breakwaters.

However, as alluded to before and treated in detail in the next chapter, we are not recommending the Corps plan because of the significant subsidy required from the local tax base. Instead we are suggesting a much cheaper, entirely floating system for both the moored berths, and for the additional breakwater to intercept wave action of certain directions that can presently reach into the harbor unimpeded.

The floating breakwater, unfortunately from the scanty data available to us on them, only are effective in taking the "chop" out of the water. Swells flow through them unimpeded. Thus, on certain days each season the launch ramps may continue to be harassed by swell action.

We have concluded that the only cost-effective way both to add lanes beyond the two that can be easily added at the present site, and to provide an alternate when swell action is bothering the ramps in the main Racine Harbor, is to establish a second set of ramps in the Pershing Park-Gateway Technical Institute Harbor. The parking already exists in the form of the lot that serves GTI. GTI leaves it vacant exactly when boaters need it -- summer days, and weekends May through October.

Since the Pershing GTI ramps would face south, they should be free of adverse wave conditions on exactly the days when the ramps at the main harbor, which face north, are experiencing difficulty.

For the 1980's these ramps, according to the projections, need not be pressed into service except when weather conditions are affecting the main harbor ramps, or for very unusual peak conditions such as the Salmon-O-Rama, a locally sponsored special event for boaters and fishermen.

This may prove to be a critical issue when negotiating for riparian rights from owners reluctant to experience motor powered boats along their shoreline.

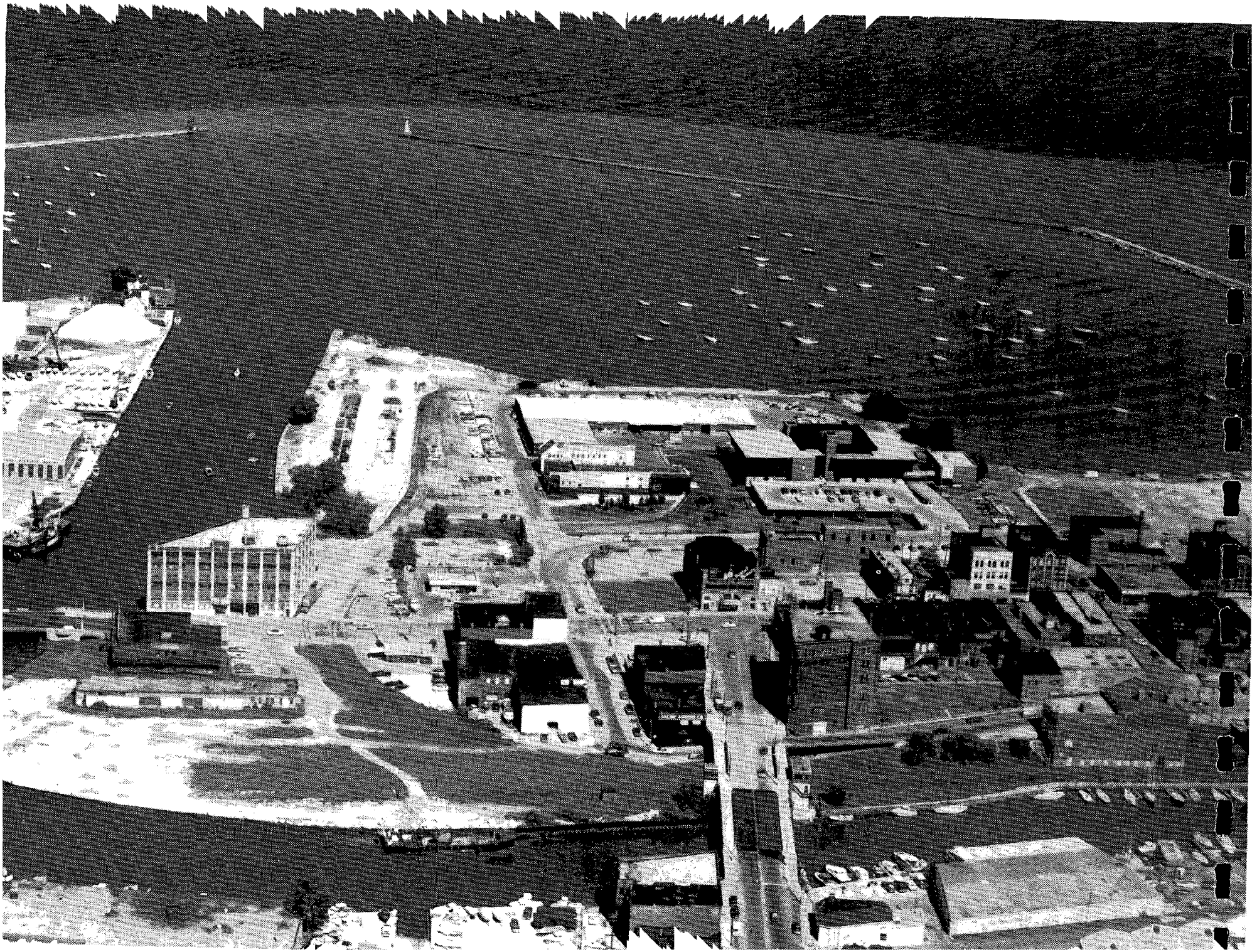
Table 9

WATER MOORING SPACE STUDY
Racine, Wisconsin

1979 Mooring Inventory	POSSIBLE**	GAIN	AREA
80	80-210**	0-130	North Harbor, Half
90	220-650**	130-560	South Harbor, Half
250	550	300	Root River*
420	850-1410	430-990	
(400)	(900-1400)	(400-1000)	(Rounded)
0	500	500	Pershing Park - G.T.I.
420	1350-1910	930-1490	
(400)	(1300-1900)	(900-1500)	(Rounded)

*Excluded - Land Storage of 172 boats.

**Higher capacity assumes open water floating star moorings. Lower capacity assumes shore-connected fixed pier slips.



Harbor Feasibility and Coordination with Downtown Development

4

View east of Downtown Racine, Root River and southern portion of Racine Harbor. We propose a trail system along the railroad right-of-way to tie together the river with a waterfront park system. This is visible here as the dark area just above the Root River.

A. FINANCIAL FEASIBILITY OF THE RACINE HARBOR MARINA PLAN (CORPS OF ENGINEERS)

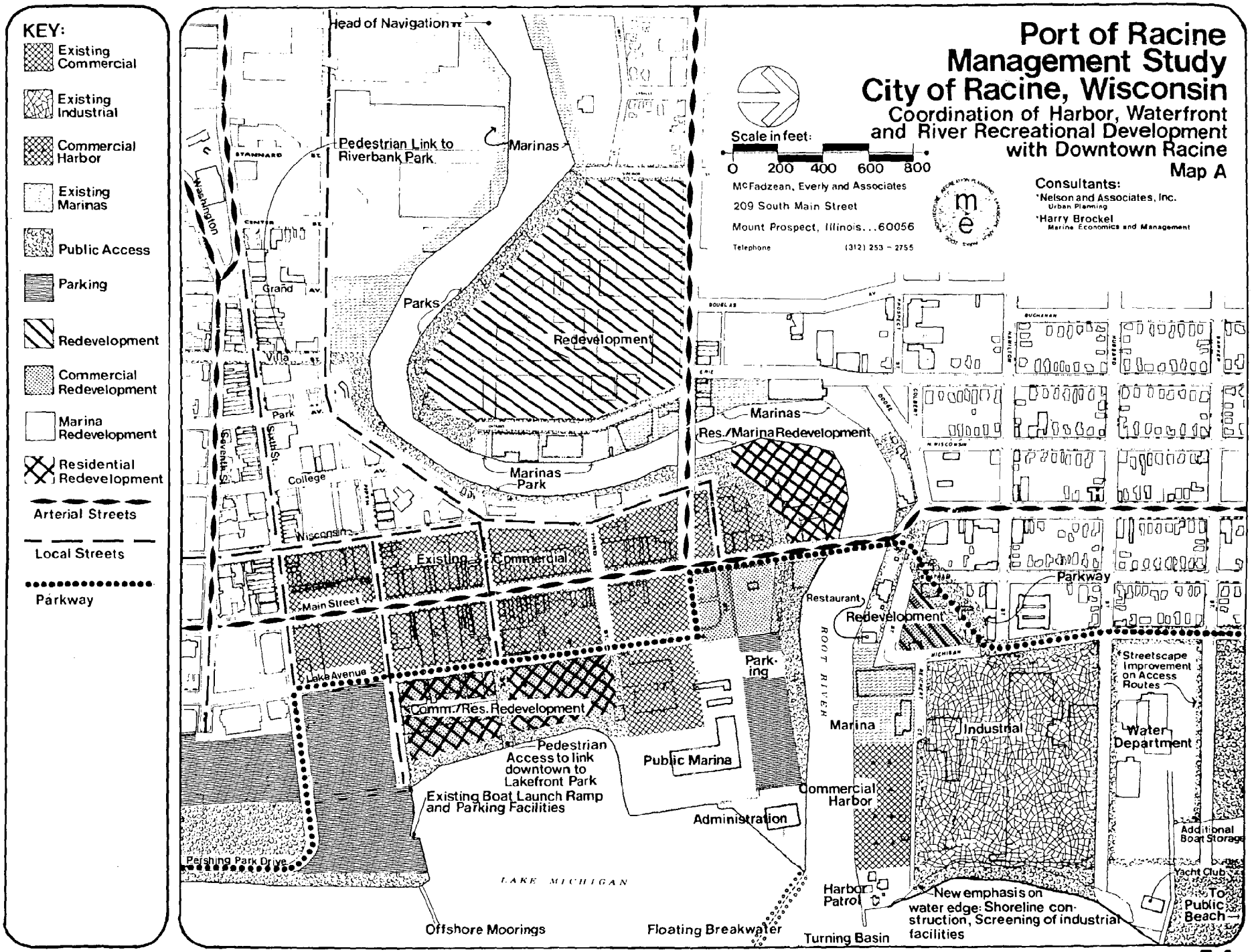
The City of Racine is presently considering whether to participate with the Federal Government in the construction of a sheltered harbor and marina within the south portion of the existing breakwaters east of the downtown area. The plan designed by the U.S. Corps of Engineers adds two breakwaters inside the outer breakwaters, and would result in about 220 slips for the mooring of boats, plus the addition of 2 more launch lanes for trailerable bloats, bringing the current 6 lanes up to 8 lanes.

Following standard practice of the Corps, the agreement between the Corps and the City would require that the marina and ancillary facilities to the marina such as parking, be concurrently constructed with the breakwater. While the Federal Government only participates in the cost of the breakwater and dredging, the Corps' agreement with the City nevertheless makes the marina and parking type improvements mandatory on the City to assure that Federal participation in the expensive breakwater and other aids to navigation are not wasted for lack of the facilities they are to protect. In fact, the determination by the Corps as to whether the Federal Government can justify its expenditures on the breakwater must take into account locally sponsored improvements and the broad community "benefits" that will accrue from the total package of local and federal expenditures. This process is termed the "cost/benefit ratio" analysis and is required of all such federal participation projects.

In the case of Racine, the benefits according to Corps analysis sufficiently exceed the costs that the Corps is prepared to proceed with the project. The exact figures are found in the Corps report "Small Boat Harbor Improvement at Racine, Wisconsin."

Examination of that report will show that the Corps takes into account very broad concepts in its cost/benefit ration. Increased property values downtown and added employment over-time are among the general benefits that are matched against the cost of improvements.

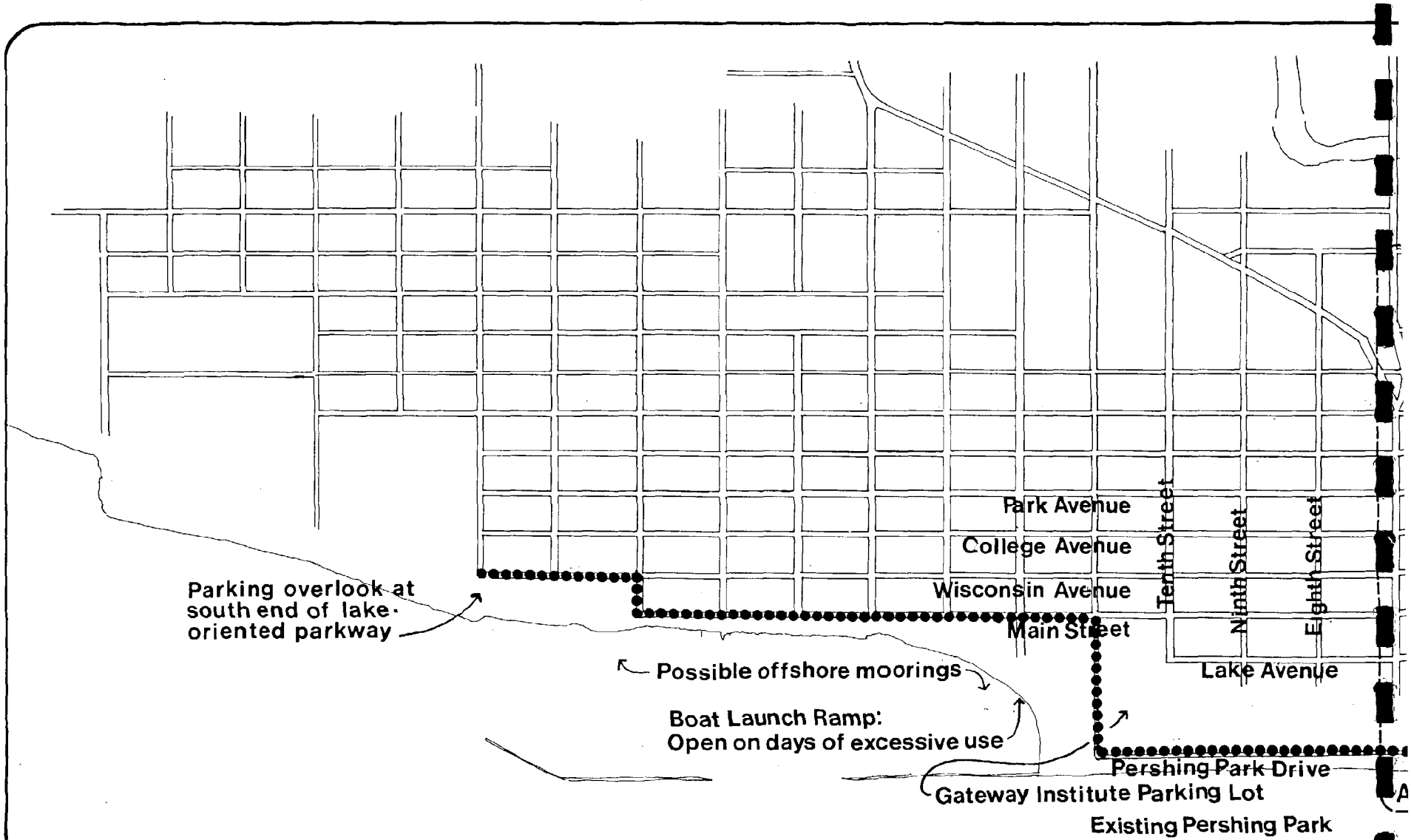
The purpose of this chapter is to offer an additional method of appraisal which is much narrower in scope. It matches the annual obligations of paying off the bonds on the local share of capital improvements, plus the annual costs for operation, depreciation, and maintenance, with the amount of user revenue that can be generated to meet those local categories of expenses.

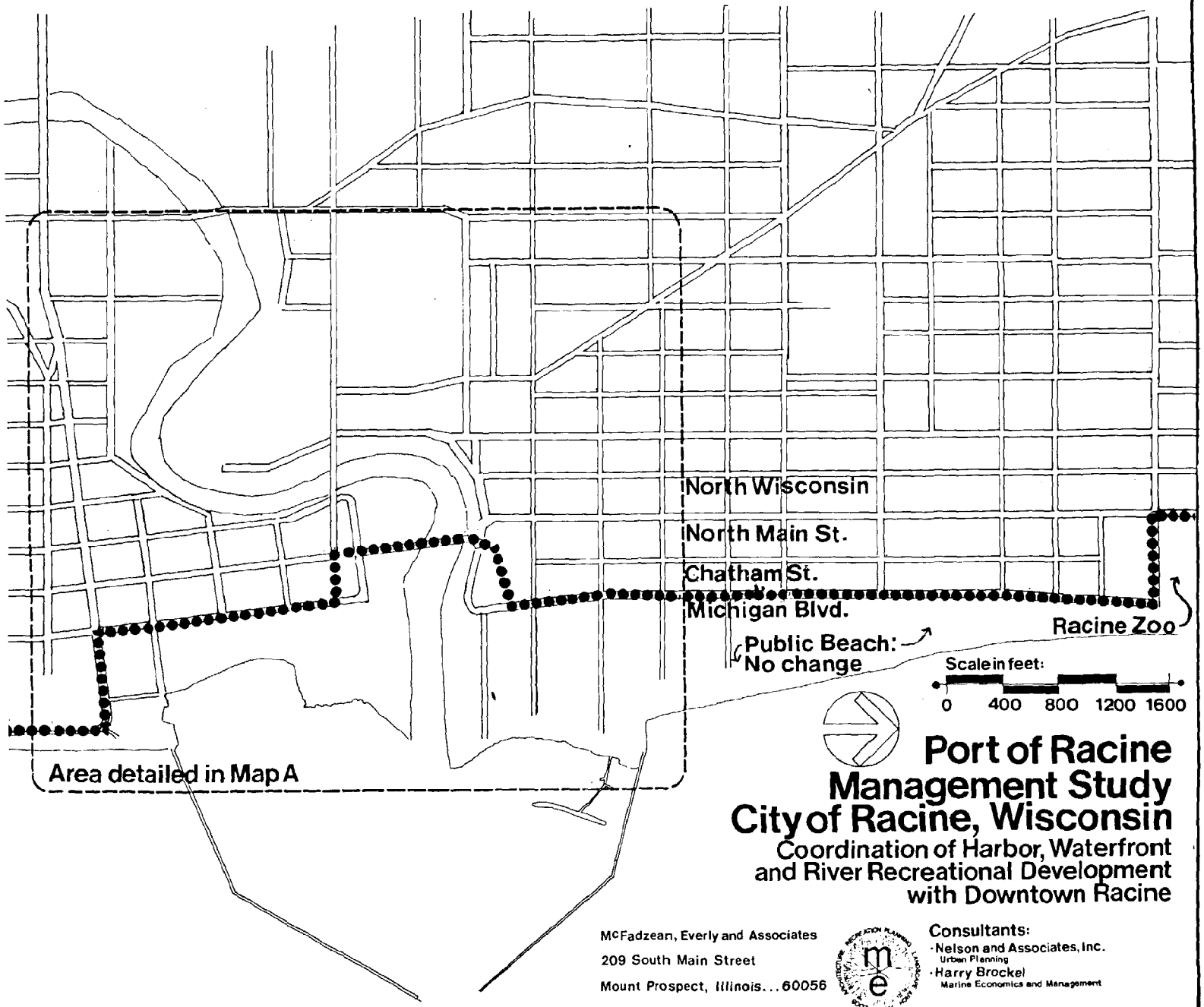


Port of Racine Management Study City of Racine, Wisconsin

Coordination of Harbor, Waterfront and River Recreational Development with Downtown Racine

Map A


Park Avenue
College Avenue
Wisconsin Avenue
Main Street
Tenth Street
Ninth Street
Eighth Street
Lake Avenue
Parking overlook at south end of lake-oriented parkway
Possible offshore moorings
Boat Launch Ramp: Open on days of excessive use
Pershing Park Drive
Gateway Institute Parking Lot
Existing Pershing Park



Port of Racine Management Study
City of Racine, Wisconsin
Coordination of Harbor, Waterfront and River Recreational Development with Downtown Racine

McFadzean, Everly and Associates
209 South Main Street
Mount Prospect, Illinois...60056
Telephone (312) 253 - 2755

Consultants:
- Nelson and Associates, Inc. — Urban Planning
- Harry Brockel — Marine Economics and Management

Map B

This method allows the participating local sponsor, (we have recommended it be the County) to ascertain what revenue can derive on the operation, or if there is a shortfall, what subsidy will be required.

If there is a potential profit, the local sponsor then could well become a private enterprise operating under lease to the City or County on the philosophy that government should only perform those roles which are beyond the scope of private endeavors. If there is a subsidy, its magnitude helps the local sponsor determine whether or not to proceed.

The accompanying table shows the computation made to advance the December 1978 cost estimate by the Corps of Engineers to a bid period extending from now to Spring 1980. An inflation factor of 15% has been used.

The table shows that the entire project is likely to cost $7.0 million. Assuming the federal share will increase to $1.6 million, that leaves a $5.4 million capital cost share to the local sponsor.

Current Cost Estimate for Racine Marina
As of Spring 1980

	As of 12/78	Add 15%
General Navigation, Dredge Disposal	$3.6	$4.1
Marina & Ramps	$2.5	$2.9
TOTAL	$6.1	$7.0
U.S. Gov't Share	-$1.4	-$1.6
Local Share	$4.7	$5.4 Million

In a broad "first pass" at examining the ability of user revenue from boaters to carry the costs of the harbor project, the "general navigation" portion of the proposal has been set aside as one logical public subsidy since the breakwater creates a harbor of refuge for the general safety of users of the lake. While it is a substantial expenditure, it is a very long lived improvement that can be amortized over several generations.

Roughly then, $4 million is initially left out of the amortization computation, ($2.5 million local share) leaving $3 million as the test amount to be amortized out of boating fees. (100% local share)

We have assigned 75% of the $3 million to the 200 proposed leased mooring spaces (the remaining 20 are for transient boats) and 25% to the launch ramp users. This ratio was derived by looking at the 1976 Warzyn Engineering report that detailed the marina and on-shore improvements, and by assigning shares to each class of boater. For example, all of the docks are assigned to the berthed boats, and all of the ramps to the trailered boats, but the parking is aplit based upon usage.

Proceeding with this cost split, the 200 moorings have to amortize $2.25 million or $11,250 per slip plus interest and other costs, and the launch ramps have to amortize $750,000 plus interest and other costs.

A 20 year amortization period has been selected since it approximates the "life of the improvements," and helps to lower the annual payments in the early years. Interest has been assumed at 6% annually based upon a municipal bond issue that places the full faith and credit of the sponsoring unit of government behind the issue to achieve the lowest possible interest rate. In current market conditions a private financing would easily be double the 6% municipal rate.

Depreciation, operation, and maintenance have been set at 7% annually of the original capital cost. This is not a carefully documented estimate, but from our general experience may approximate the expenses that are likely to be incurred.

Application of these factors to the 200 moored revenue spaces is quite straightforward, being simply a division of the annualized cost by 200 to achieve a slip rental figure.

Application to the launch ramps is more complicated because the amount of usage must be estimated, and some sort of "average" launch fee has to be produced since current practice in Racine is to charge a wide variety of rates. There is an annual launch "pass," there is a retiree rate, there is a weekend rate, and a weekday rate, and the mixture of these determines the annual revenue. According to figures supplied by the launch manager, 1979 fees will average $1.40 per launch, based upon close to 11,000 launchings.

A total of 12,000 launchings annually has been used to amortize the subject plan. This allows for the projected growth of the 1980's, and yet is a figure close to present usage.

The accompanying table shows that using the foregoing assumptions, the average rental fee for a mooring will have to be $1690 per slip per season, or just about triple the $625 per year highest fee currently charged in the Root River, and about 4 times what other public marinas on Lake Michigan average per slip.

Similarly with the launch fees, the amortization and operation will require an average launch fee of $9.30, or 6 times higher than at present, and over double the fee of $4.00 at Milwaukee.

Table 10

FEASIBILITY OF SELF-AMORTIZATION FOR RACINE MARINA PLAN
$5.4 Million 1980 Local Share
(Subsidy of $2.4 Million Gen'l Navigation = $3 Million Marina and Ramps for Amortization)

Moorings	Launch Ramps
$2.25 Million @ 75%	$750,000 @ 25%
$1.35 Million Interest @ 6% over 20 years = 60%	$450,000 Interest at 6% over 20 years = 60%
$3.60 Million	$1,200,000
$180,000 Per Year, Principal & Interest	$60,000 Per Year, Principal & Interest
$158,000 Depreciation & Maintenance @ 7 % of $2.25 M.	$52,000 Depr. Oper. & Maint. @7% of $750,000
$338,000 per year	$112,000 Per Year
$1690 per slip @ 200 slips	$9.30 per launch @ 12,000 launchings
($625 per slip Present Highest)	($1.40 per launch Present Average)
(270% Increase Required in Rental)	(660% Increase Required in Fees)

We regard these results as unacceptably high. Since our approach has already assigned all of the local share of the breakwater and related general navigation improvements to be fully subsidized by the sponsoring unit of local government (amount to $2.4 million), without any revenue from the boating user, it is difficult to return to that sponsor and ask for further subsidies to lower the actual-cost launch fees by over a half and the actual-cost mooring fees by two thirds, to equal the present highest rates locally for the moorings and elsewhere for the launch ramps.

Such a percentage of subsidy would result in the boater renting moored space paying only about 25% of the total costs including the breakwater, and the launch ramp boaters, paying only about 30% of their share of the total costs.

Even if the sponsor, that is the County under our recommendation, is willing to provide that ratio of subsidy, there remains an ominous aspect of these figures. They are predicated on 100% occupancy of the slips and upon an expanded usage of the launch ramps at the highest rates found in the Chicago to Milwaukee corridor. There is the distinct possibility that such usage rates will in fact not take place.

To suddenly place 200 slips into the supply at $600+ per slip may cause the Root River operators to cut their fees to hang onto customers. While the longer term projections indicate enough demand for everyone, short term factors indicate the possibility of such private-public competition.

The launch ramp users appear to be particularly sensitive to fees charged since they have the freedom to travel elsewhere. When, in the last 3 years, Racine raised its fees to the very low rate now being charged, Racine lost launchings, dropping to around 10,000. An increase of 200% to the same $4 as charged at Milwaukee is likely to produce another decline in launchings, at least temporarily. The sponsoring government must be prepared to pick up that slack as well. These risks only make the amount of subsidy all the more difficult to sell to local legislators.

B. SELF-AMORTIZING PLAN FOR RACINE HARBOR (FLOATING STAR MOORINGS)

Given the disappointing conclusions of the preceding financial feasibility analysis for the marina plan currently under consideration at Racine, we explored whether any other alternatives remained.

We noted that the Chicago Park District was experimenting with a new type of floating mooring, and that staff spoke highly of its cost-effectiveness and of its good yield per acre of water surface. The units are manufactured in Milwaukee Wisconsin, but are

Replace Corps plan for harbor with self-amor-

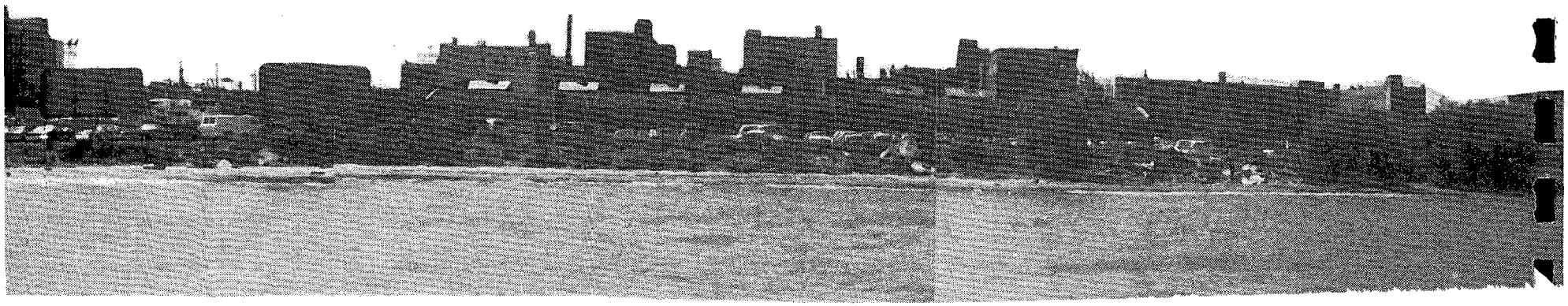
Our analysis of river and harbor improvement proposals for Racine has been conducted in terms of the relationship of those concepts to downtown development. We have considered economic, commercial, recreational, aesthetic and other aspects.

After careful evaluation of the Army Corps of Engineers marina plan for the Racine harbor, we have come to the conclusion that the dollar cost of the Corps plan is unacceptably high.

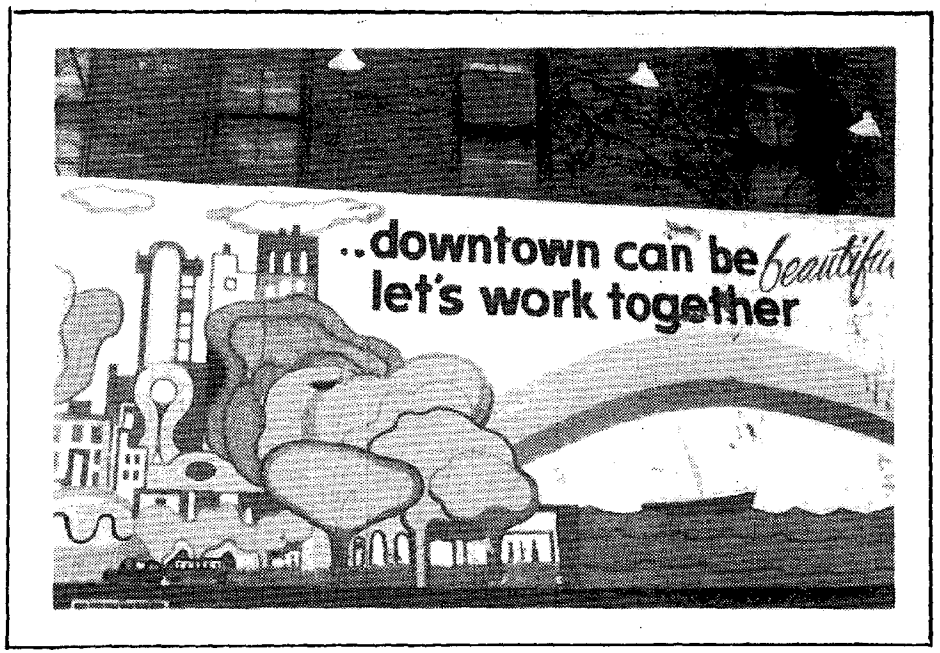
As an alternative, we suggest a self-amortizing plan for Racine Harbor utilizing floating star moorings.

Discussions of the Corps plan and our alternative, as well as recommendations for the coordination of river and harbor development with downtown Racine will be found on the pages which follow.

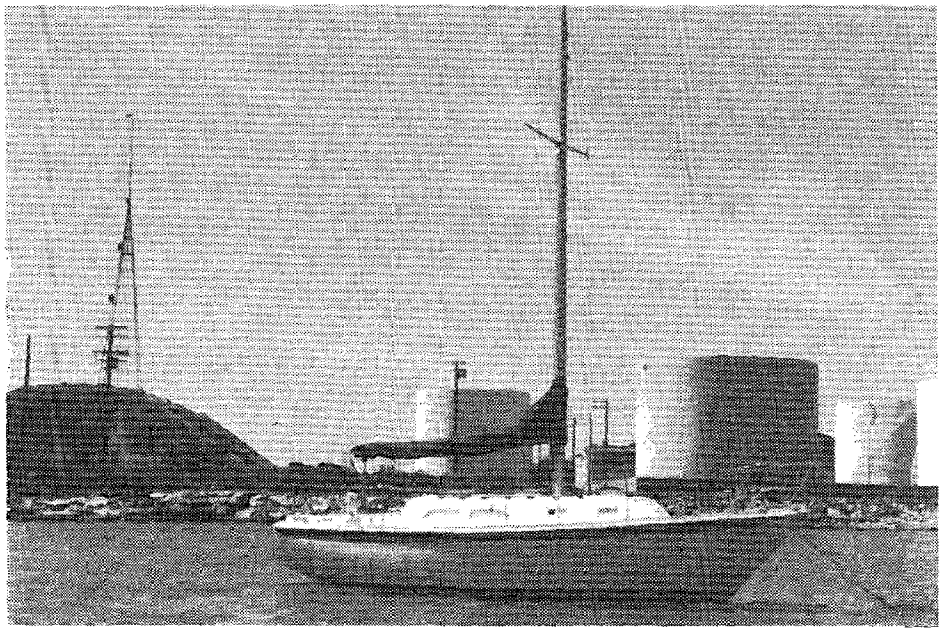
See page 135 for photo of floating star mooring installation owned by the Chicago Park District.



tizing plan using floating star moorings.



Quadruple mooring capacity by using floating star moorings.

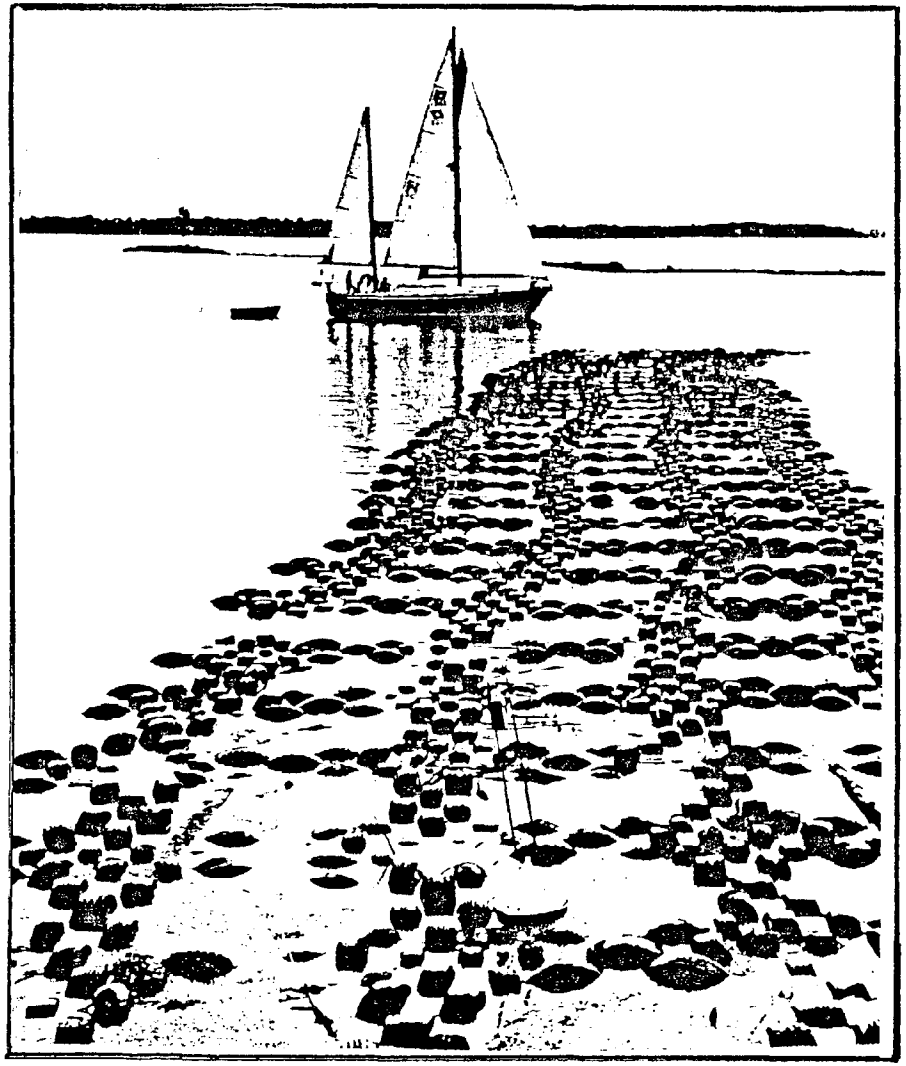


Floating Star moorings consist of 8 piers radiating out from a central octagonal shaped ring, providing 16 slips.

They have been very successfully used by the Chicago Park District in Belmont Harbor and elsewhere.

Installation of floating berths could be self-amortizing in the $300-$400 user fee range. According to our analysis, floating star moorings could provide more spaces than a shore connected pier system, and at less than half the cost.

Experiment with a Floating Tire Breakwater (F.T.B.)



There is no question that a breakwater such as that proposed in the Corps plan would provide better protection against wave action than a Floating Tire Breakwater.

Unfortunately, a conventional breakwater is very expensive. We feel that it is prohibitively so.

As an alternative, we suggest an experiment. Construct a floating tire breakwater in Racine Harbor and find out what its effects are. F.T.B's take out the chop from water, but not the swell, and swell is a problem in Racine Harbor.

Still, we feel that a partial improvement is better than none. And we can't say for sure how effective or ineffective an F.T.B. will be in Racine Harbor short of actually installing one. We suggest it be tried and see what happens.

available from a Chicago firm as well. They consist of 8 piers radiating out from a central octagonol shaped ring, providing 16 slips. They are referred to as "star moorings" because of their particular geometry. By varying the length of the radiating piers, different sized boats can be moored.

As shown in the accompanying photograph from the Chicago lakefront, they are located in the open water part of the harbor, thereby reducing or eliminating the cost of near-shore dredging, shoreline bulkheading, and electrical services. Because they float, they could ride the swells characteristic of the Racine Harbor, thus eliminating the need for expensive fixed breakwaters. If inexpensive floating breakwaters prove effective in taking the "choppiness" out of the water, such floating breakwaters could be considered as a desirable but not essential supplement to the floating star moorings.

When compared to a shore-connected pier system, the floating mooring offers an inferior level of service to the boater: no electricity, and all access by dingy boat or jitney-tender. Consequently, in Chicago the fee structure averages in the $300 to $400 range, but the floating system is so much cheaper to install and maintain that if land related services are not too expensive, the system shows promise of being able to amortize itself entirely out of boating revenue at these lower competitive rates.

To test this possibility on the Racine Harbor a set of costs were developed based upon 350 floating berths with a target for making the berths fully self-amortizing in the $300-400 range and launch ramp fees no higher than Milwaukee's $4 average. The costs were assembled by taking the 1976 Warzyn Engineering report and modifying it as shown in the accompanying table. The process consisted of making these basic changes from the shore-connected pier system:

(remove the breakwater proposal)
reduce the amount of dredging
add ramp lanes without rebuilding present lanes
reduce the elaborateness of the shore terracing
substitute floating moorings for fixed docks
reduce electrical and other utility service
assume the boat handling equipment will be private
(either at Gas Co. site or continued Root River service)
reduce size of administration building

The above list cut costs in half (in 1979-1980 dollars) from $3,150,000 down to $1,665,000.

Then, using the same format as the data in the preceding section (20-year bonds, 6% interest, 7% depreciation, operation, and maintenance, with the total split 25% berths and 25% launch ramps) the following results were estimated: Mooring rentals work out to $537 per year and launch fees to $5.20 each launch, both about 25% over target.

COST REDUCTION ANALYSIS FOR INSTALLATION OF FLOATING "STAR" MOORING PLAN FOR RACINE HARBOR (Use Warzyn Report)

As of 1976	Description	Include	
710,000	Dredging Mooring Area	$ 150,000	
71,000	Boat Launching Ramps	25,000	
134,000	Parking	134,000	
61,000	Demolition	61,000	
114,000	Rip Rap Shoreline	114,000	
39,000	More Parking	39,000	
22,000	Drives	22,000	
53,000	Terraces	25,000	
532,000	Docks, 216 Fixed, Increase to 350 Floating	(700,000)	
167,000	Dock Utilities	25,000	
97,000	Site Utilities	25,000	
68,000	Boat Handling Equip.	Private	
30,000	Boarding Dock & Bait Stand	30,000	
200,000	Administration Building	25,000	
34,000	Toilet & Shower Building	34,000	
$2,332,000		$ 709,000	w/out Docks
816,000	Add 35% = 1979-80 Bids	$ 248,000	add 35%
		$ 700,000	Docks
$3,150,000		$1,665,000	

Table 11

Table 12

TEST FOR SELF-AMORTIZATION OF FLOATING "STAR" MOORING PLAN FOR RACINE HARBOR
($1.7 Million Total Cost)

Moorings		Launch Ramps	
$1,250,000 @ 75%		$415,000 @ 25%	
$ 750,000	Interest @ 6% over 20 years	$250,000	Interest @ 6% over 20 years
$2,000,000		$665,000	
$ 100,000	Per Year, Principal & Interest	$ 33,250	Per Year, Principal & Interest
$ 88,000	Depre. Oper. & Maint. @ 7% of $1,250,000	$ 29,000	Depr. Oper. & Maint. @ 7%
$ 188,000	Per Year	$ 62,250	Per Year
$537 per slip @ 350 slips		$5.20 per launch @ 12,000 launchings	
($300-400 slip rental goal)		($4.00 per launch goal)	

While a subsidy is therefore also indicated, it is considerably smaller at 25%, and it may be temporary. Should the alternate harbors such as Milwaukee in a few years raise their launch fee to $5.00, Racine will be competitive without subsidy. The mooring fee at $537 is now competitive with Root River charges presently being levied, but is below the general Chicago - Milwaukee pattern. Therefore, a subsidy for a few years may be indicated, though as an alternate, the on-shore improvements could be staged, or made less elaborate.

Staging may be prudent in any case for the moorings since all 350 slips would not likely be installed at once. This is a major attractive feature of the floating star docks -- that they can be put in at sets of 16 at a time.

Chicago has been proceeding this way, though for 1980 they have announced 800 at once will be installed, possibly eliminating for the first time in years their infamous "waiting list" to get a mooring. That list presently stands at 500.

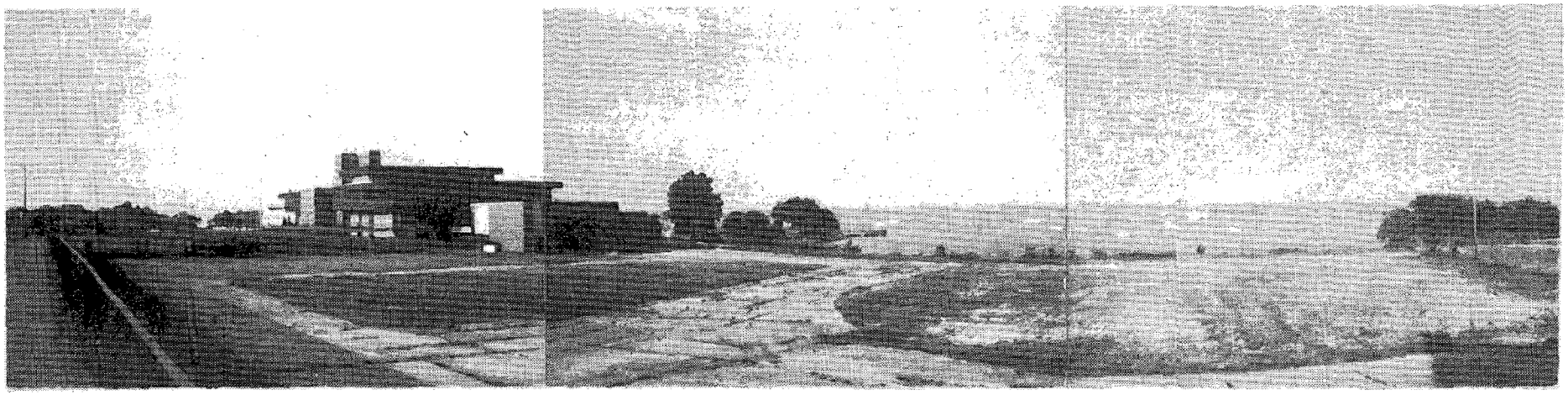
It is possible to avoid all together any subsidy by carefully watching the degree of on-shore improvements. A $34,000 toilet and shower building "would be nice" (1976 costs; in 1980 that becomes $46,000) but would the boaters really want it knowing they will have to pay for all of it out of their fees?

We have left the full $114,000 in for shoreline riprapping (in 1980 that is $154,000), but if it is not essential, or less could be installed, that should be evaluated. It is simply beyond the scope of this report to engineer a plan that would perfectly fit the target revenues, but since we have come within 25% it should be possible for someone in followup work to do so.

C. COORDINATING RIVER AND HARBOR DEVELOPMENT WITH DOWNTOWN RACINE

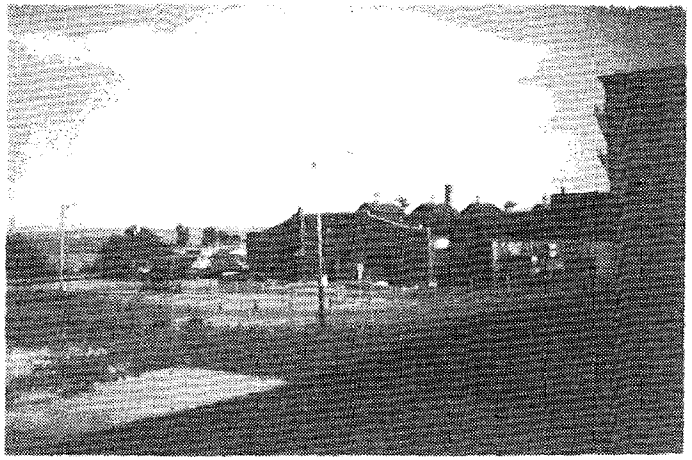
Much of the river and harbor development for recreational boating taking place or being planned was anticipated by the 1975 Downtown Plan adopted by Racine. Therefore, coordination of shoreline and river use with downtown poses no major obstacles. Even our concern that the parking for the downtown harbor not be placed on the west shore can be easily adjusted to the Gas O. - Root River shoreline without causing major disruption to either the downtown plan or to the marina plan or our suggested alternative.

What follows here is a listing of suggestions for each of the four major subsections related to downtown, that would we believe better relate water activity and the downtown.



How To Turn Racine Around: Develop a mil- space. Use this as a catalyst for one hun- in Downtown and the North Side.

There are some excellent reasons for making major capital investments in Downtown Racine. Some of them are visible in the photograph above. There is the sweeping presence of Lake Michigan and the excitement of boating activity. There is the precedent of handsome new corporate construction, such as the Wisconsin Natural Gas Company headquarters.



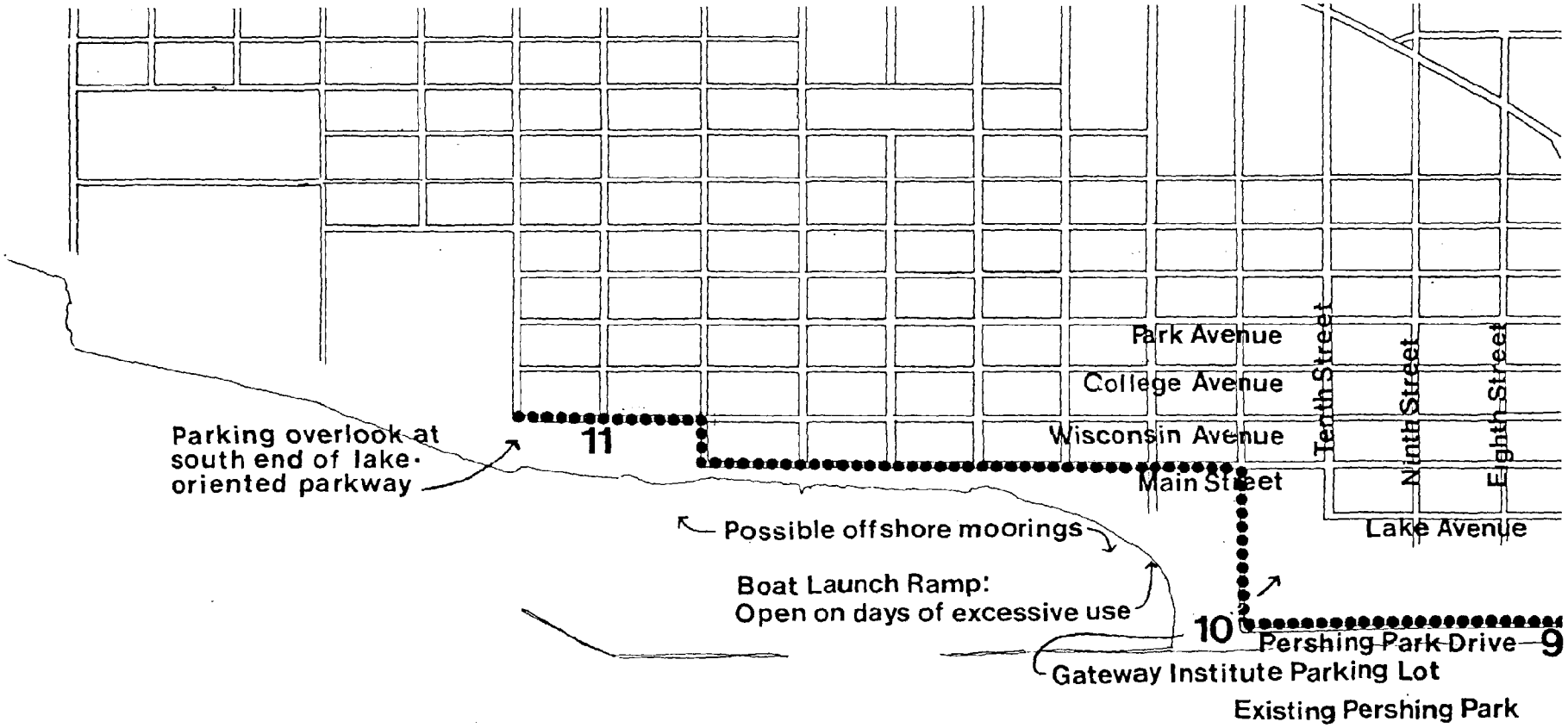
lion square feet of waterfront-oriented park
dred million dollars of new private investment

There are some things which inhibit investment in Downtown Racine. Some of those are also visible in the photograph above. The used car lots on the right, and the storage yards between the gas company headquarters and the water's edge (opposite page, left) have a negative effect on the visual quality of the environment.

For the reasons enumerated in the preface to this report, there is a need to act to create a critical mass of physical improvement. Something needs to be done to tie together the existing positive elements of the Downtown/North Side/Waterfront into a continuous, unified, coherent and harmonious environment.

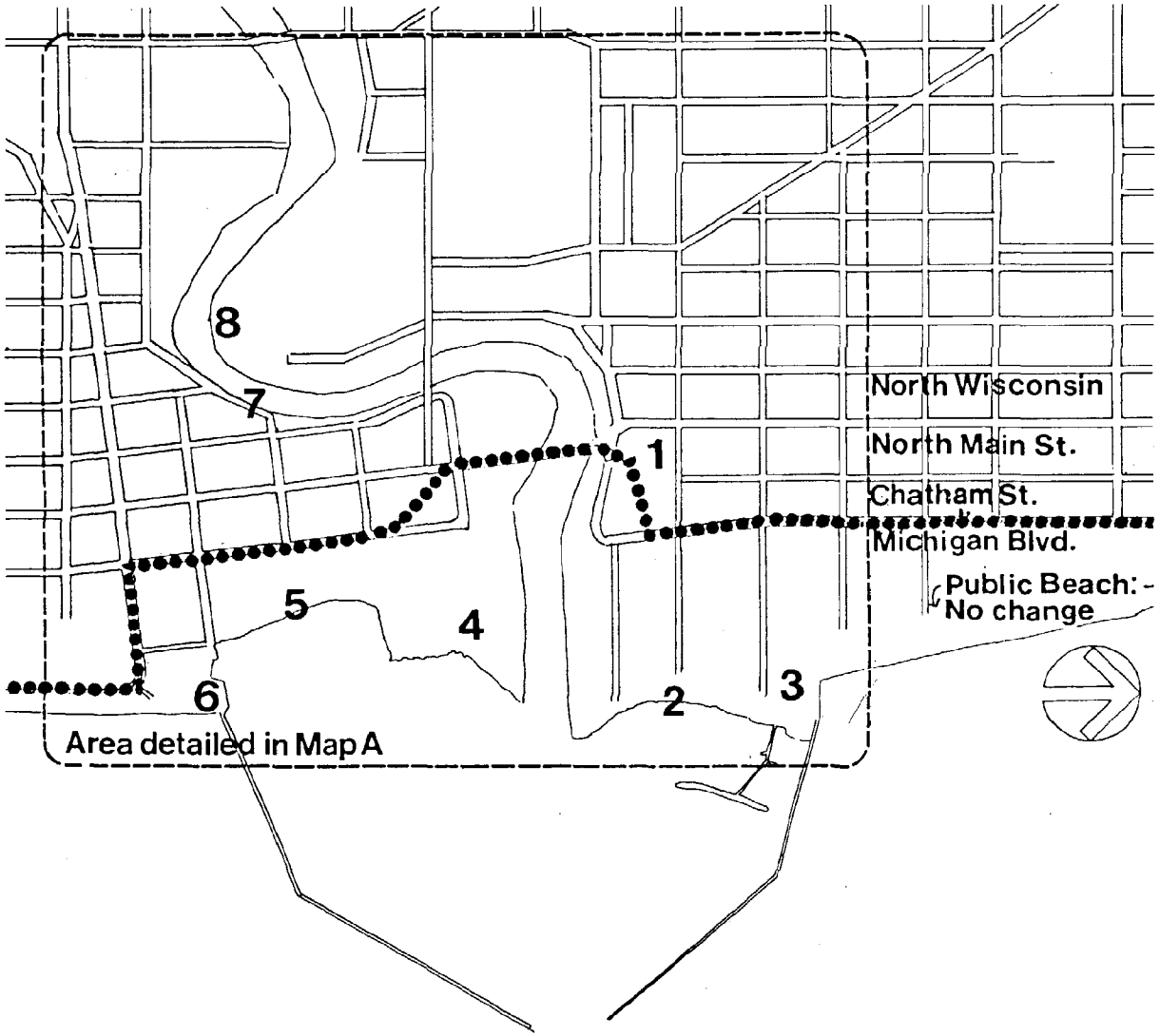
The Waterfront oriented park system which we propose is just such a tying-together. It is the most visible public investment that we can think of. As such, we feel that its implementation may be pivotal in determining the economic, as well as visual, future of Racine.

Eleven Development Projects for a Waterfront·



Better pedestrian, bicycle and, in some cases, auto access to parks 2,3,5,7 and 8 is suggested. This access can be provided on existing streets. Elsewhere in this report these recommended access improvements are listed.

Oriented Park System for Racine



1. Parkway linking bridge and beach.
2. North Harbor Waterfront Park.
3. Link between Waterfront Park and beach.
4. Marina, Waterfront Park Administration, Park and Trail along Root River.
5. Downtown Waterfront Park.
6. People Park by existing boat launch ramp.
7. Waterfront Trail to link with Root River Corridor.
8. Linear or Cluster Parks on Case property.
9. Pershing Park Shoreline.
10. Overflow launch ramps.
11. Overlook Parking south of Roosevelt Park.

Map C 72

North of Root River: Suggested Waterfront Park System Components

	Description	Dimensions	Sq. Ft.
1.	Parkway link from bridge through blight to beach	700' x 200'	140,000
2.	Linear park between Old Coast Guard Station and Yacht Club	1,000' x 100'	100,000
3.	Pedestrian link between new linear park and existing beach	300' x 25'	7,500
4.	Improve Reichert Court and Hubbard Street between Michigan Blvd. and the harbor for pedestrian & vehicle access (paving, undergrounding of telephone lines, landscaping)	2,000' x 10'	20,000
5.	Additional landscaping of Michigan Blvd. and Dodge Street between Barker and Main Street Bridge	1,400' x 10'	14,000
			281,500
6.	Trade-off of additional boat storage space for Yacht Club in exchange for access strip to link beaches	300' x 100'	-30,000
			251,500
			or 5.8 acres

South of Root River, North of Gateway Technical Institute: Suggested Waterfront Park System Components

Description	Dimensions	Sq. Ft.
1. Marina, administration area, public park and Root River Trail on existing Wisconsin Natural Gas Co. storage area	600' x 800'	480,000
2. Public Park & Beach between existing boat launch ramp and Wisconsin Natural Gas	1,000' x 100'	100,000
3. Landscaped pedestrian access to link downtown to lakefront park on Third and Fourth Streets	400' x 50'	20,000
4. People park east of existing launch ramp	200' x 200'	40,000
		160,000
		or 3.7 acres

Root River: Suggested Waterfront Park System Components

	Description	Dimension	Sq. Ft.
1.	Trail along Root River on south bank from Villa Street to Main Street	2,400' x 50'	120,000
2.	Linear or cluster parks along Root River on Case property	1,600' x 75'	120,000
3.	Access to linear on cluster parks from Superior & Ontario Streets (landscaping, undergrounding of utility lines)	1,400' x 10'	14,000
4.	Access to Root River trail from Villa or neighboring street	600' x 20'	12,000
5.	Access and trail on north bank of Root River between State Street and North Main Street	1,400' x 10'	14,000
			280,000
			or 6.4 acres

Pershing Park, Gateway Technical Institute and Harbor: Suggested Waterfront Park System Components

Description	Dimension	Square Feet
1. Pershing Park shoreline	3,000' x 60'	180,000
2. Overflow launch ramps	300' x 150'	45,000
3. Parking Overlook south of Roosevelt Park	500' x 50'	25,000
		250,000

* * * * * * * * * * * * * * *

Total Square Footage for Suggested New Components of Racine Waterfront Park System.

Description	Square Feet
1. Area north of Root River	251,500 sq.ft.
2. Area south of Root River, north of Gateway Technical Institute	160,000 sq.ft.
3. Root River west of Main Street Bridge	280,000 sq.ft.
4. Pershing Park, Gateway Technical Institute and Harbor	250,000 sq.ft.
Total	941,500 sq.ft. or 21.6 acres

Funding Sources for Program Implementation

Funding Sources for Implementing Racine Waterfront Park System

1. County General Funds
2. City General Funds
3. State of Wisconsin Harbor Improvement Funds
4. Wisconsin Coastal Management Program Funds (planning only)
5. Community Development Block Grant Funds
6. Bond Issues
7. Heritage Conservation and Recreation Service (50% federal matching funds)
8. Urban Park Recovery Act (50% federal matching funds for eligible communities)
9. Private funding from individuals, groups, corporations, and foundations including community foundations.

The eleven parks that we suggest be created (see pages 71 and 72 - Map C) to form a unified waterfront park system total 21.6 acres.

We feel that the creation of this park system is one of the most cost-effective public expenditures that could be made.

A public investment of perhaps two million dollars could serve as a catalyst for a private investment of perhaps one hundred million dollars in redevelopment of the downtown area of Racine. North side private redevelopment could also be expected to be encouraged by the construction of the 5.8 acres of park components we recommend for that area.

Area North of Root River

View west of North Side. We suggest that the bulkhead line of the shoreline north of the old Coast Guard Station be moved east and a public park be created. North of the Main Street Bridge is the blighted area where we suggest a parkway be created to link Downtown and the beach.

Create a Parkway to link Downtown and the beach.

I. Area North of the Root River

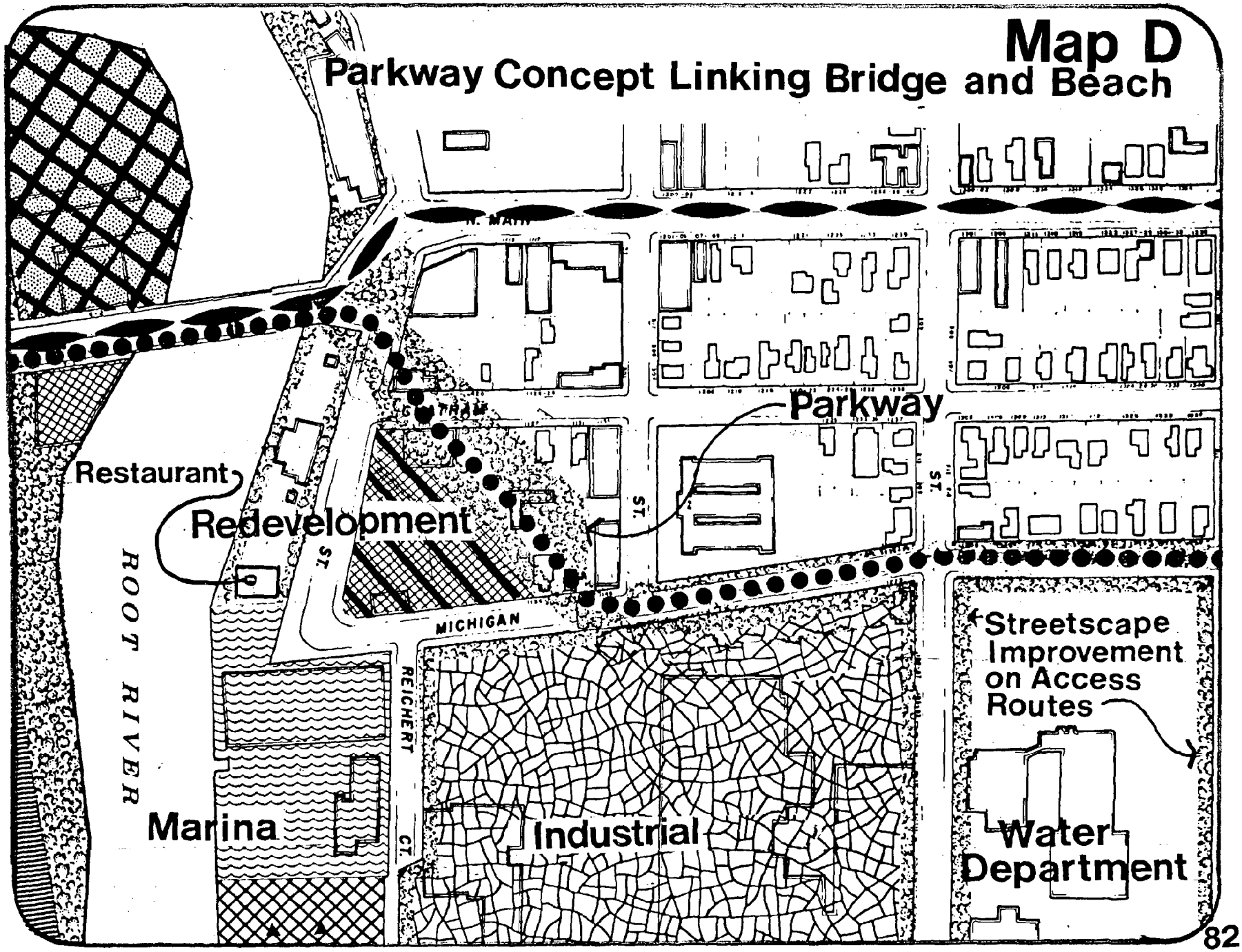
The single greatest need is to reduce the isolation of the public swimming beach and the Racine Yacht Club from downtown, and from the arterial road system that reaches the Main Street bridge. The second greatest need is to improve the tawdry and uncaring appearance of the shoreline between the yacht club and the former Coast Guard Station. That view establishes part of Racine's "image" from Lake Michigan, and should not be neglected as more and more people use the adjacent waters for recreation.

Ideally the intervening industrial activity, and the bulk storage on the commercial wharf, should be reduced or eliminated, but that appears impractical for the foreseeable future. The industrial parking, in fact, might provide ideal dual usage by being made available through lease for harbor use on evening and weekends when it is not used by industry.

We recommend filling to or toward the established bulkhead line, creating a narrow County shoreline park.

To tie the swimming beach and yacht club park to the arterial street system and to open the area visually, the accompanying map recommends a parkway road from the Main Street Bridge to the swimming area.

Below: Blighted area through which we suggest a parkway be created to link the existing linear park and beach with Downtown Racine (see map opposite).


Map D
Parkway Concept Linking Bridge and Beach
N. MAIN
Parkway
Restaurant
Redevelopment
ST.
ST.
ST.
ROOT RIVER
MICHIGAN
REICHERT
CT.
Streetscape
Improvement
on Access
Routes
Marina
Industrial
Water
Department

Replace a blighted area with a landscaped

We suggest the creation of a short(seven hundred feet long by two hundred feet wide) stretch of parkway to link Racine's downtown with its public beach.

Four-fifths of a mile of landscaped parkland slopes down from Michigan Boulevard to the sandy beach. The view of Lake Michigan from this boulevard rivals that of Lakeshore Drive in Chicago. The northern end of this linear park, the Racine Zoo is a notable anchor for this panoramic sweep of public shoreline.

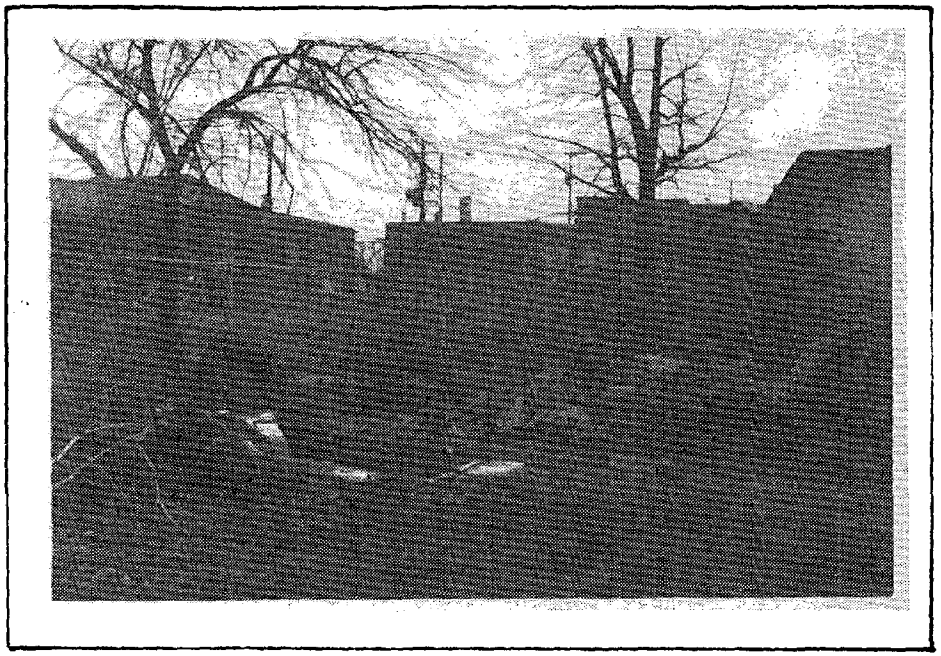
Yet, something is wrong. This magnificent expanse exists as a fragment. It is cut off from efficient vehicle access from downtown by an awkward street layout. The street runs through an area of visual blight and often low grade land uses.

This visual blight insults the senses. It takes away from the substantial pleasure of the shoreline itself. It stops everything dead.

drive between Main St. Bridge and this panorama.

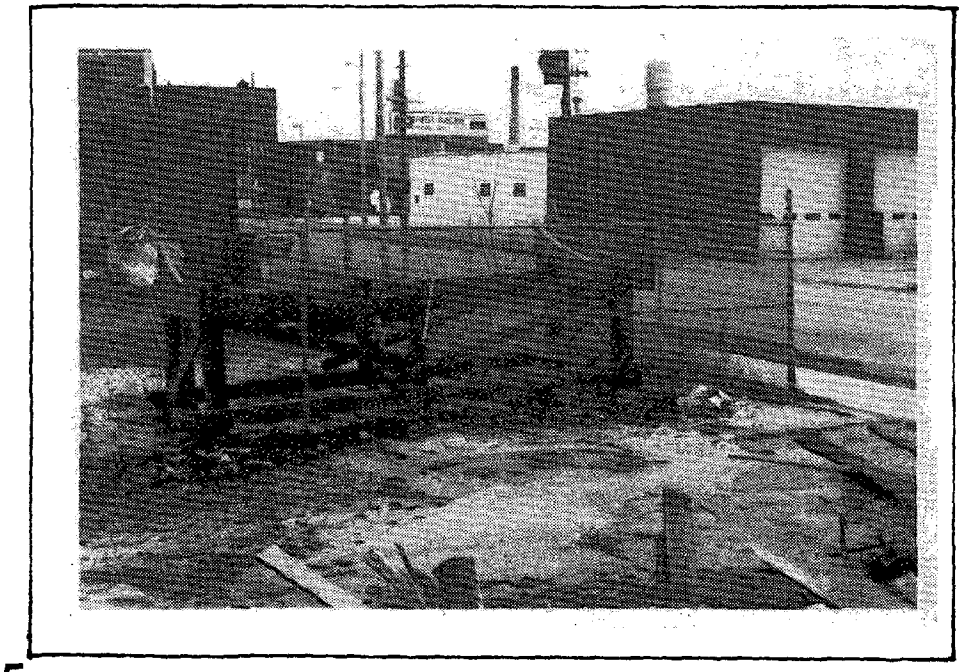
There is no way to tell that there is any place worth seeing to the northeast of the Main Street Bridge. Low, concrete block buildings, empty lots, an abandoned house and a forest of telephone poles create a physical visual and psychological wall between the downtown and the beach.

By acquiring approximately 140,000 square feet of blighted property, and creating a landscaped parkway, Racine can create a beautiful and logical link between three of its greatest assets: its historic downtown, the Root River as seen from the Main Street Bridge, and the public beach along Lake Michigan Boulevard.



Between the Root River at the Main Street Bridge and the beach is a visually blighted area.

One story concrete block buildings, an abandoned house, empty lots, fences with barbed wire, old tires an other refuse define this environment.

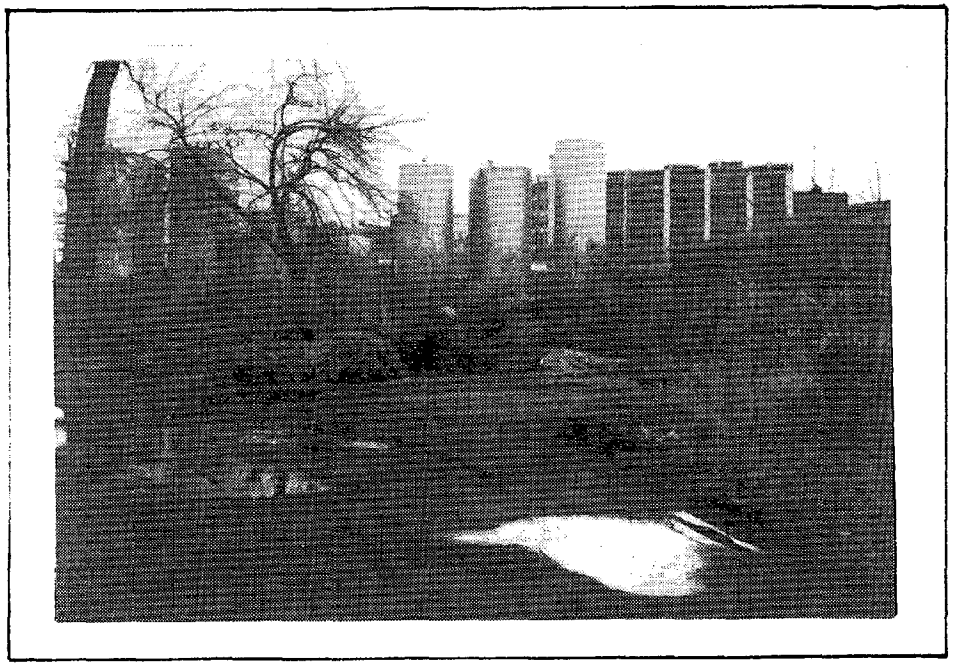


We suggest that this blight be replaced with a parkway. A fully landscaped link about seven hundred feet long and roughly two hundred feet wide would connect downtown Racine with the city's fine lakeside park.

Blight cuts off Down-Side and the Lake.

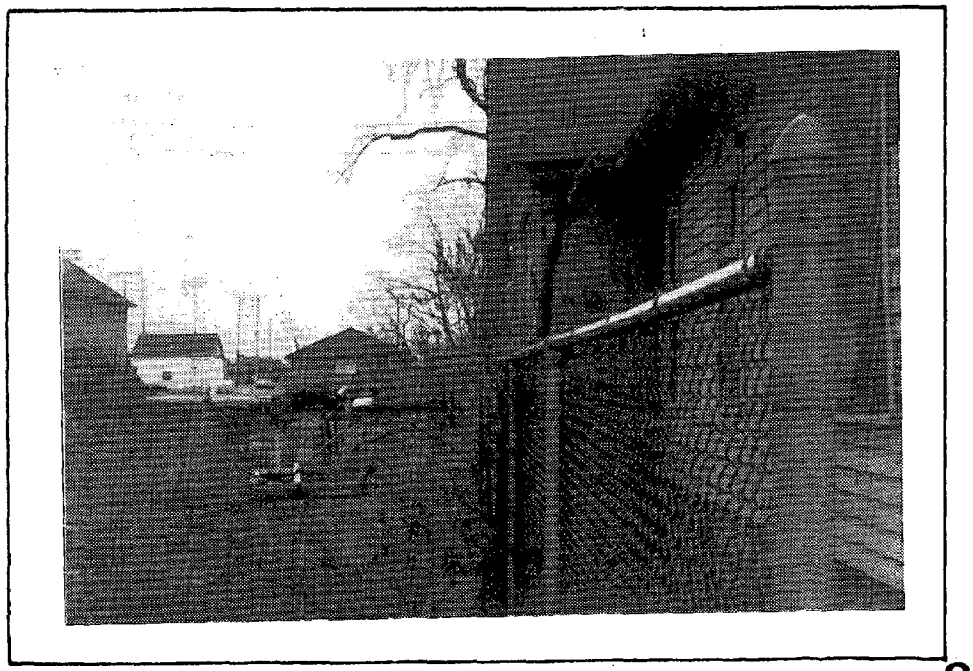
A multi-story brick building that is on the far side of the Root River and part of downtown is seen in the upper right hand corner.

Although the river is only four hundred feet south of this spot, it is lost from view. And although a corner of the lakeside park is only one thousand feet to the northeast, visually and psychologically it might as well be in another country.

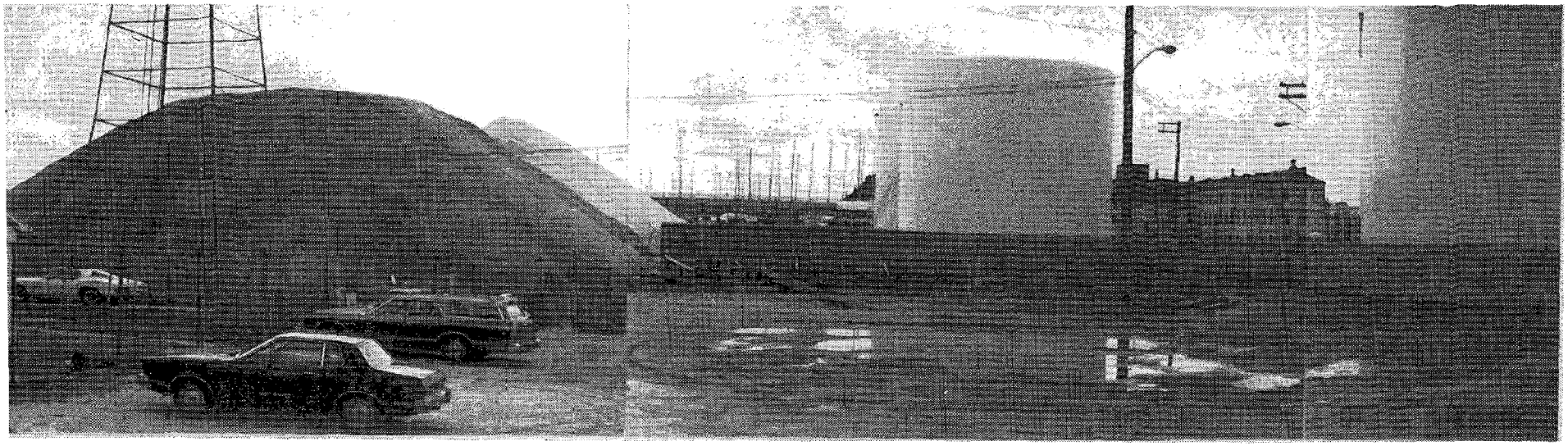


There is little in this environment to suggest that only a short distance away is the intensity and potential excitement of downtown and the river in one direction and a panoramic view of Lake Michigan in the other.

A parkway would link these two outstanding assets.



town from the North

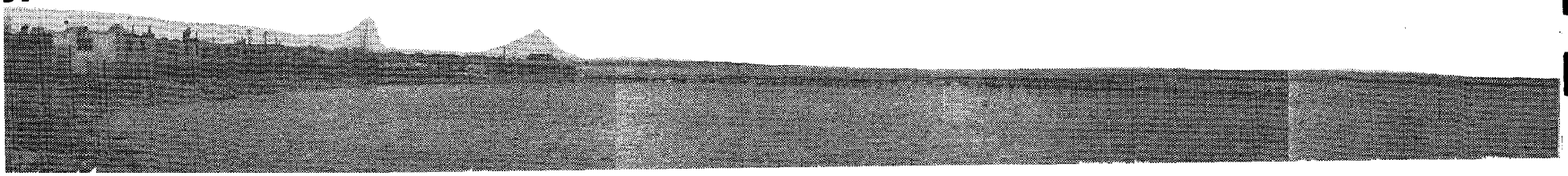


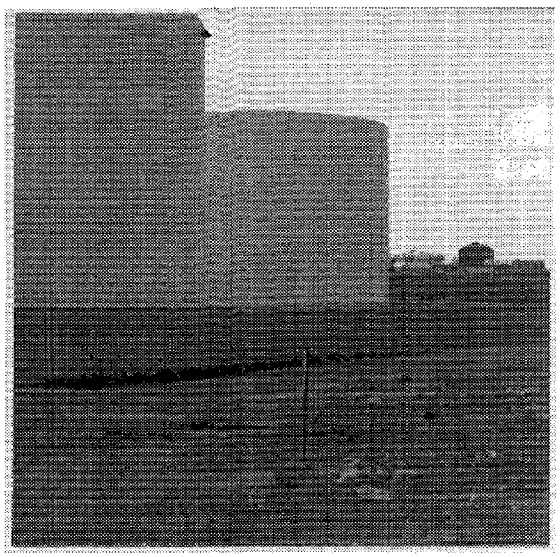
A thousand feet of shoreline stretch between the Racine Yacht Club (below, left) and the old Coast Guard Station (opposite page, below, right). During sailing weather this north part of the harbor is the scene of colorful activity.

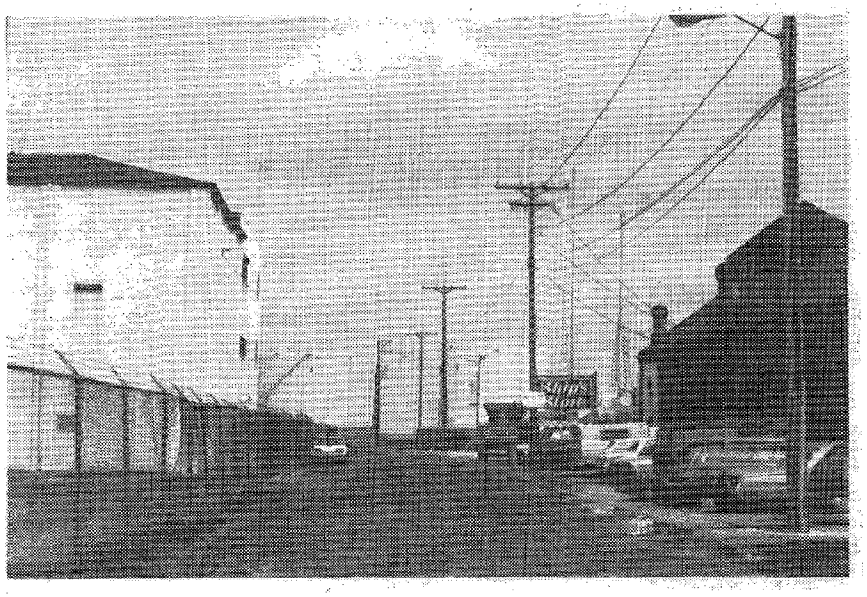
Although this shoreline is in the public domaine, it remains undeveloped and visually blighted.

We suggest that this be improved by the creation of a shoreline park. The industrial property to the west can be screened with landscaping. Access roads, such as the one which runs through the Pugh property (see opposite page) could be improved by paving and drainage, undergrounding of telephone lines, and screening of the barbed wire fence with greenery.

A thousand feet of public shoreline, waiting to



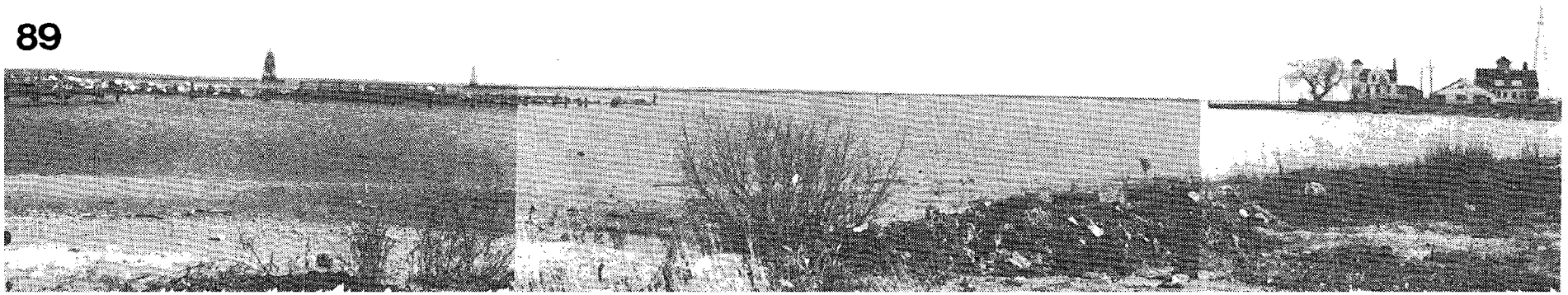




become a waterfront park.

The old Coast Guard Station: Southern anch·

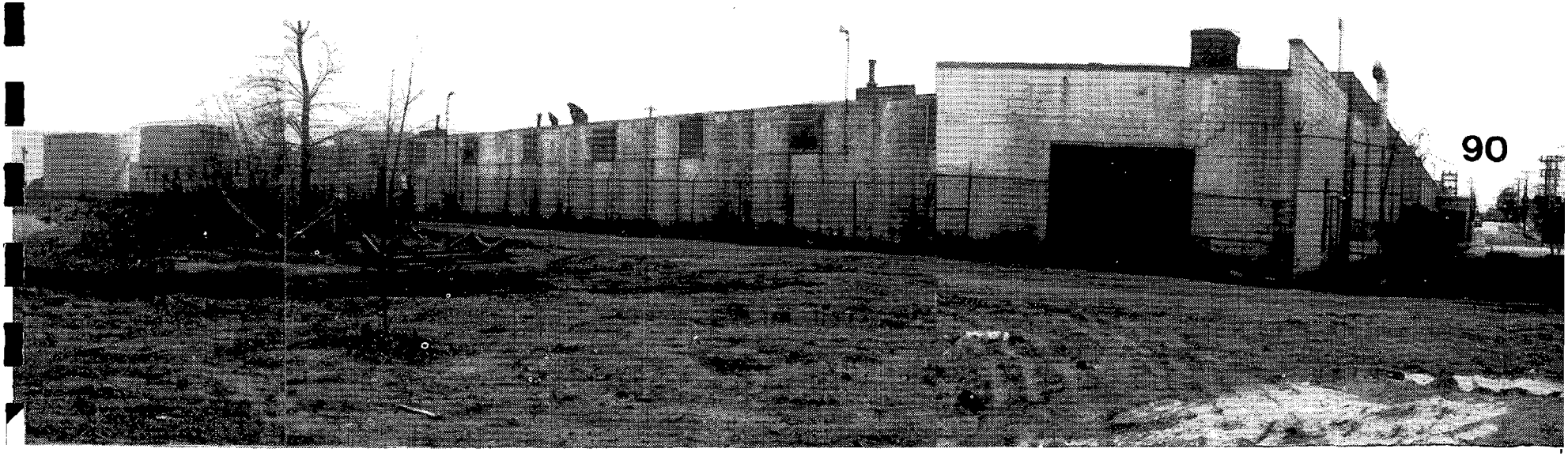
89



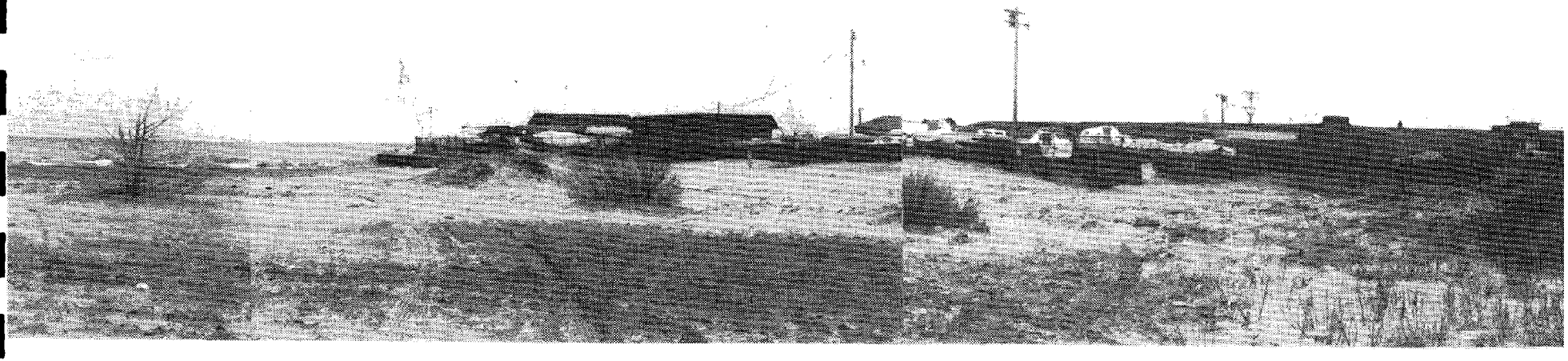
or for a new park.

A thousand feet of shoreline park can be created here. The park would link the old Coast Guard station (opposite page) with the Racine Yacht Club. The rear facade of Walker Manufacturing could be screened with landscaping.

The access road (lower right) would benefit from undergrounding of telephone lines as well as landscaping to screen the industrial building.



Create an access strip here to tie together the exist-

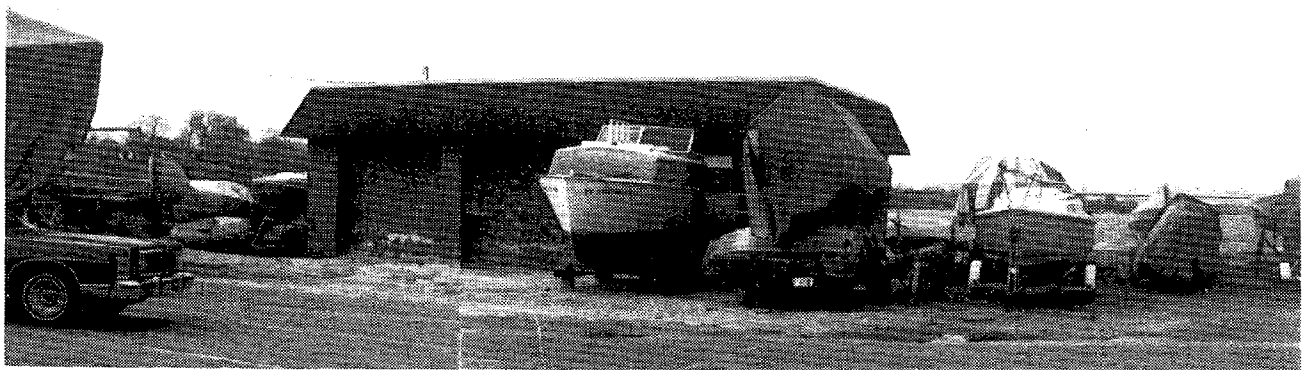


We suggest that an access strip, three hundred feet long and twenty-five feet wide be created to link the public shoreline north and south of the Racine Yacht Club.

There is now one mile of public shoreline between the Root River and the old Coast Guard Station on the south and the Racine Zoo on the north. You can walk continuously from the Root River at the Harbor Patrol station, along the shore of Lake Michigan all the way to the zoo. Except for the Racine Yacht Club. It is possible to walk through here and see the beach stretching out to the north. A barbed wire fence bars passage to that beach.

Since the Racine Yacht Club is built on public land (it is leased from the city), we feel that its presence, while desirable, needs to be compatible with the public's right to unobstructed access to the City's parklands. There is a crucial difference between a park system and isolated parcels of park property.

ing beach with a new waterfront park to the south.



There is a strong need for connection, linkage between three elements of the city of Racine: the downtown, the Root River and the Lake Michigan shoreline.

This linkage needs to be serve both vehicular and pedestrian needs.

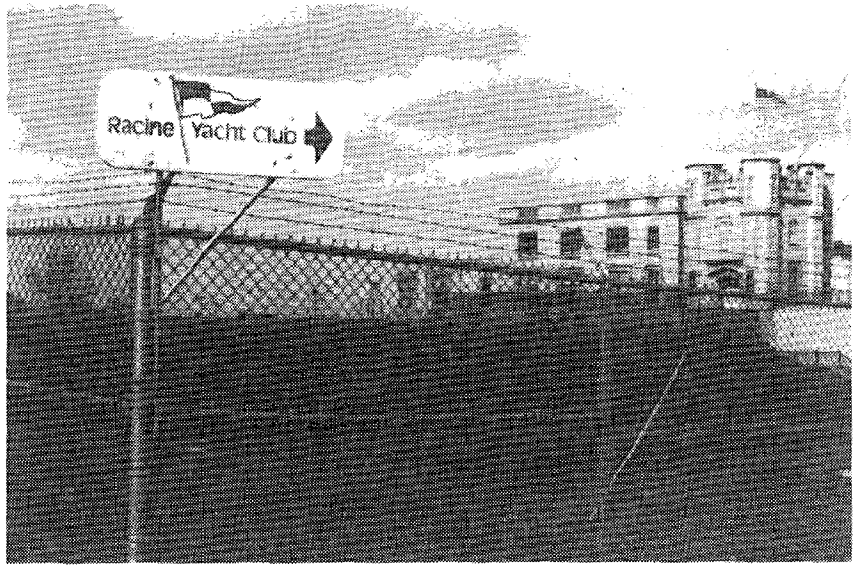
To serve vehicles, we propose the 700 foot long parkway link (see top of map opposite).

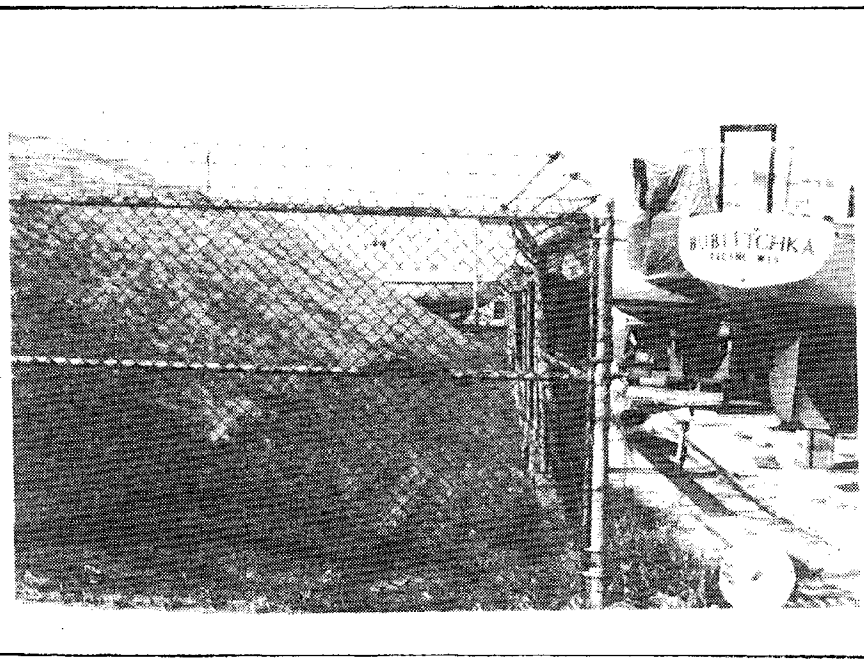
To serve pedestrians, we suggest the 300 foot long, 25 foot wide access corridor across the public lands leased by the Racine Yacht Club (see lower right hand corner of map opposite).

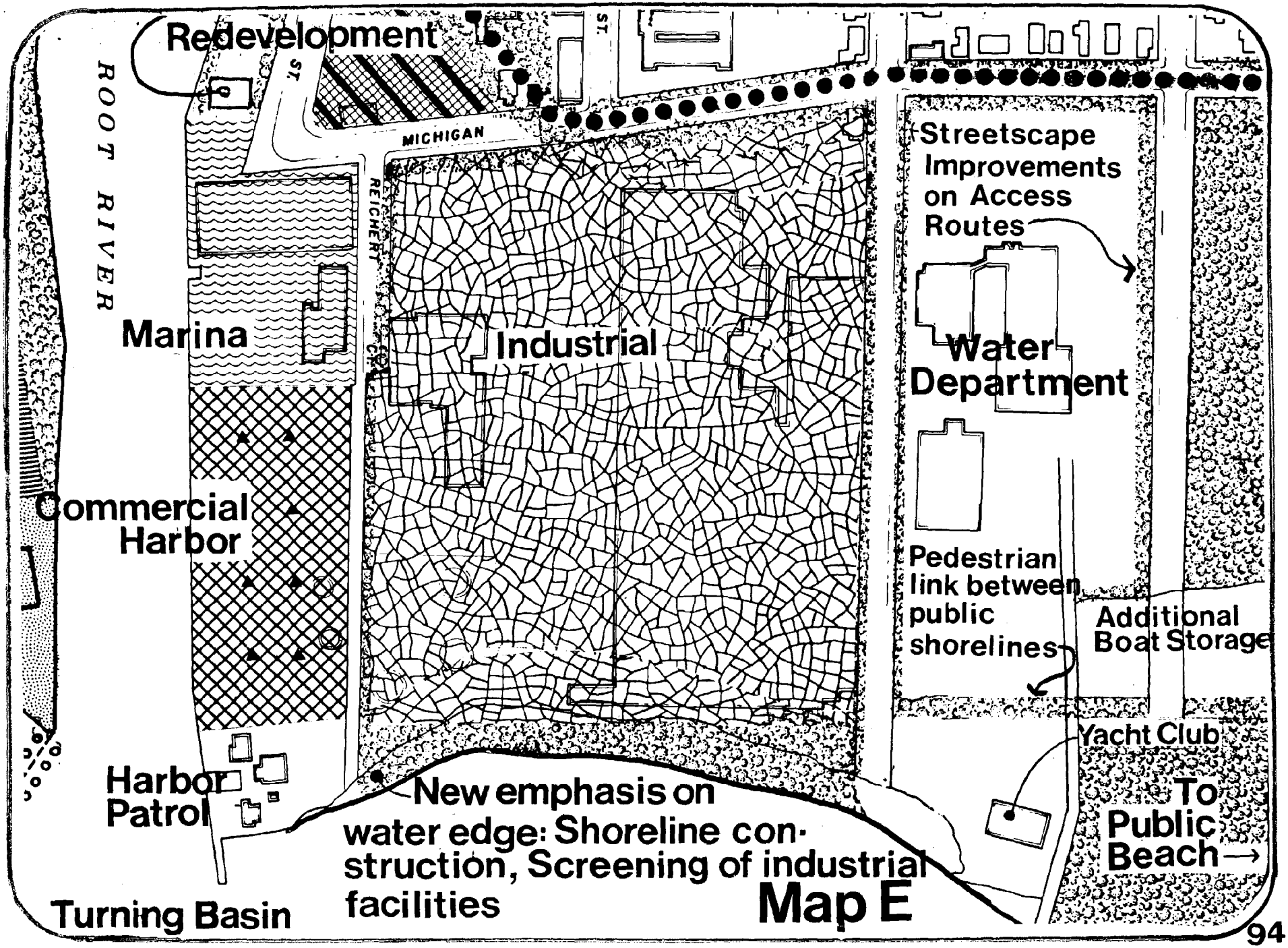
To improve the quality of the streetscape on Lake Michigan Boulevard, we suggest that the Racine Water Department move its fence away from the sidewalk and screen it with plantations.

Similar landscaping could screen the barbed wire fence along the eastern edge of the Water Department. It is along this edge that we urge the construction of an access strip to link major sections of public shoreland.

We also recommend improvement of the access streets between Lake Michigan Boulevard and the Yacht Club and public shoreland. It is possible to have pleasing public access through industrial areas. In this instance, it seems particularly desirable. The color and activity of a yacht harbor should be matched by a pleasurable access route.

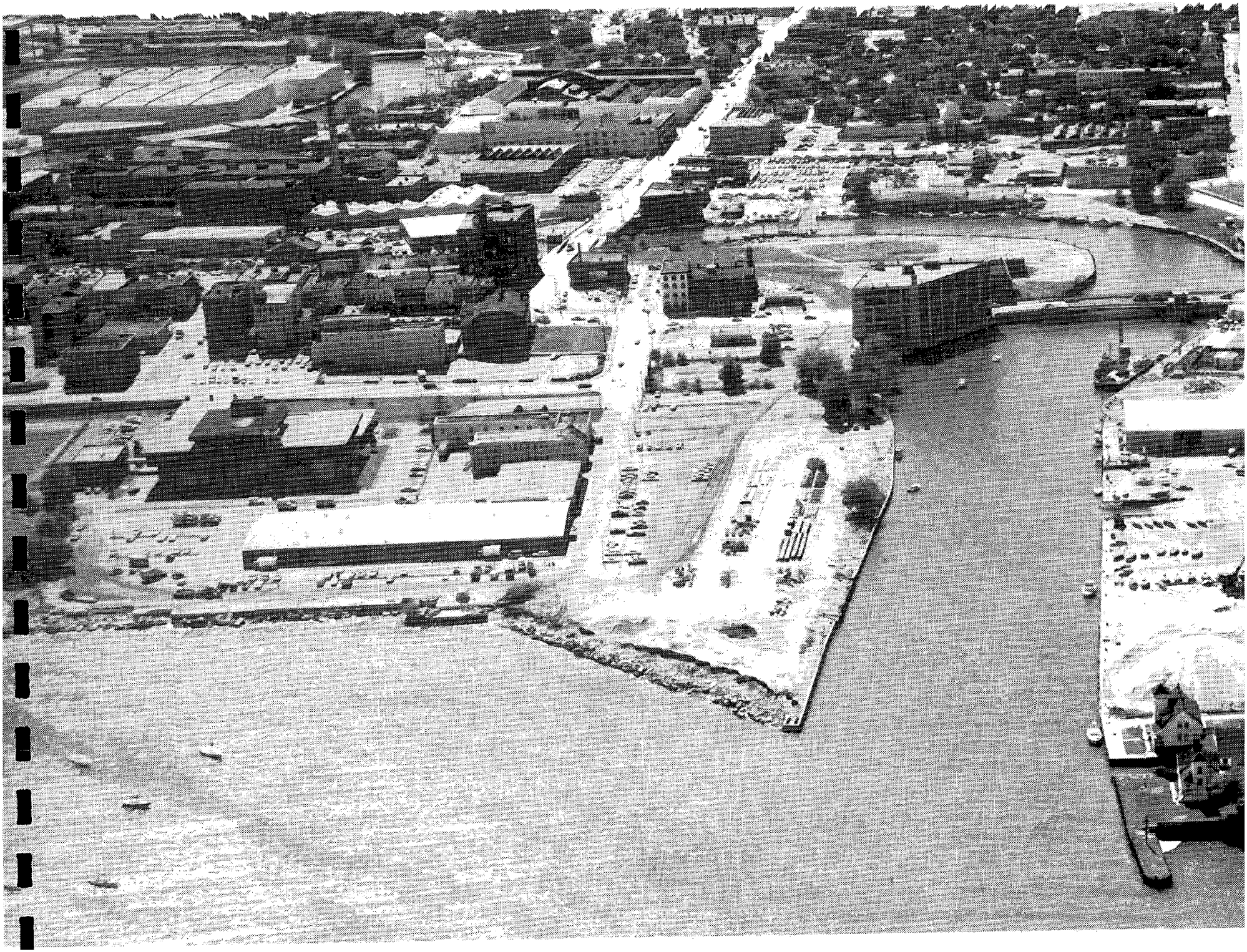





Redevelopment
ROOT RIVER
MICHIGAN
REICHERT
Streetscape Improvements on Access Routes
Marina
Industrial
Water Department
Commercial Harbor
Pedestrian link between public shorelines
Additional Boat Storage
Yacht Club
Harbor Patrol
New emphasis on water edge: Shoreline construction, Screening of industrial facilities
To Public Beach
Turning Basin
Map E

Area South of Root River, North of Gateway Technical Institute

View west of Wisconsin Gas Company headquarters and storage areas. We suggest a public park on the peninsula which projects into Racine Harbor.

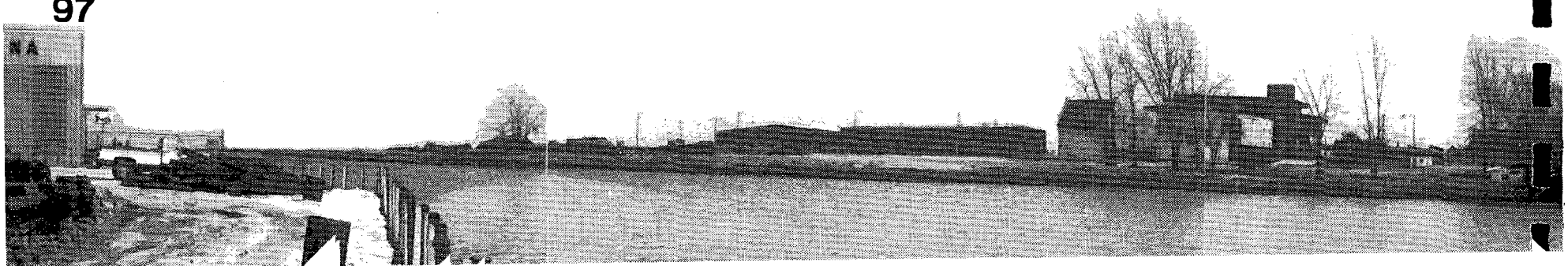


Acquire Wisconsin Natural Gas Co. Storage Build. Waterfront Park.

II. Area South of Root River, East of Downtown

The downtown plan calls for a major pedestrian promenade eastward to the harbor shore, and for a "harbor village" housing and marina use along the south Root River shoreline abutting the Gas Company. Sketches by the City Planning department during the course of this study offer an interesting and practical modification that better blends the adopted downtown plan with the Corps of Engineers plan, or with our suggested alternative to the Corps plan.

We have incorporated the shoreline aspects into our accompanying map. The essential features are to shift the harbor parking for moored boats north to the land facing the commercial wharf, to drop the housing proposal in favor of the parking and in recognition of the wharf view, and to emphasize growth of downtown toward the harbor, allowing for improved pedestrian access.

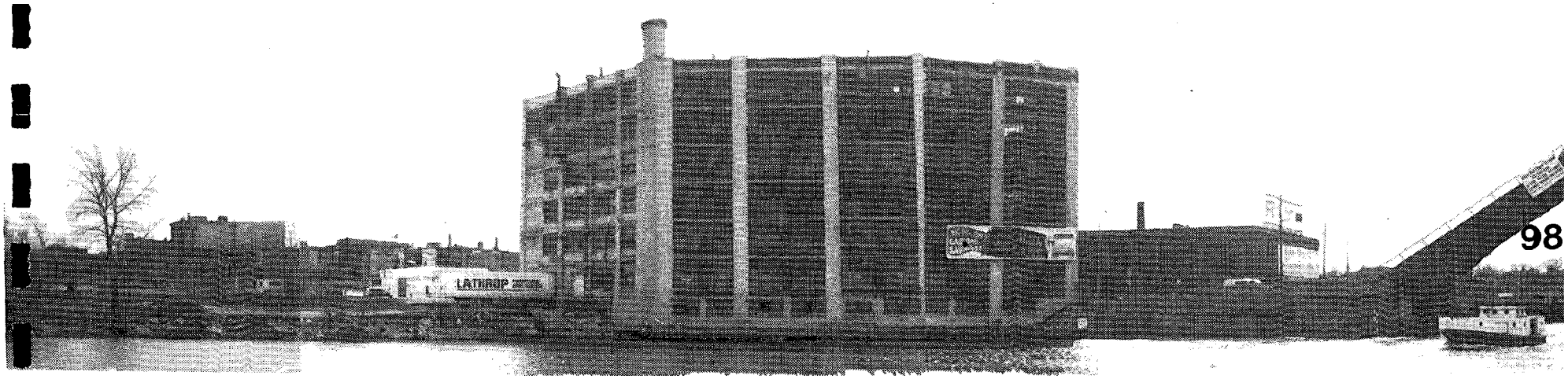


ing and Storage Areas for use as a Marina and

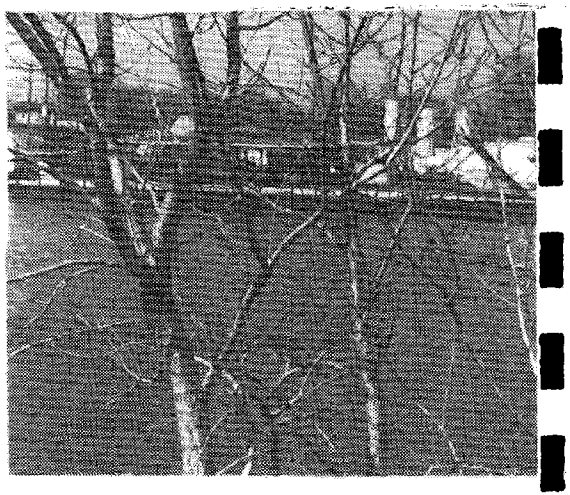
Our interviews with Gas Company officials indicate a willingness to accommodate this plan. Their truck-warehouse structure would be suitable for drydock activities, and under the City Planning sketch the building's location becomes ideally suitable, whereas under the housing approach it is incompatible.

The City Plan sketch proposes, and we strongly concur, that a significant belt of land be placed in park use along the Root River shoreline.

Boating recreation can so quickly consume all the shoreline space for its own needs that other legitimate public access needs are forgotten. The non-boater, non-fisherman is entitled to river and lake access, and to view fishing and boating activity close-up. The south shore of the Root River can be so reserved without interfering with the safe and secure function of boating.



Use the harbor edge as the eastern end of a public trail system.



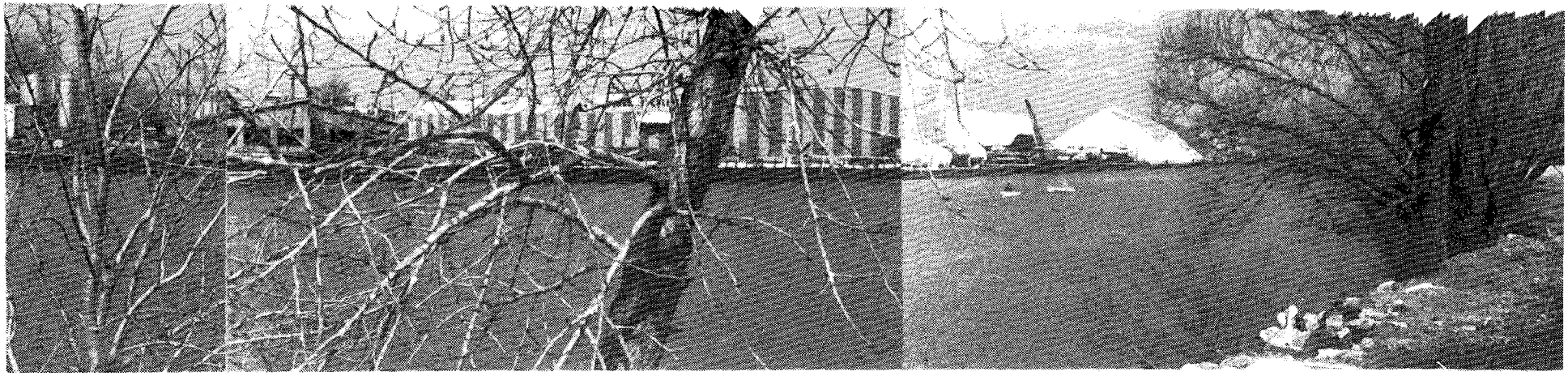
The south shore of the Root River near its mouth could most appropriately be made into a public park. A public trail system along the Root River could have its eastern terminus on the small peninsula which is now storage area for the Wisconsin Natural Gas Company.

The boating activity along this portion of the Root River is surely one of its primary attractions. It is an ideal location for a public park.

While marine activity is what gives this area its excitement, marinas which have large boat storage areas, such as the one in the photograph above and to the right, pose a problem. They are necessary, but because of their sheer size and monotonous walls, they are a considerable intrusion on the visual environment. In a word, they are eyesores.

To minimize the massive, almost overpowering visual intrusiveness, we suggest that large boat storage areas be painted in a way that will minimize their presence. One solution is to paint them in dark colors such as Duronodic 313. This is a rich, chocolate brown which is a standard color on much government directional signage. The roof trim on the Wisconsin Natural Gas company building near the harbor is approximately that color.

In addition to painting boat storage sheds in dark colors, we suggest that they be screened by thorough landscaping. Provision of such landscaping could be made a zoning requirement for future structures, including parking lots, along waterfront areas of the harbor and river.



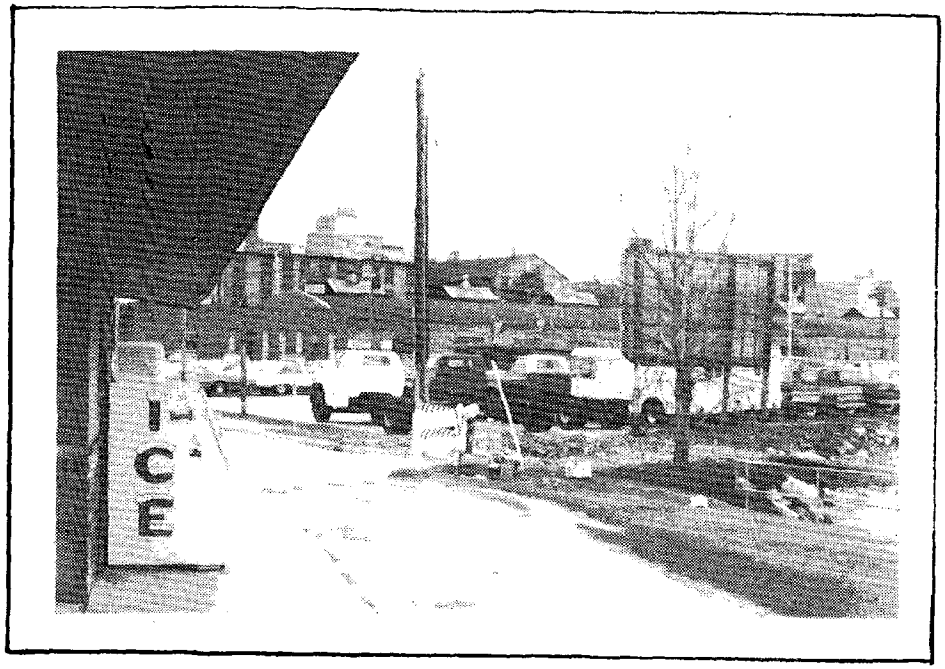
Above: View from the south shore of the Root River looking north and east.

Below: View of Wisconsin Natural Gas Company headquarters and storage areas.

We suggest that the storage areas of the Wisconsin Natural Gas Company, including the large shed be publically acquired. The local governing agency could then give moderate term leases to a private marina dry dock operation. This would give the City or County long term control of the land.

A second option would be to encourage private acquisition directly from the Gas Company to run a private marina service.

The Root River shoreline should be acquired and operated by the County. The property is currently owned by the Wisconsin Natural Gas Company. Our interviews with them suggested a willingness to explore avenues for public acquisition. Our impression, based on those interviews, is that of corporate officials with an unusual sensitivety to, and commitment to, the concept of the public good and the principle of public access to waterfront areas.

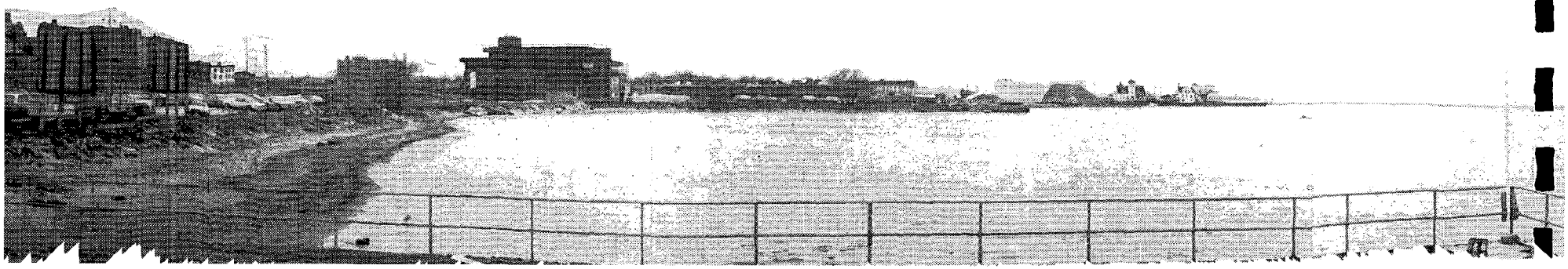


Prime Places for Peo-

A public park and beach can be created along the west shore of the inner harbor (see photos at left and below). The land is at the time of this writing used for the storage of vehicles for an auto dealership.

Following public acquisition, we suggest that the inland portion of this property be used for downtown related shops and residences as per the sketches of the Racine City Planning Department.

Relate downtown shops and residences to the harbor with a new public park.

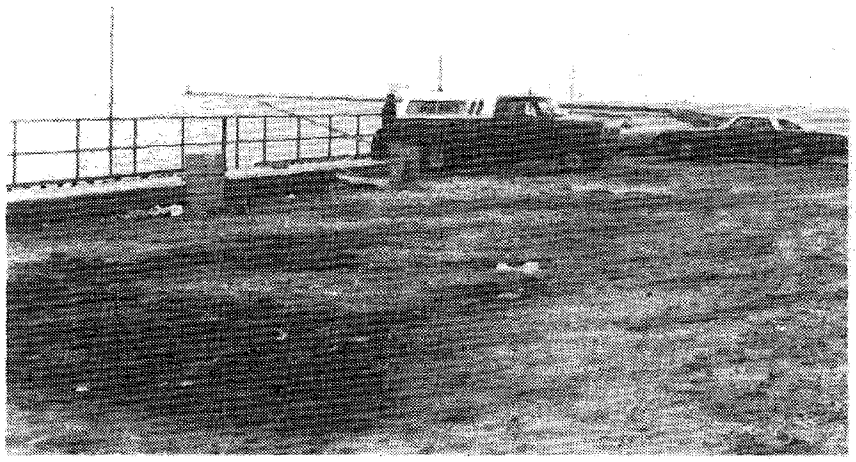


ple Parks

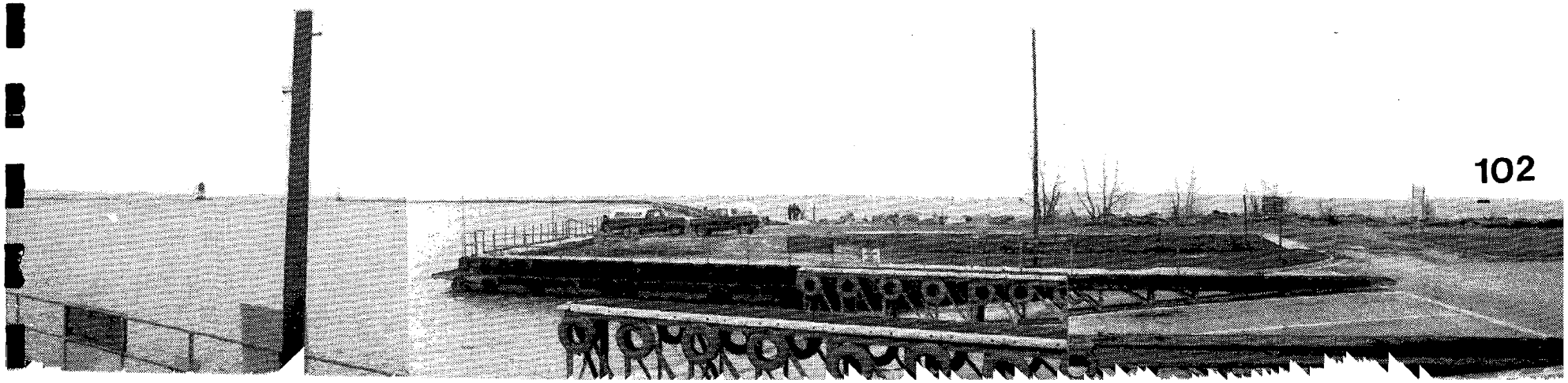
The parcel of land in the photo at right is prime property. It is the junction of the southern edge of Racine Harbor with the northern end of Pershing Park.

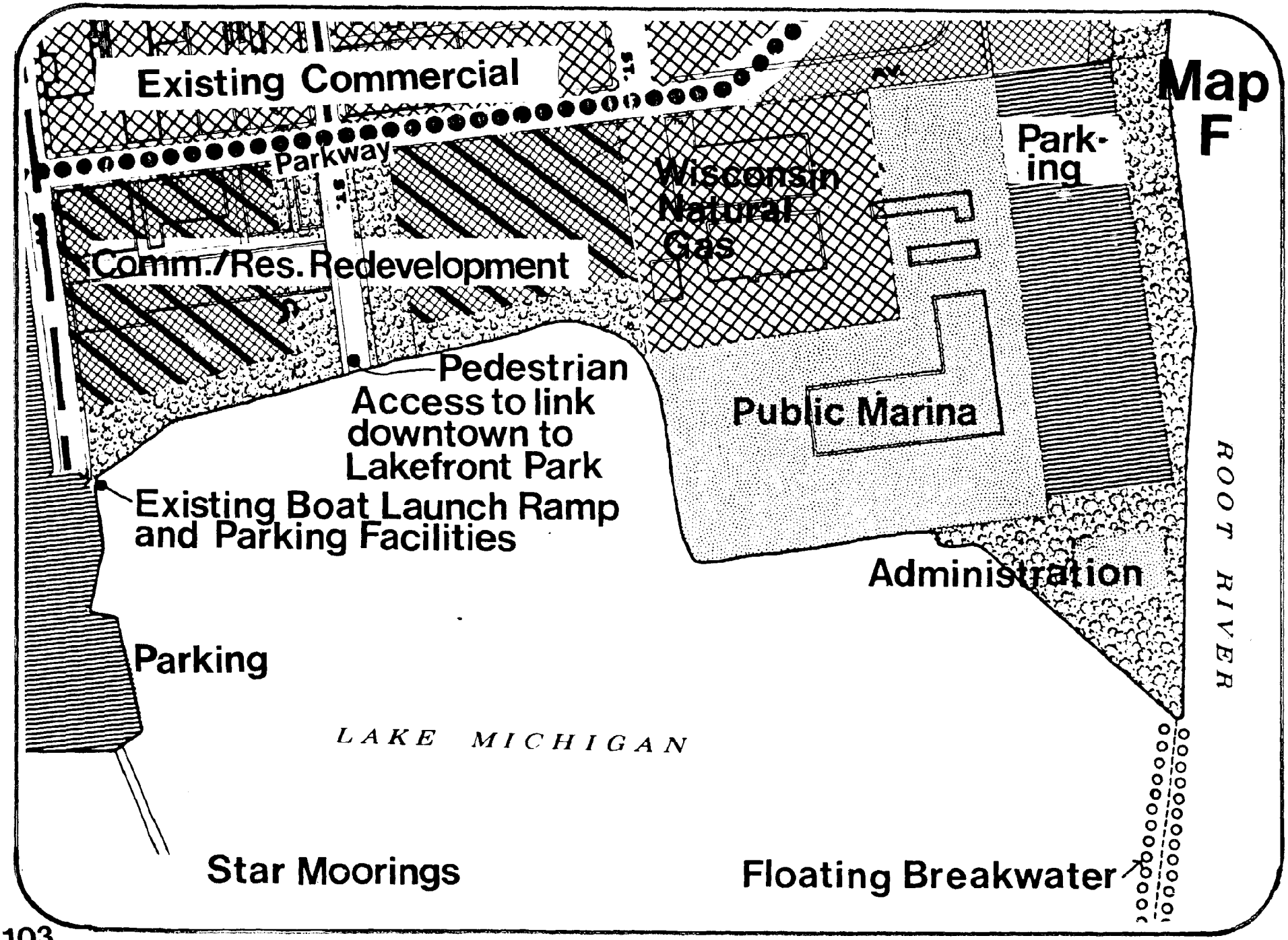
We feel that it would be more appropriate for this area to be thoroughly landscaped and provided with picnic tables and seating areas, water fountains and perhaps a play structure.

This should be a pedestrian-oriented area for fishing, viewing the scenery and people watching.



Save prime water edge land for people, not cars.

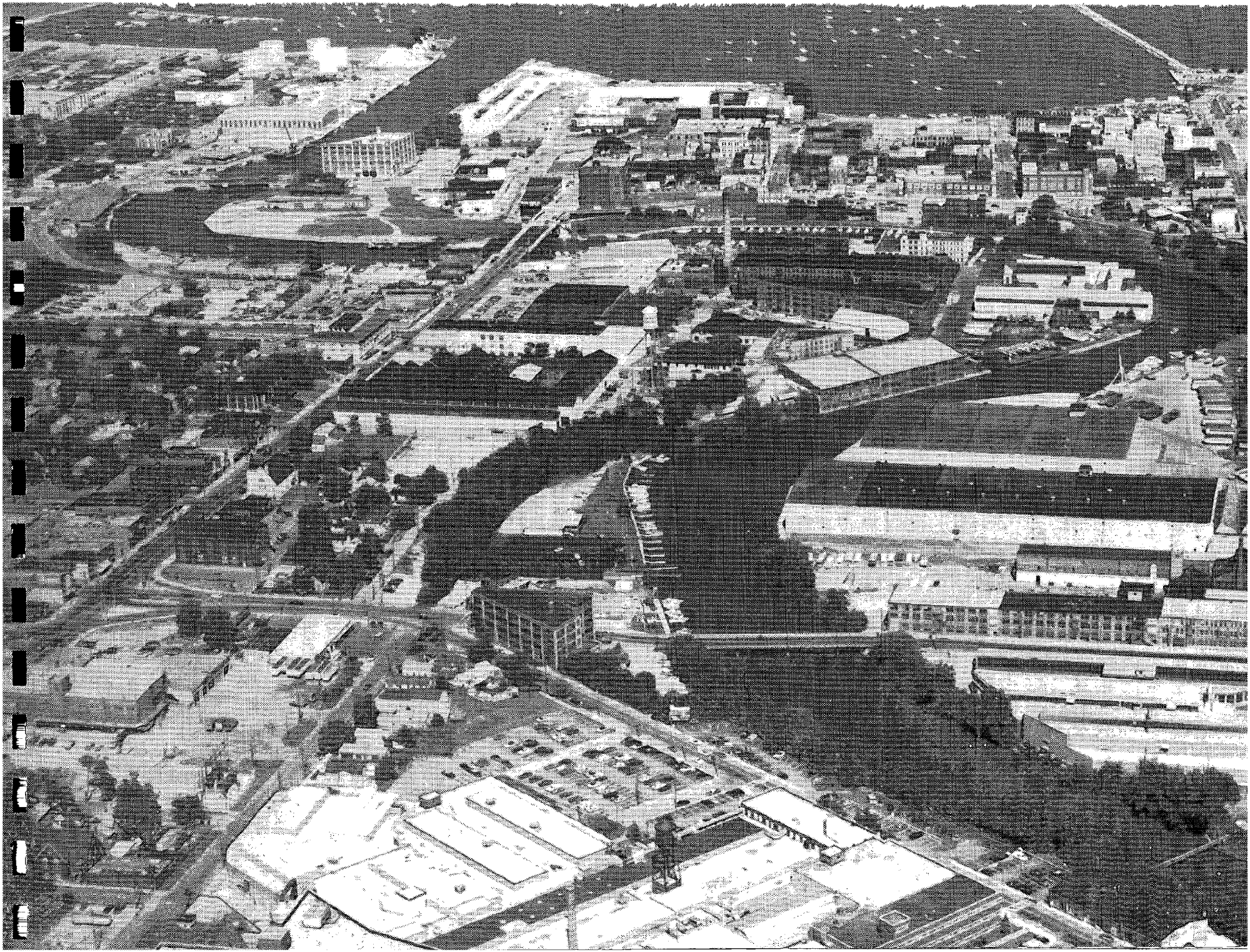



Existing Commercial
Parkway
Comm./Res. Redevelopment
Wisconsin Natural Gas
Park-ing
Map F
Pedestrian Access to link downtown to Lakefront Park
Public Marina
Existing Boat Launch Ramp and Parking Facilities
Administration
ROOT RIVER
Parking
LAKE MICHIGAN
Star Moorings
Floating Breakwater

OPPOSITE: The area around the Wisconsin Natural Gas Company headquarters might be developed as shown in Map F. The harbor could be equipped with a floating tire breakwater (FTB) and with floating star moorings (see page 135 for photo of star moorings in use in Chicago). The storage area owned by Wisconsin Natural Gas could be acquired by the County and serve as a public marina, administration area for the waterfront park areas, and the eastern end of a riverbank trail system. A new lakefront park with pedestrian links to Downtown Racine is also recommended.

Root River

View east of Root River, Downtown Racine and Racine Harbor. Railroad right-of-way, which we suggest be converted to a trail system, may be seen as it follows the Root River and then moves east to the Wisconsin Gas Company property. The mooring capacity of the Root River can be doubled with additional private marina slips.

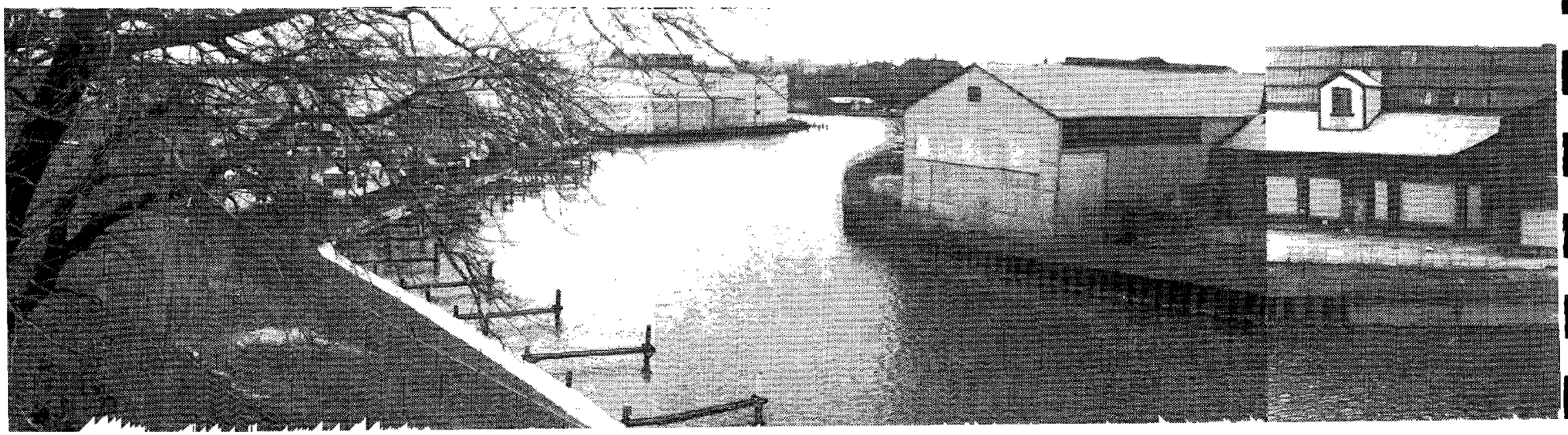


Develop Case property as high density hous-

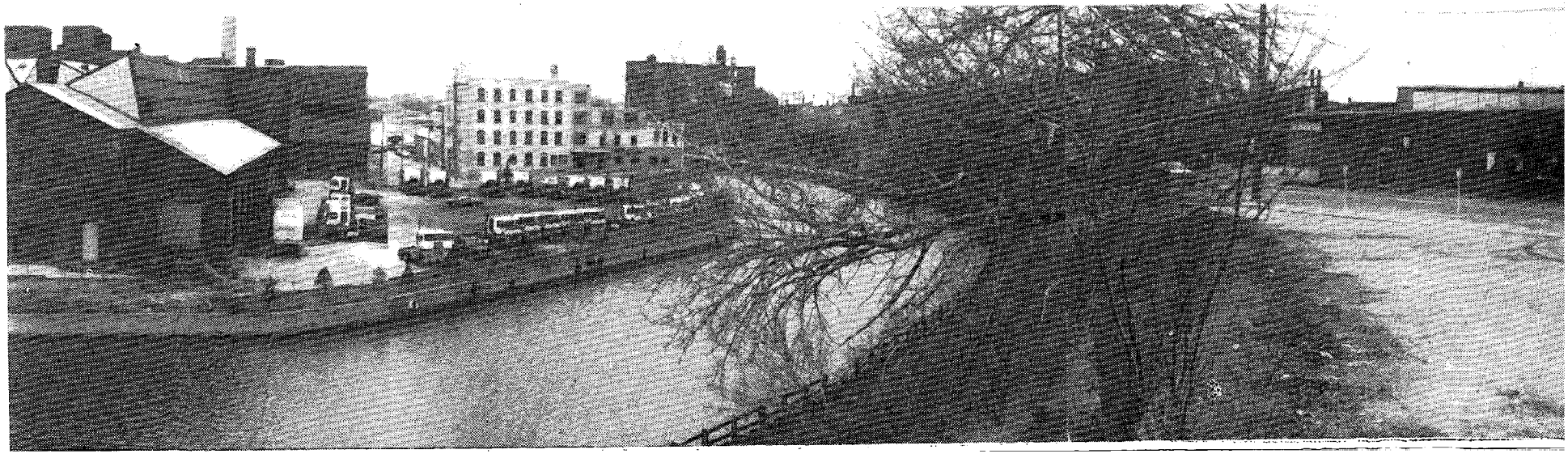
III. Root River west of Main Street

We can discern no commercial use for the river west of Main Street except for a few fishing tugs and charter vessels, which can easily blend with recreational boat moorage. Therefore, except for vestpocket parks to the shoreline on the J.I. Case site when it redevelops, and for a linear park in place of the railroad spur on the south side, all water and shoreline activity can fully convert to recreational boating and marina services as demand justifies. The linear park should flow through or around the Weiss site to connect with the shoreline park north of the Gas Company just discussed.

Redevelopment of the J.I. Case property holds the key to any further dramatic changes along the river shoreline. Interviews with Case officials were not very encouraging that such redevelopment will occur soon. The City's planning posture should be that redevelopment with manufacturing would be a waste of prime land for high density residential use, including potential for more marina space as we show, and the vest-pocket shoreline parks mentioned above. Such close-in housing may prove to be a vital factor in sustaining the downtown retail function against the competition from outlying shopping centers.

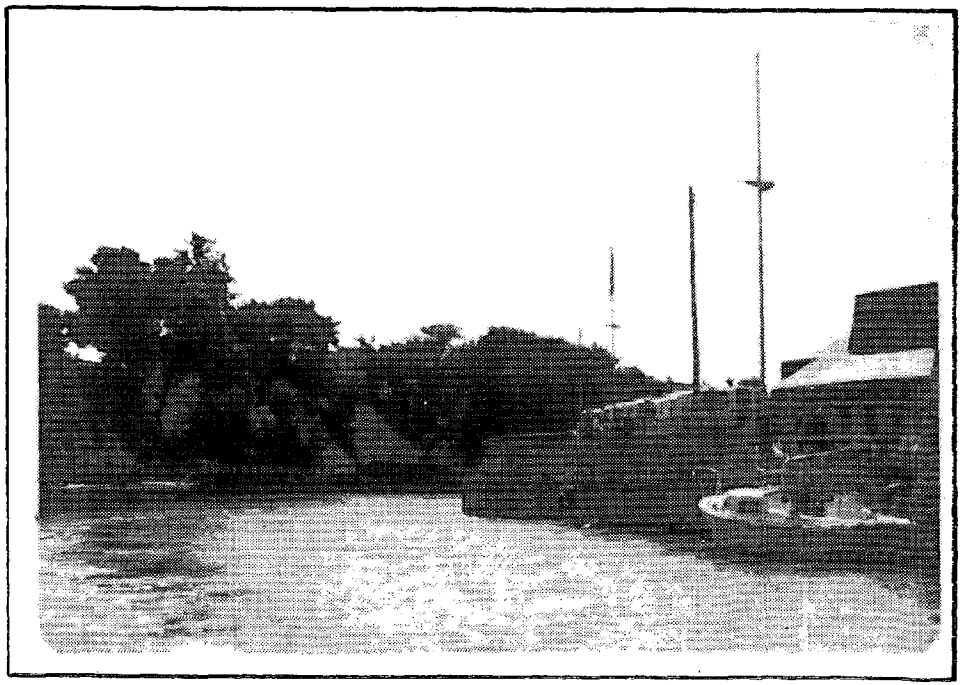


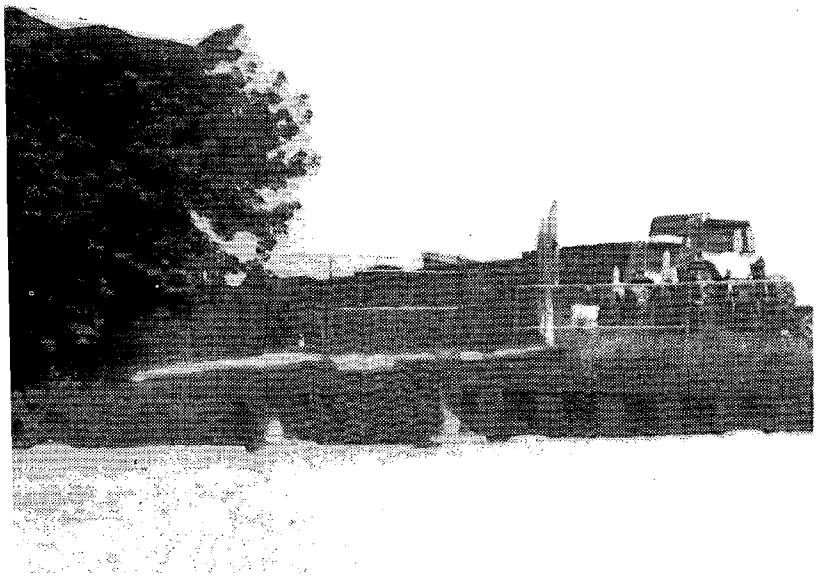
ing with marina services.



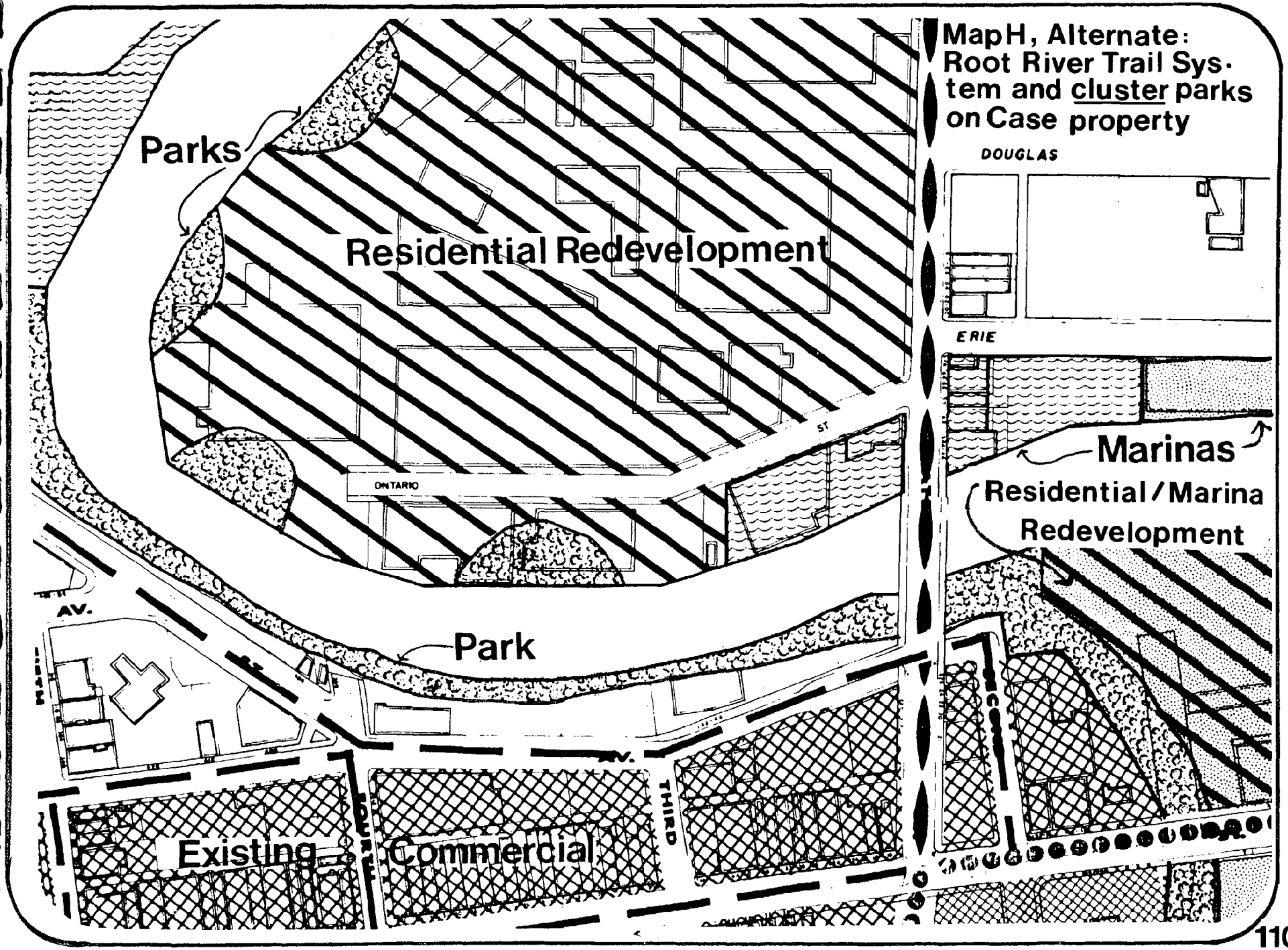
Provide support space for new boat slips on the former Western Publishing tract and the J.I.Case tract.

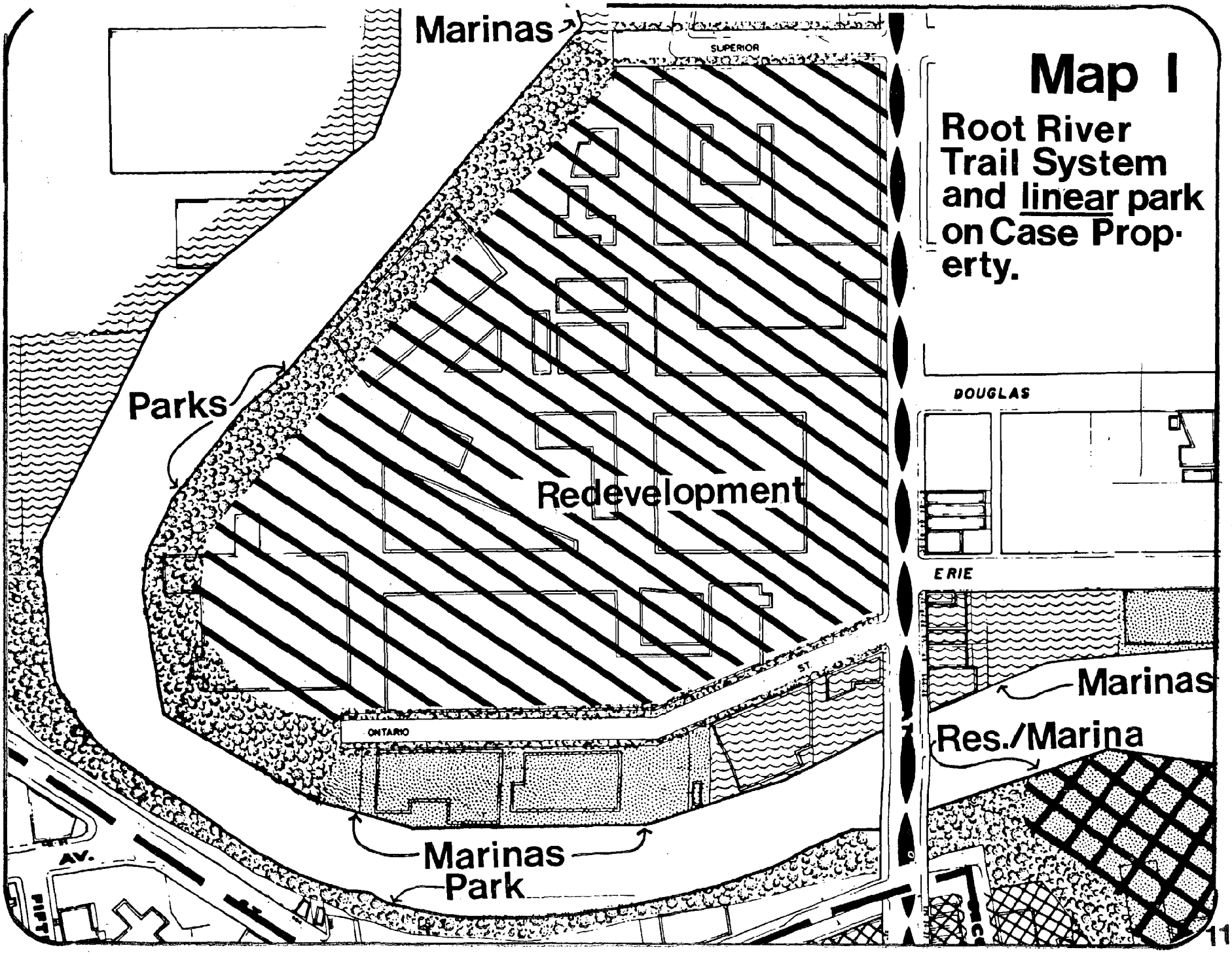
The two largest parcels of land which could provide support space for the 300 possible additional slips are the former Western Publishing tract and the yet to be redeveloped J. I. Case tract.





Support facilities for additional slips along the railroad side of the river could be located on the Case property (see above and left). We believe that the higher ultimate need for the railroad area is for a linear public park and trail system rather than boater parking.


Map H, Alternate:
Root River Trail System and cluster parks on Case property
Parks
Residential Redevelopment
DOUGLAS
ERIE
ONTARIO
ST
Marinas
Residential / Marina Redevelopment
Park
AV.
AV.
THIRD
Existing
Commercial


Map I
Root River Trail System and linear park on Case Property.
Marinas
Parks
Redevelopment
Marinas
Res./Marina
Marinas
Park
SUPERIOR
DOUGLAS
ERIE
ONTARIO
ST
AV.

Encourage private development of 300 more boat slips between the Marquette Bridge and the Main Street Bridge.

In the summer of 1979, there were 236 water moorings between the Marquette Bridge and the Main Street Bridge.

Space exists for another 300 slips between these two bridges. Those are in addition to those to be provided by the Weiss Marina.

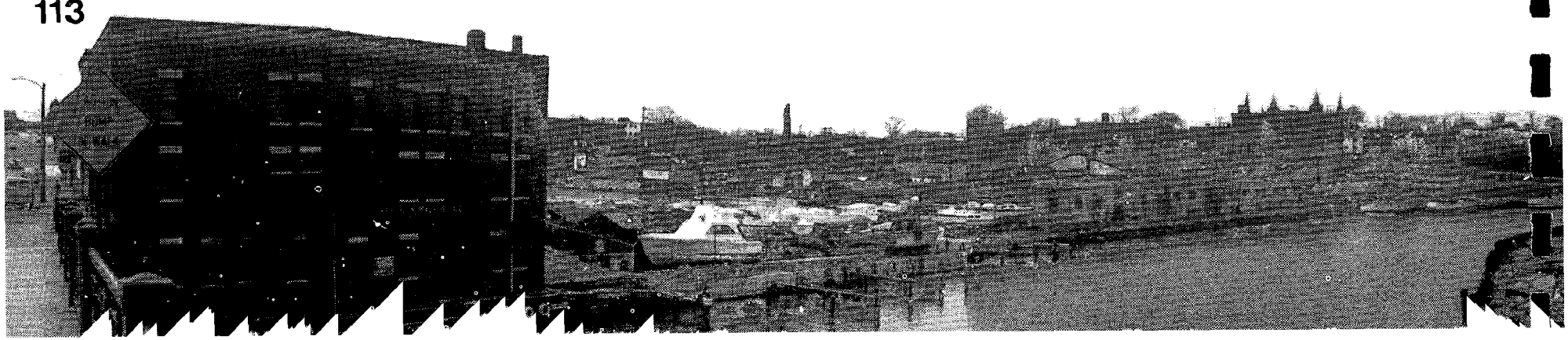
The remaining mooring capacity of the Root River downstream of the Marquette Bridge is roughly double its present utilization.

Maintain private operation of marinas on

In preparing this analysis of the Racine Harbor and Root River, we have attempted to maintain a common sense balance between public interests and private interests.

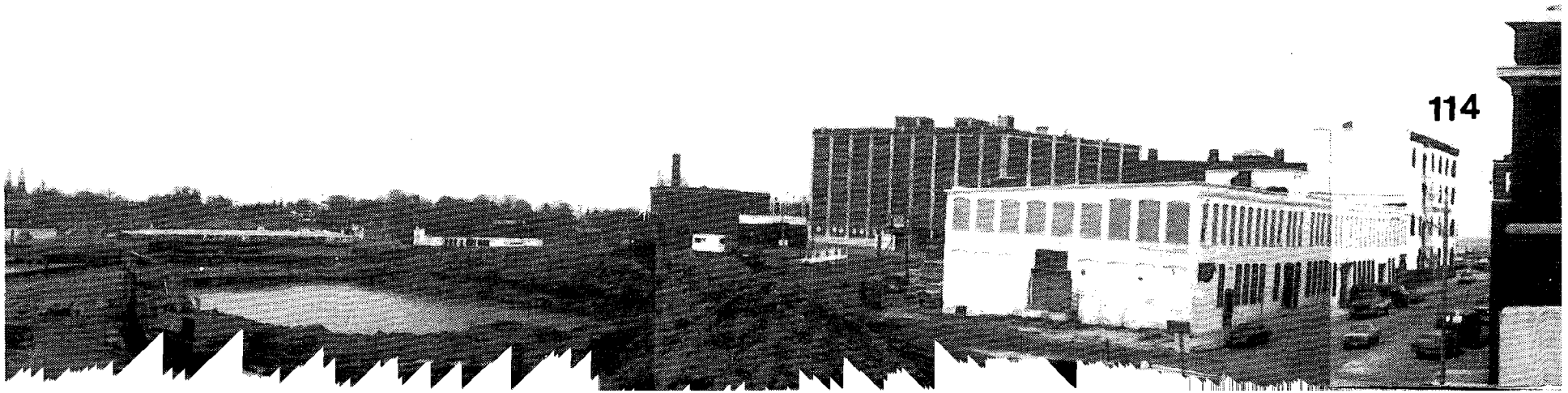
All of the marinas along the Root River are privately operated. Since they seem to be meeting a need effectively, our suggestion is to leave well enough alone. New private developments such as the Belle Harbor Marina development would appear to be appropriate land uses.

In this instance, we suggest that private usage take precedence. That is, this portion of the shoreline can appropriately be used for the private docking of boats. The needs of public access can be served by the creation of a trail system which would veer away from the river at this point, passing behind the new marina and heading west towards a proposed new public park on the south bank of the Root River where it meets Lake Michigan.



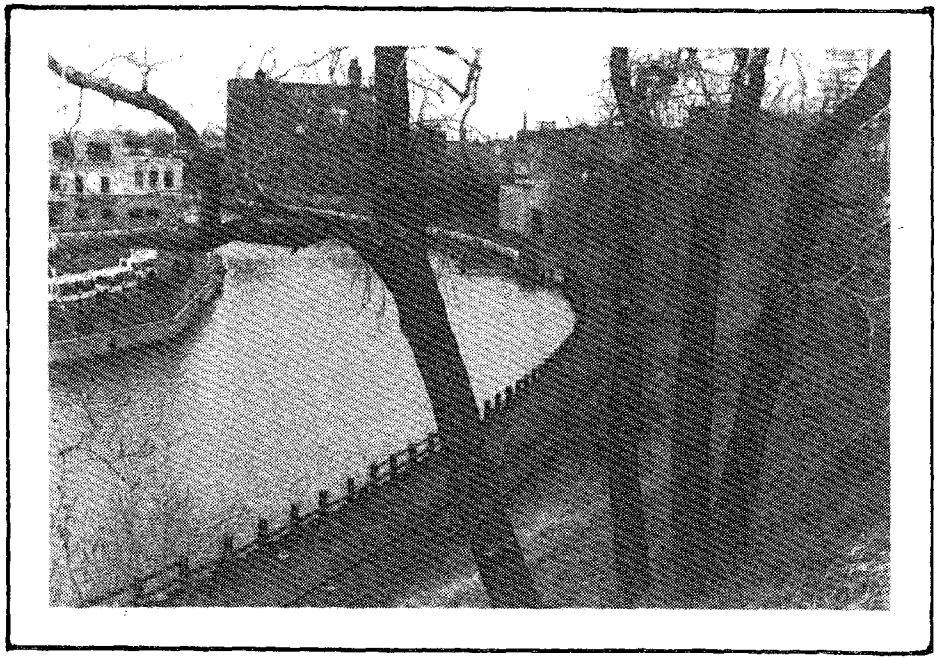
Root River.

belle harbor marina
BOAT SLIPS
FOR SALE OR LEASE
80
SLIPS
JOHN WEISS 414-278-3022



The Root River Environmental Corridor

CORRIDOR-RELATED TRAIL SYSTEMS



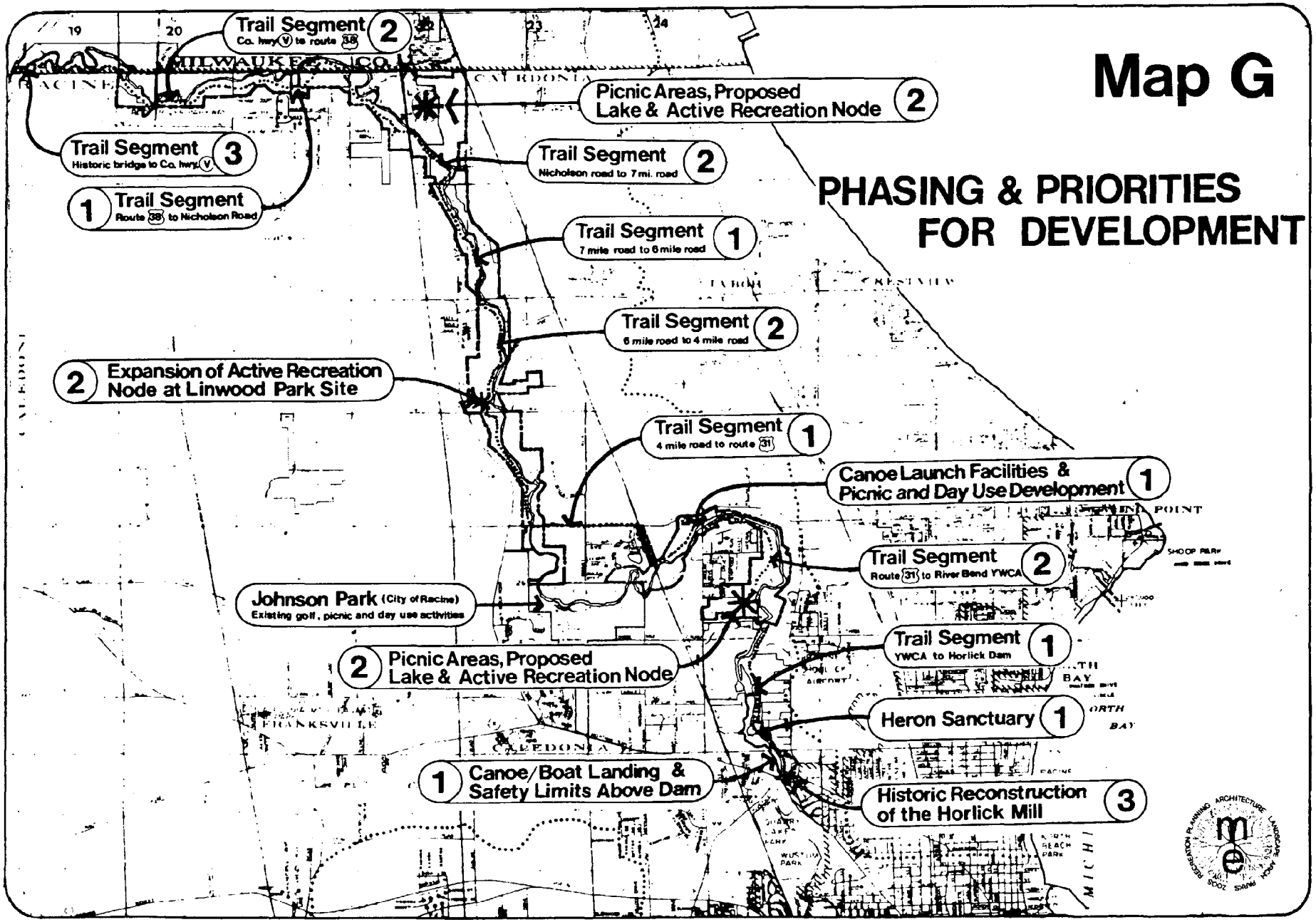
The existing railroad right-of-way along the downtown portion of the Root River would lend itself to the creation of a water-edge trail system in Racine.

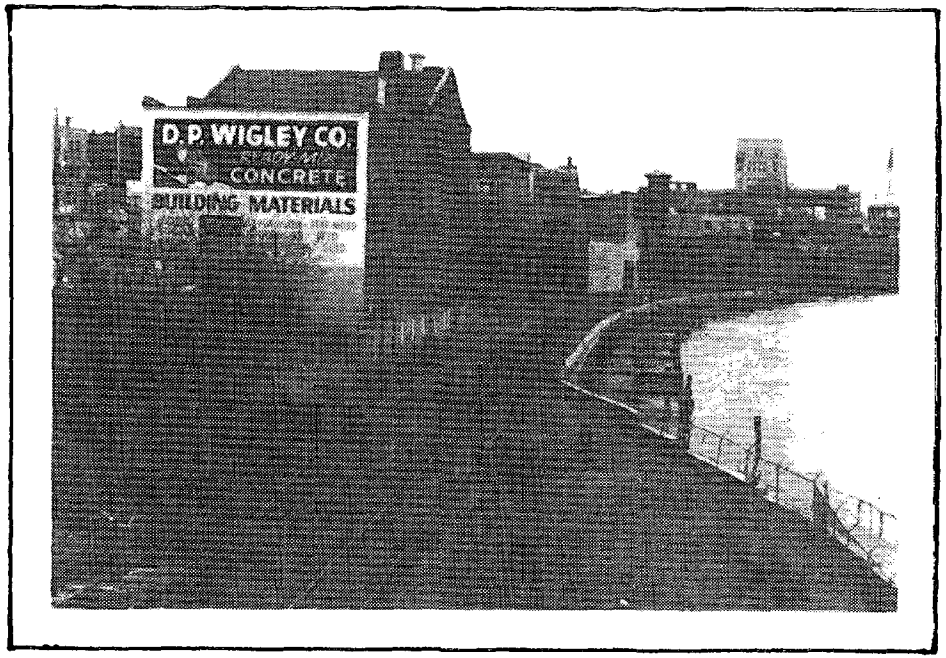
This water oriented trail could eventually link up with a proposed trail system that follows the Root River all the way to the Milwaukee County line (and actually loops up into the adjoining county).

This county wide trail plan (see map opposite) winds its way beside the Root River all the way to Horlick dam at the city limits.

We suggest that this proposed county trail system (part of a larger plan for a conservation and recreation corridor) continue through the City of Racine.

The final portion of this trail could follow the route of the railroad. It would culminate where the Root River meets Lake Michigan.


Map G
PHASING & PRIORITIES FOR DEVELOPMENT
Trail Segment
Co. hwy (V) to route 38
2
Picnic Areas, Proposed
Lake & Active Recreation Node
2
Trail Segment
Historic bridge to Co. hwy (V)
3
Trail Segment
Nicholson road to 7 mi. road
2
1
Trail Segment
Route 38 to Nicholson Road
Trail Segment
7 mile road to 6 mile road
1
Trail Segment
6 mile road to 4 mile road
2
2
Expansion of Active Recreation
Node at Linwood Park Site
Trail Segment
4 mile road to route 31
1
Canoe Launch Facilities &
Picnic and Day Use Development
1
Trail Segment
Route 31 to River Bend YWCA
2
Johnson Park (City of Racine)
Existing golf, picnic and day use activities
Trail Segment
YWCA to Horlick Dam
1
2
Picnic Areas, Proposed
Lake & Active Recreation Node
Heron Sanctuary
1
1
Canoe/Boat Landing &
Safety Limits Above Dam
Historic Reconstruction
of the Horlick Mill
3



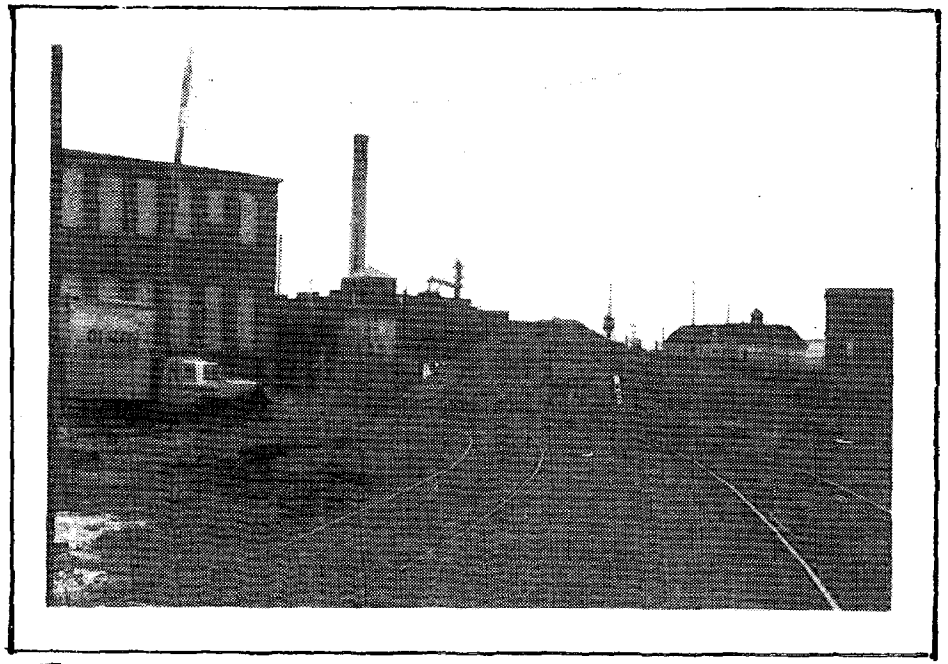
Hiking / Pedestrian Trail

Multiple use of the trail system is desirable if the uses are compatible or occur during separate seasons.

Hiking, bicycling and cross country skiing are viewed as the primary uses.

With increased public interest in jogging, the trail concept offers a chance to combine physical fitness with a varied physical environment.

Water oriented, the trail system would include the intensely urban downtown section as well broad expanses of the natural world.



Cross-Country Skiing

Together with jogging and marathon running, cross country skiing has increased greatly in popularity in recent years.

The proposed trail system would offer cross country skiiers the opportunity to ski from Lake Michigan along the course of the Root River into Milwaukee County, a distance of some fourteen miles.

Develop a trail system to River Corridor.

Bicycle Trails

One of the major indices of the quality of life in a community is the number of miles of public trails.

Over a century ago, Frederick Law Olmsted pioneered the idea of the park system in America. His plans for parks in New York City, Brooklyn, Washington, D.C., Boston, Chicago and elsewhere are tributes to a vision committed to the long term public good.

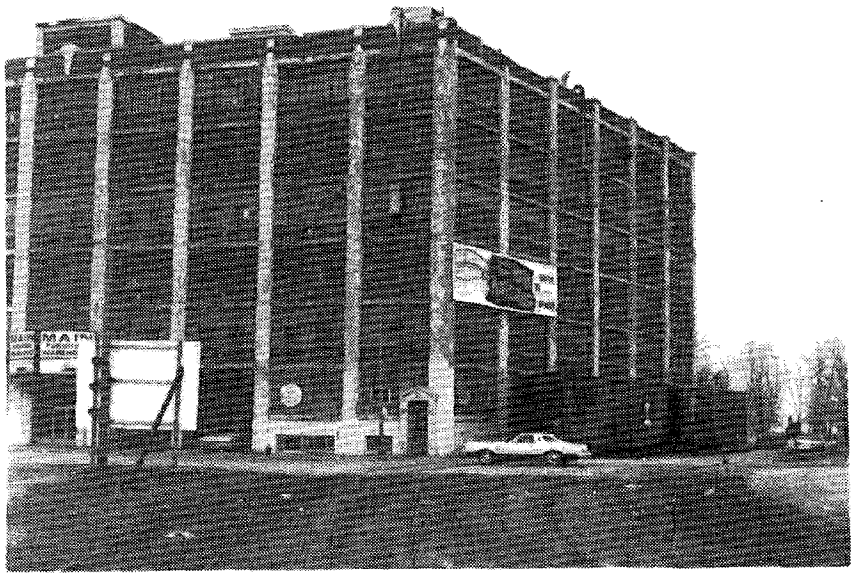
Racine, despite such treasures as the Root River and the Lake Michigan shoreline, does not have a park system. Rather, it has a series of isolated parks.

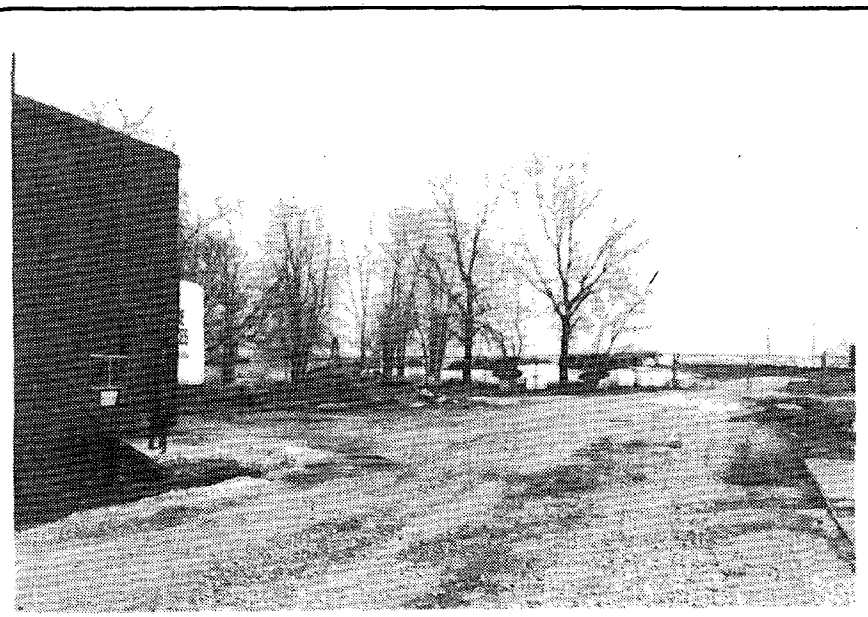
By turning the railroad right-of-way seen in these pictures into a public trail system, Racine can take a major step towards the creation of a park system.

Recreational bicycling, like the other activities described here, has also increased substantially in popularity in recent years.

One of the most frequent types of bicycle trips, according to a study done in Washington, D.C., is between major recreational nodes.

The construction of a trail system along the Root River would accomplish a linkage of park and recreation activity areas.





link harbor with Root

Pershing Park, Gateway Technical Institute Area and Harbor

View east of Pershing Park beginning at southern breakwater of Racine Harbor. Three thousand feet of shoreline needs development with paved parking, landscaping and other amenities.

IV. Area of Pershing Park, Gateway Technical Institute and Harbor

The middle territory of this area represents a prime location for the non-boating population to have access to the lake for viewing it, and this function should continue and be strengthened with continued improvements to the existing park space.

The south end of the subject area fronts on another semi-sheltered shoreline to Lake Michigan. The breakwater provides only semi-shelter because its opening allows heavy wave action from southeasterly directions to reach the shoreline uninterrupted.

The riparian ownership of this shoreline apparently still rests with the abutting private owners. Whether they will readily sell those rights to the public remains in doubt.

As indicated earlier we see no pressing need for recreational use of the water space before the year 2000 as relates to mooring, but there could be immediate beneficial use of the shoreline for trailerable boat launching as an alternative to the launches at the north end of this area in the main Racine Harbor under certain weather conditions and during a few peak times per season.

We see these launch ramps as a secondary improvement that can be made economically by using the GTI parking lot rather than a new parking investment. The GTI parking lot is vacant exactly when boaters could use the lot -- summer weekdays and weekends May through October. The launch ramps should also be made in the most economical manner, leaving out the type of facilities planned at the main launch ramps (bait house, administration building, etc.). These types of expensive permanent improvements should only go into the Pershing - GTI ramps after boating demand has developed to a sufficient degree that boating fees can amortize these improvements on top of the amortization schedule for the main launch area.

Develop Pershing Park Shoreline

We suggest park and recreation development of the half-mile stretch of the shoreline edge of Pershing Park. Although the inland side is well developed for recreation and parking, the lake edge is raw and barren: boulders and dirt.

The area can be made both more useful and appealing by providing paved parking areas, picnic facilities and landscaping.

During periods of excessive use of the boat launch ramp at the north harbor, this area can be used for parking boat trailers for the suggested overflow launch ramp.

Since the western part of Pershing Park is developed, the development of the eastern edge, the shoreline, seems like the next logical step in increasing the usefulness and amenity of this portion of Racine's waterfront.

Create an Overflow Launch Ramp and Offshore Moorings

We suggest that a boat launch ramp be constructed at this existing but unused harbor. It is located at the south end of Pershing Park Drive. The ramp would be open on those days when there is excessive use of the launch ramps at the north end of Pershing Park Drive. We also suggest that this harbor be considered as a site for offshore moorings, especially star clusters.

There are several reasons for locating the overflow launch ramp, as well as offshore moorings in this harbor:

1. There are several thousand feet of breakwater already in place. This represents an enormous, but virtually unutilized public investment. Its replacement value is surely several million dollars.

2. The need for launching facilities and for offshore moorings is increasing. Refer to Harry Brockel's analysis of the pleasure boat market in Wisconsin.

3. There is an acute need for harbors of refuge along the shore of Lake Michigan. During violent storms this can be a life and death matter.

4. Lying a few thousand feet south of the mouth of the Root River, the harbor can be quickly reached by the Harbor Patrol's power boat. Thus, the harbor can be provided with rescue service and security operations by the Harbor Patrol operating out of the old Coast Guard Station.

South of Gateway Institute

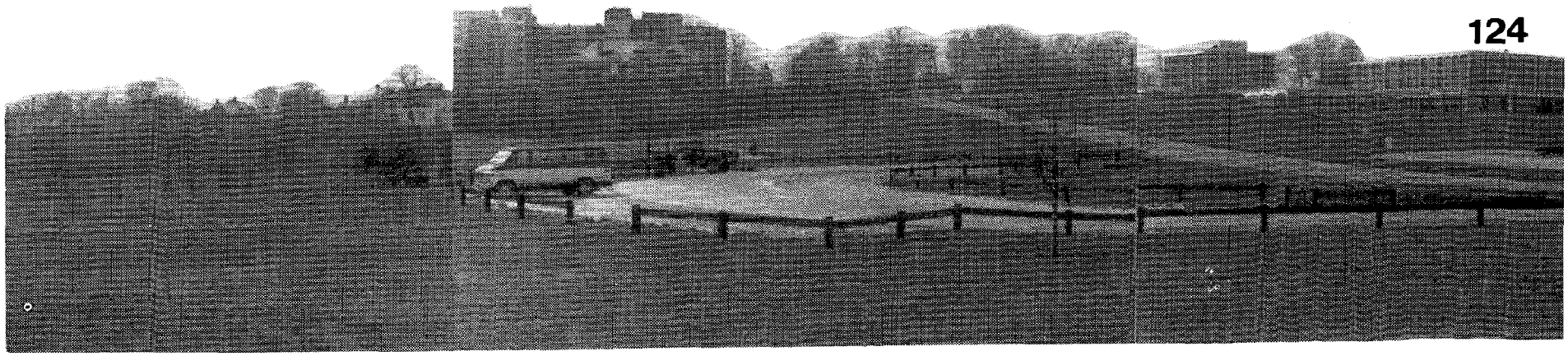
5. The existing parking lot of the Gateway Technical Institute could be used for parking boat trailers. The peak use hours for boating (weekends) are off-hours for the Institute.

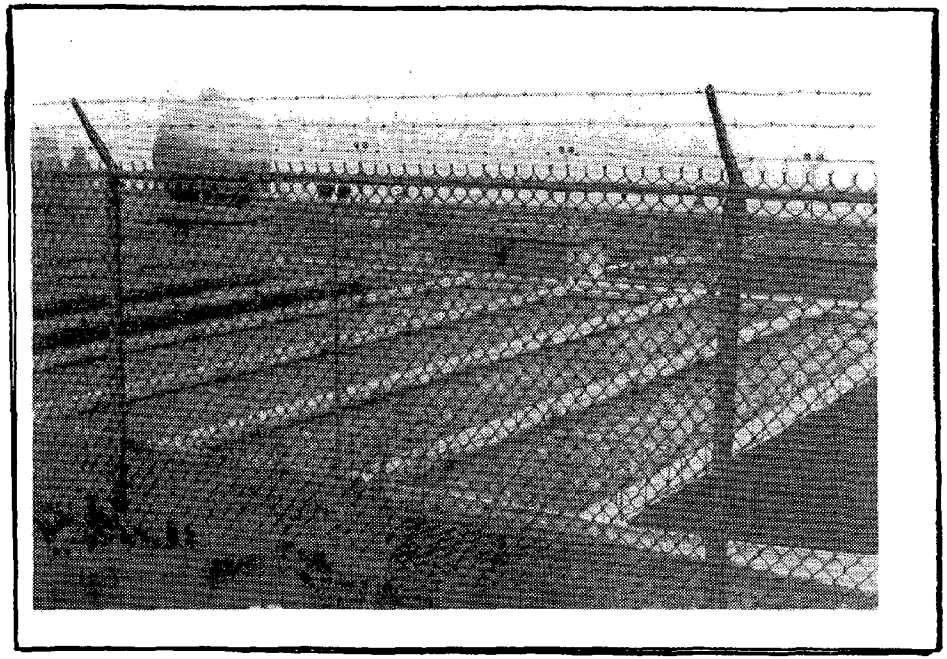
6. Additional parking for trailered boats can be provided along the as yet undeveloped linear park on the lake side of Pershing Park Drive.

7. In view of the need for harbors of refuge, for mooring sites, and for launching sites for trailered boats, and in view of the impact on inflation on public expenditures for recreation and leisure facilities, public dollars must be spent wisely.

Because a multi-million dollar breakwater is already in place, and because there are existing and potential parking facilities immediately to the north, this seems an appropriate site for the placement of launching facilities and offshore moorings.

A modest public investment here would mean that the millions already invested in the breakwater would finally produce a highly visible benefit to the public in the form of a beautiful water recreation facility.





The water-oriented edge of this strip of roadway needs improvement. Paved area for parking plus landscaping would reverse the present forbidding and intimidating aspect.

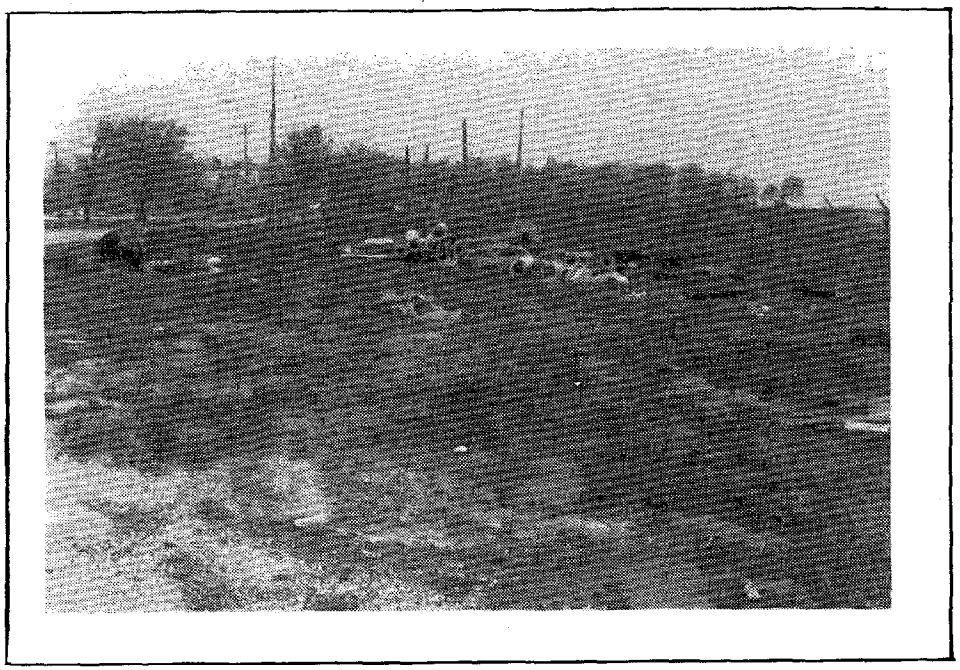
The situation here is analogous to the waterfront area along Pershing Park Drive. The inland side is public park-land. The water oriented edge is bare dirt. Except that here it is strewn with concrete pipe, steel scrap and other refuse.

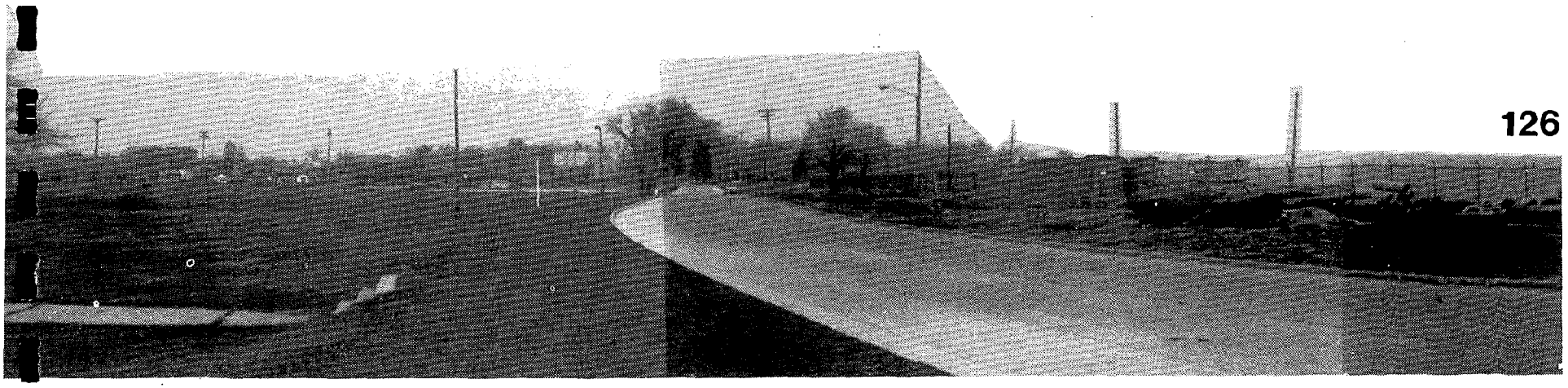
A few hundred feet to the north is Roosevelt Park to the east and a Racine Community Recreation Center to the west.

Substantial funds for public parks and recreation have been spent on the immediately adjoining land.

The need here is to get on with the job and finish it.

Create a landscaped parking overlook at south end of Roose-velt Park.





Create a waterfront-oriented park system.

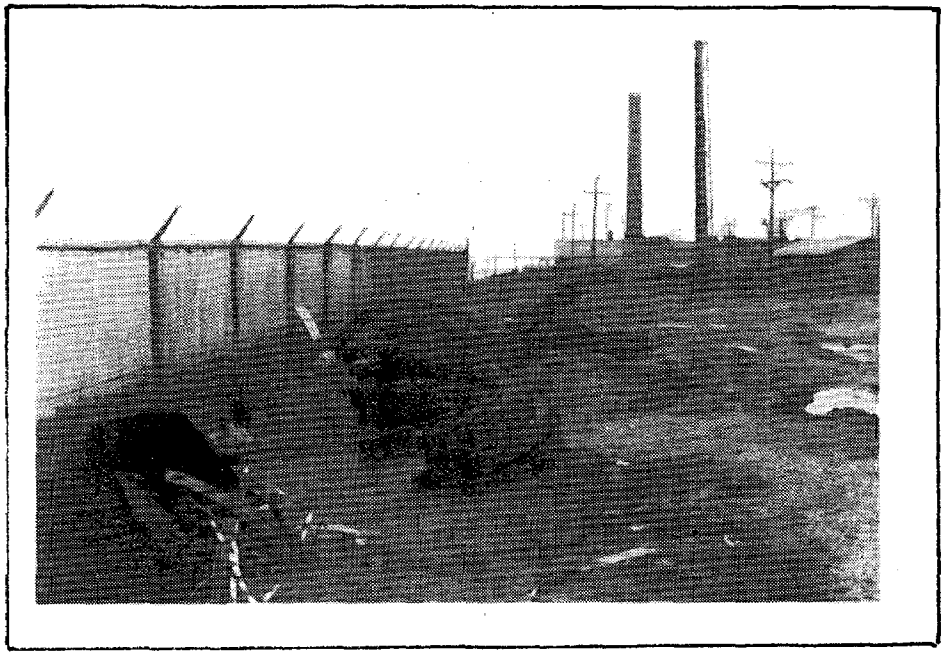
A scenic overlook with a dramatic view of Lake Michigan could be created here. The site is high on a bluff and provides views to the north, east and south. This could be considered the southern end of the continuous parkway system which we propose. The northern end is at the Racine Zoo.

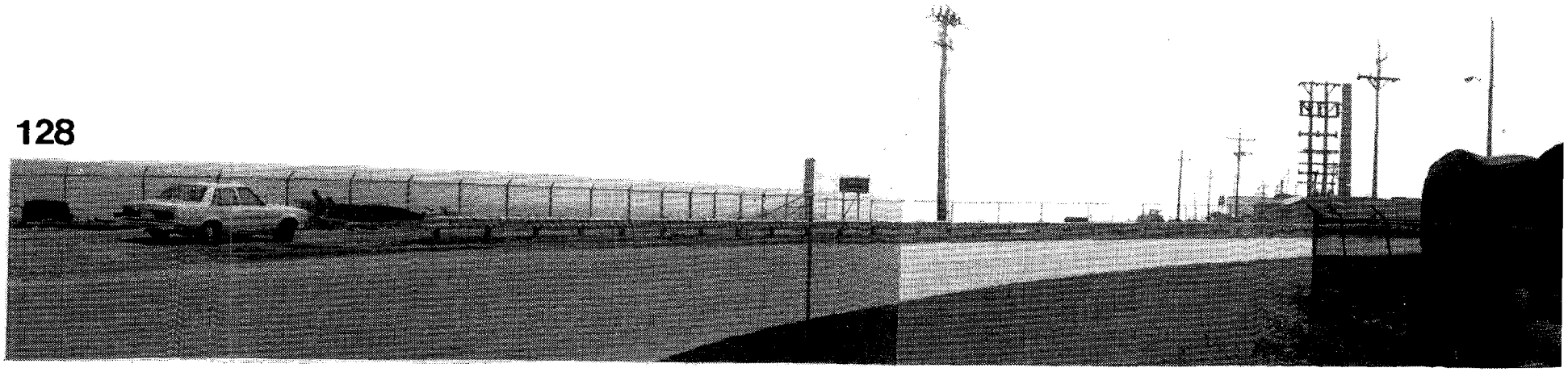
Just as the steel and barbed wire fence at the Water Department Plant to the north could be moved away from the sidewalk and screened with landscaping, so could this Sewer Deparment fence be moved. In fact, it could be moved downhill and out of the line of sight. Visitors could then have a barrier-free view at the expanse of Lake Michigan to the east.

Since this may be the first view of Lake Michigan in the City of Racine for those motorists approaching from the southwest, it is important that the scenery be something better than steel fencing, barbed wire and scrap material. It could be the southern beginning of Racine's new, waterfront oriented park system.

By cleaning up this area, and by creating the parkway link we have suggested north of the Main Street Bridge, Racine can have a lakeshore oriented parkway.

Stretching north from here all the way to the Racine Zoo, the parkway would provide frequent views of the lake along a route 3.08 miles long.





Summary of Recommendations

View southeast of Downtown Racine and private marinas along the Root River. The J. I. Case property forms the peninsula in the center of the picture.

Summary of Recommendations

I. AREA NORTH OF ROOT RIVER

A. Improve the interconnection of Downtown to the swimming beach and Yacht Club area via a more attractive parkway style connection to Main Street Bridge.

B. For the foreseeable future accept continued industrial land usage north of Root River to beach, retaining commercial wharf at Pugh's.

C. Improve public access to the shoreline south of the Yacht Club, and its visual appearance, with modest additional fill toward established bulkhead. Add to County park space. Use rubble to act as wave absorber rather than wave reflecting sheet piling. Retain two-lane roadway, add single bank of parking and lineal fisherman's park tying to old Coast Guard station.

D. Yacht Club should consider "star moorings" for north inner harbor to increase yield per acre of water surface and lessen annual ice damage cost to fixed dockage.

E. Commercial Dock Space: Plan for no additional commercial dock space for the foreseeable future, other than retaining as noted in B above the present 600-foot berth to a draft of at least 21 feet. Monitor growth in barge transportation.

F. Management:

1. Retain private yacht club use of public lands under lease to City, with City long term lease of lands thereunder to County per 2 below.

2. Place new shoreline strip park and adjacent roadway into County Park System on the principle that parks along such a major body of water will and should serve more than just City residents.

3. Retain County water patrol facilities at present site because that preserves the investment already in place, and is a pivotal location for all harbor and river activities.

4. Retain private ownership of commercial dock space. Limited tonnage and type of cargo does not warrant public management or ventures into port expansion at this time.

5. Disband City Harbor Commission. Have County Park Commission become the single agency responsible for all harbor operations. Activate a County Harbor Commission possibly with the same membership as the park commission if ever necessary to help manage barge traffic or other port development should it occur.

II. AREA SOUTH OF ROOT RIVER, NORTH OF GATEWAY TECHNICAL INSTITUTE

A. Major Issue of Unwarranted Public Subsidy of Breakwater and Marina Construction: $7,000,000 total cost

1. $4 million breakwater and dredging ($1.6 million Federal) ($2.4 million Local); plus $3,000,000 marina and ramps, all local costs.

2. Local Costs require slip rental of $1,690, or almost triple highest Root River rate of $625, and launch fee average of $9.30 or six times present $1.40 average, and double the Milwaukee rate of $4.00.

3. Above analysis omits any return to pay off breakwater local share of $2.4 million.

B. Alternate Self-Amortizing Marina:

1. Eliminate $4 million breakwater and most dredging; provide floating breakwaters (optional).

2. Reduce marina and ramp cost of $3 million by half.

3. Substitute in stages 350 star shaped floating piers out in inner harbor.

4. Amortization totally out of boater fees and rentals works out to $537 slip rental and $5.20 launch fee.

C. Alternate Land Use Relationship - Regardless of pursuing Corps plan or Self-Amortizing Plan.

1. Save west shore of south inner harbor for downtown related shops and residences per sketches of Racine City Planning Dept.

2. Move marina parking to Gas Company area.

3. Convert Gas Company garage to marina facility.

4. Create public park on south Root River shore per City sketch plan.

D. Management:

1. Gas Company Service Building Area: Option #1, the City or County acquires and then gives moderate term lease (say 10 years with 10 year option) service building to private marina dry dock operation. Gives City or County long term control of land.

2. Gas Company Service Building Area: Option #2, encourage private acquisition directly from Gas Company to run private marina service.

3. Root River Shoreline - County acquisition and operation under principle of I-F. 2 preceding.

4. Proposed Marina and Launch ramps - County development and operation with lease from the city of the lands. County operation under principle of I-F.2.

5. West Shore south of Gas Co. - County lease from City of land with County operation of shoreline park and circulation; private acquisition from City and development of shops, residences, perhaps hotel on non-shore lands.

III. ROOT RIVER

A. Additional mooring capacity is judged at about 70 spaces along the south shore line that Palmer-Johnson and Azarian could service by tender boat. JI Case has another 100 to 150 spaces depending on degree of shoreline set aside for parks. These quantities do not justify a new Main Street Bridge design other than present type and operation.

B. Raising of Marquette Bridge too expensive and not required in the foreseeable future. Therefore, it will remain as the "head of navigation."

C. Public access along south Root River shoreline because of grade must of necessity be linear, such as bike and walking path. Security of moored boats must be established by fencing. Parking close-by will be difficult.

D. Redevelopment of the JI Case property holds the key to major new residential development to support downtown, to provide park space to river, and to supplement parking for more river slips.

E. Management:

1. County parks should assume jurisdiction under principle of IF.2 preceding of the linear space on the south shore, and the spaces that occur on the JI Case property.

2. Private marinas can undertake to provide the additional river slips as the market can absorb, recognizing that opening the public slips or star moorings in the inner harbor temporarily offers some competition, though these moorings will bolster private drydock and winter service business.

IV. PERSHING PARK, GATEWAY TECHNICAL INSTITUTE AREA AND HARBOR:

A. Demand for launch ramps is questionable, especially at self-amortizing fees 2.6 times present level. Present ramps overloaded only in unavoidable peaks.

B. Riparian Rights probably have to be acquired at substantial but unknown cost.

C. Parking cheaply available from Gateway, but ramp cost $70,000 + in Warzyn plan for downtown harbor) and need for additional personnel must be amortized.

D. Recommend no action for several years unless significant state or federal subsidies are obtained. Open launch ramps only to 1) accommodate peak overloads at main harbor, or 2) when wind conditions are unfavorable for main harbor. Use GTI parking.

E. In the future additional star moorings possibly in the Pershing Park - GTI basin floating breakwater and GTI parking.

F. Management: Pershing Park and harbor shorelands - County acquisition or long term lease from the City under principle of I-F.2 preceding.

OPPOSITE: Floating Star Moorings of the type recommended for Racine Harbor. Those pictured are owned by the Chicago Park District. Their use has been so successful that the District purchased additional floating star moorings in 1980 to accomodate 800 more boats.

Refer to page 60 for a discussion on a self-amortizing plan for Racine Harbor using floating star moorings.

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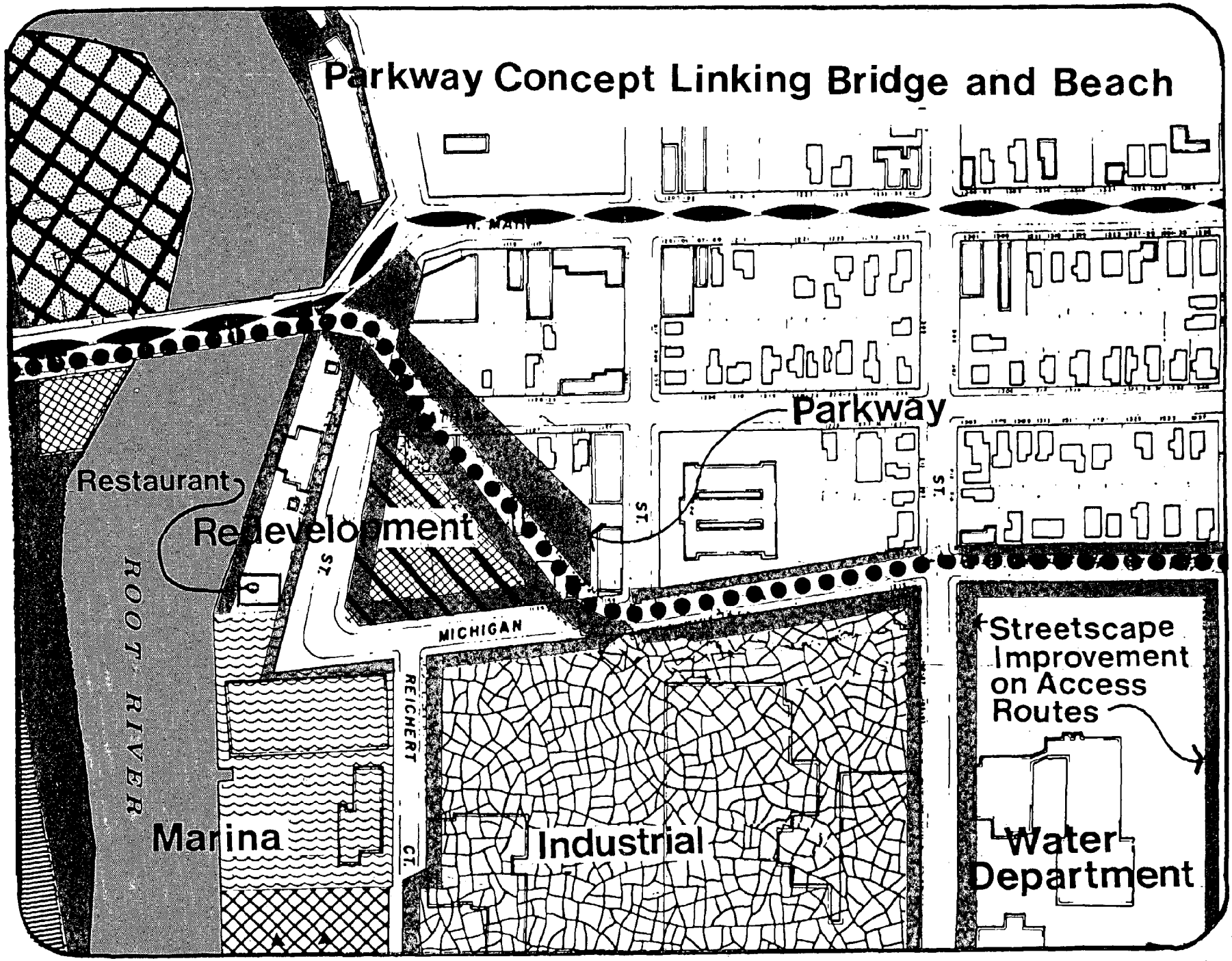
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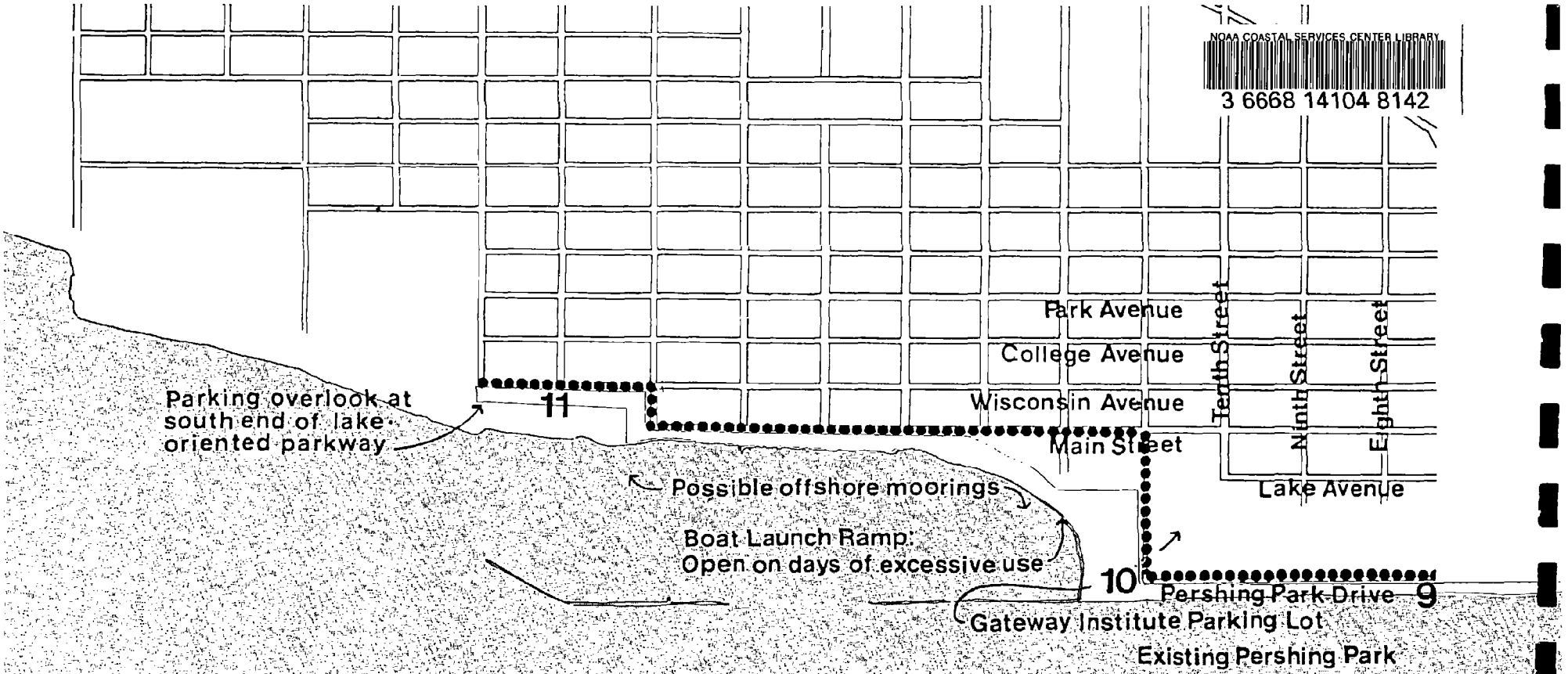

Eleven Development Projects for a Water-front-Oriented Park System for Racine

1. Parkway linking bridge and beach.
2. North Harbor Waterfront Park.
3. Link between Waterfront Park and beach.
4. Marina, Waterfront Park Administration, Park and Trail along Root River.
5. Downtown Waterfront Park.
6. People Park by existing boat launch ramp.
7. Waterfront Trail to link with Root River Corridor.
8. Linear or Cluster Parks on Case property.
9. Pershing Park Shoreline.
10. Overflow launch ramps.
11. Overlook Parking south of Roosevelt Park.