

STUDY OF
COMMERCIAL RECREATION POTENTIAL
on the
CONNECTICUT RIVER
in the
MIDSTATE PLANNING REGION

Prepared for
MIDSTATE REGIONAL PLANNING AGENCY
and
MIDDLESEX BRIDGE and PORT AUTHORITY

By
SCHOENFELD ASSOCIATES, INC.
CONSULTING ENGINEERS
BOSTON, MASSACHUSETTS

December, 1968

TITLE: Study of Commercial Recreation Potential on the Connecticut River in the Midstate Planning Region.

AUTHOR: Schoenfeld Associates, Inc., Boston, Massachusetts 02111

SUBJECT: Study the extent and type of commercial recreation potential of the Connecticut River in the Midstate Region as is consistent with objectives of the overall river development.

DATE: December, 1968

LOCAL PLANNING AGENCY: Midstate Regional Planning Agency

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ABSTRACT:

1. Evaluation of present recreational facilities along the Connecticut River.
2. An analysis of present and future planning for region's outdoor recreational program.
3. Analyses and recommendations of potential sites for marina development in the planning area.

The report is intended to serve as a basis for future expansion of commercial recreational facilities in the Midstate Region.

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The Preparation of this report was financed through an urban planning grant from the Department of Housing and Urban Development, under the provisions of Section 701 of the Housing Act of 1954, as amended, and by a grant from the Middlesex Bridge and Port Authority.

By

SCHOENFELD ASSOCIATES, INC.

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BOSTON, MASSACHUSETTS

December, 1968

SCHOENFELD ASSOCIATES, INC.
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C O N S U L T I N G E N G I N E E R S

210 SOUTH STREET • BOSTON • MASSACHUSETTS 02111

December 10, 1968

Mr. George Eames, III, Chairman
Midstate Regional Planning Agency
P.O. Box 139
Middletown, Connecticut 06457

Dear Mr. Eames:

In accordance with the requirements of our contract for Consulting Engineering Services with Midstate Regional Planning Agency dated October 1, 1967, we are privileged to submit herewith our final report containing the results of our study on the extent and type of recreation potential of the Connecticut River in the Midstate Region.

We would like to take this opportunity to acknowledge the cooperation of the State and local Authorities in furnishing us available subject data and express our appreciation for the assistance afforded us by the staff of the Midstate Regional Planning Agency in the preparation of this report.

Very truly yours,

SCHOENFELD ASSOCIATES, INC.



Richard J. Schoenfeld, Jr.
President

RJS/pm

ACKNOWLEDGEMENT

Schoenfeld Associates, Inc., wishes to acknowledge the invaluable cooperation and assistance furnished throughout the study by the following members of the Midstate Regional Planning Agency and Middlesex Bridge and Port Authority

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I. INTRODUCTION

On October 1, 1967, an Agreement was executed between Schoenfeld Associates, Inc., and Midstate Regional Planning Agency to study the advisability of constructing a commercial marine terminal at Middletown.

Under Item f of Scope of Services of the aforementioned agreement, the Consultant was directed to study the extent and type of commercial recreation potential of the Connecticut River in the Midstate Region as is consistent with the survey and the objectives of the overall river development.

This overall review of the river was made in its broadest sense encompassing all water-oriented recreational facilities in order to provide a context for studying the commercial aspect. After many personal interviews with State and local officials, and the examination of recent publications by the various State and Federal Agencies, it was found that sufficient in-depth studies of the subject matter have been undertaken in addition to the total survey of existing and proposed recreational facilities which was prepared by Midstate Regional Planning Agency.

A thorough review of this data indicated that the overall recreational activities along the river are being developed by Local, State and Federal Authorities. In the Connecticut River Valley south of Middletown, acquisition is needed to enlarge state properties, provide scenic control, reduce pollution and provide more access to

the river. However, it was determined that boating and its related facilities are still badly needed. Although several minor boat launching sites are available in the area, the major marine facilities are provided by private, commercial and quasi-public groups. In view of this condition, there appears to be a potential for additional commercial facilities in the Midstate Region.

The following chart as prepared by the National Association of Engine and Boat Manufacturers, Inc., indicates the revenue received in the operation of marinas.

ANNUAL REVENUE FROM MARINA OPERATIONS *

Revenue Sources	<u>MARINAS</u>	<u>BOATYARDS PROVIDING MARINA SERVICES</u>
	1966 Revenues Received	1966 Revenues Received
Sale of new boats and engines	\$ 5,043,956	\$ 3,727,076
Sale of used boats and engines	1,072,633	2,137,093
Sale of hard., paints, etc.	1,096,581	805,491
Repairs-hulls, engines, etc.	1,202,709	1,703,702
Sale of fuel and lubricants	1,055,332	513,543
Rentals - slips	1,604,720	350,700
Winter storage	432,505	255,173
Boat rentals	254,732	147,341
Other - ice, bait, fishing tackle, etc.	<u>558,791</u>	<u>406,073</u>
TOTAL	<u><u>\$12,321,959</u></u>	<u><u>\$10,046,192</u></u>

*National Association of Engine and Boat Manufacturers, Inc.

As can be seen from the chart above, marine and boating

operations are big businesses.

The first step in determining the need for marinas is to collect data and inventory of the present commercial recreational facilities located on the River within the Midstate Region. After examining this data, the next phase is to determine the need of additional commercial recreational facilities. These commercial facilities consist of marinas and associated activities and facilities such as restaurants, motels, boat storage and repair.

After the need has been determined, the alternative locations for constructing the aforementioned facilities require analysis. The number of available areas on the Connecticut River to be developed is quite limited due to precipitous terrain along the river as well as the channel locations. This feasibility is based on a cost-benefit ratio greater than one. This ratio is anticipated revenue for a specified time period divided by the cost of constructing the facility.

Numerous State and Federal agencies are presently engaged in analyzing and planning for the Connecticut River and its environs. Because of the number of comprehensive studies being undertaken by these State and Federal agencies, another comprehensive study at this time was not deemed to be appropriate. It was felt, therefore, that an overall review of water-oriented recreational facilities would suffice for providing a context for studying the commercial aspect.

A field examination by land and water was made for sites along the Connecticut River which may have potential for development as boat launching areas, picnic areas, etc. An examination was also made for possible enhancement and enlargement of present facilities on the river. A major item of concern in this field review was the

accessibility of sites to the present roadway system, their relationship to the flood plain, and adaptability for development.

The commercial aspect of a major marina development along the river appears to be limited in the near future to a possible site in conjunction with urban renewal at Middletown. As part of the commercial recreation program, three marina studies were prepared for the Midstate Region. One of these studies attempted to coordinate the downtown urban renewal of Middletown with a proposed marina, while the two other schemes attempted only to determine possible sites for marina development.

II. GROWTH IN RECREATIONAL ACTIVITIES

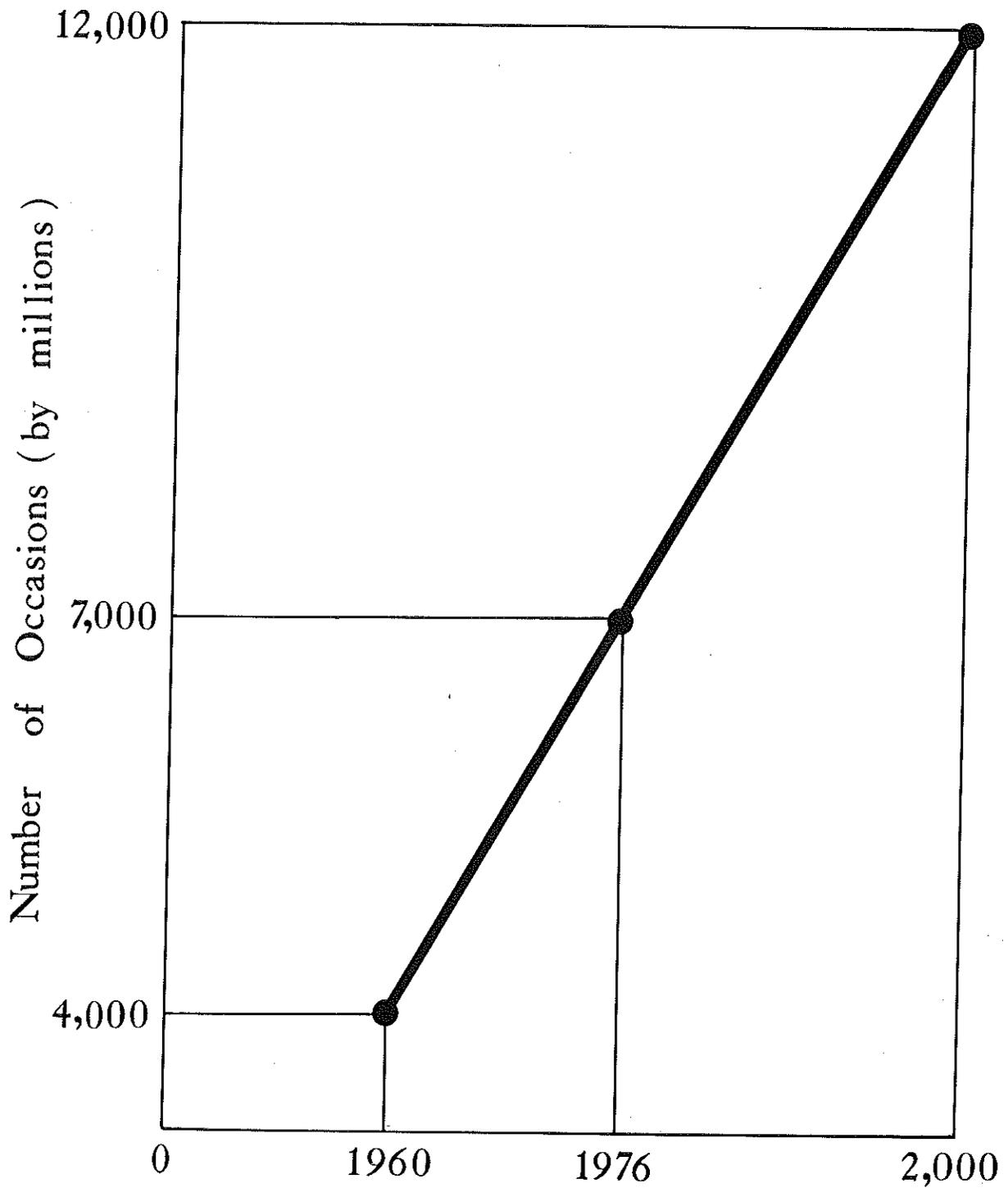
Since World War II, outdoor recreation activities have grown to tremendous proportions (Exhibit 1) as Americans seek the great outdoors and its accompanying recreation facilities.

Outdoor recreation has become a major business with annual spending of approximately 20 billion dollars. The National Association of Engine and Boat Manufacturers states that the number of pleasure boats alone has increased by more than five million between the years of 1947 and 1964.

The Outdoor Recreation Resources Review Commission which was created by Congress in June, 1958, has found in a national survey that the multitude of changes in the nation's technology and basic socio-economic structure have generated this increase in outdoor recreation. Population explosion, income growth, leisure time, (Exhibit 2), mobility and higher education are some of the factors which influence participation in outdoor recreation. Another major factor which has spurred the growth of outdoor recreation is the accessibility provided by new highway networks.

Factors which have historically retarded the development of the Connecticut River have protected its natural beauty and provided us with the unique opportunity to preserve significant areas of open space on the River for both recreation and conservation purposes.

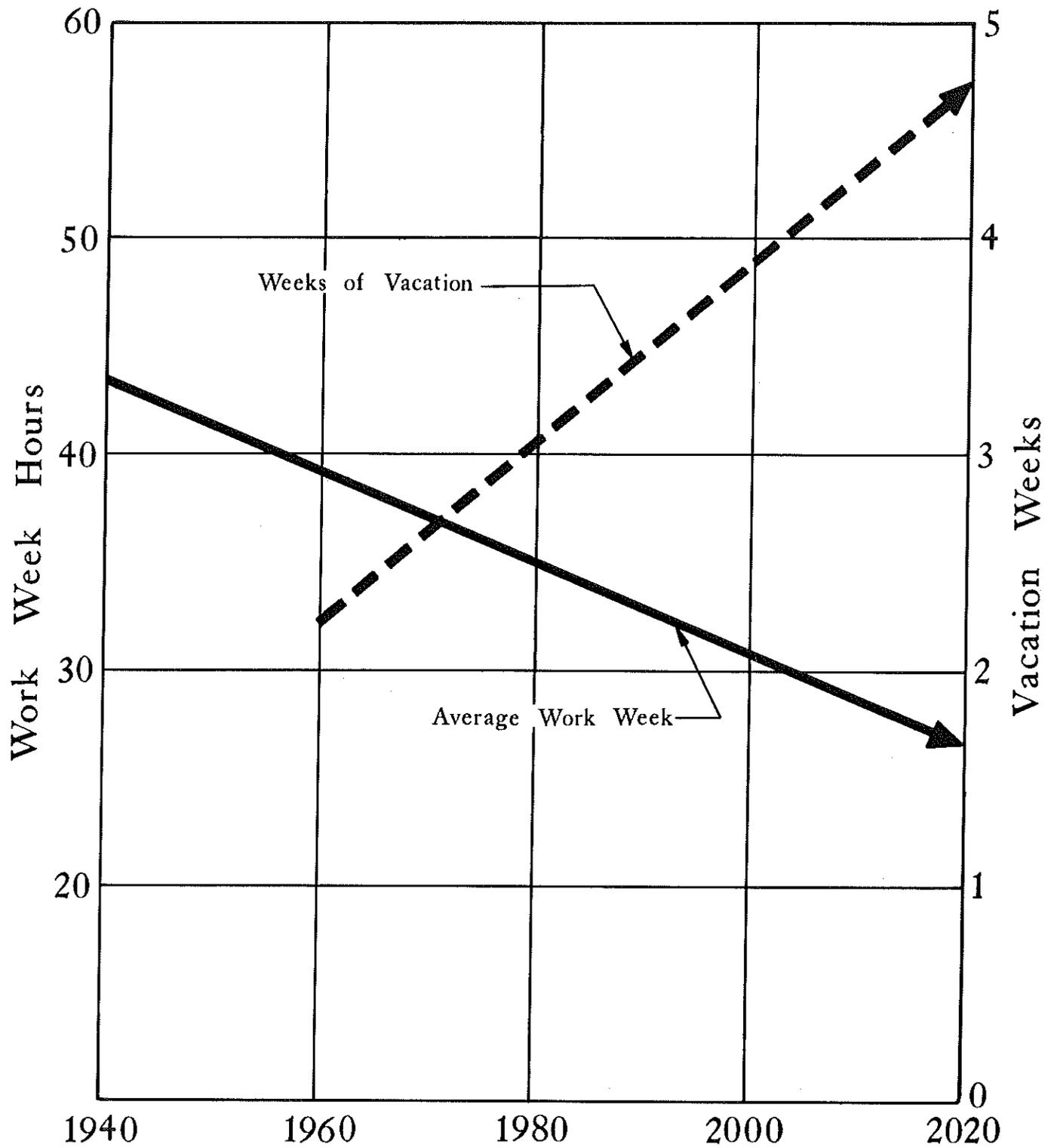
In the Midstate Region, greater development along the Connecticut River has been discouraged by the rugged topography along the shore and high cost of developing access to the River Area.



PARTICIPATION Outdoor Summer Recreation

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EXHIBIT NO. 1
December 1968



LEISURE TIME

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EXHIBIT NO. 2
December 1968

Because of the population increase, we have become more cognizant of our natural resources and especially to the fact that they are not inexhaustible. This is particularly true of our rivers and streams which have become polluted and stagnated. Benefits derived from clean water as related to water-oriented recreation is recognized by all; but the achievement of this aim is a long term goal.

III. EXISTING RECREATION LAND AND ACTIVITIES ALONG CONNECTICUT RIVER

Midstate's recreation supply, made up of a variety of public and private facilities, is concentrated mainly in the interior of the region. Of the total 17,028[±] acreage owned by the State of Connecticut in the Midstate Region, only 2,421[±] acres have access to the Connecticut River. Existing facilities are shown on Exhibit 3.

The Connecticut State Park System has a well planned development program for major sites. Emphasis has been on acquisition and development in recent years of major shore parks, while the inland park development has been spotty.

The following is a listing of State Parks along the Connecticut River in the Midstate Planning Region.

Name of Park	Acre	Pres. Cap.	Potential Capacity	Swimming	Camping	Picnicking	Boating	On Conn. River
Dart Island	2	--	--	-	-	-	-	X
Hurd	832	320	720	X	-	X	-	X
George D. Seymour	200	--	1600	-	-	0	0	X
Haddam Island	14	--	--	-	-	-	-	X
Haddam Meadows	158	1100	3400	-	-	X	X	X
Gillette Castle	144	1500	1700	-	-	X	-	X
Brainard Homestead	25	200	400	-	-	0	-	-
TOTAL	<u>1375</u>	<u>3120</u>	<u>7820</u>					

X = Existing 0 = Proposed

Approximately 12% of State Park land is located in the Midstate Planning Region.

There are twenty-eight State Forests in Connecticut totalling 125,000 acres and serving a multitude of purposes. These include

water shed protection, wild life cover, hunting, fishing, camping, picnicking and hiking as well as timber management. The Forestry Division does not provide full developed recreational sites. In those areas where development is desirable and necessary, the forest land has been transferred to the Parks Division for planning and development.

Although only 10% of the State Forests are in the Midstate Region, Cockaponset has the second largest acreage in the state set aside as a State Forest. The Bureau of Outdoor Recreation in their recent report has recommended acquisition of 10,100 acres on the west bank of the Connecticut River to round out Cockaponset State Forest.

The Board of Fisheries and Game holds approximately 5500 acres of land throughout Connecticut which is used for boat launching sites, fish culture and hunting. There are also 3500 acres of tidal marshland under their domain together with small sections of 50 streams and portions of ten streams totalling 134 miles of permanent fishing easement.

The Board of Fisheries and Game has developed 63 public boat launching areas in addition to those at State Parks.

The Fish and Game acreage located along the Connecticut River in the Midstate Region are as follows:

Haddam	84 Acres
Cromwell Meadows	500 Acres
Higganum Meadows	51 Acres
Wangunk Meadow	426 Acres
Salmon River Access	<u>11 Acres</u>
TOTAL	1,072 Acres

Approximately 10% of the Fisheries and Game Acreage are located in the Midstate Region.

A review of the region indicates that there is a need for an area which could provide for all phases of summer recreational activity: boating, picnicking, hiking, camping and eventually swimming.

On the accompanying pages are various photographs showing existing conditions along the banks of the Connecticut River in the Midstate Region.

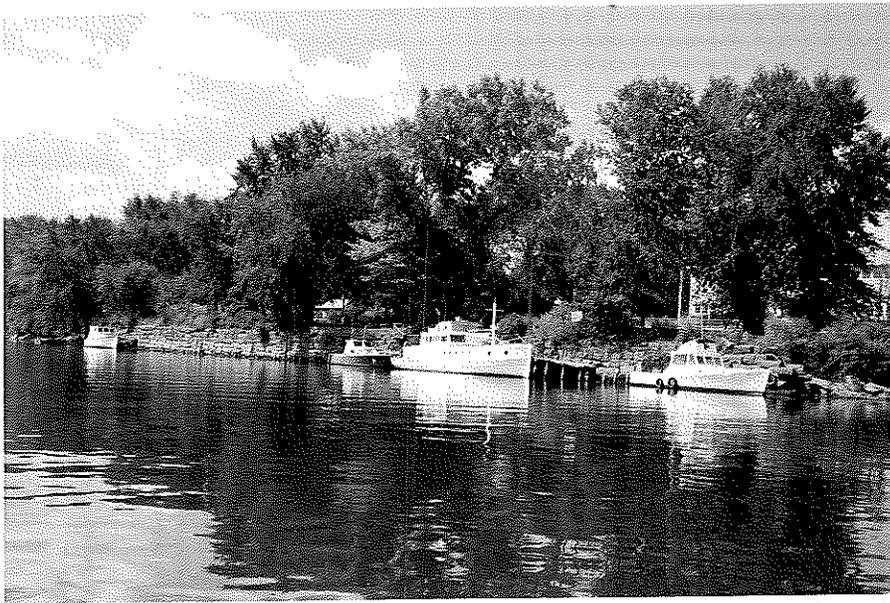


STATE LANDING IN MIDDLETOWN
ACROSS FROM CITY HALL

MARINA (Portland Boat Works)



EAST BANK OF CONNECTICUT
RIVER IN PORTLAND



OLD NAVY RESERVE STATION

OUTBOARD MOTOR ASSOCIATION
LAUNCHING AREA IN CROMWELL



WEST BANK OF CONNECTICUT
RIVER IN CROMWELL



SOUTH OF THE RAILROAD
BRIDGE ACROSS FROM CITY
HALL, MIDDLETOWN, CONN.

THE MATTABESSET RIVER



WILCOX ISLAND



IV. PRESENT AND FUTURE PLANNING FOR REGION'S OUTDOOR RECREATION

The responsibility for the preparation of a comprehensive statewide outdoor Recreation Plan and Program is the responsibility of the Department of Agriculture and Natural Resource. They are responsible for a comprehensive planning program for the State of Connecticut and act as agents for the receiving and disbursement of funds received from the Department of the Interior, Bureau of Outdoor Recreation under the provisions of Land and Water Conservation Fund Act of 1965. The Bureau of Outdoor Recreation was established as a division of the Department of the Interior, March 1, 1962, "to serve as a focal point in the Federal Government for the many activities related to outdoor recreation."

Although enabling legislation for regional planning was passed in 1947, the most important advances have taken place in the mid-fifties when the necessary enabling legislation gave the Connecticut Development Commission both the power and funds to define logical planning areas and to assist regions in technical studies through grants-in-aid.

As the regional programs took shape, it became evident that a coordinating agency was required to integrate State and Federal Programs with regional plans. In 1960, the Connecticut Interregional Planning Program was instituted by the Development Commission. The Connecticut Interregional Planning Program is well underway with a comprehensive planning program for the year 2000 which includes a substantial section on outdoor recreation as well as launching a major effort to coordinate development in the State.

There is planning for recreation of a local nature by cities and towns through the Midstate Regional Planning Agency. In the Midstate Region, there are programs underway to eliminate pollution of the River by treatment plants, thereby making the Connecticut River safe for water-oriented sports. Efforts are being made by the local towns to clean and police the river bank, thereby enhancing its aesthetic value as well as developing potential picnic and rest areas.

The following elements should be recognized as the basis for future planning in developing a full concept for the Region's outdoor recreation plan, especially as it relates to the Connecticut River.

A. Inventory of Basic Planning Data

Some of the Region's available natural resources (including such areas as forests, marine and wildlife, geology, topography and scenic features) and cultural and historic features are identified and mapped. This basic data serves as a determinant for locating appropriate areas for acquisition and development of varied recreational activities throughout the planning area.

B. Open Space and Water Resource Plans and Policies

The Region's long-range development policy needs to be reviewed as it related to outdoor recreation. Public outdoor recreation then needs to be analyzed to ascertain how it would be coordinated with other competing land uses.

Similarly, the status of program and policy affecting the area's water resources should be reviewed. Water-based programs and the Connecticut River specifically are the focal point of much of the

outdoor recreational activities of the area. The study should center on existing and future development of water facilities. Investigations should be made towards realization of the maximum multi-use possibilities of existing and future facilities. Among the many problems which require further study are pollution and accessibility to sites that can be developed.

C. People and Outdoor Recreational Needs

It is most appropriate that future recreational development along the Connecticut River sponsored by the State or municipalities reflect projected participation rates. These projected needs should be influenced by the desires of the inhabitants of and visitors to the Midstate Region. The minimal requirements for outdoor recreation space is shown in the appendix.

D. Roles and Responsibilities

An evaluation needs to be made as to which agency should have responsibility for providing specific public outdoor recreation facilities. Currently, Midstate Planning Agency coordinates its efforts with its member towns and also acts as liaison with the state. Many public and private agencies in the State of Connecticut are concerned with outdoor recreation; and extensive coordination of their jurisdiction, policy and program is required in order to achieve an effective program.

E. Legislation and Financing

Legal mechanisms for implementation need to be investigated and alternative sources of funding inventoried.

A significant input into any study of the Connecticut River is the recommendation made by "New England Heritage," The Connecticut River National Recreation Area Study. The Study Committee of the

Bureau of Outdoor Recreation of the Department of the Interior points out the current drawbacks for recreation, including pollution, lack of fish life, limited boating, lack of camp and picnicking areas and inadequate trails for hiking, bicycling and horseback riding.

Despite the fact that only four percent of the river's bank and nearby upland is publicly owned recreation space, the Bureau of Outdoor Recreation's survey stressed that the Connecticut River has "a variety of high quality resources and recreational potential" which could serve 40 million people within 250 miles of the river.

The Bureau of Outdoor Recreation recommended two major acquisition and protection areas in Connecticut.

(1) The "Gateway" unit protecting 23,500 acres of river bank and nearby upland, including six of the "Seven Sisters" not now in state ownership. Approximately 17,500 acres of the unit would be protected in a "conversion zone" where land would remain as private ownership.

(2) The State of Connecticut would turn over several state parks on the east bank to the Federal Government including Gillette Castle State Park and would acquire 10,000 acres on the west bank rounding out Cockaponset State Forest.

The Corps of Engineers, New England Division, will complete a \$2 million study of the river in mid 1969. This study will make proposals for the use of the river for flood control, navigation, water supply, power generation, recreation, pollution control, fish and wild life to meet the needs of the valley through 1980.

The Corps has created a coordinating committee to insure that all points of view are heard. This coordinating committee consists

of the representatives of Connecticut, Massachusetts, New Hampshire and Vermont, the Corps and the Federal Departments of Agriculture, Interior, Commerce, Health, Education and Welfare, and the Federal Power Commission.

The New England River Basin Commission was charged by the Water Resource Act of 1965 to provide unified planning for river basins in the six-state region. The major challenge of this commission is to decide the final fate of the scenic stretches along the Connecticut River.

V. DEMAND FOR BOATING FACILITIES

The use of pleasure boats, both sailing and motor-propelled types, has reached such proportions throughout the nation that a significant demand has been created for constructing more modern marinas for the protection of small craft.

Boat and engine manufacturers, sales agencies and municipalities indicate that probably more Americans would buy in-board, outboards, or sailboats if they could find suitable and convenient berthing facilities. The accommodation of these additional boats will require the construction of more marina facilities if the financial benefits are to be retained locally.

Boating has become a major activity along the Connecticut River. Registration figures in early 1965 indicated that there were about 50,000 registered motor boats over 5 H.P. and approximately 10,000 more to be registered. It is estimated that there are an additional 15,000 boats under 5 H.P., and 20,000 sailboats.

Registration of boats in Connecticut has not been in effect long enough to assess recent rates of growth. In similar coastal states, projections have been made on the basis of annual growth of 8% a year on coastal waters and 2% inland.

At these rates, motor and sailboats in use in Connecticut would increase by 35% by 1970, with much of this increase taking place on coast water. ORRRC projections indicate a 60% increase in boating between 1960 and 1976 in the Northeast section of the United States.

The impact of boating on the economy of an area is quite substantial. The boating industry estimates that the average boat owner pays approximately \$1,400 for his boat and accessories. If

the boat is not carried on a trailer, then the cost of mooring at a commercial establishment runs from \$100 to \$300 for a season. The cost of hauling these boats in and out of the water during the season can be from \$1 to \$3 to a foot. There is an additional cost of winter storage which can amount to \$60 to \$100 per season.

In turn, the State of Connecticut derives property taxes from these boats. The boat owner also pays approximately \$150 a year for gasoline and averages \$125 for marine accessories per year.

Exhibit 4 shows the location of the existing marina facilities in the Midstate Region.

VI. DETERRENTS TO MARINA DEVELOPMENT IN THE MIDSTATE REGION

The major deterrents to the development of major boating and marina facilities in the Midstate Region and in particular on the Middletown side of the River are due to the following:

1. State Route 9, (Conn.) cuts off the major waterfront area of the downtown section of Middletown. New State Highway 72 at the northern extremity of Middletown continues the policy of cutting off access to the Connecticut River by having the highway run parallel to the River. This type of highway planning has practically constructed an earth dike around the City, thereby denying it access to the waterfront and the pleasures of the River.

2. In the area south of the Arrigoni Bridge in Middletown there is access to the River; however, this area has been developed into an oil storage area. The access is quite indirect and would have little appeal to a developer as this area is unattractive with the oil tanks serving as a background.

3. Along the bank of the Connecticut River from Bodkin Rock south to the Haddam - East Haddam Bridge (Rte. 82), the topography is extremely precipitous with little to no access from the existing highway system, thereby making this entire shoreline virtually unsuitable for development for major boating and marina facilities.

4. Another deterrent to shoreline development on the eastern bank of the River are tracks of the New York, New Haven and Hartford Railroad, which runs along the bank of the River from a point opposite Bodkin Rock to the Haddam-Chester town line. The Railroad currently services the Hartford Electric Light Company plant. However, there are docking facilities available at the power plant

to receive coal and fuel oil.

5. Another major consideration in the selection of a marina site is its relation to the flood plain. The River bank is subjected to frequent flooding and is inundated by even minor floods. A second flood problem is present in Middletown due to backing up of several tributary streams when the Connecticut River is at flood stage. This back-water flooding occurs along Sumner Brook, the Mattabeset River and the Coginchaug River.

VII. POTENTIAL SITE FOR MARINA DEVELOPMENT

Various marina layouts were considered during this study. The type of layout and number of moorings to be provided depends to a large extent on the site selected. The studied sites vary in location from the banks of the Connecticut River to inland areas that could be developed with proper access channel.

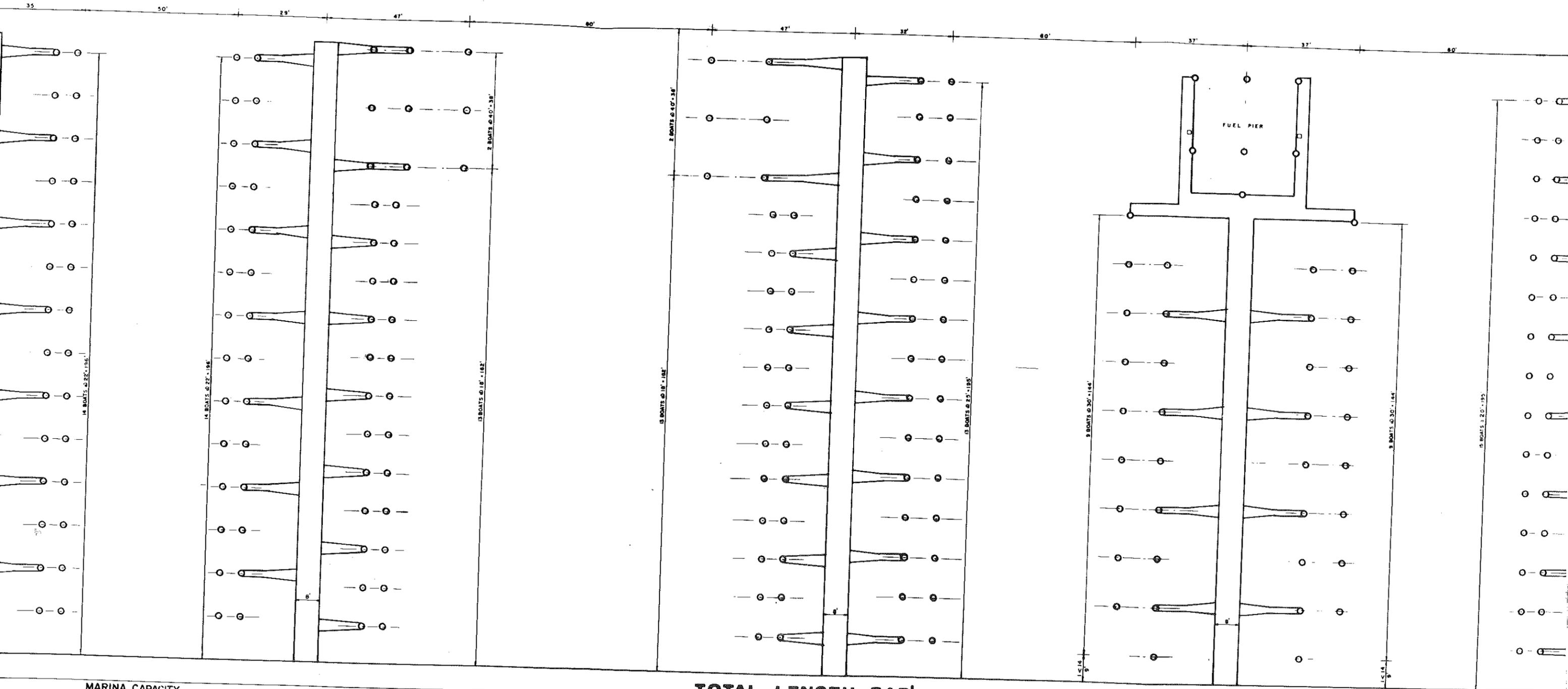
The layout for a typical marina facility as contemplated for the Midstate Region on the river is shown on Exhibit 5. This type of layout was selected to be the most practical and economical for three reasons:

1. It could be readily expanded when the capacity of the marina is reached.
2. A minimum amount of dredging is required since the boats encroach upon the River itself. This layout would be ideal for location below Bodkin Rock.
3. This layout is readily adaptable to almost any site selected on the river.

A one-hundred boat marina was selected as a minimum facility, since the layout could readily be increased or decreased and it could be easily estimated on a pro-rata basis.

The two-hundred and fifty marina layout was selected for the inland marina site in the Middletown area in order to have a sufficient number of moorings to offset the high cost of development, thereby obtaining a reasonable cost-ratio benefit. These inland sites are depicted on Exhibit 6 and indicate their proximity to the core city.

CONNECTICUT RIVER



MARINA CAPACITY

2	BOATS	-	14'	LENGTH
26	BOATS	-	16'	LENGTH
15	BOATS	-	20'	LENGTH
28	BOATS	-	22'	LENGTH
13	BOATS	-	28'	LENGTH
18	BOATS	-	30'	LENGTH
4	BOATS	-	40'	LENGTH
106 BOATS TOTAL				

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TOTAL LENGTH 545'

EXHIBIT NO. 5
**TYPICAL MARINA COM
 LAYOUT ON RIVER**
 December 1968

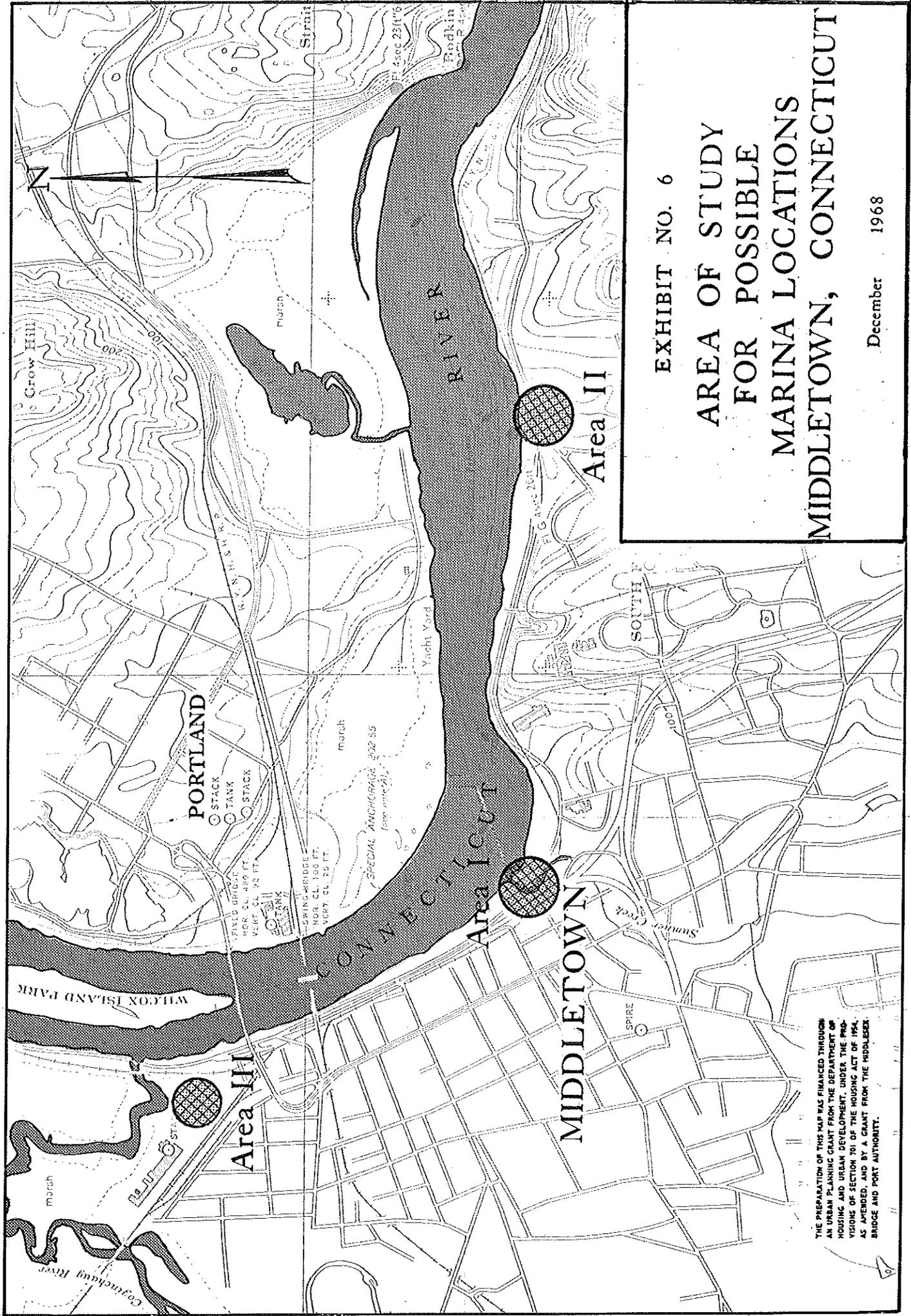


EXHIBIT NO. 6

AREA OF STUDY
FOR POSSIBLE
MARINA LOCATIONS
MIDDLETOWN, CONNECTICUT

December 1968

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The selection of three sites in Middletown was due to the extreme interest of municipal officials as well as the officials at Wesleyan University. This interest in part was the outgrowth of a port terminal study that has recently been completed.

The interest in developing a marina facility within the Middletown urban area was of immediate concern, while other sites that have been investigated have potential for the future. The University has temporarily used an existing landing for shell boating and would prefer in the near future to develop a more substantial center for racing, boating and yachting.

The interest in developing a marina in the downtown area of Middletown was due to a desire to establish a marina as a focal point in the urban renewal area. Under this program, the concept was to establish a visual and physical link of Main Street and the project area and the riverfront.

Although the cost of development of a downtown site was high, there was extreme interest in the project. Other sites in the Middletown urban area were, therefore, studied. The concept of the two-hundred and fifty moorings for the marina was used as a basis for comparing alternative locations. The details of the three areas are discussed herein.

AREA I

The first area is located between Union Street, Sumner Creek, Route 9 and Main Street Extension. This area is currently designated for urban renewal and we were requested to investigate the feasibility of the development of a marina which could enhance the central core of the downtown area. The creation of the marina would require the construction of a channel from the Connecticut River to the Sumner Creek crossing at Main Street Extension as well as the dredging of the area as outlined on Exhibit 7a. It will also be necessary to construct a new swing bridge for the railroad crossing and reinforce the abutment of the existing highway of Route 9. River Road would be terminated in this area as a cul-de-sac.

The backwater of Sumner Brook has inundated the area outlined for marina construction. In a report prepared for the State of Connecticut Water Resource Commission, dated June, 1963, it was recommended that a protective dike be constructed parallel to Sumner Creek from the high point near Main Street. This construction would provide protection for the four block area involved.

COST BREAKDOWN - AREA I

Preliminary Capital Expenses

Swing Bridge	\$ 250,000.
New Highway Bridge	200,000.
Channel Excavation	420,000.
Bridge Tenders	20,000.
Marina & Slips	500,000.
	<u>\$1,390,000.</u>

Maintenance, Interest and Engineering	110,000.
	<u>\$1,500,000.</u>

Projected Income

250 units x \$200 = \$50,000.

20 yrs. x \$50,000 = \$1,000,000.

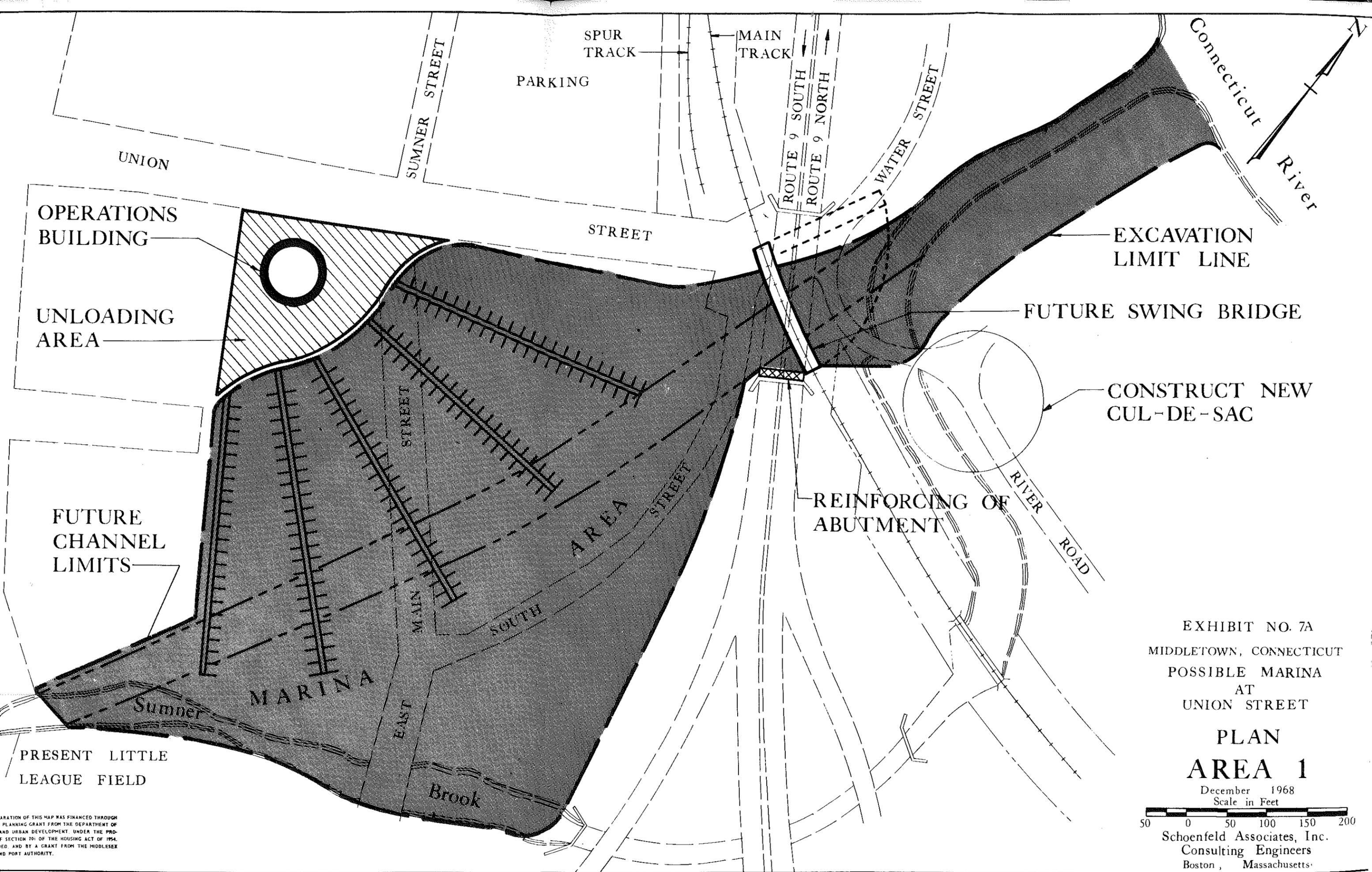
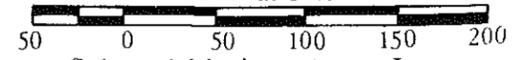


EXHIBIT NO. 7A
 MIDDLETOWN, CONNECTICUT
 POSSIBLE MARINA
 AT
 UNION STREET

PLAN
 AREA 1

December 1968
 Scale in Feet



Schoenfeld Associates, Inc.
 Consulting Engineers
 Boston, Massachusetts

PREPARATION OF THIS MAP WAS FINANCED THROUGH
 PLANNING GRANT FROM THE DEPARTMENT OF
 AND URBAN DEVELOPMENT, UNDER THE PRO-
 F SECTION 704 OF THE HOUSING ACT OF 1954.
 ED, AND BY A GRANT FROM THE MIDDLESEX
 NO PORT AUTHORITY.

AREA II

The second area investigated for a marina location is at the intersection of Silver Street, Silvermine Road, River Road, as defined on Exhibit 7b. River Road would be relocated around the complex and a new intersectional treatment would be provided at Silver Street and River Road. A new railroad bridge over a proposed sixty foot channel would provide an entrance from the Connecticut River to the proposed marina site. This area is also subjected to flooding, however, no recommendations have been made safeguarding the area.

COST BREAKDOWN - AREA II

Preliminary Capital Expenses

Roadway Construction	\$ 75,000.00
Railroad Bridge	125,000.00
Channel Excavation	200,000.00
Marina & Slips	500,000.00
	<u>\$ 900,000.00</u>
Maintenance, Interest & Engineering	<u>100,000.00</u>
	\$1,000,000.00

Projected Income

\$1,000,000.00

Calculated as per Area I

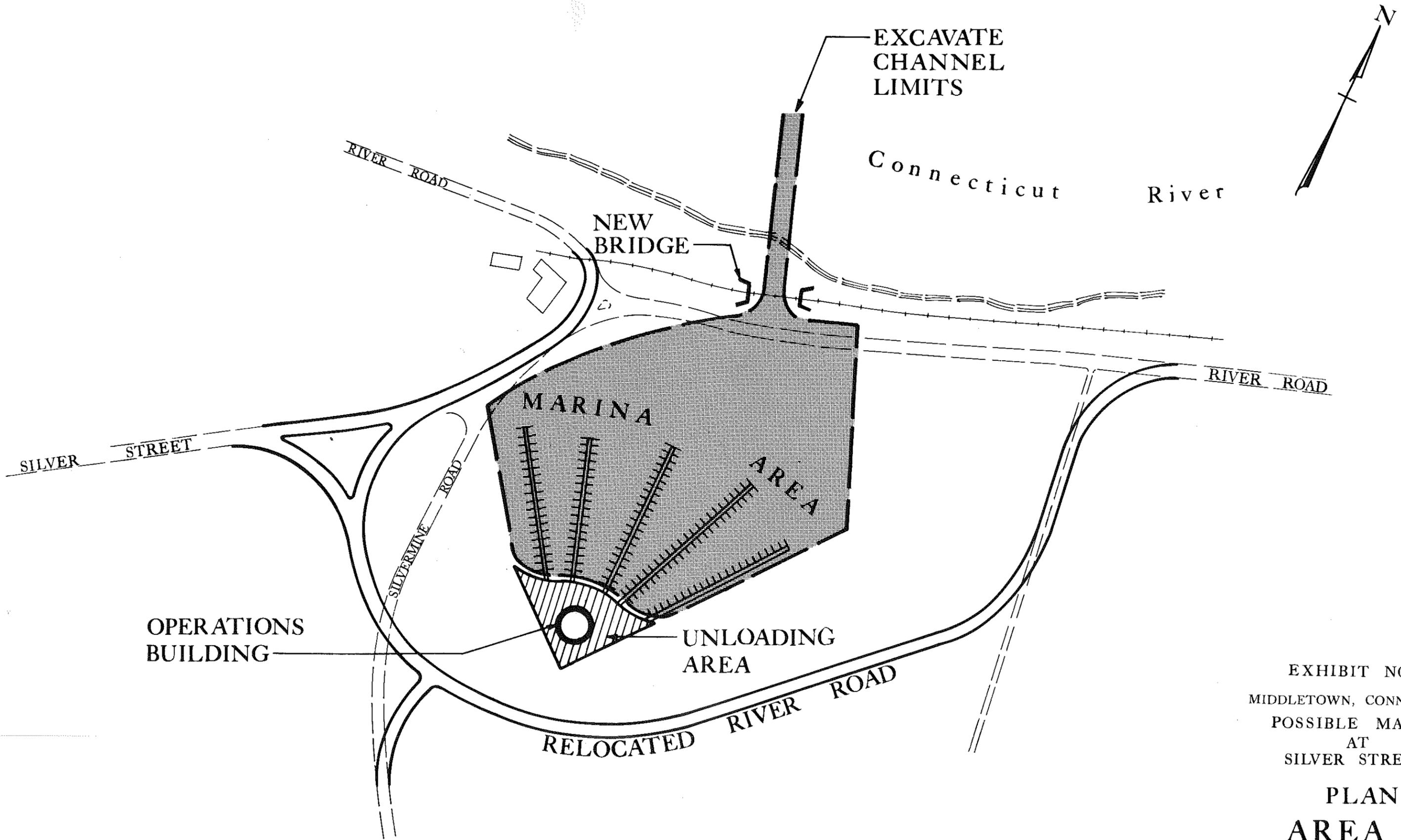


EXHIBIT NO. 7B
 MIDDLETOWN, CONNECTICUT
 POSSIBLE MARINA
 AT
 SILVER STREET

PLAN
 AREA II

December 1968
 Scale in Feet



Schoenfeld Associates, Inc.
 Consulting Engineers
 Boston, Massachusetts

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 A PLANNING GRANT FROM THE DEPARTMENT OF
 LAND AND URBAN DEVELOPMENT, UNDER THE PROVISIONS
 OF SECTION 701 OF THE HOUSING ACT OF 1954,
 AS AMENDED, AND BY A GRANT FROM THE MIDDLESEX
 COUNTY PORT AUTHORITY.

AREA III

The third area of consideration for a marina is at the northerly end of the City in the low land lying between the Matabesset River and the tracks of the New York, New Haven and Hartford Railroad, as shown on Exhibit 7c.

In a report prepared for the State of Connecticut Water Resource Commission dated June, 1963, in connection with the Connecticut River Local Flood River Protection Program, a protective dike is proposed in this area to safeguard the railroad and major buildings located in this area. This dike structure could be utilized as an approach roadway to provide access into the marina.

COST BREAKDOWN - AREA III

Preliminary Capital Expenses

Channel Excavation	\$150,000.00
Marina & Slips	500,000.00
Access Roadway	50,000.00
	<u>\$700,000.00</u>
Maintenance, Interest & Engineering	70,000.00
	<u>\$770,000.00</u>

Projected Income

\$1,000,000.00

Calculated as per Area I

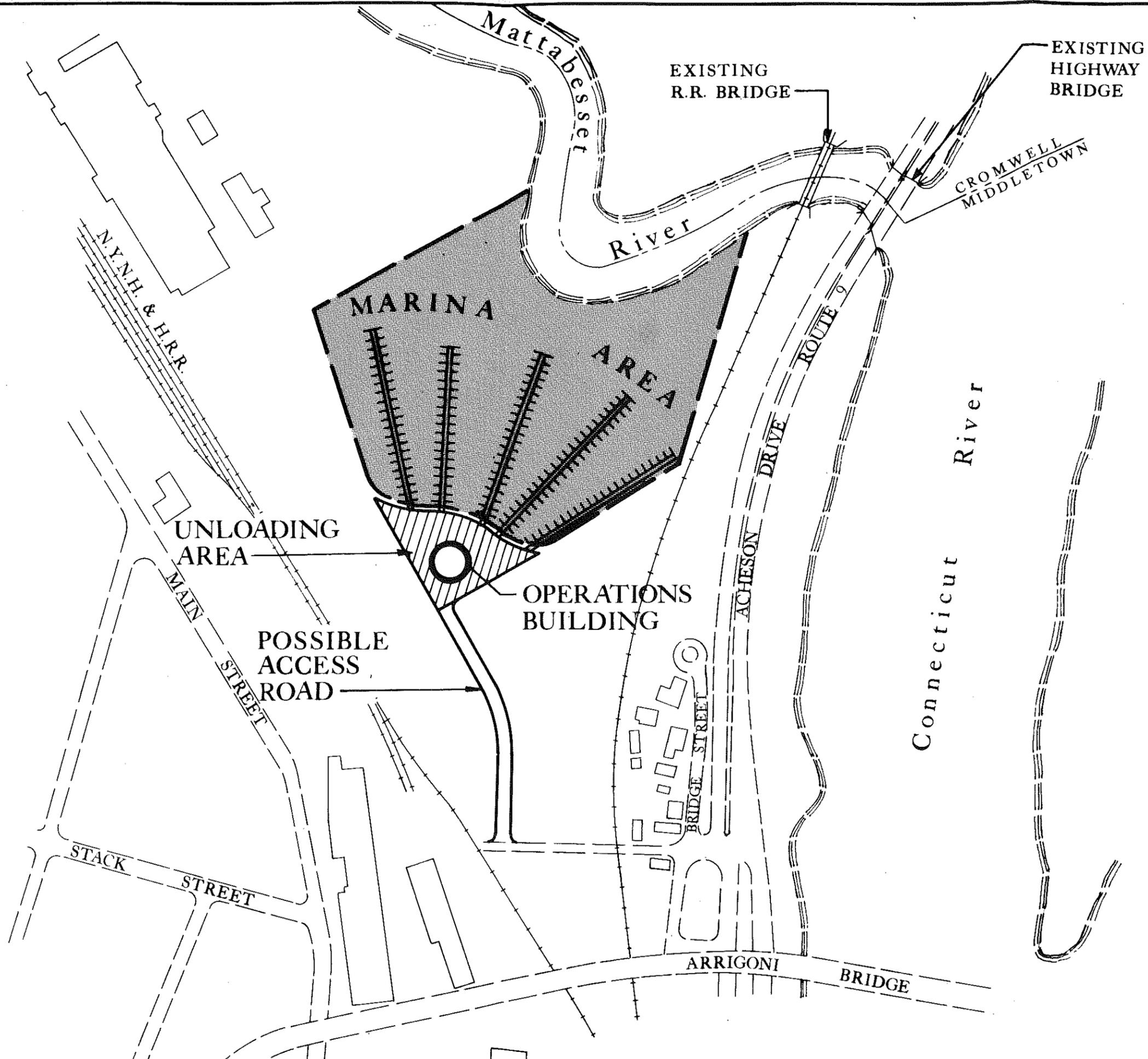


EXHIBIT NO. 7C
 MIDDLETOWN, CONNECTICUT
 POSSIBLE MARINA
 AT
 MAIN STREET
 PLAN
 AREA III
 December 1968
 Scale in Feet



Schoenfeld Associates, Inc.
 Consulting Engineers
 Boston, Massachusetts

THIS MAP WAS FINANCED THROUGH A GRANT FROM THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT, UNDER THE PROVISIONS OF THE HOUSING ACT OF 1954, AS AMENDED BY A GRANT FROM THE MIDDLESEX COUNTY AUTHORITY.

The two layouts i.e., 100 boat and/or 250 boat arrangement for the marina complex would serve as a basic concept for future location and development of marina facilities in the Midstate Region.

For the area north of Bodkin Rock a report entitled "Stream Encroachment Lines on the Connecticut River" was prepared in 1959 for the State of Connecticut by Dewey and Kropper, Consulting Engineers. As recommended in this report, Stream Encroachment lines have been established as shown on Exhibit 8. The recommendations of this report for the area above Bodkin Rock take these lines into consideration.

Another consideration is the channel line location and depth in relation to the selected site. This consideration is of secondary importance since if the site proves to be feasible with a cost benefit ratio greater than one, Federal participation from the Army Corps of Engineers can be obtained to offset the cost of additional channel excavation. The fifteen foot channel depth is sufficient for most recreational type boating.

Potential marina sites north of Bodkin Rock were along the river in Cromwell and on the Portland side of the river where several boat yards currently are using the river as mooring areas.

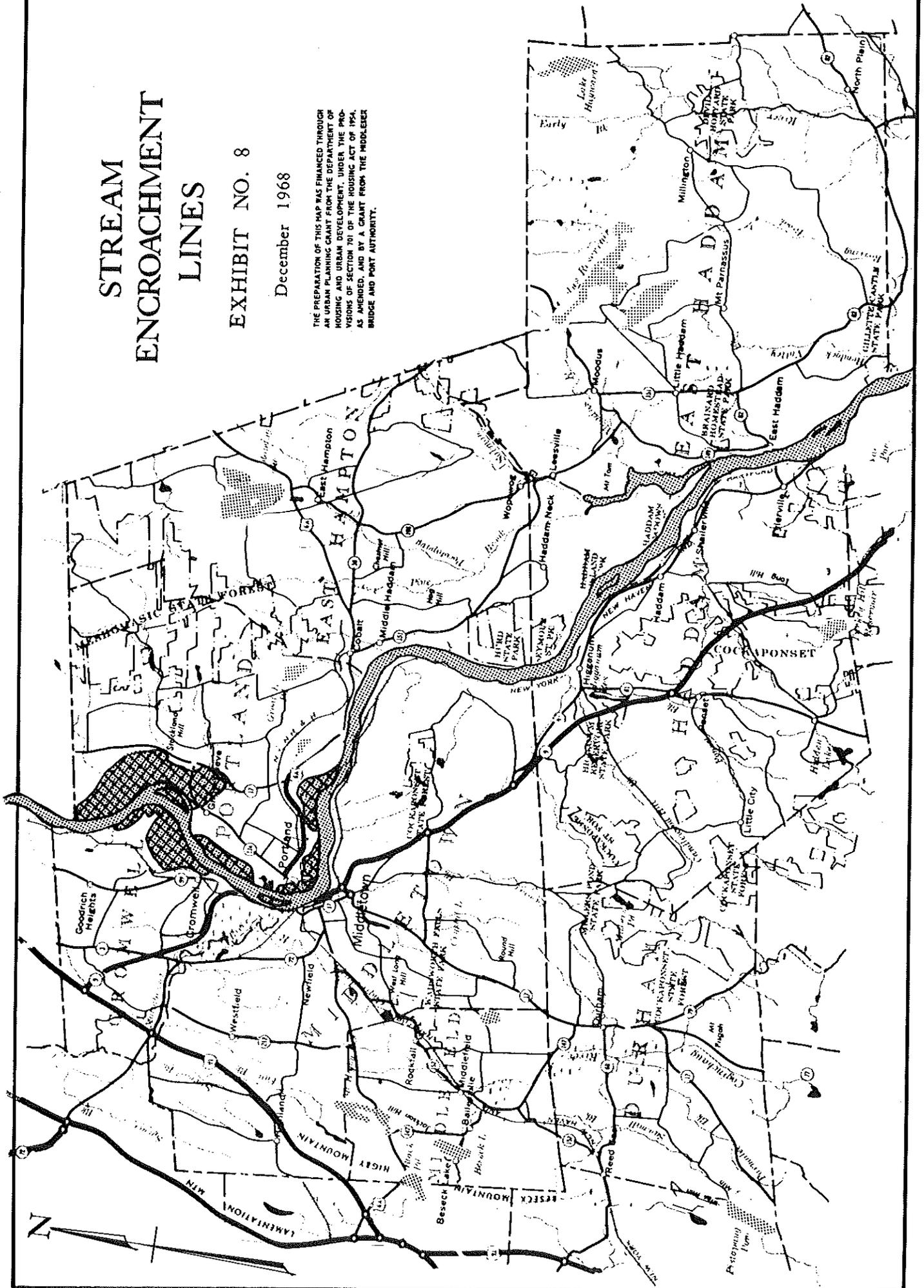
Other areas to the south that show potential for mooring development are the Salmon River Area, the Good Speed Complex and Chapman Pond (Exhibit 9).

STREAM ENCROACHMENT LINES

EXHIBIT NO. 8

December 1968

THE PREPARATION OF THIS MAP WAS FINANCED THROUGH AN URBAN PLANNING GRANT FROM THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT UNDER THE PROVISIONS OF SECTION 701 OF THE HOUSING ACT OF 1954, AS AMENDED, AND BY A GRANT FROM THE HOLLISER BRIDGE AND PORT AUTHORITY.



CHANNEL IMPROVEMENTS

Another consideration in the construction of a marina in the Middletown area is the location of the channel line in the Connecticut River. Exhibit 10 shows the channel lines as defined by the Department of the Army, New England Division of the Corps of Engineers (June 30, 1963).

In the area of Gildersleeve Island, the channel is on the easterly bank of the River, and then cuts across at the end of the Island to the westerly bank at Cromwell. It then follows the westerly bank to Wilcox Island where it crosses to the easterly side at Portland.

At the northerly end of Wilcox Island, the Corps proposed to dredge a fifteen foot channel, 150' wide and approximately one-third of a mile long channel in the area of Mouse Island Bar. These channel improvements will improve the navigation and safety in the Connecticut River area of Middletown and Portland.

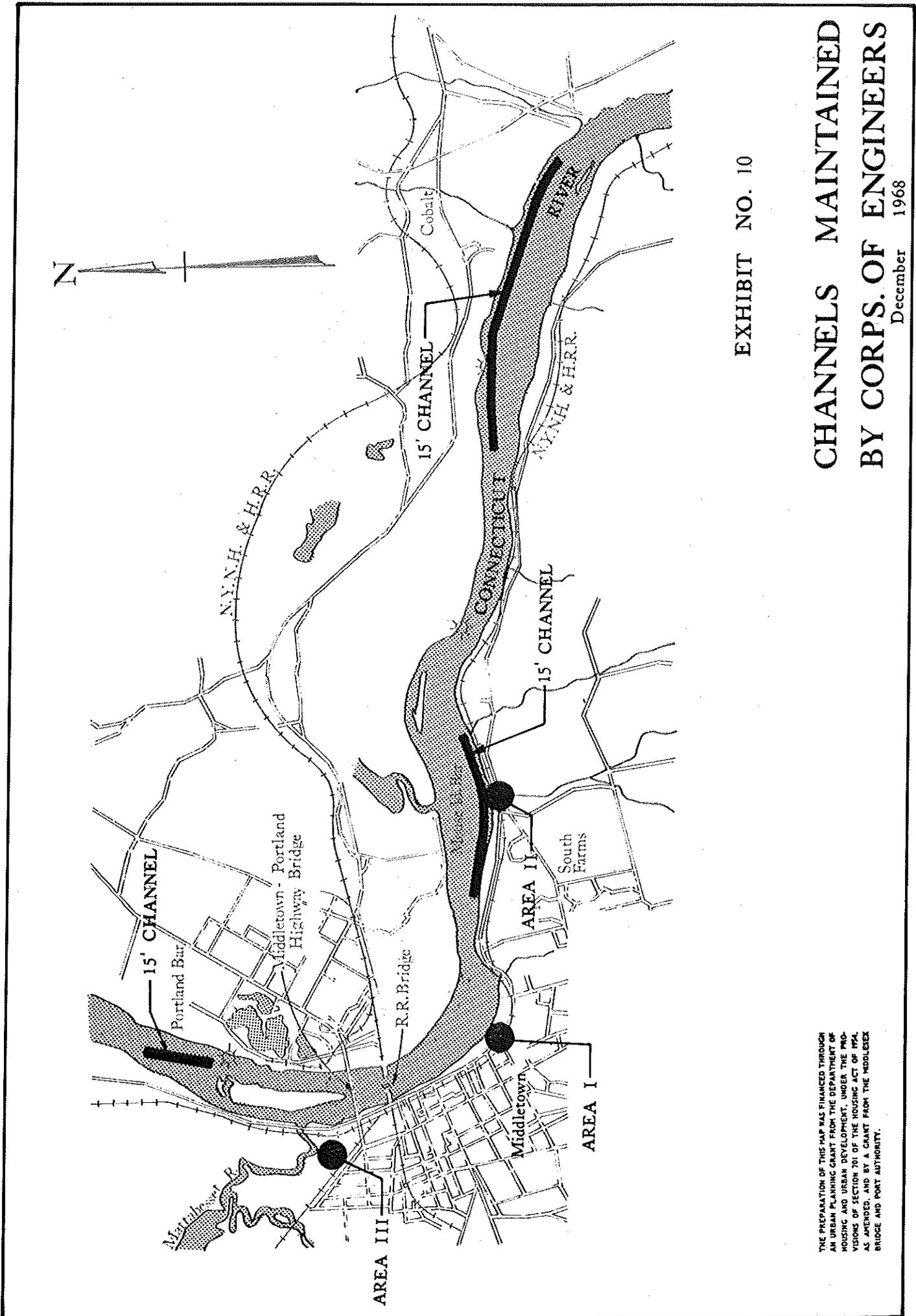


EXHIBIT NO. 10

CHANNELS MAINTAINED
BY CORPS OF ENGINEERS

December 1968

THE PREPARATION OF THIS MAP WAS FINANCED THROUGH AN URBAN PLANNING GRANT FROM THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT, UNDER THE PROVISIONS OF SECTION 701 OF THE HOUSING ACT OF 1954, AS AMENDED, AND BY A GRANT FROM THE MIDDLESEX BRIDGE AND PORT AUTHORITY.

VIII. CONCLUSION

There is interest in developing marina and boating facilities on the Connecticut River in the Midstate Region, especially in close proximity to the core area of Middletown. In this study, many potential marina sites were investigated as to their feasibility and potential for future development. Many of the sites investigated lacked suitable access or insufficient land area to permit full development of the site.

As previously stated, the adverse topography of the River banks together with the pollution of the River has limited its development for recreational purposes to date. The flood plains along the River offer an opportunity to utilize the riverfront for extensive recreation purposes; however, it does present problems to intensive recreational uses which require permanent facilities.

There is great potential for overall river development; but there must be a coordinated effort on the part of the federal, state and local governments to determine its ultimate use for commercial recreation. The commercial recreation uses of the River need to be considered within the content of overall River development and the multiple purposes it is expected to serve.

In the several schemes studied for the Middletown area, the decision as to the location of the marina facility from a purely economic analysis indicates that Area III is the most practical, while Area II is marginal and Area I would show an operational loss. Area II and III show a benefit ratio greater than one and would be available for cost participation by Army Corps of Engineers for dredging and construction of channels.

The disadvantage of Scheme I is that it requires a swing span. This type of structure requires a bridge tender and a high degree of maintenance. The existing bridge over Route 9 would require reconstruction inasmuch as the dredging of the channel would undermine the existing bridge piers and abutments. Dredging of the cove as well as the shoring of the banks is a major factor in the cost of this proposal.

The disadvantage of Scheme II is the cost of constructing a railroad bridge over the proposed channel which is to serve the marina area.

The main deterrent of Scheme III is the poor accessibility from the urban area of Middletown. However, it has the advantage that no new bridge structures would have to be constructed in order to provide access to the proposed marina.

In a recent conversation with the Corps of Engineers, it was generally agreed that the Government would participate in the construction of the Channel and the new dike. However, this participation was based on the premise that the cost-benefit ratio of this undertaking was greater than one and that the installation was not being built by a single individual or developer.

Following public hearings on the proposed marina, the approval of the Army Corps of Engineers and the Connecticut Water Resource Commission is necessary.

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Dewey & Kropper

APPENDIX

OUTDOOR RECREATIONAL SPACE AREA REQUIREMENTS

RECREATION LAND

AGENCY	FACILITY	REQUIREMENTS
Connecticut Department of Agriculture and Natural Resources, pp. 40-42 (28)	recreational lands	Total public recreation land by planning region should be 70 acres per 1000 population. This includes: a. 10 acres of parks primarily of regional significance, and located within one-half hour travel time of population served. Areas consist largely of intensively developed state facilities that service the regional population. b. 10 acres of parks primarily of statewide significance, and located within one hour travel time of population served. c. 40 acres of land generally of statewide or regional significance. Areas consist largely of extensively developed state forests and other public lands.
Connecticut Development Commission, pp. 24-25 (29)	recreation land	40 acres for each 1000 people. Recreation land includes: 10 acres of local outdoor recreation space; 30 acres of regional outdoor recreation facilities.
National Recreation and Park Association, Outdoor Recreation Space Standards, pp. 20 & 24-25 (94)	extra urban open space	15 acres for each 1000 people. Should be located within 1 hour's drive of urban homes.

BOATING

Bureau of Reclamation p. 27 (15)	boat access	Two dual launching ramps per 40 boats, 40 boat trailers, auto parking spaces and buffer strip.
Connecticut Department of Agriculture and Natural Resources, p. 41 (28)	boating	Instant capacity of 1% of state population at state or other public boating access areas and on available fresh water and salt water bodies.
Corps of Engineers Manual, p. 3 (32)	boat ramp	Minimum of 1 ramp per project with 5000 to 40,000 annual visitors; or 1 per 40,000 annual visitors or at any one area with 40 boat launchings per peak-day; or the number of ramps required to prevent not more than 1 hour's delay in launching.

National Recreation and
Park Association
Bulletin no. 54, pp. 6-9
(88)

marinas
The main difference in marina designs will be governed by the size and design of boats using the area. The Outboard Boating Club of America states that optimum size for marina development ranges upward from 25 acres. Generally, the ideal land area required for marinas is the same as that for mooring boats or 1¼ times that size.

HIKING

Bureau of Land
Management (14)
riding & hiking trails

Trails should be located to offer hikers or riders as many interesting vistas or views as possible. Interpretive signs should be used. On extended trails rest stops should be about every 3-5 miles and overnight stops, about every 10-20 miles. In heavily used areas, overnight stops may be equipped with tables, fireplaces, and pit toilets.

Connecticut Department
of Agriculture and
Natural Resources, p. 42 (28)
hiking & nature walking

Instant capacity of .5% of State population on State or other public walking or hiking trails.

PICNICKING

Bureau of Land
Management (14)
Picnic grounds

A picnic ground preferably will be planned on a walk-in basis with multi-car parking areas. Density will range from 8 to 12 family units per acre.

Bureau of Reclamation
p. 27 (15)
family picnic area

8 units per acre. One unit includes table and cooking facilities, and allows for parking, sanitation facilities, open space and buffer strip.

group picnic area

25 units per acre. One unit includes 25 tables, cooking facilities, and allows for parking, sanitation facilities, open space, and buffer strip.

Connecticut Department
of Agriculture & Natural
Resources p. 41 (28)
picnicking

Instant capacity of 2% of state population at state facilities.

Coprs of Engineers
Manuals p. 3 (32)
picnic areas

1 minimum, at or near dam or other major project structure and at all public use areas, whether as a separate activity or combined with other types of public recreation activities.

Each picnic area to comprise 5 to 50 tables. Minimum of 1 picnic table for each 4000 annual visitors or 1 picnic table for each 100 to 200 peak-day visitors, or 1 picnic table for 10 to 15 picnickers. Minimum of 1 parking space for each picnic table.

An individual shelter for each table where no tree cover is available in picnic area. A group type shelter for each 225 picnickers per peak-day regardless of available tree cover.

units should be spaced 100 feet apart for privacy and to prevent overuse of site. A unit consists of 1 stove and 1 table.

10 to 15 picnic sites an acre. Minimum size of 90 to 120 picnic sites an area. Each table accommodates 6 to 8 people; 2 to 3 tables per fireplace.

An average of 10.5 tables per acre with 1 charcoal grill per 5.1 tables. Saturation rate is an overall maximum average of 220.1 picnickers a day per acre of land.

3 units per acre. 1 unit includes table, cooking facilities, space for tent or trailer and car, and allowance for sanitation facilities, open space, parking and a buffer strip.

Instant capacity of .5% of state population facilities.

One camp site for 10 campers or one for each 7500 to 10,000 annual visitors. 4 to 7 sites per each tent and trailer camp area. Tent space dimension of 15 ft. x 15 ft.

A standard family camp unit includes a table, stove, parking spur, and space for a tent. Units are located about 50 ft. from the edge of camp roads, and at least 100 ft. from lakes, streams and main roads. Camp units are spaced about 100 ft. apart. It is usually better to plan a separate campground for trailers.

Normal development consists of three family units per acre. Average dimensions for camp unit parking spurs are 12 ft. by 30 ft. and for trailer camp units, 12 ft. by 55 ft.

One campground should provide for a minimum of 90 to 120 camp sites on 12-30 acres, with 4 to 7 camp sites per acre.

Forest Service Handbook, p. 76 (48) picnic unit

National Park Service Handbook, pp. 1-5 (75) picnic area

National Recreation & Park Association, Bulletin No. 4, pp. 8-22 (77) picnic area

CAMPING

Bureau of Reclamation p. 27 (15) family camp unit

Connecticut Department of Agriculture & Natural Resource, p. 41 (28) camping

Corps of Engineers Manual, p. 3 (32) tent or trailer camp sites

Forest Service Handbook (48) camp, family unit

National Park Service Handbook. "Special Park Uses: Campground Planning," pp. 1-5 (75) camp sites

National Recreation & Park Association, Bulletin No. 34, p. 12 (78)

camp site
Spacing of camp sites should be based upon carrying capacity of land and its ability to hold up under the traffic. For privacy, a site should have a minimum of 2500 sq. ft. or a lot 50 ft. x 50 ft.

National Recreation & Park Association, Bulletin No. 16, pp. 12-18 (91)

family camping facility
Average camper prefers 45 to 100 feet between camp sites. Number of units for a forest campground where development is somewhat primitive may be 20-30 camp sites. Where modern toilet facilities, electricity, running water, etc., are installed, development may be 60-70 camp sites to justify costs of these facilities.

Soil Conservation Service, Recreation Memorandum-3, Supplement-3, pp. 1-2 (119)

Camp sites
3000 sq. ft. per unit. A unit includes tent space, vehicle parking space, and use area for cooking, eating, wood storage, trash disposal, etc. 14 units an acre or 56 people an acre.

Camp sites average 4 persons each. Dimension of tent space is 16 x 16 ft. or 12 x 18 ft. Camp areas should be within 300 miles of population.

Privacy size is 4000 to 8000 sq. ft. a unit; 5 - 11 units an acre or 20-44 people an acre.

SWIMMING.

Bureau of Reclamation p. 27 (15)

beach
One unit consists of 40 ft. of shoreline extending back approximately 550 ft. with space for related activities, parking and buffer strip

Connecticut Department of Agriculture & Natural Resources, p. 41 (28)

swimming
Instant capacity of 3% of state population at state saltwater facilities and 3% at state freshwater facilities.

National Recreation & Park Association, Bull. No. 51, pp. 6-8 (87)

beach
Most of the time there are more persons on the beach sunning than in the water. Since the amount of usable water space per person ranges from 50 to 100 sq. ft. the available site will determine the capacity of a particular bathing beach.

Soil Conservation Service, Recreation Memorandum-3, p. 3 (119)

beach
100 to 200 sq. ft. of swimmable water per swimmer. 50 to 100 sq. ft. of beach per swimmer.

Between 15% to 30% of swimmers are in the water at one time.

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