ENVIRONMENTAL ASSESSMENT

REPLACEMENT OF THE NEW BEDFORD-FAIRHAVEN BRIDGE NEW BEDFORD, MASSACHUSETTS

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS

Replacement of the
New Bedford-Fairhaven Bridge
Route 6 Over New Bedford-Fairhaven Harbor

Environmental Assessment
(REVISED)

U. S. Department of Transportation
Federal Highway Administration
and
Massachusetts Department of Public Works

Submitted Pursuant to 42 U.S.C. 4332 (2) (c)

May 9, 1985
Date

Edwin P. Holahan
for Division Administrator

PERSONS TO CONTACT FOR FURTHER INFORMATION:

Mr. Philip Robinson
Federal Highway Administration
55 Broadway
Cambridge, Massachusetts 02116
Telephone (617) 494-2253

Mr. Walter Williams
Massachusetts Department of Public Works
10 Park Plaza
Boston, Massachusetts 02116
Telephone: (617) 973-7495

FEDERAL HIGHWAY ADMINISTRATION
FINDING OF NO SIGNIFICANT IMPACT
FOR
REPLACEMENT OF THE
NEW BEDFORD - FAIRHAVEN BRIDGE

The FHWA has determined that this project will not have any significant impact on the human environment. This finding of no significant impact is based on the attached environmental assessment which has been independently evaluated by the FHWA and determined to adequately and accurately discuss the environmental issues and impacts of the proposed project. It provides sufficient evidence and analysis for determining that an environmental impact statement is not required. The FHWA takes full responsibility for the accuracy, scope, and content of the attached environmental assessment.

May 9, 1985	Edwin P. Holahan	Asst Div Admin.
Date	Responsible Official	Title

SUMMARY

A. DESCRIPTION OF THE PROPOSED ACTION

The proposed action concerns the replacement of the New Bedford-Fairhaven Bridge which carries Route 6, a four lane primary highway, over the New Bedford-Fairhaven Harbor for a distance of about three quarters of a mile. The existing bridge contains a swing span section at the shipping channel through the harbor which provides a horizontal opening of 95 feet on either side of a center pier and has a vertical clearance of six feet in a closed position. The reasons for replacement are to insure the continued reliability of the crossing by eliminating the 1903 swing span and to allow larger vessels to pass through the bridge safely by providing increased horizontal clearance. The four lane replacement bridge would have a moveable span of the double leaf bascule type which would provide 150 feet of horizontal clearance.

B. ALTERNATIVES EVALUATED

Eighteen alternatives were developed and reviewed. These included a no-build alternative, a rehabilitation of the existing bridge alternative, and sixteen alternatives involving new construction within the existing corridor. The build alternatives involved three basic alignments and a variety of navigational clearances ranging from the existing clearance to 60 feet.

The higher level alternatives had the advantage of reducing the number of bridge openings for navigational traffic but the disadvantage of disrupting the surrounding area and eliminating direct access to the two harbor islands over which the bridge passes. The lower level alternatives would reduce the impact on the surrounding area but would not result in a decrease in the number of openings for navigational traffic. The intermediate level alternatives provide a balance between the disruption to the surrounding area and a reduction in the number of openings for navigational traffic.

C. THE PREFERRED ALTERNATIVE

The preferred alternative is new construction along an alignment nearly identical to that of the existing bridge providing a vertical clearance at the bascule span of approximately 10 feet which is slightly greater than that of the existing bridge.

The preferred alternative involves the construction of about 500 feet of four lane surface roadway on Fish Island, about 700 feet of four lane bridge between Fish Island and Popes Island, and about 1,500 feet of four lane surface roadway on Popes Island. The four lane bridge includes the moveable span of the double bascule type and fixed approaches on either side.

The cost of the preferred alternative will be approximately $35,000,000.

D. ENVIRONMENTAL IMPACTS

The potential environmental impacts if the preferred alternative is implemented are:

1. Positive Effects

a. Maintains the continued reliability of the crossing.

b. Provides increased side clearance for vessels passing through the bridge.

c. Continues the social and economic links between the communities of New Bedford and Fairhaven.

d. Increases the desirability of waterfront areas beyond the bridge for development by the fishing industry or other industries dependent on navigational traffic.

2. Negative Effects

a. Eliminates the existing bridge which is considered a historic resource.

b. Causes the agitation and suspension of harbor sediments which contain contaminated materials during construction related dredging and excavation.

c. Necessitates the creation of a disposal site for contaminated material removed from the harbor bottom through channel dredging and bridge foundation excavation. This operation is subject to approval or review by the U. S. Environmental Protection Agency, the U. S. Army Corps of Engineers, the Massachusetts Department of Environmental Quality Engineering, and other regulatory agencies.

d. Requires the displacement of one waterfront business, The Outdoorsman and Captain Leroy's Excursions.

e. Requires the permanent taking of approximately one half acre of adjacent parkland for roadway widening and roadway realignment.

f. Diverts bridge traffic onto alternate routes during construction for at least an eighteen month period causing significantly increased traffic volumes on other roadways in the area some of which are residential in nature. Increased air and noise pollution will also result in these areas.

TABLE OF CONTENTS

Title Page i
Summary v
Table of Contents vii
List of Tables ix
List of Figures x

I INTRODUCTION

A. General Background 1
B. Project History 1
C. Project Needs and Benefits 5
D. Consistency With Existing Planning Goals 5

II THE PROJECT AREA

A. The Region 7
B. The Built Environment 7
C. The Natural Environment 22
D. The Economic Environment 27
E. Traffic 30

III ALTERNATIVES CONSIDERED

A. Selection of the Corridor 40
B. Selection of the Crossing Type 44
C. Location of the Proposed Bridge Within the Corridor 47
D. Range of Alternatives within the Corridor 51
E. Selection of a Preferred Alternative 55

IV DESCRIPTION OF THE PREFERRED ALTERNATIVE

A. Alignment 63
B. Structure 63
C. Property Takings 69
D. Construction 70

V REGIONAL IMPACTS OF THE PROPOSED ACTION

A. Disposal of Contaminated Dredged Material 76
B. Detouring of Roadway Traffic During Construction 100
C. Regional Air Quality 108
D. Wetlands 109
E. Accessibility of Facilities and Services 111
F. Aesthetics and Historic Values 112
G. Open Space and Recreational Resources 118
H. Resources 120
I. Solid Waste Disposal 120

VI IMPACTS OF THE PROPOSED ACTION WITHIN THE CORRIDOR

A. Effects on Roadway Traffic 122
B. Taking of Land of Leroy & Elaine Faltus and Relocation of Captain Leroy's and the Outdoorsman 122
C. Loss of Business on Fish Island and Popes Island 124
D. Noise Impacts 129
E. Air Quality Impacts 132a

VII SECTION 4 (f) ISSUES

A. Removal of the Existing Bridge 132f
B. Loss of Publicly-Owned Parkland 132f

VIII RESPONSES TO COMMENTS

A. Comments from Federal Agencies 133
B. Comments from State Agencies and Officials 162
C. Comments from Local Agencies and Officials 177
D. Comments from Firms 210
E. Comments from the General Public 235

APPENDICES

A. Feasible Alternatives 263
B. Sediment Samples 282
C. Letter of Consistency with State Implementation Plan for Ozone and Carbon Monoxide 288

LIST OF TABLES

Table 1	Properties	19
Table 2	Typical Vessels in Harbor	31
Table 3	Navigational Traffic and Bridge Opening Projections	34
Table 4	Crossing Types	45
Table 5	Alternatives to Existing Bridge	48
Table 6	Feasible Alternatives	52
Table 7	Bridge Opening Requirements - 1987	60
Table 8	Bridge Opening Requirements - 2005	61
Table 9	Detour Traffic Volumes	104
Table 10	Predicted Carbon Monoxide Concentrations on Detour Route	107
Table 11	Regional Air Quality Impact	110
Table 12	Businesses	125
Table 13	Noise Level Predictions	131
Table 14	One Hour Carbon Monoxide Contribution by Mobile Sources	132b
Table 15	Eight Hour Carbon Monoxide Contribution by Mobile Sources	132c
Table 16	National Ambient Air Quality Standards	132e

LIST OF FIGURES

Figure 1	Existing Bridge	xii
Figure 2	Double Leaf Bascule Bridge	2
Figure 3	Highway Map	8
Figure 4	Regional Map	9
Figure 5	Harbor Map	11
Figure 6	Harbor Barrier	12
Figure 7	Bridge Segments	14
Figure 8	Middle Bridge	16
Figure 9	Fish Island and New Bedford Shore	17
Figure 10	Properties - Fish Island and New Bedford Shore	18
Figure 11	Popes Island	20
Figure 12	Properties - Popes Island	21
Figure 13	Economic Activity	29
Figure 14	Yearly Navigational Traffic	32
Figure 15	Roadway System	36
Figure 16	Yearly Traffic Volumes	38
Figure 17	Northern Corridors	41
Figure 18	Southern Corridors	43
Figure 19	Swing Bridge, Vertical Lift Bridge, Bascule Bridge	46
Figure 20	Conclusions from Corridor Planning Study Report	49
Figure 21	Swing of Existing Bridge	50
Figure 22	Profiles	53
Figure 23	Alternative 4b	56
Figure 24	Alternative 5b	57
Figure 25	New Moveable Span	64
Figure 26	Extent of Improvements	65
Figure 27	Roadway Elements	66
Figure 28	Proposed Profile Grades	67
Figure 29	Bridge Structure	68
Figure 30	Taking Plan - Fish Island	71
Figure 31	Taking Plan - Popes Island	72
Figure 32	Construction Schedule	75
Figure 33	Disposal Sites	81
Figure 34	Location of Concrete Storage Chamber	85
Figure 35	Layout of Concrete Storage Chamber	86
Figure 36	Concrete Storage Chamber Cross Sections	87
Figure 37	Location of Diked Containment Area	89
Figure 38	Layout of Diked Containment Area	90
Figure 39	Section Through Diked Containment Area	91
Figure 40	Location of Underground Disposal Area at North Terminal	93
Figure 41	Section Through Underground Disposal Area	94
Figure 42	Location of Upland Disposal Site on Marsh Island	96
Figure 43	Section Through Upland Disposal Site on Marsh Island - In Operation	97
Figure 44	Section Through Upland Disposal Site on Marsh Island - Completed	98

Figure 45	Auto Detour Routes	101
Figure 46	Truck Detour Routes	103
Figure 47	Coggeshall Street Traffic Counts	106
Figure 48	Determination of Eligibility	114
Figure 49	Case Report	115
Figure 50	Case Report (continued)	116
Figure 51	Memorandum of Agreement	117
Figure 52	Marine Park	119
Figure 53	Land of Leroy Faltus & Elaine Faltus	123
Figure 54	Businesses - Fish Island and New Bedford Shore	126
Figure 55	Businesses - Popes Island	128
Figure 56	Sensitive Receptors - Noise Impacts	130
Figure 57	Sensitive Receptors - Air Quality Impacts	132d

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 1

I INTRODUCTION

In 1979 the New Bedford-Fairhaven Bridge carried an average roadway traffic volume of over 26,000 vehicles and opened for navigational traffic almost 1,000 times. This project involves the replacement of the bridge with new construction at a cost of approximately $35,000,000.

The new bridge is planned to open after an estimated five year period of design and construction. The construction activity will involve the complete closing of the crossing for a period of time. Every consideration will be made through the design and construction activities to limit the closing to the absolute minimum. Current estimates of closing time are approximately eighteen months.

The bridge is being designed to accommodate the roadway traffic volumes that are expected to occur in the year 2005.

A. GENERAL BACKGROUND

The New Bedford-Fairhaven Bridge is a four lane structure which carries Route 6 for about three quarters of a mile over the Harbor separating the communities of New Bedford and Fairhaven. The bridge (see Figure 1) contains a moveable section of the type known as a swing span at the navigational channel which runs between Fish Island and Popes Island.

The swing span is a 289 foot long truss which rotates on a granite masonry center pier. The swing span provides 94 and 95 foot wide shipping channels on either side of the center pier and six feet of vertical clearance when in the closed position.

This project involves replacing the existing swing span with a moveable span of the bascule type. The reasons for replacement can be summarized as follows:

1. To insure the structural integrity of the crossing since the swing span was built in 1903.

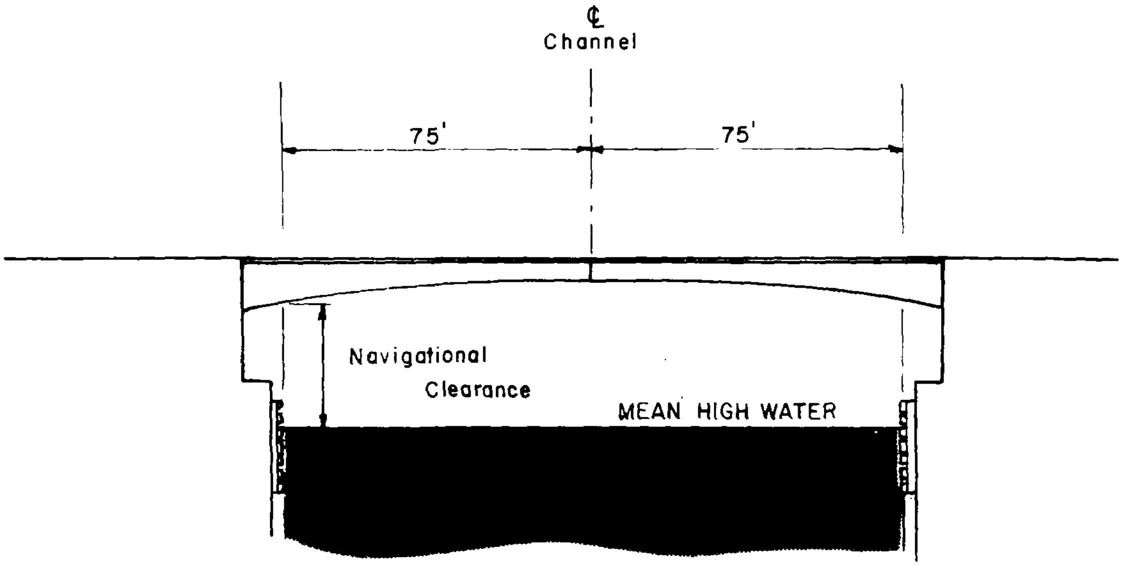
2. To obtain increased horizontal clearance to allow larger vessels to pass through safely.

The proposed bascule span will provide for an increased vertical clearance in the closed position and a horizontal clearance of 150 feet. It will be a double-leaf bridge of the simple trunnion type (see Figure 2). The new bridge will be located in the existing corridor which crosses Fish Island and Popes Island.

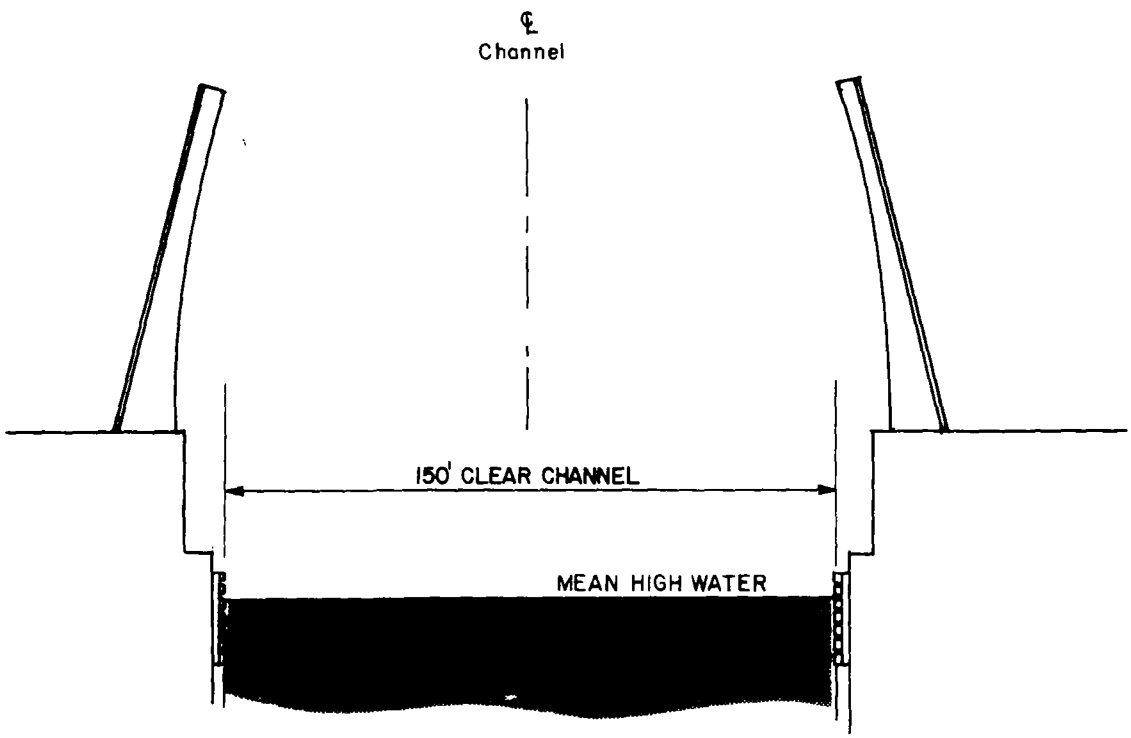
B. PROJECT HISTORY

Replacing the existing New Bedford-Fairhaven Bridge has been under discussion since at least 1966. The <u>Southeastern Massachusetts Comprehensive</u>

Closed Position



Open Position



Double Leaf Bascule Bridge

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 2

Transportation and Arterial Study, 1966, for the Department of Public Works by Tippets-Abbet-McCarthy-Stratton, stated: "The replacement of the existing structure by one providing greater vertical and horizontal clearance may be justified on the basis of forecasted vehicular and vessel traffic, trends in ship construction, and bridge construction and operating costs."

This was followed by the New Bedford City Planning Department's report, Transportation Problems at the New Bedford-Fairhaven Bridge, 1967, which focused on the increase in navigational traffic from 1961 to 1965, and cited difficulties in maneuvering through the bridge opening. The report also analyzed the upward trend in the number of bridge openings and the increased delay to motor vehicle traffic caused by this development.

An effort to ascertain the attitude of the public was made in the Report of the Special Commission Authorized to Make an Investigation and Study of the Advisability and Feasibility of Replacing the Present Drawbridge Known as the New Bedford-Fairhaven Bridge with a Bascule Bridge or a High-Level Bridge, 1967, by the Special Commission of the Massachusetts House of Representatives. The report included a proposal to instruct the Department of Public Works to undertake an engineering study of the problem.

As a result of the Report of the Special Commission, the Feasibility Study on the Replacement of the New Bedford-Fairhaven Bridge, 1969, for the Department of Public Works by Sverdrup & Parcel was prepared. This report evaluated the crossing location and the type of structure to be used. Corridors to the north and south of the existing bridge were considered and a tunnel, a high-level bridge, a medium-level bascule bridge, and low-level bascule bridge were all evaluated. The conclusions and recommendations stated in this report included the following:

"A replacement structure will probably be required some time before 1990 because of the bridge's age and the anticipated increase in shipping through it."

"To remove the drawbridge without replacing it will cause excessive cost to the highway user and considerable damage to the many businesses along Route 6."

"Replace the present bridge, when necessary, with a double-leaf bascule bridge having a minimum 150 foot horizontal clearance and a minimum 55 foot vertical clearance. The alignment should be south of, and as close as possible to, the existing roadway while still allowing operation of the existing swing span during construction."

The New Bedford-Fairhaven Route 6 Bridge Corridor Planning Study Report, 1977, for the Department of Public Works by the Southeastern Regional Planning and Economic Development District sought to identify, document, and evaluate the need to replace the existing New Bedford-Fairhaven Bridge. The conclusions reached in this Study included the following:

"The existing swing-span drawbridge should be replaced because of its age and condition and because of its constraining influence on the development of New Bedford-Fairhaven Harbor."

"A channel width of 150 feet at the bridge is recommended. This is the same as the channel width at the hurricane barrier, and would remove shipping constraints due to beam width at the bridge."

"A double-bascule bridge is recommended for the required channel width."

The question of the vertical clearance of the bascule bridge was left open for further study.

The need for replacing the bridge has been advocated by the New Bedford-Fairhaven Harbor Master Planning Committee in New Bedford-Fairhaven Bridge, A Review of the Facts Favoring Timely Replacement, New Bedford-Fairhaven Harbor Master Plan, May 1978. This report presents and documents four statements indicating the necessity of Bridge Replacement.

"The New Bedford-Fairhaven Bridge is an old structure with a limited useful life. Repair and test openings have greatly increased during the 70's. Furthermore, Massachusetts DPW field inspection reports conducted in 1974 and 1976 rate the bridge as "poor to fair", overall. Bridge replacement is inevitable."

"The New Bedford-Fairhaven Bridge is an important transportation corridor linking, among other things, New Bedford and Fairhaven's working waterfronts. (The total economic impact of fishing operations in greater New Bedford currently exceeds $120,000,000.) Any transportation improvements within this corridor must provide for the continuation of the crossing."

"Waterfront-related development has virtually saturated the harbor shoreline south of the New Bedford-Fairhaven Bridge. Land with immediate access to federally-maintained channels has been fully developed. The remaining possibilities for large-scale waterfront development would occur north of the New Bedford-Fairhaven Bridge."

"The Corridor Planning Study identified specific waterfront development possibilities for the northern harbor. Some are more likely to occur than others. But even those more likely to occur will be severely constrained unless there is a timely replacement of the New Bedford-Fairhaven Bridge."

In September 1978, a petition containing 11,000 signatures was presented to Governor Dukakis supporting action on the bridge. This petition was the manifestation of continuing lobbying efforts by several area civic and business groups.

The present study was begun in October 1978. It seeks to summarize earlier findings and to explore in greater detail the possible alternatives for bridge replacement based on the conclusions of the Corridor Planning Study. This includes a determination of the highway design requirements, the location and alignment within the corridor, and the effects on the surrounding area.

C. PROJECT NEEDS AND BENEFITS

The reasons for the replacement project are the age and condition of the existing bridge and the need for increased horizontal clearance.

1. Age and Condition of the Bridge

The most obvious need for replacing the existing bridge is based on its age. The structure was opened to traffic in 1903 and was designed for considerably different types of both navigational and roadway traffic than currently use the bridge. Extensive repair work at several times during the bridge's history has maintained the bridge in satisfactory operational and structural condition. As time has progressed however, the question of the bridge's continued dependability has become increasingly important. Shutdowns of as much as two weeks duration have occurred.

2. Increased Horizontal Clearance

Given the facts that ocean-going tankers with a beam of 75 feet or more are capable of using the existing shipping channel and that the Coast Guard's recommended side clearance for a vessel operating under its own power is 25 feet, the 95 foot horizontal clearance of the existing bridge is inadequate to safely accommodate potential navigational users. This lack of adequate clearance is seen as a constraint to development of the harbor north of the bridge.

An increase of the horizontal clearance at the bridge to 150 feet is judged adequate to handle all potential users of the harbor now and within the life span of a new bridge. A 150 foot clearance will make the opening at the bridge consistent with the opening provided at the harbor barrier at the mouth of the harbor. Therefore, any ship which can enter the harbor through the harbor barrier will also be able to continue into the harbor area north of the bridge.

D. CONSISTENCY WITH EXISTING PLANNING GOALS

The Massachusetts Coastal Zone Management Program, 1978, proposes a series of policy statements which are intended as general guidelines for future use of the Massachusetts Coast. Policy 7 states "Encourage the location of maritime commerce and development in segments of urban waterfronts designated as port areas. . . ." The New Bedford-Fairhaven Harbor is such a designated port area. The improved navigational access which a new bridge would provide would be consistent with the intent of the Program of "maximizing the use of existing ports and harbors and their associated facilities".

New Bedford-Fairhaven Harbor Master Plan - Goals and Objectives, a study undertaken by the New Bedford Planning Department in 1977, addressed issues facing the future of the harbor area. One of the stated goals is as follows:

"To enhance the community's economic development goal of providing ample opportunities for stable employment by either maintaining or expanding existing harbor industries, retaining and protecting the existing fishing industry, or introducing new harbor-related industries."

One of the objectives put forward to achieve this goal is replacing the New Bedford-Fairhaven Bridge, thereby opening the northern harbor to development.

II THE PROJECT AREA

A. THE REGION

The New Bedford-Fairhaven area is in southeastern Massachusetts, in Bristol County, about 50 miles from Boston. The New Bedford-Fairhaven Harbor is part of the estuary of the Acushnet River which empties into Buzzards Bay. The area is served by Interstate Route 195, U. S. Route 6, and State Routes 140 and 18 (see Figure 3).

The majority of the east-west interregional traffic is carried by Interstate Route 195, which runs from Providence southeasterly through Fall River to New Bedford and then northeasterly to an intersection with State Route 25 in Wareham. State Route 18 serves the area as a secondary north-south highway, and also functions as a connector between Interstate Route 195 and downtown New Bedford. State Route 140 is the main north-south highway and is the most direct route to Boston and points north by connection to State Route 24.

U. S. Route 6, which crosses the New Bedford-Fairhaven Bridge, was formerly the major east-west highway in the area until Interstate Route 195 was built. Route 6 now carries mainly local commuter and intra-regional traffic. There are two other possible bridge routes between New Bedford and Fairhaven other than the New Bedford-Fairhaven Bridge--the Interstate Route 195 bridge and, slightly further north, the Coggeshall Street bridge on a local street.

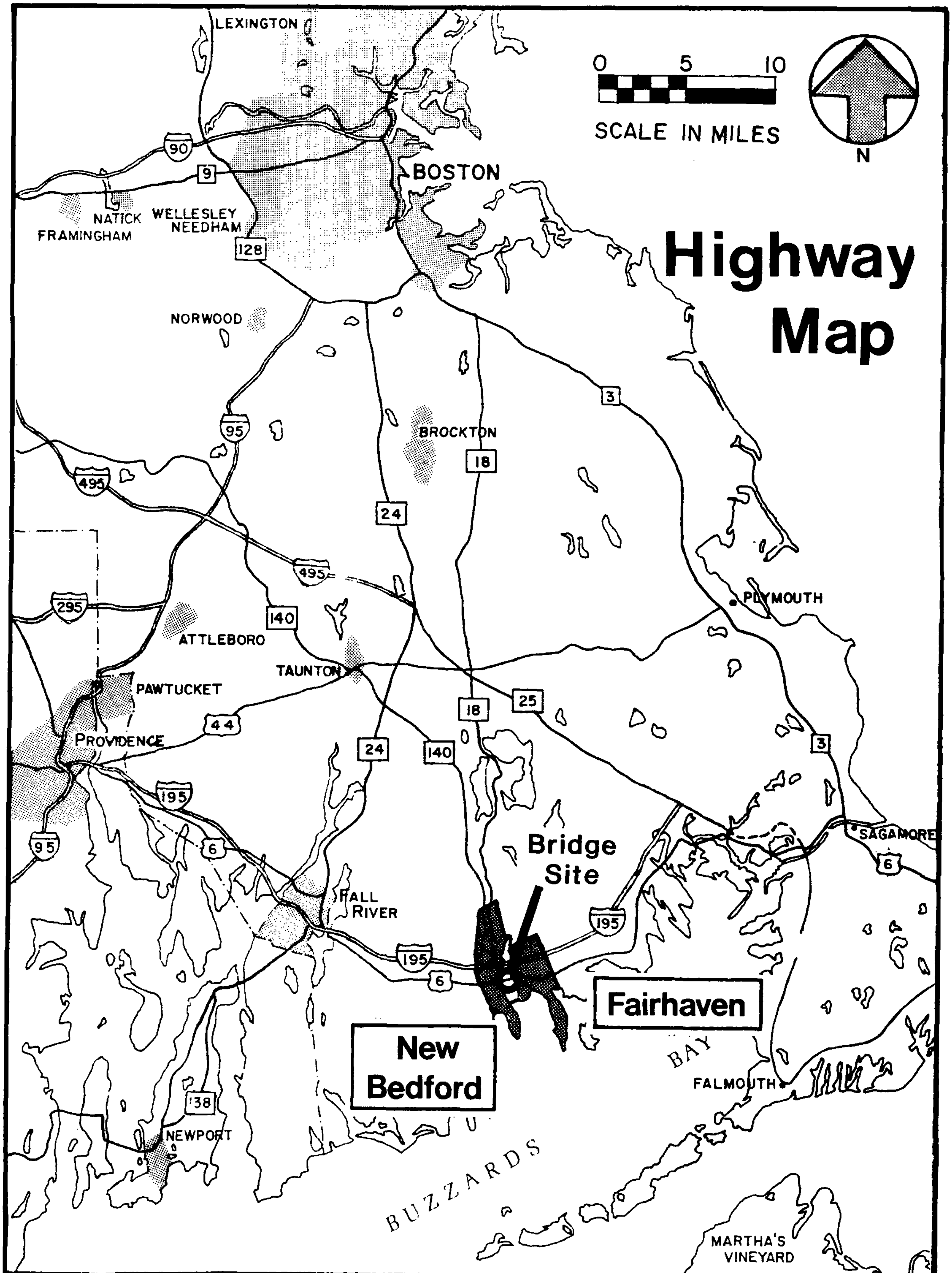
The City of New Bedford and the Town of Fairhaven are bounded by the Towns of Acushnet and Freetown on the north, the Town of Mattapoisett on the east, Buzzards Bay on the south, and the Town of Dartmouth on the west (see Figure 4). New Bedford is the central city of a Standard Metropolitan Statistical Area including Fairhaven, Dartmouth, Acushnet, Freetown, Lakeville, Marion, and Mattapoisett with a population of 169,425 according to the 1980 census.

The population of New Bedford and Fairhaven has been relatively stable in the past decade and is expected to remain so. The 1980 population for New Bedford is 98,478 and for Fairhaven, 15,759.

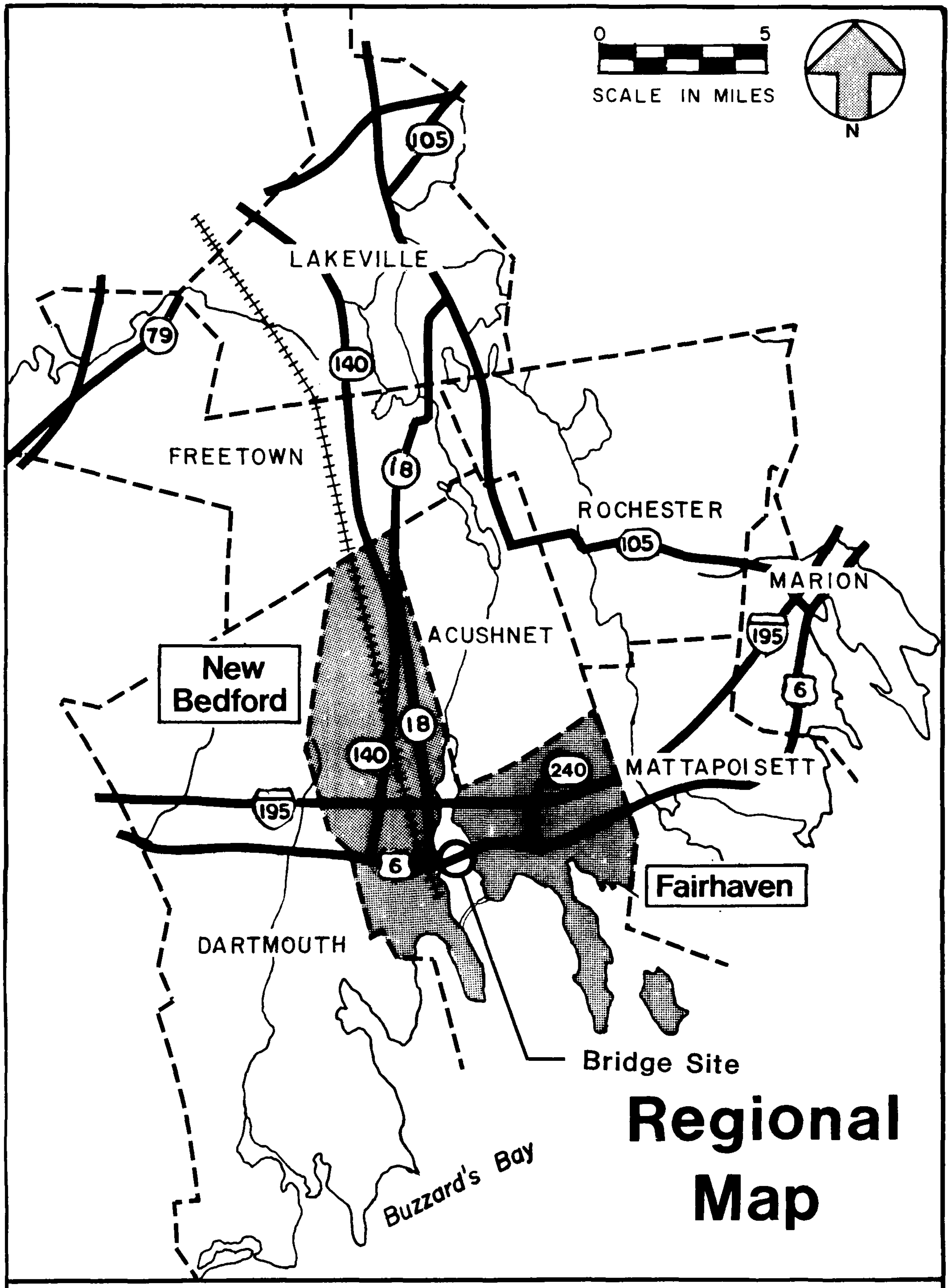
The region's first economic boom took place in the 1830's when the industrial base was completely monopolized by the whaling industry. This gave way to an era of economic growth in the textile industry which likewise monopolized the area's economy. When textile industries moved south beginning in the 1930's, a long period of widespread unemployment, population loss, and economic stagnation began. This trend has only recently been reversed as the area has begun to develop a more balanced economic base.

B. THE BUILT ENVIRONMENT

New Bedford-Fairhaven Harbor, the center of the world's whaling industry between 1830 and 1860, is today the busiest port between Boston and



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 3



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 4

Providence and one of the country's leading fishing ports. Interspersed with the areas of commercial activity around the Harbor are areas such as Fort Phoenix, the New Bedford historic district, and Fairhaven's historic town center which attest to the port's long history.

1. The Harbor

The harbor is divided into a north harbor and a south harbor by the New Bedford-Fairhaven Bridge (see Figure 5). The northern boundary of the north harbor is established by the fixed bridge at Interstate Route 195 which has an eight foot navigational clearance. The southern boundary of the south harbor is established by the harbor barrier which was constructed in 1966 by the Corps of Engineers to protect the harbor and shorelands from tidal flooding caused by hurricanes.

The north harbor is about a mile long and three quarters of a mile wide at its widest point. The Fairhaven side of the north harbor is largely residential in nature. The New Bedford side has both areas of marine related industrial development and undeveloped waterfront industrial property.

The south harbor is over a mile long, and is also about three quarters of a mile wide. It is directly accessible from the open sea through the harbor barrier, and contains most of the area's marine-related industries.

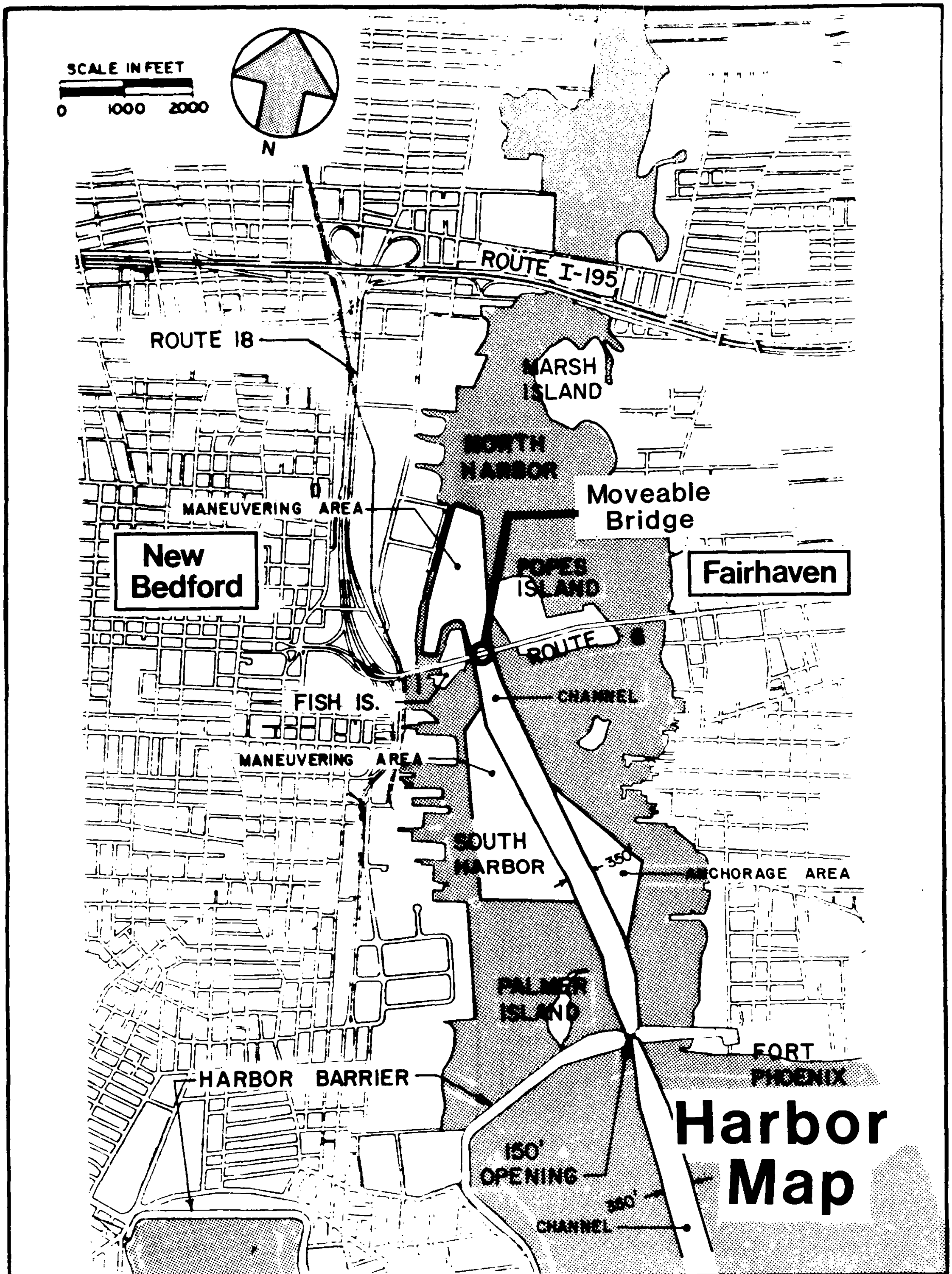
The shipping channel into the harbor is maintained by the Corps of Engineers. It is 30 feet deep from Buzzards Bay to the turning basin just north of the New Bedford-Fairhaven Bridge. The shipping channel extends approximately three and a half miles beyond the harbor barrier out into Buzzards Bay. The channel is 350 feet wide in Buzzards Bay, but narrows to 150 feet at the harbor barrier. It widens again to 350 feet north of the harbor barrier, and has anchorage area to the east and a maneuvering area to the west. The channel again narrows at the moveable span of the New Bedford-Fairhaven Bridge where there is 94 foot clearance east of the swing-span central pier and 95 foot clearance to the west.

The harbor barrier (see Figure 6) is an earth filled dike. Massive gates at the shipping channel opening are closed to secure the harbor during flood emergencies.

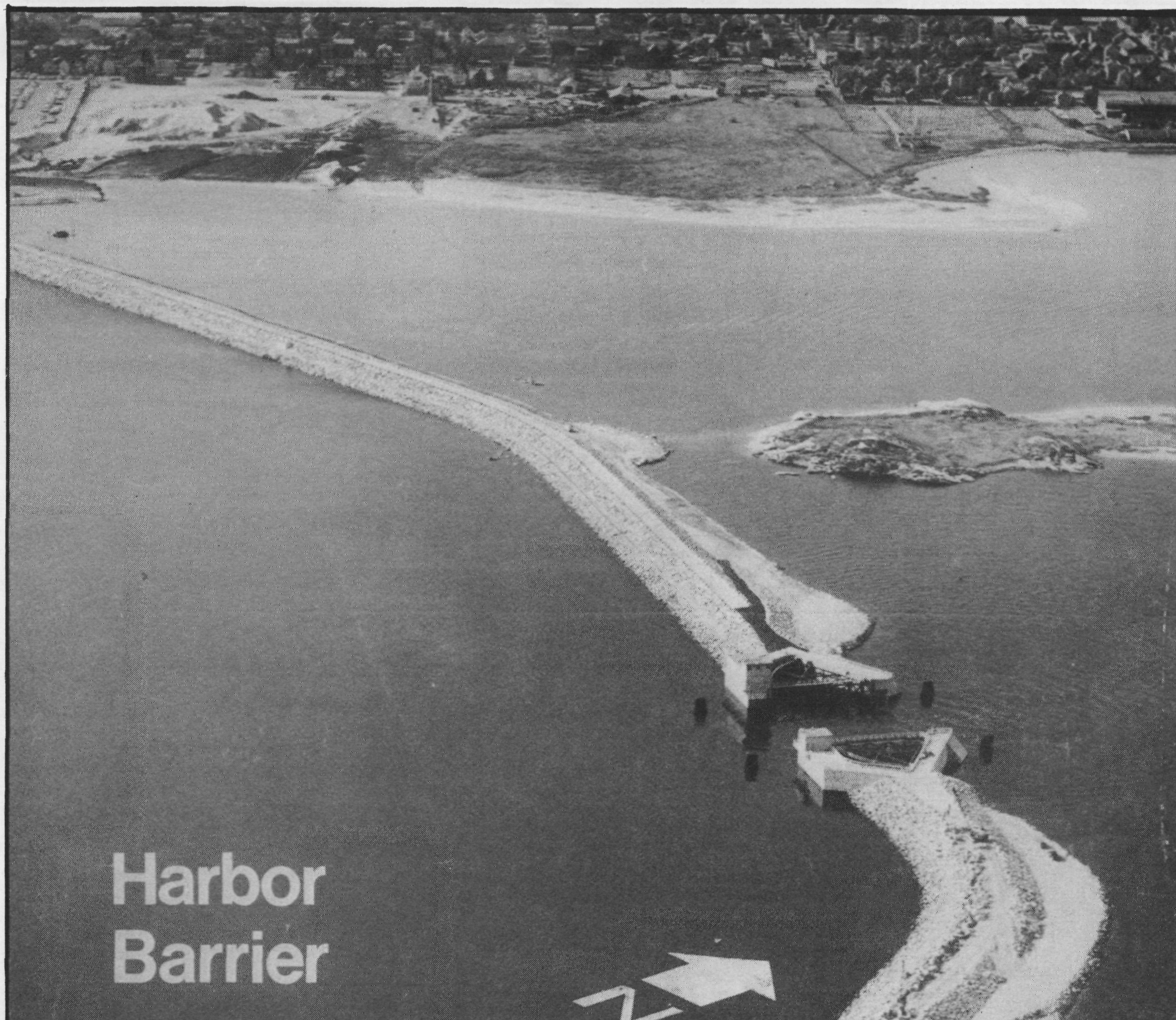
The harbor contains several islands. Two of these islands, Fish Island and Popes Island, lie along the corridor of the New Bedford-Fairhaven Bridge.

2. The Existing Bridge

A bridge crossing of some type has been maintained in the location of the existing bridge for almost 200 years. The present bridge, completed in 1903, consists of a fixed segment from New Bedford to Fish Island, a moveable segment from Fish Island to Popes Island, and another fixed segment from Popes Island to Fairhaven.



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 5



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 6

a. History

The first bridge connecting New Bedford and present day Fairhaven was built sometime in the 1790's. This first bridge, a wooden structure built by a group of private investors, had two 30 foot draw spans, one between Fish Island and the New Bedford Shore and the other between Popes Island and the Fairhaven Shore. This first bridge was inundated and partially destroyed in 1807. A second, similar wooden bridge was constructed shortly after, also by private investment, only to be destroyed in a storm in 1815.

Four years elapsed before construction was complete on a third private bridge which also provided two draw spans. In 1851, the draw spans were widened to 60 feet to accommodate larger ships. This bridge was severely damaged in a storm in 1869.

The bridge property was then taken over by Bristol County through an act of the state legislature. The bridge was rebuilt and opened as a public facility in 1870. Shortly afterwards, in 1876, trolley tracks were installed and passenger service across the river was begun.

The present New Bedford-Fairhaven Bridge was built in several stages. Construction began in 1896 and was completed in 1903. The single swing span of the new bridge was placed between Fish Island and Popes Island rather than in the original locations. Operational responsibility was assumed by the Massachusetts Department of Public Works in 1930.

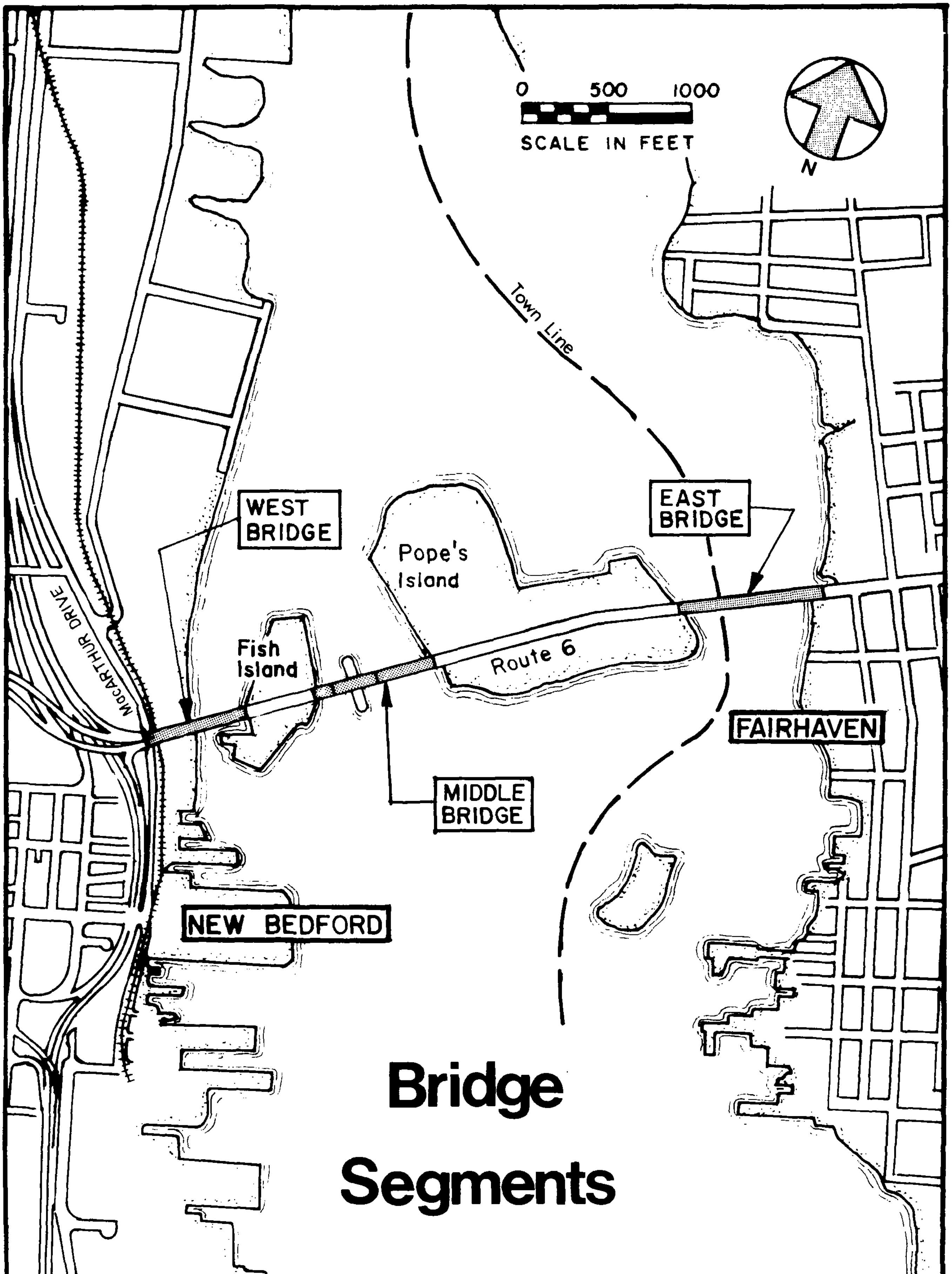
The bridge has undergone several major repairs in its history, the most recent in June of 1984 when the hydraulic system was replaced. The western end of the west bridge was completely replaced in 1972 in conjunction with the construction of ramps connecting to the newly constructed Route 18.

In a letter of June 21, 1980, the Massachusetts Historical Commission stated that the bridge is eligible for listing in the National Register of Historic Places. The relative rarity of swing span bridges and its significance as an engineering structure adapted to a particular environmental situation are sited. A determination of eligibility was made by the U. S. Department of the Interior, Heritage Conservation and Recreation Service, on June 9, 1980.

b. Structure

The 4,000 foot long harbor crossing consists of highway sections on Fish Island and Popes Island and three separate bridge segments (see Figure 7). The west bridge extends over MacArthur Drive, a single Conrail track, and the westerly channel of the harbor to Fish Island. The middle bridge crosses from Fish Island to Popes Island over the shipping channel. The east bridge crosses the wide but relatively shallow easterly channel of the harbor from Popes Island to Fairhaven.

The west bridge consists of ten spans, six on land and four over water. The two westerly spans over MacArthur Drive and the Conrail track are steel stringer construction from the 1972 replacement. The remaining eight spans are original steel girder construction. The entire bridge is approximately 580 feet long.



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 7

The middle bridge is the segment which contains the swing span (see Figure 8). There is one fixed span approach to the west of the swing span and four to the east, all of original steel girder construction. The swing span itself is a 289 foot long truss system. When in the closed position, the swing span is supported by the center pier and the end abutments; when in the open position, it is supported by the center pier alone. The entire middle bridge, including both fixed spans and the swing span, is approximately 680 feet long.

The east bridge consists of nine spans of original steel girder construction and is approximately 675 feet long.

3. Properties

The properties which will potentially be affected by this project lie immediately to the north and south of Route 6. These properties are on the New Bedford Shore and on Fish Island and Popes Island which are also part of New Bedford.

a. New Bedford Shore and Fish Island

The New Bedford Shore near the bridge and Fish Island are completely developed, industrially zoned areas. Most of the shoreline in the area is bulkheaded. Fish Island is also completely developed and bulkheaded. It is flat and about six acres in size (see Figure 9).

The affected properties on the New Bedford Shore and on Fish Island are shown on Figure 10 and are described briefly in Table 1.

b. Popes Island

The north side of Popes Island is industrially zoned and is almost completely occupied by commercial buildings and paved parking and storage areas. The south side consists mostly of city-owned park land known as Marine Park. The island is flat and approximately 30 acres in size (see Figure 11).

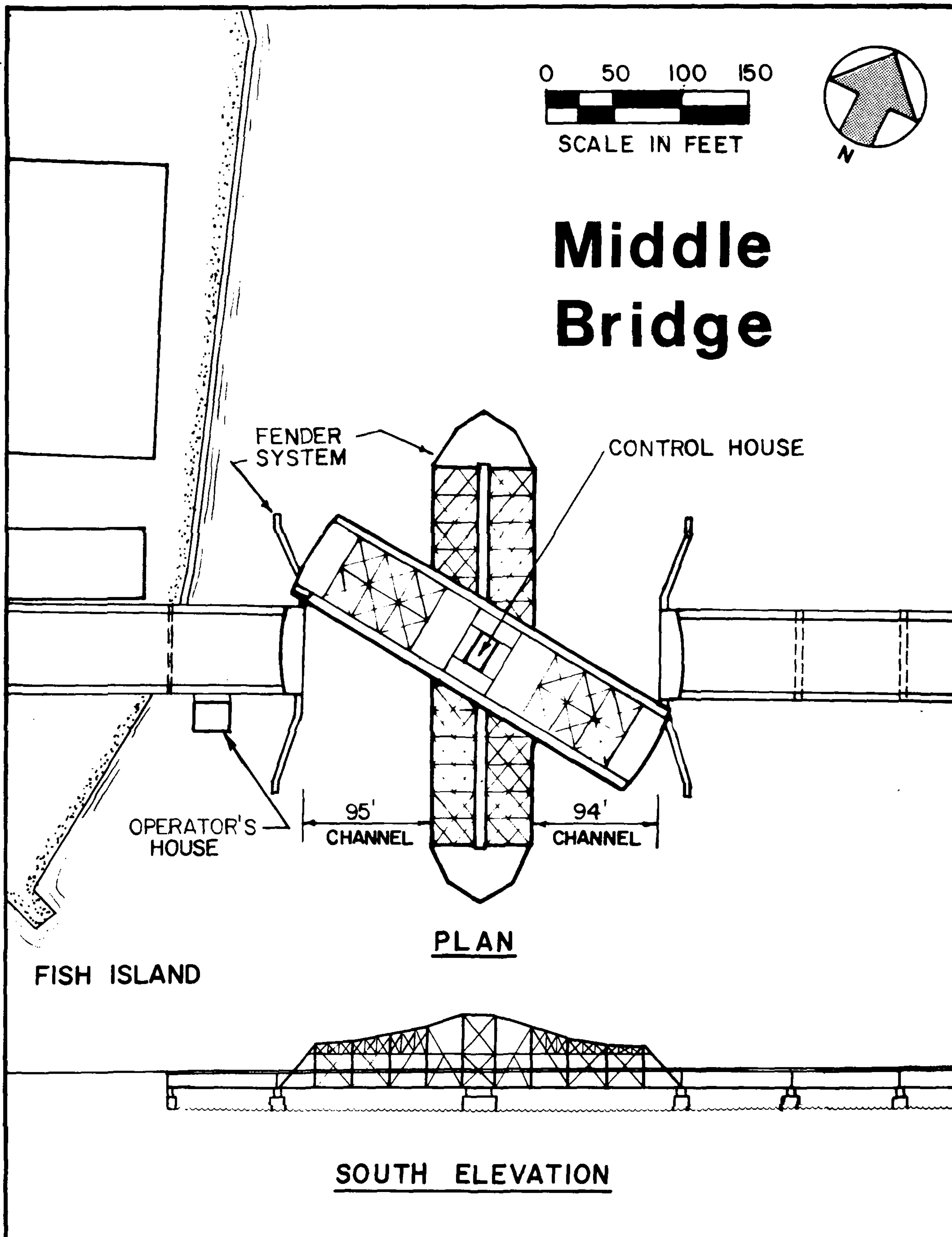
The affected properties on Popes Island are shown on Figure 12 and are described briefly in Table 1.

4. Utilities

The utilities in the project area are water, gas, electricity, telephone, and fire alarm. There are no known sanitary sewers or major storm drainage systems.

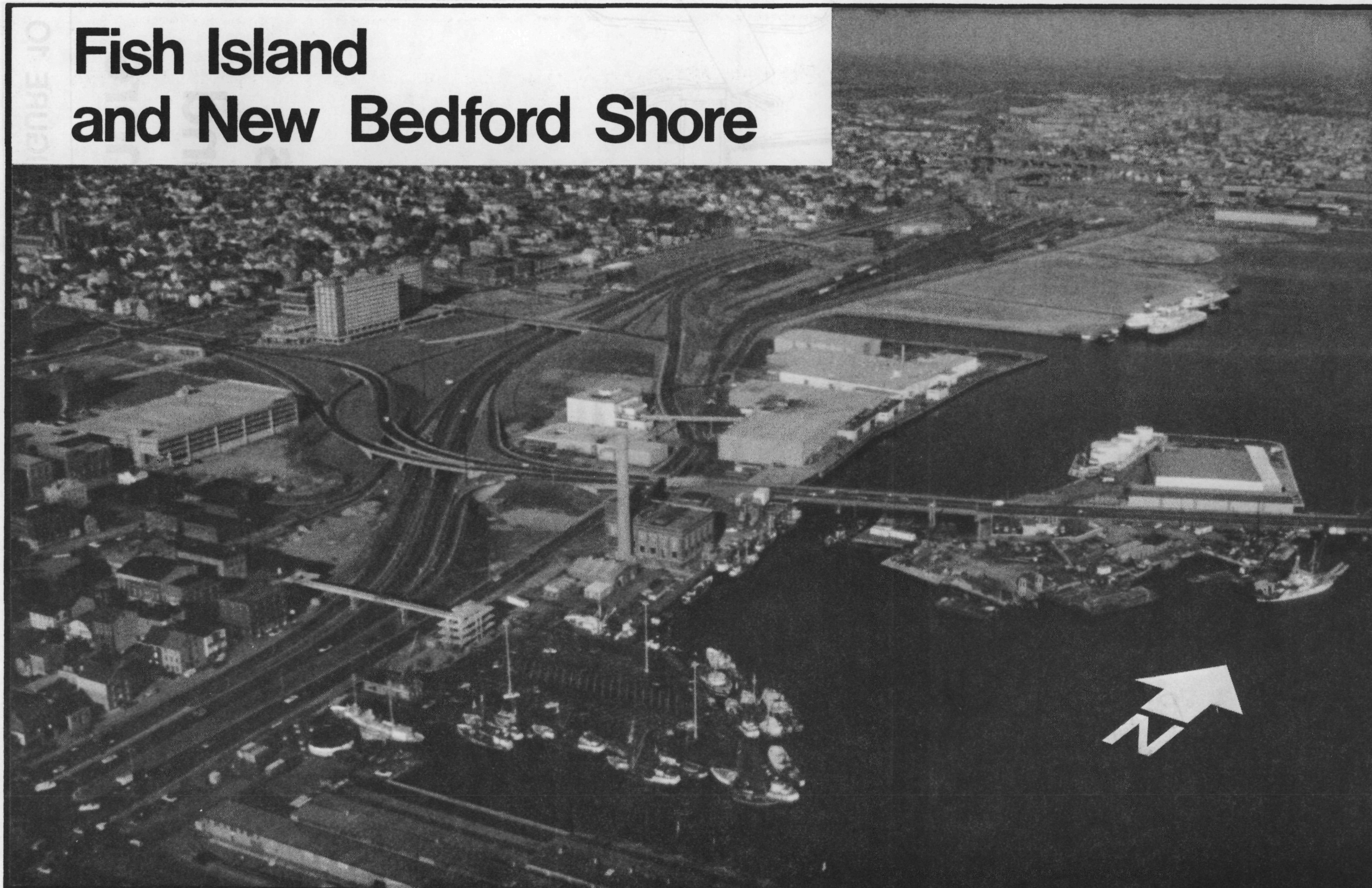
a. Water

A 12 inch water main running from the New Bedford mainland provides water for Fish Island and Popes Island as well as a major part of the Town of Fairhaven. The main is attached to the West and East Bridges but runs under water between the Islands to the south of the swing bridge and about 3 feet below the harbor bottom.



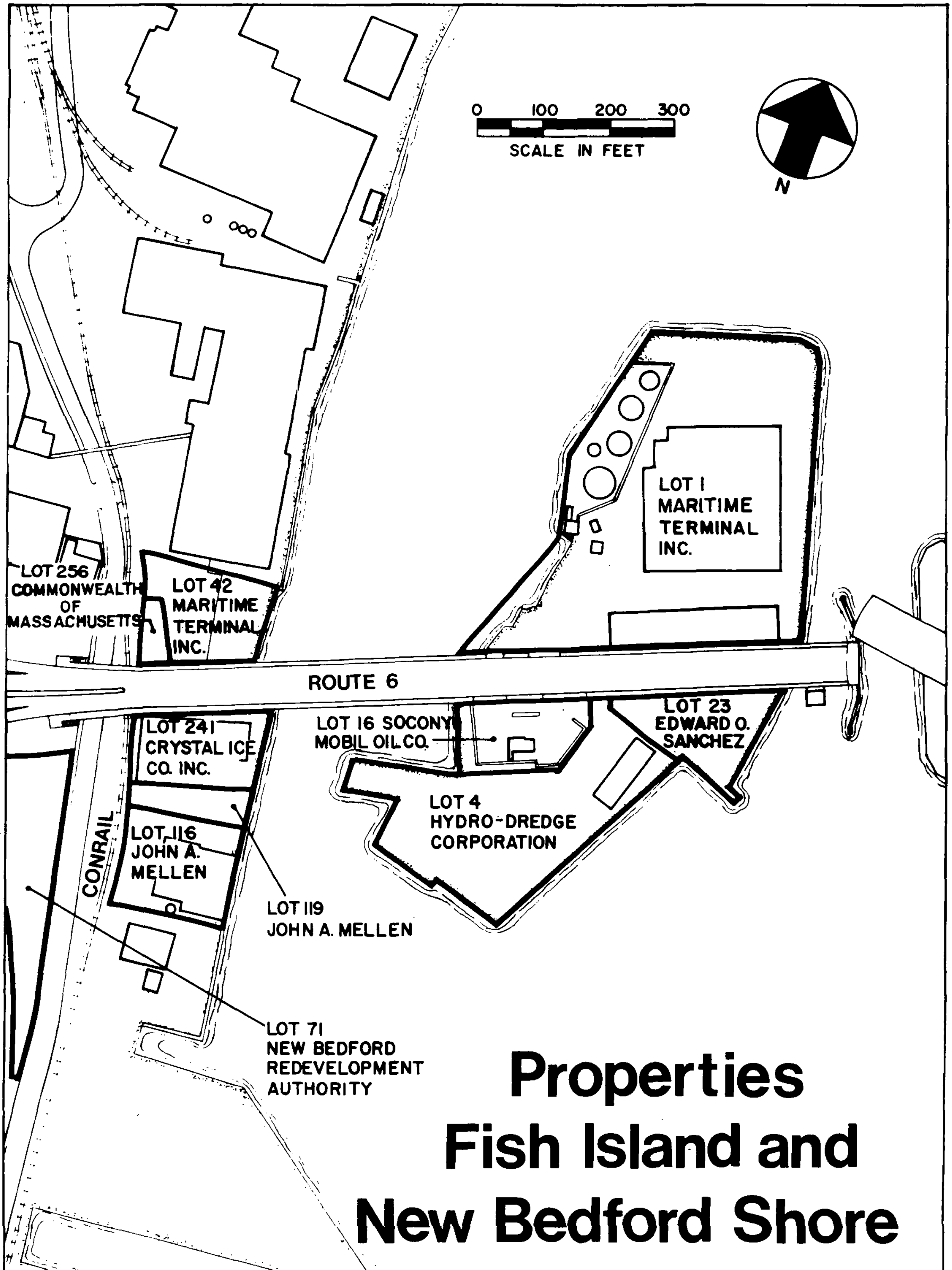
NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 8

Fish Island and New Bedford Shore



NEW BEDFORD-FAIRHAVEN BRIDGE

FIGURE 9



Properties Fish Island and New Bedford Shore

NEW BEDFORD-FAIRHAVEN BRIDGE **FIGURE 10**

Properties

PLAT	LOT	OCCUPIED BY	OWNED BY	AREA IN SQUARE FEET

New Bedford Shore

Plat 53	Lot 42	Maritime Terminal	Maritime Terminal	22,700
Plat 53	Lot 70	City of New Bedford Pump Station	City of New Bedford	5,009
Plat 53	Lot 71	Unoccupied	New Bedford Redevelopment Authority	38,052
Plat 53	Lot 116	Unoccupied	John A. Mellen	29,637
Plat 53	Lot 119	Unoccupied	John A. Mellen	7,462
Plat 53	Lot 241	Crystal Ice	Crystal Ice	22,907
Plat 53	Lot 256	Unoccupied	Commonwealth of Massachusetts	3,440

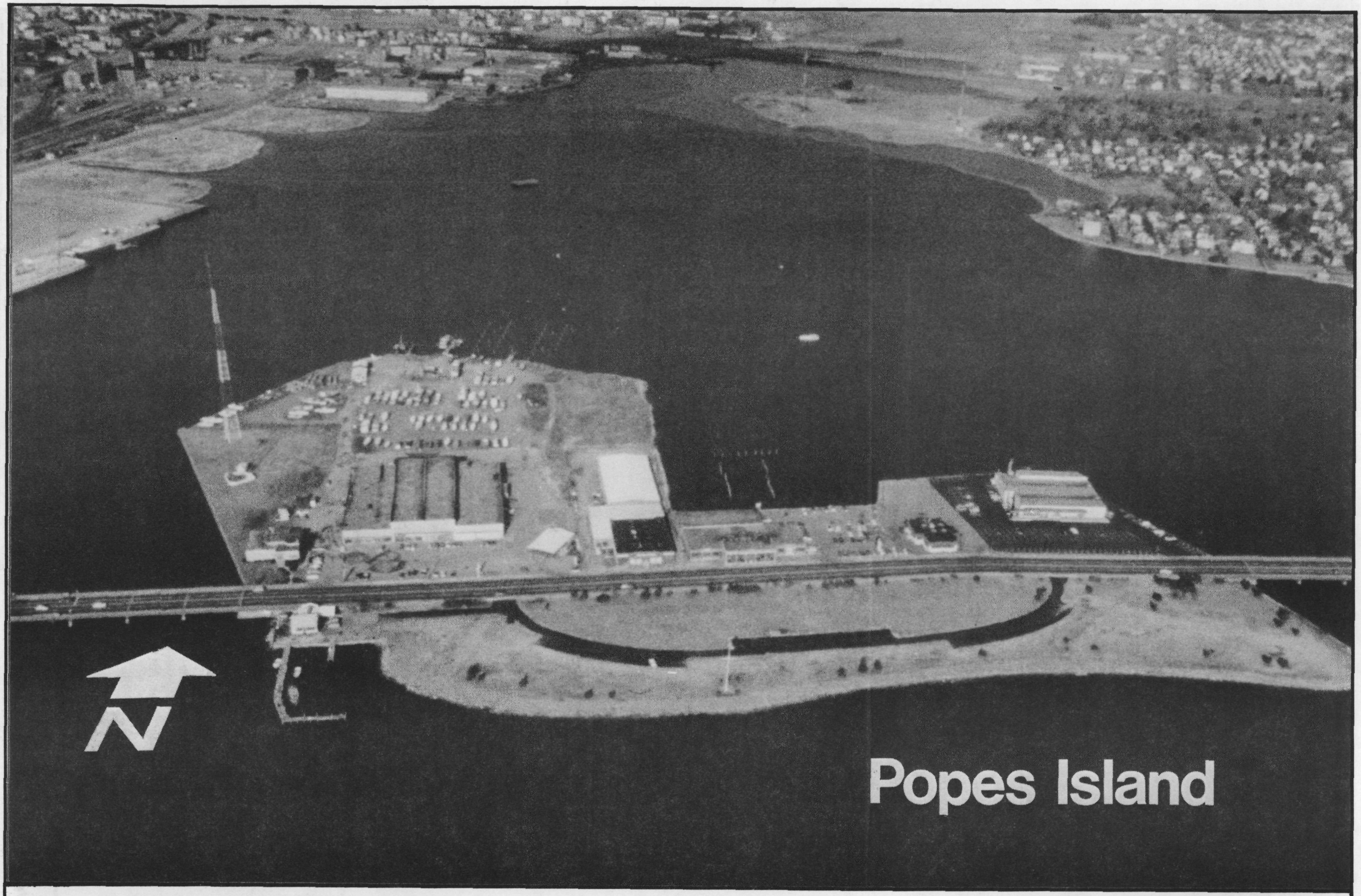
Fish Island

Plat 60	Lot 1	Bridge Terminal , Glen Petroleum	Maritime Terminal	169,895
Plat 60	Lot 4	Hydro-Dredge	Hydro-Dredge	69,696
Plat 60	Lot 16	Island Service Station	Socony Mobil Oil	17,911
Plat 60	Lot 23	Sanchez Marine Services	Edward O. Sanchez	20,199

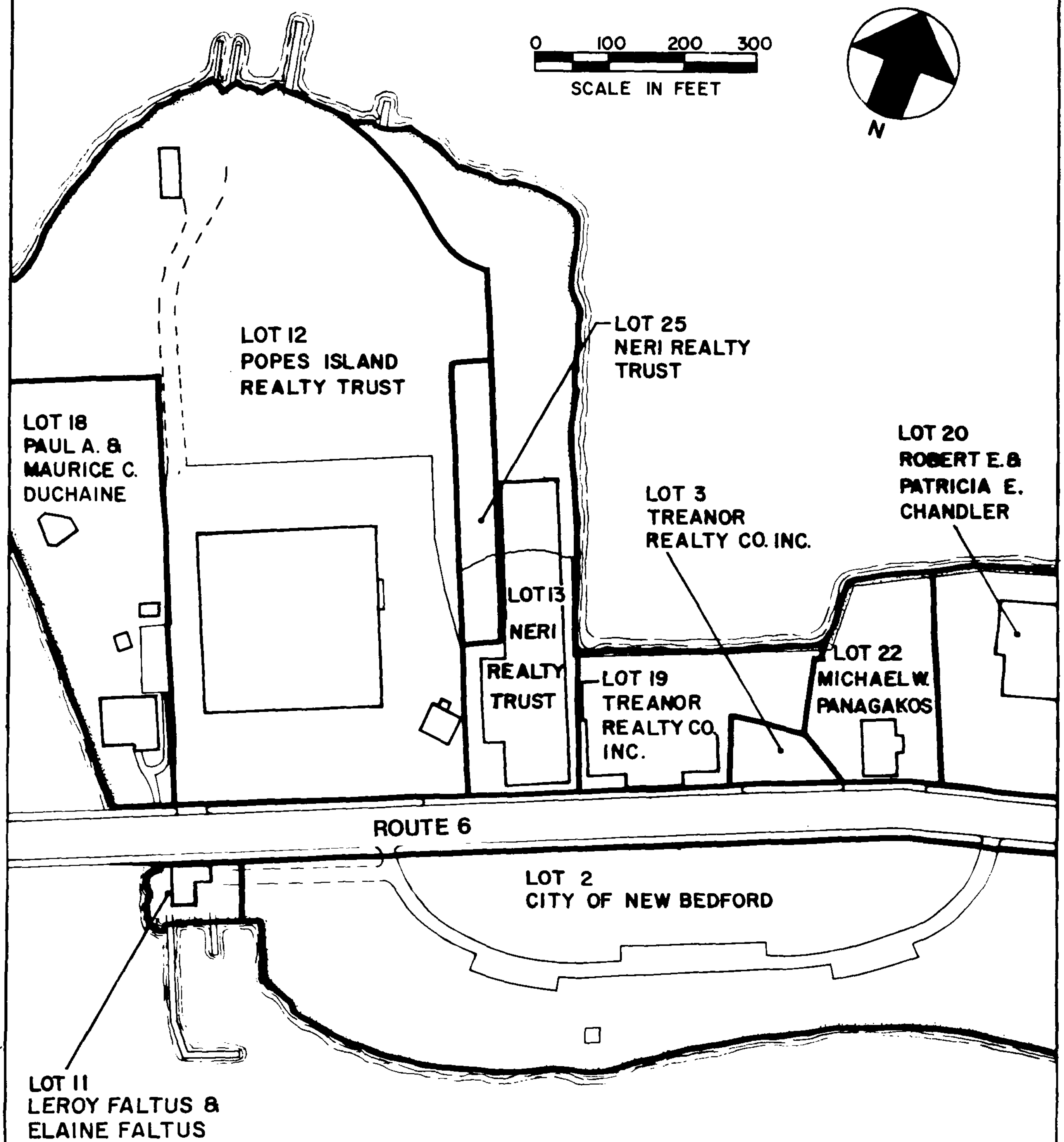
Pope's Island

Plat 60	Lot 2	Marine Park	City of New Bedford	423,620
Plat 60	Lot 3	Dugan Buick - Pontiac	Treanor Realty	10,156
Plat 60	Lot 11	Captain Leroy's and The Outdoorsman	Leroy Faltus & Elaine Faltus	9,207
Plat 60	Lot 12	Advance Cup, Service News, Superior Welder Manufacturing, Boathouse Pub	Popes Island Realty Trust	388,257
Plat 60	Lot 13	New England Ropes	Neri Realty Trust	115,416
Plat 60	Lot 18	The Gearlocker	Paul A. and Maurice C. Duchaine	103,139
Plat 60	Lot 19	Dugan Buick - Pontiac	Treanor Realty	57,758
Plat 60	Lot 20	Fairhaven True-Value Hardware, The Cover Up	Robert E. and Patricia E. Chandler	36,253
Plat 60	Lot 22	Bag Piper Restaurant	Michael W. Panagakos	33,739
Plat 60	Lot 25	New England Ropes	Neri Realty Trust	17,955

NEW BEDFORD-FAIRHAVEN BRIDGE TABLE 1



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 11



Properties Popes Island

NEW BEDFORD-FAIRHAVEN BRIDGE **FIGURE 12**

b. Gas

Gas is provided to Popes Island from Fairhaven by a 4 inch intermediate-pressure main. This New Bedford Gas and Edison Light Company main is suspended from the east bridge. There is no gas service on Fish Island.

c. Electric

Electric service to Popes and Fish Islands is provided by the New Bedford Gas and Edison Light Company by underground conduits and mains attached to the east and west bridges. Each Island is supplied from the adjacent mainland.

d. Telephone

Nine major telephone cables providing service to the towns east of New Bedford and to the Cape Cod area cross the harbor between New Bedford and Fairhaven. Five cables cross to Fish Island on the west bridge, run along the harbor bottom south of the middle bridge to Popes Island, and cross into Fairhaven over the east bridge. Four other cables begin at the New Bedford mainland just south of Fish Island. These submarine cables run to the south of Fish Island and the middle bridge; three come ashore on the Fairhaven mainland and one comes ashore on Popes Island.

e. Fire Alarms

Fire alarm call boxes on Fish Island and Popes Island are serviced by a conduit from the New Bedford mainland which crosses on the west bridge. Between Fish and Popes Islands the conduit runs on the harbor bottom parallel to the five telephone cables.

C. THE NATURAL ENVIRONMENT

The New Bedford-Fairhaven Harbor and its approaches consist of a drowned river valley system which has filled in with river and marine sediments. The amount of freshwater flowing into the harbor from the Acushnet River is not substantial because the river has a small water shed area and is dammed at two points along its course.

There is a serious pollution problem in the harbor due to the discharge of human and industrial wastes. Substantial amounts of toxic materials including heavy metals and polychlorinated biphenyls (PCBs) have accummulated in the harbor sediments. The construction of the Harbor Barrier has caused the harbor to become a sediment trap by limiting hydrologic flow in and out of the harbor. Because of the highly developed nature of the harbor, there are no substantial areas that can be characterized as wetlands, marshes, or mudflats other than a small area of marsh at the northeast corner of Marsh Island in the North Harbor.

1. Currents, Harbor Circulation, and Flood Hazard

The harbor is a low-energy environment characterized by small waves, small tidal amplitudes, low velocity, and little river discharge. The flushing action in the harbor is therefore minimal.

The mean tidal range is 3.7 feet and the spring tidal range is 4.6 feet. Wind-driven waves averaging less than 6 feet approach from the south and southwest and are obstructed by the harbor barrier. The prevailing winds are westerly.

The harbor islands and the New Bedford and Fairhaven shores are in Flood Hazard Zone C which implies minimal flood hazard. This situation exists because of the presence of the harbor barrier.

2. Sedimentation

The bedrock base of the harbor is mainly granitic gneiss, which is overlain by glacial till and gravelly sediment. The basal deposits are, in turn, buried by silt, sandy silt, and sand. Sediment thicknesses in the harbor range from 50 to 60 feet over the bedrock base except in dredged areas where the thicknesses of the sediments is substantially less.

The majority of the bottom sediments are mud. These sediments are transported into the harbor in suspension by landward-moving bottom currents. Since the construction of the harbor barrier, the efficiency of tidal flushing has been reduced and the rate of siltation has increased. The most rapid accumulation of sediment has occurred in the quiet waters at the head of the harbor north of the New Bedford-Fairhaven Bridge. The type of sediment that is presently accumulating is fine, black, organically enriched silt with more than 70 percent mud and up to 20 percent clay.

The composition of the upper 10 feet of harbor sediments reflects disturbances caused by human and industrial waste discharge into the harbor.

a. Heavy Metals Contamination

Discharges from major metals and alloy manufacturing concerns on the waterfront have contributed to the high concentrations of heavy metals such as copper, lead, manganese, chromium, and zinc found in the harbor sediments. About 1,500 tons of these metals are contained in the sediment beds.

Copper is the major waste metal found in the harbor. Near the Coggeshall Street Bridge as much as 8,000 parts per million of copper were found in one sediment sample. Moving southward in the harbor, copper concentrations decrease to approximately 2,000 parts per million in the area of the New Bedford-Fairhaven Bridge. These figures must be compared with a station beyond the harbor barrier which is fairly uncontaminated site and indicative of a more normal marine environment. Here, partly due to the larger amount of flushing action outside of the harbor, copper concentrations were as low as 50 parts per million. check

While the heavy metals concentrations in the vicinity of the New Bedford-Fairhaven Bridge are high, testing in the Spring of 1982 indicates by who? that they have not yet reached hazardous levels. An EP Toxicity Test for lead revealed a value of 1.5 milligrams per liter.

not fully known Copper contaminants, lead contaminants and the others mentioned above are generally confined to the upper layer of sediment.

b. PCB Contamination

The second major source of contamination in the harbor sediments is polychlorinated biphenyls or PCBs. PCBs are industrial compounds which were commercially manufactured and marketed in the United States from 1929 to 1977. PCB compounds are only slightly soluble in water, fats, oils, and organic solvents, and are resistant to both heat and biological degradation. They have been used principally in the electrical industry in capacitors and transformers. PCBs have been found to be toxic and a biological hazard and their manufacture has been banned by the Environmental Protection Agency.

Testing during the 1970's in New Bedford harbor have indicated the sediments underlying the harbor contain concentrations of PCBs ranging from a few parts per million to over 100,000 parts per million. As an indication of the severity of the contamination it should be noted that the Federal Toxic Substance Control Act comes into effect at a PCB concentration of 50 parts per million and such sediments must be considered as hazardous waste if they are dredged or removed.

The overall status of the PCB contamination in the harbor was most recently reported in PCB Pollution in the New Bedford, Massachusetts Area: A Status Report, June 1982, by Grant Weaver, Environmental Engineer, for Massachusetts Coastal Zone Management.

The United States Environmental Protection Agency (EPA), under authority of the Comprehensive Environmental Response, Compensation, and Liability Act assigned the New Bedford Area to its National Priorities List of hazardous waste sites in July, 1981. The New Bedford Site was nominated by the Commonwealth of Massachusetts as a first priority site. A critical element of the clean up effort is a fast-track Feasibility Study of remedial action alternatives for the highly-contaminated mudflats and sediments of the Acushnet River Estuary north of the Coggeshall Street Bridge. As a result of this effort, the report Draft Feasibility Study of Remedial Action Alternatives, Acushnet River Estuary Above Coggeshall Street Bridge, New Bedford Site, Bristol County, Massachusetts, EPA Work Assignment Number 28-1L43, Contract Number 68-01-6699, NUS Project No. 0725.16, August 1984 has been prepared.

The area of work of the New Bedford-Fairhaven Bridge is about a mile south of the Coggeshall Street Bridge and is therefore well out of the area considered in the ongoing remedial action study. Sediment samples were taken in the vicinity of the New Bedford-Fairhaven Bridge in March, April and May, 1982 by the Massachusetts Department of Environmental Quality Engineering and the Massachusetts Department of Public Works to determine the level of PCB contamination. The entire bridge area contains PCB contaminated sediments.

Those sediment samples with a concentration of greater than 50 parts per million were localized in the area between the New Bedford Shore and Fish Island. The sediment samples taken in the area between Fish Island and Popes Island revealed PCB concentrations ranging from one part per million to 24 parts per million. It was also determined that the vast majority of the contamination is contained in the upper two feet of sediment.

3. Water Quality and Properties

The salinity structure of New Bedford Harbor is that of a weakly stratified, partially mixed estuary. The amount of freshwater discharge into the harbor is inconsequential.

Dissolved oxygen levels in the harbor surface waters vary with depth. The harbor bottom waters tend to be poorly oxidized because of the presence of organically-enriched muds. These waters have been found to contain up to 8,000 coliform bacteria per 100 milliliters, indicating severe bacterial contamination most likely caused by urban runoff and effluent discharge.

Surface waters in the harbor contain, on the average, 1 to 4 parts per million of suspended solids. Since PCB's are only slightly soluble in water and tend to absorb onto fine-grained particles, the large majority of the PCB's in the harbor and river are located either in the fine-grained bottom sediments or in the suspended silt and clay particles in the harbor waters. The pattern of PCB dispersal throughout the harbor has not been studied but in the areas of high flows the PCB-laden sediments are thought to be resuspended and then carried out into Buzzards Bay. The resuspension amount is probably greater near the entrance to the harbor at the barrier where the current velocity is greater. Near the bridge site there are fairly low current velocities and only small amounts of PCB's are thought to be present in suspended sediments.

4. Aquatic Ecosystems

The Massachusetts Division of Water Pollution Control have surveyed phytoplankton, zooplankton, and benthic macroinvertebrates during a study involving the water quality of the Acushnet River. The Massachusetts Division of Marine Fisheries is also a source of information on the aquatic life of the area.

a. Phytoplankton

Diatoms were the most commonly collected phytoplankton at the saltwater sample station in the harbor. There were less phytoplankton in the harbor than in the freshwater system.

b. Zooplankton

The Division of Water Pollution Control reported the presence of numerous crustacean larvae in samples throughout the harbor. Fish eggs and larvae that are likely to be found in the harbor include Atlantic Cod, Atlantic Mackeral, Flounder, and Whiting.

c. Benthic Macroinvertebrates

The Division of Water Pollution Control conducted a limited biological survey on sediment samples collected from above the Coggeshall Street Bridge and within the harbor. The benthic macroinvertabrates found in the harbor include various forms of marine worms, snails, and bivalues.

d. Shellfish

The commercially important shellfish species of the New Bedford area are Bay Scallops, Blue Crab, Blue Mussell, Conch, Green Crab, Horseshoe Crab, Lobster, Moon Snail, Oyster, Quahog, Rock Crab, and Soft-Shelled Clam.

e. Finfish

Information on the New Bedford area Finfish was obtained from Massachusetts Division of Marine Fisheries. Species collected in the Harbor include Alewife, Atlantic Cod, Atlantic Mackerel, Atlantic Menhaden, Bluefish, Pollock, Striped Bass, and Flounder.

The Division of Marine Fisheries has reported fish kills involving Menhaden in the Acushnet River in the past. It has been suspected that high pollution levels contributed to the fish mortalities but the actual cause of the kills has not been positively determined.

f. Commercial Fisheries

PCB contamination in the New Bedford harbor has resulted in the accumulation of PCBs in many marine species. Closure areas for fishing were established by the Massachusetts Department of Public Health in 1979. The entire area within the harbor barrier is closed to the taking of all finfish and shellfish.

g. Marine Vegetation

New Bedford-Fairhaven Harbor is predominantly an industrialized port and contains only sparse marine flora. Disjunct patches of marsh land occur on narrow strips bordering landfills and industrial sites. A small marsh area of approximately three acres is located at the northeast corner of Marsh Island in the North Harbor.

Marine vegetation common to these estuarine tide marshes include various types of algae and vascular plants such as annual glasswort, eelgrass, marsh rosemay, saltwater cord grass, salt meadow grass, and spike grass.

5. Terrestial Ecosystems

The intense urbanization of the harbor area has reduced the amount of suitable habitat for terrestial wildlife. The diversity and carrying capacity of any small remaining areas is limited due to the polluted conditions in the harbor.

a. Mammals

There are no known studies concerning the mammals in the area. Common species likely to be found are the Deer Mouse, Eastern Cottontail, Muskrat, Opossum, and Raccoon.

b. Birds

The Massachusetts Audubon Society has compiled a list of species occurring in the area. These include the Robin, Chickadee, Blue Jay, Red-winged Blackbird, and Starling. Due to intense urbanization, only a few species are capable of breeding in the vicinity.

c. Amphibians and Reptiles

The amphibian populations are most likely limited to a few species of frogs and toads because of the polluted, brackish aquatic environment. Reptiles that may be found in the area are the northern water snake, eastern garter snake, ribbon snake, ringneck snake, brown snake, northern black racer, and several types of pond turtles.

d. Rare, Threatened, or Endangered Species

There are no State designated or Federally designated rare, threatened, or endangered species in the project area according to and evaluation by the Massachusetts National Heritage Program in July 1982. (check)

D. THE ECONOMIC ENVIRONMENT

New Bedford is a heavily industrialized port city with a wide diversity of marine and non-marine industrial activities. Manufacturing, wholesale and retail trade, and service industries are the area's top three employment sectors.

Over 48 percent of the local labor force is employed in manufacturing, drawing an annual payroll of approximately $200 million. Within the manufacturing group, apparel and other textile products predominate, employing 35 percent of the total manufacturing related labor force.

The harbor is essentially a receiving port for fuel and fish. In recent years, inbound traffic has amounted to 75 percent of the ports activity.

The world-renowned fishing industry of New Bedford, especially famous as the leading scallop port in the world, had revenues of $54 million in 1978 representing a continued growth. Although fishing directly employs only 2 percent of the total labor force, it provides substantial spin-off business for related industries such as, food processing, refrigeration and storage, and marine maintenance which surround the New Bedford-Fairhaven Harbor.

Industry in the Town of Fairhaven is limited, and approximately 40 percent of the labor force commutes to New Bedford to work. Of those industries located in Fairhaven, however, a great number are marine service oriented. This trade employs 27 percent of the locally working force and generates 27 percent of the total annual industrial payroll.

As would be expected because of the traditional relationship of the area economy to the harbor, the centers of both communities are closely related to their respective waterfronts. They are also closely related to Route 6.

1. North Harbor

There are two marine related industries located along the west shore of the north harbor (see Figure 13). Maritime Terminal, with 600 feet of berthage and some 2.5 million cubic feet of refrigerated storage is utilized for frozen fish and horsemeat and general cargo. Frionor, a fish processing operation, now occupies a terminal formerly owned by Quaker Oats north of Maritime Terminal. The plant has 580 feet of berthage. An adjacent slip has been filled for future development. Frionor has 90,000 square feet of storage space and 3,000 square feet of office space on an 8 acre site.

New Bedford North Terminal, a site located just north of Frionor, is owned by the New Bedford Harbor Development Commission. The site is occupied by a variety of businesses most of which are directly involved in fish processing. An undeveloped fill area exists to the north of the North Terminal Site which has been planned to be a continuation of the industrial waterfront.

The industrial area to the north contains Revere Copper and Brass, Inc. and other smaller non-marine related firms.

There are no marine related industries on the east shore of the north harbor. This shore is almost entirely residential in nature.

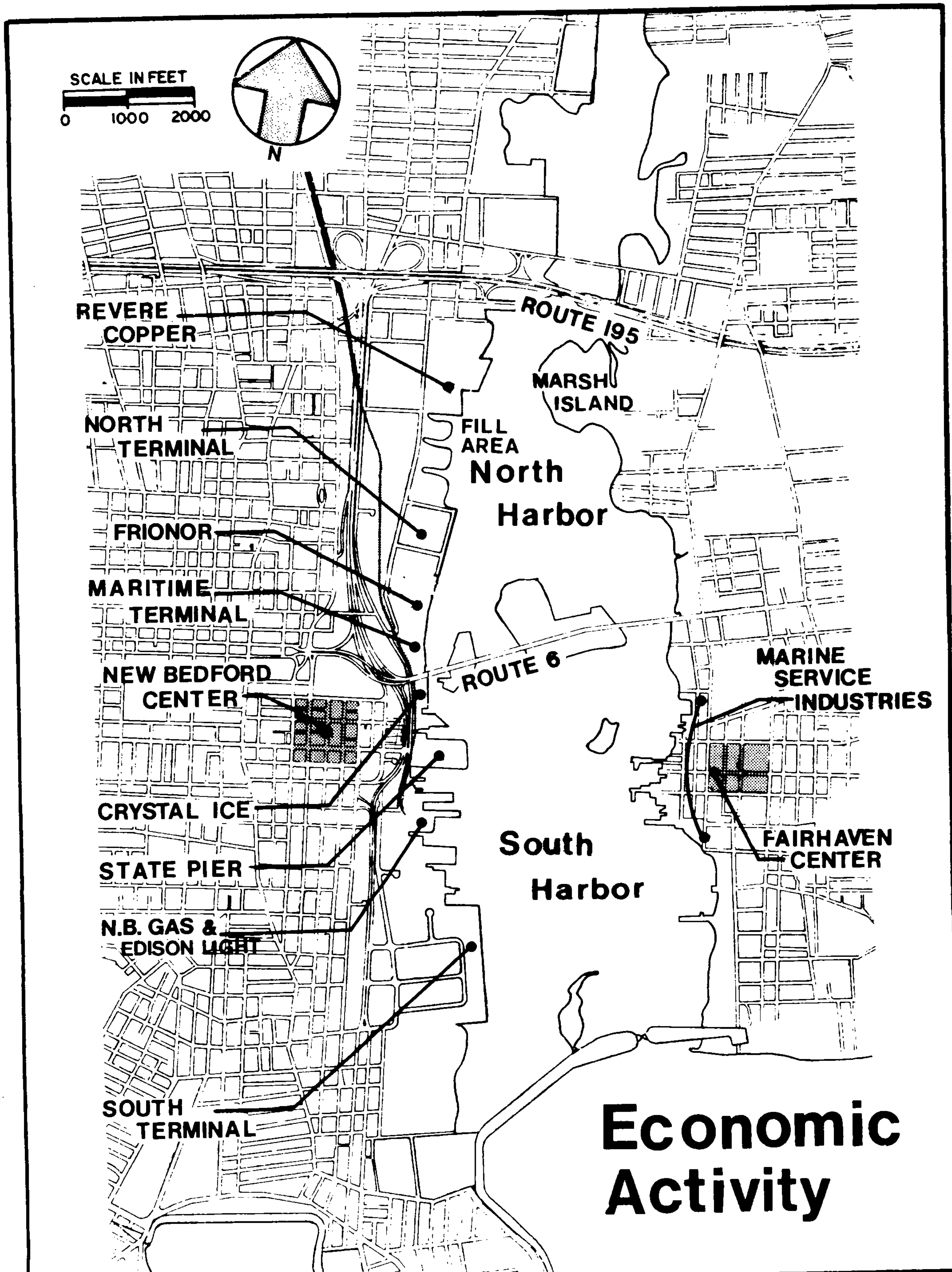
2. South Harbor

The south harbor is more fully developed than the north harbor. Crystal Ice Company, located immediately to the south of the bridge, supplies ice for the entire fishing fleet and also to the various fish processing plants in New Bedford. Crystal has 120 feet of bulkhead for loading vessels.

Several piers further south provide docking for New Bedford's fishing fleet. The boats are primarily trawlers, averaging about seventy five feet in length. The fleet numbers about 200 vessels at the present time and is expected to continue to grow in the future.

The State Pier is the largest shipping facility with a warehouse for covered cargo storage and 240,000 square feet of open storage.

The New Bedford Gas and Edison Light Company produces electricity and supplies gas to the area. A large wharf abutting the deep water channel serves as an oil delivery terminal and also as a terminal for natural gas for the New England Petroleum Corporation.



NEW BEDFORD-FAIRHAVEN BRIDGE

FIGURE 13

Beyond this lies the south terminal. Its bulkhead is 1,600 feet long and it contains 250,000 cubic feet of refrigerated storage. The south terminal, operated by the New Bedford Harbor Development Commission, is leased by various tenants.

Marine service industries are clustered along the Fairhaven shore of the south harbor. These include Norlantic Diesel, D. N. Kelly and Sons, Fairhaven Marine, and Hathaway Machinery Company.

E. TRAFFIC

The New Bedford-Fairhaven Bridge is literally the crossroads of traffic in New Bedford-Fairhaven Harbor. Navigational traffic moving in a north-south direction in the shipping channel conflicts directly with roadway traffic moving in an east-west direction over Route 6.

Both navigational traffic and roadway traffic have varied considerably in recent years. A decline in fishing vessel activity in the north harbor, dating from about 1970, had caused the total number of vessels crossing the bridge, and consequently the number of bridge openings, to decrease significantly but in recent years continued growth has been evident. In 1981, the number of vessels crossing the bridge was 2,400. Roadway traffic decreased after Interstate Route 195 opened but has now rebounded to over 26,000 vehicles per day and appears to be growing once again.

1. Existing and Projected Navigational Traffic

a. Characteristics of Existing Navigational Traffic

All vessels passing through the bridge are recorded and assigned to one of five different categories: steamers - motor ships, fishing vessels, pleasure craft, tow boats, and towed craft. Table 2 provides the physical characteristics of the types of vessels which are potential users of the harbor under each of these five categories.

The volume of navigational traffic dropped considerably during the 1970's but had returned to past levels by 1981. The volume for 1981 was 2,400 vessels after a low of 522 in 1977. The 1981 volume represents an average of over six vessels passing through the bridge per day.

An examination of the makeup of the navigational traffic by vessel type (see Figure 14) indicates that there has been a considerable change in the types of vessels which make up the volume of traffic as well as the volume itself. The number of fishing vessels had dropped considerably but by 1980 was beginning to grow again. The past drop in the number of fishing vessels passing through the bridge has been attributed to the closing of some of the fish processing firms formerly located in the north harbor. The number of pleasure boats has shown a large overall rise. The number of other types of vessels has remained fairly constant.

The number of bridge openings and the number of vessels passing through the bridge are not the same. This is explained by the fact that a

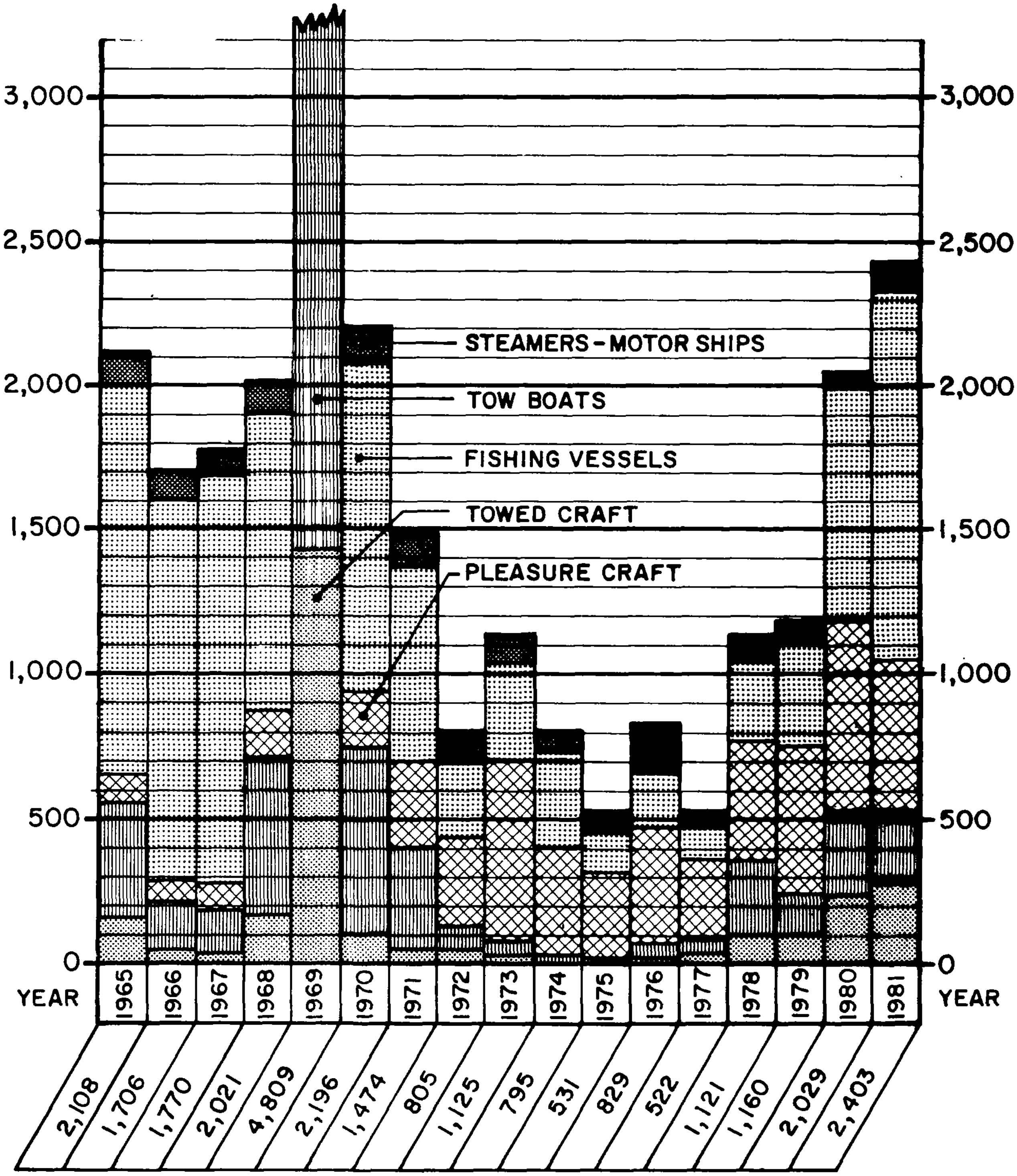
Typical Vessels in Harbor

Type	Length	Beam	Loaded Draft	Height
STEAMERS-MOTOR SHIPS				
Oceangoing Tanker	570'	75'	22'-32'	120'-125'
General Cargo Vessel-Large	420'-492'	54'-70'	23'-31'	110'-120'
General Cargo Vessel-Medium	191'-376'	33'-53'	12'-25'	60'-110'
Coast Guard Vessel-Large	210'-311'	34'-43'	10'-17'	45'-70'
FISHING VESSELS				
Fishing Vessels-Large (10 Percent of Total)	90'-110'	20'-25'	9'-13'	65'
Fishing Vessel-Medium (90 Percent of Total)	50'-90'	15'-20'	7'-9'	40'-45'
PLEASURE CRAFT				
Pleasure Craft-Large (40 Percent of Total)	20'-35'	-	-	10'-25'
Pleasure Craft-Medium (60 Percent of Total)	20' or Less	-	-	Less than 20'
TOW BOATS				
Tugboat or Towboat	83'-110'	22'-29'	11'-15'	37'-45'
TOWED CRAFT				
Oil Barges	175'-260'	30'-40'	11'-14'	40'-62'

Source: Corridor Planning Study Report, 1977,
Table IV-1A "Typical Vessels Entering
New Bedford-Fairhaven Harbor"

NEW BEDFORD-FAIRHAVEN BRIDGE **TABLE 2**

Source: Corridor Planning Study, Volume II, page 37, and Annual Bridge Summaries prepared by the Massachusetts Department of Public Works, Bridge Maintenance Division.



Yearly Navigational Traffic

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 14

number of the vessels recorded are towed craft and that in many cases, two vessels running under their own power go through the bridge together. The 2,400 vessels passing through the bridge in 1981 required 1,852 bridge openings, an overall ratio of about 80 percent.

Since a significant number of the vessels entering the north harbor are pleasure craft, the number of bridge openings varies seasonally. The peak number of openings for 1981 occurred in August. The August peak of 324 openings averages over 10 openings per day. In contrast, there were only 26 openings in January 1981.

b. Projections of Navigational Traffic

1) Vessels Crossings in 1987

The 1987 projection (see Table 3) assumes that no major changes take place in the harbor.

The growth of fishing vessel traffic through the bridge has been substantial in the past few years, increasing from 113 vessels in 1977 to 1,249 vessels in 1981. This growth is related to the continued growth of the fishing fleet. Based on continued upward trends, an average growth rate in fishing vessel crossings of approximately 3 percent per year is predicted resulting in 1,450 crossings in 1987.

For other vessel categories, much smaller rates of growth are predicted from now until 1987. Steamers - motorship crossings, which numbered 81 in 1981, are predicted to rise to 120. Pleasure craft crossings are predicted to grow at a rate of 3 percent per year to 640. Tow boat crossings are predicted to increase at approximately 3 percent per year because of overall increased activity in the harbor to 300 crossings and towed craft crossings are predicted to remain at 275.

Using these predictions, the number of vessels crossing into the north harbor can be projected as approximately 2,400 in 1987. Using estimated opening requirements, it appears that there would be approximately 2,200 bridge openings in 1987 on the basis of a six foot navigational clearance. The largest number of openings recorded in the recent past is 2,844 in 1969.

2) Vessels Crossings in 2005

For the design year of 2005 the continuing development potential of the fishing industry and other industries have to be considered.

The growth of the fishing industry should still be having an affect on the harbor in 2005. Growth which has caused saturation of the South Harbor has taken place and it should be expected that a new docking facility will have located in the north harbor by 2005 if the growth of the fleet is to continue. The development of the fish processing industry in the north harbor is already taking place.

To estimate the number of fishing vessels crossing in 2005, the crossings will be assumed to equal those of past years when fishing vessels

Navigational Traffic and Bridge Opening Projections

1987

	1981 Base Figure	Number of Vessels Crossing	Opening Requirement	Number of Openings With Existing Clearance
Steamers - Motor Ships	81	120	100%	120
Fishing Vessels	1,249	1,450	85%	1,233
Pleasure Craft	522	640	85%	544
Towboats	276	300	100%	300
Towed Craft	275	275	0%	0
TOTAL	**2,403**	**2,785**		**2,197**

2005

	1981 Base Figure	Number of Vessels Crossing	Opening Requirement	Number of Openings With Existing Clearance
Steamers - Motor Ships	81	360	100%	360
Fishing Vessels	1,249	1,500	85%	1,275
Pleasure Craft	522	1,000	85%	850
Towboats	276	505	100%	505
Towed Craft	275	275	0%	0
TOTAL	2,403	3,640		2,990

NEW BEDFORD-FAIRHAVEN BRIDGE **TABLE 3**

were active in the north harbor. For this purpose the number 1,500, which is approximately that recorded in 1967 before the general decline began, has been used (see Table 3).

The number of vessels crossing the bridge as a result of industrial activity in the north harbor is difficult to predict. It will be assumed that steamer-motor ship crossings to the north harbor will increase as a result of industrial development to an average rate of one vessel crossing per day by 2005.

Pleasure craft crossings are predicted to continue to grow at a steady rate of 3 percent per year reaching a total of 1,000 crossings by 2005. A continued growth in tow boat activity at approximately 3 percent per year would result in 505 crossings in 2005. Towed craft crossings are assumed to remain at the 275 figure.

Using these predictions, the number of vessels crossing the bridge can be projected as approximately 3,600 in 2005. Using estimated opening requirements, it appears that there would be approximately 3,000 openings in 2005 on the basis of a six foot navigational clearance.

The 3,000 openings projected for 2005 would be slightly more than the highest number of openings experienced in the past, that is 2,844 openings in 1969.

2. Existing and Projected Roadway Traffic

a. Description of Existing Roadway System

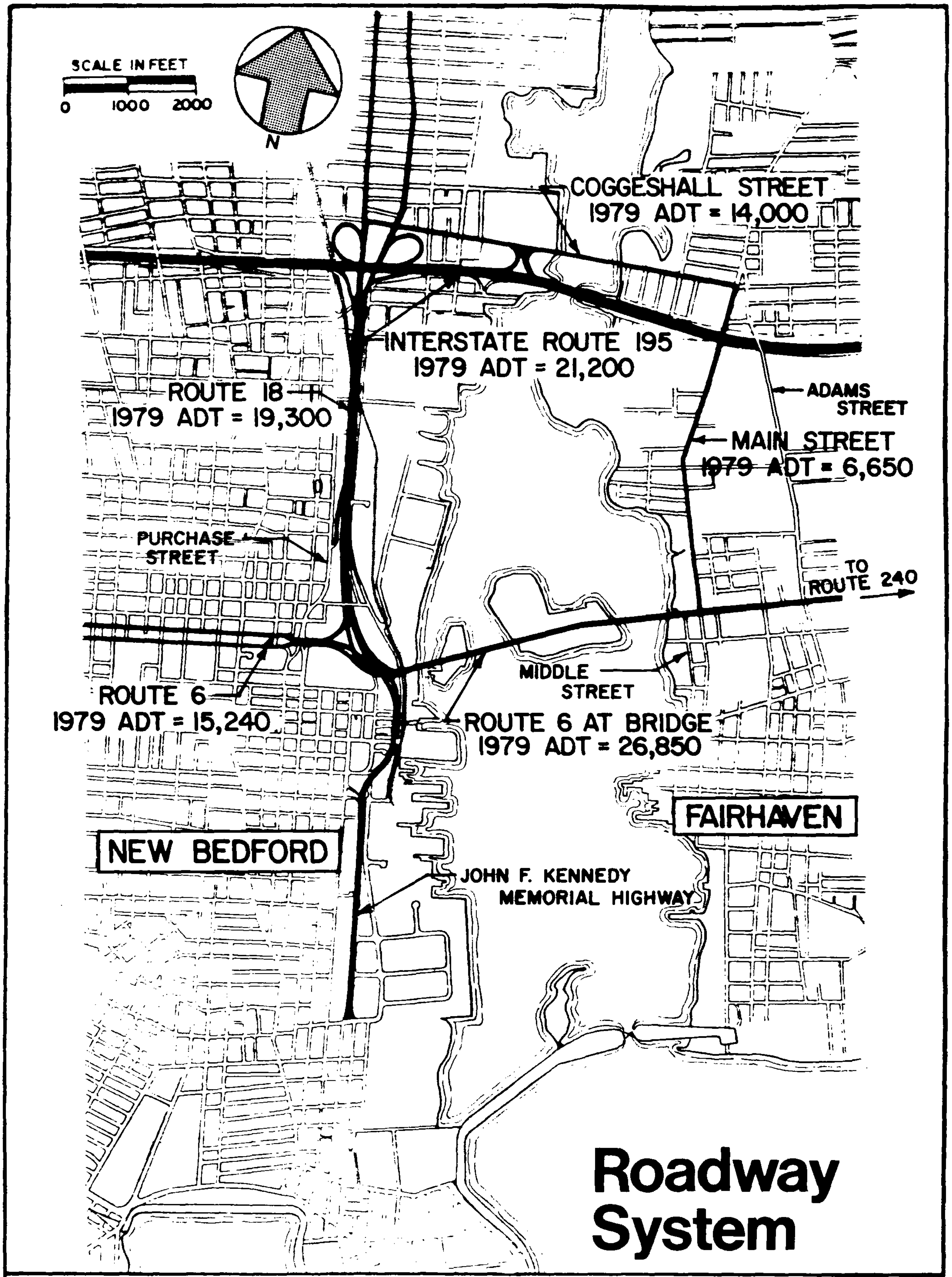
The two major east-west routes through the New Bedford-Fairhaven area, Route 6 and Interstate Route 195, are generally parallel and about a mile apart where they cross New Bedford-Fairhaven Harbor (see Figure 15). Route 18 provides access to the northern sections of New Bedford and links Route 6 to Interstate Route 195.

The Route 18 to Route 6 interchange is immediately to the west of the New Bedford-Fairhaven Bridge. Route 18 is a limited access highway from Interstate 195 to Route 6.

On the New Bedford side, ramp access to Route 6 and the bridge is provided from both Route 18 and the John F. Kennedy Memorial Highway, a southerly extension to Route 18. Immediately to the west of the Route 18 interchange, Route 6 is intersected by Purchase Street and other local streets. It is here that the westbound bridge traffic is integrated with traffic on the city streets. This intersection is a complex one and is controlled by a multidirectional traffic signal system.

On the Fairhaven side, Route 6 is met by Middle Street at a signalized intersection. Slightly further east it intersects Main Street at another signalized intersection.

Coggeshall Street, a two lane local street, connects northern New Bedford to northern Fairhaven and southern Acushnet. It is located parallel



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 15

to and approximately one eighth of a mile north of Interstate Route 195. Coggeshall Street connects Route 18 in New Bedford and Main Street in Fairhaven.

b. Characteristics of Existing Roadway Traffic

On the basis of counts taken in January 1979, the Bureau of Transportation Planning and Development of the Massachusetts Department of Public Works established an Average Daily Traffic figure of 26,850 for 1979 crossing the New Bedford-Fairhaven Bridge. This approximates that of 1972 before a four year period of declining volumes began (see Figure 16). The period of declining volumes was no doubt associated with the opening of Interstate Route 195.

Another important observation that can be derived from the January 1979 counts is the lack of pronounced peak hours. The morning peak of 1,948 vehicles was observed to occur between 7 and 8 and the afternoon peak of 2,137 vehicles occurred between 5 and 6. During the interim period relatively steady traffic occurred which was only slightly less than the morning or afternoon peak hours. The lack of a prominent peak indicates that an unusual number of off-peak trips for shopping and business are obscuring what would otherwise be peak commuter volumes.

As would be expected, since Route 6 is a major commuting route, at the morning peak approximately 60 percent of the traffic is westbound from Fairhaven to New Bedford and at the afternoon peak, approximately 75 percent of the traffic is eastbound from New Bedford to Fairhaven.

When bridge openings occur, roadway traffic is stopped and queued up in both the eastbound and westbound lanes. On an average day in 1979, based on bridge opening frequency and roadway traffic volume and distribution, approximately 2,800 vehicle minutes of delay were caused by bridge openings.

c. Roadway Traffic Projections

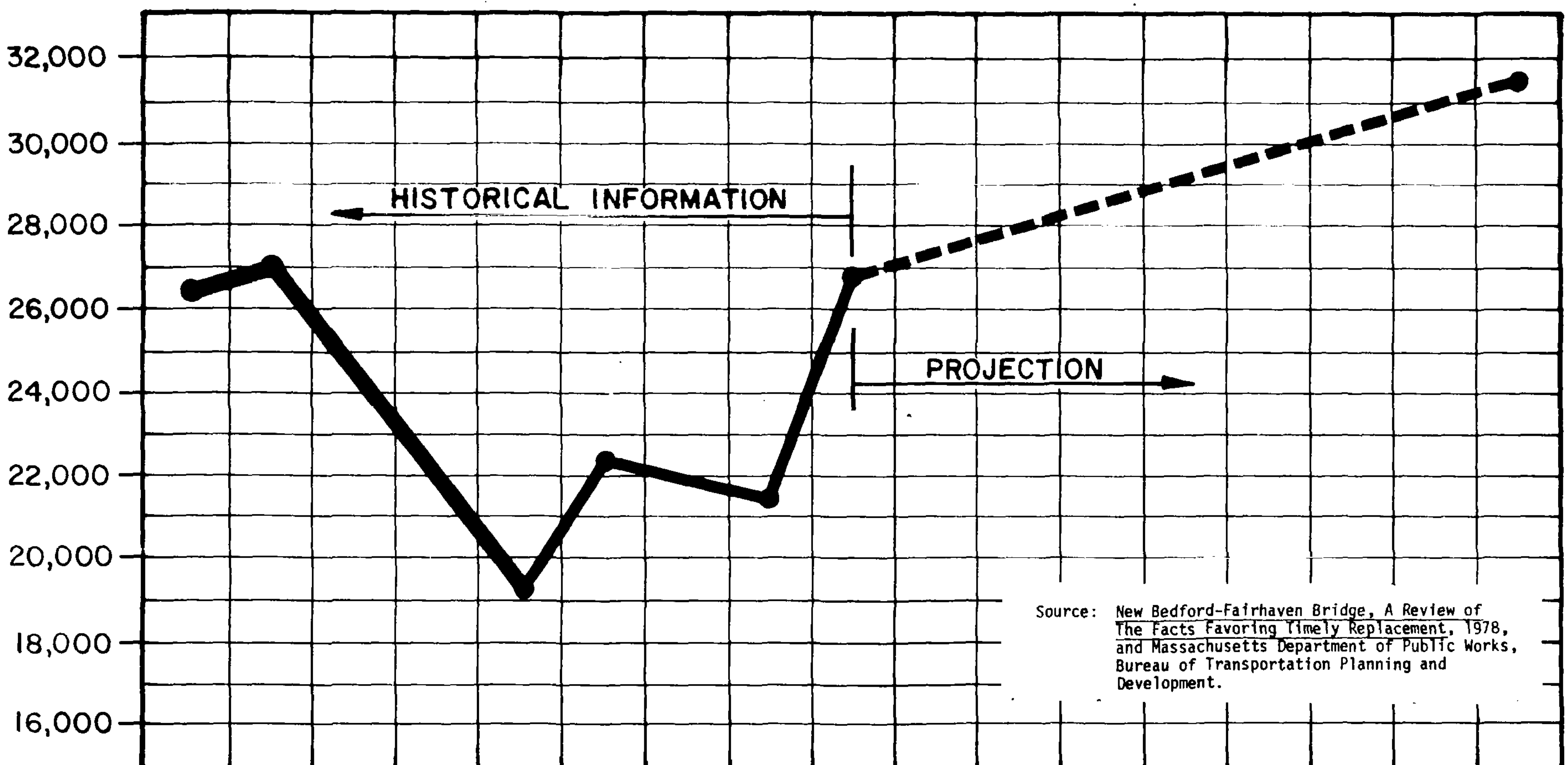
The projected Average Daily Traffic for 1987 on the New Bedford-Fairhaven Bridge is 31,400 vehicles. Figure 16 shows that this projected volume assumes continued steady growth in the future at a rate of 2 percent per year. This is a much slower rate than that which has occurred in the recent past. Actually, this growth is a continuation of the upward trend which existed prior to the decline associated with the opening of Interstate Route 195.

The projected Average Daily Traffic for 2005 on the New Bedford-Fairhaven Bridge, based on a steady growth rate of approximately 1.5 percent per year for the 18 years after 1987, is 41,780 vehicles.

3. Existing and Projected Pedestrian and Bicycle Traffic

The sidewalks located on either side of the existing bridge are uninterrupted from the Fairhaven Shore to the New Bedford Shore. Once on the New Bedford Shore, however, a pedestrian or bicyclist cannot continue along

Yearly Traffic Volumes



1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
26,350	27,000	—	—	19,230	22,275	—	21,492	26,850	—	—	—	—	—	—	—	31,400

NEW BEDFORD-FAIRHAVEN BRIDGE

FIGURE 16

the interchange ramps and must use a flight of stairs to reach MacArthur Drive below. This discontinuity in the connection between the centers of the two communities limits the usefulness of the bridge for pedestrian or bicycle traffic. Observation has shown that most of the pedestrians using the bridge are young people or joggers and that it is difficult for the average pedestrian to make use of the crossing.

Two bikeway systems, one in New Bedford and one in Fairhaven, with a total of 14 miles of designated bikeway exist according to the Southeastern Regional Planning and Economic Development District Regional Bikeway Plan of 1976, but the two systems are not connected across the harbor and do not at any point come closer than one half a mile from the bridge. Bicycle usage of the bridge requires substantial improvements beyond the bridge itself. Therefore, no significant bicycle use in the future is predicted.

III ALTERNATIVES CONSIDERED

The decision to replace the existing bridge with a bascule bridge in the existing corridor is the result of determinations made in previous studies. These studies explored various corridors within the harbor and various crossing types. These previous determinations have been reviewed and have been found to remain valid. A study of a number of alternative bridge configurations within the existing corridor led to the choice of the Preferred Alternative, a continuation of the existing alignment with a ten foot vertical clearance at the shipping channel.

A. SELECTION OF THE CORRIDOR

The Feasibility Study Report of 1969 analyzed possible locations for a new crossing between New Bedford and Fairhaven. Four corridors in addition to the existing corridor were considered: two to the north of the existing bridge, and two to the south.

1. A Corridor Between the Islands and Wamsutta Street

A corridor located immediately to the north of Fish Island and Popes Island was considered. This corridor would extend northward from the Islands to the level of Wamsutta Street in New Bedford, a band approximately one half mile in width (see Figure 17).

This corridor was found to be unsatisfactory for the following reasons:

a. Interference with the existing dredged maneuvering area;

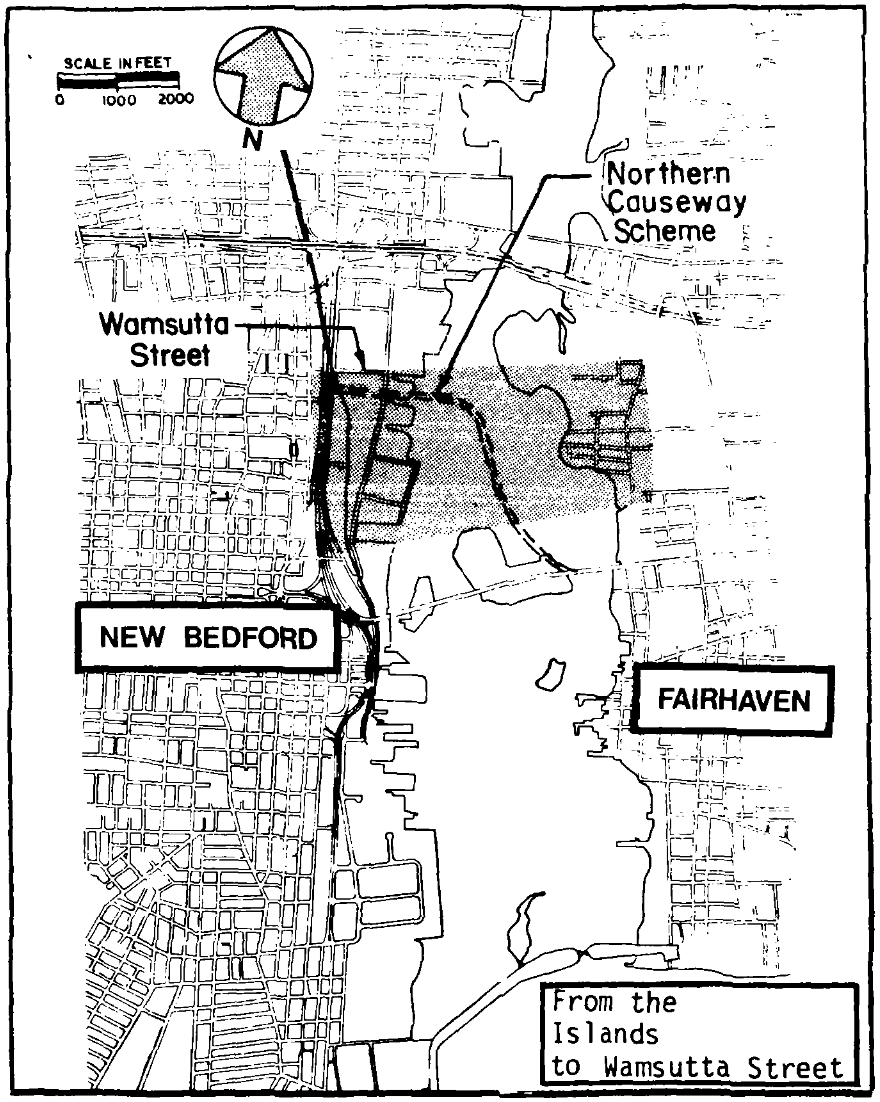
b. Excessively long elevated or underground structure required;

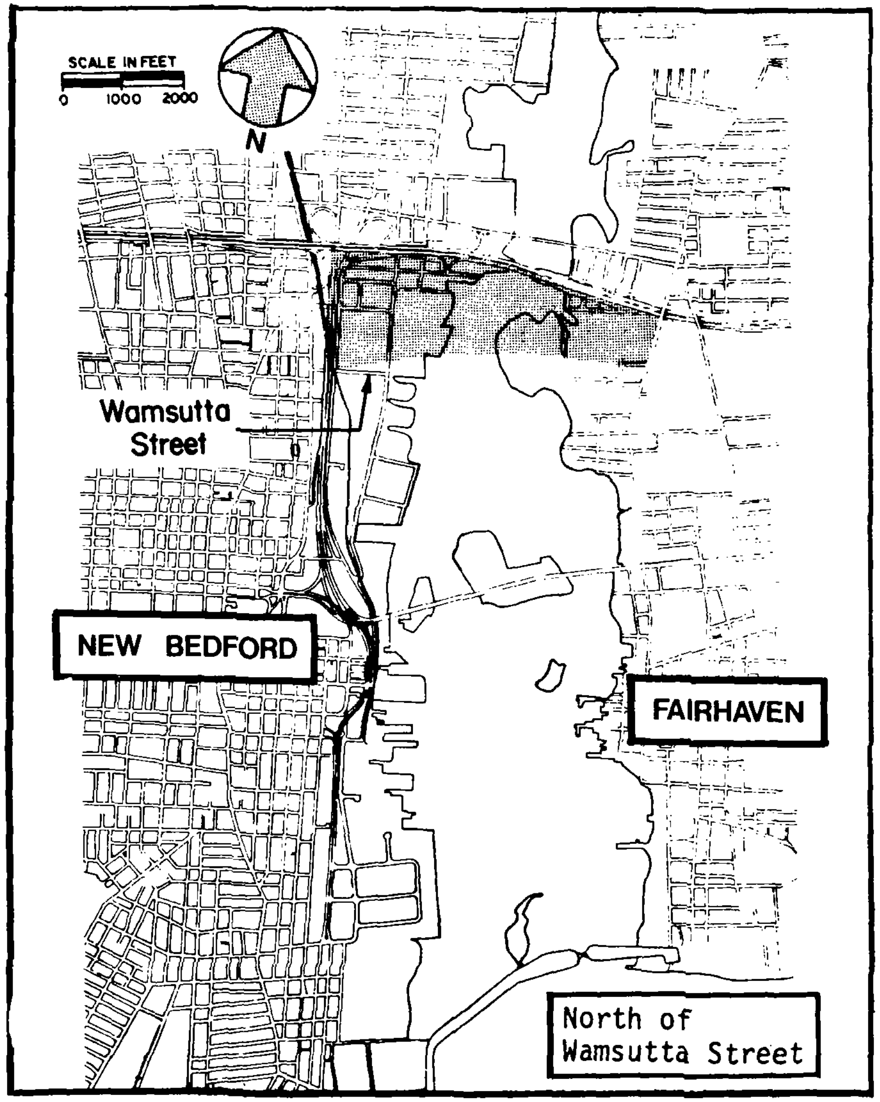
c. Interference with the future development of the North Terminal Area; and

d. New highway connections would have to be developed on both sides of the harbor.

A proposal put forward for a replacement crossing within this corridor is known as the Northern Causeway Scheme. This scheme attempted to alleviate two of the objections to the corridor, interference with the dredged maneuvering area and interference with the development of the North Terminal Area, by providing an alignment which would run northerly from Route 6 in the Popes Island area beyond the maneuvering area and the north terminal and then westerly to join Route 18 just below Wamsutta Street. While this proposal did avoid certain problems, it was found to be unsatisfactory for the following reasons:

a. A new interchange would have to be provided at Route 18. This interchange would create entirely new traffic patterns on the New Bedford side of the crossing;





Northern Corridors

NEW BEDFORD-FAIRHAVEN BRIDGE

FIGURE 17

b. The Causeway would provide a less direct route between the main business centers of the two communities; and

c. The Causeway would be an extremely long elevated structure and the cost would be excessive.

2. A Corridor North of Wamsutta Street

This corridor extends northward from Wamsutta Street to Interstate Route 195. It was found to be unsatisfactory for the following reasons:

a. Too close to the Interstate Route 195 crossing;

b. Less direct route between the main business centers;

c. Excessively long elevated or underground structure required; and

d. New highway connections would have to be developed on both sides of the harbor.

3. A Corridor Between the State Pier and the South Terminal

This corridor extends from immediately south of the existing corridor at the level of the State Pier in New Bedford to the level of the south terminal in New Bedford. This is a band approximately three quarters of a mile in width which encompasses the majority of the marine related industries on both the New Bedford and Fairhaven waterfronts (see Figure 18).

This corridor was found to be unsatisfactory for the following reasons:

a. Elimination of large amounts of existing docking space;

b. Obstruction to existing navigation;

c. Excessively long elevated or underground structure required; and

d. New highway connections would have to be developed on both sides of the harbor.

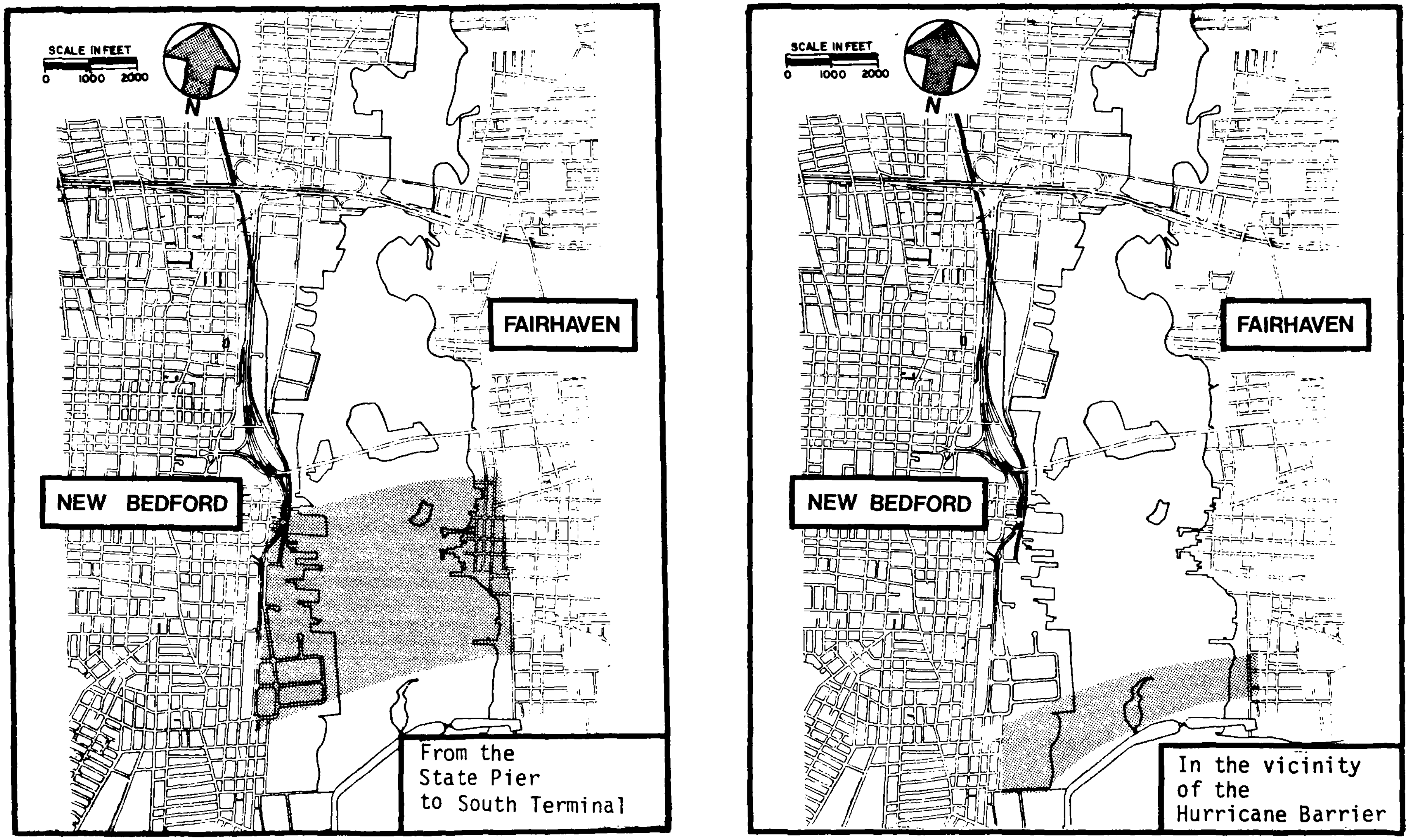
4. A Corridor in the Vicinity of the Harbor Barrier

This corridor extends southward from the south terminal to the harbor barrier. It was found to be unsatisfactory for the following reasons:

a. Long roadway connections required to rejoin Route 6;

b. Obstruction to existing navigation;

c. Less direct route between main business centers;



Southern Corridors

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 18

d. Excessive length of crossing; and

e. New highway connections would have to be developed on both sides of the harbor.

5. The Existing Corridor

The existing corridor passing across Fish Island and Popes Island was found to remain the most satisfactory crossing location. It avoids the disadvantages of the other corridors and provides the following advantages:

a. Shortest and most direct route between the business centers of the two communities;

b. Crosses water at a point of minimum width; and

c. Creates no additional obstruction to shipping traffic.

B. SELECTION OF THE CROSSING TYPE

The Feasibility Study Report also included an evaluation of several crossing types (see Table 4).

It was determined that the two solutions which would be most satisfactory from a traffic viewpoint; namely, a tunnel or a high level fixed bridge would be excessively costly and excessively disruptive to the surrounding area. In addition, both would result in the loss of direct access to the two islands. The option of removing the existing bridge without replacement was found to be unsatisfactory because of the high volume of roadway traffic using the bridge.

Revamping the existing bridge was found to be impractical because of its age. The bridge superstructure has received a 1976 qualitative overall rating of "poor to fair" and a portion of the substructure has shown evidence of continued movement. These basic deficiencies would be extremely costly to correct.

The remaining crossing types were those involving some type of moveable bridge. There are three basic types of moveable bridges: The swing type (like the existing New Bedford-Fairhaven Bridge), the vertical lift type, and the bascule type (see Figure 19).

Since the swing type of bridge pivots on a central pier which divides the bridge opening into two channels, it was determined that a swing span would have to be excessively long to provide the required clear horizontal opening of 150 feet. Also, the trusswork associated with a swing span was judged aesthetically unacceptable.

A vertical lift bridge was found to have advantages only where a span longer than that which could be provided by a bascule bridge was necessary. The high towers necessary for a vertical lift bridge were also considered a detriment.

Crossing Types

From the Feasibility Study Report, 1969

- Tunnel

  Complete redesign of intersections and approaches on either shore
  Direct access to islands lost
  Excessive cost

- High-Level Fixed Bridge

  Complete redesign of intersections and approaches on either shore
  Direct access to islands lost
  Excessive cost
  Detrimental to park

- Low-Level Bascule Bridge

  16' vertical clearance will not greatly reduce number of openings

- Medium-Level Bascule Bridge

  Direct access to islands lost

- Revamping Existing Bridge

  Impractical because of age of the structure

- New Swing Type Bridge

  Will not reduce number of openings
  Must be excessively long to provide equivalent clear span
  Aesthetically unsatisfactory

- Vertical Lift Bridge

  Excessively high towers aesthetically unsatisfactory
  Only practical for longer spans

- Single Leaf Bascule

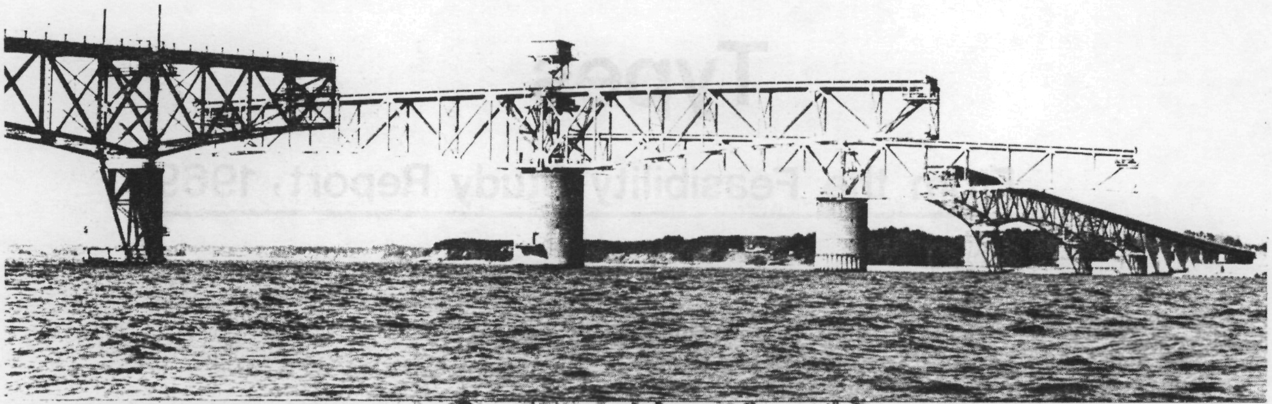
  Unbalanced appearance aesthetically unsatisfactory
  Only practical for shorter spans

- Bridge Removal

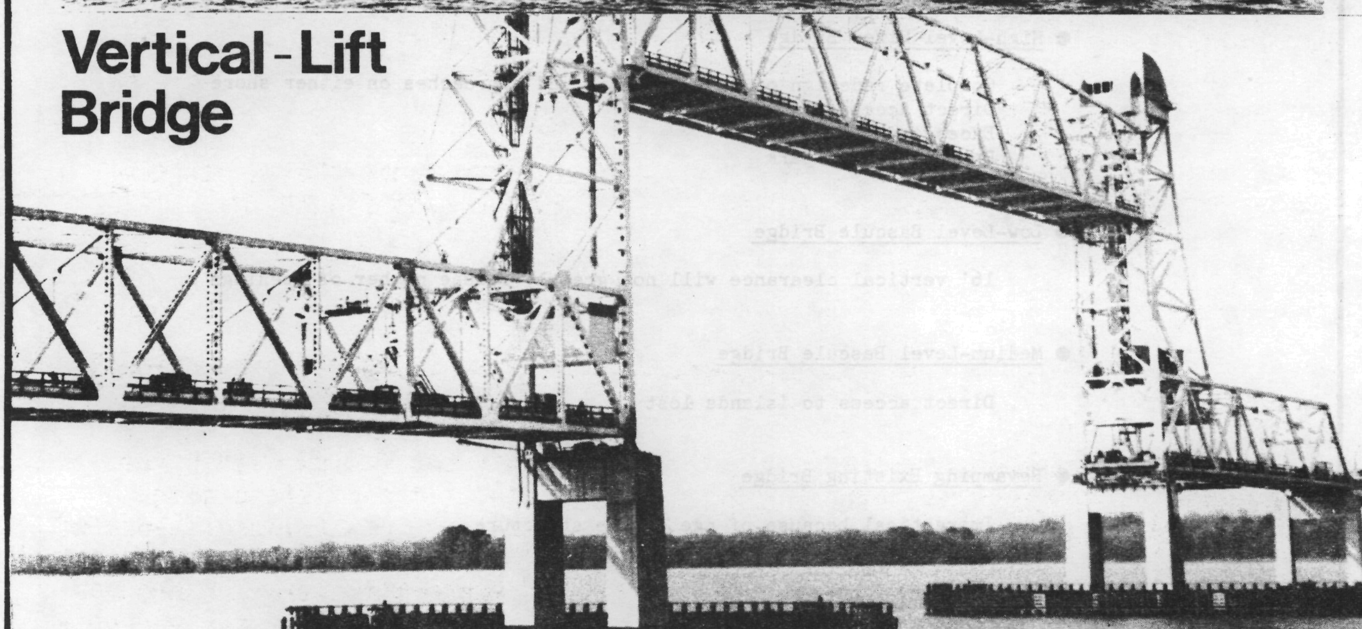
  Excessive cost to the highway user
  Damage to businesses along Route 6

NEW BEDFORD-FAIRHAVEN BRIDGE TABLE 4

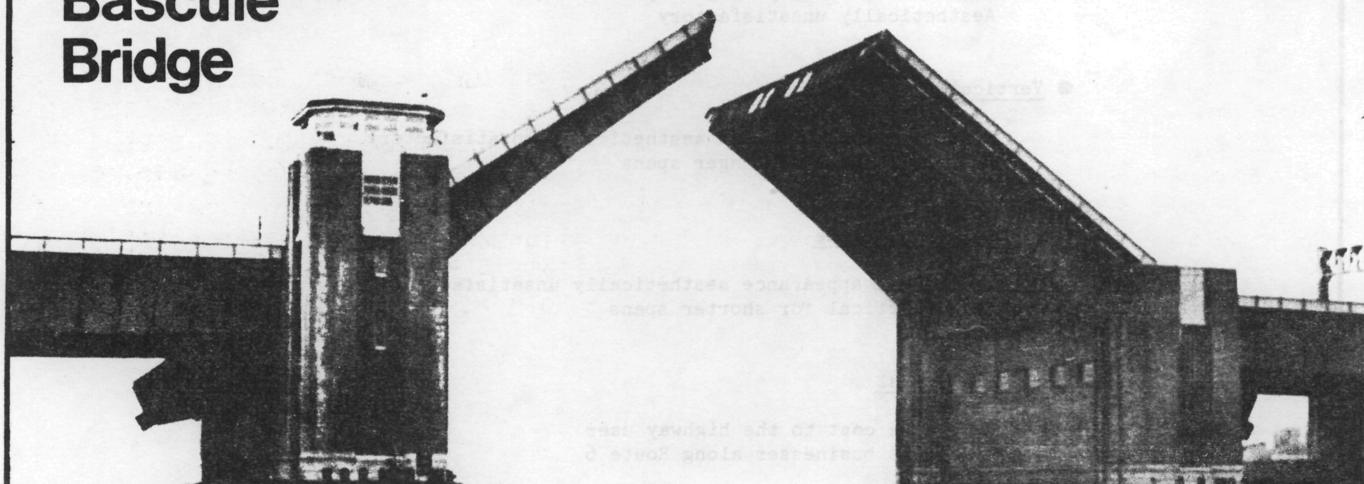
Swing Bridge



Vertical-Lift Bridge



Bascule Bridge



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 19

The bascule bridge was found to have the advantages of providing a clear span between abutments and being more aesthetically suitable. The specific recommendation of the Feasibility Study Report was that replacement should be made when necessary with a double leaf bascule bridge.

A crossing type which was not taken into consideration in the study is a ferry service between the two communities, but this is clearly not feasible because of the large volumes of traffic involved.

The Corridor Planning Study of 1977 reevaluated the crossing types previously considered and included a few additional options (see Table 5). A tunnel or high level fixed bridge were again found to be unsatisfactory because of their excessive cost and disruption to the surrounding area. Lower level fixed bridges were considered but were found to be detrimental to harbor development.

Removal of the existing bridge or continued maintenance of the bridge were again dismissed as unsatisfactory. In evaluating moveable bridge options, it was again determined that a bascule bridge would be the most suitable type.

The Corridor Planning Study Report determined that the existing swing bridge should be replaced with a bascule bridge (see Figure 20).

C. LOCATION OF THE PROPOSED BRIDGE WITHIN THE CORRIDOR

The new bridge should be aligned with the existing shipping channel as closely as possible to eliminate the need for channel widening.

There are three routes that the new roadway can follow within the corridor: along the existing alignment, to the south of the existing alignment, and to the north of the existing alignment. If the new bridge is located along the existing alignment, the existing bridge has to be demolished before construction can be carried out. If the new bridge is built either to the north or the south of the existing alignment, it has to be located far enough away from the existing moveable section to allow it to continue to swing (see Figure 21).

In general, a replacement along the existing alignment has the disadvantage of eliminating roadway traffic over the crossing during the construction period. A replacement along an alignment immediately to the south while the swing bridge continues to operate has the disadvantage of requiring the takings of commercial properties on Fish Island and a portion of Marine Park on Popes Island. A replacement along an alignment immediately to the north while the swing bridge continues to operate has the disadvantage of requiring extensive commercial land takings on both Fish Island and Popes Island.

Alternatives

to Existing Bridge

From the Corridor Planning Study Report, 1977

- Continued Maintenance of Existing Bridge

    Age of bridge
    Does not relieve narrowness of channel
    Does not reduce number of openings
    Does not encourage development of the upper harbor

- Bridge Removal Leaving Open Channel

    Loss of access to the islands
    Loss of social and economic tie between communities

- Low Level Bascule Bridge (150 Ft Horizontal Clearance and 23 Ft Vertical Clearance at Centerline)

    Will not greatly reduce the number of openings

- Medium Level Bascule Bridge (150 Ft Horizontal Clearance and Vertical Clearance at Centerline Between 42 Ft and 72 Ft)

    Loss of direct access to the islands

- High Level Fixed Bridge (150 Ft Horizontal Clearance and 135 Ft Vertical Clearance)

    Excessive costs
    Impact of approaches on either shore
    Loss of direct access to islands

- High Level Fixed Bridge (150 Ft Horizontal Clearance and 135 Ft Vertical Clearance) at a Location Between Wamsutta Street and I-195

    Excessive cost
    Major impacts on either shore

- Low Level Fixed Bridge

    Would shut off shipping from the upper harbor

- Medium Level Fixed Bridge (72 Ft Vertical Clearance at Centerline)

    Would shut off significant portion of shipping from the upper harbor

- Vertical Lift Bridge (150 Ft Horizontal Clearance)

    Excessive cost

- Tunnel

    Excessive cost

NEW BEDFORD-FAIRHAVEN BRIDGE TABLE 5

Conclusions

From the Corridor Planning Study Report, 1977

1. The existing swing-span drawbridge should be replaced because of its age and condition and because of its constraining influence on the development of New Bedford-Fairhaven Harbor.

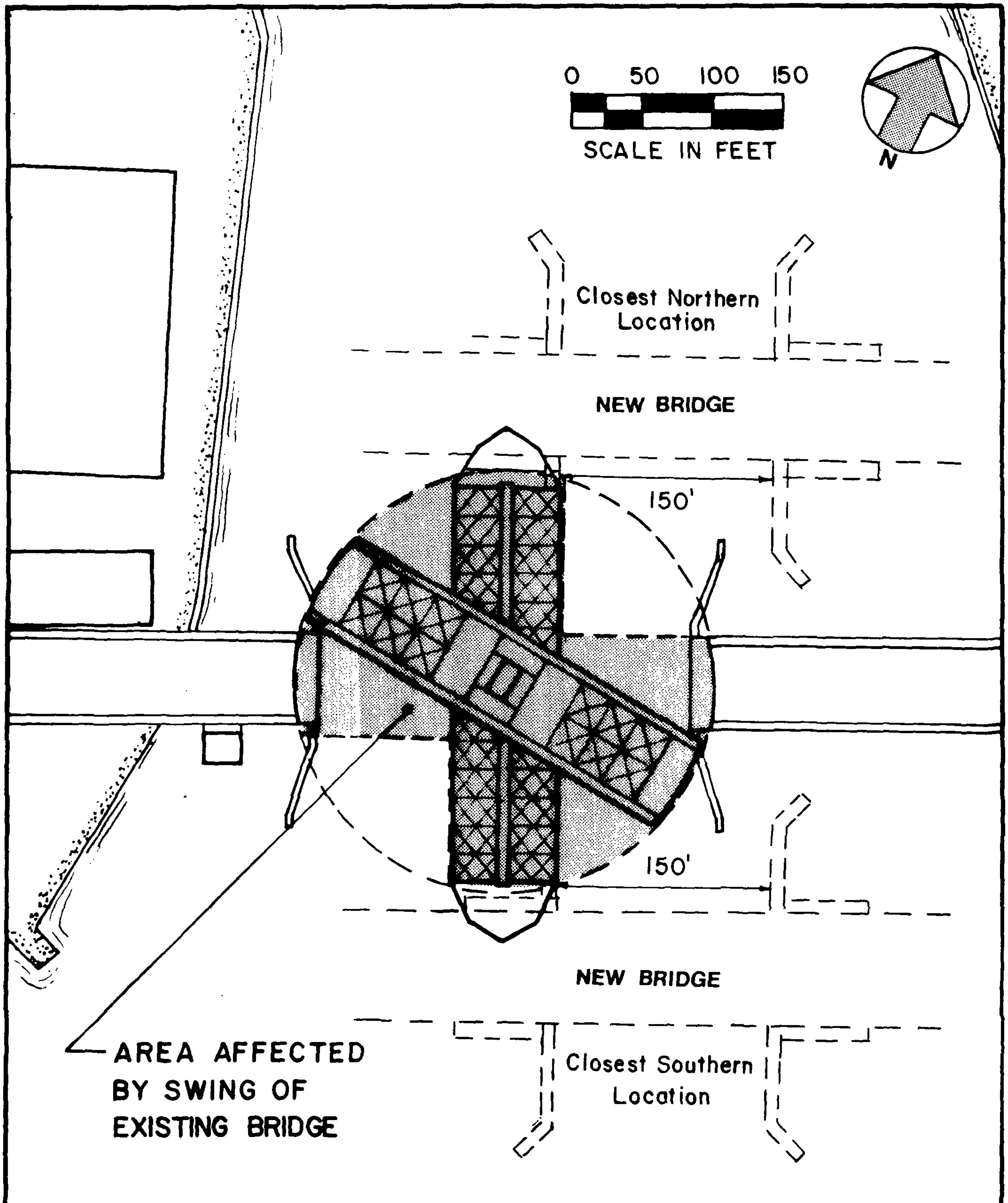
2. A channel width of 150' at the bridge is recommended. This is the same as the channel width at the hurricane barrier, and would remove shipping constraints due to beam width at the bridge.

3. A double-bascule bridge is recommended for the required channel width.

4. Further study is needed to determine the appropriate height above mean high water for the double-bascule design in closed position. This decision is related to future location of various activities within the Harbor, to future developments in off-shore oil and gas and in the fishing industry, to impacts on businesses on Fish and Pope's Islands, and to impacts on businesses, residences, and street patterns at the New Bedford and Fairhaven ends of potential construction.

   A low-level double-bascule bridge has the advantage of minimizing impact on existing development, and the disadvantage of constraining intensive marine-related development (such as fishing industry services and dockage, and off-shore oil support activities). A medium-level double-bascule bridge, at about 62' height above mean low water in the closed position, has the advantage of removing constraints on intensive marine-related development in the upper harbor, and the disadvantage of severe impacts on existing development.

NEW BEDFORD-FAIRHAVEN BRIDGE — FIGURE 20



Swing of Existing Bridge

NEW BEDFORD–FAIRHAVEN BRIDGE FIGURE 21

D. RANGE OF ALTERNATIVES WITHIN THE CORRIDOR

The eighteen proposed alternatives for bridge replacement within the existing Route 6 corridor are shown in Table 6. With the exception of the "No-Build Alternative" and the "Rehabilitation of the Existing Bridge Alternative", the alternatives all satisfy the conditions stated in the Conclusions of the Corridor Planning Study Report: Replacement of the existing bridge, a channel width of 150 feet, and the use of a double leaf bascule bridge.

A series of alternatives along the existing route, a series of alternatives along a southern route, and a series of alternatives along a northern route have been developed. As called for in the Conclusions of the Corridor Planning Study Report, both low-level and medium-level replacement schemes are considered. The eighteen alternatives considered for bridge replacement are described in Appendix A.

The vertical clearances which were to be used for the various alternatives were set at six feet, twenty feet, thirty five feet, fifty feet, and sixty feet. The clearance of six feet is equal to that of the existing bridge when in a closed position. All clearances greater than six feet necessitate the use of increased grades to clear the navigational channel at a greater height and therefore cause disruption beyond the immediate area of the bridge (see Figure 22).

The twenty foot vertical clearance is the maximum that can be achieved in the distance between Fish Island and Popes Island while still maintaining direct access off the new roadway to each island. Replacement of the Middle Bridge and reconstruction of the West Bridge is required. The East Bridge would remain unchanged.

A thirty five foot clearance bypasses Fish Island but maintains contact with the east end of Popes Island. A new form of access to Fish Island must be provided but access to Popes Island could be maintained at the east end. The Middle Bridge would be completely eliminated, the West Bridge would be reconstructed, and the East Bridge would remain unchanged.

The fifty foot clearance alternatives bypass Fish Island and most of Popes Island. Contact is maintained with Popes Island only at the far easterly end. A new form of access to Fish Island must be provided. The Middle Bridge and the West Bridge would both be eliminated at this clearance. The East Bridge would remain unchanged.

The alternatives with a vertical clearance of sixty feet bypass both islands. New forms of access to Fish Island and Popes Island must be provided. All three bridges which make up the crossing; The West Bridge, the Middle Bridge, and the East Bridge will be replaced at this clearance.

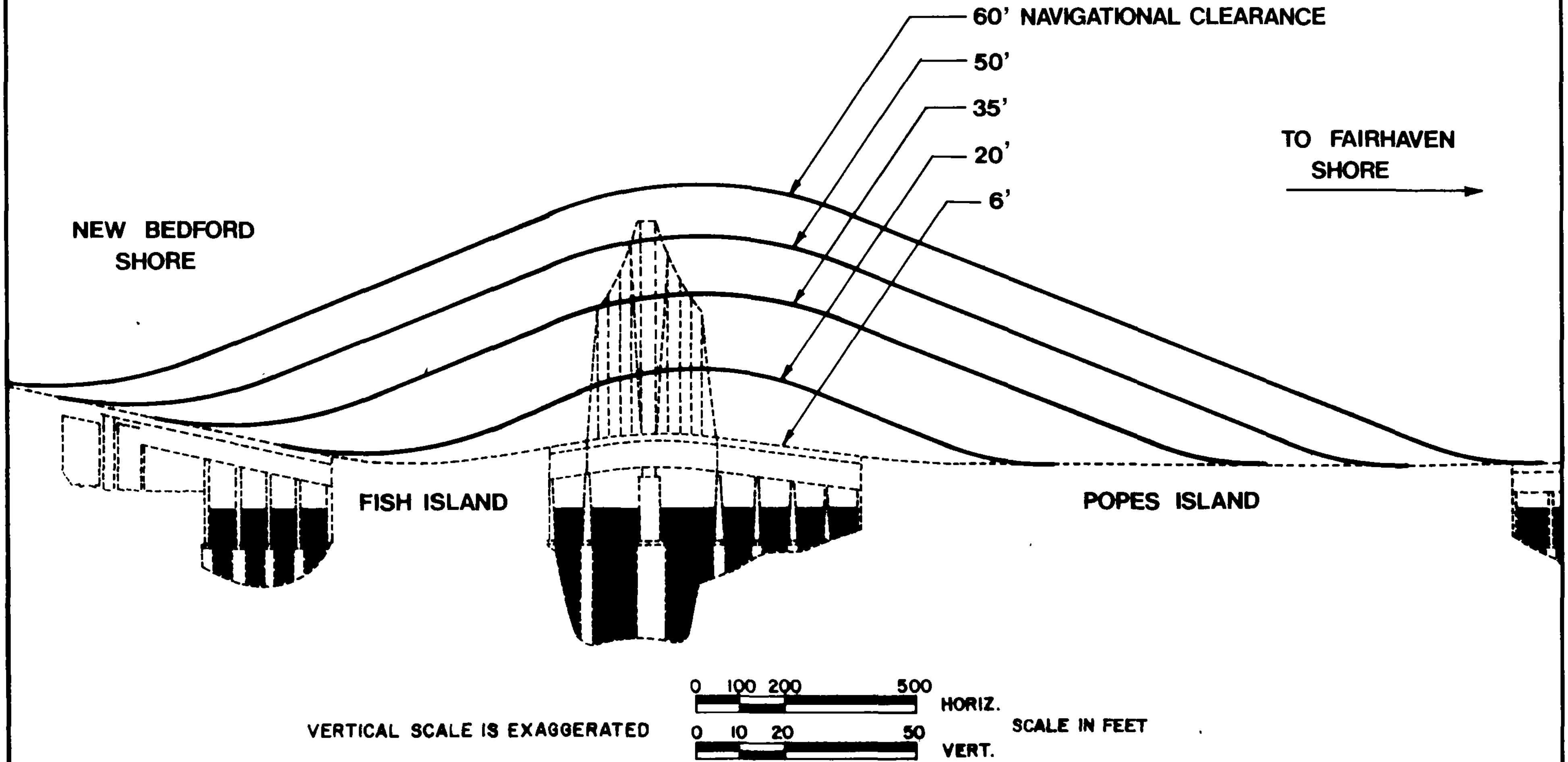
Using these five possible clearances, a variety of alignment alternatives were developed.

Feasible Alternatives
Within the Existing Corridor

		HORIZONTAL CLEARANCE	VERTICAL CLEARANCE
1.	No Build	95	6
2a.	Rehabilitation of Existing Bridge	95	6
2b.	Replacement at Existing Location and Elevation	150	6
3a.	Existing Route - Low Clearance	150	20
3b.	Existing Route - Low Clearance with North Detour	150	20
3c.	Existing Route - Low Clearance with South Detour	150	20
3d.	Existing Route - Low Clearance with Temporary Crossing	150	20
3e.	Existing Route - Low Clearance with Detour over Existing Bridge	150	20
3f.	Existing Route - Increased Clearance	150	35
3g.	Existing Route - High Clearance	150	50
4a.	Southern Route - Minimum Alignment with Existing Bridge Closed	150	20
4b.	Southern Route - Minimum Alignment	150	20
4c.	Southern Route - Modified Alignment	150	50
4d.	Southern Route - Full Alignment	150	60
5a.	Northern Route - Minimum Alignment with Existing Bridge Closed	150	20
5b.	Northern Route - Minimum Alignment	150	20
5c.	Northern Route - Modified Alignment	150	50
5d.	Northern Route - Full Alignment	150	60

NEW BEDFORD-FAIRHAVEN BRIDGE **TABLE 6**

Profiles



NEW BEDFORD-FAIRHAVEN BRIDGE **FIGURE** 22

The original concept of the project was that all segments that made up the crossing - the West Bridge, the Middle Bridge, and the East Bridge - would be replaced. This had been the concept used for most of the crossing types considered in the Feasibility Study Report of 1969 and it was generally felt that since all three bridge structures were of equal age, they were therefore equally in need of replacement. Based on this original concept, schemes were proposed which provided replacement of the complete crossing with a medium-level bascule bridge. These are identified as:

Alternative 4d	Southern Route - 60 Foot Clearance
Alternative 5d	Northern Route - 60 Foot Clearance

On further consideration, it was determined that it was not necessary to include the West Bridge and the East Bridge as part of the replacement project. From a structural viewpoint, the importance of replacing the Middle Bridge with its moveable section is of far greater importance than the replacement of the two fixed structures. The moveable span is a far more complicated structure than the fixed span and therefore potentially much more liable to failure of some sort than the fixed structures. Any failure in the moveable section would be more likely to result in the closing of the crossing whereas any problems in the fixed, girder spans could be repaired while maintaining traffic.

As a result of the decision that replacement of either the West Bridge or the East Bridge was not a necessary part of the project, further schemes were developed which provided a partial replacement of the crossing with a medium level bascule bridge. These schemes are identified as:

Alternative 3f	Existing Route - 35 Foot Clearance
Alternative 3g	Existing Route - 50 Foot Clearance
Alternative 4c	Southern Route - 50 Foot Clearance
Alternative 5c	Northern Route - 50 Foot Clearance

Schemes were also developed which provided partial replacement of the crossing with a low-level bascule bridge. These are identified as:

Alternative 3a	Existing Route - 20 Foot Clearance
Alternative 4b	Southern Route - 20 Foot Clearance
Alternative 5b	Northern Route - 20 Foot Clearance

In response to public comments calling for replacement of the bridge in the same location and elevation, the following scheme was added to the list of feasible alternatives:

Alternative 2b Replacement at Existing Location and Existing Clearance

Because of the high public interest in replacing the bridge on the existing alignment to avoid disruption to the surrounding area while at the same time maintaining traffic, an investigation of temporary detours was made. This resulted in the development of the following schemes:

Alternative 3b Existing Route - 20 Foot Clearance with North Detour

Alternative 3c	Existing Route -	20 Foot Clearance with South Detour
Alternative 3d	Existing Route -	20 Foot Clearance with Temporary Crossing
Alternative 3e	Existing Route -	20 Foot Clearance with Detour over Existing Bridge

It was determined that a way to improve the alignments of the northern and southern routes over those already developed would be to build the new bridge with the existing bridge in a closed position. This led to the development of two additional schemes:

Alternative 4a	Southern Route -	20 Foot Clearance with Existing Bridge Closed
Alternative 5a	Northern Route -	20 Foot Clearance with Existing Bridge Closed

The addition of the "No Build" and "Rehabilitation of Existing Bridge" alternatives completes the list of the eighteen feasible alternatives considered for bridge replacement within the corridor.

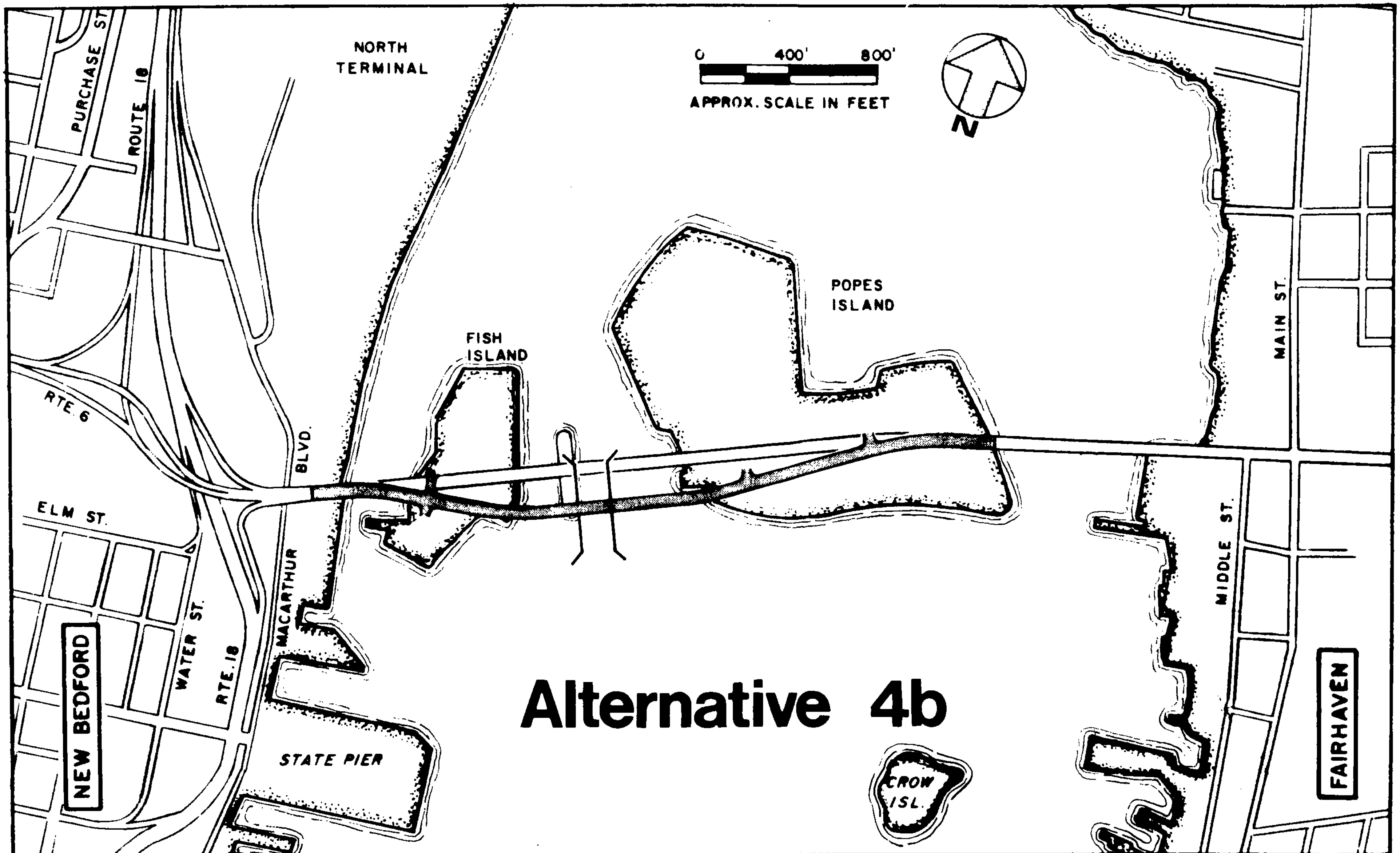
E. SELECTION OF A PREFERRED ALTERNATIVE

All feasible alternatives were reviewed with community representatives and were presented at public informational meetings. Public participation played a major role in the selection of a preferred alternative.

The first major choice to be made in the selection of a preferred alternative is that of horizontal alignment. It is obvious that the use of the existing, straight alignment is a superior choice from a highway engineering viewpoint but, because the northern route or southern route offer the advantage of allowing the existing bridge to continue to function and thereby keep the crossing open while the new bridge was being constructed, they were investigated in detail.

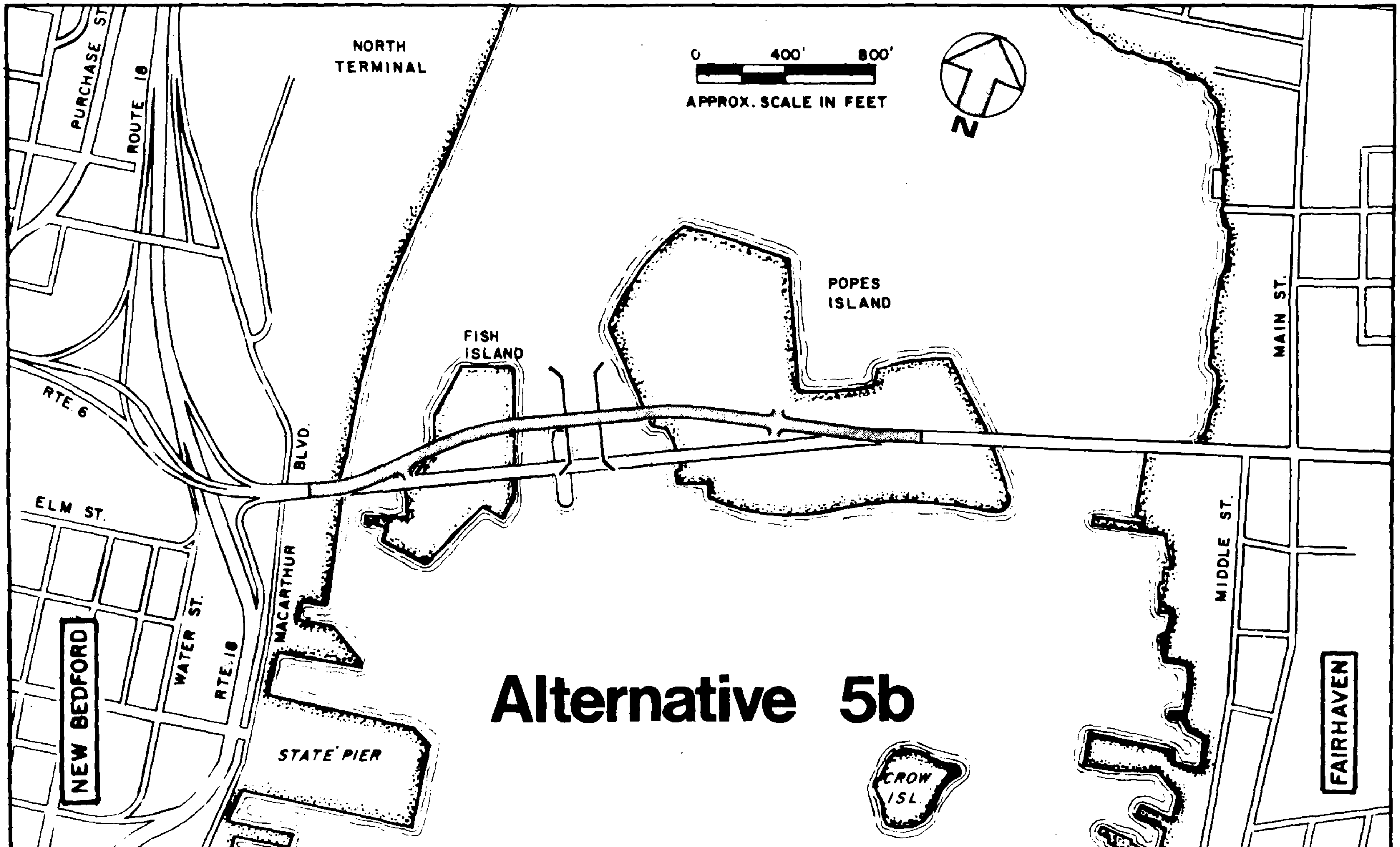
A highway engineering study of the northern and southern routes showed that it was possible to obtain an alignment that adhered to minimum horizontal alignment standards for 50 mile per hour design criteria within the project limits. The alignments for Alternative 4b and Alternative 5b are shown in Figure 23 and Figure 24 respectively as examples of this configuration. However, the necessity of using absolute minimum design standards throughout and the presence of a reverse curve situation at either approach to the bascule span were seen as poor design practices. Such an alignment is unacceptable for a permanent alignment especially since a superior solution is available through reuse of the existing alignment.

The use of the existing route while at the same time providing a temporary detour within the corridor appeared on first glance to provide a solution that would both make use of the existing alignment and keep the crossing open. However, the construction of a temporary detour within the crossing is complicated by the fact that, in crossing the shipping channel, a temporary moveable bridge would be required to keep the north harbor open to navigational traffic.



NEW BEDFORD-FAIRHAVEN BRIDGE

FIGURE 23



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 24

After study of the possible types of temporary moveable bridge that could be provided, it was determined that the minimum type of structure that could be accepted by the Department for public use would be an unbalanced, two-lane wide, cable and winch operated single leaf bascule bridge with trestle approaches.

A temporary detour with this type of structure would be unacceptable for the following reasons:

a. The opening time for the temporary bridge would be long, probably 10 minutes from closed position to open position.

b. A reliability problem would be present in the fact that since the bridge is unbalanced a cable failure would be disastrous.

c. The detour roadway would be only two lanes wide and could not maintain the full traffic flow of the existing roadway. This reduced width, along with the slow opening of the bridge, would greatly limit the traffic capacity of the temporary detour.

d. Permanent property takings and utility relocations could be required to satisfy a purely temporary condition.

e. Construction of a temporary detour would involve a second disturbance of the harbor bottom.

Therefore, use of a temporary detour was not judged to be advisable and those alternatives involving a temporary detour were dropped from consideration. The choice that remained was between a replacement along the existing route, providing a superior highway alignment and minimizing takings but necessitating the closing of the crossing, and either a northern or southern route, both of which provide for continued operation of the bridge but both of which require extensive takings.

The choice between utilizing the existing route for the new construction or utilizing either a northern route or a southern route depended largely on the potential amount of time that the crossing would be closed. The northern route and the southern route were clearly not preferred by the community because of the necessity of displacing existing businesses or eliminating public parkland or both. The only reason either the northern route or the southern route would be considered would be as a way of avoiding an extended closing of the crossing.

A commitment was made by the Department that a closing time of eighteen months would be attempted. This would be done by having the fabricated material necessary for construction assembled at the site prior to demolition of the existing bridge and through the use of a multiple shift operation during critical periods of construction. A closing period of eighteen months was acceptable to the community in order to gain the benefit of making use of the existing alignment.

The second major choice to be made in the selection of a preferred alternative is between a low-level bridge and a medium-level bridge. The dilemma involved in choosing between the two as expressed in the Corridor Planning Study Report is as follows:

"A low-level double bascule bridge has the advantage of minimizing impact on existing development, and the disadvantage of constraining intensive marine-related development (such as fishing industry services and dockage, and off-shore oil support activities). A medium-level double bascule bridge, at about 62 foot height above mean low water in the closed position, has the advantage of removing constraints on intensive marine-related development in the upper harbor, and the disadvantage of sever impacts on existing development."

This choice was clearly resolved in favor of a low level bridge as the importance of maintaining normal access to the islands and of preserving the existing scale of the harbor was repeatedly emphasized at Public Informational Meetings and in meetings with community representatives.

Table 7 and Table 8 indicate the effectiveness of the various opening heights in reducing the number of openings of the bridge in 1987 and 2005 respectively. A six foot clearance requires an opening for every vessel crossing the bridge. Increases in the height cause increasing reductions in the number of openings required.

At twenty feet of vertical clearance, all but 30 percent of pleasure craft can pass under the bridge; however, the bridge must open for all other types of navigational traffic. The elimination of openings due to 70 percent of pleasure craft reduces the total number of openings which would be required by approximately 17 percent in 1987 and by 20 percent in 2005.

Thirty five feet of vertical clearance will allow all pleasure craft to pass under the closed bridge but, as for the 20 foot clearance, the bridge must open to all other types of navigational traffic. The overall reduction in the number of openings required due to the elimination of pleasure craft openings is approximately 25 percent in 1987 and 28 percent in 2005.

A vertical clearance of 50 feet would allow all pleasure craft and all tow boats to pass under the closed bridge. It is estimated that all but 33 percent of the fishing vessels can pass under a 50 foot clearance bridge as the fleet is currently constituted. This 33 percent represents the newer vessels with higher clearances. By 2005, this percentage is expected to grow to 50 percent of the fleet. The elimination of these openings reduces the opening requirement of the bridge by approximately 74 percent in 1987 and by approximately 65 percent in 2005.

In general, it can be stated that a twenty foot clearance reduces the number of required openings and that a thirty five foot clearance reduces it only slightly more. No further reduction in the number of openings required is achieved until a fifty foot clearance is provided at which some fishing vessels can pass through without an opening.

A fifty foot navigational clearance or greater is effective in reducing the number of openings that would be experienced if the navigational

	1981 Base Figure	1987 Number of Vessels Crossing	Opening Requirement	Number of Openings With 6' Clearance	20' CLEARANCE Opening Requirement With 20' Clearance	20' CLEARANCE Number of Openings With 20' Clearance	35' CLEARANCE Opening Requirement With 35' Clearance	35' CLEARANCE Number of Openings With 35' Clearance	50' CLEARANCE Opening Requirement With 50 Clearance	50' CLEARANCE Number of Openings With 50' Clearance
Steamers - Motor Ships	81	120	100%	120	100%	120	100%	120	100%	120
Fishing Vessels	1,249	1,450	85%	1,233	100%	1,233	100%	1,233	33%	406
Pleasure Craft	522	640	85%	544	30%	163	0%	0	0%	0
Towboats	276	300	100%	300	100%	300	100%	300	0%	0
Towed Craft	275	275	0%	0	0%	0	0%	0	20%	55
TOTAL	**2,403**	**2,785**		**2,197**		**1,816**		**1,653**		**581**
REDUCTION IN OPENINGS FROM 6' CLEARANCE				**0**		**381**		**544**		**1,616**
AS A PERCENT				**0%**		**17%**		**25%**		**74%**

Bridge Opening Requirements-1987

NEW BEDFORD-FAIRHAVEN BRIDGE **TABLE 7**

	1981 Base Figure	2005 Number of Vessels Crossing	Opening Requirement	Number of Openings With 6' Clearance	20' CLEARANCE: Opening Requirement With 20' Clearance	20' CLEARANCE: Number of Openings With 20' Clearance	35' CLEARANCE: Opening Requirement With 35' Clearance	35' CLEARANCE: Number of Openings With 35' Clearance	50' CLEARANCE: Opening Requirement With 50' Clearance	50' CLEARANCE: Number of Openings With 50' Clearance
Steamers - Motor Ships	81	360	100%	360	100%	360	100%	360	100%	360
Fishing Vessels	1,249	1,500	85%	1,275	100%	1,275	100%	1,275	50%	638
Pleasure Craft	522	1,000	85%	850	30%	255	0%	0	0%	0
Towboats	276	505	100%	505	100%	505	100%	505	0%	0
Towed Craft	275	275	0%	0	0%	0	0%	0	20%	55
TOTAL	2,403	3,640		2,990		2,395		2,140		1,053
		REDUCTION IN OPENINGS FROM 6' CLEARANCE		0		595		850		1,937
		AS A PERCENT		0%		20%		28%		65%

Bridge Opening Requirements-2005

NEW BEDFORD-FAIRHAVEN BRIDGE **TABLE 8**

clearance were to remain at six feet. However, the intersection conditions necessary to provide access to Popes Island at a 50 foot clearance proved, upon more detailed study, to be unacceptable from both the point of view of highway design and the community reaction to the disruption of normal patterns of access to the island businesses and Marine Park.

A twenty foot navigational clearance is not as effective in reducing the number of openings. The profile changes and associated disruption on Fish Island and Popes Island were not seen as justifiable to obtain a small reduction in the number of projected openings.

Therefore, the preferred alternative based on highway design considerations and on acceptance by the community is that which utilizes the existing alignment and leaves the vertical clearance similar to what it is now. The determination of the final vertical clearance is discussed on page 69.

IV DESCRIPTION OF THE PREFERRED ALTERNATIVE

Alternative 2b proposes the replacement of the existing swing span bridge with a double leaf bascule bridge with a 150 foot horizontal clearance and the existing vertical clearance above mean high water. The new moveable bridge structure will be constructed in approximately the same location as the existing Route 6 roadway (see Figure 25). Construction of this alternative will require the complete closing of the crossing for approximately 18 months.

The replacement project involves not only the moveable section itself but the fixed span approaches on either side and the at grade section of highway on Fish Island to the west and the at grade section of highway on Popes Island to the east (see Figure 26). The west bridge between the New Bedford shore and Fish Island and the east bridge between Popes Island and the Fairhaven shore will not be replaced as part of this project.

The new roadway will conform to 50 mile per hour highway design criteria in order to meet Primary Highway Standards. Two lanes in each direction will be provided (see Figure 27). Outside shoulders and sidewalks will be provided on either side of the roadway.

A. ALIGNMENT

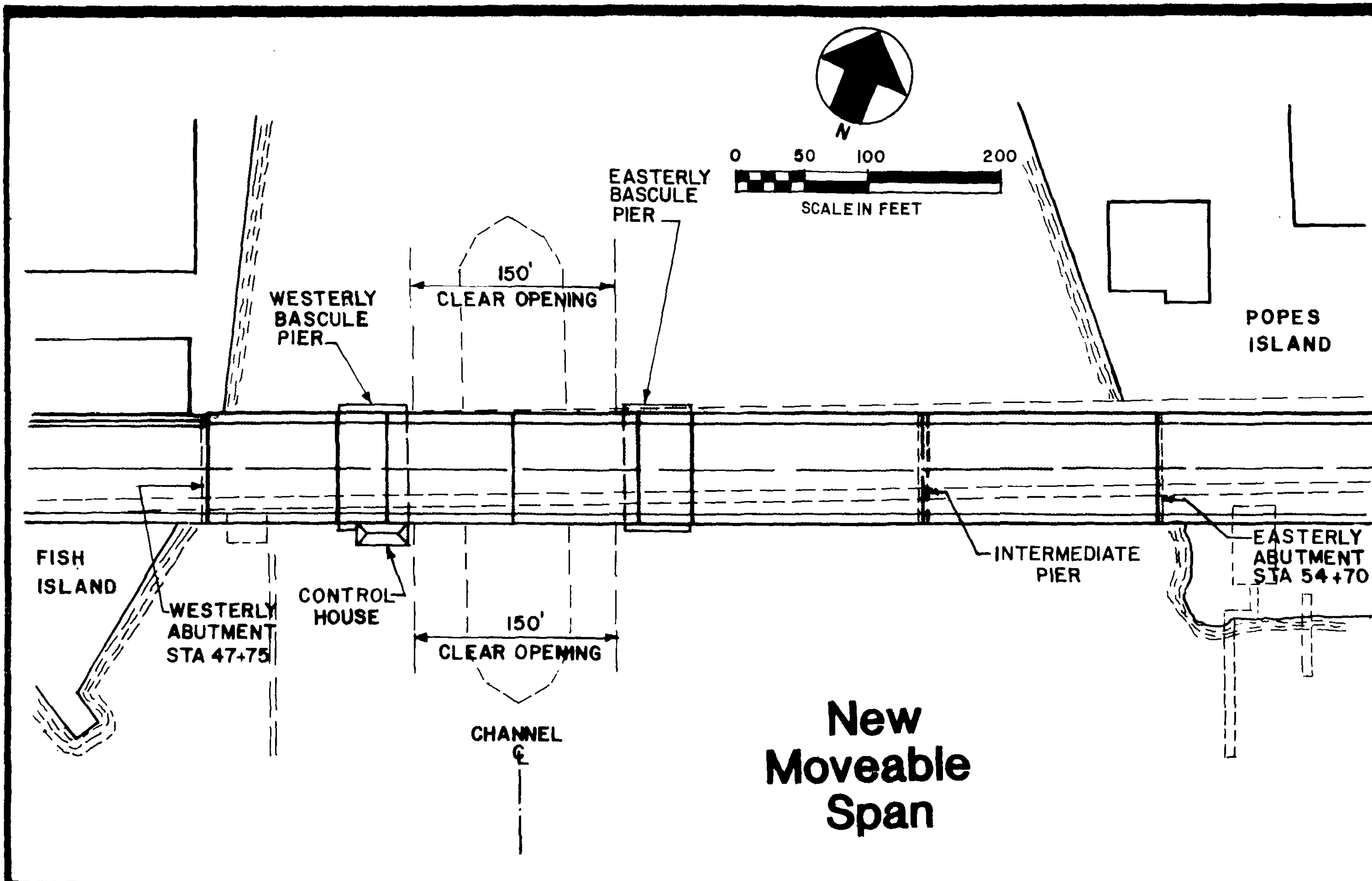
The horizontal alignment is approximately the same as that of the existing roadway. However, it is not desirable to preserve the geometry of the roadway exactly as it is. An overall alignment change holding the bearing of the West Bridge constant and the bearing of the East Bridge constant and joining them by a pair of very gradual reverse curves makes the geometry conform to standards appropriate for a primary highway.

Vertically, this alternative leaves the existing alignment at the easterly end of the existing West Bridge (see Figure 28). It rises on an upgrade of approximately two and a half percent, flattens out at the bascule span over the shipping channel, and gradually changes to a two and a half percent downward grade in order to return to the existing roadway elevations of Popes Island.

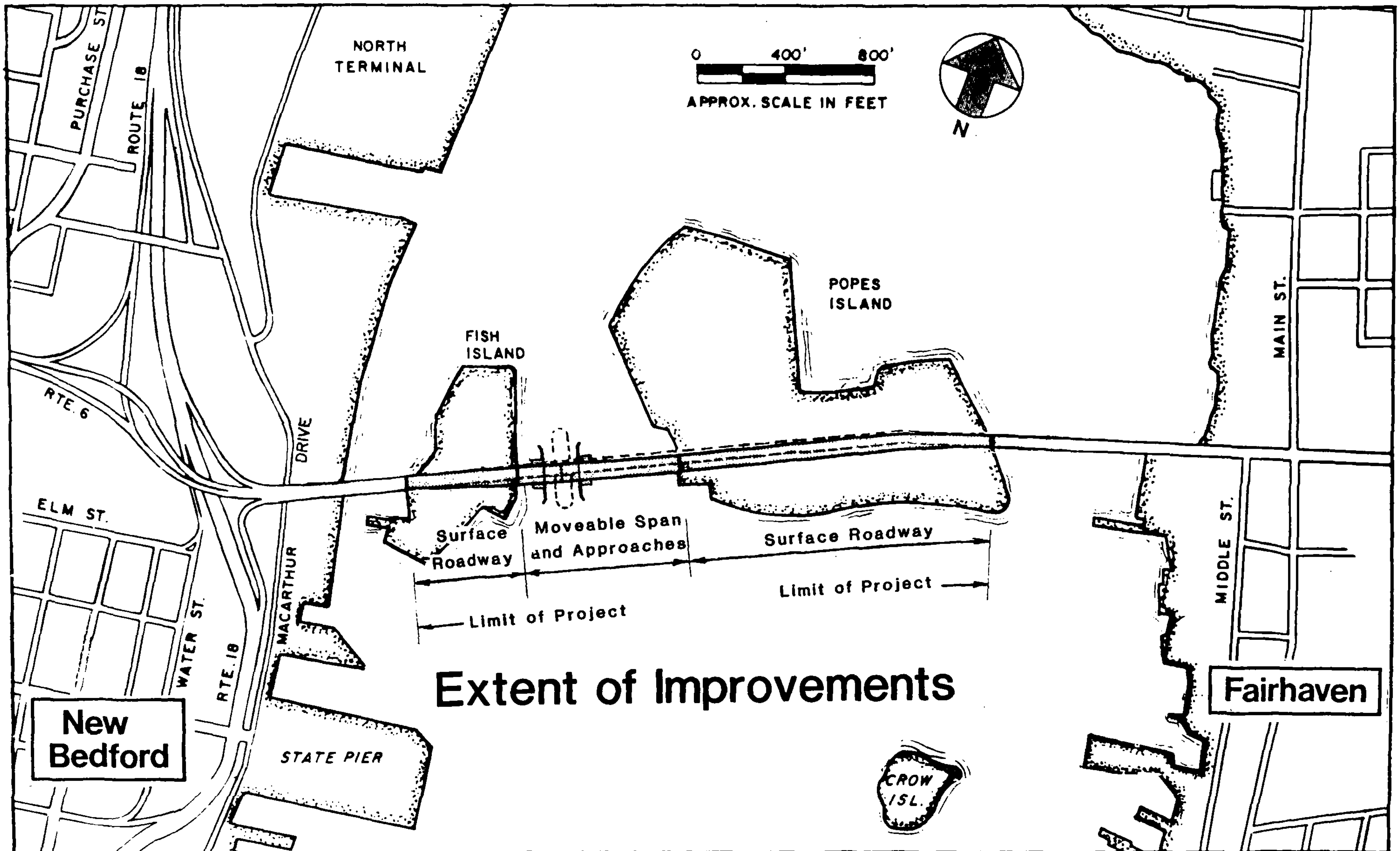
B. STRUCTURE

The new moveable span will be a double leaf bascule bridge with fixed spans approaching it from either side (see Figure 29). The channel from fender to fender will be 150 feet wide and 30 feet deep.

Each of the two bascule leaves will be supported on a trunnion within the bascule pier about which each leaf will rotate. Each leaf will be eighty two feet wide, the full roadway width, and will have a channel arm about 92 feet long and a counterweight arm about twenty six feet long. The counterweight arm will be contained entirely within the bascule pier.

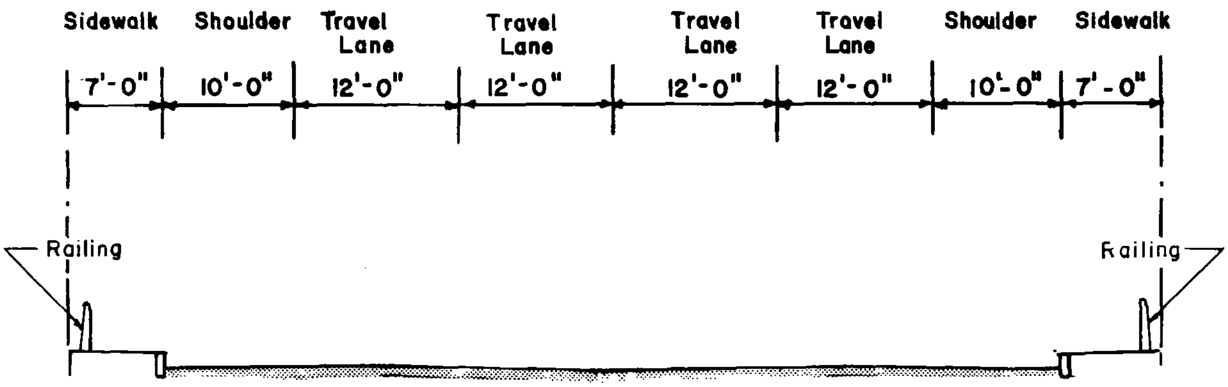


NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 25



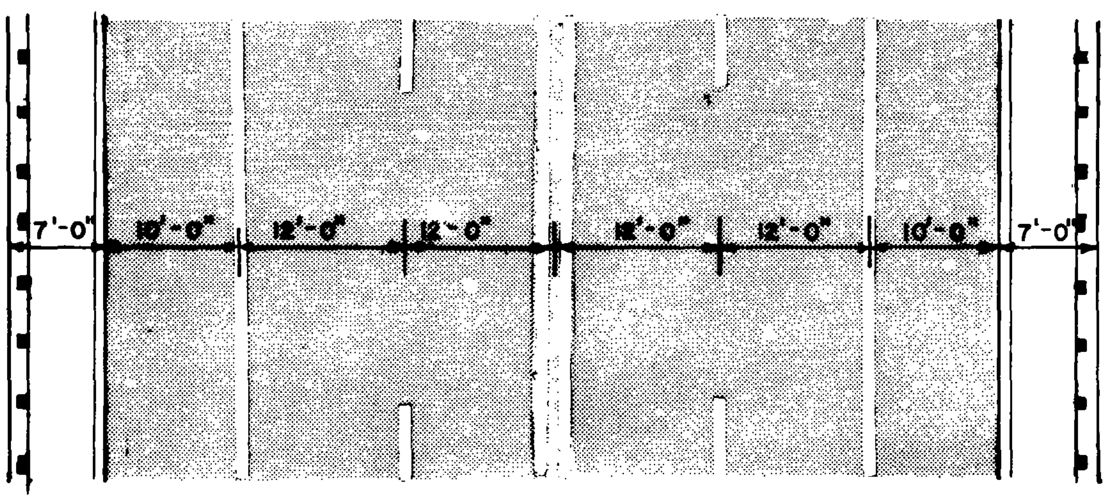
NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 26

Roadway Elements



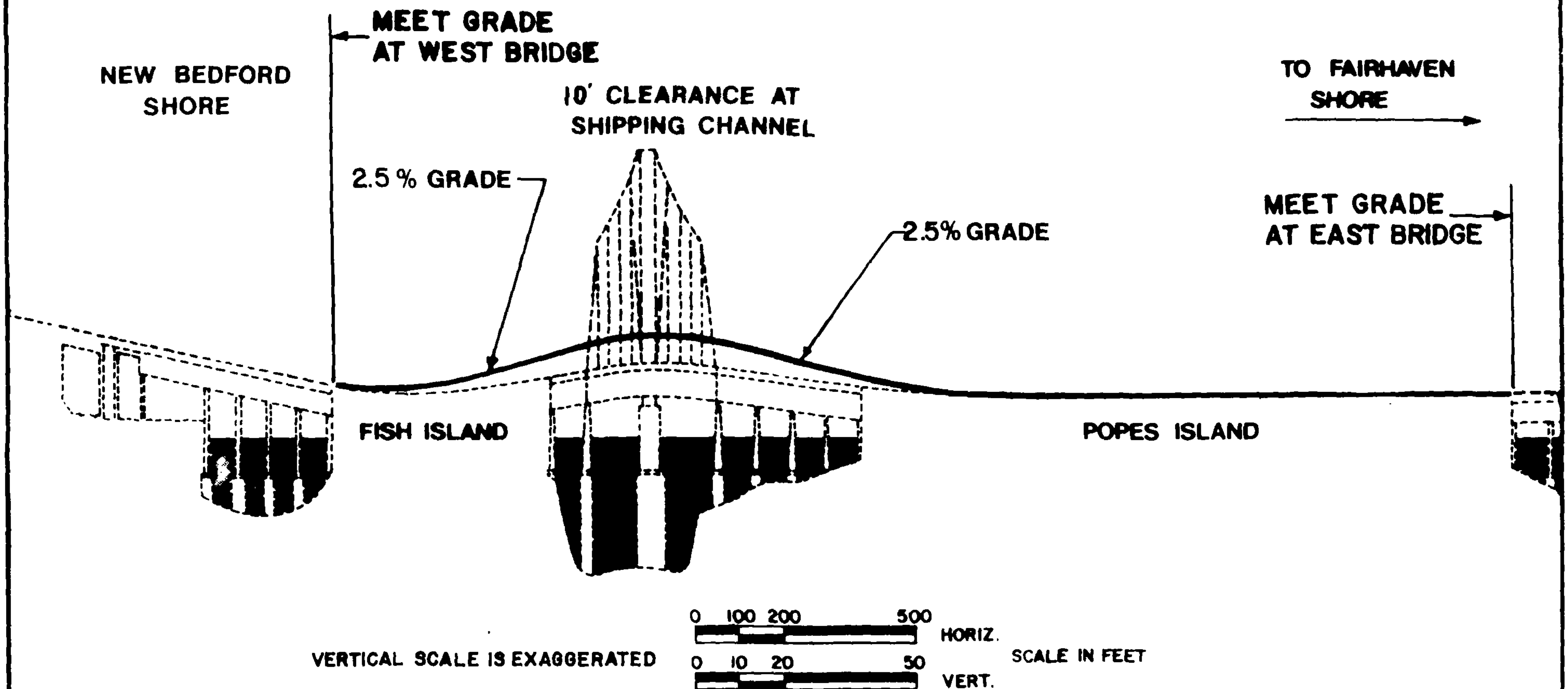
Approximately 82'

Overall Dimension



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 27

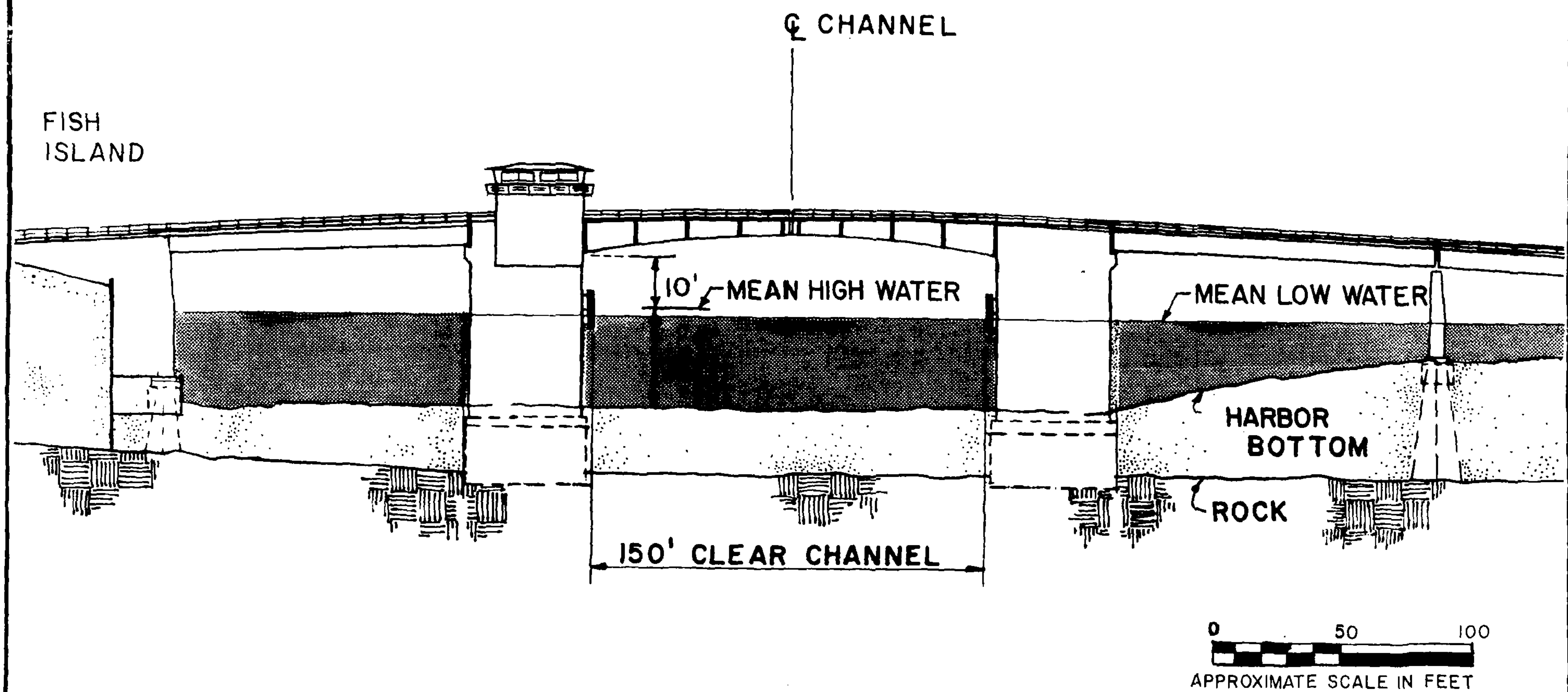
Proposed Profile Grades



NEW BEDFORD-FAIRHAVEN BRIDGE

FIGURE 28

Bridge Structure



NEW BEDFORD-FAIRHAVEN BRIDGE

FIGURE 29

The depth of the bascule girders which support the leaves will vary from about fifteen feet at the trunnion support to about five feet at the end of the leaf where it meets the opposite leaf at the middle of the channel.

The minimum vertical clearance will be that provided at the edges of the channel where the girder is deepest. Although the existing clearance is six feet above mean high water, it was deemed advisable to raise the new minimum channel clearance to about ten feet to insure that the bottom of the new structure would be above the wash from wind driven waves even during a flood condition. This increase in minimum vertical clearance would have no significant effect on the ability of navigational traffic to pass through the channel.

The bascule piers will be concrete structures about forty five feet deep and about as wide as the roadway. These structures will not only support the bascule leaves but will also enclose the counterweight arm and the operating machinery and motors.

The bascule piers will be supported on a foundation placed directly on rock about forty feet below the harbor bottom. The piers will be faced with granite at the water line for protection from damage by surface scour, floating debris, and ice.

Intermediate piers and abutments at either end of the fixed span approaches will have foundations supported by piles driven to the rock line below.

The operation of the moveable span will be carried out from a control house which provides visual coverage of the span and the upstream and downstream approaches. The normal operating time to open the moveable span will be set at two minutes. This includes setting the traffic barriers, unlocking the bridge, and opening the span. The time for closing the span will also be two minutes. The time during which the bridge will remain open is variable depending on the time the vessel takes to pass through.

The bascule span piers at the shipping channel will be protected by a fender system designed to prevent damage to the bridge structure by a passing vessel. This fender system as well as the bridge structure itself will be provided with navigation lights.

C. PROPERTY TAKINGS

The widening of the roadway and the improved alignment of the approach roadways to the new moveable span result in the southerly edge of the roadway layout line moving to the south. This results in the permanent taking of land from four parcels of land to the south and the complete taking of one parcel.

The widening is a change from a four lane roadway of seventy foot width to a four lane roadway of eighty-two foot width. The existing roadway layout consists of four twelve foot wide travel lanes, three foot setbacks on either side, and eight foot wide sidewalks on either side for a total width of seventy feet. The replacement section consists of four twelve foot wide travel lanes, a ten foot shoulder on either side, and a seven foot sidewalk on either side for a total width of eighty-two feet. The new construction therefore results in an increased width of roadway of twelve feet which is continued across the bridge structure and most of Popes Island. At either end of the project there is a gradual transition down to the existing seventy foot width of the fixed bridges at either end.

Because several of the buildings to the north of Route 6 are located directly at the back of the sidewalk it is not possible to distribute the widening evenly on either side of the roadway. All of the widening must take place to the south.

On Fish Island (see Figure 30), permanent takings are necessary on the following parcels:

a.	Lot 16	Socony Mobil Oil Company	about 1,000 SF
b.	Lot 4	Hydro-Dredge Corporation	about 300 SF
c.	Lot 23	Edward O. Sanchez	about 2,400 SF

None of the functional areas of these properties are affected.

On Popes Island (see Figure 31), either the complete taking of Lot 11, Leroy Faltus & Elaine Faltus, or the partial taking if access through Marine Park is still available is necessary. This parcel is the location of Captain Leroy's Excursions and the Outdoorsman. Not only does the roadway widening take a considerable amount of the total property, about 4,000 square feet of a total area of 9,200 square feet, but it also makes it impossible to provide direct access to the site off Route 6.

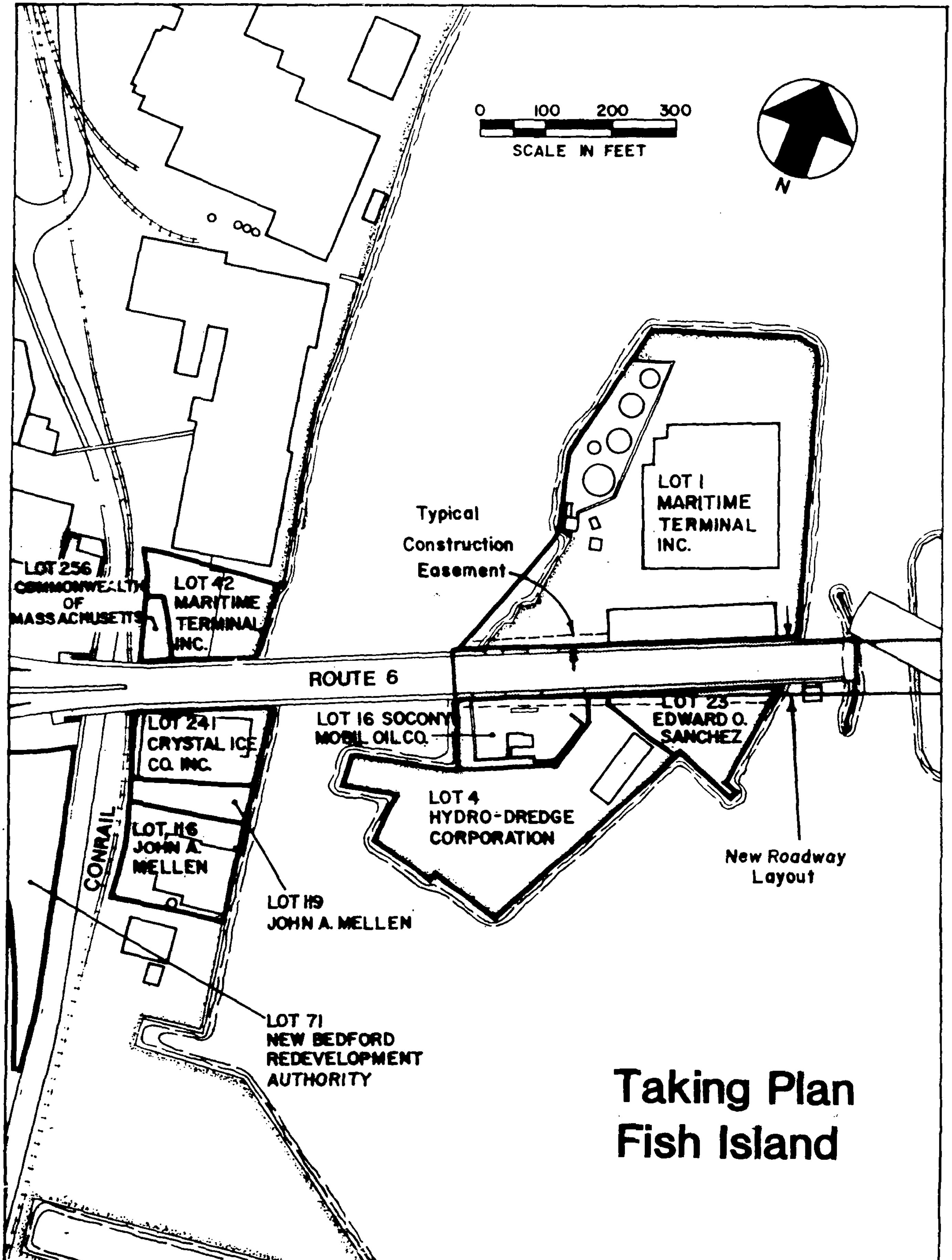
Also on Popes Island is a taking of about 20,000 square feet from Lot 2 of the City of New Bedford's Marine Park. None of the function areas of Marine Park are affected. Marine Park is public parkland and as such is protected under Section 4(f) of the Department of Transportation Act of 1966 unless there is no feasible and prudent alternative to the use of the land and all possible planning has been done to minimize harm. Section 4(f) Issues are discussed in Chapter VII.

Because only minor grade changes are involved on Fish Island and Popes Island, access conditions to all the parcels bordering Route 6 will remain essentially as they are now.

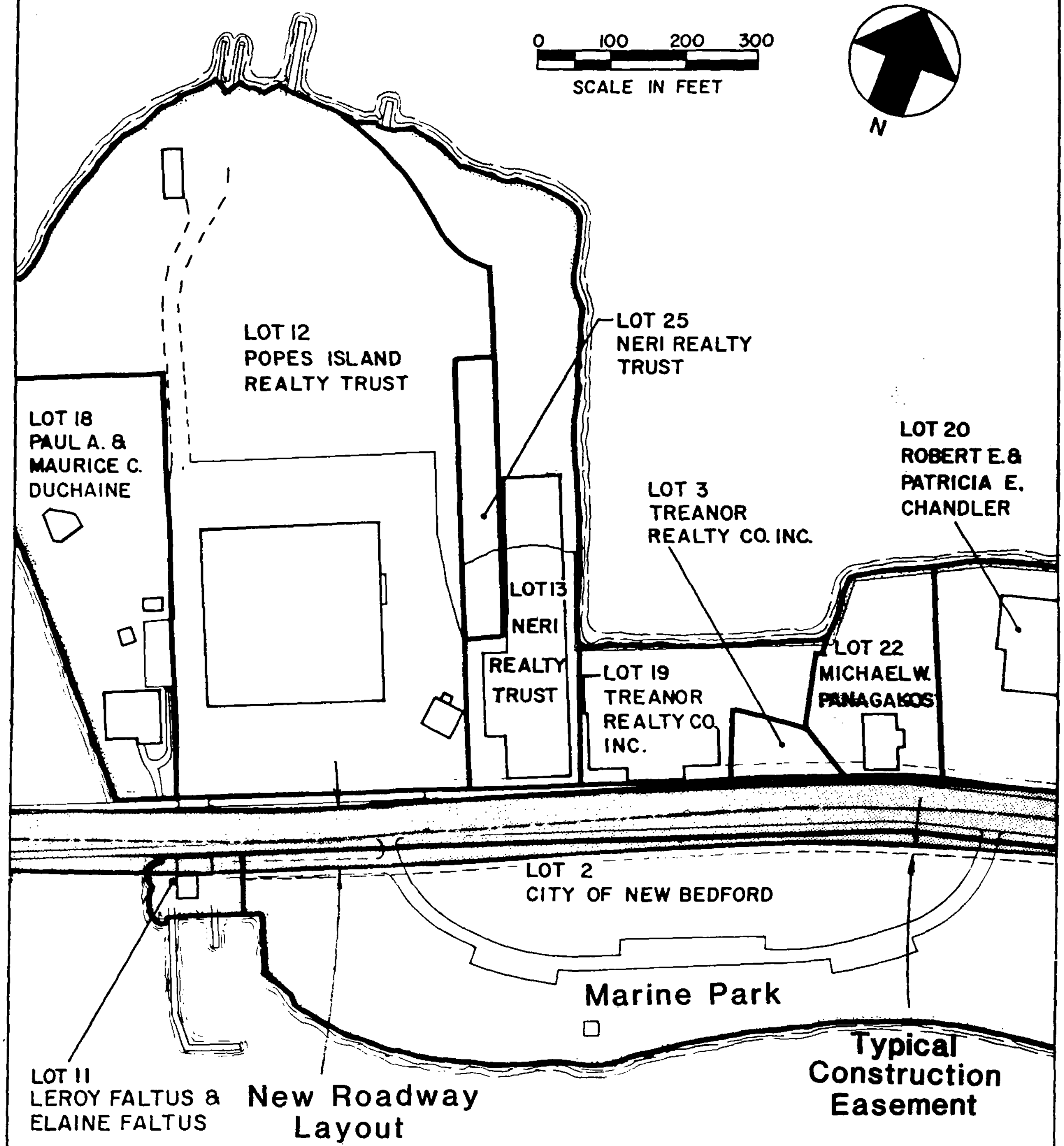
Temporary construction easements along the roadway will be required on all the parcels on Fish Island and Popes Island which border the roadway.

D. CONSTRUCTION

Building a new bridge on the existing alignment presents a particular problem in that the length of time that the roadway is closed to traffic



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 30



Taking Plan Popes Island

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 31

must be kept to a minimum. The crossing must be closed and demolition of the existing bridge structure must be underway before new construction can be started. Roadway traffic across the bridge will not resume until construction is complete and during this period roadway traffic must use alternate routes.

The entire superstructure must be removed and the foundation of the existing middle bridge must be removed to at least three feet below the existing harbor bottom. The existing center pier of the swing span is located directly in the center of the channel and must be removed in its entirety. This circular pier is forty eight feet in diameter and consists of concrete faced with granite supported on wood piles. The other bridge support piers must all be removed to at least three feet below the existing harbor bottom.

The construction of the two bascule piers present the major on-site construction task. A braced sheet pile cofferdam will be driven down to rock level at each pier location and the enclosed area will be excavated under water down to rock level. Fragmented and loose rock will be removed. Tremie seal concrete will then be placed to form an unreinforced mat and seal the bottom of the cofferdam. The interior of the cofferdam will then be pumped dry and a reinforced concrete foundation will be built over the unreinforced mat to form a level working surface. The piers can then be built of reinforced concrete in the dry by conventional means within the cofferdam.

Foundations for new abutments and intermediate piers will be founded on piles driven to rock. A braced sheet pile cofferdam will be driven to foundation level and the enclosed area will be excavated under water down to foundation level. Piles will be driven and tremie seal concrete will be placed to seal the bottom of the cofferdam. The cofferdam will then be pumped dry and the piles will be cut off immediately above the seal. The pier foundation and the piers will then be built of reinforced concrete by conventional means within the cofferdam.

Approximately 9,000 cubic yards of excavated material will be generated by the foundation excavation operation.

The new moveable bridge will be constructed over the existing shipping channel with the bascule leaves in an open position so that the channel will be clear during the entire construction period. Navigational traffic will therefore not be interrupted as a result of construction operations for any extended period.

The items requiring the longest lead time are the bascule leaves and the operating machinery. Shop drawing preparation and processing and material fabrication will probably require two full years. There will be close coordination between the Department and the construction contractor during the construction planning process. No closing of the bridge or demolition will take place before it is assured that materials will be immediately available for installation.

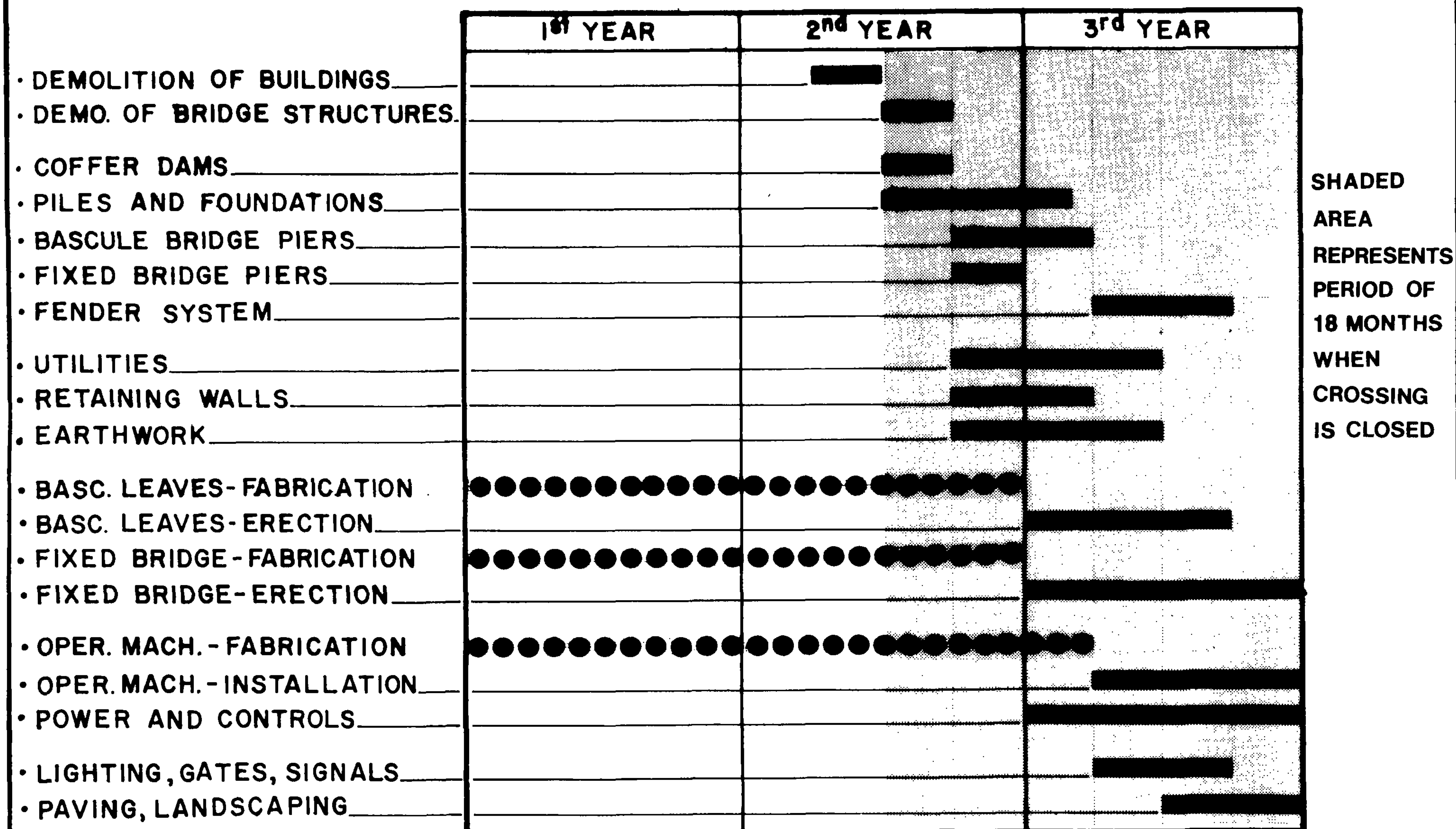
The need for channel dredging as a part of this project is the result of an early coordination comment by the Corps of Engineers in a letter of August 16, 1979 requesting that it is the responsibility of this project "to insure that the 30-foot project depth is provided throughout the area". Some of this dredging will be related to clearing the area around the center pier of the swing bridge which will be removed and some of it will be related to removing the sediment which has drifted into the channel since the last maintenance dredging operation in the harbor. There is no intention of modifying the existing alignment or width of the channel or of increasing its specified depth. Neither is this dredging expected to interfere with the numerous subaqueous utility crossings located to the south of the bridge.

It is estimated that approximately 8,000 cubic yards of excavated material will be generated by channel dredging in the immediate area of the bridge.

Activity on Fish Island and Popes Island will involve retaining walls, adjustments to existing utilities, earthwork, and paving to construct the surface level approach roadways.

The period from construction contract award to the completion of construction and bridge opening is anticipated to be approximately three years (see Figure 32). Within this period the harbor crossing would be closed to roadway traffic for at least eighteen months.

Construction Schedule



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 32

V REGIONAL IMPACTS OF THE PROPOSED ACTION

The proposed action of replacing the existing New Bedford-Fairhaven Bridge with a new bridge providing a bascule type moveable span will create specific impacts within the corridor, but it will also create wider-ranging impacts in the two communities and possibly beyond. These wider ranging impacts involve disposal of contaminated dredged material generated by bridge construction, detouring of roadway traffic over alternate routes during the construction period, areawide air quality impacts, potential wetlands impacts, continued accessibility of public facilities and services, the aesthetic and historic values of the harbor area, open space and recreational resources, use of natural resources, and the need for solid waste disposal.

A. DISPOSAL OF CONTAMINATED DREDGED MATERIAL

The Replacement of the New Bedford-Fairhaven Bridge has emerged as an unusual transportation project in that a subsidiary issue to the bridge replacement itself, namely the disposal of the relatively small amount of contaminated dredged material generated by the project, has generated more comment and more controversy than the transportation issues. The issue of how to dispose of this material has proved to be irresolvable at present because of the various conflicting criteria held by the participants in the environmental review process. *

In order to further the development of the project as a whole while accepting the fact that the issue of contaminated dredged material disposal does not appear subject to nearterm resolution, a series of technically feasible alternatives are being proposed. From these alternatives an acceptable disposal methodology will eventually be chosen to meet the needs of the bridge replacement project.

1. Dredging

Dredging for this project involves two distinct types of operations: (1) The deep excavation for bridge foundations which will take place within cofferdams and (2) the shallow dredging for channel clearing in the vicinity of the proposed bridge.

The sediment sampling done in March, April, and May of 1982 in the area of the existing bridge revealed PCB concentrations of between 1 part per million and 24 parts per million and showed that the majority of PCB's are found in the top two feet of the harbor bottom. Only trace amounts were found below this level.

a. Water Quality Impacts of Dredging

The construction of the bridge will require dredging for foundation excavation and channel clearing. During the dredging process, the concentration of suspended matter in nearby waters will increase because of the agitation and suspension of sediments.

The increased suspended load in nearby waters can create a serious threat to water quality because of the presence of heavy metals, PCB's, and organic pollutants. Resuspended PCB's tend to concentrate in organic materials, such as wood chips and oils, and form a scum on the water's surface. Because the harbor sediments contain such residual organics, PCB's will be released into the water column during the dredging process. The magnitude of this release will depend upon the amount of sediment disturbance and resuspension that takes place. re-suspension

b. Biological Impacts of Dredging

Short-term impacts associated with the dredging activities of the New Bedford-Fairhaven Bridge project include the temporary displacement or destruction of the biota at the site by the creation of turbidity plumes of variable magnitude and duration and by locally depressed oxygen levels in the water column.

Physical disruption of the harbor sediments will destroy some marine habitats. Mobile organisms, primarily finfish, will merely move to other areas within the system, possibly exerting a slight pressure on adjacent habitats. However, local finfish populations could be seriously affected if construction occurred during the spring spawning and egg maturation periods. Immobile benthic organisms which are most likely to be eliminated by dredging activities include shellfish, capitellid and spinonid worms, and crustaceans.

Turbidity plumes will decrease light penetration and thereby decrease the photosynthetic production of phytoplankton. Persistent high turbidity may ultimately affect high trophic-level organisms, including filter-feeding organisms, such as quahogs, soft-shelled clams, and bay scallops. Bay scallops are known to be very sensitive to high turbidity levels, with 50 percent 96 hour mortality at suspended sediment concentrations of 1.8 gram per liter. Polychaete worms and other deposit-feeding organisms can tolerate more turbid conditions.

Disrupting the sediments will invariably result in localized deep burial and death of infaunal species, such as polychaete worms, amphipods, and shellfish. Finfish should be able to avoid being buried. Bottom organisms inhabiting the area outside the perimeter of the turbidity plumes are not likely to be buried by resuspended sediments because of the small quantity of settling solids involved in these areas.

Re-establishment of benthic populations can occur in as few as twenty eight days. Opportunistic species such as capitellid and nepthid worms that can tolerate impoverished substrates are typically the first to recolonize perturbed marine sediments. These organisms are characterized by a few reproductions per year, low recruitment, and low death rate. Recruitment can be enhanced if the dredging occurs in late winter before the larval emergence for these species.

The long-term effects of dredging will include resuspending toxic pollutants from contaminated bottom sediments, and the bioaccummulation of these chemicals by benthic fauna, filter feeders, and demersal fish. *

c. Comparison of Dredging Methods

There are two dredging techniques that can be used: the hydraulic method or the bucket method. The bucket method can be implemented in any situation, but hydraulic dredging is usually implemented only where the dredged material can be piped to an adjacent disposal area. Also, hydraulic dredging cannot be used in material containing large stones or boulders.

Hydraulic dredging operates by suction. A cutting head discharges a mixture of water and sediment (from 80 to 90 percent water and from 10 to 20 percent sediment) into a pipe which carries it to the disposal area. While this method causes limited resuspension of material at the dredging site, it does cause a great amount of water to collect at the disposal area. The uncontrolled release of this water at the disposal site will be prevented when this method is used.

Bucket dredging is similar to normal earth excavation techniques. Material dredged with a bucket mechanism is loaded on a barge and transported either to a disposal site or to a transfer site. Here the dredged material is unloaded by crane directly into the disposal area or transferred into trucks or rail cars. Bucket dredging resuspends more material at the dredging site than hydraulic dredging. However, bucket dredging would not accumulate as much water during the process of excavating and loading as hydraulic dredging would and would therefore greatly reduce the problem of collected water at the disposal site.

d. Selection of Dredging Methods

Both types of dredging, hydraulic dredging and bucket dredging, will be involved since the dredging associated with the bridge replacement project involves two distinctly different types of operations. The first of these is the excavation for new foundations for the replacement bridge. The second of these is channel dredging in the immediate area of the bridge to assure that the specified channel depth of 30 feet is available.

Approximately 9,000 cubic yards will be produced by the foundation excavation operation mainly from the two main bascule piers on either side of the moveable section of the bridge but also from the foundations for the abutments on either shore and the foundations for any intermediate supports.

A braced sheet pile cofferdam will be driven down to rock level at each bascule pier location and the enclosed area will be excavated under water down to rock level. The abutments and intermediate support foundations will be constructed in similar fashion but excavation will not extend as deep. Because the material removal will take place in the confined area within the cofferdam, bucket dredging methods must be used.

The foundation excavation operation will take place entirely within the cofferdam and the dispersion of sediments will be confined by this solid, physical barrier. Because the cofferdam walls must be designed to allow construction in the dry once the cofferdam is pumped out, they will also be effective in preventing the dispersion of sediments.

The material bucket dredged from between the cofferdam walls would be placed directly into deck scows. The deck scows would be towed to a disposal area where the excavated material would be removed and deposited.

A quantity of approximately 8,000 cubic yards will be produced by channel dredging on either side of the bridge in the removal of sediment which has accumulated in the channel since the last maintenance dredging operation.

The removal of this sediment will take place in open waters and hydraulic dredging methods may be used. This operation has a greater potential for sediment dispersion than the foundation excavation operation because it would be uncontained. Turbidity screens are a mitigating measure to reduce the amount of sediment dispersion. suggest [illegible]

The dredged material would be transported from the dredging barge to the disposal area by a floating pipeline. The movement of the material suspended in water through the pipeline must be augmented by a booster pump if the distance to a disposal site becomes too great.

2. Disposal Methodology for Dredged Material

At least the top two feet of the harbor bottom material to be removed in the area between Fish Island and Popes Island is contaminated with PCBs. The concentrations are lower than 50 parts per million and therefore this material is not considered hazardous waste. These contaminated materials are classified as special wastes and are under the regulation of the Massachusetts Department of Environmental Quality Engineering.

It is clear that since only the top surface of the harbor bottom material is contaminated, the majority of the material excavated within the cofferdams will not be contaminated. However, there does not seem to be any assured method of segregating the contaminated material from the uncontaminated material. Therefore, the entire 17,000 cubic yards of dredged material generated by the project will be considered as special wastes and disposal methodologies will be considered on this basis.

Disposal of the dredged material in open waters, formerly a common method of disposal, is precluded because neither Massachusetts or Rhode Island have disposal sites in state waters. Spoils would not be contained in any way in an open dumping operation and both PCB and heavy metal contamination would spread.

Point dumping of materials in the ocean would result in deep burial of benthos, an increased amount of sediment deposition on outlying areas, depressed oxygen levels and increased turbidity. Some severe long-term impacts could occur from the bioaccumulation of pollutants from the sediments. These impacts would not only affect the indigenous biota around the dump site, but may include recolonizing organisms as well. A recurrence of PCB contamination of the ocean quahog populations should also be anticipated.

In studies conducted by the New York State Department of Environmental Conservation reported in Summary of Hudson River PCB Study Results, New York State Department of Environmental Conservation, Technical Paper # 51, July 1978, concerning the clean-up of PCB-contaminated sediments in the Hudson River, three methods of disposal were evaluated: Incineration, biodegradation, and engineered encapsulation. It was found that incineration of sediments was extremely expensive. The possibility of using naturally occurring microorganisms to reclaim PCB-contaminated dredged spoils was explored. It was found that sufficient information does not exist to properly assess the feasibility of biodegradation as a disposal alternate. Engineered encapsulation, or contained landfill, involving the placement of the contaminated material in a land burial facility in such a manner that it is permanently removed from man's normal environment, was found to be the most practical method of disposal. The philosophy behind encapsulation is that at some future time, when a practical method of neutralization becomes available, the contaminated material can be recovered and treated.

The two most important requirements for the encapsulation method are that the disposal site be as close to the dredging site as possible in order to minimize the exposure of the environment to PCB's and that the landfill be contained to prevent recontamination of the environment by leachate from the landfill.

A disposal site within the harbor area could satisfy the conditions for a contained landfill. A harbor location would provide the opportunity to contain the contaminated material within the existing contaminated environment and prevent exposure of other uncontaminated areas to these substances.

Two classifications of disposal sites can be identified: Land based sites and aquatic sites. A land based site implies that the material will be placed on the shore within a barrier. An aquatic site would involve filling out into the harbor behind a barrier.

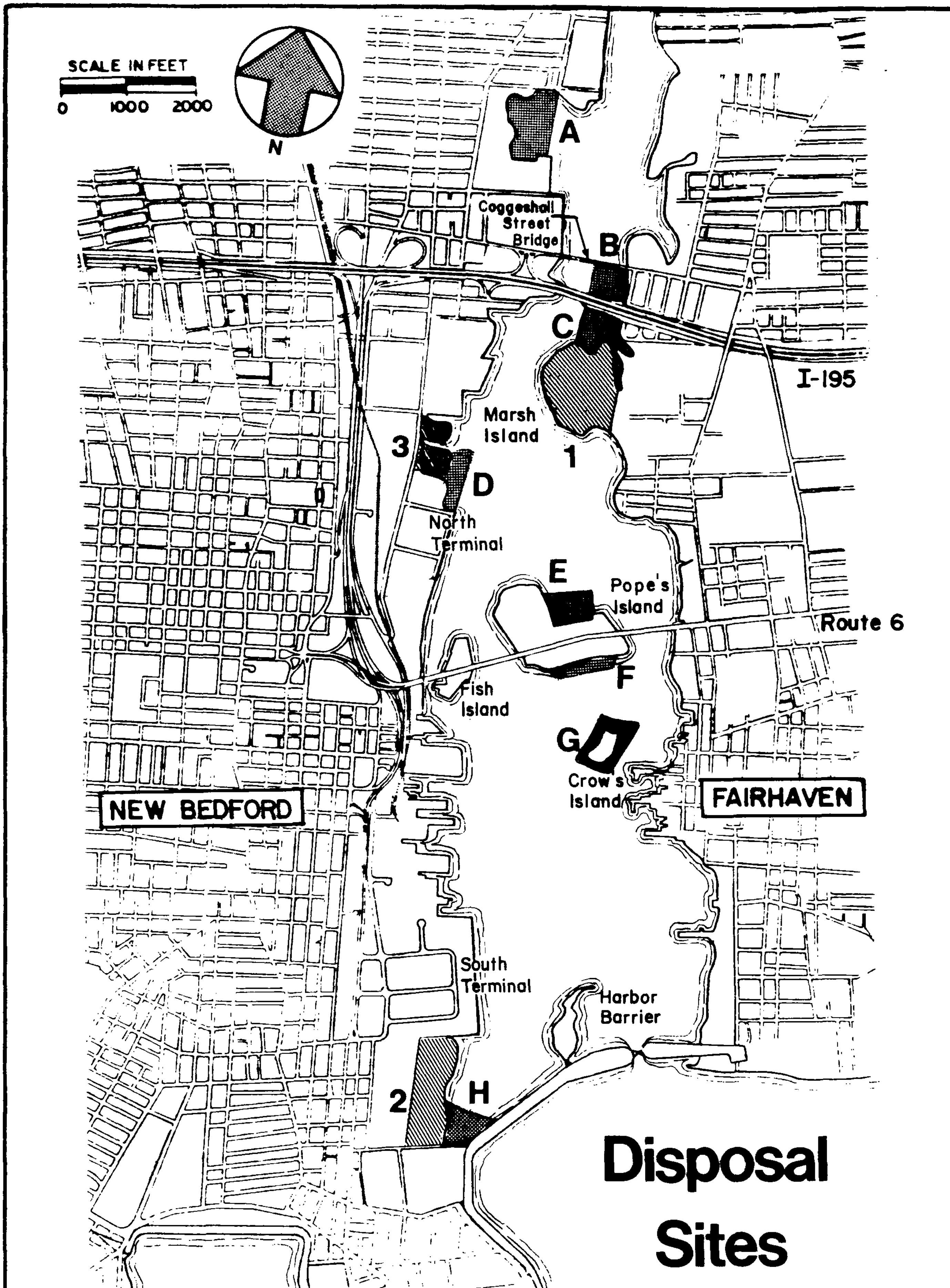
The land based sites identified are (1) Marsh Island, (2) the open space south of the South Terminal and (3) an area of dumped fill north of the North Terminal (see Figure 33). Because of the highly developed nature of the harbor area, these are the only open space areas where a landfill might be located.

All three land based sites share the disadvantage of being relatively remote from the dredging area. Since the spoils from bucket dredging must be barged to the disposal site and those from hydraulic dredging must be piped to the disposal site, the distance between the two is a factor in determining disposal site suitability. A longer pipe is more prone to breakage and can be more disruptive of traffic in the harbor.

The Marsh Island site and the area below the South Terminal share the disadvantage of being located near residential areas. The fill area north of the North Terminal is adjacent to a marine industrial area.

Several aquatic sites within the harbor were identified and these are shown as sites A through H (see Figure 33). All sites are within the contaminated harbor environment.

As for the land-based sites, locations closer to the dredging operation would be preferred because of the shorter time in which the contaminated materials would be exposed to the environment. Sites E, F, and G have



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 33

advantages in this regard but the remaining aquatic sites are, in general, no better than the land based sites in terms of distance from the dredging site. Site F has the disadvantage of being adjacent to a recreational area.

According to existing sediment data, much of the dredged material will be organic soil. This material would not be suitable for the support of buildings or any type of structure susceptible to damage from settlement.

The major disadvantage of the aquatic site is the loss of aquatic habitat which is caused by filling. As stated by the Fish and Wildlife Service in their letter of November 8, 1979 "If the material is placed in an aquatic setting, the area will be forever lost to the aquatic ecosystems".

a. <u>Feasible Disposal Options</u>

Discussions with agencies and the public conducted on the use of an encapsulated disposal area on Marsh Island, as was originally proposed as a definite course of action, indicate that it would be preferable to present a number of alternative disposal methods using both land based and aquatic sites. Since the number of approvals is so great, it would be unwise to base the entire project's progress on a single disposal methodology which may possibly be rejected at some point in the permitting process.

The following disposal methodology options are proposed:

1) Use of a disposal site established by the Environmental Protection Agency for the overall harbor clean-up program.

2) Use of a concrete chamber underneath the proposed roadway and located completely on state property.

3) Use of a diked aquatic disposal site for an encapsulation area on the north side of Popes Island (Site E on Figure 33).

4) Use of an upland disposal site for an encapsulation area at the North Terminal (Site 3 on Figure 33).

5) Use of an upland disposal site for an encapsulation area on Marsh Island (Site 1 on Figure 33).

6) Use of solidification, incineration, neutralization, light activated reduction, or some other process which may emerge as a practical disposal method in the interim period between publication of the environmental document and the beginning of the permitting process.

The Department's order of preference among currently feasible alternatives is as follows: The EPA disposal site, an upland site at North Terminal, an upland site on Marsh Island, a diked aquatic disposal site at Popes Island, and a concrete chamber underneath the roadway.

b. <u>Use of an EPA Established Disposal Site</u>

Under the Environmental Protection Agency's "Superfund" responsibility for the cleanup of the Acushnet River Estuary, a "fast-track" study was undertaken to deal with PCB "hot spots" north of the Coggeshall Street Bridge which pose a risk to public health. The following report has been produced as part of that study:

Draft Feasibility Study of Remedial Action Alternatives, Acushnet River Estuary Above Coggeshall Street Bridge, New Bedford Site, Bristol County, Massachusetts, EPA Work Assignment Number 18-1L43, Contract Number 68-01-6699, NUS Project No. 0725.16, August 1984.

The area of work of the New Bedford-Fairhaven Bridge is about a mile south of the Coggeshall Street Bridge and is therefore well out of the area considered in the "hot spot" study. Also, the PCB concentrations in the New Bedford-Fairhaven Bridge Construction area, at less than 50 parts per million, are not anywhere near as great as the concentrations in the areas above the Coggeshall Street Bridge where PCB concentrations range from 1,000 parts per million to over 100,000 parts per million.

The presence of PCBs in the New Bedford-Fairhaven Bridge construction area, even at lower concentrations, makes special dredged material disposal procedures necessary and it is hoped that the PCB "hot spot" study will provide some guidance in how to deal with the problem. The most promising solution to the New Bedford-Fairhaven Bridge dredged material disposal problem is to incorporate the disposal of the relatively small amount of dredged material generated by the New Bedford-Fairhaven Bridge project with the material being handled as part of the PCB "hot spot" clean-up operation north of the Coggeshall Street Bridge.

As might be expected, the Draft Feasibility Study finds that there is no single solution alternative that is free of serious constraints and impacts. The choice has, however, been narrowed down to four "Remedial Action Alternatives" as follows:

1) Hydraulic Control with Sediment Capping involves the construction of a lined earth and rockfill channel for the river in order to isolate the contaminated sediments from the resuspension and transport action of the river flow. The Harbor bottom outside the channel will be covered with clean sediments. Under this alternative the existing shallow water wetlands along the shoreline will be permanently lost.

2) Dredging with Disposal in a Partially Lined, In-Harbor Containment Site involves the construction of lined earth embankment walls, pumping of the contaminated sediment to a sixty acre containment area, treatment of the supernatant water, and capping of the containment site. The area occupied by the containment site will be permanently lost to any future use.

3) Dredging with Disposal in a Fully Lined, In-Harbor Containment Site involves a similar sequence to the construction of the partially lined containment site with the addition of removing the sediments beneath the proposed containment site, dewatering the site, and the placement of a membrane barrier at the bottom of the site. The area occupied by the containment site will be permanently lost to any future use.

4) Dredging with Disposal in an Upland Containment Site involves pumping of the sediments to a temporary containment site, dewatering, and transfer to trucks for transportation to the upland disposal site. Of course, this approach requires introducing the contaminated material problem into a new area.

The last three alternatives all involve the creation of either a temporary or permanent containment site in the area north of the Coggeshall Street Bridge. Because of the large volume of contaminated sediment involved in the remedial program, the containment area will be in operation for quite some time. The contaminated material being hydraulically dredged as part of the New Bedford-Fairhaven Bridge project could be transported beyond the Coggeshall Street Bridge to be deposited in the containment area along with the contaminated material from the "hot spots".

The operation north of the Coggeshall Street Bridge requires a sediment dispersal control structure at the opening in the Coggeshall Street Bridge embankment. The structure consists of a double sheet piling wall filled with earth and projecting up to mean low tide level. This structure is backed up by a buoyed double silt curtain projecting ten feet below water level. This system would act as a barrier for movement of dredged material from the bridge site. Double handling of bucket dredged material in deck scows and booster pumping of hydraulically dredged material in a pipeline would be necessary.

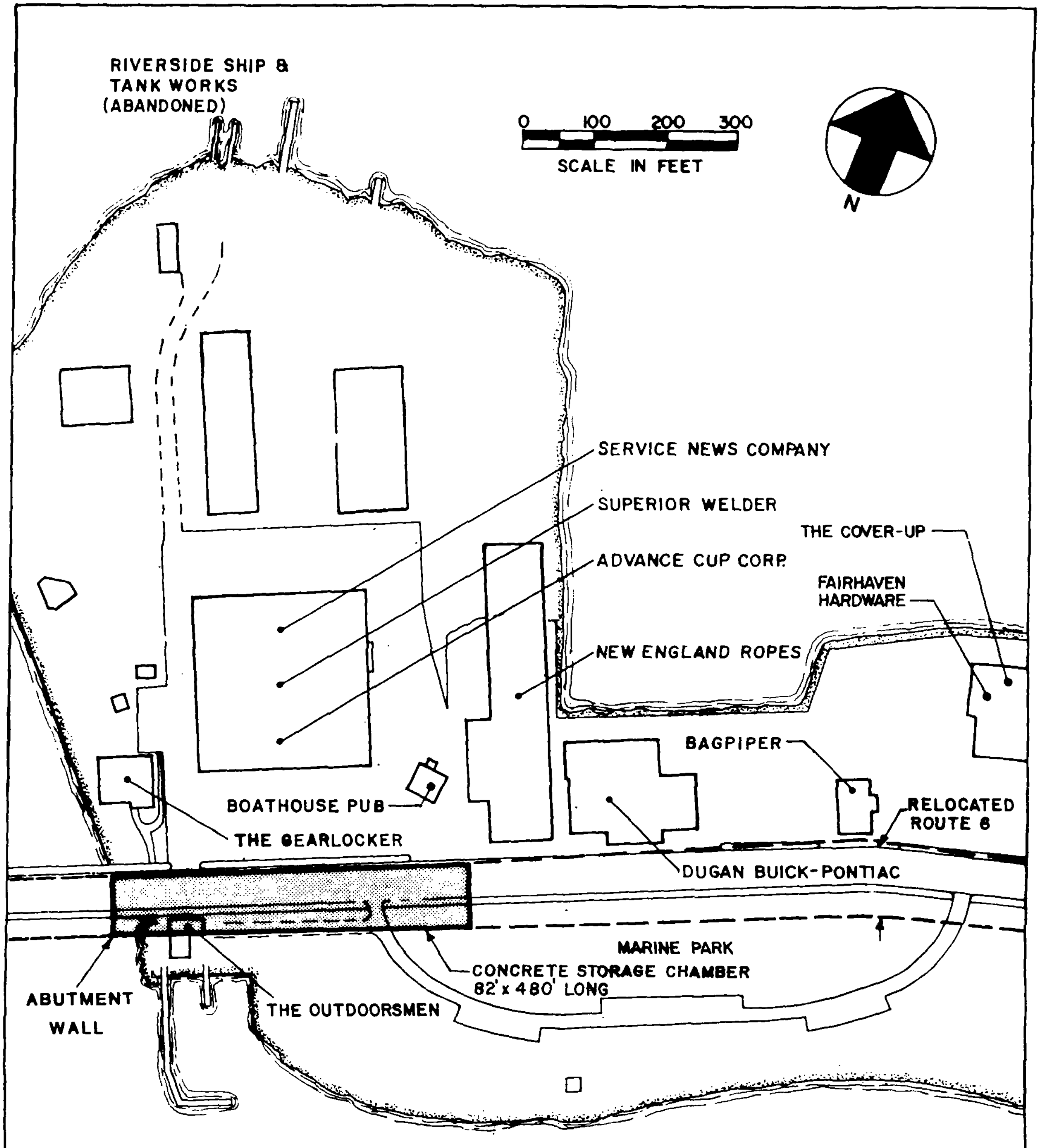
c. Use of a Concrete Chamber Beneath the Proposed Roadway

At a meeting of August 2, 1984, representatives of the Executive Office of Environmental Affairs suggested that the concept of a permanent concrete storage chamber underneath the roadway be investigated. In their opinion, the roadway itself would make an ideal cap and the problems of both selecting a disposal site and of the need for landtaking away from the area of the project would be eliminated. The U. S. Fish and Wildlife Service, in a letter of December 21, 1984, also urged that this approach be considered.

A storage chamber underneath the roadway, which would occupy the full roadway width of eighty two feet and would provide a volume sufficient for the 17,000 cubic yards of dredged material, would be approximately 480 feet long. The chamber would therefore extend over about one third of the length of Popes Island (see Figure 34).

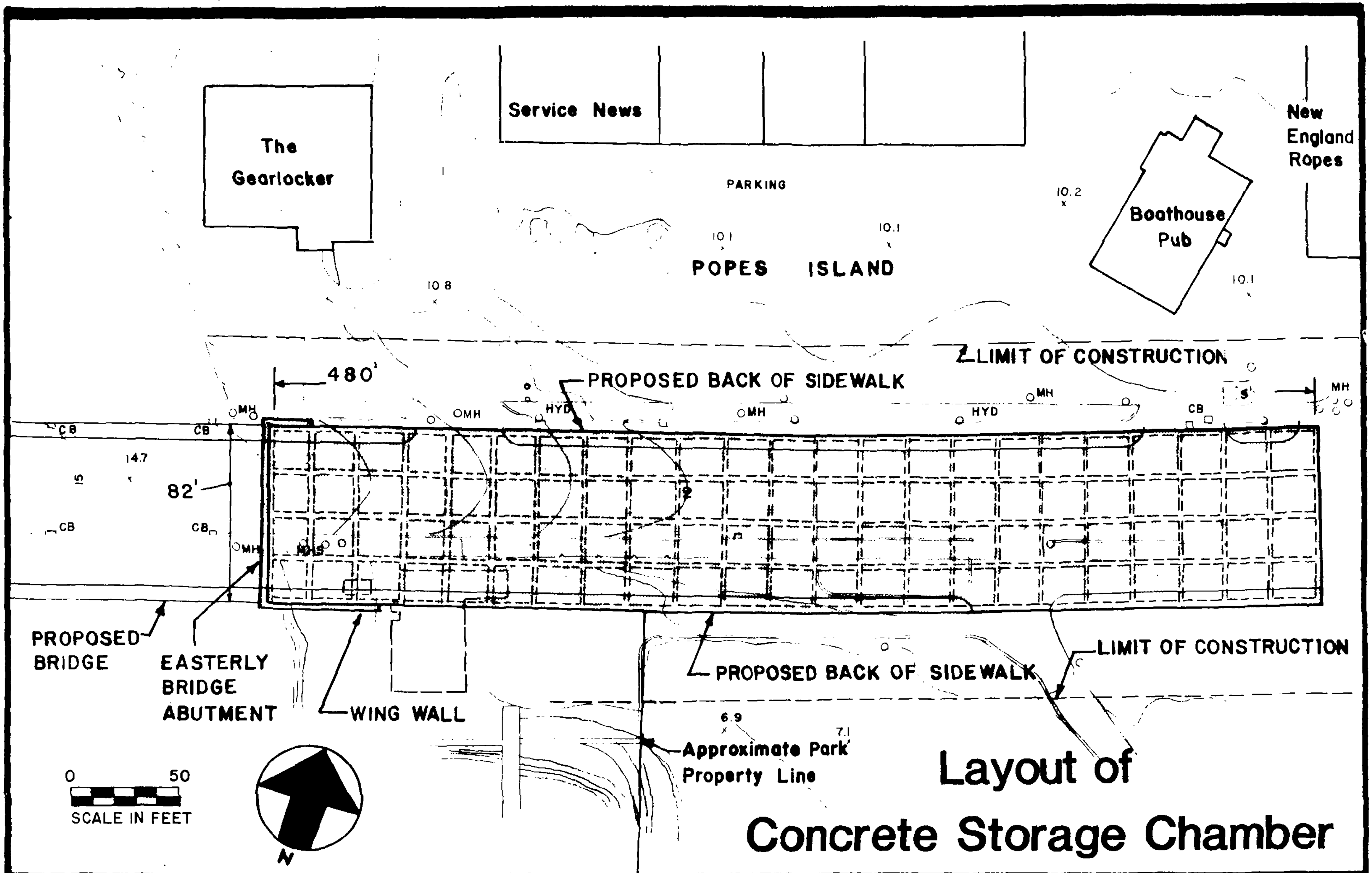
The chamber would be made up of cells about 20 foot square which would support the roadway slab above (see Figure 35). To accommodate the volume of dredged material which must be stored, the chamber must extend downward to a depth of ten feet below sea level, well below the water table on Popes Island (see Figure 36). The walls forming the cells and supporting the roadway slab would be founded on continuous footings. The area between the footings would receive a sand base to provide a surface for placing an impermeable plastic liner to isolate the dredged material from its surroundings.

Because the bottom of the storage chamber will be below the water table, the area must be dewatered during construction. A pipe venting system to the surface must be provided to allow for possible gas build-up in the dredged material.



Location of Concrete Storage Chamber

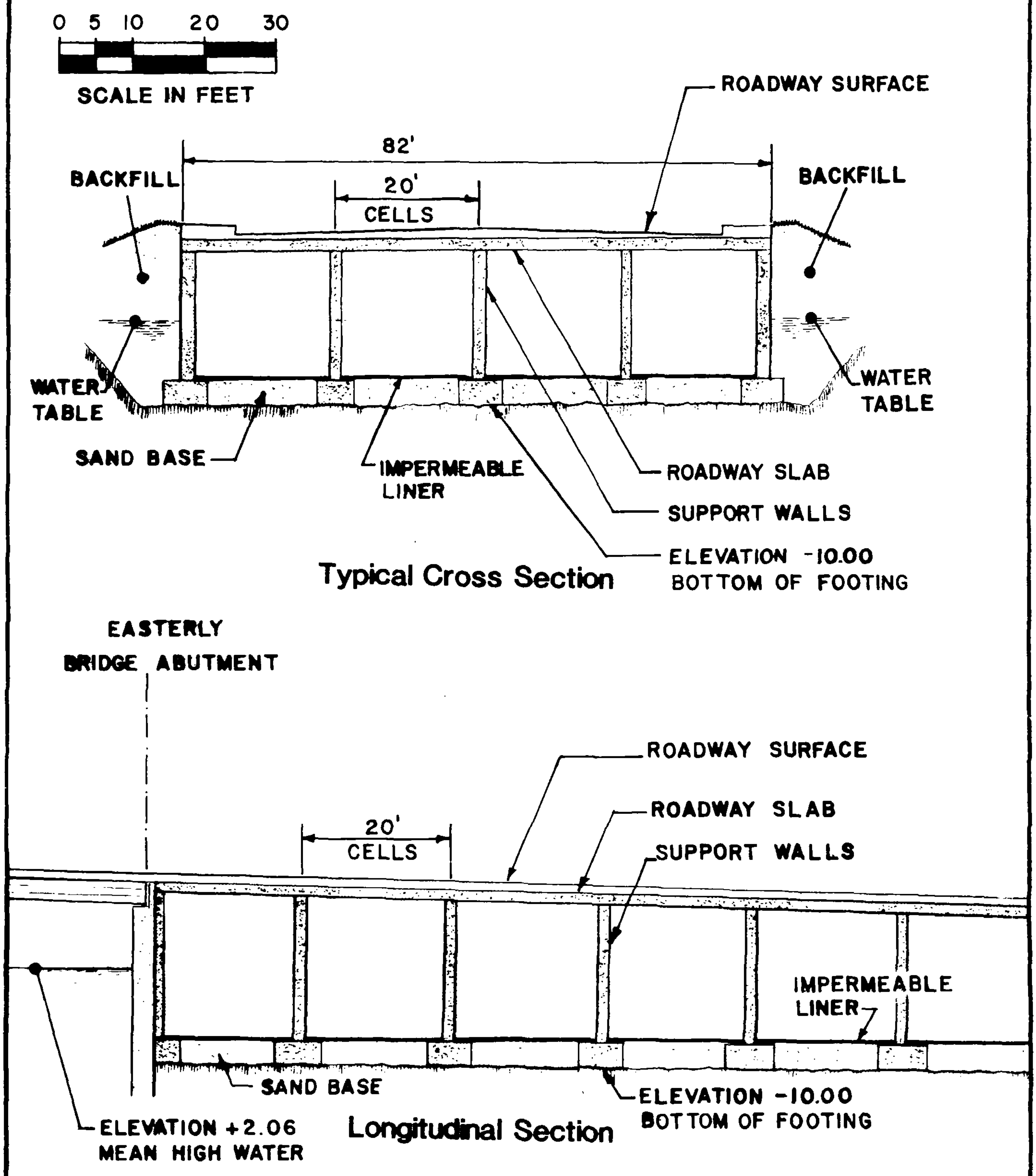
NEW BEDFORD-FAIRHAVEN BRIDGE **FIGURE 34**



Layout of Concrete Storage Chamber

NEW BEDFORD-FAIRHAVEN BRIDGE

FIGURE 35



Sections of Concrete Storage Chamber

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 36

The chamber when complete will essentially be a structure that supports the roadway above. It is assumed that the dredged material to be placed in the chamber, which will probably include silt and rubble, will have no significant load bearing capacity.

The chamber, when complete, will only occupy the limits of the roadway. However, during construction, the area disrupted by excavation will extend to either side of the roadway limits. Utilities which are currently under the roadway would not be able to pass through the chamber and would have to be rerouted into a permanent utility easement running parallel to the roadway. These utilities include a water line, an electric line, a telephone line, and a gas line. Roadway drainage structures would also have to be offset beyond the outside limits of the chamber. An easement to the north of the roadway would be necessary to maintain access to some of the businesses on Popes Island during construction.

d. Use of a Diked Aquatic Disposal Site on the North Side of Popes Island

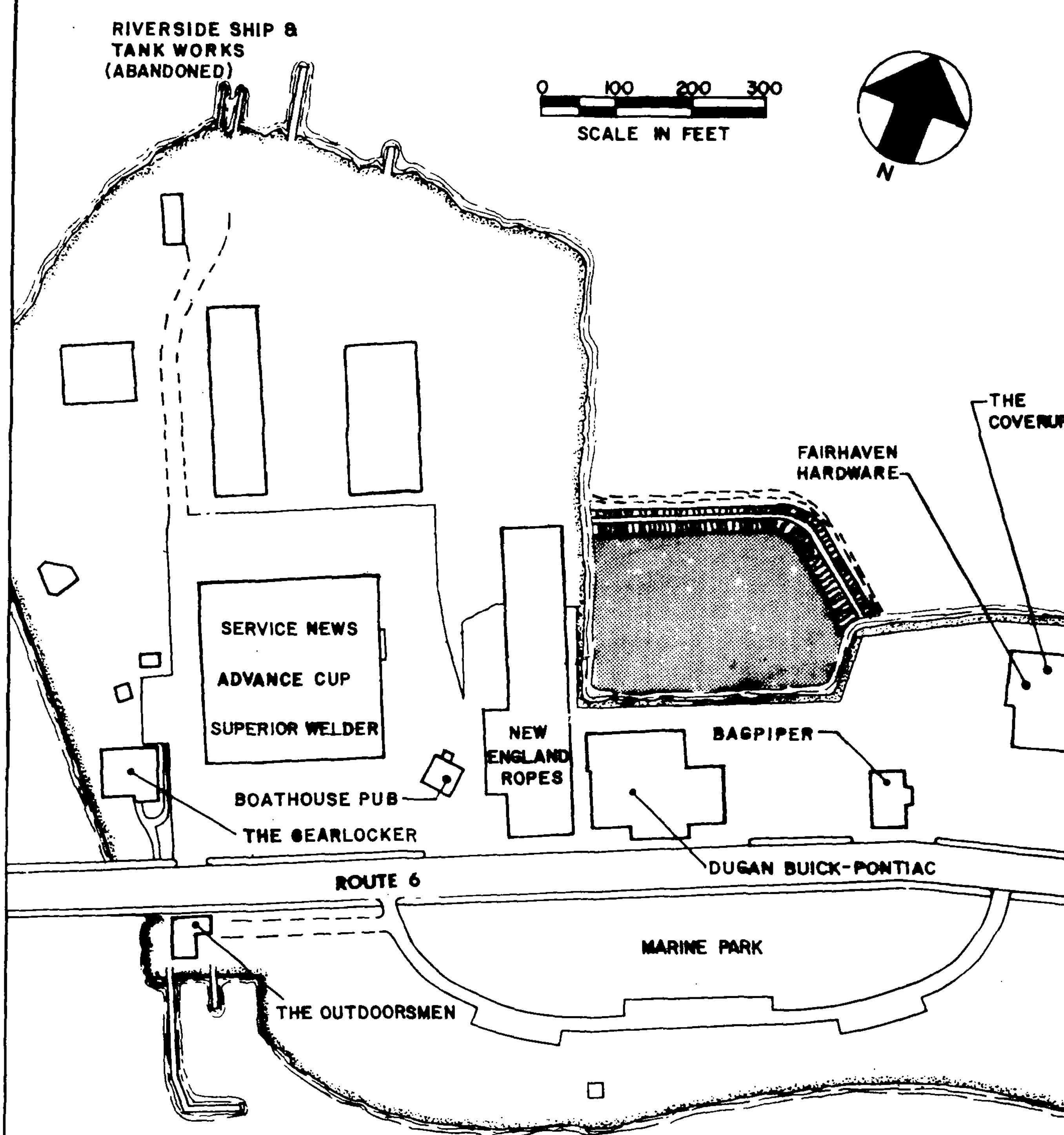
A disposal area located to the north side of Popes Island would have the advantages of being relatively close to the bridge site, of being adjacent to only commercial and industrial property, and of being relatively isolated from the centers of both communities. This site, previously referred to as Site E, would involve filling in almost two acres of shallow harbor area within a corner formed by the shores of Popes Island (see Figure 37).

Construction would involve placement of a sand blanket in the water to provide a bearing surface, formation of an earth dike to enclose a volume sufficient for the 17,000 cubic yards of dredged material, and a placement of rip rap on the seaward face of the dike (see Figures 38 and 39). The area within the dike would then be pumped dry and lined to receive the contaminated dredged material. The area must be dewatered during construction. A pipe venting system to the surface must be provided to allow for possible gas buildup in the dredged material.

When the material disposal operation is complete, the area will be capped off with sand layers and liner. The final grades will be flush with the top of the dike on the seaward side and the existing grades on the landward side in order to blend in with the overall appearance of Popes Island. A mounded disposal area would not be appropriate here.

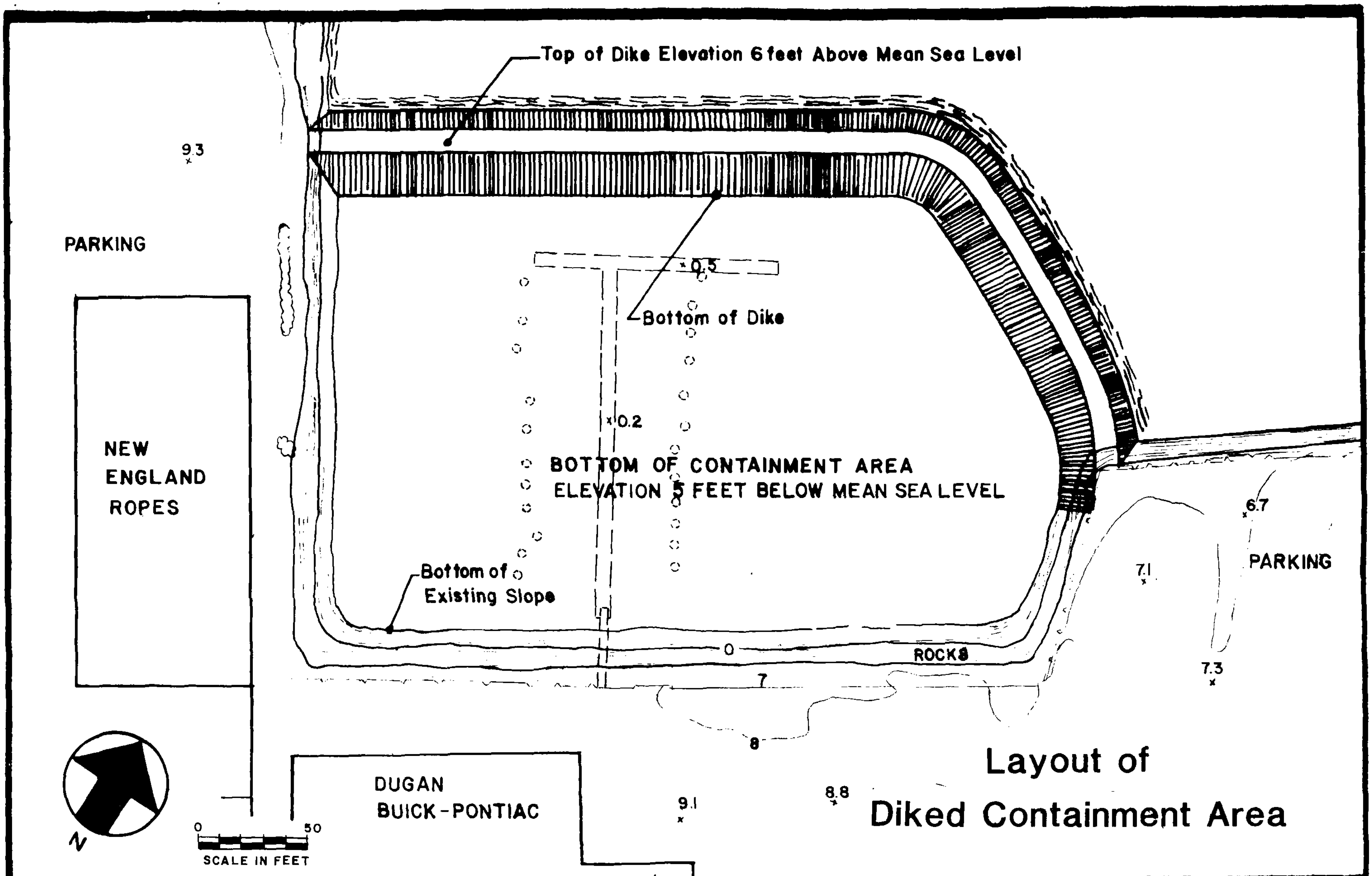
The disadvantages of the use of this site are the elimination of an existing boat dock on the site and the elimination of approximately two acres of aquatic environment. It is possible that the boat dock could be reconstructed at the dike.

Because of the area's location at an interior corner of Popes Island, the affect of the filling on harbor currents and circulation will probably be minimal. The sloped rip rap facing will duplicate the nature of the existing shoreline which is more amenable to aquatic life than a vertical barrier.



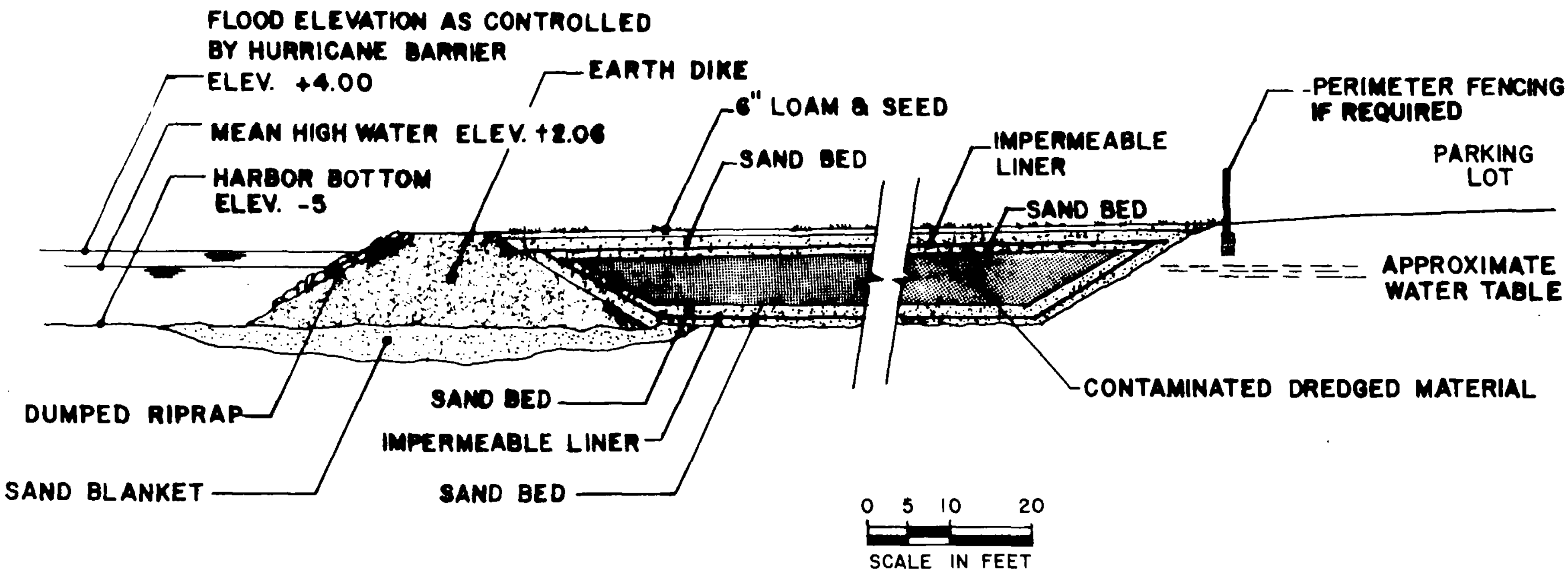
Location of Diked Containment Area

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 37



Layout of Diked Containment Area

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 38



Section Through Dike Containment Area

Looking East

e. Use of an Upland Disposal Site at North Terminal

An area of solid fill is located to the north of the North Terminal area. This fill had been placed in anticipation of the eventual expansion of the North Terminal marine related commercial and industrial activities. This fill area is considered "unauthorized" by the Corps of Engineers because it was placed without a Department of the Army permit.

A section of this unauthorized fill, three acres located immediately adjacent to the presently developed section of the North Terminal, was recently included in a Department of the Army Permit, No. MA-NEBS-84-194, for the development of a barge transfer facility by the R. M. Packer Company on land leased from the New Bedford Harbor Development Commission. The development of the R. M. Packer barge transfer facility at the North Terminal involved the dredging and storage of PCB contaminated harbor bottom material in an underground encapsulation area on the upland portion of the site.

This disposal option for the contaminated material generated by the bridge project provides for a below ground disposal area similar to that used at the R. M. Packer Site on the existing solid fill to the north (see Figure 40).

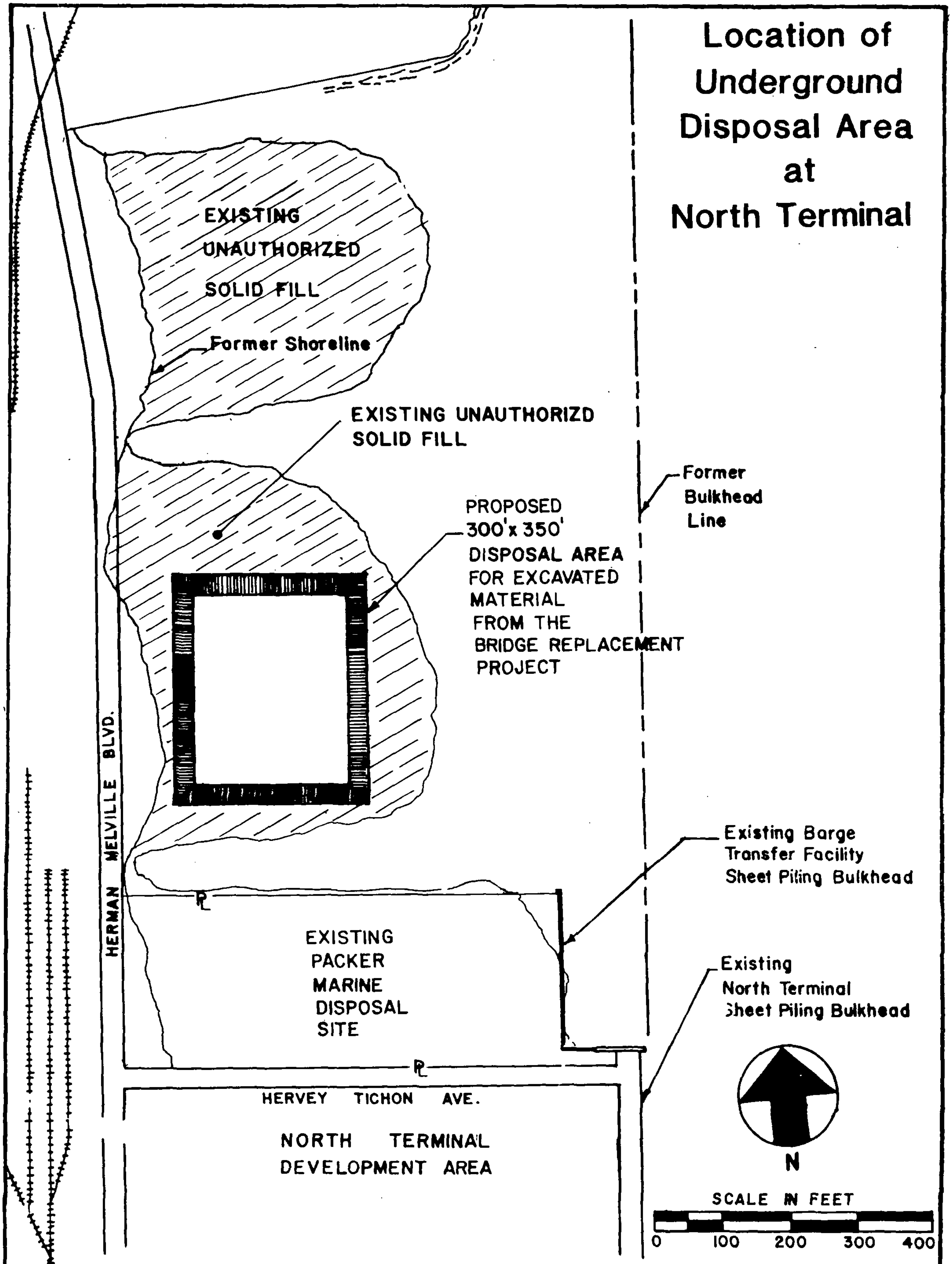
The operation would involve the levelling and grading of the existing fill site, dewatering, excavation to about ten feet below surface level to provide a volume sufficient for the 17,000 cubic yards of dredged material, lining of the depression with sand and impermeable liner, and placement of the contaminated dredged material (see Figure 41). The size of the depression necessary to accommodate the material generated by the New Bedford-Fairhaven Bridge project would be roughly 350 feet by 300 feet, about two and a half acres. The bottom of this depression would be below the natural water table. A pipe venting system to the surface must be provided to allow for possible gas build-up in the dredged material.

The material removed from the area to create the depression would be contamination free since the origin of the fill is not from the harbor but mainly from demolition related rubble. The material removed can therefore be relocated to another area without special precautions.

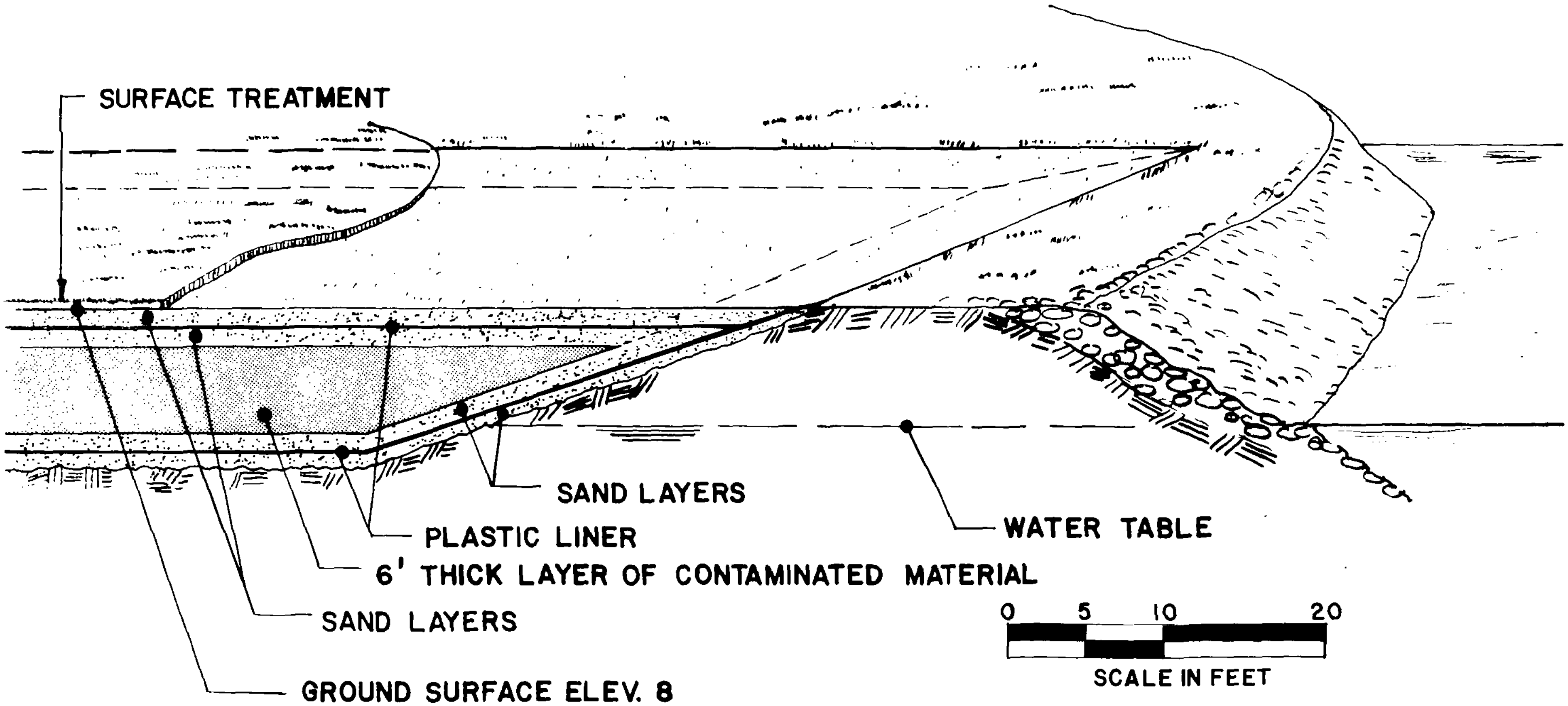
The existing fill area and the disposal area would be graded to create a level area that could receive a surface treatment to allow for some future use. The area would be adjacent to the waterfront frontage road but the shoreline would be unimproved from its present condition.

The creation of the below ground disposal area would necessitate no incursion into the harbor beyond the existing shoreline. However, use of this area will probably necessitate an application for a Department of the Army Permit to obtain acceptance of this presently unauthorized fill area.

Use of both unauthorized solid fill sites for disposal would allow for two more shallow disposal areas that would not necessitate going below the water table.



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 40



Section Through Underground Disposal Area

Looking North

NEW BEDFORD-FAIRHAVEN BRIDGE

FIGURE 41

f. Use of an Upland Disposal Site on Marsh Island

Marsh Island is a 30 acre peninsula in the northeast corner of the harbor and is part of Fairhaven. Access to the site is only available through residential streets in Fairhaven. The topography of the site is distinguished by ledge outcroppings on the western end and a three acre marsh area in the northeast corner. The entire area is owned by Your Good Neighbor Station, Inc. and is vacant except for two radio communication towers at the south side of the property.

Marsh Island, because of its large size and relative isolation, provides an area in which an above ground disposal area can be constructed (see Figure 42). Such a disposal area would allow for placement above the existing ground level so that proximity to the water table would be avoided. In order to accommodate the 17,000 cubic yards of material generated by the New Bedford-Fairhaven Bridge project, the mound would have to occupy an area about three hundred feet by four hundred feet, or almost three acres, and be about eighteen feet high.

The containment area would be formed by lined earth dikes within which the contaminated material would be placed (see Figure 43). At the completion of the placement of the material, the containment area will be capped (see Figure 44). Topsoil and seed on the relatively flat slopes will give the mound a more natural appearance. A pipe venting system to the surface must be provided to allow for possible gas build-up in the dredged material.

There is no apparent reuse of this area that would be a mitigation measure. Marsh Island would remain a relatively isolated, underutilized open space as it is now.

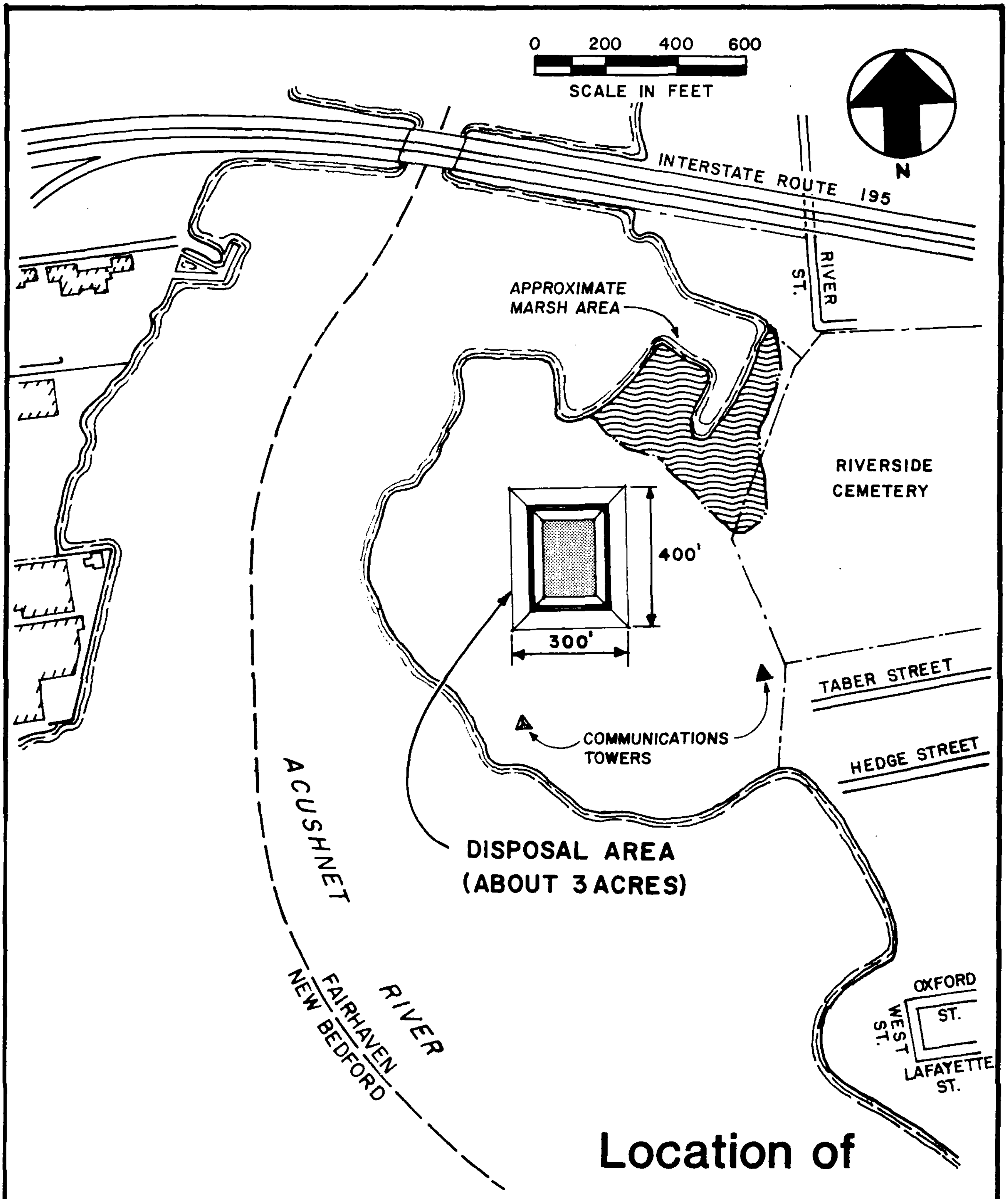
g. Use of Some Other Presently Infeasible Process

The Draft Feasibility Study of Remedial Action Alternatives, Acushnet River Estuary Above Coggeshall Street Bridge discusses numerous treatment methodologies, such as incineration, chemical destruction, and biodegradation, which hold promise as remedial action technologies but are not currently feasible for treatment of dredged materials. Any of these, or some other methodology not as yet considered, may emerge as a practical disposal method prior to the beginning of the permitting process of the New Bedford-Fairhaven Bridge Replacement project.

h. Methodology for Dealing with Runoff from the Disposal Area

The methodologies proposed for contaminated material disposal generally have in common a need to handle the runoff which will be generated by the wet dredged material and returned to the harbor.

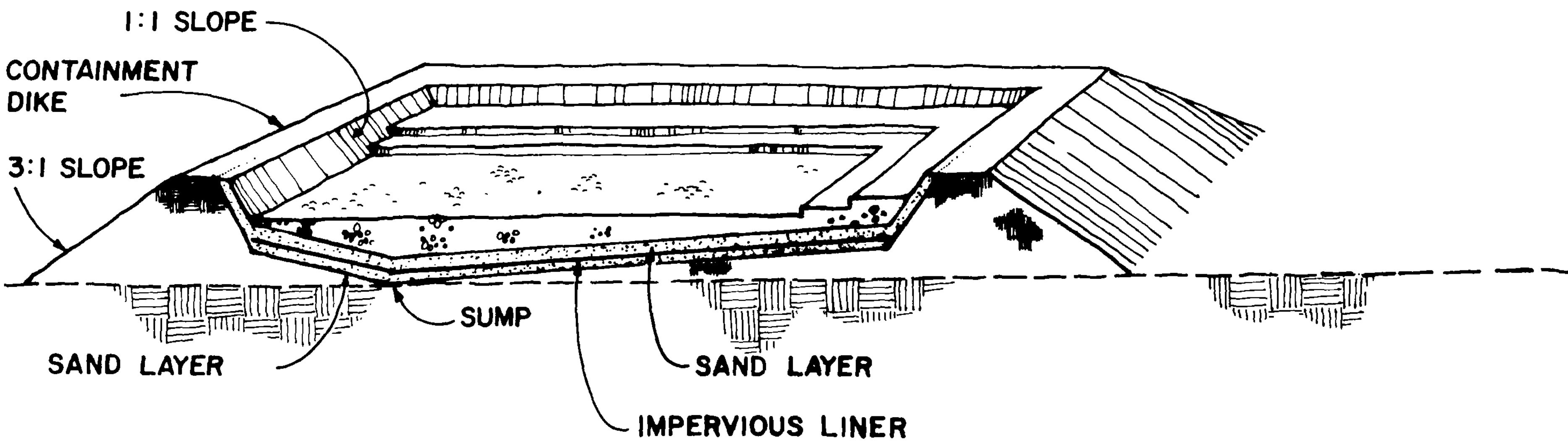
The overall cleanup of the area of the harbor above the Coggeshall Street Bridge proposes the use of containment areas and therefore the same type of problem of runoff control and treatment must be dealt with (Of course, PCB concentrations in this dredged material will generally be much greater than those which will be experienced from the dredged material associated with the New Bedford-Fairhaven Bridge project). The Draft Feasibility Study of



Location of Upland Disposal Site on Marsh Island

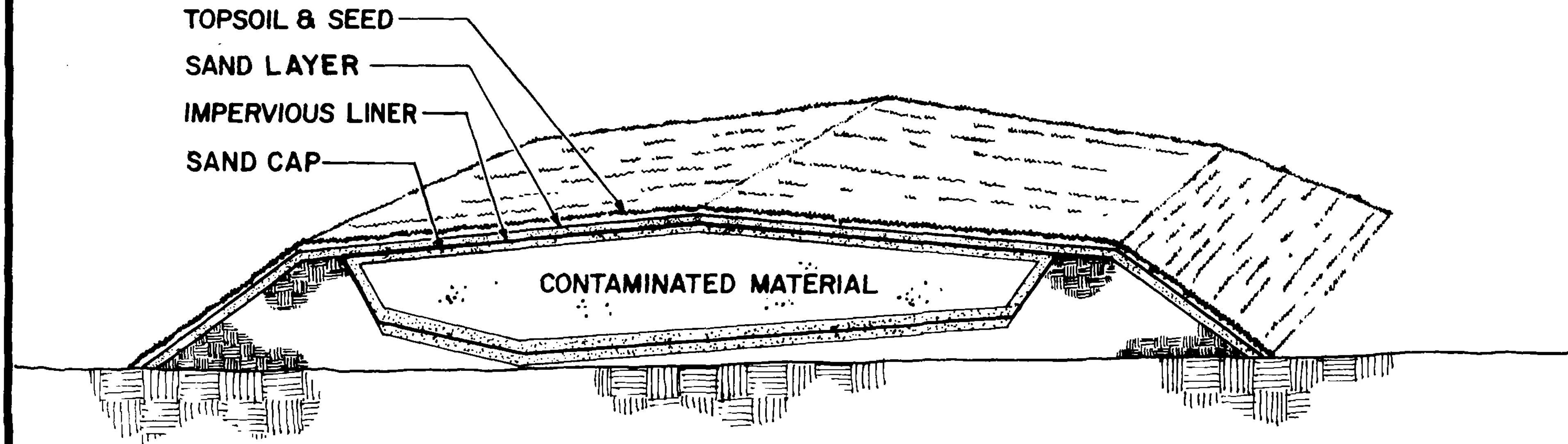
NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 42

Section Through Upland Disposal Site on Marsh Island–In Operation



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 43

Section Through Upland Disposal Site on Marsh Island–Completed



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 44

Remedial Action Alternatives, Acushnet River Estuary Above Coggeshall Street Bridge, identifies two types of water for which control and treatment will be necessary:

1) Surface water within the containment sites which was originally a portion of the harbor water body, and was subsequently trapped upon construction of the containment site.

2) Supernatant water from the dewatering of the dredge spoils.

Since both these types of water will potentially contain sediment particles to which PCBs have adhered, treatment is proposed for both types of water. The report further states:

"...all of the water will be decanted from the surface of the containment site and transferred by pumps and pipeline to a treatment plant. The major components of the treatment plant will include a flow equalization tank, chemical addition tank, clarifier, and filters filled with Klensorb and activated carbon..."

The much smaller scale R. M. Packer project carried out in the North Terminal area also involved the handling of runoff from a disposal area. Approximately 1,500 cubic yards of contaminated dredged spoils with PCB concentrations of as high as 24 parts per million were involved.

Runoff from this disposal area operation escaped through a channel with a 30 inch depth of sand to act as a filter. A series of staked filter cloths were placed across the width of the channel in order to filter out particulates in the effluent. The conditions of the operation were that a monitoring system assess the quantity of PCBs in the discharge and if the effluent concentration exceeded the ambient concentration by greater than 1.5 times then additional filter cloths were to be used.

The scale of the New Bedford-Fairhaven bridge replacement project both in terms of the amount of material generated and the PCB concentrations involved is far closer to the R. M. Packer project than that of the overall harbor cleanup. The methodology to be used for this project will therefore involve a runoff through a filtering system under the same requirements and conditions as that of the R. M. Packer project.

The operation of foundation excavation, one of the earliest tasks in the project, will generate bucket dredged material which will have a relatively low water content. The channel dredging, probably one of the last tasks of the project, will generate hydraulically dredged material having a very high water content. A simple calculation for a possible case can be roughly diagnostic of the nature of the effluent from the disposal area generated by the hydraulic dredging operation. The sediments being brought to the disposal area contain PCBs at concentrations of 24 parts per million at most. The slurry that constitutes the hydraulic dredge spoil will be at least 80 percent water. If all the PCBs moved to the water fraction, the PCB concentration in the water would be on the order of 6 parts per million at the most. Of course, not all the PCBs will move into the water, and it is estimated that a large percentage of those that do move into the water will settle out. The effluent PCB concentration after settling in the disposal area and moving through the filter system is thus almost certain to be less than 1 part per million.

i. Control of Airborne PCBs

PCBs are known to become airborne. Since the dredge material will be wet when transported to the encapsulation area and the material will constantly be covered by new wet material, the potential for volatilization will be reduced. In L. Hetling, E. Horn, and J. Tofflemire, Summary of Hudson River PCB Study Results, Technical Paper #51, New York State Department of Environmental Conservation, Revised July 1978, it was reported that "Dredge spoil appears to be a much weaker source of PCBs to the atmosphere than the landfills or the manufacturing facilities, but do constitute a definite source at least when recently dredged" and "...organic particulate matter strongly absorbs PCBs and retards the rate of evaporation from water".

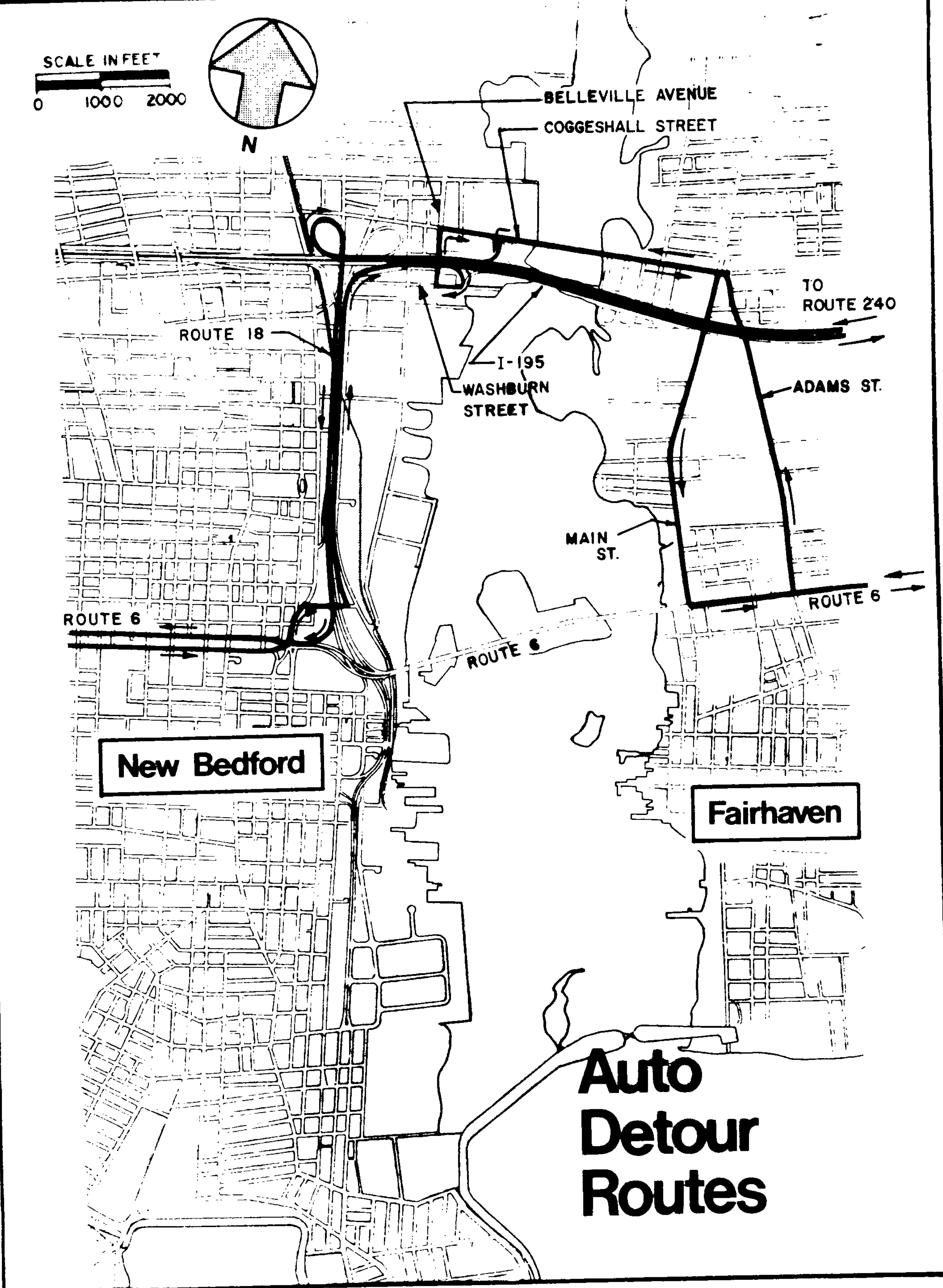
It would be advisable to complete the disposal operation as quickly as possible to limit the potential of PCB volatilization. But, while each of the two dredging operations might be completed quickly as individual operations, the fact that the foundation excavation operation comes towards the beginning of the project and the channel clearing operation comes near the end of the project implies that the disposal area will have to be open for a year or more. An impermeable liner placed over the material dredged during the foundation excavation operation may be an effective means of preventing volatilization until the material from the channel clearing operation can be placed in the disposal area and the final cap can be placed. Any runoff from the disposal area in this interim period would have to continue to be channeled through the filter system.

B. DETOURING OF ROADWAY TRAFFIC DURING CONSTRUCTION

During construction roadway traffic between New Bedford and Fairhaven will be detoured across the Coggeshall Street Bridge and the Interstate 195 Bridge. Traffic can continue to reach Popes Island from the Fairhaven side over the East Bridge and to reach Fish Island from the New Bedford side over the West Bridge, but the connection between the two islands will be eliminated.

On the New Bedford side of the harbor, traffic coming from the west on Route 6 will be detoured north to the Interstate Route 195 Bridge or the Coggeshall Street Bridge by way of Route 18 (see Figure 45). The detour route will continue easterly across the harbor either by staying on Interstate Route 195 and continuing to Route 240 or by turning off at the Washburn Street exit, turning right onto Belleville Street, and then onto Coggeshall Street. This maneuver will enable detoured traffic to avoid the congested area at the intersection of Route 18 and Coggeshall Street.

On the Fairhaven side, Main Street and Adams Street are proposed as detour routes that will provide more direct access to Fairhaven Center and the section of Route 6 in Fairhaven west of Route 240. Use of Interstate Route 195 and Route 240 provides a good route for through traffic but leaves large portions of Fairhaven relatively inaccessible from New Bedford.



NEW BEDFORD-FAIRHAVEN BRIDGE

FIGURE 45

After crossing the Coggeshall Street Bridge, eastbound detoured traffic will return to Route 6 by way of Main Street in Fairhaven. The total length of this detour, from the point of leaving Route 6 to the point of return, is approximately 3 miles.

Traffic coming from the east on Route 6 from the area west of Route 240 will turn north from Route 6 on Adams Street. After crossing the harbor on the Coggeshall Street Bridge, traffic will return to Route 6 by way of Interstate Route 195 and Route 18.

The use of Main Street and Adams Street in Fairhaven as a one way couplet, rather than designating a single street as the detour route, will reduce the total traffic demand on these streets and will create a simpler traffic pattern at intersections.

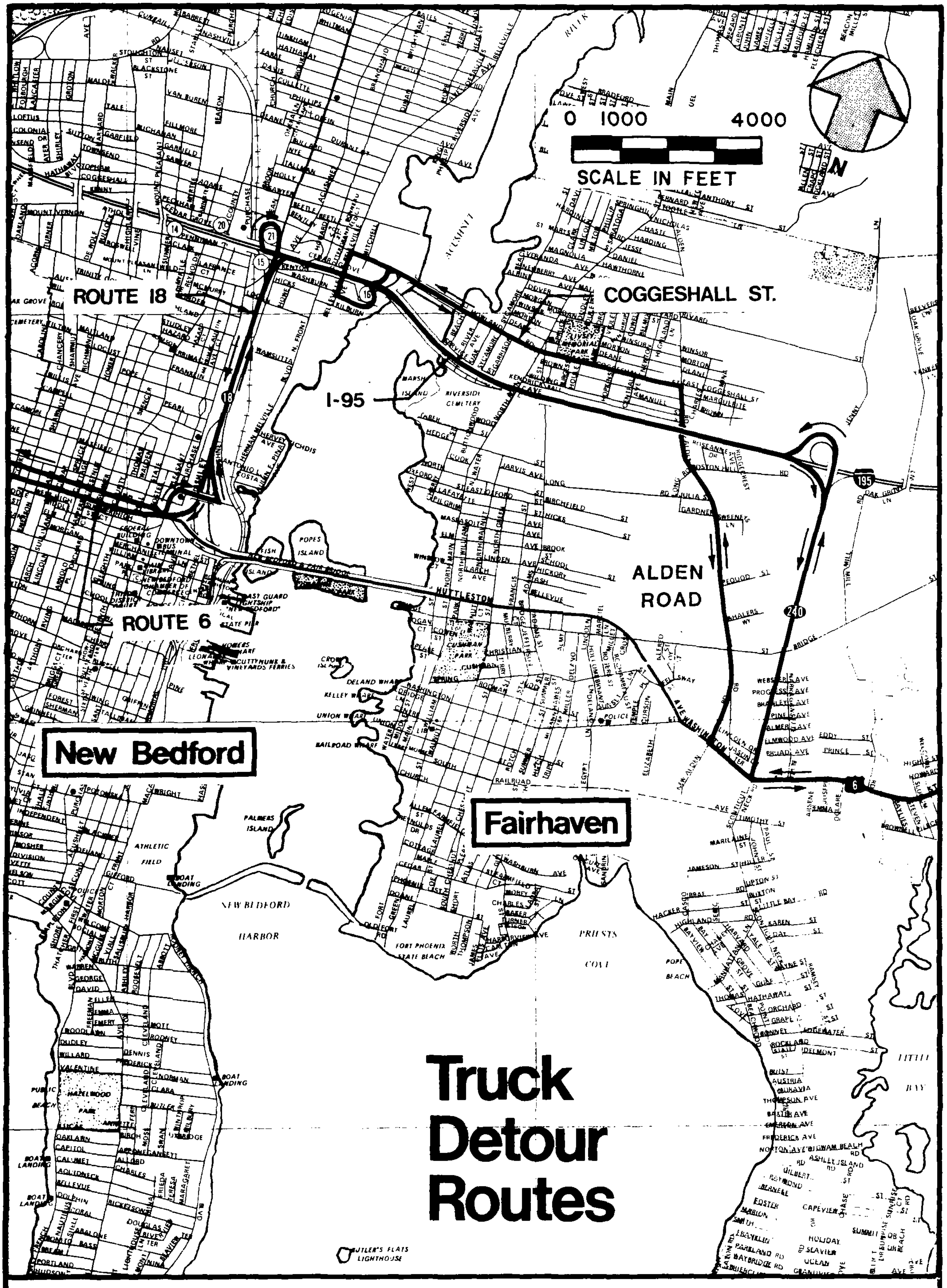
Truck traffic will be detoured in the same fashion as automobile traffic on the New Bedford shore but on the Fairhaven side different routes will be used (see Figure 46). Truck traffic will either continue on Interstate Route 195 to Route 240 or, using the Coggeshall Street Bridge, will continue east on Coggeshall Street to Alden Road which is a more suitable route for truck traffic.

The Interstate Route 195 Bridge is a four lane roadway and the Coggeshall Street Bridge is a two lane roadway. Both bridges are in good condition and are of relatively recent construction. The average daily traffic for the Interstate Route 195 Bridge was 21,200 vehicles in 1979; the Coggeshall Street Bridge carried about 14,000 vehicles.

It is projected that during the construction period 30 percent of the traffic presently using the New Bedford-Fairhaven Bridge will choose to use the Coggeshall Street Bridge and the remaining 70 percent will choose to use the Interstate Route 195 Bridge. The projected traffic volumes under normal and detour conditions are shown in Table 9. Traffic volumes of the Interstate Route 195 Bridge would increase by 100 percent and volumes on the Coggeshall Street Bridge would increase by about 70 percent. The estimated cost of the detour to the driving public in an eighteen month period would be 63,000,000 additional miles travelled resulting in 4,200,000 gallons of additional fuel consumption and 2 million hours of additional time in travelling.

Under current conditions, the detour would place 22,600 vehicles per day with a peak demand of 1,400 vehicles per hour per direction on Coggeshall Street which has a capacity of 750 vehicles per hour per direction. This will result in level of service "F" implying extreme congestion during the peak period. The detour would place 43,100 vehicles per day with a peak demand of 2,600 vehicles per hour per direction on Interstate 195 which has a capacity of 3,600 vehicles per hour per direction. This will result in level of service "C" implying stable flow of traffic with some restrictions.

Bridge shutdowns, such as the one that occurred in June 1984, have provided indications of the condition that would exist during the eighteen month detour period. Traffic counts taken on Coggeshall Street by the New Bedford City Planning Department during a period in June 1984 when the bridge was shut down for repairs show evening peak hour counts of as high as 1,889



NEW BEDFORD–FAIRHAVEN BRIDGE

FIGURE 46

Detour Traffic Volumes

Coggeshall Street Bridge	1986 Average Daily Traffic	1987 Average Daily Traffic
Under Normal Conditions	13,400	13,600
Under Detour Conditions	22,600	23,000
Increase	9,200	9,400
as a percent	69%	69%

Interstate Route 195 Bridge	1986 Average Daily Traffic	1987 Average Daily Traffic
Under Normal Conditions	21,500	22,200
Under Detour Conditions	43,100	44,200
Increase	21,600	22,000
as a percent	100%	100%

NEW BEDFORD-FAIRHAVEN BRIDGE — TABLE 9

vehicles per hour on Friday, June 22nd. As seems to be typical of this area, there were no pronounced morning and evening peaks but continuous relatively heavy traffic all day (see Figure 47).

Assuming that 60 percent of this peak hour traffic was headed in one direction and 40 percent in the other, the peak directional demand was 60 percent of 1,889 vehicles per hour or 1,133 vehicles per hour per direction. This peak directional demand represents 4 percent of the total daily traffic of 27,002 vehicles on June 22nd.

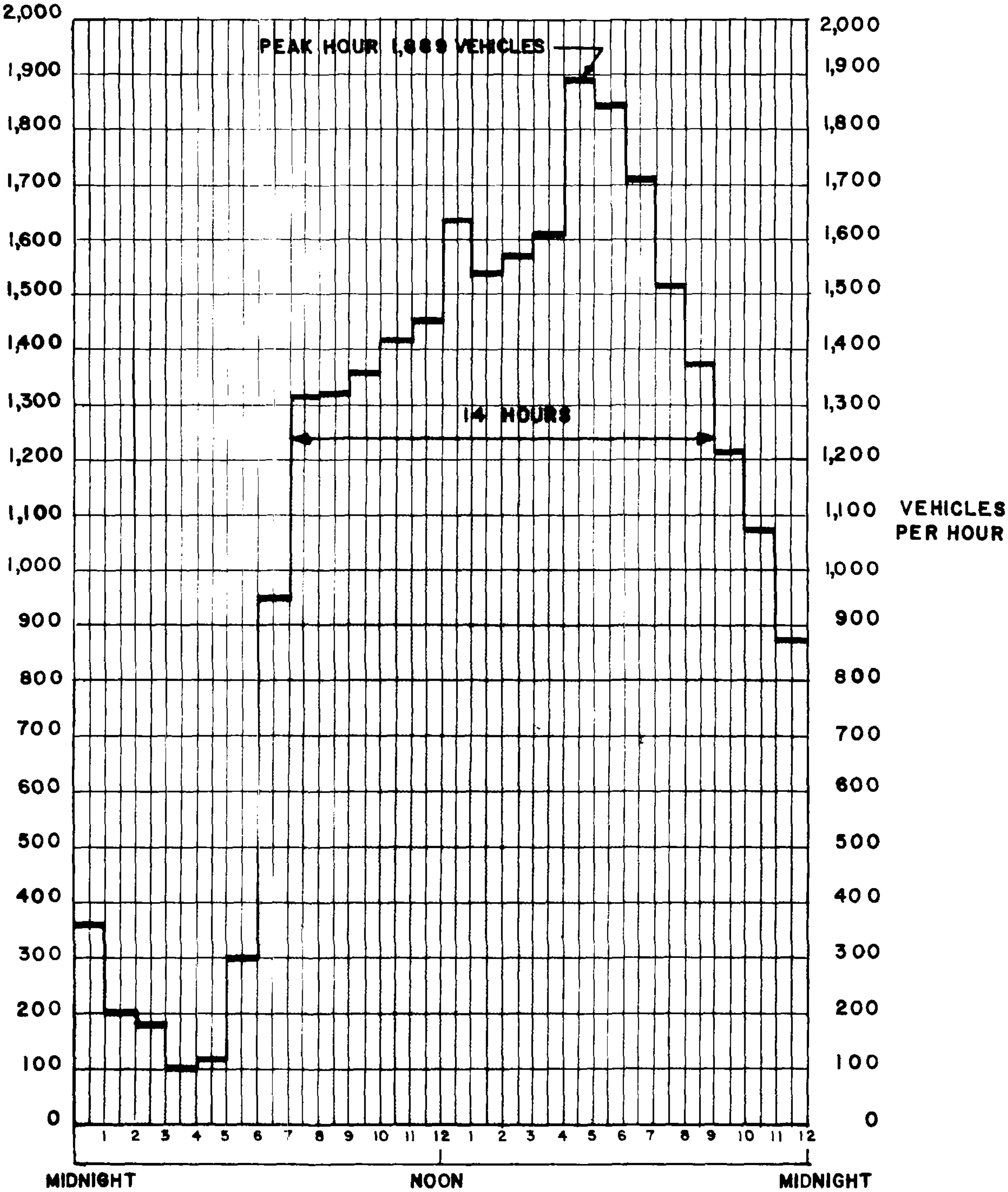
The prediction of total daily traffic of 22,600 vehicles on Coggeshall Street, under detour conditions with a peak demand of 1,400 vehicles per hour per direction representing 6 percent of the total daily traffic, shows the total daily traffic somewhat underestimated but the peak directional demand somewhat overestimated because of the exceptional uniformity of the traffic flow over the entire day. The fact that congestion existed may have contributed to the very even distribution of traffic.

In any case, Coggeshall Street, with a capacity of 750 vehicles per hour per direction, was overburdened under detour conditions at the peak hour and for several hours during the day of June 22nd. Level of service "F" was experienced under these conditions as is anticipated under detour conditions during bridge construction.

The roadways approaching the two alternate crossings will also be affected. Route 18 in New Bedford, because of its large capacity, will continue to operate with free flow of traffic. Main Street and Adams Street in Fairhaven, if used as a one-way couplet, will be operating within capacity. Alden Road in Fairhaven, acting as a detour route for trucks, will not be subjected to substantial increases in overall traffic volume.

Because of the increased traffic, areas along the detour route will be subjected to increased air pollution from automobile emissions. Carbon monoxide concentrations from automobile emissions were predicted for five key intersections along the detour route in the report Indirect Source Analysis of the Detour Route of the New Bedford-Fairhaven Bridge Replacement by HMM Associates, September 1982 and in subsequent analyses by the Massachusetts Department of Public Works. The analysis, using the Mobile 2 Model, Volume 9 (Revised) Procedure, and allowing appropriate credits for an inspection and maintenance program currently in force, revealed that no violations of the National Ambient Air Quality Standards would occur along the detour route (see Table 10). Signal timing improvements to accommodate the changed nature of the traffic flow through the intersections may provide some decrease in carbon monoxide concentrations.

There will also be temporary noise impacts resulting from the rerouting of bridge traffic during the period of construction. Based upon the traffic detour volumes projected for Coggeshall Street, noise levels at a receiver point located 20 meters from the centerline of the road could be expected to increase by approximately 3 to 4 dBA as a result of the increased traffic volumes during bridge construction.



Coggeshall Street Traffic Counts
June 22, 1984

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 47

DETOUR CASE
CARBON MONOXIDE CONCENTRATIONS (PPM) PLUS BACKGROUND
AT SENSITIVE RECEPTOR LOCATIONS

Receptor	Intersection	1986 1-Hour	1986 8-Hour	1987 1-Hour	1987 8-Hour	NAAQS* 1-Hour	NAAQS* 8-Hour
1	Pleasant St. & Route 6*	21.9	6.2	25.5	6.1	35.0	9.0
2	Main St. & Route 6**	18.8	4.3	23.1	5.5	35.0	9.0
3	Adams St. & Route 6**	31.2	5.6	26.1	6.3	35.0	9.0
4	Coggeshall St. & Main St.**	25.5	4.2	26.4	4.2	35.0	9.0
5	Coggeshall St. & Adams St.**	21.4	4.4	19.9	4.0	35.0	9.0

* Includes New Bedford background CO levels as follows: 1986, 1 hour, 3.3 ppm; 8 hour, 1.6 ppm
1987, 1 hour, 3.1 ppm; 8 hour, 1.5 ppm

** Includes Fairhaven background CO levels as follows: 1986, 1 hour, 2.5 ppm; 8 hour, 1.2 ppm
1987, 1 hour, 2.3 ppm; 8 hour, 1.2 ppm

Predicted Carbon Monoxide Concentrations on Detour Route

Mitigating measures to ease the adverse effects of the detour on local streets are signalization changes and creating one-way couplets. On the detour route from New Bedford to Fairhaven, the following temporary adjustments are recommended: Signalization at the intersection of Pleasant Street and Route 6 to allow eastbound traffic, which would ordinarily continue over the New Bedford-Fairhaven Bridge, to turn left towards Route 18 northbound; provision to allow free movement of detour traffic from Washburn Street onto Belleville Avenue without a stop condition; timing and phasing of the signalization at the intersection of Belleville Avenue and Coggeshall Street to favor detour traffic which will be turning right onto Coggeshall Street; making Main Street in Fairhaven one way southbound and restricting it to automobile traffic only; and timing and phasing of the signals at the intersection of Main Street and Route 6 to allow nearly continuous movement from Main Street onto Route 6 eastbound.

On the detour route from Fairhaven to New Bedford, changes of a similar nature will be made: Adams Street made one way northbound and traffic restricted to automobiles only; signalization at the intersection of Adams Street and Coggeshall Street revised to favor left-hand turns onto Coggeshall Street westbound; the turning movement from Coggeshall Street westbound onto Interstate 195 westbound provided with pavement markings to create an exclusive left-turn lane.

C. REGIONAL AIR QUALITY

Data on ambient air quality conditions in the New Bedford-Fairhaven area is relatively limited. The Massachusetts Department of Public Health, Bureau of Air Quality Control operated air quality monitoring stations in both New Bedford and Fairhaven in 1976, 1977, and 1978, but data was collected only for total suspended particulates, sulfur dioxide, oxides of nitrogen, and ozone. No measurements of carbon monoxide or hydrocarbons were conducted. The only pollutant consistently in excess of national standards is ozone. Studies by the State indicate that the high ozone levels in hydrocarbons and nitrous oxides are produced in the New York City area and carried by the prevailing winds up the Atlantic coast. All other pollutant levels monitored have been consistently within Federal Standards.

Measurements made by the Massachusetts Environmental Quality Engineering, Division of Air Quality Control, show the following ambient air quality data for the area:

1.	Total Suspended Particulates	41 ug/m	Annual Mean for 1978
2.	Sulphur Dioxide	0.041 ppm	Maximum 24 hour measurement for 1978
3.	Nitrogen Oxides	0.014 ppm	Annual Mean for 1976

The Clean Air Act Amendments of 1977 require states to attain the National Ambient Air Quality Standards for both carbon monoxide (CO) and ozone (O_3) by the end of 1982. States unable to be in attainment will be required to implement additional measures to bring them into compliance by

1987. The Massachusetts State Implementation Plan for Ozone and Carbon Monoxide (SIP), Revised August 1982, was conditionally approved by the U. S. Environmental Protection Agency on February 1983.

At the present time, New Bedford-Fairhaven is in a non-attainment area for ozone, and the Massachusetts SIP contains transportation control measures to bring the area into compliance. The plan includes the following measures:

1. An inspection and maintenance program to monitor and control vehicular emissions.

2. A program to ensure that new and modified sources of pollution do not adversely impact existing air quality.

A regional (mesoscale) air analysis was made of the project study area using the mobile 2 model (User's Guide to Mobile 2, EPA-460/3-81-006, February 1981). This analysis has shown that the bridge replacement will not adversely affect the study area and that there will be a net air quality improvement by 1987, due principally to federally-mandated pollutant emission regulations for mobile sources (See Table 11). The mesoscale analysis is contained in the report Update to the Air Quality Analysis of the Environmental Assessment of the New Bedford-Fairhaven Bridge Replacement by HMM Associates, September 1982.

The Federal Highway Administration has determined that the New Bedford-Fairhaven bridge replacement project is included in the Transportation Plan and in the Tranportation Improvement Program for the Southeastern Regional Planning and Economic Development District and that both the Transportation Plan and Transportation Improvement Program conform to the Massachusetts State Implementation Plan (SIP), Revised August 1982. Therefore, pursuant to 23 CFR, this project conforms to the SIP. The air analysis for this project was coordinated with the Massachusetts Department of Environmental Quality Engineering and the Massachusetts Department of Public Works. Both agencies were in agreement that this project would not have any adverse air quality impacts. (A letter of March 22, 1985, from the Massachusetts Department of Environmental Quality Engineering discussing the transportation project review consistency criteria is presented in Appendix C).

D. WETLANDS

Impacts on wetlands are an item of national concern and Executive Order 11990 "Protection of Wetlands" of May 24, 1977, has the basic goal "...to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct support of new construction in wetlands...".

In the Executive Order wetlands are defined to "...generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds". Due to the highly developed nature of the New Bedford harbor and the prevalence of man made shorelines, there are no areas within the bridge corridor that can be considered wetlands. Thus, there is no wetland impact caused by the construction of the bridge itself and its approaches.

MESOSCALE ANALYSIS

Regional Air Quality Impact

Calendar Year	Average Daily Traffic	Vehicle Miles Traveled	Percent Change
1979	26,850	16,502	--
1987	31,400	19,298	+ 17
2005	41,780	25,677	+ 33

Emission Rates (Tons per day)

POLLUTANT: Calendar Year	Carbon Monoxide (CO)	Hydrocarbons (HC)	Nitrogen Oxides (NOX)
1979	0.54	0.07	0.09
1987	0.33	0.03	0.07
2005	0.26	0.02	0.06

Regional Air Quality Impact

NEW BEDFORD-FAIRHAVEN BRIDGE TABLE 11

There is a three acre area of marshland in the northeast corner of Marsh Island which, while remote from the bridge, will be in close proximity to one of the feasible contaminated material disposal areas. It is not intended that this marshland area will be affected by the project. However, because the activity will probably lie within a 100 foot buffer zone surrounding this marshland, a "Notice of Intent" under the Massachusetts Wetlands Protection Act will be filed within the local Conservation Commission during the permitting process in the design stage if this disposal option is eventually selected.

E. ACCESSIBILITY OF FACILITIES AND SERVICES

A replacement for the existing bridge will provide similar accessibility to the existing facilities and services in the project area. A negative impact will result from temporary inaccessibility because of construction activity.

Maintenance of public services during the construction period when the bridge is closed will require adjustments to normal patterns of activity.

1. Public Utilities

Public utilities in the area of the New Bedford-Fairhaven Bridge are of more than local interest. The water main and telephone cables which cross the harbor under water immediately to the south of the existing swing bridge serve large regional populations. The 12 inch water main serves not only Fish Island and Popes Island but also a major portion of Fairhaven. The telephone cables provide service to the towns east of New Bedford and the Cape Cod area. These utilities will remain in use when a replacement bridge is constructed. Temporary loss of service during construction for major utilities is not anticipated.

2. Police Protection

The New Bedford Police Department has jurisdiction over both Fish Island and Popes Island. The temporary interruption of traffic flow between the islands will prevent normal police patrol of the islands. However, the New Bedford and Fairhaven Police Departments have a mutual aid agreement whereby the Fairhaven Police Department assumes patrol duties on behalf of the New Bedford Department during any temporary closure of the bridge. This arrangement may be extended for the period of construction related closure.

3. Fire Protection

The inability of either department to use the bridge for any period of time during construction may interfere with response to a multiple alarm fire. Response to a fire on Popes Island if the crossing area closed would have to be handled by the Fairhaven Fire Department.

4. Ambulance Service

On an average day there are three "expedite transport" (high speed with siren) ambulance runs between Fairhaven and New Bedford. Since both major area hospitals, St. Luke's Hospital and Union Hospital, are located in New Bedford, interruption of emergency ambulance service between the two communities will affect Fairhaven. During construction, ambulance service would be routed around the harbor's north end over the Coggeshall Street Bridge. This would add at least 10 minutes to the average travel time during normal conditions. However, during periods of traffic congestion, the delay time would become unpredictable.

5. Public Transportation

The Union Street Railway Company is under contract to the Southeastern Regional Transit Authority to provide bus service to New Bedford, Fairhaven, and surrounding towns. The Route 6 bridge is part of the number 13 and the number 14 bus routes which each provide service across the bridge three times each weekday. Any construction caused closings of the bridge crossing will interfere with service. The bus routes will have to be modified with service temporarily rerouted around the harbor's north end on Coggeshall Street.

F. AESTHETICS AND HISTORIC VALUES

New Bedford-Fairhaven Harbor, within which a new bridge will become a dominant feature, is a complex and extensive space. Because of exposed position of the new bridge, it will have a visual impact greater than it would in a more congested setting. The intervening years since the demise of the whaling industry have seen the complete reconstruction of the waterfront area of the New Bedford-Fairhaven Harbor. Little remains of an historic nature in the immediate area that might be compromised by a modern bridge.

There are no existing buildings within the corridor that are considered of historic value or importance. The Crystal Ice building, a brick structure dating from about 1870 or 1875, is of some interest as a surviving example of the early industrial waterfront. The boat yards and marine industries on the islands, while not of historic interest, serve to perpetuate the traditional uses of the harbor.

The section of the New Bedford-Fairhaven Bridge which is located between Fish Island and Popes Island and contains the moveable swing span section, referred to herein as the Middle Bridge, has been judged to be eligible for the National Register of Historic Places by the keeper of the National Register of Historic Places on June 9, 1980. The Massachusetts Historical Commission has stated that "swing span bridges are relatively rare in Massachusetts and are always associated with coastal environments. The bridge is significant as a type of engineering structure adapted to a particular environmental situation." The swing span section of the bridge would be demolished under the preferred alternative.

The entire crossing from New Bedford to Fairhaven was built from 1896 to 1903 with the Middle Bridge containing the swing span being built in 1897 and 1898. The bridge was apparently designed by the engineering staff of the County Commissioners of Bristol County and William F. Williams is mentioned as the Chief Engineer. The builders were Steward & McDermott of New York City and A. & P. Roberts Company of Philadelphia. The structural steel fabricator for the project was Pencoyd Iron Works of Pencoyd, Pennsylvania.

The swing span type of moveable bridge is found at seven locations in Massachusetts other than New Bedford-Fairhaven Harbor. These bridges are located at the following sites:

a. In Amesbury over the Merrimack River

b. In Haverhill and West Newbury over the Merrimack River

c. In Beverly over the Bass River

d. In Beverly and Salem over the Danvers River

e. A second site in Beverly and Salem over the Danvers River

f. In Boston over the Fort Point Channel

g. In Berkeley and Dighton over the Taunton River

Swing bridges have been superseded in popularity by bascule and vertical lift bridges and it is extremely doubtful that any will be built in the area in the future.

Section 106 of the National Historic Preservation Act of 1966 requires that the President's Advisory Council on Historic Preservation be afforded an opportunity to comment on any undertaking that adversely affects properties which are either listed or eligible for listing in the National Register of Historic Places. Due to the Massachusetts Historical Commission's judgment that the Middle Bridge was eligible for listing, a formal determination of eligibility was sought from the Heritage Conservation and Recreation Service of the Department of the Interior. This determination was made on June 9, 1980 (see Figure 48).

In compliance with Section 106, a Case Report (see Figures 49 and 50) was submitted to the Advisory Council on Historic Preservation on June 30, 1980, with a request for review. In response to this request, the Council prepared a Memorandum of Agreement stating that there are no feasible and prudent alternatives to avoid the adverse effects of the undertaking but that documentation of the structure in a manner acceptable to the National Architectural and Engineering Record would be required. The Memorandum was signed by the Chairman of the Council on September 26, 1980 (see Figure 51).

The mitigation measure for removal of the existing bridge recommended by the Massachusetts Historical Commission is documentation according to standards of the National Architectural and Engineering Record. The Memorandum of

E.O. 11593

DETERMINATION OF ELIGIBILITY NOTIFICATION

National Register of Historic Places
Heritage Conservation and Recreation Service

Name of property: New Bedford - Fairhaven Bridge

Location: Bristol County   State: MA

Request submitted by: DOT/FHWA Edwin P. Holahan

Date received: 5/27/80   Additional information received:

Opinion of the State Historic Preservation Officer:

☒ Eligible   ☐ Not Eligible   ☐ No Response

Comments:

The Secretary of the Interior has determined that this property is:

☒ Eligible   Applicable criteria: C   ☐ Not Eligible

Comments: 36 CFR Part 63.3
Determination

☐ Documentation insufficient
(Please see accompanying sheet explaining additional materials required)

for W. Ray Luce
Keeper of the National Register

Date: June 9, 1980

FHR 8-265 2/79

Determination of Eligibility

NEW BEDFORD-FAIRHAVEN BRIDGE   FIGURE 48

June 30, 1980

Mr. Robert R. Garvey, Executive Director
Advisory Council on Historic Preservation
1522 K. Street, N. W.
Washington D.C. 20005

Dear Mr. Garvey:

In accordance with the National Historic Preservation Act of 1966, the Keeper of National Register of Historic Places (NRHP) has determined that the middle section of the New Bedford - Fairhaven Bridge, which carries Route 6 over the New Bedford Harbor, is eligible for inclusion in the National Register of Historic Places. The Federal Highway Administration (FHWA), in consultation with the State Historic Preservation Officer (SHPO), has determined that the proposed project, the replacement of the subject bridge, will have an adverse effect on the middle section. Because of the deteriorated condition of the bridge, we feel that documenting the structure according to standards developed by the Historic American Engineering Record will satisfactorially mitigate the adverse effect of the undertaking. Accordingly, we are requesting that the review procedures detailed in 36 CFR 800.6 be instituted. We also request that the Advisory Council prepare a draft Memorandum of Agreement for execution based upon the mitigation plan. Please contact Frank Bracaglia of our staff at 223-2875 if you need further assistance.

Sincerely yours,

N. J. Van Ness
Division Administrator

EDWIN P. HOLAHAN

By: Edwin P. Holahan, Assistant
Division Administrator

Attachments
cc: E. R. Amadon - DPW(Environmental)
P. Weslowski - MHC

The following information is submitted in accordance with Section 800.13(b), 36 CFR 800.

1. From Title 23, United States Code, "Highways", the Federal Highway Administration (FHWA) is authorized to expend funds appropriated from the Highway Trust Fund for construction of Federal-aid highways.

   Applicable implementing regulations, procedures, and guidelines are contained in the Federal-aid Highway Program Manual Volumes 1 through 7.

2. This project is still in the NEPA compliance process. The final design, which has not been initiated, must be approved by FHWA before construction.

3. The Draft Environmental Assessment (EA) was distributed to concerned agencies and the public in December 1979. At the present time, comments regarding the Draft EA are being resolved and the final document is being prepared. The Section 106 process must be completed before the final document is sent to our Regional Office in Albany, New York for approval.

4. The selected alternative for this project is demolition of the existing structure followed by the construction of a replacement bridge. The middle section of the proposed structure will be a moveable bridge with a fifty-foot vertical clearance in the closed position and a 150-foot horizontal clearance when open (see enclosed maps). During demolition of the existing bridge and construction of the replacement facility, traffic will be detoured to alternative routes.

5. The entire harbor crossing of Route 6 between New Bedford and Fairhaven is referred to as the New Bedford-Fairhaven Bridge and has a single bridge number. However, it actually consists of highway sections on two harbor islands and three separate structural segments. From the New Bedford side, a viaduct structure extends over MacArthur Drive, a single Conrail track, and the west channel of the harbor to Fish Island. This section is known as the West Bridge. The Middle Bridge, which carries the highway over the shipping channel between Fish Island and Popes Island, is a swing span bridge at the channel and fixed spans on either side approaching the swing span. The East Bridge connects Popes Island with Fairhaven over the wide but relatively shallow east channel. The total length of the crossing is approximately 4,000 feet.

Case Report

NEW BEDFORD-FAIRHAVEN BRIDGE

FIGURE 49

The Middle Bridge (or Middle Section) consists of five plate girder spans and the swing span (see Figure 2). One of the fixed spans is to the west of the swing span and four are to the east. The plate girders have spans ranging from 73 feet to 82 feet. The swing span has a total length of 289 feet. All sections are supported on stone piers.

The swing span portion of the Middle Bridge consists of a variable depth truss along either side of the roadway. The trusses have both a top and a bottom lateral bracing system. The entire structure rests on a center pier and a turntable. When in the closed position, the swing truss acts as two simple truss spans, each about 130 feet long. When in open position, the tower section supports the truss spans.

The plate girder fixed spans of the Middle Bridge consist of four roadway girders spaced at approximately 17 feet on centers. The roadway stringers and deck portion of the superstructure of the fixed girder spans were completely replaced in 1961 and major repairs were made to the girders and floor beams.

The first bridge connecting New Bedford and present day Fairhaven was built during the 1790s. A wood structure it was inundated and partially destroyed by a storm in 1807. A second, similar wooden bridge was constructed shortly after, only to be destroyed in a storm in 1815. A third bridge which, like the first two, was built with private funds, was completed in 1819. It lasted until 1869, when it was severely damaged by another storm. The bridge property was then taken over by Bristol County. The bridge was rebuilt and opened as a public facility in 1870.

In 1896, construction was begun on the present bridge. It was completed in 1903. The single draw span of the new bridge was placed between Fish Island and Popes Island rather than in the original location, which provide a draw span in each fo the other two channels. In 1930, operational responsibility was assumed by the Massachusetts Department of Public Works.

The bridge has undergone several major repairs in its history, the most recent taking place in 1961. In 1972, the western end of the West Bridge was completely replaced in conjunction with the construction of ramps connecting to the newly constructed Route 18.

The main value of the bridge lies in the descriptive information regarding its construction and function. Swing span bridges are relatively rare in Massachusetts, and are always associated with coastal environments. The bridge is significant as a type of engineering structure adapted to a particular environmental situation.

6. The proposed project will have an "adverse effect" on the middle span of the New Bedford-Fairhaven Bridge under 36 CFR 800.3(b)(1), "Destruction or alteration of all or part of the property." The selected alternative will require the demolition of the existing bridge so that a new bridge canbe built along the same alignment.

7. A letter of concurrence in our determination of Adverse Effect from the State Historic Preservation Officer is attached.

8. None

9. The puposes of this project are: to ensure the continued reliability of the crossing by eliminating the outdated swing span; to reduce the number of openings required by increasing the navigational clearance; and to allow larger vessels to pass through the bridge into the under-utilized northern harbor by providing increased horizontal clearance. Removal of the existing bridge is necessary to accomplish any of these goals. Therefore, the only alternative considered that does not involve removal of the bridge is No-Build. Retaining the existing bridge is not considered prudent. The age of the bridge, combined with an increase in the number of openings for test or repair, have raised serious questions in regards to its dependability. In addition, the lack of adequate clearance for larger vessels discourages development of the harbor beyond the bridge.

10. Prior to demolition, the structure will be documented according to standards developed by the National Architectural and Engineering Record. This action will ensure that a permanent record of the existing bridge remains.

11. The total cost of the project, including demolition of the existing bridge, is $23 million, in 1979 dollars. The Federal portion of that cost will be $18.40 million.

Case Report (Continued)

NEW BEDFORD-FAIRHAVEN BRIDGE **FIGURE 50**

Advisory Council On Historic Preservation

1522 K Street, NW
Washington, DC 20005

MEMORANDUM OF AGREEMENT

WHEREAS, the Federal Highway Administration (FHWA), Department of Transportation, proposes to replace the New Bedford-Fairhaven Bridge over the New Bedford Harbor, Massachusetts; and,

WHEREAS, FHWA, in consultation with the Massachusetts State Historic Preservation Officer (SHPO), has determined that this undertaking as proposed would have an adverse effect upon the New Bedford-Fairhaven Bridge (Middle Bridge), a property eligible for the National Register of Historic Places; and

WHEREAS, pursuant to Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. Sec. 470f, as amended, 90 Stat. 1320) of the regulations of the Advisory Council on Historic Preservation (Council), "Protection of Historic and Cultural Properties" (36 CFR Part 800), FHWA has requested the comments of the Council; and,

WHEREAS, pursuant to Section 800.6 of the Council's regulations, representatives of the Council, FHWA, and the Massachusetts SHPO have consulted and reviewed the undertaking to consider feasible and prudent alternatives to avoid or satisfactorily mitigate the adverse effect;

NOW, THEREFORE, it is mutually agreed that there are no feasible and prudent alternatives to avoid or satisfactorily mitigate the adverse effects of this undertaking and that it is in the public interest to proceed with the undertaking in accordance with the following stipulations.

Stipulations

1. Prior to demolition of the New Bedford-Fairhaven Bridge (Middle Bridge) FHWA will record the structure so that there will be a permanent record of its existence. FHWA will first contact the National Architectural and Engineering Record (NAER) (Heritage Conservation and Recreation Service, Department of the Interior, Washington, D.C. 20243; 202-343-6217), to determine the level of documentation required. All documentation must be accepted by NAER and the Council notified of its acceptance, prior to demolition.

2. Within 90 days of demolition of the New Bedford-Fairhaven Bridge (Middle Bridge) FHWA will notify the Keeper of the National Register so that the property may be removed from the list of eligible properties.

Robert Garvey (date) Aug. 22, 1980
Executive Director
Advisory Council on Historic Preservation

(date) 8/28/80
Federal Highway Administration

Patricia L. Weslowski (date) 9/2/80
Massachusetts State Historic Preservation Officer

(date) 9/26/80
Chairman
Advisory Council on Historic Preservation

NEW BEDFORD-FAIRHAVEN BRIDGE — FIGURE 51

Agreement with the Advisory Council on Historic Preservation also stipulates that such documentation shall be prepared. Prior to demolition, the National Architectural and Engineering Record will be contacted to determine the level of documentation required. The documentation required by the National Architectural and Engineering Record may include any of the following:

a. Preparation of a historical report describing the site of structure being documented and explaining its significance,

b. Large format, archival quality photographs showing the resource as it exists today,

c. Large format, archival quality photocopies of historic photographs related to the resource,

d. Large format, archival quality photocopies of original or historic drawings of the resource, and

e. Measured drawings, inked or mylar, documenting important features of the resource.

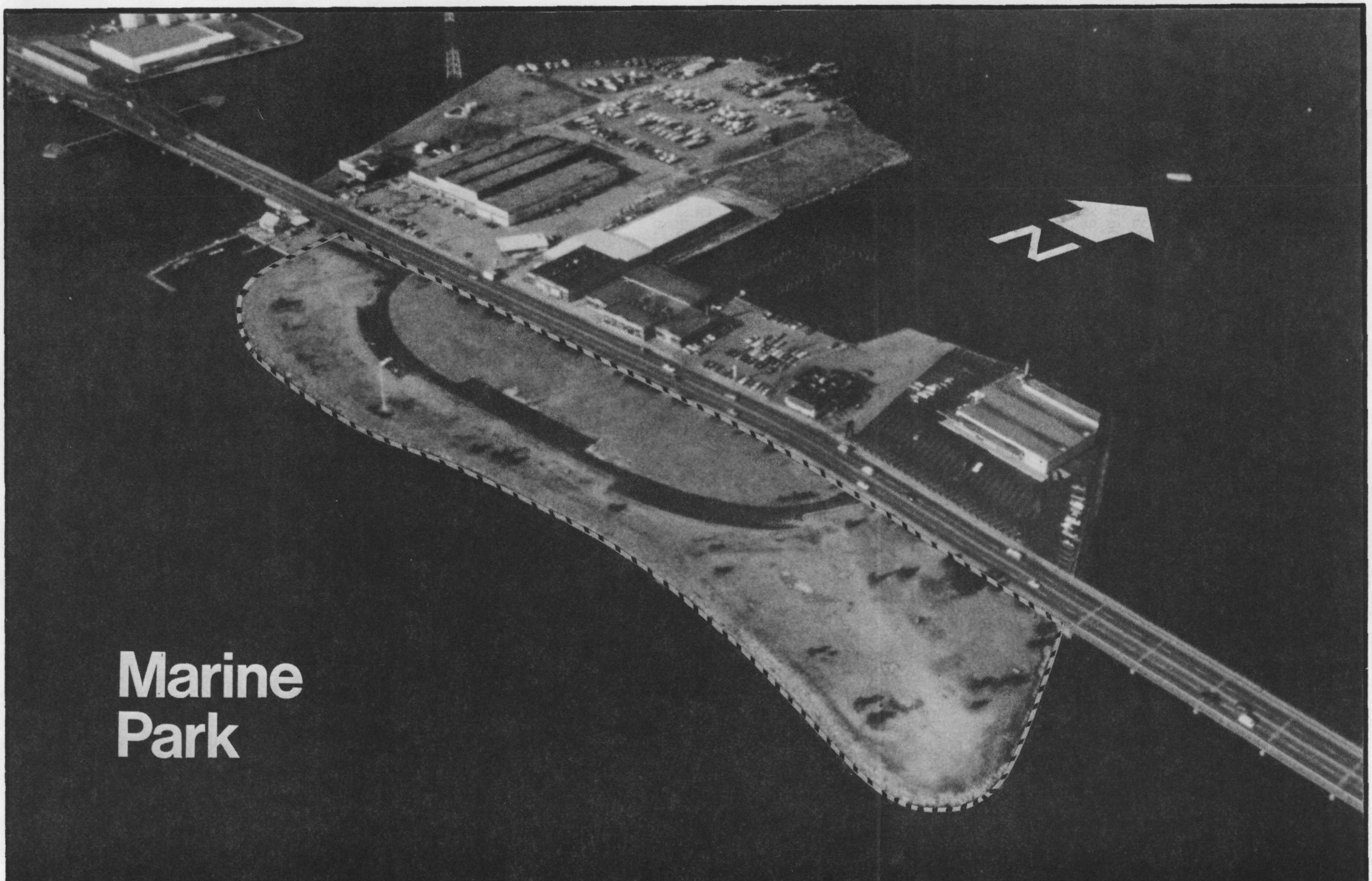
It was considered possible that traces of 18th and 19th century industrial sites would be found on both Fish Island and Popes Island. However, an archaeological survey undertaken in the summer of 1980 indicated that nearly all of the area of the islands was altered by landfill activities which took place in the late 19th and early 20th centuries. It was therefore determined that the construction area was unlikely to contain any undamaged archaeological resources.

The results of the archaeological survey of the area were published in Final Report, Phase I, Step 2 Archaeological Survey of the New Bedford-Fairhaven Bridge Realignment Project, New Bedford and Fairhaven, Massachusetts by the Institute for Conservation Archaeology, Peabody Museum, Harvard University, Cambridge, Massachusetts, August 1980.

G. OPEN SPACE AND RECREATIONAL RESOURCES

The only publicly-owned open-space resource within the corridor is Marine Park, operated as a recreational area by the City of New Bedford (See Figure 52). The park is one of sixty eight recreational facilities in the City of New Bedford listed in the Comprehensive Recreation and Open Space Plan and contains nine and a half acres out of the total 2,100 acres making up these sites. The land making up Marine Park was conveyed to the City of New Bedford by quit claim deed in 1927 to be used specifically as a public park.

The park has a westerly entrance and an easterly entrance which are connected by an access roadway which loops through the park. It is completely level throughout. Perpendicular parking spaces for approximately sixty cars are provided immediately off the roadway. There are about 1,500 feet of shoreline which is faced with stone rip-rap. The park has street lights, a line of low lying shrubs along the highway, and some playground equipment in the southeast corner.



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 52

The intent of the City of New Bedford is to continue to use the area for mainly passive recreation purposes and to keep maintenance costs as low as possible.

The greater width and improved alignment of the approach roadways to the new moveable bridge structure result in the southerly edge of the highway right-of-way line moving to the south into Marine Park. The proposed highway alignment on Popes Island will gradually merge into the existing alignment prior to meeting the East Bridge from Popes Island to the Fairhaven shore. The resultant permanent taking will be a wedge shaped section, extending 25 feet into Marine Park at its westerly end and gradually transitioning into the existing back of sidewalk, with an area of approximately 20,000 square feet.

The elevation of the new roadway will be similar to that of the old roadway so that only minor regrading along the back of sidewalk will be necessary. No park facilities will be affected but the row of low shrubbery along the northern edge of the park will be eliminated.

In order to allow construction of the approach roadway to take place, a temporary construction easement beyond the permanent taking line will be required. This temporary construction easement will be a strip averaging approximately 10 feet wide extending over the whole length of Marine Park. This temporary loss of Parkland during construction will amount to approximately 12,000 square feet and will be in affect for approximately two years.

As part of the bridge construction, a program involving replacement of the planting lost due to the roadway widening will be undertaken. The selection and placement of planting will be coordinated with the City of New Bedford Planning Department.

H. NATURAL RESOURCES

The project involves the construction of an entirely new structure and will therefore necessitate the consumption of natural resources for construction materials and for energy production during construction. The consumption of natural resources for energy to operate the moveable bascule leaves will be required for the entire life of the structure.

During the 18 month detour period, the preferred alternative will cause the consumption of additional fuel by traffic diverted over the Coggeshall Street Bridge or the Interstate 195 Bridge. The additional distance travelled, estimated at 63,000,000 vehicle miles, will at an estimated average fuel consumption rate of 15 miles per gallon, require additional fuel consumption of 4,200,000 gallons.

I. SOLID WASTE DISPOSAL

The removal of the existing bridge will result in the creation of solid waste material which must either be reused or disposed of. These materials will include granite blocks and rubble which make up the existing piers, steel from the existing swing span truss and deck and the superstructure of the approaches, concrete from the deck of the approaches, and wood planks, beams, and piling from the existing fender system. These are all normal materials common to demolition projects and no special handling or disposal sites are required.

The Massachusetts Department of Public Works Standard Specifications for Highways and Bridges states that all material not set aside for reuse becomes the property of the construction contractor. The material obtained from the demolition of the bridge does not have any potential reuse and it will be the construction contractor's responsibility to dispose of this material in conformance with all applicable regulations.

No demolition material is allowed at the New Bedford municipal landfill and most other public landfills have a similar policy. Demolition material from the area is commonly hauled to sites on Cape Cod.

VI IMPACTS OF THE PROPOSED ACTION WITHIN THE CORRIDOR

The proposed action of replacing the existing New Bedford-Fairhaven Bridge with a new bridge providing a bascule type moveable span will create specific impacts in the immediate area of the new construction. The specific impacts will relate to general improvements for roadway traffic which will use this section of new highway, the taking of a parcel of land belonging to Leroy and Elaine Faltus and the consequent relocation of the businesses located there, Captain Leroy's and the Outdoorsman, loss of business on Fish Island and Popes Island during the construction related closing of the crossing, and noise impacts related to highway traffic and construction activity.

A. EFFECTS ON ROADWAY TRAFFIC

The major roadway change is the provision of shoulders on either side. As described in A Policy on Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials, 1984, shoulders "...contribute to safety by affording maneuver room and providing space for immobilized vehicles. They serve as speed change lanes for vehicles turning into driveways, and they provide storage space for plowed snow." The need for speed change lanes is particularly acute on Fish Island and Popes Island which both have numerous curb cuts for access to businesses.

The new alignment will provide smooth horizontal curves over the reconstructed section of roadway and will eliminate the irregularities that currently exist. The grades of the existing roadway will remain very flat over the entire reconstructed section.

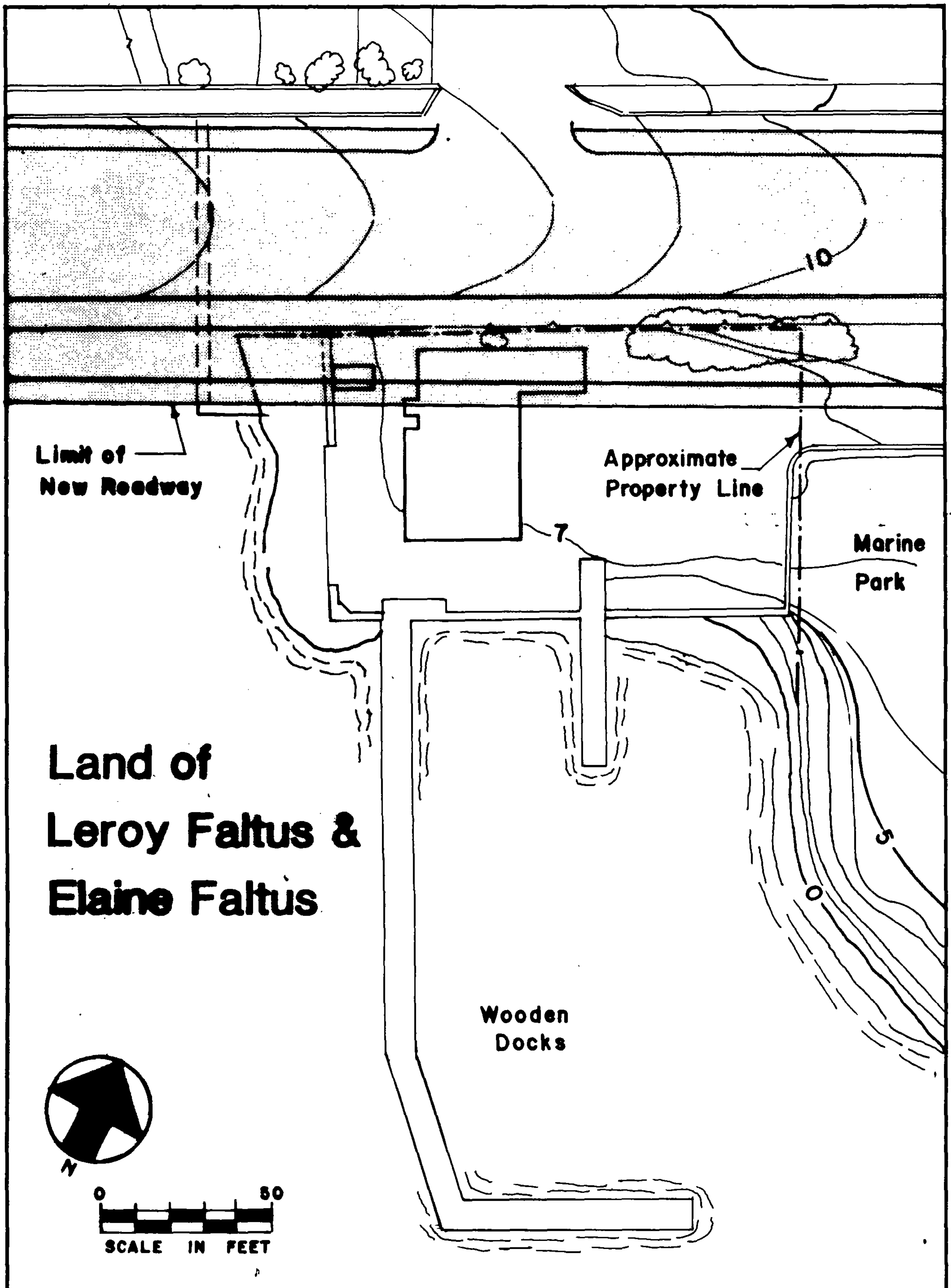
B. TAKING OF LAND OF LEROY & ELAINE FALTUS AND RELOCATION OF CAPTAIN LEROY'S AND THE OUTDOORSMAN

The land in the southwest corner of Popes Island immediately adjacent to Route 6 is owned by Leroy & Elaine Faltus and is the location of Captain Leroy's Excursion Boat Service and the Outdoorsman where fishing and boating equipment, supplies, and services are provided. These businesses contribute to general recreational use of the water resources of the area.

The widening and slight realignment of Route 6 result in the taking of 4,000 square feet of the lot and the existing one story wood frame building (see Figure 53). Since the roadway will be approximately five feet above the level of the lot, it would not be possible to provide direct access to the lot from the new roadway at the completion of construction (The lot does not now have direct access off Route 6 but is reached through Marine Park under an informal arrangement with the City of New Bedford).

The wood docks would not have to be eliminated as a result of roadway construction.

Relocation of these businesses to another area would require a waterfront lot of equivalent size with convenient public access.



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 53

C. LOSS OF BUSINESS ON FISH ISLAND AND POPES ISLAND

During construction of the bridge, for a period of at least eighteen months, through traffic will be eliminated on the harbor crossing section of Route 6. Fish Island will remain accessible from the New Bedford shore over the West Bridge and Popes Island will remain accessible from the Fairhaven shore over the East Bridge but the connection between them over the Middle Bridge will be temporarily eliminated.

The absence of through traffic and the greater travel distance required to reach Popes Island from New Bedford have resulted in significant reductions in sales volumes to certain of the businesses on Fish Island and Popes Island in the past when the bridge has been shut down for repairs. The same type of situation would occur during the construction related shutdown.

The absence of through traffic would particularly affect the gas station on Fish Island and the greater travel distance to Popes Island has in the past affected the food service businesses on Popes Island. Most other businesses are not as dependent on through traffic or travel distance from New Bedford to maintain usual business conditions, although clearly all businesses will experience some inconvenience.

The businesses in the immediate area of the project are listed on Table 12. The types of business in the area range from heavy marine repair and dredging operations to small restaurants, with a wide spectrum of smaller retail, wholesale and manufacturing operations in between.

Crystal Ice Company, Inc. (see Figure 54) manufactures and supplies ice to the New Bedford fishing fleet and fish processing plants in the area. As the major ice supplier in the area, the business is of regional importance. The property abuts Route 6 on the south and the building nearly touches the elevated roadway. Access is off the Waterfront Frontage Road and the closing of the crossing should have no effect on their operation.

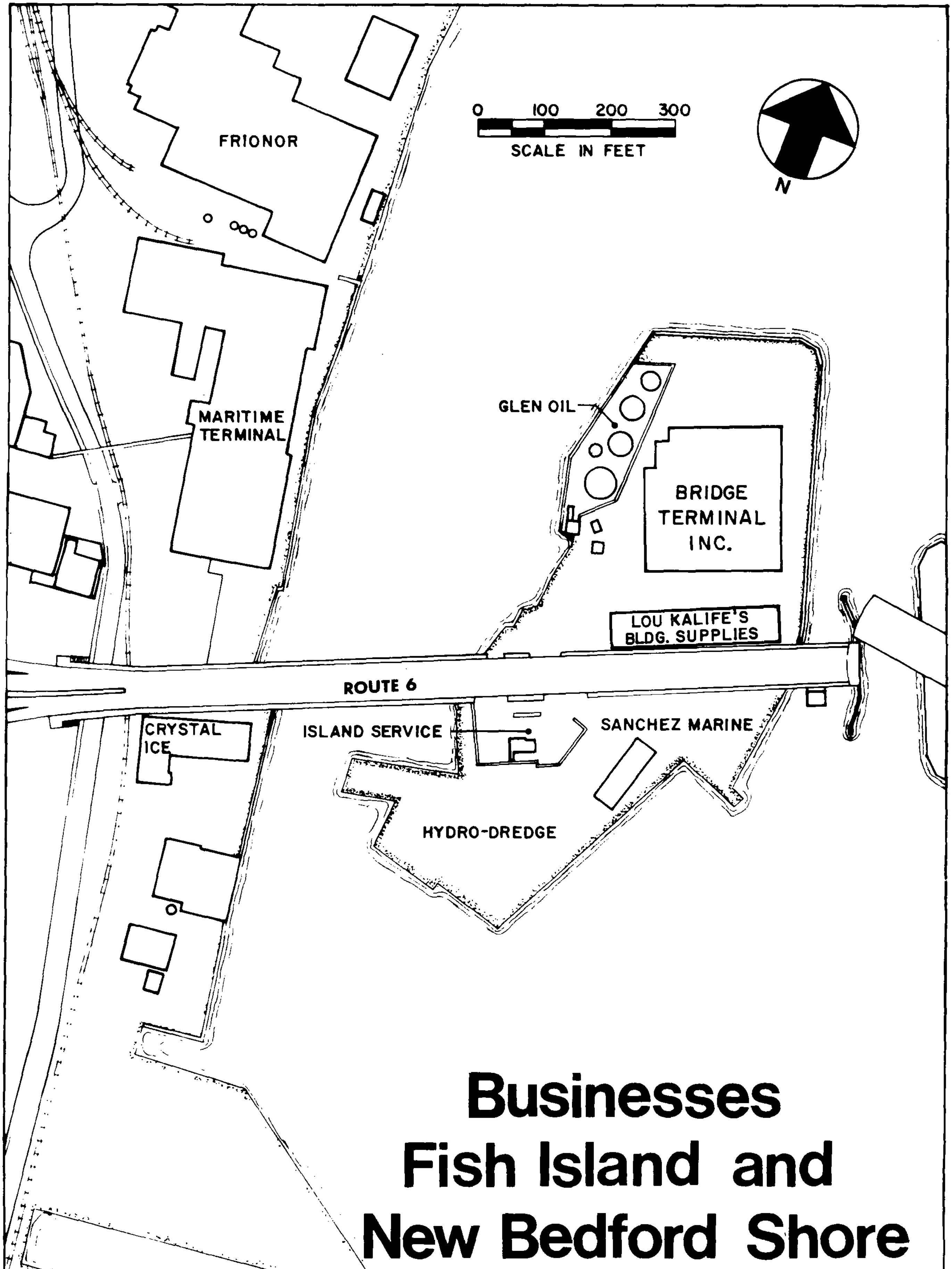
Maritime Terminals, Inc. provides cold storage and distribution facilities for Frionor and other fish-processing concerns. Frionor Kitchens, Inc. employs from 300 to 400 people in fish processing facilities located on the New Bedford shore. Both these facilities have access off the Waterfront Frontage Road and they will not be significantly affected by the closing of the crossing.

The Bridge Terminal freezer facility located on Fish Island is a cold-storage warehouse and ship-docking facility for ocean-going vessels with seafood products. Access to Maritime Terminals and Frionor is important to this operation. This access will be maintained over the West Bridge during construction.

Glen Petroleum Company leases oil tank, storage, and office facilities on Fish Island. Glen Oil is a wholesaler and retailer of home heating oil. Access over the West Bridge to Route 18 and onto the regional highway system will be maintained during construction.

Businesses

	Approximate Number of Years in Business (if known)	Approximate Number of Employees (if known)
New Bedford Shore		
Crystal Ice	60	20
Maritime Terminal	15	450
Frionor Kitchens	10	350
Fish Island		
Bridge Terminal	10	12
Glen Petroleum	20	30
Hydro-Dredge	5	20
Island Service Station	15	8
Sanchez Marine Services	30	40
Lou Kalife's Building Supply	2	-
Popes Island		
Advance Cup	-	-
The Cover-up	5	5
Boathouse Pub	-	-
Dugan Buick - Pontiac	30	30
Fairhaven Hardware	5	12
New England Ropes	15	40
Captain Leroy's and The Outdoorsman	35	2
Service News	5	40
Superior Welder Manufacturing	5	20
The Bagpiper Restaurant	-	-
The Gearlocker	-	-



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 54

The Socony Mobil Oil Company owns property which is leased to the Island Mobil Service Station, a gas station serving bridge traffic. This business would be adversely affected by the elimination of through traffic.

The Hydro-Dredge Corporation is an offshore dredging operation which works all along the New England Coast and its Fish Island facility is the main center of operations. This business is not dependent on the general public and should not be affected by the closing of the crossing.

The Sanchez Marine Services property on Fish Island is one of three facilities owned by the company for its marine salvage, tow boat service, and repair operations. This business is also not dependent on the general public and should not be affected by the closing of the crossing.

Lou Kalife's Building Supply is a retail facility for the sale of lumber and other building supplies. Customers coming from New Bedford will continue to have access on the West Bridge. Customers coming from Fairhaven will have to traverse the detour to reach this establishment during the construction related closing of the crossing.

Service News Company (see Figure 55) is a wholesale and retail distributor of magazines and books to the New Bedford area, Cape Cod, and the Islands. Superior Welder Manufacturing Corporation builds electronic welding machines on special order. Advance Cup is a manufacturing concern located in the Popes Island Realty Trust building. None of these three businesses are dependent on the general public and should not be affected by the closing of the crossing.

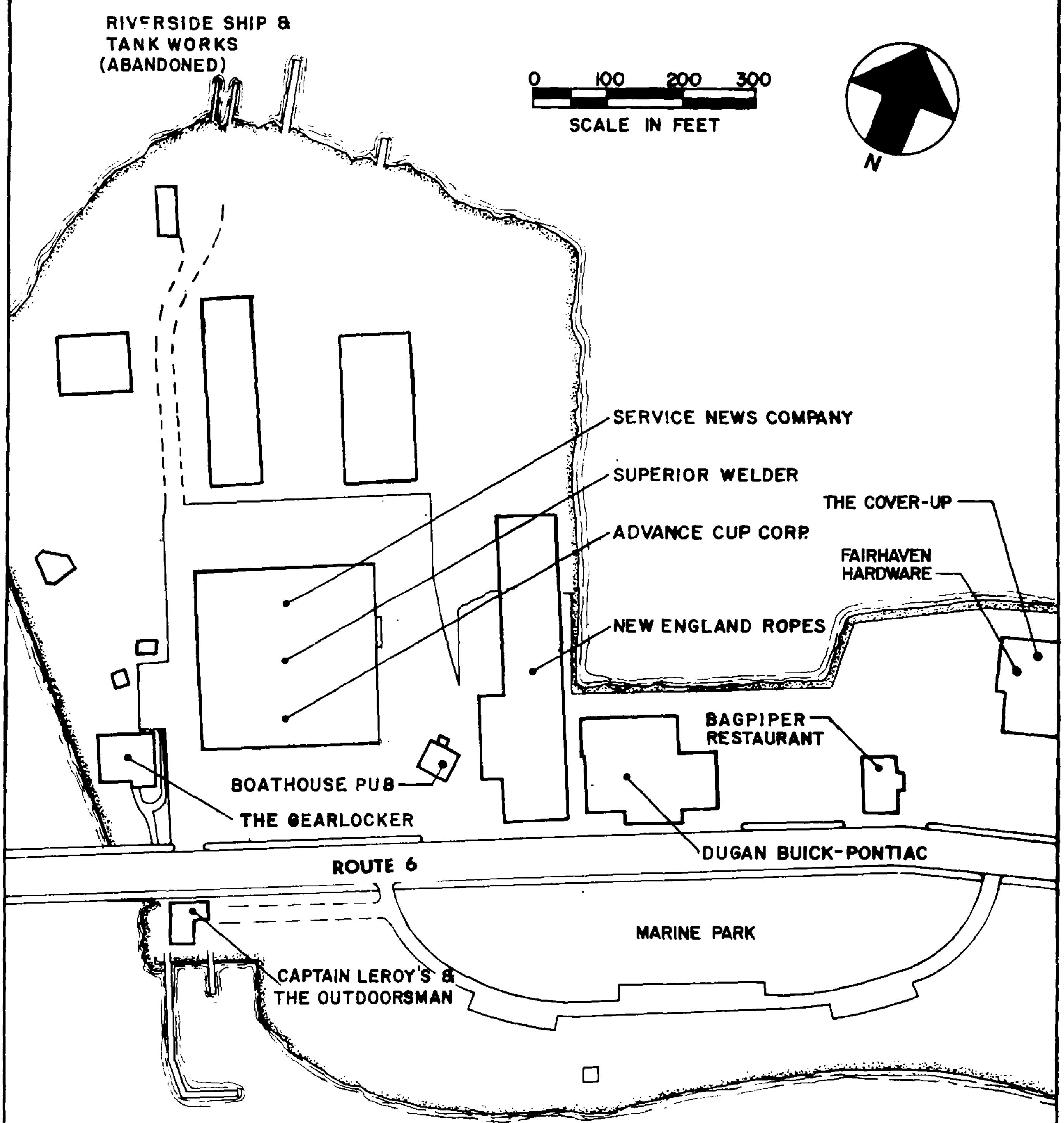
The Gearlocker is an outlet for commercial and sporting marine supplies. Customers coming from New Bedford will have to utilize the detour over Coggeshall Street to reach this establishment during the construction related closing of the crossing.

The Boathouse Pub and the Bagpiper Restaurant are both full service restaurants. Both have been adversely affected by bridge shutdowns in the past and will both be adversely affected by the greater distance and time in reaching these establishments from New Bedford.

John Dugan Buick-Pontiac, Inc. is a car dealership involved in new and used car sales and service. The dealership is aided by its highly visible location on Route 6 but is not dependent on through traffic.

New England Ropes, Inc. is a manufacturer and wholesale distributor of synthetic rope. This operation should not be affected by the closing of the crossing.

Fairhaven True Value Hardware is a general retail hardware store. The store's location is convenient for customers located in both New Bedford and Fairhaven. The Cover-up is an interior decorating center, with sales of draperies, curtains, and carpeting. It is under the same ownership as Fairhaven True Value Hardware and is located in the same building. Customers coming to these two businesses from New Bedford will have to utilize the detour over Coggeshall Street to reach them during the construction related closing of the crossing.



Businesses Popes Island

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 55

Construction of surface roadways on both Fish Island and Popes Island will cause some construction related disruption to access patterns to the businesses located there. Nevertheless, it should be possible to maintain access throughout the construction period. The problem is not one of loss of access to the state highway but rather of (1) a reduction in the amount of traffic passing by the business or (2) greater distance to be travelled to reach the business from the major population center. There is no way of determining the amount of damage incurred by a business under these circumstances nor is there any mechanism available for compensating them.

D. NOISE IMPACTS

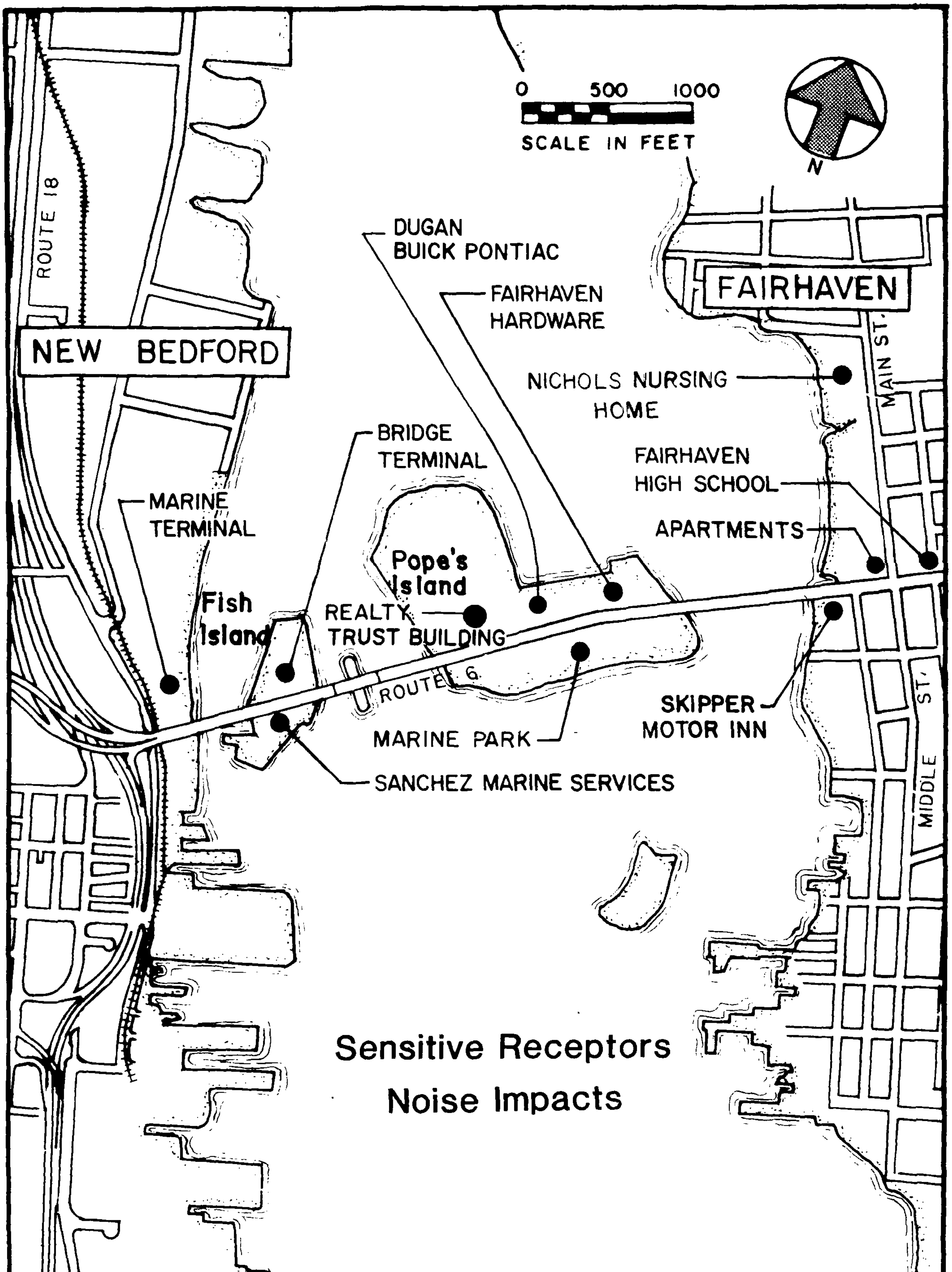
Noise measurements were taken at 10 locations within the corridor during January 1979. Most noise levels were in the 60 to 70 dBA range. Because of the highly urbanized nature of the corridor, noise sources consisted not only of roadway traffic on the existing bridge, but also of a variety of industrial and commercial activities and traffic on other streets. Some typical readings were:

1.	Marine Park, Popes Island	Leq = 66 dBA
2.	Fairhaven High School	Leq = 67 dBA
3.	Nichols Nursing Home, Fairhaven	Leq = 57 dBA
4.	Skipper Motor Inn, Fairhaven	Leq = 67 dBA
5.	Fairhaven Hardware, Popes Island	Leq = 67 dBA
6.	Sanchez Marine Services, Fish Island	Leq = 68 dBA
7.	Bridge Terminal, Fish Island	Leq = 66 dBA
8.	Marine Terminal, New Bedford	Leq = 66 dBA

Sensitive receptors that could potentially be affected by noise impacts from the preferred bridge replacement alternative are identified in Figure 56.

Impacts on these sensitive receptors were analyzed using the FHWA Traffic Noise Prediction Nomograph contained in Report No. FHWA-RD-77-108 and in accordance with the Federal Aid Highway Program Manual Volume 7, Chapter 7, Section 3 (FHPM, 7-7-3) August 9, 1982. In FHPM 7-7-3, traffic noise impacts are defined as "impacts which occur when the predicted traffic noise levels approach or exceed the Noise Abatement Criteria or when the predicted traffic noise levels substantially exceed the existing levels". The results of this analysis are presented in Table 13. Increases in projected noise levels from 1979 to 2005 will be between 1 and 2 dBA. The year 2005 projected noise levels will equal or slightly exceed the Noise Abatement Criterion of Leq = 67 dBA at four Activity B sites; the Fairhaven High School, the Skipper Inn, the Marine Park on Pope's Island, and the Apartments on Main Street and Huttleston Street. One Activity C site, Dugan Buick-Pontiac on Pope's Island already exceeds the Leq = 72 dBA Noise Abatement Criterion and will continue above this Criterion in the future.

No mitigating measures are proposed for these four Activity Category B sites or the Activity Category C site. Because Route 6 in this area is an urban roadway with access on both sides, abatement measures such as noise barriers would not be feasible. In addition, since there will be no change



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 56

Site Description	Land Use Activity Category	Year 1979 Leq (dBA)	Noise Levels Year 2005 Leq (dBA)	Increase (dBA)
Fairhaven High School	B	67	69	2
Skipper Inn, Fairhaven	B	67	69	2
Marine Park, Popes Island	B	66	67	1
Nichols Nursing Home, Fairhaven	B	57	59	2
Apartments, NW Corner Main and Huttleston, Fairhaven	B	66	67	1
Realty Trust Building, Popes Island	C	66	68	2
Sanchez Marine Service, Fish Island	C	68	70	2
Dugan Buick-Pontiac, Popes Island	C	73	75	2
Fairhaven Hardware, Popes Islan	C	66	68	2
Bridge Terminal, Fish Island	C	66	68	2
Maritime Terminals, New Bedford	C	66	67	1

The FHWA Land Use Activity Categories are defined as follows: Activity Category B-Picnic areas, recreation areas, playgrounds, active sports areas, residences, motels, hotels, schools, churches, libraries, and hospitals. The Noise Abatement Criterion in Leq for Activity Category B is 67 dBA.

Activity Category C - Developed lands, properties, or activities not included in Category B or Category A, where special qualities of serenity and quiet are required. The Noise Abatement Criterion in Leq for Activity Category C is 72 dBA.

Noise Level Predictions

NEW BEDFORD-FAIRHAVEN BRIDGE TABLE 13

in the horizontal alignment of the replacement bridge, noise level increases will be due entirely to an increase in the traffic volume, which is expected to occur with or without the project.

Construction activities will result in increased noise levels in the vicinity of the project. At locations greater than 50 feet from the construction equipment, noise levels can be expected to drop by approximately 6 dBA for every doubling of distance. Therefore, only those receptors on Fish and Popes Islands can be expected to receive significant noise impacts from construction of the proposed facilities.

E. AIR QUALITY IMPACTS

A localized (microscale) air analysis was conducted along the corridor of the New Bedford-Fairhaven Bridge replacement project using the Mobile 2 model (User's Guide to Mobile 2, EPA-460/3-81-006, February 1981) and the FHWA Caline 3 model (Caline 3 - A Versatile Dispersion Model for Predicting Air Pollutant Levels Near Highways and Arterial Streets, Report No. FHWA/CA/TL-79/23, November 1979). Estimates of one hour and eight hour carbon monoxide (CO) concentrations based on one hour and eight hour peak traffic were made at 13 receptor sites for 1979, 1987, and 2005 (See Tables 14 and 15). The location of these sites is shown on Figure 57. These concentrations are well below the National Ambient Air Quality Standards listed on Table 16. Since the location of the preferred alternative is identical to the no-build alternative, future concentrations within the corridor will be the same for either alternative. The microscale analysis is included in the report Update to the Air Quality Analysis of the Environmental Assessment of the New Bedford-Fairhaven Bridge Replacement Project by HHM Associates, September 1982.

During the construction phase there will be temporary deterioration of the ambient air quality adjacent to and downwind from the construction site. Measures to control fugitive dust from construction operations will be stated in the specifications set forth for this project. Dust control measures such as watering of affected areas and the use of dust cover for trucks can minimize the increase in ambient concentrations of particulate matter. While construction equipment will introduce an increase in pollutants, the effects will be short-term and are not expected to be significant.

The Federal Highway Administration has determined that the New Bedford-Fairhaven Bridge replacement project is included in the Transporation Plan and in the Transportation Improvement Program for the Southeastern Regional Planning and Economic Development District and that both the Transportation Plan and Transportation Improvement Program conform to the Massachusetts State Implementation Plan (SIP), Revised August 1982. Therefore, pursuant to 23 CFR 770, this project conforms to the SIP. The air analysis for this project was coordinated with the Massachusetts Department of Environmental Quality Engineering and the Massachusetts Department of Public Works. Both agencies were in agreement that this project would not have any adverse air quality impacts. (A letter of March 22, 1985, from the Department of Environmental Quality Engineering reviewing the Massachusetts Transportation project review consistency criteria is presented in Appendix C).

One Hour Carbon Monoxide Contribution by Mobile Sources

Site Number	Site Description	Distance to Line Source (Meters)	Calendar Year 1979* (ppm)	1987** (ppm)	2005*** (ppm)
1	Fairhaven High School, SE Corner	81	4.5	3.3	2.6
2	Skipper Inn, SE corner of Middle and Huttleston, Fairhaven	132	4.2	3.1	2.4
3	Marine Park, Pope's Island	51	4.7	3.5	2.6
5	Nichols Nursing Home, Fairhaven	361	3.8	2.8	2.2
6	Apt. Bldg., NE corner of Main and Huttleston, Fairhaven	41	5.2	3.9	2.9
9	NE corner, Rodman Street and N. Water Street, New Bedford	132	4.2	3.1	2.4
10	Boat Ramp, 365 feet south of Bridge, Fairhaven	127	4.2	3.1	2.4
11	Realty Trust Building, Pope's Island	34	5.1	3.7	2.8
12	Sanchez Marine Services, Fish Island	15	7.5	5.6	4.0
13	Hydrodredge Marine Contractors, Fish Island	34	5.3	3.9	2.9
14	Dugan Buick-Pontiac, Pope's Island	4	9.1	6.8	4.9
15	Fairhaven Hardware, Pope's Island	34	5.2	3.9	2.9
16	Bridge Terminal Warehouse, Pope's Island	32	5.4	4.1	3.0

*Includes background concentrations of ambient carbon monoxide of 3.4 ppm
**Includes background concentrations of ambient carbon monoxide of 2.5 ppm
***Includes background concentrations of ambient carbon monoxide of 2.0 ppm

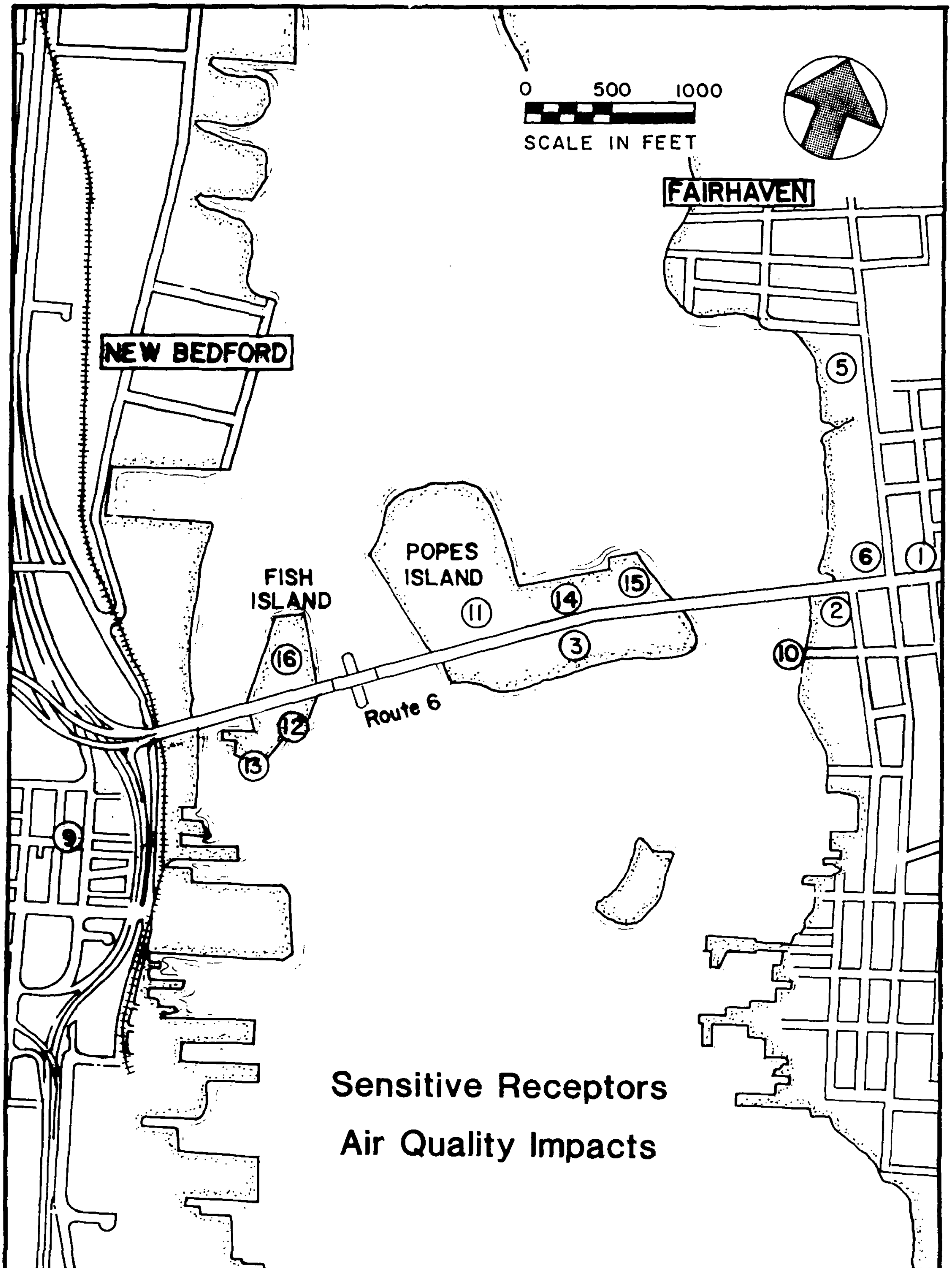
NEW BEDFORD-FAIRHAVEN BRIDGE

TABLE 14

Eight Hour Carbon Monoxide Contribution by Mobile Sources

Site Number	Site Description	Distance to Line Source (Meters)	Calendar Year 1979* (ppm)	1987** (ppm)	2005*** (ppm)
1	Fairhaven High School, SE Corner	81	2.4	1.7	1.4
2	Skipper Inn, SE corner of Middle and Huttleston Fairhaven	132	2.2	1.6	1.3
3	Marine Park, Pope's Island	51	2.5	1.8	1.4
5	Nichols Nursing Home, Fairhaven	361	1.9	1.5	1.1
6	Apt. Bldg., NE corner of Main and Huttleston Fairhaven	41	2.8	2.0	1.6
9	NE corner, Rodman Street and N. Water Street, New Bedford	132	2.2	1.6	1.3
10	Boat Ramp, 365 feet south of Bridge, Fairhaven	127	2.2	1.7	1.2
11	Realty Trust Building, Pope's Island	34	2.6	1.9	1.5
12	Sanchez Marine Services, Fish Island	15	4.1	2.9	2.3
13	Hydrodredge Marine Contractors, Fish Island	34	2.8	2.1	1.7
14	Dugan Buick-Pontiac, Pope's Island	4	5.1	3.5	2.8
15	Fairhaven Hardware Pope's Island	34	2.8	2.1	1.6
16	Bridge Terminal Warehouse, Pope's Island	32	2.9	2.1	1.7

*Includes background concentrations of ambient carbon monoxide of 1.7 ppm
**Includes background concentrations of ambient carbon monoxide of 1.3 ppm
***Includes background concentrations of ambient carbon monoxide of 1.0 ppm



NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE 57

National Ambient Air Quality Standards

Pollutant	Primary Standards	Averaging Time	Secondary Standards
Carbon monoxide	10 mg/m^3 (9 ppm) 40 mg/m^3 (35 ppm)	8-hour[a] 1-hour[a]	Same as primary
Lead	1.5 $\mu g/m^3$	Quarterly average	Same as primary
Nitrogen dioxide (NO_2)	100 $\mu g/m^3$ (.053 ppm)	Annual (arithmetic mean)	Same as primary
Particulate Matter (TSP)[d]	75 $\mu g/m^3$ 260 $\mu g/m^3$	Annual (geometric mean) 24-hour[a]	60 $\mu g/m^3$ [b] 150 $\mu g/m^3$
Ozone	235 $\mu g/m^3$ (.12 ppm)	1-hour[c]	Same as primary
Sulfur oxides	80 $\mu g/m^3$ (.03 ppm) 365 $\mu g/m^3$ (.14 ppm)	Annual (arithmetic mean) 24-hour[a] 3-hour[a]	--- --- 1300 $\mu g/m^3$ (0.5 ppm)

[a] Not to be exceeded more than once per year.

[b] Guide to achieving the 24-hour standard.

[c] The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 235 $\mu g/m^3$ is equal to or less than 1.

[d] Proposed revision of primary and secondary standards is in process (see text).

NEW BEDFORD-FAIRHAVEN BRIDGE

TABLE 16

VII SECTION 4(f) ISSUES

The preferred alternative for replacement of the New Bedford-Fairhaven bridge will require the use of publicly owned park land and the elimination of a historic site. Both the park land and the historic site are protected by Section 4(f) of the U. S. Department of Transportation Act of 1966.

The historic site under consideration is the swing span section of the existing New Bedford-Fairhaven Bridge. The publicly owned park is Marine Park which occupies the south side of Popes Island.

A. *REMOVAL OF THE EXISTING BRIDGE*

The section of the New Bedford-Fairhaven Bridge which is located between Fish Island and Popes Island and contains the moveable swing span section, referred to herein as the Middle Bridge, has been judged to be eligible for the National Register of Historic Places by the keeper of the National Register of Historic Places on June 9, 1980. The preferred alternative will result in demolition of this bridge.

Since the replacement of this structure is made in the interest of public safety and system continuity and integrity, the impact of the removal of this historic resource is covered under a "Programmatic Section 4(f) Evaluation for Use of an Historic Bridge." This document fulfilled the requirement of the Programmatic Section 4(f) Evaluation by demonstrating its applicability to the project, evaluating alternatives, and identifying measures to minimize harm and it was determined by the U. S. Federal Highway Administration's Division Administrator that there were no prudent and feasible alternatives to the use of the historic bridge.

B. LOSS OF PUBLICLY-OWNED PARKLAND

The publicly-owned parkland which will be affected by the project is Marine Park, a nine and a half acre park on the south side of Popes Island owned by the City of New Bedford. The preferred alternative will result in the loss of approximately 20,000 square feet of this parkland.

Since this project is a bridge replacement on essentially the same alignment and involves minor Section 4(f) issues, the impacts of the project on the public parkland were reviewed under a "Programmatic Section 4(f) Evaluation for Minor Involvements with Public Park and Recreation Areas". This document fulfilled the requirement of the Programmatic Section 4(f) Evaluation by demonstrating its applicability to the project, evaluating alternatives, and identifying measures to minimize harm and it was determined by the U. S. Federal Highway Administration's Division Administrator that there were no prudent and feasible alternatives to the use of the publicly-owned parkland.

VIII RESPONSES TO COMMENTS

A public hearing was held for the Replacement of the New Bedford-Fairhaven Bridge, New Bedford, Massachusetts on September 9, 1982. The Environmental Assessment and a public hearing handout were made available. Also during September, the Environmental Assessment was distributed to interested agencies and other groups.

The preferred alternative presented at the hearing consisted of new construction starting on the New Bedford shore, continuing across Fish Island, crossing the navigational channel with a 20 foot minimum vertical clearance with a double leaf bascule bridge in the closed position, and extending across Popes Island to the bridge connecting with Fairhaven. A new access road and bridge were proposed from MacArthur Drive to Fish Island. Contaminated dredged material was planned to be encapsulated at Marsh Island and traffic was to be detoured over the Coggeshall Street bridge and the Interstate Route 195 bridge during construction.

As a result of the public hearing and comments received, the preferred alternative is now modified to new construction on Fish Island and Popes Island only, with a double leaf bascule bridge of 10 foot minimum vertical clearance over the navigational channel. Access to Fish Island and Popes Island will remain essentially the same. Detouring of traffic during construction remains necessary. The encapsulation of contaminated dredged material on Marsh Island is now presented as only one of several feasible contaminated dredged material disposal options. The Environmental Assessment document has been revised to reflect these changes.

All the written comments received and specific responses to them are presented in this Chapter. Responses correspond to the numbering provided in the right hand margin of the written comments.

A. COMMENTS FROM FEDERAL AGENCIES

The following letters of comment were received from Federal Agencies:

1.	Dated September 10, 1982	U.S. Department of the Interior, Fish and Wildlife Service, Ecological Services Signed by Gordon E. Beckett
2.	Dated September 23, 1982	U.S. Department of Housing and Urban Development Boston Area Office, Region 1 Signed by Edward Machado, Environmental Officer
3.	Dated September 28, 1982	United States Coast Guard First Coast Guard District Signed by W. J. Naulty, Chief, Bridge Branch

4.	Dated October 5, 1982	Department of the Army New England Division, Corps of Engineers Signed by Joseph L. Ignazio, Chief, Planning Division
5.	Dated October 13, 1982	National Oceanic and Atmospheric Administration National Marine Fisheries Service Signed by Ruth Rehfus, Branch Chief
6.	Dated February 4, 1983	U.S. Environmental Protection Agency Region 1 Signed by Elizabeth A. Higgins

Copies of these letter and responses to them follow.

A1

United States Department of the Interior

FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
P.O. BOX 1518
CONCORD, NEW HAMPSHIRE 03301

SEP 10 1982

Regional Director
National Park Service
143 South 3rd Street
Philadelphia, PA 19106

Dear Sir:

This is in response to the Federal Highway Administration's request for our review of the Environmental Assessment/Section 4(f) Statement for the New Bedford-Fairhaven Bridge (US-6), Bristol County, Massachusetts (ER 82/1455). We have prepared our comments in the third person for your convenience.

General Comments

The document is well-written and is very thorough in its review of environmental impacts. In the Fish and Wildlife Service's (FWS) review of the draft environmental assessment they had expressed concern with regards to encapsulating contaminated dredge spoil in aquatic habitat. The locations for disposal were reviewed in the final environmental assessment and an upland site on Marsh Island was chosen, thereby avoiding impact on aquatic habitat. The FWS feels that this will greatly reduce any adverse impacts to aquatic resources resulting from this project. 1

Fish and Wildlife Coordination Act Comments 2

The FWS will comment on any Corps of Engineers' permit applications in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401 as amended; 16 U.S.C. 661 et seq.). From review of the information and mitigation measures addressed in the document, it is unlikely that the FWS will object to the issuance of a permit as long as environmentally sound construction practices are maintained and no fill is placed in wetlands on Marsh Island. At the time of permit review, the FWS may recommend construction constraints and time-of-year restrictions to avoid impacting aquatic species.

Sincerely yours,

Gordon E. Beckett

Gordon E. Beckett
Supervisor

Responses to Comments
by the U. S. Fish and Wildlife Service
in a letter of September 10, 1982

1. "...an upland site on Marsh Island was chosen, thereby avoiding impact on aquatic habitat."

   Because of the considerable adverse local reaction to the choice of the Marsh Island site for the encapsulation area, the choice of contaminated dredged material disposal sites has been reevaluated. A variety of disposal options, including aquatic sites, have been presented in the revised document in Chapter V, Section A "Disposal of Contaminated Dredged Material". Site selection will be made prior to the permitting process.

2. "The FWS will comment on any Corps of Engineers' permit applications..."

   The need for an extensive permitting process during the design stage of the project, including obtaining a Department of the Army Permit, is recognized.

A2

U.S. Department of Housing and Urban Development
Boston Area Office, Region I
Bulfinch Building, 15 New Chardon Street
Boston, Massachusetts 02114

SEP 23 1982

Norman J. VanNess, Division Administrator
Federal Highway Administration, Region I
31 St. James Avenue - Room 211
Boston, MA 02116

Dear Mr. VanNess:

SUBJECT: F-156(1) Environmental Assessment
New Bedford - Fairhaven Bridge

The above Environmental Assessment which was sent to the HUD Regional Office has been referred to the Boston Area Office of HUD for review and comment.

This office has reviewed the Environmental Assessment and finds no conflicts with HUD goals and objectives.

Thank you for the opportunity to review and comment on the above assessment.

Sincerely,

Edward Machado
Environmental Officer, 1.1SS

Action | Info | Office of

Responses to Comments
by the U. S. Department of Housing and Urban Development
in a letter of September 23, 1982

No response necessary.

A3

U.S. Department of Transportation
United States Coast Guard

Commander
First Coast Guard District

150 Causeway Street
Boston, MA 02114
Staff Symbol: (obr)
Phone: 617-223-0645

16591
28 SEP 1982
(LAST)

Mr. Norman VanNess
Division Administrator
Federal Highway Administration
31 St. James Avenue - Room 211
Boston, MA 02116

Dear Mr. VanNess:

We have reviewed the Environmental Assessment for the proposed New Bedford Fairhaven Bridge, as you requested in your letter of 12 August 1982. We have several comments concerning the document.

In general, we feel that the suggestions outlined in our letters dated August 13, 1979, and February 8, 1980, have not been sufficiently addressed. We suggested the addition of a section to discuss the effect of the proposal on wetlands and a section concerned with Section 4(f) evaluation. 1

The wetlands discussion should reflect compliance with the goals of Executive Order 11990 as set forth in DOT Order 5660.1A and with the goal of Executive Order 11988 as set forth in DOT Order 5650.2. The discussions should include the new bridge to Fish Island, the new movable span, the reconstruction of the existing Fish Island Bridge, and the proposed disposal site at Marsh Island. 2

The Section 4(f) discussion does not clearly establish the benefits to be derived from the proposed vertical clearance of 20 feet. It is not demonstrated that the increased height will significantly reduce the number of drawspan openings in the future. 3 The primary reason for the use of Marine Park is not clear. Is it due to the embankment for the elevated roadway, the curve in the roadway alignment at the east end of Popes Island, or both? 4 The sight distance along the roadway east of Popes Island is unobstructed and the need to alter the existing alignment is not apparent. An alignment slightly north of the existing roadway would eliminate or reduce use of the parkland and should be considered. 5 The Section 4(f) evaluation should include a more convincing argument for not considering the No-Build alternative or the rehabilitation of the existing bridge. 6

The Section 4(f) discussion does not substantiate that "there is no feasible and prudent alternative to the use of" a portion of Marine Park for the proposed construction. The need to use the parkland must be clearly established before the 4(f) statement can be considered acceptable. 7

There are other minor comments and observations concerning the Environmental Assessment which we would be happy to discuss at your convenience.

Thank you for the opportunity to comment on the document.

Sincerely,

W. J. Naulty

W. J. NAULTY
Chief, Bridge Branch
By direction of the Commander,
First Coast Guard District

Responses to Comments
by the First Coast Guard District
in a letter of September 28, 1982

1. "We suggested the addition of a section to discuss the effect of the proposal on wetlands and a section concerned with Section 4(f) evaluation."

   o Wetlands

   Within the highly developed harbor area, there is little area that can be considered wetlands. Under the title "Marine Vegetation" in the Environmental Assessment it is stated "New Bedford-Fairhaven Harbor is predominantly an industrialized port, and supports a sparse marine flora. Disjunct patches of marshland occur on narrow strips bordering landfills and industrial sites". Thus there is no wetland impact caused by the construction of the bridge itself and its approaches.

   There is a three acre area of marshland in the northeast corner of Marsh Island which, while remote from the bridge, will be in close proximity to one of the feasible contaminated material disposal areas. It is not intended that this marshland area will be affected by the project. However, because the activity will probably lie within a 100 foot buffer zone surrounding this marshland, a "Notice of Intent" under the Massachusetts Wetlands Protection Act will be filed within the local Conservation Commission during the permitting process in the design stage if this disposal option is eventually selected.

   A section titled "Wetlands" has been included in the revised document in Chapter V to indicate that this issue has been recognized and considered.

   o Section 4(f) Evaluation

   Chapter VII of the revised document discusses the two Section 4(f) issues namely the removal of the existing historic bridge and the taking of public parkland.

2. "The wetlands discussion should reflect compliance with the goals of Executive Order 11990 as set forth in DOT Order 5660.1A and with the goal of Executive Order 11988 as set forth in DOT Order 5650.2."

   Executive Order 11990 "Protection of Wetlands" of May 24, 1977, has the basic goal "...to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands...". Wetlands are defined to "...generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds". Due to the highly developed nature of the New Bedford harbor and the prevalence of man made shorelines, there are no areas within the bridge corridor that can be considered wetlands. Thus there is no wetland impact caused by the construction of the bridge itself and its approaches. There is a three acre area of marshland in the northeast corner of Marsh Island which will be in close proximity to one of the feasible contaminated material disposal areas. This marshland area has been avoided in locating the disposal area.

Executive Order 11988 "Floodplain Management" of May 24, 1977 is intended "...to avoid adverse impacts due to occupancy and alteration of floodplains, which are lowland areas adjoining inland and coastal waters...". The floodplain is defined as "...the area which would be inundated by a 100-year flood...". The New Bedford harbor is protected by a hurricane barrier which is closed when the water level rises to four feet above mean sea level. At this point the harbor would only receive flows from the river which, in a 100-year flood situation, would raise the water level to 5.7 feet above mean sea level. Fish Island and Popes Island are both above this elevation and therefore bridge construction will not affect the floodplain. Alternatives for the disposal of contaminated dredged material may have an impact on the floodplain. Alternatives in upland areas would be above the level of the 100-year flood but those involving filling in the harbor would detract from the flood storage capability of the harbor. This is an adverse impact of aquatic disposal sites that must be recognized in the eventual choice of disposal methodology.

3. "The Section 4(f) discussion does not clearly establish the benefits to be derived from the proposed vertical clearance of 20 feet. It is not demonstrated that the increased height will significantly reduce the number of drawspan openings in the future."

   The 20 foot vertical clearance is no longer part of the preferred alternative.

4. "The primary reason for the use of Marine Park is not clear. Is it due to the embankment for the elevated roadway, the curve in the roadway alignment at the east end of Popes Island, or both?"

   The use of Marine Park is necessitated by a widening of the roadway from seventy feet to eighty two feet and a slight southerly realignment of the roadway. The slight southerly shift of the roadway is the result of changes to the horizontal alignment to eliminate curves which would be unacceptable under current design practice.

5. "The sight distance along the roadway east of Popes Island is unobstructed and the need to alter the existing alignment is not apparent. An alignment slightly north of the existing roadway would eliminate or reduce use of the parkland and should be considered."

   The alignment has been altered to eliminate curves which are not acceptable under current design practice. An alignment slightly to the north of the existing roadway is not possible given the orientation of the fixed bridges on either end which must be met. In any case, both Fish

Island and Popes Island have numerous buildings located immediately to the north of the roadway which it would not be prudent to eliminate.

6. "The Section 4(f) evaluation should include a more convincing argument for not considering the No-Build alternative or the rehabilitation of the existing bridge."

   The basic reason for not selecting the "No Build" Option, identified as Alternative 1 in the Environmental Assessment, is that the bridge is over 80 years old and experiences continuing operational problems. Taking no action would not be consistent with the need to maintain a reliable crossing at this location.

   The "Rehabilitation of the Existing Bridge", Alternative 2a in the Environmental Assessment implies that the bridge structure, which was designed for considerably different types of both navigational and roadway traffic than currently use the bridge, would remain essentially unchanged. Rehabilitation of the existing bridge implies that the roadway would remain at its current width and that the clearspan at the shipping channel would remain at its current width. The bridge structure has been periodically rehabilitated throughout its lifetime but a point has been reached where maintenance expenditures become continuously less effective.

7. "The Section 4(f) discussion does not substantiate that "there is no feasible and prudent alternative to the use of" a portion of Marine Park for the proposed construction. The need to use the parkland must be clearly established before the 4(f) statement can be considered acceptable."

   If it is accepted that some action other than rehabilitation must be taken, there are three basic alternatives to the replacement of the bridge: An alignment to the north, an alignment to the south, and reuse of the existing alignment.

   An alignment to the north is not prudent because of the businesses which must be eliminated on both Fish Island and Popes Island. An alignment to the south is extremely disruptive to the park area.

   Reuse of the existing alignment necessitates a temporary detour but this has been judged advisable because of the severe impacts of either a north or south alignment. Because of the close proximity of the parkland to the roadway, widening and alignment adjustments result in a strip taking along the roadway edge.

   A Programmatic Section 4(f) Evaluation for Minor Involvement in a Public Park was prepared and reviewed. In the judgment of the U. S. Federal Highway Administration's Division Administrator there is no prudent and feasible alternative to the use of this public parkland.

A4

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
424 TRAPELO ROAD
WALTHAM, MASSACHUSETTS 02254

REPLY TO
ATTENTION OF

NEDPL-I

5 October 1982

(LAST)

Mr. Frank Bracaglia
Staff Specialist for the Environment
Federal Highway Administration
31 St. James Avenue
Boston, Massachusetts 02116

Dear Mr. Bracaglia:

We have reviewed the Environmental Assessment for the Replacement of the New Bedford-Fairhaven Bridge in New Bedford, Massachusetts. The proposed work would involve dredging of 17,000 cubic yards of harbor sediments for the bridge replacement which would be deposited in a constructed confined-upland disposal area on nearby Marsh Island.

Our Regulatory Branch has determined that the proposed work would require Department of Army permits under Section 404 of the Clean Water Act of 1972 and under Section 10 of the Rivers and Harbors Act of 1899. When you apply for the permits we will require the results of the elutriate tests as well as detailed drawings and descriptions of the proposed work. Also, please include specific information on (1) the quantity and quality of any temporary or permanent fill placed below the ordinary high water mark; (2) the proposed mitigation measures that would control turbidity and the effluent water quality; and (3) the proposed monitoring of the effluents. 1

There are a number of statements and information in the text which should have been referenced. Citation of appropriate scientific literature lends credibility to the author's discussion and analyses. 2

disposal

Aside from Figures 28-31, the document provided little information on the engineering feasibility of the proposed "encapsulated" disposal area on Marsh Island. A detailed discussion would have been appropriate in the Appendix. Our agency has performed a number of generic studies to outline guidelines for planning, development and operation of such facilities. Appropriate synthesis reports of various studies are shown in the attached inclosure and are available from the National Technical Information Service (NTIS), Department of Commerce, Washington, DC or at our Technical 3

NEDPL-I 5 October 1982
Mr. Frank Bracaglia

Library in Waltham. The specific studies referenced in each synthesis report are also available in the above stated repositories. A number of these reports address future use of confinement areas after project completion which should also be addressed in your Assessment. Should a formal Environmental Impact Statement be required, we request that our office be included as a cooperating agency to provide input to the required scoping. 4

We hope the comments will aid you in your planning of this project. Should you have any questions, please contact Mr. David Tomey, of my staff at (617) 647-8139 or Mr. James Law of our Regulatory Branch at 647-8148 for regulatory matters.

Sincerely,

Nicholas E. Votge

for JOSEPH L. IGNAZIO
Chief, Planning Division

Incl
As stated

Confined disposal area effluent and leachate control. (Laboratory and field investigations.) Synthesis report. [1]Kenneth Y. Chen, [1]James L. Mang, [1]Bert Eichenberger, [2]Ronald E. Hoeppel. [1]Los Angeles, CA, University of Southern California; [2]Vicksburg, MS, U.S. Army Engineer Waterways Experiment Station, Environmental Laboratory, October 1978. Technical Report DS-78-7 (NTIS No. AD-062 882).

Assessment of low-ground-pressure equipment for use in containment area operation and maintenance. Synthesis report. William E. Willoughby. Vicksburg, MS, U.S. Army Engineer Waterways Experiment Station, Environmental Laboratory, July 1978. Technical Report DS-78-9 (NTIS No. AD-A058 501).

Guidelines for designing, operating, and managing dredged material containment areas. Synthesis report. Michael R. Palermo, Raymond L. Montgomery, Marian E. Poindexter. Vicksburg, MS, U.S. Army Engineer Waterways Experiment Station, Environmental Laboratory, December 1978. Technical Report DS-78-10.

Guidelines for dewatering/densifying confined dredged material. Synthesis report. T. Allan Haliburton. Vicksburg, MS, U.S. Army Engineer Waterways Experiment Station, Environmental Laboratory, September 1978. Technical Report DS-78-11 (NTIS No. AD-A060 405).

Guidelines for disposal area reuse. Synthesis report. Raymond L. Montgomery, Alfred W. Ford, Marian E. Poindexter, Michael J. Bartos. Vicksburg, MS, U.S. Army Engineer Waterways Experiment Station, Environmental Laboratory, February 1979. Technical Report DS-78-12.

Upland and wetland habitat development with dredged material: ecological considerations. Synthesis report. John D. Lunz, Robert J. Diaz, Richard A. Cole. Vicksburg, MS, U.S. Army Engineer Waterways Experiment Station, Environmental Laboratory, November 1978. Technical Report DS-78-15 (NTIS No. AD-A067 828).

Wetland habitat development with dredged material: engineering and plant propagation. Synthesis report. Vicksburg, MS, U.S. Army Engineer Waterways Experiment Station, Environmental Laboratory, December 1978. Technical Report DS-78-16.

Upland habitat development with dredged material: engineering and plant propagation. Synthesis report. L. Jean Hunt, Alfred W. Ford, Mary C. Landin, B. R. Wells. Vicksburg, MS, U.S. Army Engineer Waterways Experiment Station, Environmental Laboratory, December 1978. Technical Report DS-78-17

An introduction to habitat development on dredged material. Synthesis report. Hanley K. Smith. Vicksburg, MS, U.S. Army Engineer Waterways Experiment Station, Environmental Laboratory, December 1978. Technical Report DS-78-19 (NTIS No. AD-A067 202).

Productive land use of dredged material containment areas: planning and implementation considerations. Synthesis report. Michael R. Walsh, Mark D. Malkasian. Vicksburg, MS, U.S. Army Engineer Waterways Experiment Station, Environmental Laboratory, September 1978. Technical Report DS-78-20.

Responses to Comments
by the Corps of Engineers
in a letter of October 5, 1982

1. "Our Regulatory Branch has determined that the proposed work would require Department of Army permits under Section 404 of the Clean Water Act of 1972 and under Section 10 of the Rivers and Harbors Act of 1899."

   It has always been assumed, based on past experience and on early coordination contacts with the Corps of Engineers, that a Department of the Army Permit will be required. An application will be filed during the design stage of the project.

2. "There are a number of statements and information in the text which should have been referenced. Citation of appropriate scientific literature lends credibility to the author's discussion and analyses."

   The main objective of the Environmental Assessment was to present a complicated subject in a manner that was readable and comprehensible to the general public. It was determined early in the preparation of the document that citations to the literature would be counterproductive to this objective. An attempt has been made to provide greater documentation in the revised document while trying to maintain readability.

   The following published materials were used in the preparation of the document and can be referred to for greater detail on specific subjects:

   - Draft Feasibility Study of Remedial Action Alternatives, Acushnet River Estuary Above Coggeshall Street Bridge, New Bedford Site, Bristol County, Massachusetts, prepared for the Environmental Protection Agency by NUS Corporation, August 1984.

   - PCB Pollution in the New Bedford, Massachusetts Area: A Status Report, prepared for Massachusetts Coastal Zone Management by Grant Weaver, environmental engineer, June 1982.

   - PCB in the Upper Hudson River: Sediment Distributions, Water Interactions and Dredging, prepared by T. J. Tofflemire, L. J. Hetling, and S. O. Quinn of the New York State Department of Environmental Conservation, January 1979.

   - Summary of Hudson River PCB Study Results, prepared by L. Hetling, E. Horn, and J. Tofflemire of the New York State Department of Environmental Conservation, July 1978.

   - Environmental Assessment, Maintenance Dredging of New Bedford Harbor, prepared for the U. S. Army Corps of Engineers by Jason M. Cortell and Associates, 1978.

   - Fine-Grained Sediment and Industrial Waste Distribution and Dispersal in New Bedford Harbor and Western Buzzards Bay, Massachusetts, by Colin P. Summerhayes et al, Woods Hole Oceanographic Institution, unpublished manuscript, April 1977.

- o Data File: New Bedford Harbor, Massachusetts, by Jeffrey P. Ellis et al, Woods Hole Oceanographic Institution, unpublished manuscript, December 1977.

- o Hurricane Survey, New Bedford-Fairhaven, Massachusetts, U. S. Army Corps of Engineers, 1957.

3. "Aside from Figures 28-31, the document provided little information on the engineering feasibility of the proposed "encapsulated" disposal area on Marsh Island. A detailed discussion would have been appropriate in the Appendix."

   The representation of the disposal area on Marsh Island is intended to provide a general indication of the scale of the facility, its appearance during construction and at the completion of construction, and the method of isolation of the contaminated material. It is not the intent of the environmental document to provide a detailed operating procedure or design. After selection of the methodology, detailed designs will be undertaken.

4. "A number of these reports address future use of confinement areas after project completion which should also be addressed in your Assessment." The references will be used in any future designs for disposal areas.

A5

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Services Division
Habitat Protection Branch
7 Pleasant Street
Gloucester, MA 01930

Action	Info	Office of:
		Div. Adm.
		Asst. Div. Adm.
		Admin.
		Dist. Engr. A
		Dist. Engr. B
		Environ.
		Planning
		Struc. & Safety
		R/W
		Audits
		JS

October 13, 1982

Mr. N. J. Van Ness
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
Region One
31 St. James Avenue, Room 211
Boston, Massachusetts 02116

Dear Mr. Van Ness:

This is in regard to the Environmental Assessment (EA) for the replacement of the New Bedford-Fairhaven Bridge, New Bedford, Massachusetts.

We have reviewed the EA and have determined that we are primarily concerned with the dredging and subsequent disposal of 17,000 cubic yards of contaminated harbor sediments that are required for replacement of the bridge abutments. The harbor sediments have been shown to contain significant levels of PCBs, heavy metals, and organic pollutants, and they must be specially handled. According to the EA, special handling techniques are being proposed to minimize potential environmental impact. These techniques include using hydraulic dredging and silt curtains at the dredge site to significantly reduce the resuspension of sediments; disposal within a containment structure, using settling basins, and if necessary polymers and filters to remove much of the particulate material and associated contaminants from the disposal area effluent; and limiting dredging and disposal operations to winter months to further reduce potential biological impacts.

Although, in our opinion, the EA is well written and deals with most of our concerns, some additional considerations seem to have been overlooked. First, it appears that no elutriate tests were done 1
on the proposed dredged material. Although it is well recognized that contaminants are tightly bound to sediment particles, agitation from hydraulic dredging could cause contaminants to become dissociated from the sediment particles and become potentially biologically available in the disposal area effluent. An elutriate test should be performed on the proposed dredged material prior to any dredging to determine the potential biological availability of the contaminants currently adsorbed to sediment particles. Second, it is possible that,
despite implementation of some or all of the proposed special handling 2
techniques, the disposal area effluent may contain unacceptable levels of contaminants. The EA states that elutriate tests would be done on the disposal area effluent to ensure consistency with Corps of Engineers'

requirements. However, it does not indicate what procedures would be followed if those tests indicate that water quality standards are not being met. Therefore, we suggest that a contingency plan be prepared to deal with this possibility.

New Bedford Harbor already has many acres of harbor bottom closed to fishing due to excessive pollution. To minimize the potential for further spreading of contaminants, these important concerns should be dealt with in detail before proceeding with the proposed project.

Sincerely,

Ruth Rehfus

Ruth Rehfus
Branch Chief

Responses to Comments
by the National Marine Fisheries Service
in a letter of October 13, 1982

1. "First, it appears that no elutriate tests were done on the proposed dredged material."

   This is correct. No elutriate test has been conducted on the dredged material. An elutriate test will be performed as part of the permitting process during the design stage.

2. "Second, it is possible that, despite implementation of some or all of the proposed special handling techniques, the disposal area effluent may contain unacceptable levels of contaminants. The EA states that elutriate tests would be done on the disposal area effluent to ensure consistency with Corps of Engineers' requirements. However, it does not indicate what procedures would be followed if those tests indicate that water quality standards are not being met. Therefore, we suggest that a contingency plan be prepared to deal with this possibility."

   The Environmental Assessment states that "If the effluent is not of acceptable quality, a package-type multi-media filter unit will be installed to remove the suspended particles and their associated contaminants". However, other commentors on the Environmental Assessment have requested that this procedure not be used as a contingency plan but as a basic requirement for performing the work. There is no objection to this nor to making an overall commitment to using the best available technology at the time the work will take place.

   The handling of disposal area effluent is discussed in Chapter V, Section A "Disposal of Contaminated Dredged Material".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J. F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203

February 4, 1983

Frank Bracaglia
Staff Specialist for the Environment
Federal Highway Administration
U.S. Department of Transportation
Kendall Square
Cambridge, Massachusetts

Dear Frank:

At your request, we have reviewed the Draft Environmental Assessment (EA) for the proposed Replacement of the New Bedford-Fairhaven Bridge, Route 6, over New Bedford-Fairhaven Harbor, Massachusetts.

Based on my conversations with you, it is my understanding that the project has been on hold for several months due to unresolved questions concerning alternative vertical height clearances and right-of-way locations. However, you have also indicated that you would like for us to comment on the project as described in the current EA with the understanding that the project and its potential environmental impacts may change significantly and be subject to additional environmental review in the future.

As you may know, New Bedford Harbor is on the national priority list of sites under the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) due to the presence of high levels of polychlorinated biphenols (PCBs) in harbor sediments. The designation of New Bedford Harbor as a Superfund site means that some type of remedial action may be needed and that a remedial investigation is required to determine the actual degree of danger to the public and the environment. A feasibility study, which is scheduled to start this spring, will examine site specific remedial alternatives for New Bedford Harbor. In view of the fact that the bridge project is likely to involve dredging and disposal of some highly contaminated material, we believe it is important that the project be coordinated with the overall plan for remedial activities, and that a decision on the project should await completion of the Superfund feasibility study. 1

In addition, as the EA states, the disposal of sediments contaminated with greater than 50 parts per million of PCBs requires the approval of the EPA Regional Administrator under the Toxic Substances Control Act. It is as yet unclear from the EA whether the bridge project will require such an approval. Also, the project will require a permit issued by the Corps of Engineers under Section 404 of the Clean Water Act, which EPA reviews to 2 3 evaluate compliance with our Section 404(b)(1) guidelines. Based on our review of the EA, we do not believe that sufficient information exists about the currently proposed New Bedford-Fairhaven Bridge project and its potential environmental and public health effects. Our concerns and the questions we believe need to be answered are discussed in the attachment to this letter.

We would be pleased to assist you and the Department of Public Works in developing needed information so that this project can proceed in an environmentally sound manner. Any technical questions or questions about our statutory authorities as they apply to this project should be directed to Jerry Sotolongo (223-5775) who is our New Bedford coordinator. Also, please feel free to call me at 223-1740 about any overall environmental review requirements.

Sincerely,

Elizabeth A. Higgins

Elizabeth A. Higgins
Environmental Review Coordinator

cc: Gregory Prendergast, MA DPW
Vyto Andreliunas, COE
Samuel Mygatt, EOEA

EPA COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED NEW BEDFORD-FAIRHAVEN BRIDGE

PROJECT DESCRIPTION

The existing bridge, consisting of three segments, the East Bridge, Middle Bridge and West Bridge, is a four-lane structure which carries Route 6 for three quarters of a mile over New Bedford Harbor across Fish Island and Popes Island. At the navigational channel between Fish Island and Popes Island, the Middle Bridge contains a 79-year old moveable section known as a swing span.

The Department of Public Works (DPW) proposes to build a new bridge on an alignment nearly identical to that of the existing bridge. The swing span will be replaced with a double leaf bascule span which will provide for an increased vertical and horizontal clearance. The project also includes construction of a new two-lane bridge between New Bedford and Fish Island to the north of and parallel to the new west segment of the bridge to provide access to Fish Island.

According to the Environmental Assessment (EA), the project requires dredging of 17,000 cubic yards for foundation excavation and channel clearing. The dredged material, which is contaminated with PCBs, heavy metals and organic pollutants, is proposed to be disposed of by "encapsulation" on Marsh Island, a 30-acre peninsula in Fairhaven in the northeast corner of New Bedford Harbor.

The project, estimated in 1982 dollars to cost $30 million, is planned to be completed in 1987, after five years of design and construction.

Lack Of Information

In general, the EA is seriously deficient, and we believe the project should not proceed until adequate information is provided. Listed below are the main areas we believe need more attention.

- Whether material contaminated with greater than 50 ppm of PCBs will be dredged or resuspended during construction. The EA is unclear on this point. On the one hand, it says that dredging of material with greater than 50 ppm PCBs can be avoided in the replacement of the existing bridge by use of trestle construction. However, we note that construction of the new access bridge to Fish Island will be in the area where greater than 50 ppm have been measured, and it is not clear whether it would be technically possible to avoid dredging for new foundation excavation. The EA is silent on the PCB implications of this new access bridge. 4

- What construction techniques will be used in building the new access bridge to Fish Island in the area of highest PCB contamination? 5

- What water quality and biological impacts will occur during dredging, for what duration, and what alternative control measures are available? 6

- Whether hydraulic dredging is the safest method or whether alternatives, such as "Pneuma" dredge or clamshell dredging with subaqueous disposal, 7 may be preferable.

- What methods of leak detection, monitoring, and emergency response will be used with regard to the transport of material through the pipeline? 8

- What are the geological conditions at the Marsh Island disposal site that would indicate its suitability as a disposal site? 9

- What potential exists for PCBs to volatilize at the disposal site and what threat would this pose to nearby residences, and what controls, 10 monitoring and emergency response will be employed?

- What level of contamination, if any, now exists at Marsh Island, given its historical use as a disposal site for dredged material? 11

- How will the "encapsulation" site be designed, constructed, operated and secured? 12

- Will the disposal site be of sufficient capacity to permit disposal from future remedial dredging operations? 13

- What levels of PCBs, metals and organic pollutants will be present in the discharge from the disposal site, and what alternative treatment 14 technologies are available?

- What air quality impacts will result from the detour of traffic during the bridge reconstruction? 15

PRELIMINARY COMMENTS ON IMPACTS

As discussed above, the EA does not provide enough information to permit a thorough review at this time. However, based on the limited evaluation in the EA we have the following preliminary comments:

Dredging Impacts

The hydraulic dredging operation as described in the EA could cause the resuspension and release of large quantities of sediment contaminated with 16 PCBs, heavy metals and organic pollutants into the water column, resulting in bioaccumulation of these pollutants. The EA suggests but does not commit to the use of turbidity screens as a mitigating measure, and we are concerned that these might not be effective.

The EA states that there would be a mile-long steel pipe connecting the 17 hydraulic dredge to the disposal site at Marsh Island. Because this type of pipe is not designed to be watertight, according to the Corps of Engineers, it is probable that some contaminants would leak out of the pipe into the Harbor on its way to the disposal site.

Disposal Site Impacts

The proposed disposal site is located several hundred feet from a residential area. While the plan is to eventually "encapsulate" the site, the material would apparently be exposed for the duration of the dredging operation. Although the EA does not address this issue, the concern here is that PCBs could become airborne and potentially reach the residential area. We believe 18
that air monitoring will probably need to be conducted and provisions made to stop the project and/or cover the material during dredging should monitoring indicate a problem.

According to the EA, the use of an hydraulic dredge has the advantage of causing less resuspension at the dredging site (compared to clamshell dredge), but it does create a great amount of water at the disposal site. According to the EA, the pipe from the dredge would discharge to settling lagoons at the disposal site a mixture of water and sediment at a ratio of 80 to 90 percent water to 10 to 20 percent sediment. The uncontrolled release of this water from the disposal site into the Harbor could cause serious adverse impacts. The EA proposes the treatment of the settling 19
basin effluent with cationic polymers to increase settling time efficiency, but we question whether this would only result in helping contaminated sediment settle back into the Harbor. Regarding any additional treatment of the discharge, the EA states that the discharge will be monitored and if "unacceptable" levels are detected, a multi-media filter unit will be 20
installed. At this time it is our opinion that installing treatment only after a problem is shown to exist would not be appropriate, and that the use of best available control technology to treat the discharge is warranted.

Responses to Comments
by the Environmental Protection Agency
in a letter of February 4, 1983

1. "In view of the fact that the bridge project is likely to involve dredging and disposal of some highly contaminated material, we believe it is important that the project be coordinated with the overall plan for remedial activities, and that a decision on the project should await completion of the Superfund feasibility study."

   It is intended that the bridge replacement project be able to proceed independently of any other activity in the harbor. The basic goal of the project is the replacement of an existing structure which, because of its age and condition, is no longer suitable to carry out its intended function. An overall solution to the contaminated material disposal problem in the harbor is not a necessary part of meeting this goal. *

   Coordination with other ongoing projects in the area will be carried out as a normal part of project development. If the disposal of the contaminated dredged material associated with the bridge replacement project can be done in conformance with an overall plan for remedial action in the harbor this will most certainly be done.

2. "In addition as the EA states, the disposal of sediments contaminated with greater than 50 parts per million of PCBs requires the approval of the EPA Regional Administrator under the Toxic Substances Control Act. It is as yet unclear from the EA whether the bridge project will require such an approval."

   The testing done in the area of the existing bridge in the Spring of 1982, which was presented in the Environmental Assessment, indicates PCB concentrations of greater than 50 parts per million occurring in the area between the New Bedford shore and Fish Island. The concentrations in the area between Fish Island and Popes Island, where the moveable bridge is located, are all less than 50 parts per million.

   The project originally presented in the Environmental Assessment included an access bridge to Fish Island from the New Bedford shore which would have crossed the area where PCB concentrations of greater than 50 parts per million were found. This bridge was planned to be constructed on piles so that no excavation and disposal of contaminated material would be required.

   Since the original publication of the Environmental Assessment, the access bridge to Fish Island has been deleted from the project mainly because it eliminated docking space along the New Bedford shore. The current project, therefore, involves no activity at all in the area between the New Bedford shore and Fish Island where testing indicated the presence of PCB concentrations greater than 50 parts per million.

3. "Also, the project will require a permit issued by the Corps of Engineers under Section 404 of the Clean Water Act, which EPA reviews to evaluate compliance with our Section 404(b)(1) guidelines. Based on our review of the EA, we do not believe that sufficient information exists about the currently proposed New Bedford-Fairhaven Bridge project and its potential environmental and public health effect."

   The "Application for a Department of the Army Permit" will be filed along with all other necessary applications during the permitting process in the design stage. The responses for the EPA's specific questions which follow either provide or refer to information on the project and its impacts.

4. "Whether material contaminated with greater than 50 ppm of PCBs will be dredged or resuspended during construction. The EA is unclear on this point. On the one hand, it says that dredging of material with greater than 50 ppm PCBs can be avoided in the replacement of the <u>existing</u> bridge by use of trestle construction. However, we note that construction of the <u>new</u> access bridge to Fish Island will be in the area where greater than 50 ppm have been measured, and it is not clear whether it would be technically possible to avoid dredging for new foundation excavation. The EA is silent on the PCB implications of this new access bridge."

   Since the original publication of the Environmental Assessment, the access bridge to Fish Island has been deleted from the project mainly because it eliminated docking space along the New Bedford shore. The current project, therefore, involves no activity at all in the area between the New Bedford shore and Fish Island where testing indicated the presence of PCB concentrations greater than 50 parts per million.

5. "What construction techniques will be used in building the new access bridge to Fish Island in the area of highest PCB contamination?"

   The access bridge to Fish Island was intended to be trestle construction but this structure is no longer included as part of the bridge replacement project.

6. "What water quality and biological impacts will occur during dredging, for what duration, and what alternative control measures are available?"

   Sections on "Water Quality Impacts of Dredging", "Biological Impacts of Dredging", and "Selection of Dredging Methods" are included in the Environmental Assessment in Chapter V, Section A "Disposal of Contaminated Dredged Material".

7. "Whether hydraulic dredging is the safest method or whether alternatives, such as "Pneuma" dredge or clamshell dredging with subaqueous disposal, may be preferable."

   While certain proprietary methods of hydraulic dredging may be available, the basic choice remains between "the hydraulic method or the bucket method" as stated in the Environmental Assessment. It was concluded in the Environmental Assessment that bucket dredging would be utilized for the foundation excavation which would take place inside cofferdams and hydraulic dredging would be utilized for channel clearing in open waters.

With regard to a subaqueous disposal site it was stated in the Environmental Assessment that, "Disposal of the dredged material in open waters is precluded because neither Massachusetts or Rhode Island have disposal sites in state waters. Spoils would not be contained in any way in an open dumping operation and both PCB and heavy metal contamination would spread".

Given these conditions, it does not seem reasonable to continue to suggest subaqueous disposal.

It is clear that the best approach for channel clearing in open waters is some form of hydraulic dredging. It should be noted that the amounts of material to be dredged are relatively small and that it may not prove feasible to employ specific types of hydraulic dredging for which equipment is not commonly available. Even for the huge amount of material involved in the cleanup of the New Bedford upper harbor it was determined not to consider use of the "Pneuma" dredge because of "limited availability" (see Draft Feasibility Study of Remedial Action Alternatives, Acushnet River Estuary Above Coggeshall Street Bridge, prepared by the Environmental Protection Agency by NVS Corporation, August 1984, page B-21).

8. "What methods of leak detection, monitoring, and emergency response will be used with regard to the transport of material through the pipeline?"

   In past dredging projects, the Massachusetts Department of Public Works has relied strictly on continuous visual inspection of the hydraulic dredging pipeline by individuals assigned specifically to this task. The response is to cease the dredging operation until the leak can be repaired.

9. "What are the geological conditions at the Marsh Island disposal site that would indicate its suitability as a disposal site?"

   The Marsh Island disposal site was not chosen on the basis of its geological conditions but rather by a process of elimination because of the scarcity of open space in the harbor area.

   The only geological conditions which might be relevant to the use of a specific site for an encapsulation area would be a potential for drastic settlement which might result in cracking of the encapsulation material or an exposure to tidal action or flooding. The Marsh Island site does not differ from any other harbor sites in these aspects.

10. "What potential exists for PCBs to volatilize at the disposal site and what threat would this pose to nearby residences, and what controls, monitoring and emergency response will be employed?"

   PCBs are known to become airborne. Since the dredge material will be wet when transported to the encapsulation area and the material will constantly be covered by new wet material, the potential for volatilization will be reduced. In L. Hetling, E. Horn, and J. Tofflemire, Summary of Hudson River PCB Study Results, Technical Paper #51, New York State Department of Environmental Conservation, Revised July 1978, it was reported that "Dredge spoil appears to be a much weaker source of PCBs to the atmosphere than the landfills or the manufacturing facilities, but do constitute a definite source at least when recently dredged" (page 38) and "...organic particulate matter strongly absorbs PCBs and retards the rate of evaporation from water" (page 34). The proposed control is to complete the operation as quickly as possible and to utilize a plastic liner over intermediate layers of dredged material.

11. "What level of contamination, if any, now exists at Marsh Island, given its historical use as a disposal site for dredge materials?"

    The present level of contamination on Marsh Island is not known. The creation of the encapsulation area will not involve any excavation of existing material.

12. "How will the "encapsulation" site be designed, constructed, operated and secured?"

    The section "Disposal of Contaminated Dredged Material" in the Environmental Assessment includes descriptions and illustrations of the encapsulation area both in operation and when completed. The site can be secured by fencing or whatever means is acceptable to the Town of Fairhaven.

13. "Will the disposal site be of sufficient capacity to permit disposal from future remedial dredging operations?"

    No. A disposal site that is prepared specifically for this project will be of a size that will accommodate only the dredged material produced from the foundation excavation and channel clearing required for the bridge replacement project. As stated in the Environmental Assessment, this amount is estimated at approximately 17,000 cubic yards. The encapsulation area will be closed at the completion of this dredging operation and there will be no provisions for future expansion.

14. "What levels of PCBs, metals and organic pollutants will be present in the discharge from the disposal site, and what alternative treatment technologies are available?"

    An estimate of the PCB content of the "effluent from the disposal area" was provided in the Environmental Assessment as follows:

    "A simple calculation can be roughly diagnostic of the effluent from the disposal area. The sediments being brought to the disposal area contain PCBs at concentrations of approximately 20 parts per million or less. The slurry that constitutes the hydraulic dredge spoil will be at least 80 percent water, so that if all the PCBs moved to the water fraction, the PCB concentration in the water would be on the order of 5 parts per million, at the most. Of course, not all the PCBs will move into the water, and it is estimated that 90 percent of those would settle out in

100 hours. The effluent PCB concentration is thus almost certain to be very small. The sediment heavy metal concentrations should also be reduced considerably in the effluent."

An elutriate test to estimate the characteristics of this effluent will be performed as part of the permitting process.

15. "What air quality impacts will result from the detour of traffic during the bridge reconstruction?"

    Air quality impacts of the temporary construction related detour of traffic were considered in the document Indirect Source Analysis of the Detour Route of the New Bedford-Fairhaven Bridge Replacement, by HMM Associates, September 1982 and subsequent analyses. The analysis revealed that, assuming a statewide inspection and maintenance program to be operative, there would be no violations of the National Ambient Air Quality Standards for carbon monoxide concentrations at the five intersections along the detour route which were analyzed.

16. "The hydraulic dredging operation as described in the EA could cause the resuspension and release of large quantitites of sediment contaminated with PCBs, heavy metals and organic pollutants into the water column, resulting in bioaccumulation of these pollutants. The EA suggests but does not commit to the use of turbidity screens as a mitigating measure, and we are concerned that these might not be effective."

    Any disturbance to the harbor bottom could cause the resuspension of sediment. The potential for such resuspension is clearly recognized in the Environmental Assessment and hydraulic dredging for channel clearing is proposed as the most effective way of minimizing this adverse impact.

    The Massachusetts Department of Public Works will make a commitment to the use of turbidity screens. The effectiveness of such screens has been questioned but we are unaware of any alternative.

17. "The EA states that there would be a mile-long steel pipe connecting the hydraulic dredge to the disposal site at Marsh Island. Because this type of pipe is not designed to be watertight, according to the Corps of Engineers, it is probable that some contaminants would leak out of the pipe into the Harbor on its way to the disposal site."

    Given the advisability of hydraulic dredging in this situation, there is no other option available for transport to the disposal site other than a pipeline.

18. "Although the EA does not address this issue, the concern here is that PCBs could become airborne and potentially reach the residential area. We belive that monitoring will probably need to be conducted and provisions made to stop the project and/or cover the material during dredging should monitoring indicate a problem."

    PCBs are known to become airborne. Since the dredged material will be wet when transported to the encapsulation area and the material will constantly be covered by new wet material, the potential for volatilization will be reduced. In L. Hetling, E. Horn, and J. Tofflemire, Summary of Hudson River PCB Study Results, Technical Paper #51, New York State Department of Environmental Conservation, Revised July 1978, it was reported that "Dredge spoil appears to be a much weaker source of PCBs to the atmosphere than the landfills or the manufacturing facilities, but do constitute a definite source at least when recently dredged" (page 38) and "...organic particulate matter strongly absorbs PCBs and retards the rate of evaporation from water" (page 34). The proposed control is to complete the operation as quickly as possible and to utilize a plastic liner over intermediate layers of dredged material.

19. "The EA proposes the treatment of the settling basin effluent with cationic polymers to increase settling time efficiency, but we question whether this would only result in helping contaminated sediment back into the Harbor."

    The settlement process that could be enhanced by the application of "cationic polymers" would take place within the encapsulation area prior to runoff.

20. "Regarding any additional treatment of the discharge, the EA states that the discharge will be monitored and if "unacceptable" levels are detected, a multi-media filter unit will be installed. At this time it is our opinion that installing treatment only after a problem is shown to exist would not be appropriate, and that the use of best available control technology to treat the discharge is warranted."

    There is no objection to making a general commitment to the use of the best available control technology.

    The handling of disposal area effluent is discussed in Chapter V, Section A "Disposal of Contaminated Dredged Material".

B. COMMENTS FROM STATE AGENCIES AND OFFICIALS

The following letters of comment were received from Agencies and Officials of the Commonwealth of Massachusetts:

1.	Dated September 22, 1982	Department of Environmental Quality Engineering, Southeast Region Signed by Vaughn M. Steeves
2.	Dated November 10, 1982	Department of Environmental Quality Engineering, Southeast Region Signed by Vaughn M. Steeves
3.	Dated June 9, 1983	Senator William Q. MacLean, Jr.
4.	Undated	Executive Office of Environmental Affairs Signed by Samuel G. Mygatt

Copies of these letters and responses to them follow.

B1

The Commonwealth of Massachusetts

Executive Office of Environmental Affairs

Department of Environmental Quality Engineering

Southeast Region

Lakeville Hospital, Lakeville, Massachusetts 02346

947-1231, Ext. 680-684

ANTHONY D. CORTESE Sc. D
Commissioner

PAUL T. ANDERSON
Regional Environmental Engineer

September 22, 1982

Mr. Samuel Mygatt
Executive Office of Environmental
Affairs - MEPA Unit
100 Cambridge Street
Boston, Massachusetts 02202

RE: SMAPCD--NEW BEDFORD--Environmental Assessment, Replacement of the New Bedford-Fairhaven Bridge

Dear Sir:

The Southeast Regional Office of the Department of Environmental Quality Engineering has received a copy of the Environmental Assessment for the Replacement of the New Bedford-Fairhaven Bridge in New Bedford, Massachusetts. A review of this document has been conducted by staff of the Air Quality Control Section and the Department would like to offer the following comments:

1. Replacement of this bridge has a high priority to this area of the region. The Department is satisfied from an air quality standpoint that all possible designs and sites have been examined and that the best reasonable alternative is that which was selected as the preferred alignment-alternative 3A (modified).

2. It was noted that in the Air Quality Analysis EPA Mobile I emission factors were used with a Caline 2 modeling methodology. This should be upgraded to use EPA Mobile 2 emission factors and Caline 3 modeling procedures as is currently acceptable by Department standards. 1

3. The Department is concerned about the proposed detours during the construction period. Analysis should be conducted on these proposed detour routes including: 2

   a. Existing and projected traffic conditions.

   b. adequacy of existing intersection signals to accommodate the shift in traffic volumes.

   c. Mobil source pollutant impacts on critical receptors along the detour routes (e.g. nursing homes, schools, high density residential areas).

   d. potential mitigating measures including but not limited to the use of Route I-240 and I-195 as the primary by-pass for through traffic.

Analysis of the detour routes should be conducted following consultation with this Regional office in order that all parameters of the analysis be agreed upon by the parties involved.

Should you have any questions regarding this memorandum please feel free to contact Ms. Laurel Jenney.

Very truly yours,

For the Commissioner

Vaughan M. Steeves, Acting Chief
Air Quality Control Section

S/LJ/cab

cc: Mr. Craig Predergast
Bureau of Project Development
MDPW
100 Nashua Street
Boston, MA 02114

Mr. William Hersey
Sverdrup & Parcel
225 Franklin Street
Boston, MA

Mr. William Groot
HMM Associates
255 Bear Hill Road
Waltham, MA 02154

Mr. Roland Hebert
SRPEDD
25 Barnum Street
Taunton, MA 02780

Responses to Comments
by the Department of Environmental Quality Engineering
Southeast Region
in a letter of September 22, 1982

1. "...use EPA Mobile 2 emission factors and Caline 3 modeling procedures as is currently acceptable by Department standards."

   An analysis using these modeling procedures was performed and reported in the document Update to the Air Quality Analysis of the Environmental Assessment of the New Bedford-Fairhaven Bridge Replacement, by HMM Associates, September 1982. The results are reported in the text of the revised document.

2. "The Department is concerned about the proposed detours during the construction period. Analysis should be conducted on these proposed detour routes..."

   An anlysis was performed and reported in the document Indirect Source Analysis of the Detour Route of the New Bedford-Fairhaven Bridge Replacement, by HMM Associates, September 1982. The results are reported in the text of the revised document.

B2

The Commonwealth of Massachusetts

Executive Office of Environmental Affairs
Department of Environmental Quality Engineering
Southeast Region
Lakeville Hospital, Lakeville, Massachusetts 02346
947-1231, Ext. 680-684

ANTHONY D. CORTESE Sc. D
Commissioner

PAUL T. ANDERSON
Regional Environmental Engineer

November 10, 1982

Executive Office of
Environmental Affairs
100 Cambridge Street
20th Floor
Boston, Massachusetts 02202

RE: SMAPCD--NEW BEDFORD--FAIRHAVEN
Environmental Assessment
New Bedford-Fairhaven
Bridge Replacement

ATTENTION: Mr. Samuel Mygatt, Director
MEPA Unit

Gentlemen:

The Southeast Regional Office of the Department of Environmental Quality Engineering has received a copy of the "Update to the Air Quality Analysis of the Environmental Assessment of the New Bedford-Fairhaven Bridge Replacement", and the "Indirect Source Analysis of the Detour Route of the New Bedford-Fairhaven Bridge Replacement", as submitted by HMM Associates. Staff of the Air Quality Section have reviewed these documents and predicated upon this review, the Department would like to offer comment.

Relative to the detour study, it was noted that CO concentrations are predicted to be high. The concentrations revealed in the study are unacceptable by Department standards. It is therefore requested that mitigating measures (e.g. signal timing changes and implementation of I/M) be proposed. The impacts of said mitigating measures should be quantified and applied to the detour study to hopefully lower the predicted CO concentrations. Should the mitigating measures not act to reduce CO concentrations at these five (5) intersections, alternate detour routes should be investigated.

1

2

Should you have any questions or comments, please contact Ms. Laurel Jenney at the Regional office.

Very truly yours,

For the Commissioner

Vaughan M. Steeves, Acting Chief
Air Quality COntrol Section

S/LJ/kd

Responses to Comments
by the Department of Environmental Quality Engineering
Southeast Region
in a letter of November 10, 1982

1. "It is therefore requested that mitigating measures (e.g. signal timing changes and implementation of I/M) be proposed."

   Measures which will mitigate the predicted CO concentrations, namely (1) an inspection and maintenance program and (2) traffic signalization timing changes, have been considered.

   o Inspection and Maintenance Program

     The vehicle emissions inspection program, now in force, was not considered in the report Indirect Source Analysis of the Detour Route of the New Bedford-Fairhaven Bridge Replacement, by HMM Associates, September 1982. However, this report did state under the "Mitigation Measures" section that "This (an inspection and maintenance program) would reduce the calculated CO concentrations...". An anlysis of key intersections undertaken by the Massachusetts Department of Public Works in January 1985 indicated that the vehicle emissions inspection program would in fact eliminate violations. This analysis is reported in the text of the revised document.

   o Traffic Signalization Timing Changes

     Traffic signalization timing changes will be made all along the detour route to accommodate the major changes in direction of traffic movement that will take place under the temporary detour conditions. These changes are necessary to improve traffic flow and would be made irrespective of any temporary air quality impact considerations.

     The exact nature of these signal timing changes cannot be determined at this time. They will be coordinated with the communities involved, as will the entire detour program, and will not be available until the design stage. However, it is clear that these signal timing changes will be a benefit rather than a detriment to temporary air quality impacts.

2. "...alternate detour routes should be investigated."

   Due to physical constraints in the area, namely the limited number of bridge crossings from one side of the harbor to the other, there do not appear to be any other feasible detour routes available.

B3

THE GENERAL COURT OF MASSACHUSETTS
State Senate
STATE HOUSE, BOSTON 02133

HON. WILLIAM Q. MACLEAN, JR.
BRISTOL AND PLYMOUTH DISTRICT
ROOM 423
TEL. 722-1440

CHAIRMAN
ENERGY COMMITTEE
MEMBER OF COMMITTEES ON
BANKS AND BANKING
COMMERCE AND LABOR
PUBLIC SAFETY
PUBLIC SERVICE

June 9, 1983

Mr. Robert T. Tierney
Commissioner
Department of Public Works
100 Nashua Street
Boston, MA 02114

Dear Commissioner Tierney:

I am writing in regard to the plans for the replacement of the New Bedford-Fairhaven Bridge.

Please be advised that I concur with the support for a new span with a 10 foot vertical clearance rather than a 20 foot vertical clearance.

Since the state will use Main Street in Fairhaven as the detour route while the bridge is being replaced, the state should be responsible for the repair and repairing of that road upon the completion of the new bridge. As a detour route, Main Street will be subject to wear and tear from traffic that would not ordinarily be encountered.

I would appreciate knowing your thoughts on the state bearing the cost of the aforementioned road maintenance. 1

I look forward to the start of this project, and hope that you will not hesitate to contact me if I can be of assistance.

With every best wish, I remain

Sincerely,

William Q. MacLean

William Q. MacLean, Jr.
STATE SENATOR

WQM/jcw

cc: Mayor Brian J. Lawler
Board of Selectmen

Deptuy Chief Engineer
JUN 22 1983
Project Development

Responses to Comments
by State Senator William Q. MacLean, Jr.
in a letter of June 9, 1983

1. "I would appreciate knowing your thoughts on the state bearing the cost of the aforementioned road maintenance."

   This situation has been reviewed with Jeffrey Osuch, Superintendent of Public Works in the Town of Fairhaven, at a meeting of June 19, 1984. The reconstruction of Main Street is an improvement that has been judged to demand immediate attention irrespective of its use as a detour route. The Town is now undertaking this reconstruction. At the completion of bridge construction the pavement condition will be evaluated with the Town of Fairhaven but, given the circumstances of the planned reconstruction, it seems that only minor repairs will be necessary at that time. The cost of any required repairs will be borne by the Massachusetts Department of Public Works.

B4

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, Massachusetts 02202

EDWARD J. KING
GOVERNOR
JOHN A. BEWICK
SECRETARY

To: Frank Bracaglia, FHWA
Gregory Prendergast, MDPW

From: Samuel G. Mygatt, EOEA

Re: Environmental Assessment, Replacement of the New Bedford-Fairhaven Bridge, New Bedford, MA
EOEA #3572

We have reviewed the Environmental Assessment document. The document suggests possible mitigation for a number of environmental concerns but does not commit the state or federal agencies to those solutions. Weaknesses occur in the areas of water quality, air quality and solid waste disposal.

1) Water Quality

The assessment suggests the release of large quantities of sediment and lesser quantities of oil, grease and organics from the dredging operation. 1 The sediments contain PCB's, heavy metals and organic pollutants. The dredging is expected to depress oxygen levels in the water column. Deep burial of organisms is expected in the turbidity plume area. The biologic community is expected to take up and bio-accumulate PCB's, heavy metals and possibly organics. Yet the assessment only says that turbidity screens and other sediment trapping devices (i.e., oil booms) are 2 available to localize the impacts. No assessment of the effectiveness of these devices is presented nor is the resultant degradation quantified.

It is implied that since those contaminants are already in the environment, 3 they are being continually resuspended and dispersed. No data is presented to document this fact. In fact, the report indicates that from 2 to 10 centimeters of new sediments are being deposited in this basin yearly. The proposed activities therefore reverse this long term trend. Although many organisms live in contact with the contaminants, a large portion of these are filter feeders which utilize currently 4 suspended materials rather than the substrata upon which they live. The biologic reworking of the sediments will resuspend only a portion.

In order to minimize water quality impacts from the project, it may be preferable to use techniques which isolate the disturbed area from the harbor. Sheet piling around each of the pier construction sites could accomplish this. This would leave only the navigation channel dredging to be done with turbidity curtains as mitiga- 5 tion. It would appear necessary to utilize curtains which rest upon the channel or harbor bottom in order to sufficiently limit dispersion.

Under previous plans, areas with greater than 50 ppmPCB's (hazardous waste)
were to have been dredged. Currently, the suggestion is not to dredge such areas 6
(between New Bedford and Fish Island) but to utilize trestle construction and the
existing foundations (p. 85). Plans with sufficient detail to show that this is
possible should have been such that reviewers could be assured that such plans are
workable. Would there be a conflict with the plan for a second low level bridge, be-
tween the island and McArthur Blvd? At first glance it would appear that new pier
supports would be required in this area.

The assessment indicates potential problems with hydraulic dredge discharge
along one mile of pipe. The need for special precautions to prevent releasé of the 7
dredge spoils (and to minimize navigational impacts) should be known at this time.

(2) <u>Solid Waste Disposal</u>

The PCB contaminated dredge spoils are special wastes under Massachusetts Solid
Waste Regulations. The proposal is to dredge hydraulically and pipe the spoils one mile
to Marsh Island to a settling basin. The sediments would then be encapsulated on
the island. It is not clear from the assessment discussion that sufficient informa- 8
tion has been generated to justify site assignment by the local Board of Health and
plan approval by the Department of Environmental Engineering. Details of effluent
control, effluent quality and definitive needs for cationic polymer treatment or 9
a package-type multi-media filter unit should be evaluated at this time rather than
merely indicating their availability. This environmental assessment fails to indi-
cate even the standards which must be met for the effluent discharge. The report 10
indicates that eleutriate analysis has not been accomplished to date. Additionally,
the report lacks analysis of the disposal site as to soil type, depth to ground
water, etc., which would be needed to design the containment site and basins. 11

(3) <u>Air Quality</u>

PCB's are know to become airborne from area landfills. A significant period
is usually required for consolidation of hydraulic dredge spoils before they can be 12
manipulated by heavy equipment and encapsulated. The report should evaluate the
potential for release to the air of contaminants in the dewatering of spoils.

cc: W. Stickney, EPA
P. Anderson, DEQE-SE
T. McMahon, DWPC
B. Rizzo, EOTC
R. Delaney, MCZMP

Responses to Comments
by the Executive Office of Environmental Affairs
File No. 3572

1. "The assessment suggests the release of large quantities of sediment..."

   The release of large quantities of sediment is not anticipated.

   The dredging associated with the bridge replacement project involves two distinctly different types of operations. The first of these is the excavation for new foundations for the replacement bridge. The second of these is channel dredging in the immediate area of the bridge to assure that the specified channel depth of 30 feet is available.

   The amount of material to be removed from the harbor bottom as part of the bridge replacement project has been estimated at approximately 17,000 cubic yards which is a relatively small amount of material.

   Of this total, approximately 9,000 cubic yards will be produced by the foundation excavation operation which involves the foundations for the two main bascule piers on either side of the moveable section of the bridge, the foundations, for the abutments on either shore, and the foundations for two intermediate supports.

   The remaining quantity of approximately 8,000 cubic yards will be produced by channel dredging which has been estimated as involving 200 feet of channel on either side of the Bridge in the removal sediment which has accumulated in the channel since the last maintenance dredging operation.

   Clearly, a significant part of the material removal associated with the bridge replacement project is foundation excavation. This distinction is made because the two operations are quite different and involve different degrees of temporary impact on water quality.

   o <u>Foundation Excavation</u>

     The majority of the material removal associated with foundation excavation is generated by excavation for the foundations for the two main bascule piers. The foundations of these two major structures will be built directly on rock.

     A braced sheet pile cofferdam will be driven into rock at each pier location and the enclosed area will be excavated under water down to rock level with bucket dredging equipment. Fragmented and loose rock will be removed. Tremie seal concrete will then be placed to form an unreinforced mat and seal the bottom of the cofferdam. The interior of the cofferdam will then be pumped dry and a reinforced concrete foundation will be built over the unreinforced mat to form a level working surface. The piers can then be built of reinforced concrete in the dry by conventional means within the cofferdam.

Foundations for new abutments and intermediate piers will be founded on piles driven to rock. A braced pile cofferdam will be driven to foundation level and the enclosed area will be excavated under water down to foundation level with bucket dredging equipment. Piles will be driven and tremie seal concrete will be placed to seal the bottom of the cofferdam. The cofferdam will then be pumped dry and the piles will be cut off immediately above the seal. The pier foundation and the piers will then be built of reinforced concrete by conventional means within the cofferdam.

The foundation excavation operation will therefore take place entirely within the cofferdam and the dispersion of sediments will be confined by this solid, physical barrier. Because the cofferdam walls must be designed to allow construction in the dry once the cofferdam is pumped out, they will also be effective in preventing the dispersion of sediments.

o <u>Channel Dredging</u>

The need for channel dredging as a part of this project is the result of an early coordination comment by the Corps of Engineers in a letter of August 16, 1979 requesting that it is the responsibility of this project "to insure that the 30-foot project depth is provided throughout the area". Some of this dredging will be related to clearing the area around the center pier of the swing bridge which will be removed and some of it will be related to removing the sediment which has drifted into the channel since the last maintenance dredging operation in the harbor. There is no intention of modifying the existing alignment or width of the channel or of increasing its depth.

The exact quantities of material to be removed by this channel dredging operation are less well defined at this stage than the quantities of foundation excavation and therefore more difficult to estimate. This operation has much greater potential for sediment dispersion than the foundation excavation operation because it would be uncontained. It is for this reason that turbidity screens are brought forward as a mitigating measure.

* * * * * * * * * * *

In summary, the foundation excavation operation is exceedingly well contained. The channel dredging operation will take place, by necessity, in open waters but the amount of material to be removed is relatively small and turbidity screens will be used.

2. "....the assessment only says that turbidity screens and other sediment trapping devices (i.e. oil booms) are available to localize the impacts. No assessment of the effectiveness of these devices is presented nor is the resultant degradation quantified."

The effectiveness of turbidity screens cannot be predicted with any degree of assurance other than to say that they are the most effective control methods presently available.

3. "It is implied that since those contaminants are already in the environment, they are being continually resuspended and dispersed. No data is presented to document this. In fact, the report indicates that from 2 to 10 centimeters of new sediments are being deposited in this basin yearly. The proposed activities therefore reverse this long term trend."

We assume that because of the commercial nature of the harbor and the volume of marine traffic passing through it that contaminated sediments are being constantly locally resuspended. As for dispersion beyond the harbor, the Environmental Assessment states that "Since the construction of the harbor barrier, the efficiency of tidal flushing has been reduced...".

The proposed dredging of accumulated sediments within the navigation channel does indeed reverse the process of sediment accumulation. This is the purpose of the activity.

4. "Although many organisms live in contact with the contaminants, a large portion of these are filter feeders which utilize currently suspended materials rather than the substrata upon which they live. The biologic reworking of the sediments will resuspend only a portion."

We have suggested that because of the commercial nature of the harbor, including shoreline development and a large volume of marine traffic passing through it, contaminated sediments are being constantly resuspended locally. The marine organisms would, as a result, be exposed to this material.

This does not imply that they will not be affected by the resuspension caused by dredging.

5. "In order to minimize water quality impacts from the project, it may be preferable to use techniques which isolate the disturbed area from the harbor. Sheet piling around each of the pier construction sites could accomplish this. This would leave only the navigation channel dredging to be done with turbidity curtains as mitigation. It would appear necessary to utilize curtains which rest upon the channel or harbor bottom in order to sufficiently limit dispersion."

This is essentially the procedure which will be followed.

The use of turbidity screens which rest on the bottom is, to our knowledge, somewhat unusual. A depth of ten feet below the surface would be considered more usual practice and would not necessitate the huge expanses of fabric required for a full depth turbidity screen.

6. "Under previous plans, areas with greater than 50 ppmPCB's (hazardous waste) were to have been dredged. Currently, the suggestion is not to dredge such areas (between New Bedford and Fish Island) but to utilize trestle construction and the existing foundations."

   The project originally presented in the Environmental Assessment included an access bridge to Fish Island from the New Bedford shore which would have crossed the area where PCB concentrations of greater than 50 parts per million were found. This bridge was planned to be constructed on piles so that no excavation and disposal of contaminated material would be required.

   Since the original publication of the Environmental Assessment, the access bridge to Fish Island has been deleted from the project mainly because it eliminated docking space along the New Bedford shore. The current project, therefore, involves no activity at all in the area between the New Bedford shore and Fish Island where testing indicated the presence of PCB concentrations greater than 50 parts per million.

7. "The assessment indicates potential problems with hydraulic dredge discharge along one mile of pipe. The need for special precautions to prevent release of the dredge spoils (and to minimize navigational impacts) should be known at this time."

   In past dredging projects, the Massachusetts Department of Public Works has relied strictly on the continuous visual inspection of the hydraulic dredging pipeline by individuals assigned specifically to this task. The response to a problem is to cease the dredging operation until the leak can be repaired.

8. "It is not clear from the assessment discussion that sufficient information has been generated to justify site assignment by the local Board of Health and plan approval by the Department of Environmental Engineering."

   All necessary permits related to the project, including those required by the local Board of Health and by the Department of Environmental Quality Engineering, will be applied for during the design stage. It is not intended that the Environmental Assessment provide the detailed design or operating procedure necessary for the permitting process.

9. "Details of effluent control, effluent quality and definitive needs for cationic polymer treatment or a package-type multi-media filter unit should be evaluated at this time rather than merely indicating their availability. This environmental assessment fails to indicate even the standards which must be met for the effluent discharge."

It is not intended that a detailed design or operating procedure be developed as part of the environmental assessment process. Such details will be developed as part of the permitting process in the design stage. The handling of disposal area effluent is discussed in Chapter V, Section A "Disposal of Contaminated Dredged Material."

10. "The report indicates that elutriate analysis has not been accomplished to date."

    An elutriate test will be performed as part of the permitting process during the design stage.

11. "Additionally, the report lacks analysis of the disposal site as to soil type, depth to ground water, etc., which would be needed to design the containment site and basins."

    Marsh Island, approximately thirty acres in size, contains ledge out croppings but mainly consists of remnants of previous dredged material disposal operations. It is assumed that because of its proximity to the harbor the water table is high.

    Site information on Marsh Island will be gathered as part of the design process if this disposal option is eventually selected.

12. "PCB's are known to become airborne from area landfills. A significant period is usually required for consolidation of hydraulic dredge spoils before they can be manipulated by heavy equipment and encapsulated. The report should evaluate the potential for release to the air of contaminants in the dewatering of spoils."

    Since the dredged material will be wet when transported to the encapsulation area and the material will constantly be covered by new wet material, the potential for volatilization will be reduced. The dredged material is not comparable to a landfill in terms of release of PCB's to the atmosphere. In L. Hetling, E. Horn, and J. Tofflemire, Summary of Hudson River PCB Study Results, Technical Paper #51, New York State Department of Environmental Conservation, Revised July 1978, it was reported that "Dredge spoil appears to be a much weaker source of PCB's to the atmosphere than the landfills or the manufacturing facilities, but do consitute a definite source at least when recently dredged" (page 38) and "....organic particulate matter strongly absorbs PCB's and retards the rate of evaporation from water" (page 34).

    The proposed control is to complete the operation as quickly as possible and to utilize a plastic liner over intermediate layers of dredged material.

C. COMMENTS FROM LOCAL AGENCIES AND OFFICIALS

The following letters of comment were received from agencies and officials of the City of New Bedford and the Town of Fairhaven:

1.	Dated September 16, 1982	City of New Bedford City Planning Department Signed by Richard Walega
2.	Dated June 8, 1983	Town of Fairhaven Office of the Selectmen Signed by Everett J. Macomber, Jr.
3.	Dated June 21, 1983	Town of Fairhaven Board of Public Works Signed by Jeffrey W. Osuch

Copies of these letters and responses to them follow.

C1

CITY OF NEW BEDFORD
MASSACHUSETTS
CITY PLANNING DEPARTMENT

Richard A. Walega
City Planner

September 16, 1982

Justin L. Radlo, Chief Engineer
MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS
100 Nashua St.
Boston, MA 02114

Dear Mr. Radlo:

This letter will serve as my Department's comments on the New Bedford/ Fairhaven Bridge Environmental Assessment which was the object of a public hearing on September 9, 1982, in the Town of Fairhaven.

While I did not testify at the hearing, my general comments were well reflected by testimony presented by Senator MacLean, Representative Silveira, John A. Markey, Mayor of New Bedford and Selectmen from the Town of Fairhaven.

I believe the Alternatives have been thoroughly researched and I am in full agreement that the 20-ft. Alternative should be chosen for final design. Enclosed you will find several internal memos received from my staff concerning questions and issues which were raised during our review of the document. I hope these prove useful in your final review of the environmental assessment.

In addition to these technical comments and questions, I would like to add two other concerns.

First, we are extremely concerned that the access road to Fish Island be studied in more detail so as to minimize any adverse impact the roadway may have on the Maritime Terminal Corporation. The preliminary plan shows nearly 2/3rd's of the open bulkhead area subject to taking for this roadway. As you and the project consultants may know, Maritime is an active importer of various food stuffs providing significant employment to hundreds of Greater New Bedford residents. I believe the elimination of such a large portion of their open bulkhead area would create severe hardship to the Terminal, thus reducing their operations and inflicting harm to the local economy. 1

I agree with Senator MacLean who urged that the DPW, the project engineer, City officials, and officials from Maritime sit together in the immediate future to discuss this aspect of the project in more detail. I would strongly urge a site visit by all concerned, since I believe this is the only way in which all of our questions can be answered. I believe officials from Maritime have already expressed their reservations about taking such a large portion of their bulkhead. I am sure that further discussions and analyses will lead to satisfactory resolution of the problem.

Second, I wish to reemphasize our concern that the intersections at Pope's Island indeed be signalized to avoid hazardous traffic conditions. As you know, traffic volumes through the intersection are fairly high throughout the workday period, and it is our opinion that without signalized intersections, left turns on to various parts of Pope's Island will be extremely hazardous. 2

In summary, I feel the environmental assessment was a thorough analysis of the expected impacts of this project and that the final design of the 20-ft. Alternative should proceed as rapidly as possible. You can be assured of our continued cooperation in subsequent phases of this project.

If you are in need of any additional information or assistance, please do not hesitate to call us.

Sincerely,

Richard Walega

RICHARD WALEGA
City Planner

mw
enclosures

cc: John A. Markey, Mayor
Maritime Terminal

CITY OF NEW BEDFORD
MASSACHUSETTS

CITY PLANNING DEPARTMENT

Richard A. Walega
City Planner

MEMORANDUM

TO: Richard Walega
FROM: Carl Natho
DATE: August 30, 1982
RE: Comments on Environmental Assessment
(N.B./Fairhaven Bridge)

The following are my comments on the Environmental Assessment of the replacement of the New Bedford/Fairhaven Bridge.

p.31, 34

In light of the recent unsuccessful attempts at offshore
oil development on George's Bank, it appears that the
possibility that New Bedford Harbor will become a major 1
support center is actually less than indicated in these
pages. This anticipated development has also been
figured into future navigational traffic projections for
1987 elsewhere in the report. (Table 3, p.35)

p.36

In respect to anticipated industrial development in the
northern harbor needed to project navigational traffic
in 2005, it is stated that, "it is not possible to predict
what form this development will take." While this is 2
partially true, data from the northern New Bedford/Fairhaven
Harbor Study, done by Urban Consulting Associates, should
be cited.

Pleasure craft crossings are projected to grow at a rate
of 3% per year, reaching 1,000 crossings by 2005. The 3
construction of a marina on Pope's Island would probably
affect this prediction.

p.40

The report states that once across the existing bridge and in the New Bedford area, a pedestrian or bicyclist cannot continue along the interchange ramps but must use a flight of stairs to MacArthur Drive below. It further states that this discontinuity in the connection between the centers of the two communities (Fairhaven/New Bedford) limits the usefulness of the bridge for pedestrian and bicycle traffic.

I would agree that usefulness for bicycle traffic indeed exists. I would not agree that the situation presents a handicap to pedestrian traffic however. After using the stairs to MacArthur Drive, pedestrians then have access to the overpass which directly links the waterfront with the downtown. 4

p.56, 57

Census data on these pages (ethnic background, education levels, poverty levels, etc.) should be identified as to what year census data. 5

p.59

Under Public Utilities, it is noted that temporary loss of service will occur during the time necessary to tie into replacement lines. It is unclear whether this refers to both water and telephone service or just telephone. Also, more precise indication of exactly how long this loss of service will be is needed. 6

p.67

The report states that although the size of the fishing fleet is increasing yearly, existing south harbor berthing is not expected to be exhausted in the near future. Is not the south harbor close to being exhausted at present, since several fishing vessels now use North Terminal? 7

p.68

(Long-Term Effects) In addition to providing adequacy for much larger fishing vessels, a 150' channel will provide clearance for other types of future development in the Northern Harbor as outlined in Urban Consulting Associates' Northern New Bedford/Fairhaven Harbor Study. 8

p.70
Figure 26

I would not call Palmer's Island a "developable site." 9

p.78-84

The report states that since PCB levels are below 50 ppm
between Fish Island and Pope's Island, the dredged
material can be considered "Special Waste" rather than 10
"Hazardous Waste." Concentrations of other contaminants
(heavy metals), however, appear to be very high and
possibly qualify as hazardous waste.

I do not agree with the reasoning behind the preference 11
of a land-based disposal site as opposed to an aquatic
site for the following reasons. One, the dredged material
will not allow future building development. Secondly, it
appears the primary reason for choosing a land site,
rather than an aquatic site, is the subsequent disruption
of the aquatic environment. How can you disrupt an
aquatic environment that is already disrupted by the
same material that they say will disrupt?

Also, no negative comments are shown for the Fish Island site. At the least, I feel visual disruption will occur.

My preference would be site F, the southern shoreline of Marine Park. Using this location would increase the area of the island and could accommodate parking should the marina be realized. Also, it is the closest of all sites (land and aquatic) to the project site.

In the Disposal Site Evaluation Format (Table 7, p.83) the only negative comment for this site is the disruption of aquatic area. Again, I feel that more disruption would be caused by moving special waste dredge from its existing location (aquatic) to a land site than moving it from one aquatic site to another.

p.134

Will the City landfill accept refuse from the demolition 12
of the existing bridge (concrete, steel beams, pilings,
etc.)?

P.145

Under Section 147 of the Federal-Aid Highway Act of 1976, 13
will this project qualify for the provision of funding
for the construction of ramp access to public boat
launching areas?

P.148

The area (1 acre) to be used at Marine Park for construc- 14
tion staging area might have to be changed if the marina
actually develops.

p.149

The City does not want a soccer field on Pope's Island as part of mitigation. Perhaps we could substitute a boat ramp. 15

Carl

CARL NATHO

CN:rc

CITY OF NEW BEDFORD
MASSACHUSETTS
CITY PLANNING DEPARTMENT

Richard A. Walega
City Planner

MEMORANDUM

TO: Richard Walega
FROM: Robert Bowcock
DATE: August 23, 1982
RE: Bridge Environmental Assessment

Below are my comments on the Environmental Assessment of the replacement of the New Bedford-Fairhaven Bridge.

The following items are vague and in need of clarification: 1

- The harbor is said to have "low velocity." There is no actual information on water velocity and circulation patterns. This information would be helpful particularly since dredging is to be undertaken as part of this project.
- On page 25 it is stated that there were "less phytoplankton in the harbor than in the freshwater system." Sampling locations are not identified.
- On page 26 it is noted that clam samples had certain levels of PCB contamination. Again, sample locations are not identified.
- On page 27, in the section on birds, terms such as "the area" and "the vicinity" are used. These need clarification.
- The E.A. identifies the marine life that can be found within the harbor. Many of the species identified are probably found in limited areas. Once again, with dredging being a major part of this project, it would be helpful to have specifics. Locational maps would make analyses of potential impacts easier to identify.

In the section on navigational traffic through the bridge, annual traffic is shown graphically. There is a wide fluctuation in traffic between 1968 and 1980. I think it is important to identify the causes of the fluctuation. 2

The clearance activities of the late 1960's, as part of the North Terminal Urban Renewal Project, caused the peaking of traffic in 1969. Following completion of the clearance activities, the North Terminal Area essentially remained vacant until the late 1970's. By that time, vacant bulkhead space south of the bridge had disappeared, leaving the North Terminal as the only area with developable bulkhead space. As marine-related businesses have increased in number north of the bridge, the navigational traffic through the bridge has also increased.

On page 34, the growth in fishing vessel traffic through the bridge is tied to the increase in fleet size. I disagree. I think it is due to more marine businesses being located in the northern harbor area. 3

On pages 56 & 57, U.S. Census figures are cited. It should be noted that 1970 figures are cited, not 1980 figures. 4

On page 71, the Hicks-Washburn area is noted as having been "designated" as a renewal area. I do not believe that this has actually happened. I think this statement should be deleted. 5

On page 76, an analysis of sedimentation rates is given. The analysis is good, but there is no mention of any maintenance dredging. If maintenance dredging has occurred since 1941, then the depths to which PCBs should be found are probably less than is shown. 6

The choice of a disposal site for the dredged material is going to be very controversial (in my opinion). The explanations in the section on dredged material disposal and the proposed disposal site raise a number of questions. I have outlined many of these below.

- On page 78, it states there will be 17,000 cubic yards of dredged spoils. On page 158 is a letter from Gordon E. Beckett of the U.S. Fish and Wildlife Service. This letter mentions a figure of 30,000 cubic yards of dredged spoils. There is no attempt to explain this difference. 7

- The dredged material will be approximately 90% organic soil. This soil is not suitable for use where there is potential for future development that would be susceptible to damage caused by settling. What is the potential for settling of the dredged material alone? The material will be in a clay liner. The spoils, plus the top liner, will be approximately 15 feet thick. There should be some natural compression and settling. Is there the possibility of the liner cracking (or splitting) as settling occurs? Will the spoils be exposed if this happens? 8

- Will there be a daily cover applied to the spoils as they are placed in the encapsulation area? 9

- Will there be any decomposition of the disposed materials? If there is decomposition, will it result in gas production (such as methane gas) and what problems are associated with that? 10

- Mention is made of partially mitigating the biological impacts by dredging during the winter. If the hydraulic dredging method is used, it would require a pipeline through the harbor to Marsh Island. During the winter, there is a high potential for the harbor freezing over. If the harbor does freeze over (and the Marsh Island area would be one of the first places to freeze), it would at least disrupt the pipeline, if not damage it. There would be high potential for delay of dredging until the spring and the spawning season. 11

- Once the spoils are transported to Marsh Island, they will be placed in settling basins. How long will the spoils remain in the settling basins? 12

- On page 85 water quality impacts at the disposal site are discussed. It mentions that spoils could flow right back into the harbor if the water associated with the hydraulic dredging is not adequately controlled. There is no discussion of how the water will be prevented from overflowing the settling basins. 13

- There are two settling basins. Each basin would be filled a minimum of 3-4 times during the dredging. There is no discussion of how this will be accomplished. We do not know if one basin will be filled and then left to settle while the second is being filled; the first could then be emptied and reused while the second is settling, etc. 14

- How will the spoils be transferred from the settling basins to the encapsulation area? 15

- How will weather affect the disposal process? During the winter we are usually subjected to at least one Northeasterner. How would such a storm, with 50-70 MPH winds and rain/snow, impact the settling basins and/or encapsulation area? 16

Air quality impacts of altered traffic flow patterns and noise impacts have been estimated. There has not been any mention of the impact on air quality of disposal of dredged materials. As the dredged materials settle, water will be removed and the materials will dry out. Will PCBs and/or heavy metals be released as the water evaporates? Also, will local winds pick up dust containing these sample materials and deposit them elsewhere? 17

An access road is proposed from MacArthur Boulevard to Fish Island. This proposed road seems to take some of the docking space and the unloading area used by the Maritime Terminal. 18

The northwest access road on Pope's Island goes right through the parking lot of the Bagpiper Restaurant. What provisions are to be made to replace their lost parking? 19

On Pope's Island an existing 12" water main will be replaced by an 8" water main. This results in a 12" to 8" to 12" series of mains leading to Fairhaven. This doesn't make much sense to me. Why is this being proposed? How will it affect service? 20

I think there will be much opposition to the one-way street suggestions in Fairhaven. I don't think this is necessary. Fairhaven has previously lived with I-195 ending at the river and all eastbound traffic being funnelled through North Fairhaven. I think the inconvenience of making the two main north/south streets one-way is worse than allowing two-way traffic on both streets, particularly since the two streets are not parallel and drift apart as they head south. 21

A soccer field is mentioned for Marine Park. I concur with your letter of July 29, 1982 stating that a soccer field should not be planned for this area. 22

Mention is made in the draft E.A. that Fish Island is man-made. This is not noted in the final E.A. 23

ROBERT BOWCOCK

RB:rc

TO: "DICK"
FROM: "DAVID"
RE: "E.A. BRIDGE REPLACEMENT"

I THOUGHT THAT THIS DOCUMENT WAS WELL RESEARCHED, ORGANIZED AND PRESENTED. THERE WAS A VERY GOOD CHRONOLOGY OF EVENTS RE: PROJECT HISTORY AND GOOD DOCUMENTATION TAKEN FROM PREPARED STUDIES DONE BY THE CITY AND ITS CONSULTANTS.

I FELT, HOWEVER, THAT THE MOST IMPORTANT ASPECT OF THIS ASSESSMENT WAS ITS EVALUATION OF THE PERSISTENCE OF PCB'S IN THE AREA WHERE CONSTRUCTION WILL FOCUS, AND THAT MORE DETAIL COULD HAVE BEEN PROVIDED? PERHAPS THE GLOSSING 1
OVER OF THE POTENTIAL DANGERS OF PCB'S TO SAMPLED BENTHIC MACROINVERTEBRATES IS WARRANTED IN ORDER TO PLAY DOWN A PROBLEM WHICH, AS YET, HAS NO 'MODUS OPERANDI' AND PROBABLY SINGLE HANDEDLY COULD JEAPORDIZE THE ENTIRE PROJECT.

THE MARSH IS. DISPOSAL SITE SATISFIES THE NON-AQUATIC DUMPING PROBLEM. I WISH THE COST RELATION- 2
SHIPS WERE EXPLORED WITH RESPECT TO HYDRAULIC DREDGING AND DEPOSITION FOR RIVERSIDE PARK AND MARSH IS. THE RELATIVE BENEFIT OF FILLING AT RIVERSIDE PARK SEEMS TO HAVE MORE OF A UTILITARIAN BENEFIT TO THE CITIZENS OF BOTH N.B. AND FAIRHAVEN. UNFORTUNATLY IT IS AN AQUATIC SITE AND HENCE LOWER PRIORITY.

I AM STILL UNSURE AS TO HOW MUCH TOTAL DREDGE 3
MATERIAL IS TO BE DISPOSED OF. FIGURES ON PP. 73 INDICATE
17,000 CU YDS. WHILE SEVERAL LETTERS RELY ON A 30,000
CU YD VOLUME (PP 158, 164).

BUT JUST FOR FIGURING SAKE IF IT COSTS $250-300 4
PER DRUM TO DISPOSE OF SPOILED DREDGED MUD OUT
OF STATE; THE CALCS WOULD BE SUCH:

N.B.

17,000 CU YDS = 459,000 CU FT OR APP. 2,868,750
GALLONS ÷ 55 GALS/DRUM = 52,159 DRUMS
∴ THE RANGE OF OUT OF STATE TREATMENT IS
13.0 TO 15.6 MILLION DOLLARS

SOME ADDITIONAL OBSERVATIONS: 5

1. SCHEME 3A WITH THE ALTERNATE ACCESS TO FISH IS
DOES NOT MENTION THE REDUCTION IN BULKHEAD SPACE USED
BY THE MARITIME TERMINAL. IT APPEARS THAT AT LEAST
100' WILL BE LOST.

2. I CANNOT FATHOM HOW ANY CONSTRUCTION DRAWINGS FOR 6
A PREFAB STEEL + CONCRETE STRUCTURE NECESSITATE
A TWO YEAR LEAD TIME. PP 117

3. AMBULANCE RUNS OVER A DETOUR ROUTE ARE EXPECTED TO 7
ADD 6 TO TEN MINUTES TO TRAVEL TIME. BUS SERVICE IS
EXPECTED TO ADD EIGHT TO TEN MINUTES ADDITIONAL TIME

THE BRIDGE OPERATORS LOG INDICATES THAT IT TAKES AN AVERAGE OF EIGHT MINUTES TO OPEN AND CLOSE THE BRIDGE I DON'T SEE THE EXTREME INCONVENIENCE THE EXTRA TWO MINUTES WILL CAUSE. TAKING THE DETOUR IS AT LEAST PREDICTABLE !.

4. PP 136 INDICATES MOST DEMOLITION MATERIAL IS TRUCKED TO CAPE COD FROM THIS GENERAL AREA.. WHERE? IM JUST CURIOUS AS TO HOW THIS IS COST EFFECTIVE. **8**

5. IF MARINE PARK IS CLOSED VIA RTE 6, AND MUST BE GOTTEN TO FROM THE FAIRHAVEN SIDE OF RTE 6 FOR 18 MONTHS WOULD FAIRHAVEN AGREE TO MAINTAIN IT. I KNOW THE PARK DEPT WILL GET LOST GOING THRU FAIRHAVEN. **9**

6 THE NON-USE OR NON-REFERENCE TO THE MARINA FEASIBILITY STUDY FOR POPES IS WAS QUITE EVIDENT WITH DESIGNATION OF THE CONSTRUCTION STAGING AREA. ALSO SOME PLANNED IMPROVEMENTS TO THE PARK AFTER CONSTRUCTION ARE NOT CONSISTANT WITH DEVELOPED PLANS **10**

7. SOME CONFUSION STILL IS IN MY MIND REGARDING THE COMMONWEALTH'S EFFORT TO PROVIDE WATERFRONT ACCESS IN PROJECTS THAT IMPACT UPON CONSTRUCTED **11**

ROADWAYS. I DON'T FEEL THE LEGISLATION WILL PROVIDE FOR BOAT RAMP CONSTRUCTION BUT RATHER WILL ASSIST IN CONSTRUCTION OF ROAD GRADE IMPROVEMENTS TO EXISTING WATERFRONT SERVICES.

IN SUMMARY I FELT THAT THE ASSESMENT PROVIDED ALL SIDES AN OPPORTUNITY TO BE HEARD. ALL SCHEMES LOGICAL AND ILLOGICAL WERE PRESENTED AND EVALUATED, AND SEPT 9th SHOULD BE WELL ATTENDED AND VOCAL.

Responses to Comments
by the New Bedford City Planning Department
in a letter of September 16, 1982

I. Cover Letter by Richard Walega, September 16, 1982

1. "First, we are extremely concerned that the access road to Fish Island be studied in more detail...."

   Since the original publication of the Environmental Assessment the access bridge to Fish Island has been deleted from the project mainly because it eliminated docking space along the New Bedford shore.

2. "Second, I wish to emphasize our concern that the intersections at Pope's Island be signalized to avoid hazardous traffic conditions."

   Since the original publication of the Environmental Assessment, the median barrier separating the eastbound and westbound lanes of Route 6 has been deleted from the project. It was considered unadvisable to have sections of roadway with median barrier alternating with sections without median barrier. As a result of the deletion of the median barrier, distinct intersections on Pope's Island will not be required and free left turns at any point on the roadway will take place as they do now.

II. Attached Memorandum from Carl Natho, August 30, 1982

1. "...it appears that the possibility that New Bedford Harbor will become a major support center (for offshore oil development) is actually less than indicated in these pages."

   The use of the harbor as a base for offshore oil development activity no longer appears to be a possibility. The offshore oil development discussion has been eliminated from the final document.

   The amount of navigational traffic anticipated in New Bedford harbor has turned out to be less significant in the determination of the proposed 10 foot bridge clearance than the need to maintain local access to the roadway and avoid local disruption. A downward revision of navigational traffic projections therefore would have no affect on the bridge clearance decision.

2. "...data from the northern New Bedford/Fairhaven Harbor Study, done by Urban Consulting Associates, should be cited."

   Based on the current situation in the northern harbor, including areas of unauthorized fill and contaminated sediments, the course of eventual development of this area remains unclear.

3. "The construction of a marina on Pope's Island would probably affect this prediction (of pleasure craft crossings)."

The projection of pleasure craft crossings includes the possibility of continued marina development in the harbor north of the Route 6 crossing.

4. "I would not agree that the situation presents a handicap to pedestrian traffic however. After using the stairs to MacArthur Drive, pedestrians then have access to the overpass which directly links the waterfront with the downtown."

   The path from the bridge to Downtown New Bedford is far from ideal even for the able-bodied pedestrian. The stairs from the bridge down to MacArthur Drive are long; MacArthur Drive is heavily travelled and has no sidewalks on either side; there is no pedestrian crossing on MacArthur Drive; and the overpass entrance is separated from MacArthur Drive by a railroad track and unpaved areas.

5. "Census data...should be identified as to what year..."

   Data from the 1970 Census was used since more recent data was not available when the original report was prepared. Data from the 1980 Census is referenced in the revised document.

6. "...more precise indication of exactly how long this loss of (utility) service will be needed."

   Temporary loss of water and telephone utility service is a possible impact of construction. Obviously, loss of service must be kept to a minimum but details of such conditions cannot be worked out until a more advanced stage of design.

7. "Is not the south harbor close to being exhausted at present, since several fishing vessels now use North Terminal?"

   Berthing space for fishing vessels appears to have been exhausted in the harbor. Extensions to piers in the south harbor are being considered. The berthing space that has developed in the North Terminal is for the exclusive use of vessels unloading at the facilities located there and has done little to lessen the general need for berthing space.

8. "In addition to providing adequacy for much larger fishing vessels, a 150 foot channel will provide clearance for other types of future development."

   True. Any vessel that can enter through the harbor barrier will be able to pass through the bridge to the northern part of the harbor.

9. "I would not call Palmer's Island a "developable site"."

   Palmer Island is included among sites proposed for industrial development in Engineering Feasibility Study, New Bedford Harbor, Proposed Industrial Sites, March 1978 by Tibbetts Engineering Corporation for the City of New Bedford. Development as proposed in that study would require extensive bulk heading and filling.

10. "The report states that since PCB levels are below 50 ppm between Fish Island and Pope's Island, the dredged material can be considered "Special Waste" rather than "Hazardous Waste".

    A sediment testing program was undertaken in the Spring of 1982 which is referred to in the Environmental Assessment. Testing included both PCB's and heavy metals. The conclusion reached as a result of that testing program is that the material between Pope's Island and Fish Island is "special waste". Results of the Sediment Sampling Program are presented in Appendix B.

11. "I do not agree with the reasoning behind the preference of a land-based disposal site as opposed to an aquatic site..."

    The overriding reason for continuing to consider an upland sites in addition to aquatic sites is that filling in an aquatic site permanently removes an area from the aquatic environment. As stated in an early coordination letter of November 8, 1979 from the U. S. Department of the Interior, Fish and Wildlife Service, "If the material is placed in an aquatic setting, the area will be forever lost to the aquatic environment".

    In a subsequent letter of April 24, 1981, from the Department of the Interior, Office of the Secretary, it was stated that the U. S. Fish and Wildlife Service would probably "...recommend denial of any permit for the filling of aquatic habitat to store contaminated dredged material".

    The revised document includes both land based disposal sites and aquatic disposal sites as possible options.

12. "Will the City landfill accept refuse from the demolition of the existing Bridge..."

    The New Bedford municipal landfill will not accept demolition material.

13. "Under Section 147 of the Federal-Aid Highway Act of 1976, will this project qualify for the provision of funding for the construction of ramp access to public boat launching areas?"

    Section 147 of the Federal-Aid Highway Act of 1976 provides for the possibility of federal funding "for construction of access ramps from bridges under construction or which are being reconstructed, replaced, repaired, or otherwise altered on the Federal-Aid primary, secondary, or urban system to public boat launching areas adjacent to such bridges". There is no public boat launching area for which such access is necessary.

14. "The area to be used at Marine Park for construction staging area might have to be changed if the marina actually develops."

    The requirements for a construction staging area are an open space in reasonably close proximity to the area of work. Marine Park fills these requirements as do other areas on Popes Island. If a marina is in operation at the time of bridge construction the site will no longer be suitable for this use. Assignment of a specific area for use in construction staging will not be done as part of the development of the project. Such a site will be obtained by the construction contractor.

15. "The City does not want a soccer field on Popes Island."

    This suggestion has been deleted after consultation with the City of New Bedford.

III. Attached Memorandum from Robert Bowcock, August 23, 1982.

1. "The following items are vague and in need of clarification:...water velocity and circulation patterns...phytoplankton...clam samples... the section on Birds...the marine life that can be found within the harbor..."

   The following materials were used in the preparation of the description of the natural environment and can be referred to for greater detail on specific subjects:

   - PCB Pollution in the New Bedford, Massachusetts Area: A Status Report, prepared by Grant Weaver, environmental engineer for Massachusetts Coastal Zone Management, June 1982.

   - Environmental Assessment, Maintenance Dredging of New Bedford Harbor, prepared for the U. S. Army Corps of Engineers by Jason M. Cortell and Associates, 1978.

   - Fine-Grained Sediment and Industrial Waste Distribution and Dispersal in New Bedford Harbor and Western Buzzards Bay, Massachusetts, by Colin P. Summerhayes et al, Woods Hole Oceanographic Institution, unpublished manuscript, April 1977.

   - Data File: New Bedford Harbor, Massachusetts, by Jeffrey P. Ellis et al, Woods Hole Oceanographic Institution, unpublished manuscript, December 1977.

   - Hurricane Survey, New Bedford-Fairhaven, Massachusetts, U. S. Army Corps of Engineers, 1957.

   It is not felt that greater detail than that which is provided is necessary for the Environmental Assessment. Greater expansion in some of these areas may prove necessary when permits are applied for in the design stage.

2. "I think it is important to identify the causes of the fluctuation (in navigational traffic)."

   The sequence outlined in these comments seems reasonable.

3. "I think it (the growth in fishing vessel traffic) is due to more marine businesses being located in the northern harbor area."

   There are, no doubt, many interrelationships between marine business locations, fleet size, and berthing availability. The growth in fishing vessel traffic through the bridge is probably related to some degree to all of them.

4. "It should be noted that 1970 figures are cited, not 1980 figures.

   Data from the 1970 Census was used since more recent data was not available when the report was prepared. Data from the 1980 Census is referenced in the revised document.

5. "...the Hicks-Washburn area is noted as having been "designated" as a renewal area. I do not believe that this has actually happened."

   This statement has been deleted after consultation with the City of New Bedford.

6. "If maintenance dredging has occurred since 1941, then the depths to which PCB's should be found are probably less than is shown."

   Maintenance dredging was last done in New Bedford Harbor in 1953 according to <u>Environmental Assessment, Maintenance Dredging of New Bedford Harbor</u>, prepared for the U. S. Army Corps of Engineers by Jason M. Cortell and Associates, 1978. The sediment sampling done in March, April, and May of 1982 in the area of the existing bridge revealed that the majority of PCB's are found in the top two feet of the harbor bottom.

7. "There is no attempt to explain this difference (between 17,000 cubic yards of dredged spoils and 30,000 cubic yards of dredged spoils)."

   The figure of 30,000 cubic yards was used in the early coordination process to provide agencies with a general idea of the magnitude of the work. Some of the alternatives being considered at that time, such as those with an alignment to the north or south of the existing bridge, those involving an offset of the shipping channel, or those involving reconstruction of the west fixed bridge or the east fixed bridge, required considerably more dredging than those which reuse the existing alignment. The quantity of 17,000 cubic yards is based on the preferred alternative which reuses the existing roadway alignment, involves no alternations to the west fixed bridge or the east fixed bridge, and maintains the shipping channel on its same alignment.

8. "Is there the possibility of the liner cracking (or splitting) as settling occurs?"

   The loam and seed topping over the encapsulation area is provided not only for appearance but also to keep the covering material moist and therefore flexible so that cracks will not occur.

9. "Will there be a daily cover applied to the spoils as they are placed in the encapsulation area?"

No. Any earth cover would occupy volume within the encapsulation area which is planned to be as small as possible both for reasons of cost, appearance, and impact on the surrounding area.

10. "If there is decomposition, will it result in gas production (such as methane gas) and what problems are associated with that?"

Gas production will be allowed for by pipe venting through the encapsulation area. This would be the same type of procedure usually followed at solid waste landfills.

11. "If the harbor does freeze over (and the Marsh Island area would be one of the first places to freeze), it would at least disrupt the pipeline, if not damage it."

Icing is not usually a serious problem in New Bedford harbor. According to the United States "Coast Pilot" 2, Atlantic Coast: Cape Cod to Sandy Hook, Fourteenth Edition, January 1979, "The channels and anchorage area usually are navigable throughout the year, although in prolonged periods of extreme cold weather the Harbor as well as all of Buzzards Bay may be closed to navigation because of ice. Such conditions are infrequent and of short duration."

Despite the relative rarity of such freezing conditions, the possibility of the operation being delayed does exist. Nevertheless, it still seems preferable to conduct the operation in the winter to reduce impacts on the aquatic ecosystem.

12. "How long will the spoils remain in the settling basin?"

It is reported in T. J. Tofflemire, L. J. Hetling, and S. O. Quinn, PCB in the Upper Hudson River: Sediment Distributions, Water Interactions, and Dredging, New York State Department of Environmental Conservation, January 1979, that, "It is recommended that a retention time of 1 hour or more be maintained in spoils lagoons to achieve good removals of suspended solids and limit the flushing out of sediment fines." Settling will take place in the encapsulation area rather than in separate settling basins.

Monitoring will be performed to ensure that the required removal is being maintained.

13. "There is no discussion of how the water will be prevented from overflowing the settling basin."

The capacity of the encapsulation area, where settling will take place, will not be exceeded. Separate settling basins will not be used. The Massachusetts Department of Public Works will exercise control of the construction operation.

14. "We do not know if one basin will be filled and then left to settle while the second is being filled..."

The material will be placed directly into the encapsulation area where settling will take place. Separate settling basins will not be used.

15. "How will the spoils be transferred from the settling basins to the encapsulation area?"

The material will be placed directly into the encapsulation area. Separate settling basins will not be used thereby eliminating the transfer of material.

16. "How will weather affect the disposal process?"

The problems of inclement weather will have to be dealt with on this project as they are on any other construction project. Rainfall volume would never be sufficient to cause the encapsulation area to overflow because of the large volume of the disposal area. The Massachusetts Department of Public Works will exercise control of the construction operation.

17. "Will PCB's and/or heavy metals be released as the water evaporates? Also will local winds pick up dust containing these sample materials and deposit them elsewhere?"

Since the dredged material will be wet when transported to the encapsulation area and the material will constantly be covered by new wet material, it seems unlikely that any dust will be generated.

Dredged materials can release PCB's to the atmosphere. In L. Hetling, E. Horn, and J. Tofflemire, Summary of Hudson River PCB Study Results, Technical Paper #51, New York State Department of Environmental Conservation, Revised July 1978, it was reported that "Dredge spoil appears to be a much weaker source of PCB's to the atmosphere than the landfills or the manufacturing facilities, but do constitute a definite source at least when recently dredged."

18. "An access road is proposed from MacArthur Boulevard to Fish Island."

The access bridge to Fish Island has been deleted from the project mainly because it eliminated docking space along the New Bedford shore.

19. "The northwest access road on Pope's Island goes right through the parking lot of the Bagpiper Restaurant."

Since the original publication of the Environmental Assessment, the median barrier separating the eastbound and westbound lanes of Route 6 has been deleted from the project. As a result, distinct intersections and access roads on Pope's Island will no longer be necessary.

20. "On Pope's Island an existing 12" water main will be replaced by an 8" water main."

An 8" loop service line was to be provided off the continuous 12" main across Popes Island for alternatives requiring new access roads on Popes Island. This water service line will not be necessary under the preferred alternative.

21. "I think the inconvenience of making the two main north/south streets one-way is worse than allowing two-way traffic on both streets."

    A major benefit of making Main Street and Adams Street one way is that it greatly simplifies the intersection conditions at either end. Also capacity and safety are improved.

    The details of the detour route operation will be coordinated with the Town of Fairhaven.

22. "A soccer field is mentioned for Marine Park."

    This suggestion has been deleted after consultation with the City of New Bedford.

23. "...Fish Island is man-made."

    This is very likely true. Many of the features of the present harbor are the result of filling and shoreline construction.

IV. Attached Memorandum from David, Undated

1. "Perhaps the glossing over of the potential dangers of PCB's to sampled benthic macroinvertebrates is warranted in order to play down a problem which, as yet, has no "modus operandi" and probably singlehandedly could jeopardize the entire project."

    The document is intended to provide full disclosure of all impacts associated with the project whether favorable or unfavorable. The perturbation, removal, and disposal of sediments containing PCB's and heavy metals is obviously an affect of the project and the document clearly states this.

2. "I wish the cost relationships were explored with respect to hydraulic dredging and deposition for Riverside Park and Marsh Island."

    Cost was not considered as a criteria for site selection. Riverside Park was identified in the Environmental Assessment and was found to be too remote from the area of dredging and to require filling of an aquatic area.

3. "I am still unsure as to how much total dredge material is to be disposed of."

    A quantity of 30,000 cubic yards was used in the early coordination process to provide agencies with a general idea of the magnitude of the work. Some of the alternatives being considered at that time, such as those with an alignment to the north or south of the existing bridge, those involving an offset of the shipping channel, or those involving reconstruction of the west fixed bridge or the east fixed bridge, required considerably more dredging than those which reuse the existing alignment. A quantity of 17,000 cubic yards is based on the preferred alternative which reuses the existing roadway alignment, involves no alterations to the west fixed bridge or the east fixed bridge, and maintains the shipping channel on its same alignment.

4. "But just for figuring sake if it cost $250-$300 per drum to dispose of spoiled dredged mud out of state..."

   The unit costs mentioned are consistent with current disposal costs for hazardous materials. However, disposal space may not always be available regardless of cost.

5. "Scheme 3A with the alternate access to Fish Island does not mention the reduction in bulkhead space used by the Marine Terminal."

   Since the original publication of the Environmental Assessment, the access bridge to Fish Island has been deleted from the project mainly because it eliminated docking space along the New Bedford shore.

6. "I cannot fathom how <u>any</u> construction drawings for a prefab steel and concrete structure necessitates a two year lead time."

   There is no prefabricated structure involved. The bridge structure will be designed for the unique requirements of its location and the unique requirements of its proposed use. Based on past experience with the design of moveable bridge structures and the expected complexity of the permit process, a two year design period is an optimistic estimate.

7. "Ambulance runs over a detour route are expected to add six to ten minutes to travel time. Bus service is expected to add eight to ten minutes additional time. The bridge operators log indicates that it takes an average of eight minutes to open and close the bridge."

   Use of average times can be deceptive. Any particular vehicle could run into a situation in which a bridge opening would cause a delay of considerably longer than eight minutes. Fairhaven currently follows a procedure in which the bridge is contacted at the start of an ambulance run. If the bridge is open, the ambulance is routed over Coggeshall Street.

8. "...most demolition is trucked to Cape Cod from this general area. Where? I'm just curious as to how this is cost effective."

   The problem of disposal of demolition material is not necessarily related to cost but to the availability of disposal sites which will accept demolition material.

9. "If Marine Park is closed via Route 6 and must be gotten to from the Fairhaven side of Route 6 for 18 months would Fairhaven agree to maintain it."

The problem of maintenance of public services on Pope's Island during construction of a replacement bridge would be similar to those encountered in the past during bridge breakdowns only for a much longer period. Fairhaven has provided police and fire protection services to Pope's Island in the past because of the need for emergency response. There would seem to be no compelling reason to have an activity such as maintenance handled by the Town of Fairhaven, however.

10. "The non-use or non-reference to the marina feasibility study for Pope's Island was quite evident with designation of the construction staging area."

Plans for marina construction on Popes Island remain undefined. The requirements for a construction staging area are an open space in reasonably close proximity to the area of work. Marine Park would fill these requirements but no specific designation of such an area will be made as part of this project.

11. "Some confusion still is in my mind regarding the Commonwealth's effort to provide waterfront access in projects that impact upon constructed roadways. I don't feel the legislation will provide for boat ramp construction but rather will assist in construction of road grade improvements to existing waterfront services."

This interpretation is correct. Section 147 of the Federal-Aid Highway Act of 1976 provides for the possibility of federal funding "for construction of access ramps from bridges under construction or which are being reconstructed, replaced, repaired, or otherwise altered on the Federal-Aid primary, secondary, or urban system to public boat launching areas adjacent to such bridges". There is no public boat launching area for which such access is necessary.

C2

Town of Fairhaven
Massachusetts
Office of the Selectmen

EVERETT J. MACOMBER, JR., Chairman
WALTER SILVEIRA
ROBERT W. FOSTER

June 8, 1983

Mr. Robert T. Tierney, Commissioner
Commonwealth of Massachusetts
Department of Public Works
100 Nashua Street
Boston, MA 02114

Dear Mr. Tierney:

The Town of Fairhaven while supporting the current plan for the replacement of the New Bedford-Fairhaven Bridge does have a couple of questions which have come to light since a recent article appeared in the local area newspaper. The article included a map showing the location to be used for the disposal of the dredged material namely, Marsh Island at the foot of Taber Street in Fairhaven.

At a hearing which we attended about a year ago, we were advised that the plans for the disposal called for some kind of a "vault" on Marsh Island to deposit the sediment. It was to be deposited in the "vault" and then it would be capped.

Because the article made no mention of the "vault", the area residents have expressed some concern as to the method of disposal. Therefore, we would like to have you clarify the matter for us. Is the "vault" method of disposal still considered in the proposal as initially planned? 1

Our second area of concern is the route to be used as a detour during the construction. We understand that plans call for the use of Main Street in Fairhaven and that the road will be used for at least 18 months or more. During this period of time, it will be a "state" road or detour.

At the present time this road is in poor condition and certainly the use of it as a state detour route will take an additional toll on the condition of the road. We, therefore, respectfully request that you consider the cost of the reconstruction of this road in the proposal to be submitted for the bridge replacement. The need of this detour route should certainly be a part of the overall project and should not place an additional burden on the community by causing a financial hardship to make the necessary and needed repairs at the end of the project. 2

Any information you can give us on both of these matters would be most helpful to us and will alleviate some of the concerns that our residents have at the present time.

We all want to see the new bridge and we will continue to support all your efforts on this behalf, but we do not want to create an undue hardship on our community that could be very easily rectified.

Your interest and concern is appreciated.

Very truly yours,

BOARD OF SELECTMEN

Everett J. Macomber, Jr.

Everett J. Macomber, Jr.
Chairman

AST:s

cc: Mr. Donald Leblanc, Pres.
F.H. Council of the Chamber of Commerce

Mr. Fred Rubin, Director
N.B. Area Chamber of Commerce

Senator William Q. MacLean

Representative Walter Silveira, Jr.

Mayor Brian Lawler
City of New Bedford

Responses to Comments
by the Town of Fairhaven, Office of the Selectmen
in a letter of June 8, 1983

1. "Is the "vault" method of disposal still considered in the proposal as initially planned?"

   One of the proposed methods of containment for the PCB contaminated dredged material will be an encapsulation area on Marsh Island as described in the Environmental Assessment in Chapter V, Section A, "Disposal of Contaminated Dredged Material."

2. "We, therefore, respectfully request that you consider the cost of the reconstruction of this road in the proposal to be submitted for the bridge replacement."

   This situation has been reviewed with Jeffrey Osuch, Superintendent, Fairhaven Board of Public Works, at a meeting of June 19, 1984. The reconstruction of Main Street is an improvement that has been judged to demand immediate attention irrespective of its use as a detour route. Since the town is currently undertaking this reconstruction it appears that only minor repairs will be necessitated due to its use as a detour. The cost of any required repairs will be borne by the Massachusetts Department of Public Works.

Town of Fairhaven
Massachusetts
Board of Public Works

JOSEPH CATALDO, JR., Chairman
VICTOR OLIVEIRA, JR., Vice-Chairman
MANUEL CORREIRA, Clerk
PAUL E. FRANCIS
DAVID SZELIGA

June 21, 1983

The Honorable William Q. MacLean, Jr.
State House, Room 423
Boston, MA. 02133

Attn: Mr. Anthony Catojo

Dear Sir,

While planning for the replacement of the Fairhaven-New Bedford Bridge is progressing, some serious consideration must be given regarding the re-routing of traffic through Fairhaven. Present plans propose that Main Street from Route 6 north, Howland Road, Coggeshall Street and Alden Road are to be primary detour routes for thousands of trucks and cars each day during the 18 month detour period. Close 1
examination of Main Street shows a road in very poor condition. Numerous trenches have been dug and patched by the utility companies and/or Town departments for the repair or installation of pipelines. This roadway is in need of reconstruction in parts and total resurfacing. The majority of this work must be performed <u>before</u> the closing of the Fairhaven-New Bedford Bridge, as it is doubtful that Main Street will survive the wear and tear of this heavy traffic load. The constant pounding of traffic at present is creating serious vibration problems for the homes abutting Main Street and also on the old sewer mains and lead water services. Fairhaven has conducted a Sewer System Evaluation Survey (SSES) and found numerous leaks and cracks throughout the length of Main Street. Sewer main repairs must be completed prior to reconstructing or resurfacing.

Howland Road and Coggeshall Street have average pavement surfaces 2
at this time. Unfortunately, subsurface problems exist with the sewer mains as a result of the last major construction project, US 195, when Howland Road, Coggeshall Street, Sycamore Street and Harding Road were used as detour routes by heavy construction vehicles. A section of the Harding Road sewer collapsed during the construction of US 195 and in 1982 an abutting section of sewer on Harding Road also collapsed and had to be replaced at a Town expense of $25,000. The SSES report indicates that the Howland Road sewer needs replacing or major rehabilitation. Also, sections of the sewer on Sycamore Street are in the same condition. At present, the Town of Fairhaven has appropriated their share of a Step 2 Grant for Federal and State Assistance to design the rehabilitation of sewer mains throughout Fairhaven.

Deptuy Chief Engineer
JUL 6 1983
Project Development

Town of Fairhaven
Massachusetts
Board of Public Works

JOSEPH CATALDO, JR., Chairman
VICTOR OLIVEIRA, JR., Vice-Chairman
MANUEL CORREIRA, Clerk
PAUL E. FRANCIS
DAVID SZELIGA

The Town is awaiting word from the Federal and State Agencies
if they will fund their share. This sewer rehabilitation work must
be completed prior to the Bridge closing as it is very possible that
these sewer mains will collapse during the detour period. Engineering
reports and television camera tapes are available to document these
facts.

Sycamore Street from Howland Road to Harding Road, besides
needing sewer repairs, also needs drainage improvements and total 3
reconstruction. Sycamore Street and Harding Road will be used by
numerous vehicles to avoid the traffic lights at Howland Road and
Main Street.

Consideration must also be given to control traffic on the
side streets between Main Street and Sycamore Street. This is a
heavily congested area with narrow, hilly streets and two or three 4
family homes clustered close together. "Do Not Enter" and "One
Way" signs will have to be installed during the detour period.

Another area of great concern is the traffic flow problem at
Bridge Street and Alden Road. Bridge Street is an exit and entrance
point for Route 240 and has been the location of numerous accidents 5
over the years. With the closing of the Fairhaven-New Bedford Bridge,
hundreds of cars and trucks each day will use this intersection to
get to and from Route 240 and US 195. It is strongly recommended
that a full set of traffic lights be installed at this intersection.

A serious drainage problem exists on Bridge Street at Route 6.
Flooding to a depth of 12" or more is not uncommon during heavy
rains in the winter. Bridge Street from Route 6 to Roy Street is 6
also in need of reconstruction as a result of the drainage problem
created by runoff from Route 6. A traffic flow problem will also
exist at this intersection with the increase in traffic trying to
reach Route 6 and the Center of Fairhaven.

If Marsh Island is to be used as a disposal site for dredged
material then both Taber Street and River Avenue will have to be 7
reconstructed as both are in extremely poor condition and will not
survive heavy traffic . Marsh Island is not recommended as a
disposal site.

Town of Fairhaven
Massachusetts
Board of Public Works

JOSEPH CATALDO, JR., Chairman
VICTOR OLIVEIRA, JR., Vice-Chairman
MANUEL CORREIRA, Clerk
PAUL E. FRANCIS
DAVID SZELIGA

 June 21, 1983

The State will also have to assist the Town of Fairhaven in snow plowing, sanding and salting during the winter months as the Highway Department will not be capable to maintain the proposed detour routes in the same condition as the State maintains Route 6. 8

The above mentioned problems and others, must be considered fully during the design phase of the Fairhaven-New Bedford Bridge Replacement to avoid major traffic jams and inconveniences to the residents of Fairhaven. Also, the Telephone, Electric and Gas Companies should be consulted to see what improvements they are considering for this area. The Fairhaven Board of Public Works will be available to discuss these problems with you at your convenience.

Very truly yours,

FAIRHAVEN BOARD OF PUBLIC WORKS

Jeffrey W. Osuch

Jeffrey W. Osuch
Superintendent

cc: Fairhaven Bd. of Selectmen
Rep. Walter Silveira, Jr.
Donald LeBlanc - Fhvn Chamber of Commerce
David Kennedy - New Bedford City Planner
Nick Tangney - Fhvn Town Planner

JWO/gwb

Responses to Comments
by the Town of Fairhaven, Board of Public Works
in a letter of June 21, 1983

1. "Close examination of Main Street shows a road in very poor condition."

   Reconstruction of Main Street is currently being undertaken by the Town of Fairhaven. After the use of Main Street as a detour route, its condition will be evaluated by the Town and the Massachusetts Department of Public Works. Given the complete reconstruction that will be carried out, however, it seems unlikely that anything but minor repairs will be necessitated because of detour use.

2. "Howland Road and Coggeshall Street have average pavement surfaces at this time. Unfortunately, subsurface problems exist..."

   After the use of Howland Road as a detour route, its condition will be evaluated by the Town and the Massachusetts Department of Public Works. Assuming that sewer replacement and roadway reconstruction are completed prior to the use of the roadway for the detour, it seems unlikely that anything but minor repairs will be necessitated because of detour use.

3. "Sycamore Street...needs drainage improvements and total reconstruction."

   Sycamore Street may experience increased traffic but since this roadway does not lie directly on the detour route, it is not possible to justify any funding as part of the bridge replacement project.

4. "Consideration must also be given to control traffic on the side streets between Main Street and Sycamore Street."

   The signing for the detour route, which will discourage use of such side streets, and any necessary enforcement will be part of the bridge replacement project cost.

5. "Another area of great concern is the traffic flow problem at Bridge Street and Alden Road."

   The Town of Fairhaven plans to provide traffic signalization here with its own funds. It may be necessary to change the timing of this signal system to accommodate changes in traffic distribution when Alden Road becomes part of a detour route. Any such adjustments would be part of the bridge replacement project cost.

6. "A serious drainage problem exists on Bridge Street at Route 6."

   As in other cases mentioned, reconstruction of this area has high priority in the Town of Fairhaven and it is entended to carry out the necessary improvements with Town funds.

7. "If Marsh Island is to be used as a disposal site for dredged material then both Taber Street and River Avenue will have to be reconstructed."

Taber Street and River Avenue are little used side streets not intended for through traffic use. Of course, this is not surprising since one of the advantages of the Marsh Island site for a contaminated material encapsulation area is that it is relatively inaccessible to the public.

The Marsh Island site is accessible from the water side and this is the way much of the access to the site and the movement of the contaminated dredged material will be accomplished. However, this does not negate the fact that either Taber Street or River Avenue or both will receive additional traffic for construction of the disposal site dikes and worker access if Marsh Island is chosen as a disposal site.

The improvement of any access route necessary for the use of Marsh Island as a disposal site would be part of the bridge replacement project cost.

8. "The State will have to assist the Town of Fairhaven in snow plowing, sanding and salting during the winter months..."

Timely snow removal, salting, and sanding will be necessary over the detour route rather than the section of Route 6 which will be closed to through traffic. This maintenance expense would be a part of the bridge replacement project.

In a letter of August 1, 1984, from the Massachusetts Department of Public Works, District 6, to the Fairhaven Board of Public Works on this subject it was stated that "The District will provide the assisstance requested in plowing and chemically treating the roadway pavement...".

D. COMMENTS FROM FIRMS

The following letters of comment and public meeting response forms were received from local firms:

1.	Received September 23, 1982	Fairhaven True Value Hardware Signed by Robert M. and Patricia E. Chandler
2.	Received September 30, 1982	Boat House Pub Signed by Floyd Carr
3.	Received September 30, 1982	Island Mobil Signed by Michael E. Verronneau
4.	Dated October 1, 1982	John Dugan Buick-Pontiac, Inc. Signed by Kevin T. Dugan
5.	Dated October 1, 1982	Maritime Terminal Incorporated Signed by Norman E. Chamberlin
6.	Date Received Illegible	Lou Kalife's Building Products, Inc. Signed by Louis T. Kalife
7.	Date Received Illegible	D. N. Kellye & Sons Inc. Signed by David N. Kelley
8.	Undated	Maritime Stevedoring Corporation Signed by Max Finkel

Copies of these letters of comments and public meeting responses to them follow.

D1

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

THE REPLACEMENT OF THE NEW BEDFORD-FAIRHAVEN BRIDGE
in
New Bedford and Fairhaven, Massachusetts

RESPONSE FORM

The participation and comments of citizens are an integral part of the Public Hearing and will be an important factor in the decision-making process for the Proposed Project. Please let us know your views by completing the following form:

NAME: Robert E. and Patricia E. Chandler

ADDRESS: 10 Randall Rd., Rochester, Ma. 02770

POSITION/AFFILIATION: Owners--Property and businesses 7-9-11 Popes Isl.
Fairhaven True Value Hardware and The Cover Up

COMMENTS: Recognizing the general community interest and welfare
we have been active supporters of bridge replacement 20ft in
height at its present location. This replacement has affected and
will continue to affect sales on a definite increasing basis.

Please consider the following:

1. Proposed 2 year construction period is excessive— 1

(Continue comments on back) (cont. over)

Please return to a staff member present here this evening or mail before Sept. 30, 1982 to:

Justin L. Radlo, Chief Engineer
Massachusetts Department of Public Works
100 Nashua Street
Boston, Massachusetts 02114

Attention: Robert J. McDonagh, Deputy Chief Engineer

Comments----cont.

--ways must be sought to reduce downtime.

2. Current proposed roadway designs providing access to Popes Island retail businesses are inadequate and require restudy with affected party participation. 2

Responses to Comments
by Fairhaven True Value Hardware
Received September 23, 1982

1. "Proposed 2 year construction period is excessive - ways must be sought to reduce downtime."

   The construction period of two years is comparable to that of similar projects that have been constructed in the past. The problems of deep foundation construction, construction in the harbor environment, and the unique nature of the moveable bridge structure and machinery tend to make the construction period longer and less predictable than it might be for a more conventional project of similar scale built on land.

   A study entitled "Investigation of Alternatives for Reducing the Construction Related Down-time of the Crossing" was undertaken in March 1983 to address this important question. This study determined that it would be possible to reduce, but not eliminate, downtime of the crossing through the use of temporary structures. However, the reduced capacity, the reduced safety, and the general inconvenience of such temporary crossings through the construction area does not make their use advisable. Since such structures would also increase the overall construction time of the project, it was deemed most advisable to close the crossing and allow the bridge construction to proceed in the most straightforward possible fashion so the crossing can be returned to full capacity as soon as possible.

2. "Current proposed roadway designs providing access to Popes Island retail businesses are inadequate and require restudy with affected party participation."

   Since the original publication of the Environmental Assessment, the project has been modified to eliminate the median barrier on Popes Island. Therefore, left turns can be made and areas of Popes Island will be accessible in much the same fashion as they are now. Distinct intersections and access roads will no longer be necessary.

D2

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

THE REPLACEMENT OF THE NEW BEDFORD-FAIRHAVEN BRIDGE
in
New Bedford and Fairhqven, Massachusetts

RESPONSE FORM

The participation and comments of citizens are an integral part of the Public Hearing and will be an important factor in the decision-making process for the Proposed Project. Please let us know your views by completing the following form:

NAME: Boat House of New Bedford, [illegible] Boat House [illegible]

ADDRESS: 37 Popes Island
New Bedford, Mass.

POSITION/AFFILIATION: Manager - Pres.

COMMENTS: 1. Why can't the existing bridge be repaired? 2. What about a causeway? 3. Flashing Lights on both sides of the bridge. 1
4. What would the cost be to repair the old bridge.
5. Posted hours bridge to be used (Not rush hours).
6. Please add your own comments.

The first question is (the only one of the above). The bridge can be repaired. Remove all of the " Ancient" Hydraulic jacks, pumps, valves, and replace the hydraulics with new equiptment. The estimated cost of repaacing the hydraulics system, parts and labor was $ 60,000 dollars. That is better than 28 million, isn't it? If we go with the low vascular bridge, which is 20 feet above the water, we are not solving anything except to "spend" 28 million dollars instead of $ 60,000 to repair it.

(Continue comments on back) (cont,)

Please return to a staff member present here this evening or mail before Sept. 30, 1982 to:

Justin L. Radlo, Chief Engineer
Massachusetts Department of Public Works
100 Nashua Street
Boston, Massachusetts 02114

Attention: Robert J. McDonagh, Deputy Chief Engineer

We would like to keep our tax money as low as possible. The lights are not a good idea because of the cost. They wouldn't even estimate the cost. They said it would be very high though. It would mean digging up the streets black-top, cement, work, labor, etc. No Way!!!

The causeway is out of the question. That is another aditional cost to the tax payers.

Posting hours on the bridge, excelent idea. But what closing periods? I myself, along with a few businesses, tried to bring the closing periods back in operation. And we were knocked down like we were crazy. We finally won (for a little while). They are supposed to be in operation now but not one attendant on the bridge knows about them. HOW COME? The closing periods are supposed to be on half hour openings- 6:30-7AM, 7:30-8AM 8:30-9AM, and from 11:30-12PM, 12:30-1PM. The bridge is supposed to close to boat traffic unless vessels draw 15 feet of water. This includes Fishing Vessels. There is not one Fishing Vessel in the fleet that draws 15 feet of water.

In conclusion, I would like you to consider the businesses on and around the New Bedford Fairhaven Bridge. One of the many Historical Sights, we have here in New Bedford. By Re-pairing the bridge is the most logical way to go about it.

Deptuy Chief Engineer
SEP 0 1982
Project Development

Floyd Carl Pres.

Response to Comment
by Boat House Pub
Received September 30, 1982

1. "Why can't the existing bridge be repaired?"

   Repairs can continue to be made to the existing bridge as they have been in the past. However, the age and condition of the existing bridge are such that repair expenditures are continually less effective. Repair of the existing bridge will not be effective in relieving the foundation problems of the existing structure nor in increasing the clear span available at the shipping channel.

D3

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

THE REPLACEMENT OF THE NEW BEDFORD-FAIRHAVEN BRIDGE
in
New Bedford and Fairhaven, Massachusetts

RESPONSE FORM

The participation and comments of citizens are an integral part of the Public Hearing and will be an important factor in the decision-making process for the Proposed Project. Please let us know your views by completing the following form:

NAME: Island Service Station

ADDRESS: Fish Island, New Bedford Mass. 02740

POSITION/AFFILIATION: Manager / Operator

COMMENTS: 1 Why can't the existing bridge be repaired? 2. What about a causeway? 3. Flashing Lights on both sides of the bridge. 1
4. What would the cost be to repair the old bridge.
5. Posted hours bridge to be used (Not rush hours).
6. Please add your own comments.

The first question is (the only one of the above). The bridge can be repaired. Remove all of the "Ancient" Hydraulic jacks, pumps, valves, and replace the hydraulics with new equiptment. The estimated cost of replacing the hydraulics system, parts and labor was $ 60,000 dollars. That is better than 28 million, isn't it? If we go with the low vascular bridge, which is 20 feet above the water, we are not solving anything except to "spend" 28 million dollars instead of $ 60,000 to repair it.

(Continue comments on back) (cont,)

Please return to a staff member present here this evening or mail before Sept. 30, 198·
to:

Justin L. Radlo, Chief Engineer
Massachusetts Department of Public Works
100 Nashua Street
Boston, Massachusetts 02114

Attention: Robert J. McDonagh, Deputy Chief Engineer

We would like to keep our tax money as low as possible. The lights are not a good idea because of the cost. They wouldn't even estimate the cost. They said it would be very high though. It would mean digging up the streets black-top, cement, work, labor, etc. No way!!!

The causeway is out of the questinn. That is another aditional cost to the tax payers.

Posting hours on the bridge, excelent idea. But what closing periods? I myself, along with a ~~feq~~ few businesses, tried to bring the closing periods back in operation. And we were knocked down like we were crazy. We finally won (for a little while). They are supposed to be in operation now but not one attendant on the bridge knows about them. HOW COME? The closing period's are supposed to be on half hour openings- 6:30-7AM, 7:30-8AM 8:30-9AM, and from 11:30-12PM, 12:30-1PM. The bridge is supposed to close to boat traffic unless vessels draw 15 feet of water. This includes Fishing Vessels. There is not one Fishing Vessel inathe fleet that draws 15 feet of water.

In conclusion, I would like you tp consider the businesses on and around the New Bedford Fairhaven Bridge. One of the many Historical Sights, we have here in New Bedford. By Repairing the bridge is the most logical way to go about it.

Sincerely,

Michael W. Verronneau

Michael W. Verronneau
Manager/Operator
Island Mobil

Response to Comment
by Island Mobil
Received September 30, 1982

1. "Why can't the existing bridge be repaired?"

   Repairs can continue to be made to the existing bridge as they have been in the past. However, the age and condition of the existing bridge are such that repair expenditures are continually less effective. Repair of the existing bridge will not be effective in relieving the foundation problems of the existing structure nor in increasing the clear span available at the shipping channel.

D4

John Dugan Buick

TELEPHONE 999-C261

P. O. BOX D 716   NEW BEDFORD, MASS. 02742-0716

October 1, 1982

Mr. Joseph A. Fanale
Director of the Rights of Way Bureau
Mass. Department of Public Works
100 Nashua Street
Boston, Ma. 02114

Dear Sir:

If the presently proposed plans for a new New Bedford-Fairhaven Bridge is accepted and eventually consummated, it would be absolutely impossible for this company to remain in business in its present location.

We are therefore interested in advance acquisition of this property, and in sufficient time for this company to plan for the future. As stated above, if the presently proposed plans are accepted, this company will have no future in its present location.

Your prompt response is respectfully requested.

Very truly yours,

JOHN DUGAN BUICK-PONTIAC INC.

Kevin T. Dugan

Kevin T. Dugan, Vice-President

cc: Mr. Robert McDonagh
cc: Senator William MacLean Jr.

Response to Comment
by John Dugan Buick-Pontiac, Inc.
in a letter of October 1, 1982

1. "If the presently proposed plans for a new New Bedford-Fairhaven Bridge are accepted and eventually consummated, it would be absolutely impossible for this company to remain in business in its present location."

   Since the original publication of the Environmental Assessment, the project has been modified to eliminate the median barrier on Popes Island. Therefore, left turns can be made and areas of Popes Island will be accessible in much the same fashion as they are now. Distinct intersections and access roads will no longer be necessary.

MARITIME TERMINAL

INCORPORATED

Whalers' Wharf

NEW BEDFORD, MASSACHUSETTS

October 1, 1982

Mr. Justin L. Radlo, Commissioner
Massachusetts Department of Public Works
100 Nashau Street
Boston, Massachusetts 02114

CHIEF ENGINEER
RECEIVED
OCT 4 1982

Dear Mr. Radlo:

I am writing to you to issue a formal protest to the proposed new design of the New Bedford-Fairhaven Bridge. This protest is directed most particularly at the proposed access bridge to Fish Island which as proposed would cut across the Maritime Terminal south wharf and prevent Maritime from using approximately 100 feet of bulkhead in this area. 1

Merchants Cold Storage and Warehouse Company of Providence, Rhode Island, the parent company of Maritime and Bridge Terminals, decided in 1956 that it would be desirable to construct a cold storage facility on a deep water harbor to take advantage of business available from ocean cargo being shipped into the United States and from the fishing industry. After some searching, a decision was made to construct this facility in New Bedford. The purchase of land on the Acushnet River had a very positive influence on the harbor north of the Bridge and was likely instrumental in the creation of the Harbor Development Commission.

Merchants was instrumental in bringing Quaker Oats Company and Frionor Norwegian Fish, Ltd. to New Bedford. These three companies have made significant capital investments in the harbor north of the bridge and although only Frionor and Maritime remain, they are the principal employers and the largest by many times, commercial enterprises on the harbor.

Maritime has gone through several expansion programs the last of which was financed by an industrial development bond which has positively affected the City of New Bedford's tax base and has significantly increased employment.

The taking of any amount of property in the Maritime Terminal south wharf area would have a devastating effect on the Maritime and Bridge

Terminals and would have a corresponding negative effect on the surrounding communities and the commercial development of areas north of the Bridge. Losing this area will severely cut Company revenues and will result in the elimination of jobs. The lack of other business to fill the void will threaten the Company's ability to exist in New Bedford and will impede our ability to repay the considerable debt which is outstanding on the Company's books.

The business of Maritime and Bridge Terminals has changed dramatically over the last several years from handling exclusively frozen product to handling chilled and frozen product. While the change in business may seem modest to the layman, it required a considerable capital investment to convert freezer rooms to chill storage.

The first customer to use the Maritime-Bridge chilled storage was "lured" away from another principal port on the East Coast. One of the aspects of our New Bedford facility, which was a significant enhancement over the competing port, was our ability to load product from ships directly onto waiting trucks in the south wharf area. This ability is unique on the East Coast.

The chilled storage business has grown over the last 16 months to the point where 80 million pounds of product were handled by the Maritime group. The product now ranks among the largest product handled and is anticipated that the business will continue to grow and prove to be a very positive influence on the economy of surrounding communities.

Virtually all of the chilled product is received via ship from Africa and the Middle East. The ships range in length from 470 to 550 feet. Each of the 13 ships unloaded since the chilled product business began has been unloaded over an average of 4 days per ship by local stevedoring companies. Approximately 100 stevedores are employed in the unloading process.

The taking of any part of the south wharf area will not only diminish the unique facility for transshipping ex-warehouse but will also limit our ability to physically handle the ships which carry the product.

Currently, Maritime occupies approximately 575 feet of bulkhead on the west side of the Acushnet River. It is obvious that the proposed taking of 100 feet of bulkhead will limit our ability to handle even the smallest fruit ships. The taking of any bulkhead will limit our ability to handle the larger fruit ships which are vital for Maritime to continue to aggressively pursue additional business from existing customers and new business from interested prospects.

In addition to the negative aspects of the proposed new design of the bridge to Maritime, there are significant negative aspects to our property on Fish Island. The property consists of a cooler-freezer building as well as an oil tank farm and a dry-storage warehouse, both of which are leased to third parties. In the case of the oil tank farm, one of its principal assets is its central location and position on a central artery serving the New Bedford-Fairhaven metropolitan area. The dry storage warehouse is currently leased to a building supply company which sells at wholesale and retail. Again, the central location on a principal artery is vital to the success of this business. Any change in the access to these businesses will significantly diminish the value of the leased space with a corresponding negative effect on Maritime's operations.

We recommend that further study be undertaken, directed either toward refurbishment of the existing bridge or installation of double bastule bridge at the existing road level. Both of these suggestions should be significantly less costly than the proposed new bridge and should take significantly less time to complete construction.

Enclosed are two photographs showing the importance of the south wharf area. One shows trucks backed up receiving product directly from the ship. The other shows a ship tied up to the bulkhead. I believe you can get a perception of the impact of losing any part of the south wharf. The ship pictured which seems to occupy the entire bulkhead is only 470 feet.

The Company maintains a considerable library of ship photographs which we would be most happy to share with you at your request.

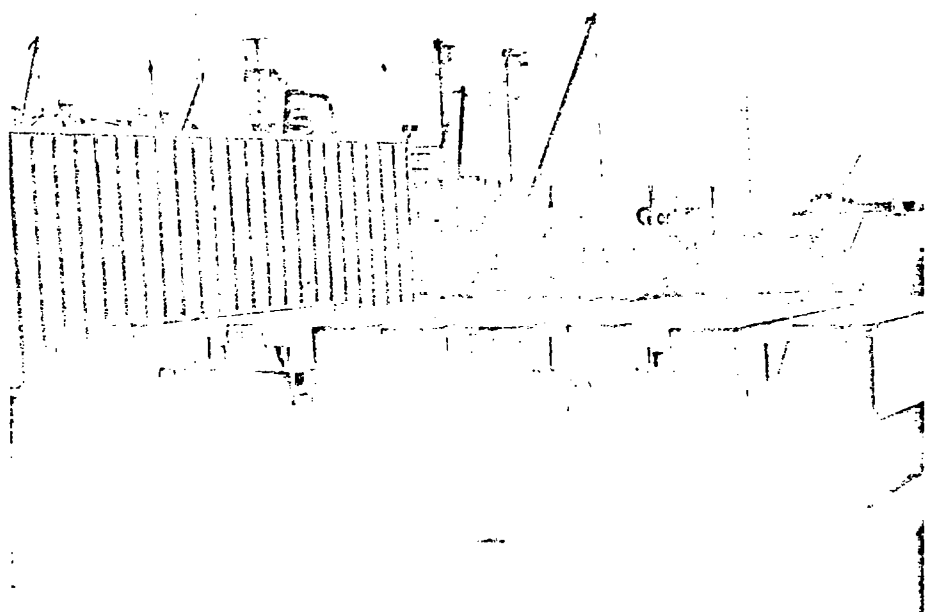
Very truly yours,

N. E. Chamberlin

Norman E. Chamberlin
Vice President - Treasurer

NEC:el
Enc.

c.c.: Senator W. Q. MacLean, Jr.
Mayor J. A. Markey
R. A. Walega, City Planner
Area Chamber of Commerce



Response to Comment
by Maritime Terminal Incorporated
in a letter of October 1, 1982

1. "I am writing to you to issue a formal protest to the proposed new deign of the New Bedford-Fairhaven Bridge. This protest is directed most particularly at the proposed access bridge to Fish Island which as proposed would cut across the Maritime Terminal south wharf and prevent Maritime from using approximately 100 feet of bulkhead in this area."

   Since the original publication of the Environmental Assessment, the access bridge to Fish Island has been deleted from the project mainly because it eliminated docking space along the New Bedford Shore.

D6

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

THE REPLACEMENT OF THE NEW BEDFORD-FAIRHAVEN BRIDGE
in
New Bedford and Fairhaven, Massachusetts

RESPONSE FORM

The participation and comments of citizens are an integral part of the Public Hearing and will be an important factor in the decision-making process for the Proposed Project. Please let us know your views by completing the following form:

NAME: Louis J. Kalife d/b/a Lou Kalife's Building Products, Inc.

ADDRESS: Fish Island, New Bedford, MA. 02740

POSITION/AFFILIATION: Owner

COMMENTS: 1. Why can't the existing bridge be repaired? 2. What about a causeway? 3. Flashing Lights on both sides of the bridge.
4. What would the cost be to repair the old bridge.
5. Posted hours bridge to be used (Not rush hours).
6. Please add your own comments.

ON BACK PAGE

(Continue comments on back)

Please return to a staff member present here this evening or mail before Sept. 30, 198 to:

Justin L. Radlo, Chief Engineer
Massachusetts Department of Public Works
100 Nashua Street
Boston, Massachusetts 02114

Attention: Robert J. McDonagh, Deputy Chief Engineer

1. Why can't the existing hydraulic system be replaced? With the possibility of the engineering being done by the Engineering Department of Southeastern Massachusetts University.

2. If this is feasible, there are a number of local companies capable of the engineering work, not someone in Florida or Tennessee.

3. What is the possibility of having the bridge sandblasted and painted?

4. If we are spending so much Federal and State money to revitalize and keep the old buildings in downtown New Bedford; Why can't we keep our bridge which is structurally sound ?

5 Posted hours were supposed to be adhered to, but are never used. Is this a political football ???

6 Do we really have to spend $24 million dollars of the people's money, to have the bridge out of operation for eighteen (18) months ? Can it be revamped, prefabricated and installed by area companies and universties for $ 5 million dollars and three (3) months time ?

Respectfully yours,

Louis J. Kalife
Lou Kalife's Building Products, Inc.

Fish Island
New Bedford, MA. 02740

P. S. How many companies are you willing to put out of business ????

Deputy Chief Engineer
1982
Project Development

Response to Comment
by Lou Kalife's Building Products, Inc.

1. "Why can't the existing bridge be repaired?"

   Repairs can continue to be made to the existing bridge as they have been in the past. However, the age and condition of the existing bridge are such that repair expenditures are continually less effective. Repair of the existing bridge will not be effective in relieving the foundation problems of the existing structure nor in increasing the clear span available at the shipping channel.

D7

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

THE REPLACEMENT OF THE NEW BEDFORD-FAIRHAVEN BRIDGE
in
New Bedford and Fairhaven, Massachusetts

RESPONSE FORM

The participation and comments of citizens are an integral part of the Public Hearing and will be an important factor in the decision-making process for the Proposed Project. Please let us know your views by completing the following form:

NAME: [illegible]

ADDRESS: 30 [illegible] Way [illegible] Mass.

POSITION/AFFILIATION: President - D. N. Kelley & Son Inc.
32 Water St. - Fairhaven Waterfront

COMMENTS: I am in favor of replacing the present bridge 1
but am very concerned on how long the contractor will
take place. Our business requires many trips daily across
the bridge and we are very concerned with its eighteen months
completion time. It is expected that the time of replacement be
kept to a minimum ~~amount~~ time to repair the delays of congestion (con't)

(Continue comments on back)

Please return to a staff member present here this evening or mail before Sept. 30, 1982 to:

Justin L. Radlo, Chief Engineer
Massachusetts Department of Public Works
100 Nashua Street
Boston, Massachusetts 02114

Attention: Robert J. McDonagh, Deputy Chief Engineer

that will take place. Our business and many other waterfront businesses cannot afford the traffic delays that will occur.

We are also concerned with the fishing industry whom we rely heavily on to support our business. At this particular time there are serious problems with the existing bridge and recently due to bridge malfunctions caused serious economic delays to fishing vessels delayed for days until the existing bridge repairs were completed. Over the last year or more bridge failures have increased which is extremely concerning to myself and other businesses in the New Bedford - Fairhaven area.

If the road is closed down for eighteen months I am certain that my business and other businesses will be severely damaged.

Please take into consideration during your design process this time factor - it is important.

While the new bridge is being constructed dredging will be necessary. The shipyards on the Fairhaven waterfront desperately need dredging to encourage larger vessels (both ~~vess~~ fishing vessels and other commercial vessels) to come into New Bedford - Fairhaven harbor to do their repair work. If the oil industry decides to use this harbor for supplies, repairwork etc. it is essential that the dredging be done. Thank you for any consideration rendered my requests and concerns. 2

Responses to Comments
by D. N. Kelly & Son Inc.

1. "I am in favor of replacing the present bridge but am very concerned on how long the construction will take place...It is essential that the time of replacement be kept to a minimum..."

   The time period of construction is an item of major concern. In order to limit the construction period to as short a time as practical, it was deemed most advisable to close the crossing and allow the bridge construction to proceed in the most straightforward possible fashion so the crossing can be returned to full capacity as soon as possible.

2. "The shipyards on the Fairhaven waterfront desperately need dredging to encourage larger vessels (both fishing vessels and other commercial vessels) to come into New Bedford-Fairhaven Harbor to do their repair work."

   Any major dredging is not part of the work of this project. The New England Division, Corps of Engineers, in a letter of August 1979, advised the Department that it is the responsibility of this project "...to insure that the 30-foot project depth is provided throughout the area". This is assumed to apply only to the immediate area of the bridge and the dredging will be kept to an absolute minimum.

D8

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

THE REPLACEMENT OF THE NEW BEDFORD-FAIRHAVEN BRIDGE
in
New Bedford and Fairhaven, Massachusetts

RESPONSE FORM

The participation and comments of citizens are an integral part of the Public Hearing and will be an important factor in the decision-making process for the Proposed Project. Please let us know your views by completing the following form:

NAME: MAX FINKEL

ADDRESS: P. O. BOX G-384

NEW BEDFORD, MA 02742

POSITION/AFFILIATION: PRESIDENT/TREASURER OF MARITIME STEVEDORING CORP.
AND MARINE PRODUCTS CORP.
87 CONWAY STREET, NEW BEDFORD, MA

COMMENTS: I enjoyed the meeting very much; the points and facts were brought out in the open. I agree on the 20' pass, it will increase our shipping and fishing business at least 50%. 1

This long awaited bridge is needed, the sooner the better.

Max Finkel Pres.

(Continue comments on back)

Please return to a staff member present here this evening or mail before Sept. 30, 1982 to:

Justin L. Radlo, Chief Engineer
Massachusetts Department of Public Works
100 Nashua Street
Boston, Massachusetts 02114

Attention: Robert J. McDonagh, Deputy Chief Engineer

Response to Comment
Maritime Stevedoring Corporation

1. "I agree on the 20-foot pass, it will increase our shipping and fishing business at least 50 percent."

   A 20-foot vertical clearance at the shipping channel was not found to be justifiable when balancing the reduction in bridge openings that would take place against the disruption that would occur on Fish Island and Popes Island because of the approaches to the higher clearance bridge. The proposed structure now will provide ten feet of vertical clearance at the shipping channel which is only slightly higher than that currently provided by the existing bridge.

E. COMMENTS FROM THE GENERAL PUBLIC

The following public meeting response forms were received from the general public:

1.	Received September 15, 1982	Martha S. Worley
2.	Received September 16, 1982	Hugh T. Shanahan, Jr.
3.	Received September 20, 1982	Dr. Philip T. Gidley
4.	Received September 20, 1982	Mr. & Mrs. William Potter
5.	Received September 22, 1982	Mrs. Jack Walters
6.	Received September 24, 1982	Roman Rusinoski
7.	Received September 30, 1982	Philip C. Hathaway
8.	Received September 30, 1982	Irene McAlpin

Copies of these public meeting response forms and responses to them follow.

E1

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

THE REPLACEMENT OF THE NEW BEDFORD-FAIRHAVEN BRIDGE
in
New Bedford and Fairhaven, Massachusetts

RESPONSE FORM

The participation and comments of citizens are an integral part of the Public Hearing and will be an important factor in the decision-making process for the Proposed Project. Please let us know your views by completing the following form:

NAME: Martha S. Worley

ADDRESS: 77 Alden Road

Fairhaven, Mass. 02719

POSITION/AFFILIATION: business owner in Fairhaven and employer of 40 people

COMMENTS: I support the replacement of the Fairhaven bridge with the plan submitted by the Chamber of Commerce. I would, however, like to register my opposition to the storage og dredged materials on Marsh Island. 1
I grew up very close to this area and I can assure you that this place is a meeting area for the local children. I question the safety of the storage container over a period of years and feel that there must be other areas away from thickly settled areas where these materials can be stored. Also 2
I would like to the that the streets in Fairhaven are clearly marked for the the influx of traffic that we will experience. Also, I-195 should be marked. Alden Road should be marked for through traffic and a traffic light should

(Continue comments on back)

Please return to a staff member present here this evening or mail before Sept. 30, 198_ to:

Justin L. Radlo, Chief Engineer
Massachusetts Department of Public Works
100 Nashua Street
Boston, Massachusetts 02114

Attention: Robert J. McDonagh, Deputy Chief Engineer

be installed at the intersection of Bridge Street and Alden Road. Main St. and Adams St. should be marked for center traffic only, thereby pushing through traffic to Alden Road and relieving the congestion that always develops on Main St.

I think Fairhaven should also be considered for additional funds for resurfacing the roads that will be used during the shut-down of Rte.6. 3

4

In closing, I would like to reiterate what I'm sure you have heard so many times already. The timetable for the actual shut-down of this bridge must be kept at a minimum. Although, our business is not in the immediate area of the bridge, we do feel the impact when the bridge is closed due to mechanical problems. Our store traffis falls off substantially. I am extremely sympathetic to those businesses who will be directly affected due to physical location and they should be assisted by the State 5 in some fashion, whether it be advertising monies to allow them to let their customers know how to get to them when the bridge is closed or direct financial assistance to help through this business interruption.

All of us know the bridge needs to be replaced, we hope that it will be done quickly and without major down time.

Karita Stanley

Deptuy Chief Engineer
SEP 15 1982
Project Development

Responses to Comments
by Martha S. Worley
Received September 15, 1982

1. "I would, however, like to register my opposition to the storage of dredged materials on Marsh Island. I grew up very close to this area and I can assure you that this place is a meeting area for the local children. I question the safety of the storage container over a period of years and feel that there must be other areas away from thickly settled areas where these materials can be stored."

   There appears to be no possibility of moving the contaminated material to an area outside of the contaminated New Bedford Harbor environment. Within the New Bedford Harbor there is only a limited amount of upland open space available for use as a disposal site. While there is obviously no ideal location for locating such a facility, Marsh Island has the advantage of being within a reasonable distance of the construction activity and being relatively isolated.

   Once encapsulated, the material would be isolated from the surrounding environment. The area would be fenced if this were considered desirable by the Town of Fairhaven.

2. "Also I would like to see that the streets in Fairhaven are clearly marked for the influx of traffic that we will experience. Also, I-195 should be marked. Alden Road should be marked for through traffic and a traffic light should be installed at the intersection of Bridge Street and Alden Road. Main Street and Adams Street should be marked for center traffic only, thereby pushing through traffic to Alden Road and relieving the congestion that always develops on Main Street."

   Traffic markings and directional signing will be a part of the detour program. A traffic signalization system for the intersection of Bridge Street and Alden Road is being planned by the Town of Fairhaven. The provision of Main Street and Adams Street as detour routes are intended to accommodate traffic originating in or bound for either Fairhaven Center or the section of Route 6 in Fairhaven west of Route 240. Through traffic would probably use Interstate Route 195.

3. "I think Fairhaven should also be considered for additional funds for resurfacing the roads that will be used during the shut-down of Route 6."

   The Town of Fairhaven is currently planning reconstruction of Main Street and other needed improvements in areas which will be used for the detour. These improvements are proceeding independently of the bridge replacement project.

4. "In closing, I would like to reiterate what I'm sure you have heard so many times already. The timetable for the actual shut-down of this bridge must be kept at a minimum."

   The time period of construction is an item of major concern. In order to limit the construction period to as short a time as practical, it was deemed most advisable to close the crossing and allow the bridge construction to proceed in the most straightforward possible fashion so the crossing can be returned to full capacity as soon as possible.

5. "I am extremely sympathetic to those businesses who will be directly affected due to physical location and they should be assisted by the State in some fashion, whether it be advertising monies to allow them to let their customers know how to get to them when the bridge is closed or direct financial assistance to help through this business interruption."

   Businesses in the area will continue to have access to the state highway throughout the construction period. The problem is not one of loss of access but rather of (1) a reduction in the amount of traffic passing by the business or (2) greater distance to be travelled to reach the business from the major population center. There is no way of determining the amount of damage incurred by a business under these circumstances nor is there any mechanism available for compensating them.

E2

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

THE REPLACEMENT OF THE NEW BEDFORD-FAIRHAVEN BRIDGE
in
New Bedford and Fairhaven, Massachusetts

RESPONSE FORM

The participation and comments of citizens are an integral part of the Public Hearing and will be an important factor in the decision-making process for the Proposed Project. Please let us know your views by completing the following form:

NAME: HUGH J. SHANAHAN JR.

ADDRESS: 15 COE ST

FAIRHAVEN MA 02719

POSITION/AFFILIATION: REPAIR EXISTING BRIDGE & CONTROL PLEASURE BOAT TRAFFIC.

COMMENTS: #1 I WOULD LIKE TO SEE A WARNING AT 1
ALL ROADS TO OLD/NEW BRIDGE INFORMING
MOTORIST THE BRIDGE WILL/IS OPEN SO
WE CAN TAKE A DIFFERENT ROUTE IF DESIRED.
#2 TURN THE EXISTING BRIDGE 15° - 30° 2
& MAKE TEMPORARY APPROACHES. THIS COULD

(Continue comments on back)

Please return to a staff member present here this evening or mail before Sept. 30, 1987 to:

Justin L. Radlo, Chief Engineer
Massachusetts Department of Public Works
100 Nashua Street
Boston, Massachusetts 02114

Attention: Robert J. McDonagh, Deputy Chief Engineer

ALLOW AUTO TRAFFIC 6 MONTHS MORE USE OF THE BRIDGE WHILE CONSTRUCTION IS GOING ON.

Responses to Comments
by Hugh J. Shanahan, Jr.
Received September 16, 1982

1. "I would like to see a warning at all roads to old/new bridge informing motorist the bridge will/is open so we can take a different route if desired."

   This type of signalization remote from the bridge might be incorporated with the traffic signal system which will be provided at the moveable bridge. This will be considered in the design phase of the project.

2. "Turn the existing bridge 15-30 degrees and make temporary approaches."

   This methodology was considered in the study of Alternatives in the Environmental Assessment as Alternative 3e. Objections to this alternative were:

   o Takings required to satisfy a temporary condition.

   o Major change in location of the channel requiring extensive dredging.

   o Decreased channel width during the period of construction.

E3

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

THE REPLACEMENT OF THE NEW BEDFORD-FAIRHAVEN BRIDGE
in
New Bedford and Fairhaven, Massachusetts

RESPONSE FORM

The participation and comments of citizens are an integral part of the Public Hearing and will be an important factor in the decision-making process for the Proposed Project. Please let us know your views by completing the following form:

NAME: DR. PHILIP T. GIDLEY, F.A.I.C.

ADDRESS: GIDLEY LABORATORIES, INC.
CHEMICAL AND ENVIRONMENTAL SCIENCES
FAIRHAVEN, MASS., U.S.A.

POSITION/AFFILIATION (1) PRESIDENT, GIDLEY LABORATORIES, INC.
(2.) CONSULTANT, FAIRHAVEN BOARD OF PUBLIC WORKS
(3.) MEMBER, AD HOC COMMITTEE ON ACARED
(4.) ACTING CHAIRMAN, LAND AND WATER COMMITTEE,
PILGRIM R.C.+D. COUNCIL 1

COMMENTS: PROPOSAL (A) DOES NOT EVALUATE DIRECT AND INDIRECT COSTS OF (1) REPLACE (2) REHAB OR (3) DOUBLE BASCULE AT PRESENT LEVEL (B) DOES NOT 2
COORDINATE WITH MASTER PLAN FOR P.C.B + METALS HARBOR CLEAN-UP, (C) DOES NOT EVALUATE IMPROVEMENT IN 3
TRAFFIC FLOW BY SIGNAL LIGHTS AND SCHEDULED HOURS OF OPENING AND (D) 4
\$25 MILLION NOT JUSTIFIED TO REDUCE YEARLY OPENINGS ONLY 11%.

(Continue comments on back)

Please return to a staff member present here this evening or mail before Sept. 30, 1982 to:

Justin L. Radlo, Chief Engineer
Massachusetts Department of Public Works
100 Nashua Street
Boston, Massachusetts 02114

Attention: Robert J. McDonagh, Deputy Chief Engineer

NOTE:
EXPLANATORY DATA ATTACHED

SEPT. 10, 1982
P.T.G.

NEW BEDFORD-FAIRHAVEN BRIDGE PROPOSALS

PRELIMINARY COMPARISON

FACTORS	A REHAB OR REPLACE	B DOUBLE BASCULE— 6' CLEARANCE	C DOUBLE BASCULE— 20' CLEARANCE
1. Construction Costs	No Data Given	No Data	$25 Million??
2. Land Taking Costs	None	None	No Data—Marsh Island + Access Parcels
3. Access Roadways	None	None	Fish Island ++
4. Horizontal Clearance	2-95'±	150'±	150'±
5. Vertical Clearance (M)	No Limit	No Limit	No Limit
6. Reduction in Openings (1987)	None	None	11%
7. Reduction in Openings (2005)	None	None	20%
8. Wetlands Permits	None	None	Marsh Island
9. Public Utilities Relocation	None	None	All
10. Spoils Disposal Restrictions	None	None	EPA D.E.Q.E. F.T.S.C.A. et alii
11. Shutdown Time for Project	3 Months±	6 Months±	18-24 Months
12. Net Loss Time—Open and Close	10-15 Minutes	<5 Minutes	<5 Minutes
13. Interruption of Traffic 3 Periods vs. Hours	4 - 1 - 1 1.5%, 6.2, 3.1%	4 - 1 - 1 1.5%, 6.2, 3.1%	4 - 1 - 1 10-20% of "A"
14. Businesses Abolished or Curtailed	None	None	Seven
15. Negative Effect on Harbor Pollution Cleanup: Master Plan	None	None	Considerable
16. Businesses Lost: Replacement Costs	None	None	$1-2 Million+? No Data
17. Jobs Lost	None	None	No Data
18. Itemization of Costs (Similar to Causeway)	None	None	None

NEW BEDFORD-FAIRHAVEN BRIDGE PROPOSALS

PRELIMINARY COMPARISON

CAVEAT:

Master plan for river/harbor cleanup of PCBs and metals must precede bridge project (cleanup much more vital environmentally and economically than bridge). Bridge project first, is putting cart before the horse, and will preclude and/or pre-empt environmentally safe and economically feasible cleanup disposal solutions and options (which are limited). The use of Marsh Island or other in-harbor sites for "bridge" spoils is very inefficient (1) in respect to % space utilization; (2) design safety and monitoring; and (3) pre-empts space vitally needed for high-hazard river/harbor segment disposal.

Note: This environmental assessment report seriously underestimates both heavy metals and PCB contamination (e.g., cites 1976 reports of 620 ppm maximum PCB— when recent Coast Guard data indicates 190,000 ppm in sediments in one segment). 5

P. T. Gidley

September 2, 1982

GIDLAB EC-W-107

plp

Philip T. Gidley

GIDLEY LABORATORIES, INC.
Chemical and Environmental Sciences
Fairhaven, Massachusetts, U.S.A.

Responses to Comments
by Dr. Philip T. Gidley
Received September 20, 1982

1. "Proposal...does not evaluate direct and indirect costs of (1) replace (2) rehab or (3) double bascule at present level..."

   In the Environmental Assessment, the rehabilitation of the existing bridge is shown as Alternative 2a. Replacement at the existing location and elevation is shown as Alternative 2b. The "Range of Alternatives" and "Selection of a Preferred Alternative" are discussed in Chapter III "Alternatives Considered".

2. "Proposal...does not coordinate with Master Plan for P.C.B. and metals harbor clean-up..."

   Any planning being undertaken for the clean-up of PCBs and heavy metals in New Bedford Harbor is in preliminary stages and no type of time-table is available. It is intended that the bridge replacement project be able to proceed independently of any other activity in the harbor. If the disposal of the contaminated dredged material can be done in conformance with an overall plan for remedial action in the harbor, this will most certainly be done.

3. "Proposal...does not evaluate improvement in traffic flow by signal lights and scheduled hours of opening..."

   This is an improvement that would apply to all alternatives equally and would not necessarily be helpful in choosing between them.

4. "...$25 million not justified to reduce yearly openings only 11 percent."

   The construction of a new bridge involves the replacement of an existing structure because of the existing bridge's age and condition. The replacement is not intended solely to reduce the number of bridge openings.

   A 20-foot vertical clearance at the shipping channel was not found to be justifiable when balancing the reduction in bridge openings that, would take place against the disruption that would occur on Fish Island and Popes Island because of the approaches to the higher clearance bridge. The proposed structure now will provide ten feet of vertical clearance at the shipping channel which is only slightly higher than that currently provided by the existing bridge.

5. "This environmental assessment report seriously underestimates both heavy metals and PCB contamination (e.g., cites 1976 reports of 620 ppm maximum PCB - when recent Coast Guard data indicates 190,000 ppm in sediments in one segment)."

   The PCB concentration of 620 parts per million at a location in the Acushnet River north of the Coggeshall Street Bridge was mentioned as an indication of the severity of PCB contamination in the harbor. Other sampling programs have yielded higher results depending on the location of the samples.

In any case, the relevant concentrations to this project are those in the immediate area of the bridge where the actual construction will take place. Sediment samples were taken in the vicinity of the bridge in the spring of 1982 and the results of this sampling program are presented in the Appendix. The area between Fish Island and Popes Island contains contaminated sediments with concentrations of less than 50 parts per million, mostly contained in the upper two feet of the sediment.

E4

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

THE REPLACEMENT OF THE NEW BEDFORD-FAIRHAVEN BRIDGE
in
New Bedford and Fairhaven, Massachusetts

RESPONSE FORM

The participation and comments of citizens are an integral part of the Public Hearing and will be an important factor in the decision-making process for the Proposed Project. Please let us know your views by completing the following form:

NAME: Mr. and Mrs. William H. Potter, Jr.

ADDRESS: 194 Main Street

Fairhaven, Massachusetts 02719

POSITION/AFFILIATION: Fairhaven Town Meeting Members, concerned citizens

COMMENTS: Our main concerns regarding the construction of the new New Bedford/ Fairhaven Bridge are as follows:

(1) That a great deal of consideration and planning be given to alternate auto detour routes in Fairhaven. In your brochure which was distributed at the public hearing on September 9, 1982, a map on page 12 indicates that traffic would be routed south on Main Street and north on Adams Street in one-way traffic patterns. As residents of Main Street, we would like to suggest that in lieu of this plan, automobiles and commercial vehicles be required to use Route 240 because of the highly residential nature of Main and Adams Streets; the large number of young, school-age pedestrians, bicyclists, and joggers using these streets; and the extreme traffic congestion that would, and always does occur, at the intersections of Main and Coggeshall and Adams and Coggeshall Streets when bridge traffic is closed. 1

(over)

(Continue comments on back)

Please return to a staff member present here this evening or mail before Sept. 30, 1982 to:

Justin L. Radlo, Chief Engineer
Massachusetts Department of Public Works
100 Nashua Street
Boston, Massachusetts 02114

Attention: Robert J. McDonagh, Deputy Chief Engineer

We are extremely concerned about children having to cross Adams Street to get to the Hastings Junior High School. This is already a hazardous situation (no school-crossing guards ever having been provided in that location) and would become extreme if your proposed auto detour route is adopted. If the raods were improved to accommodate the heavier traffic flow, as Fairhaven Board of Public Works Supervisor suggested, we fear that these streets would become veritable speedways! 2

(2) Please consider the fact that many Fairhaven and New Bedford residents would like to have pedestrian and bicycle access across the bridge. At the present time bicyclists crossing the bridge must use the long, steep stairways located on the New Bedford side (extremely cumbersome), with only the bravest cyclists venturing up the steep exit ramp leading off the bridge to the treacherous "5-corner" intersection. There must be a better way! 3

Respectfully submitted,

Deputy Chief Engineer
SEP .. 0 1982
Project Development

Responses and Comments
by Mr. & Mrs. William Potter

1. "As residents of Main Street, we would like to suggest that in lieu of this plan, automobiles and commercial vehicles be required to use Route 240 because of the highly residential nature of Main and Adams Streets; the large number of young, school-age pedestrians, bicyclists, and joggers using these streets; and the extreme traffic congestion that would, and always does occur, at the intersections of Main and Coggeshall and Adams and Coggeshall Streets when bridge traffic is closed."

   Main Street and Adams Street are proposed as a detour route that will provide more direct access to Fairhaven Center and the section of Route 6 in Fairhaven west of Route 240. Use of Interstate Route 195 and Route 240 provides a good route for through traffic but leaves large portions of Fairhaven relatively inaccessible from New Bedford.

2. "We are extremely concerned about children having to cross Adams Street to get to the Hastings Junior High School. This is already a hazardous situation (no school-crossing guards ever having been provided in that location) and would become extreme if your proposed auto detour route is adopted."

   The change of Adams Street to one way during the detour may be a safety improvement since pedestrian traffic need only be concerned with traffic coming from one direction. The provision of a school crossing guard will be reviewed with the Town of Fairhaven during the design stage but it seems doubtful this will be an effective method of controlling the activity of junior high school aged children.

3. "Please consider the fact that many Fairhaven and New Bedford residents would like to have pedestrian and bicycle access across the bridge."

   The new bridge will provide sidewalks on either side of the roadway as currently exists. These should continue to be adequate for passage of pedestrians and bicyclists.

   The discontinuities and obstructions which affect pedestrians and bicyclists on the New Bedford Shore are beyond the limits of work that are necessary for the bridge replacement.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

THE REPLACEMENT OF THE NEW BEDFORD-FAIRHAVEN BRIDGE
in
New Bedford and Fairhaven, Massachusetts

RESPONSE FORM

The participation and comments of citizens are an integral part of the Public Hearing and will be an important factor in the decision-making process for the Proposed Project. Please let us know your views by completing the following form:

NAME: MRS JACK WALTERS (LOUISE)

ADDRESS: 14 WILLIAM ST
FAIRHAVEN, MASS. 02719

POSITION/AFFILIATION: TOWN MEETING MEMBER -
FH. IMPROVEMENT ASSN.

COMMENTS: I thought the slides and explanation excellent - However - the format for State, Federal & Local officials to speak first should be changed if the officials cannot stay to listen to the comments of taxpayers concerned citizens & people with private & [illegible] of public transportation. [illegible]
Mr. [illegible] comments were right on the mark.
over -

(Continue comments on back)

Please return to a staff member present here this evening or mail before Sept. 30, 1982 to:

Justin L. Radlo, Chief Engineer
Massachusetts Department of Public Works
100 Nashua Street
Boston, Massachusetts 02114

Attention: Robert J. McDonagh, Deputy Chief Engineer

I certainly hope all [illegible] on the bridge are kept fully informed and have input during the decision making process

Thank you.

Lorraine [illegible]

Deptuy Chief Engineer

SEP 2[illegible] 1982

Project Development

Response to Comments
by Mrs. Jack Walters
Received September 22, 1982

No response necessary.

E6

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

THE REPLACEMENT OF THE NEW BEDFORD-FAIRHAVEN BRIDGE
in
New Bedford and Fairhaven, Massachusetts

RESPONSE FORM

The participation and comments of citizens are an integral part of the Public Hearing and will be an important factor in the decision-making process for the Proposed Project. Please let us know your views by completing the following form:

NAME: Roman Rusinoski

ADDRESS: PO Box 163, Fairhaven, Mass 02719

POSITION/AFFILIATION:

COMMENTS: When Bridge plans were drawn, plans 1
for a tunnel should have been made too, from
Popes Island to North Terminal. Since we have
a harbor dike, Controling flow of WATER, a
Raised bridge is foolish. With a Tunnel (over)

(Continue comments on back)

Please return to a staff member present here this evening or mail before Sept. 30, 1982 to:

Deputy Chief Engineer
SEP ... 1982
Project Development

Justin L. Radlo, Chief Engineer
Massachusetts Department of Public Works
100 Nashua Street
Boston, Massachusetts 02114

Attention: Robert J. McDonagh, Deputy Chief Engineer

THERE would be no contaminated or toxic materials to dredge, and the excavations from tunnel could be used for fill in harbor. There would also be no need to build a second bridge to fish Island because the present one would connect the Island at present, A Tunnel would allow all traffic to move, without autos having to wait for boats and I believe it could be constructed without interfering with the present traffic on this bridge, and at the same cost, or less. Nothing would have to be removed from prenet bridge.

Also if a Bridge is ever built, interenoe and exit Ramps from Route 195 must be built on main st and Adams street. These should have been built long ago. Route 240 from 195 is no help to those that must go North on main st. when there are problems on bridge, and traffic jams at Coggeshall St light 2

Responses to Comments
Roman Rusinoski
Received September 24, 1982

1. "When bridge plans were drawn, plans for a tunnel should have been made too..."

   The Feasibility Study Report of 1969 included an evaluation of several crossing types including a tunnel. It was determined that a tunnel would be excessively costly, excessively disruptive to the surrounding area, and would eliminate direct access to the two islands.

   The "Selection of the Crossing Type" is discussed in Chapter III "Alternatives Considered" of the Environmental Assessment.

2. "Also, if a bridge is ever built, entrance and exit ramps from Route 195 must be built on Main Street and Adams Street."

   A permanent improvement of this nature is beyond the limits of work that are necessary for the bridge replacement project. It would not be justifiable to undertake such a scheme merely to mitigate the temporary impact of the detour routing on Coggeshall Street.

E7

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

THE REPLACEMENT OF THE NEW BEDFORD-FAIRHAVEN BRIDGE
in
New Bedford and Fairhaven, Massachusetts

RESPONSE FORM

The participation and comments of citizens are an integral part of the Public Hearing and will be an important factor in the decision-making process for the Proposed Project. Please let us know your views by completing the following form:

NAME: [illegible]

ADDRESS: 5 Jean St.
Fairhaven Mass. 02719

POSITION/AFFILIATION:

COMMENTS: 1. Why can't the existing bridge be repaired? 2. What about a causeway? 3. Flashing Lights on both sides of the bridge. 1
4. What would the cost be to repair the old bridge.
5. Posted hours bridge to be used (Not rush hours).
6. Please add your own comments.

The first question is (the only one of the above). The bridge can be repaired. Remove all of the " Ancient" Hydraulic jacks, pumps, valves, and replace the hydraulics with new equiptment. The estimated cost of replacing the hydraulics system, parts and labor was $ 60,000 dollars. That is better than 28 million, isn't it? If we go with the low vascular bridge, which is 20 feet above the water, we are not solving anything except to "spend" 28 million dollars instead of $ 60,000 to repair it.

(Continue comments on back) (cont,)

Please return to a staff member present here this evening or mail before Sept. 30, 1982 to:

Justin L. Radlo, Chief Engineer
Massachusetts Department of Public Works
100 Nashua Street
Boston, Massachusetts 02114

Attention: Robert J. McDonagh, Deputy Chief Engineer

We would like to keep our tax money as low as possible. The lights are not a good idea because of the cost. They wouldn't even estimate the cost. They said it would be very high though. It would mean digging up the streets black-top, cement, work, labor, etc. No Way!!!

The causeway is out of the question. That is another aditional cost to the tax payers.

Posting hours on the bridge, excelent idea. But what closing periods? I myself, along with a very few businesses, tried to bring the closing periods back in operation. And we were knocked down like we were crazy. We finally won (for a little while). They are supposed to be in operation now but not one attendant on the bridge knows about them. HOW COME? The closing periods are supposed to be on half hour openings- 6:30-7AM, 7:30-8AM 8:30-9AM, and from 11:30-12PM, 12:30-1PM. The bridge is supposed to close to boat traffic unless vessels draw 15 feet of water. This includes Fishing Vessels. There is not one Fishing Vessel in the fleet that draws 15 feet of water.

In conclusion, I would like you to consider the businesses on and around the New Bedford Fairhaven Bridge. One of the many Historical Sights, we have here in New Bedford. By Re-pairing the bridge is the most logical way to go about it.

Deptuy Chief Engineer
SEP 30 1982
Project Development

Philip C. Hathaway

Response to Comment
by Philip C. Hathaway
Received September 30, 1982

1. "Why can't the existing bridge be repaired?"

   Repairs can continue to be made to the existing bridge as they have been in the past. However the age and condition of the existing bridge are such that repair expenditures are continually less effective. Repair of the existing bridge will not be effective in relieving the foundation problems of the existing structure nor in increasing the clear span available at the shipping channel.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

THE REPLACEMENT OF THE NEW BEDFORD-FAIRHAVEN BRIDGE
in
New Bedford and Fairhaven, Massachusetts

RESPONSE FORM

The participation and comments of citizens are an integral part of the Public Hearing and will be an important factor in the decision-making process for the Proposed Project. Please let us know your views by completing the following form:

NAME: [illegible]

ADDRESS: 7 [illegible] Ave

Matt., Mass. 02739

POSITION/AFFILIATION: Citizen

COMMENTS: 1. Why can't the existing bridge be repaired? 2. What about a causeway? 3. Flashing Lights on both sides of the bridge. 1
4. What would the cost be to repair the old bridge.
5. Posted hours bridge to be used (Not rush hours).
6. Please add your own comments.

The first question is (the only one of the above). The bridge can be repaired. Remove all of the "Ancient" Hydraulic jacks, pumps, valves, and replace the hydraulics with new equiptment. The estimated cost of replacing the hydraulics system, parts and labor was $ 60,000 dollars. That is better than 28 million, isn't it? If we go with the low vascular bridge, which is 20 feet above the water, we are not solving anything except to "spend" 28 million dollars instead of $ 60,000 to repair it.

(Continue comments on back) (cont.)

Please return to a staff member present here this evening or mail before Sept. 30, 1982 to:

Justin L. Radlo, Chief Engineer
Massachusetts Department of Public Works
100 Nashua Street
Boston, Massachusetts 02114

Attention: Robert J. McDonagh, Deputy Chief Engineer

We would like to keep our tax money as low as possible. The lights are not a good idea because of the cost. They wouldn't even estimate the cost. They said it would be very high though. It would mean digging up the streets black-top, cement, work, labor, etc. No Way!!!

The causeway is out of the questinn. That is another aditional cost to the tax payers.

Posting hours on the bridge, excelent idea. But what closing periods? I myself, along with a very few businesses, tried to bring the closing periods back in operation. And we were knocked down like we were crazy. We finally won (for a little while). They are supposed to be in operation now but not one attendant on the bridge knows about them. HOW COME? The closing periods are supposed to be on half hour openings- 6:30-7AM, 7:30-8AM 8:30-9AM, and from 11:30-12PM, 12:30-1PM. The bridge is supposed to close to boat traffic unless vessels draw 15 feet of water. This includes Fishing Vessels. There is not one Fishing Vessel in the fleet that draws 15 feet of water.

In conclusion, I would like you tp consider the businesses on and around the New Bedford Fairhaven Bridge. One of the many Historical Sights, we have here in New Bedford. By Re-pairing the bridge is the most logical way to go about it.

Deptuy Chief Engineer
SEP 30 1982
Project Development

Irene McAlpine

Response to Comment
Irene McAlpin
Received September 30, 1982

1. "Why can't the existing bridge be repaired?"

   Repairs can continue to be made to the existing bridge as they have been in the past. However the age and condition of the existing bridge are such that repair expenditures are continually less effective. Repair of the existing bridge will not be effective in relieving the foundation problems of the existing structure nor in increasing the clear span available at the shipping channel.

APPENDICES

A. FEASIBLE ALTERNATIVES

As described in Chapter III, eighteen feasible alternatives were considered for bridge replacement. The following is a brief description of each of these alternatives.

LIST OF FIGURES

Figure G1 - Alternative 1 No Build 264

Figure G2 - Alternative 2a Rehabilitation of Existing Bridge 265

Figure G3 - Alternative 2b Replacement of Existing Location and Elevation 266

Figure G4 - Alternative 3a Existing Route - Low Clearance 267

Figure G5 - Alternative 3b Existing Route - Low Clearance with North Detour 268

Figure G6 - Alternative 3c Existing Route - Low Clearance with South Detour 269

Figure G7 - Alternative 3d Existing Route - Low Clearance with Temporary Crossing 270

Figure G8 - Alternative 3e Existing Route - Low Clearance with Detour over Existing Bridge 271

Figure G9 - Alternative 3f Existing Route - Increased Clearance 272

Figure G10 - Alternative 3g Existing Route - High Clearance 273

Figure G11 - Alternative 4a Southern Route - Minimum Alignment with Existing Bridge Closed 274

Figure G12 - Alternative 4b Southern Route - Minimum Alignment 275

Figure G13 - Alternative 4c Southern Route - Modified Alignment 276

Figure G14 - Alternative 4d Southern Route - Full Alignment 277

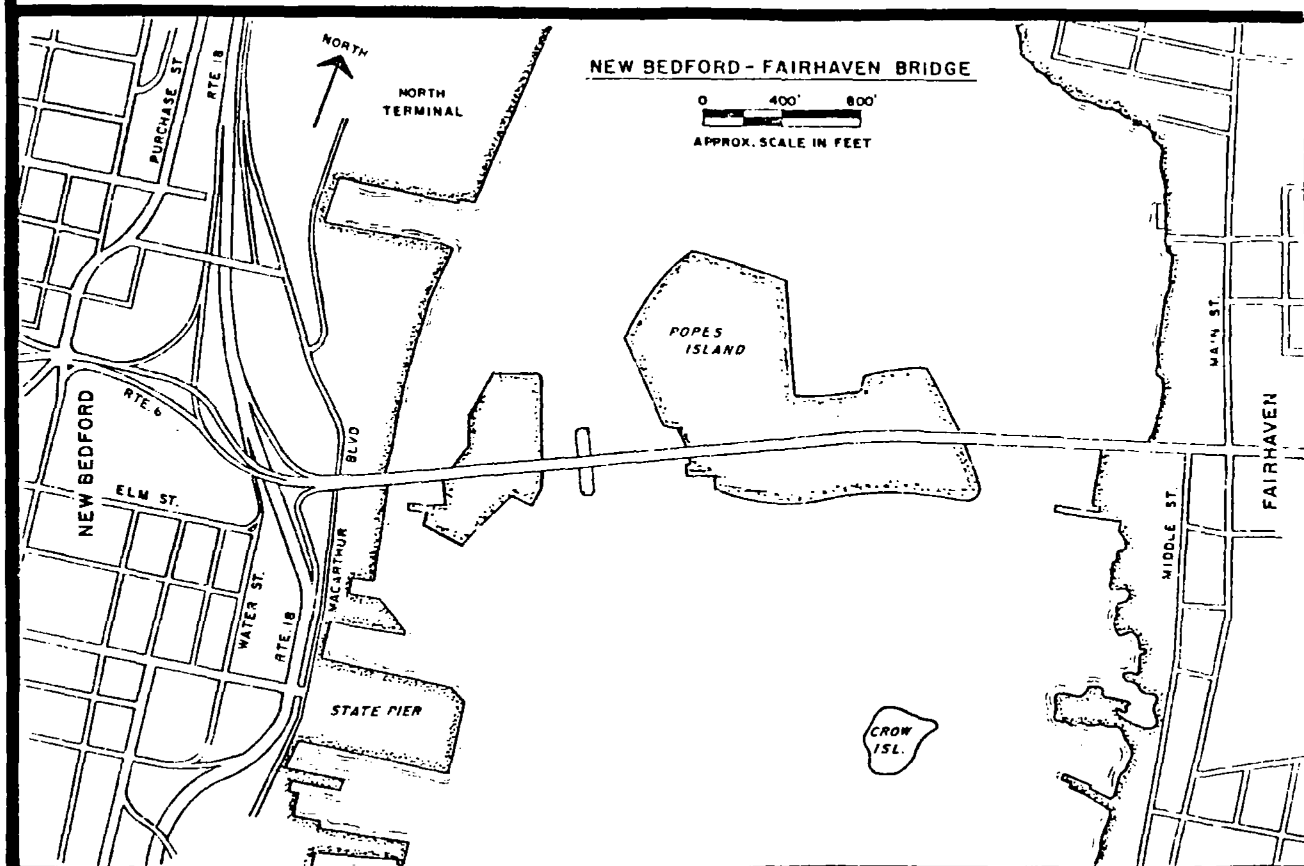
Figure G15 - Alternative 5a Northern Route - Minimum Alignment with Existing Bridge Closed 278

Figure G16 - Alternative 5b Northern Route - Minimum Alignment 279

Figure G17 - Alternative 5c Northern Route - Modified Alignment 280

Figure G18 - Alternative 5d Northen Route - Full Alignment 281

Alternative 1



NO BUILD

Total Length of Construction: None

Navigational Clearance: 6

4(f) Takings: None

Business Takings: None

Loss of Direct Access to Route 6: None

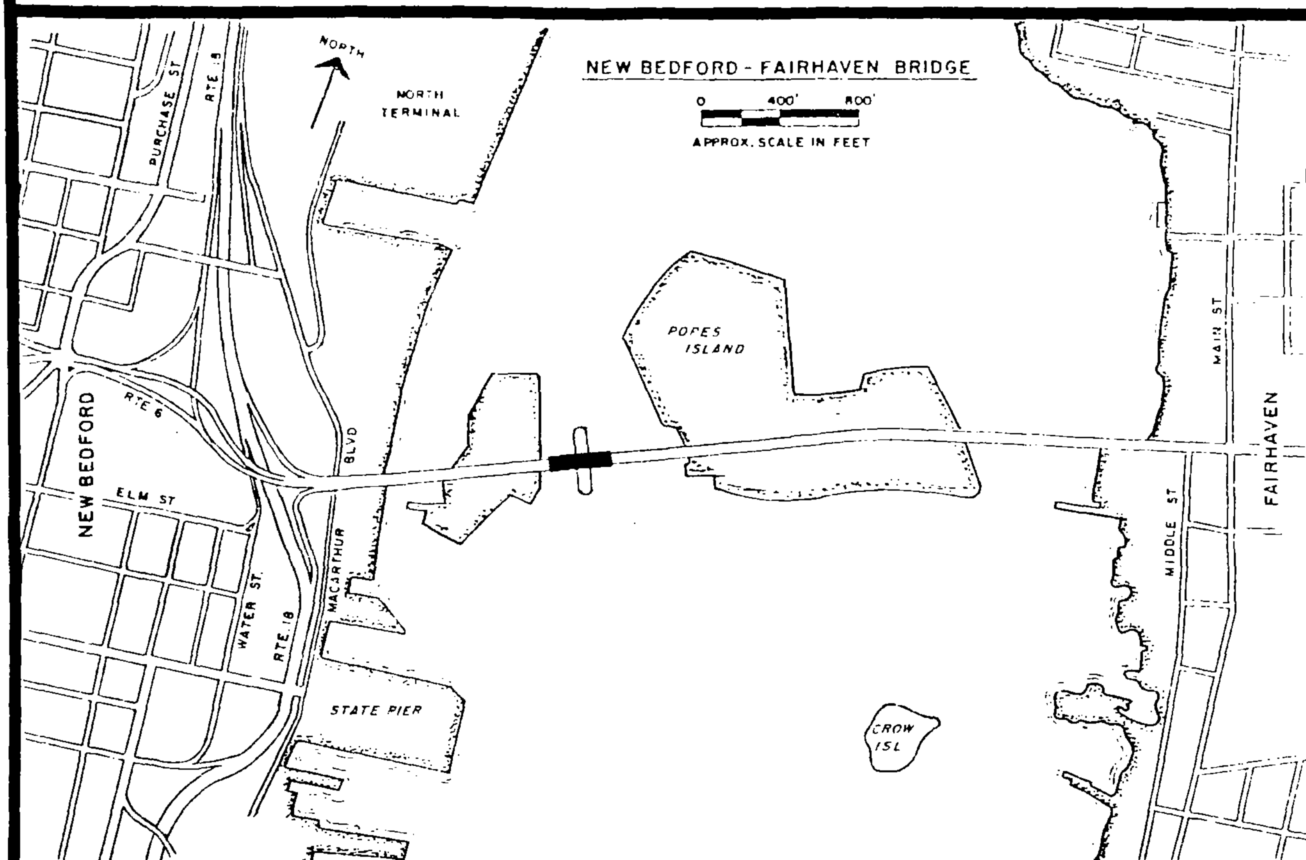
Objections:

. All existing navigational limitations would remain.

. Frequency of openings will remain the same.

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE G1

Alternative 2a



REHABILITATION OF EXISTING BRIDGE

Total Length of Construction: 300'

Navigational Clearance: 6

4(f) Takings: None

Business Takings: None

Loss of Direct Access to Route 6: None

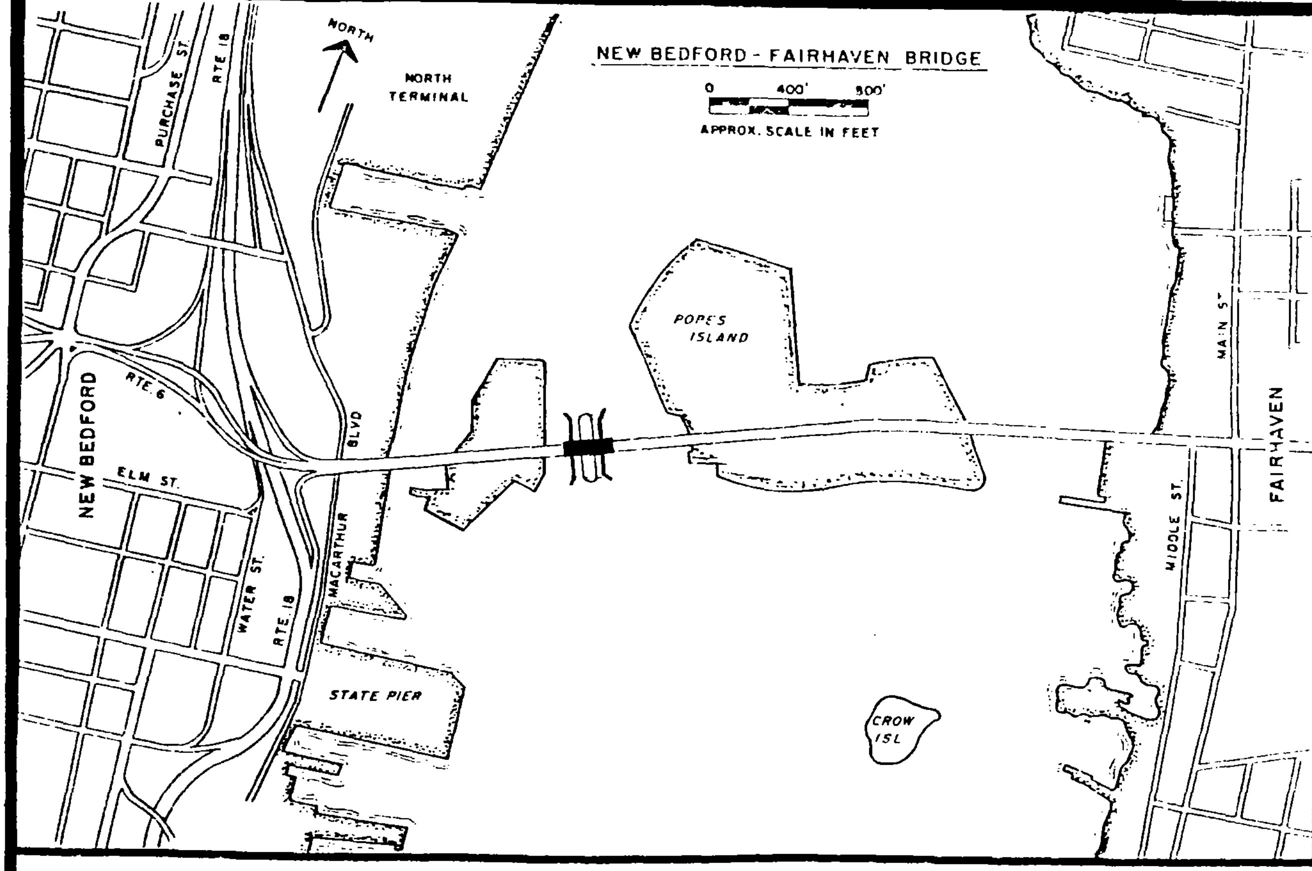
Objections:

. All existing navigational limitations would remain.

. Frequency of openings will remain the same.

NEW BEDFORD-FAIRHAVEN BRIDGE **FIGURE G2**

Alternative 2b



REPLACEMENT AT EXISTING LOCATION AND ELEVATION

Total Length of Construction: 300'

Navigational Clearance: 6±

4(f) Takings: None

Business Takings: None

Loss of Direct Access to Route 6: None

Objections:

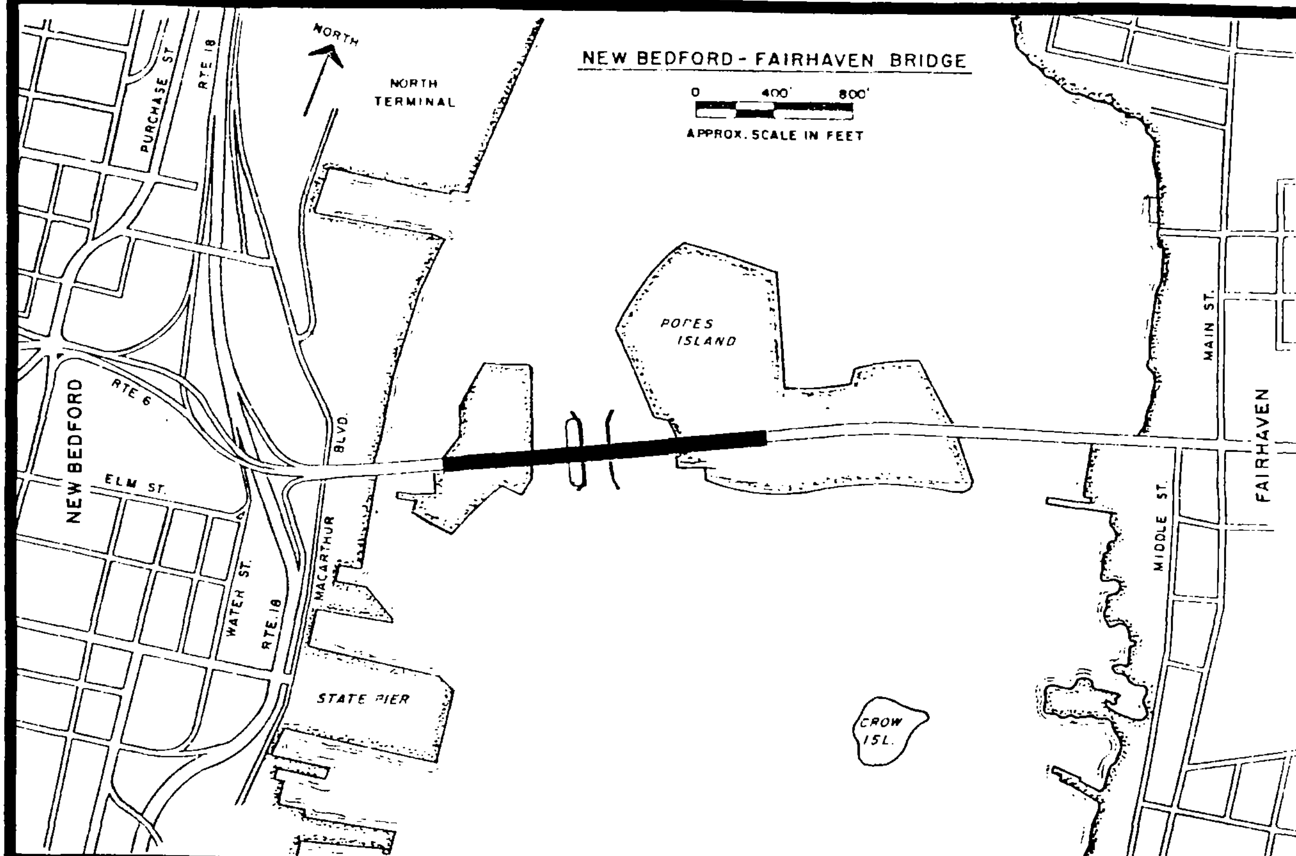
. Roadway would be closed to traffic during entire construction period. A three mile detour over Coggeshall Street Bridge would have to be used during this time.

. The existing nagivational height limitation would remain.

. Frequency of openings will remain the same.

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE G3

Alternative 3a



EXISTING ROUTE - LOW CLEARANCE

Total Length of Construction: 1500'

Navigational Clearance: 20±

4(f) Takings: None

Business Takings: None

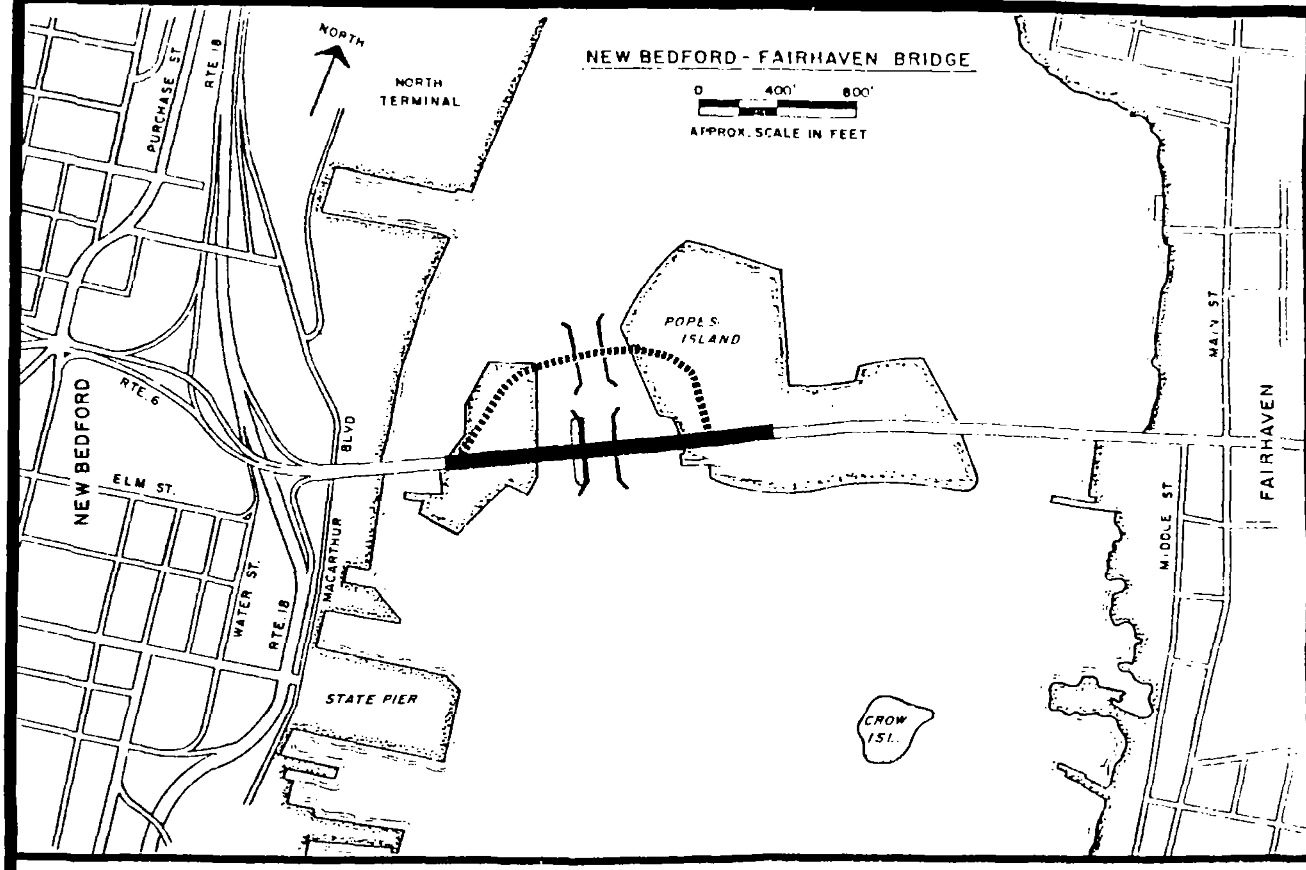
Loss of Direct Access to Route 6: Outdoorsman, WBSM

Objections:

. Roadway would be closed to traffic during entire construction period. A three mile detour over Coggeshall Street Bridge would have to be used during this time.

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE G4

Alternative 3b



EXISTING ROUTE - LOW CLEARANCE WITH NORTH DETOUR

Total Length of New Construction: 1500'

Navigational Clearance: 20±

4(f) Takings: None

Business Takings: Temporary Easements through Frionor and WBSM

Loss of Direct Access to Route 6: Outsdoorsman, WBSM

Objections:

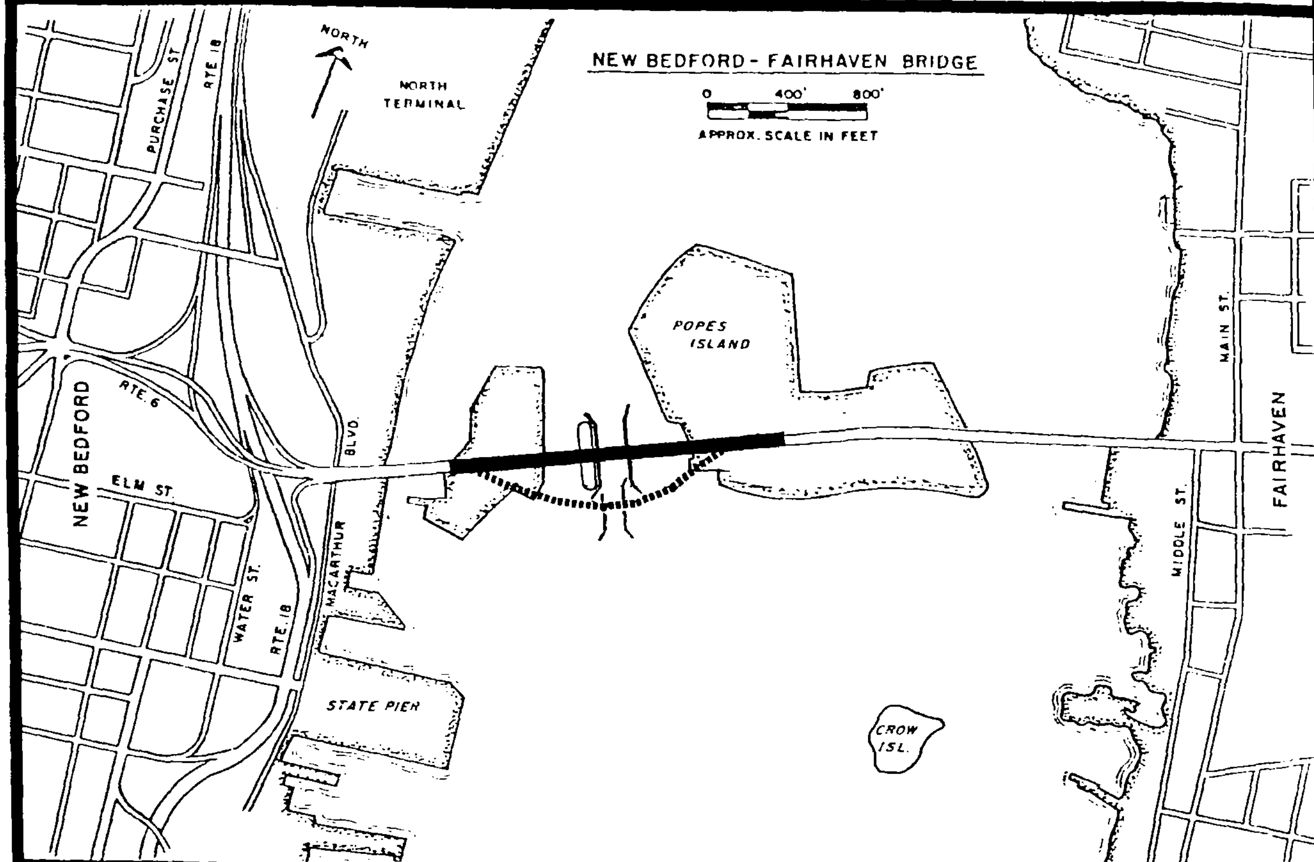
. A moveable bridge must be constructed to satisfy the temporary detour situation.

. Detour will be inadequate to handle existing levels of traffic.

. Frionor, Glen Oil, and WBSM operations will be disrupted.

NEW BEDFORD-FAIRHAVEN BRIDGE FIGUREG5

Alternative 3c



EXISTING ROUTE - LOW CLEARANCE WITH SOUTH DETOUR

Total Length of New Construction: 1500'

Navigational Clearance: 20±

4(f) Takings: ½ acre ±

Business Takings: Island Service, Sanchez Marine, Outdoorsman

Loss of Direct Access to Route 6: WBSM

Objections:

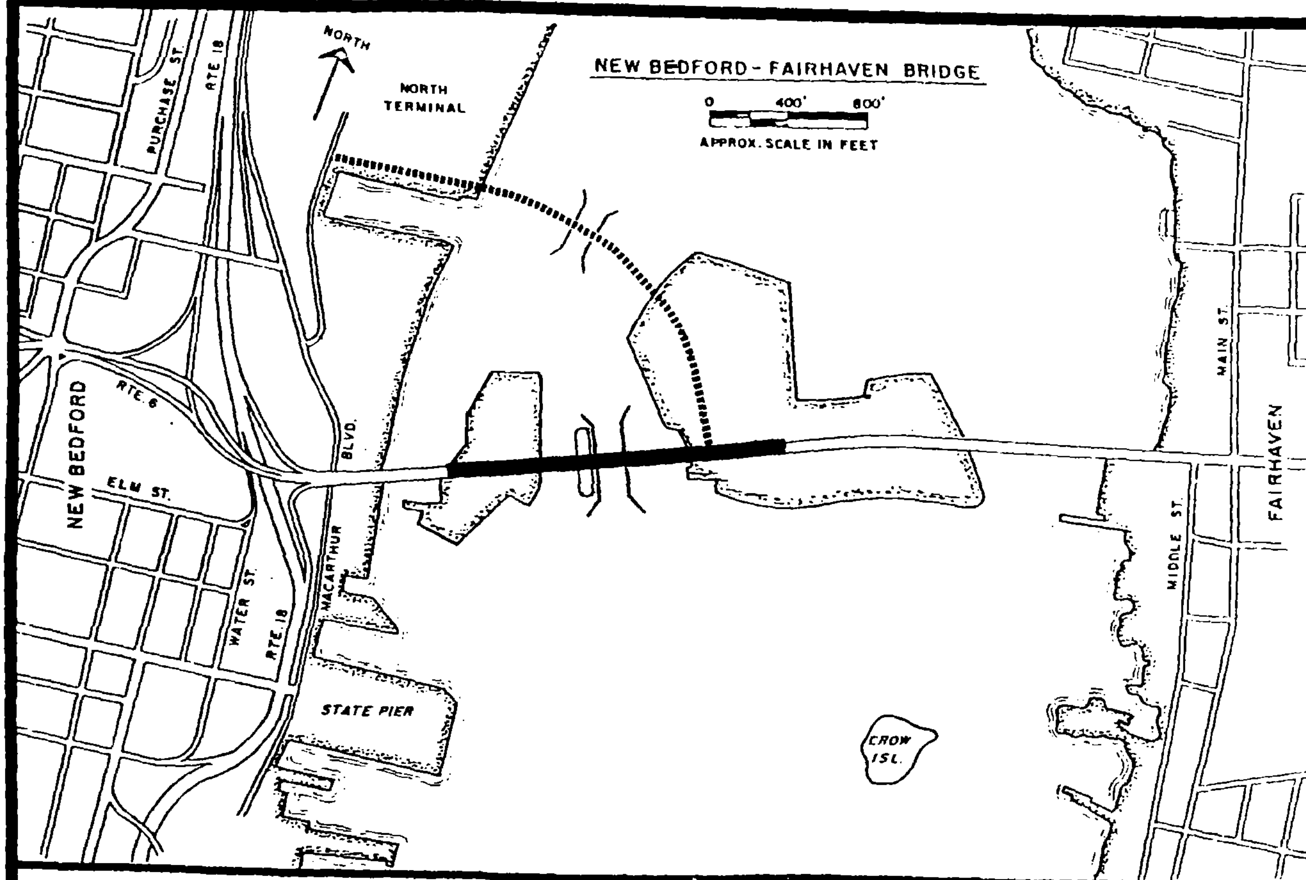
. A moveable bridge must be constructed to satisfy the temporary detour situation.

. Detour will be inadequate to handle existing levels of traffic.

. Takings required to satisfy a temporary condition.

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE G6

Alternative 3d



EXISTING ROUTE - LOW CLEARANCE WITH TEMPORARY CROSSING

Total Length of New Construction: 1500'

Navigational Clearance: 20±

4(f) Takings: None

Business Takings: Temporary Easements at North Terminal, Ronnie's Marina, WBSM

Loss of Direct Access to Route 6: Outdoorsman, WBSM

Objections:

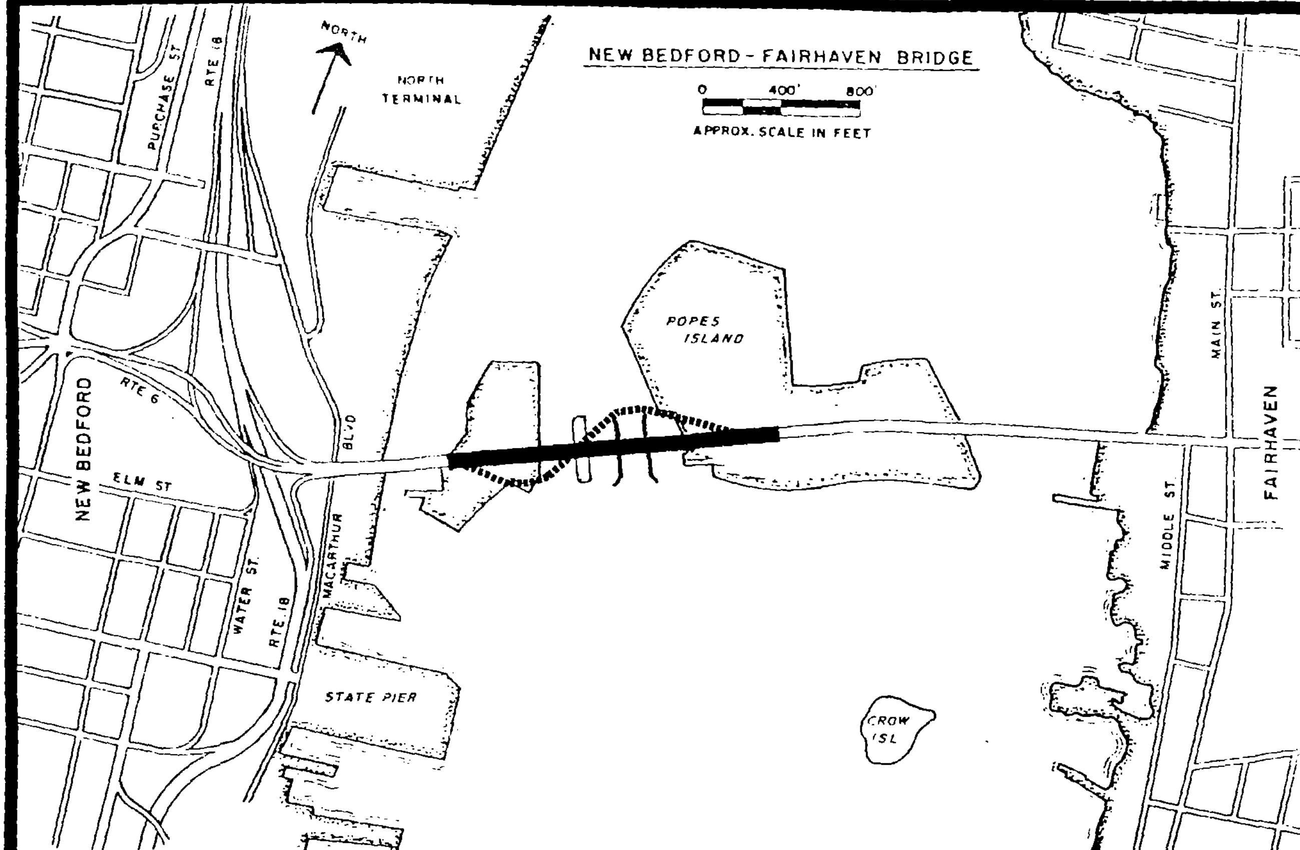
. A moveable bridge must be constructed to satisfy the temporary detour situation.

. Detour will be inadequate to handle existing levels of traffic.

. Crossing is remote from usual traffic route.

NEW BEDFORD-FAIRHAVEN BRIDGE **FIGURE G7**

Alternative 3e



EXISTING ROUTE - LOW CLEARANCE WITH DETOUR OVER EXISTING BRIDGE

Total Length of New Construction: 1500'

Navigational Clearance: 20'

4(f) Takings: None

Business Takings: Island Service, Sanchez Marine, WBSM, Portion of Hydro-dredge

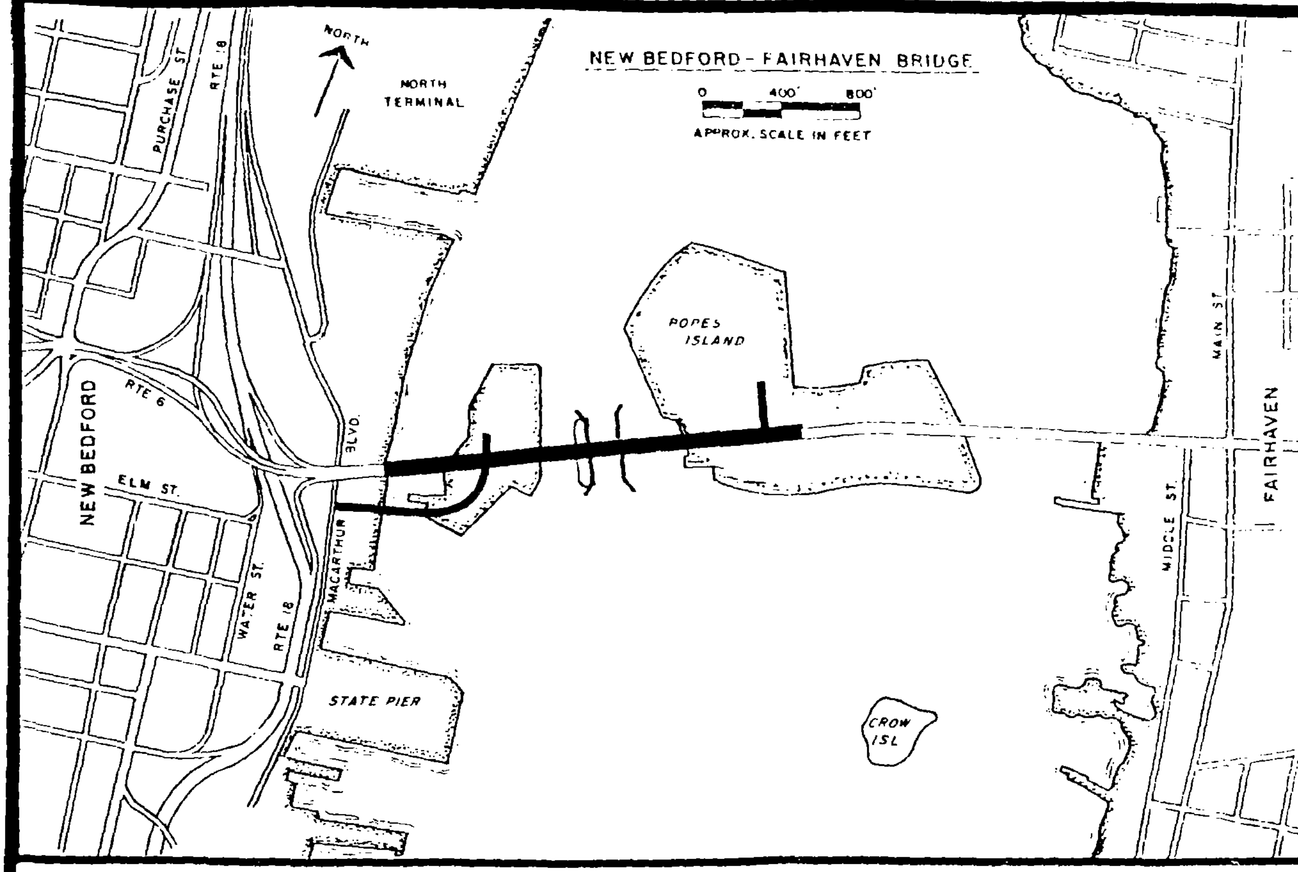
Loss of Direct Access to Route 6: Outdoorsman

Objections:

- Takings required to satisfy a temporary condition.
- Major change in location of the channel requireing extensive dredging.
- Decreased channel width during period of construction.

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE G8

Alternative 3f



EXISTING ROUTE - INCREASED CLEARANCE

Total Length of New Construction: 2000'

Navigational Clearance: 35±

4(f) Takings: None

Business Takings: Portion of Hydro-dredge, Portion of Crystal Ice

Loss of Direct Access to Route 6: Frionor, Island Service, Sanchez Marine, Hydro-dredge, Glen Oil, Outdoorsman, WBSM, Service News, Superior Welder, Advance Cup

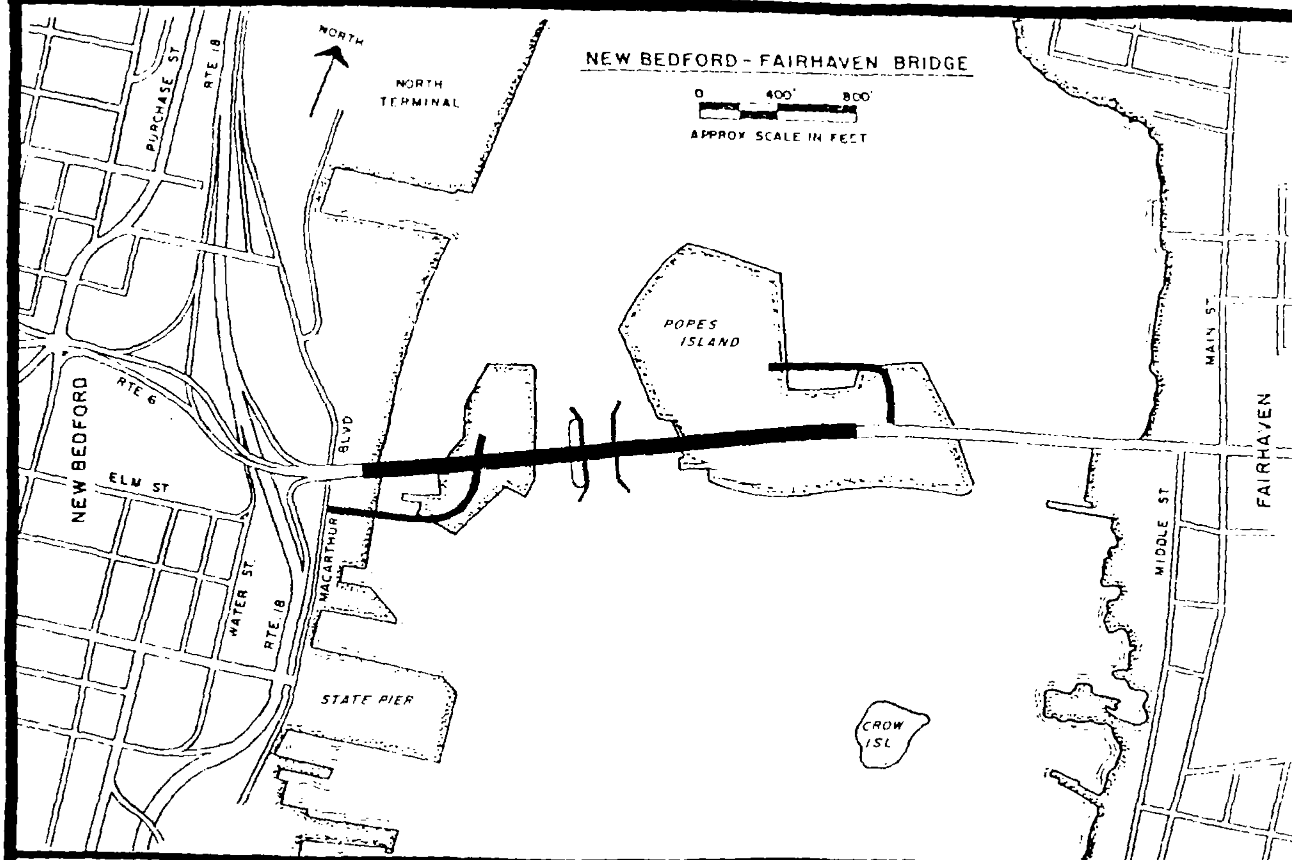
Objections:

. Roadway would be closed to traffic during entire construction period. A three mile detour over Coggeshall Street Bridge would have to be used during this time.

. Loss of direct access to Fish Island

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE G9

Alternative 3g



EXISTING ROUTE - HIGH CLEARANCE

Total Length of New Construction: 2500'

Navigational Clearance: 50+

4(f) Takings: None

Business Takings: Portion of Hydro-dredge, Portion of Fairhaven Hardware, Portion of Crystal Ice

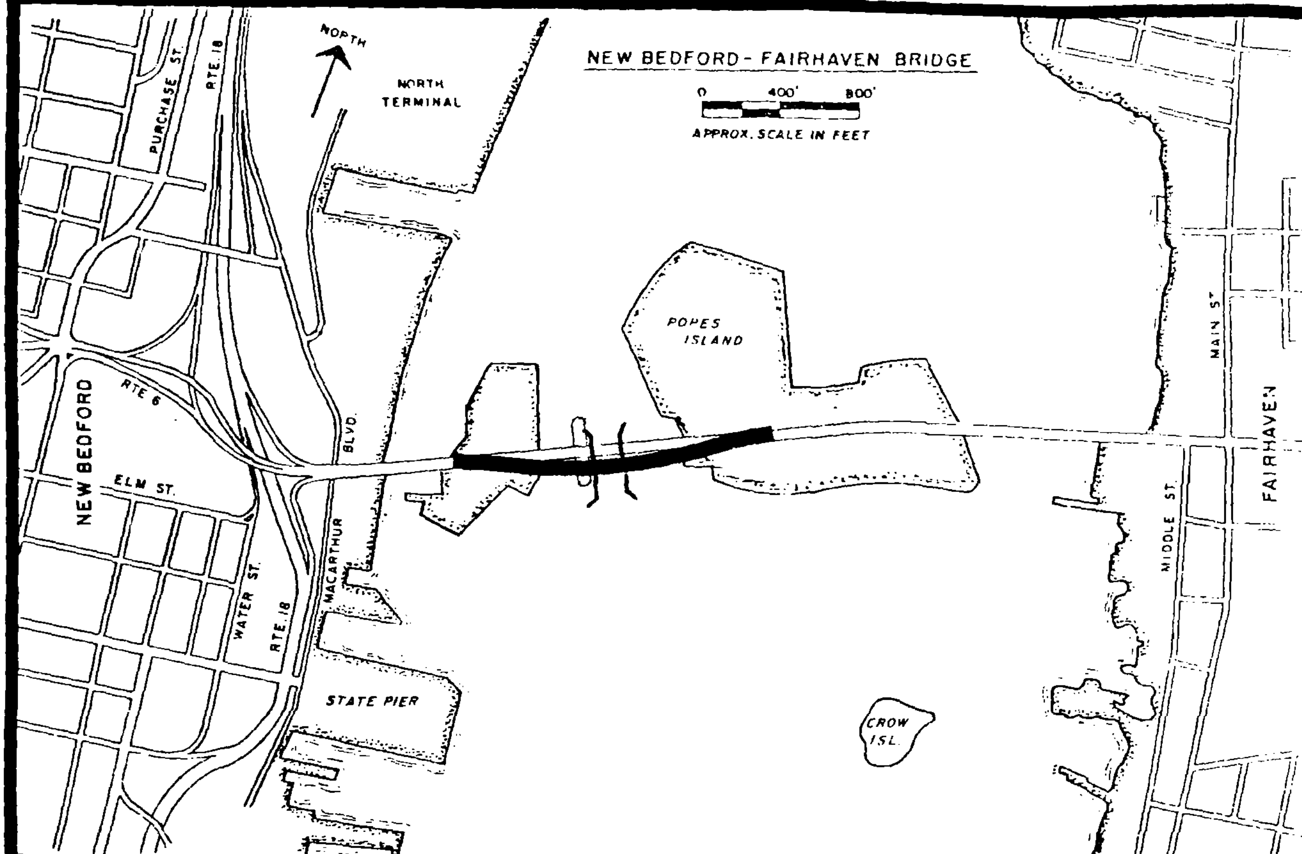
Loss of Direct Access to Route 6: Service News, Superior Welder, Advance Corp., New England Ropes, WBSM, Dugan Buick - Pontiac, Frionor, Island Service, Sanchez Marine, Hydro-dredge, Glen Oil, Outdoorsman

Objections:

- Roadway closed during entire construction period.
- Filling required to create access road.
- Loss of direct access to Fish Island.

NEW BEDFORD-FAIRHAVEN BRIDGE — FIGURE G10

Alternative 4a



SOUTHERN ROUTE - MINIMUM ALIGNMENT WITH EXISTING BRIDGE CLOSED

Total Length of Construction: 1700'

Navigational Clearance: 20'±

4(f) Takings: ½ acre ±

Business Takings: Island Service, Outdoorsman, Sanchez Marine, Portion of Hydro-dredge

Loss of Direct Access to Route 6: WBSM

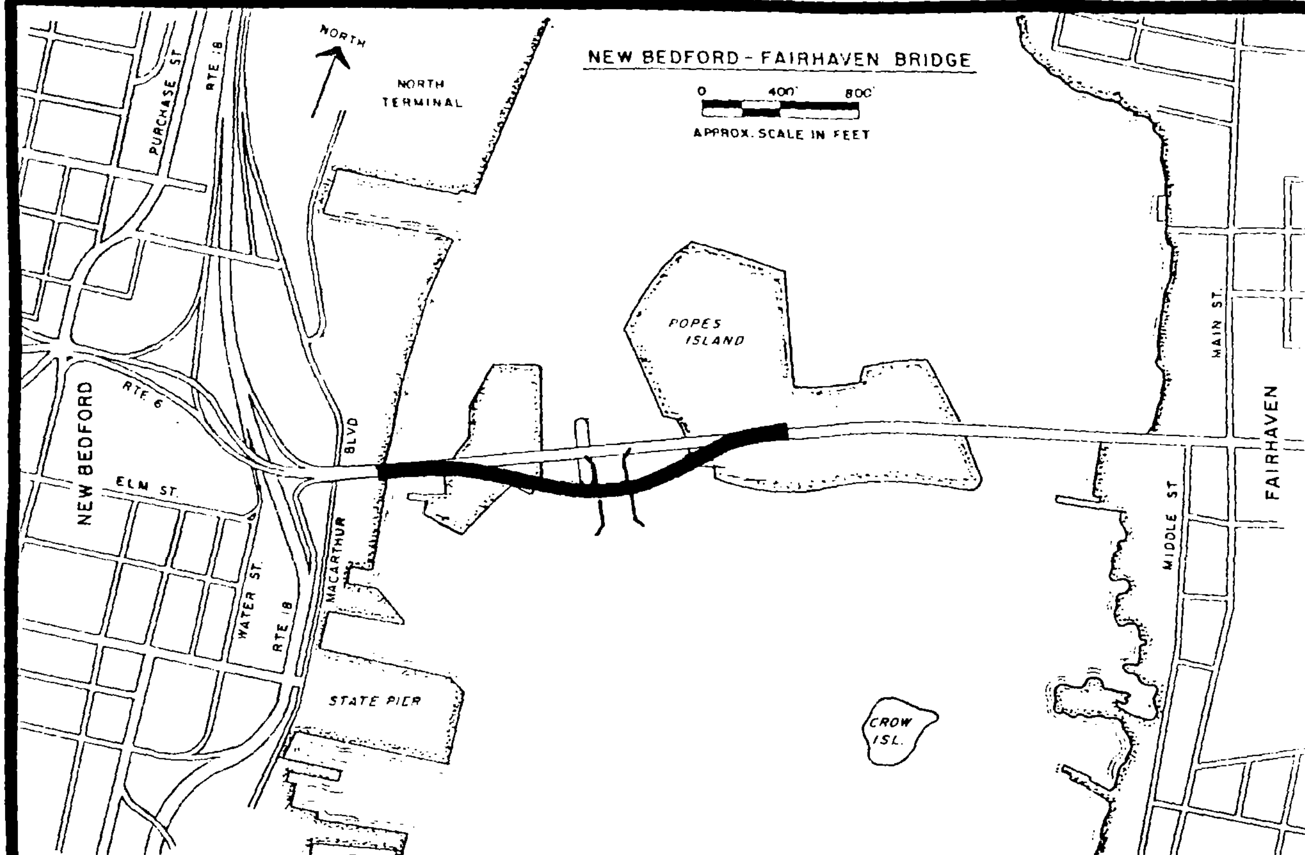
Objections:

. Prevents navigational access to the Upper Harbor for the entire period of construction.

. Displacement of waterfront dependent industries.

NEW BEDFORD-FAIRHAVEN BRIDGE **FIGURE G11**

Alternative 4b



SOUTHERN ROUTE - MINIMUM ALIGNMENT

Total Length of New Construction: 2000'

Navigational Clearance: 20'±

4(f) Takings: 1 acre ±

Business Takings: Island Service, Sanchez Marine, Outdoorsman, Portion of Hydro-dredge

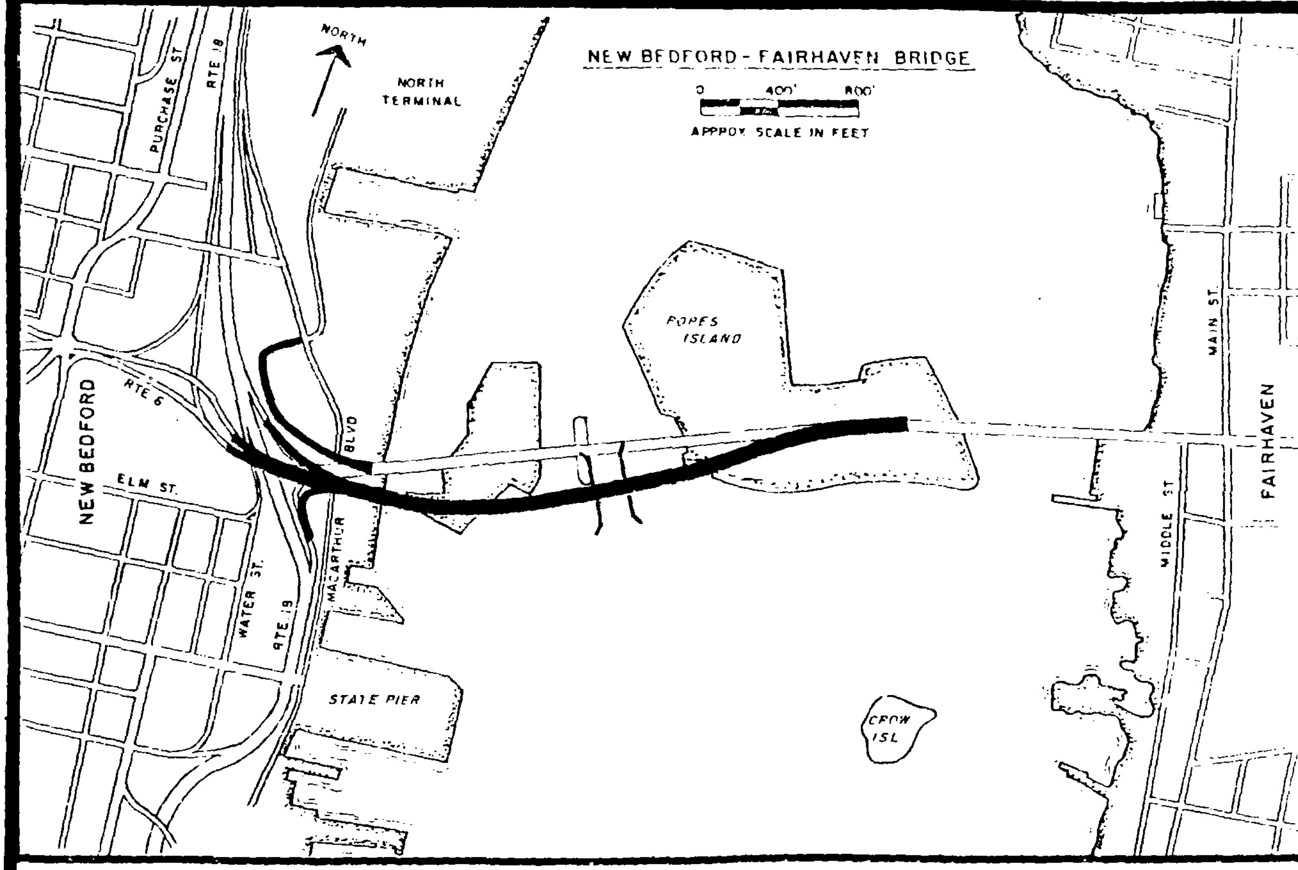
Loss of Direct Access to Route 6: WBSM

Objections:

- Roadway alignment is marginal with respect to design criteria.
- Displacement of waterfront dependent industries.

NEW BEDFORD-FAIRHAVEN BRIDGE **FIGURE G12**

Alternative 4c



SOUTHERN ROUTE - MODIFIED ALIGNMENT

Total Length of New Construction: 3100'

Navigational Clearance: 50'±

4(f) Takings: 3½ acres ±

Business Takings: Crystal Ice, Hydro-dredge, Outdoorsman, Portion of Maritime Terminal

Loss of Direct Access to Route 6: Island Service, Glen Oil, Superior Welder, Advance Cup, New England Ropes

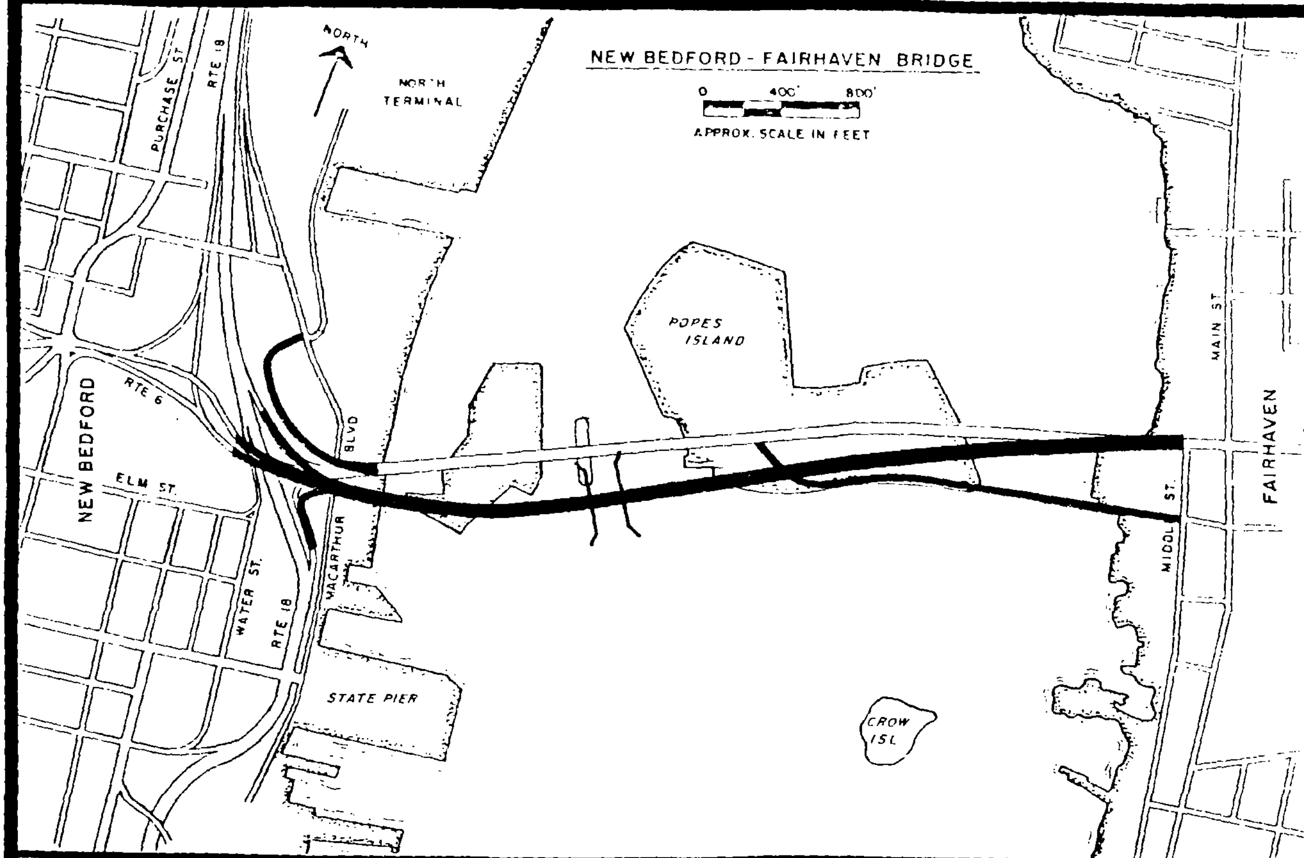
Objections:

. Displacement of waterfront dependent industries.

. Loss of direct access to Fish Island.

NEW BEDFORD-FAIRHAVEN BRIDGE **FIGURE G13**

Alternative 4d



SOUTHERN ROUTE - FULL ALIGNMENT

Total Length of New Construction: 5000'

Navigational Clearance: 60'±

4(f) Takings: Entire Existing Park, 8 acres ±

Business Takings: Crystal Ice, hydro-dredge, **Portion** of Maritime Terminal

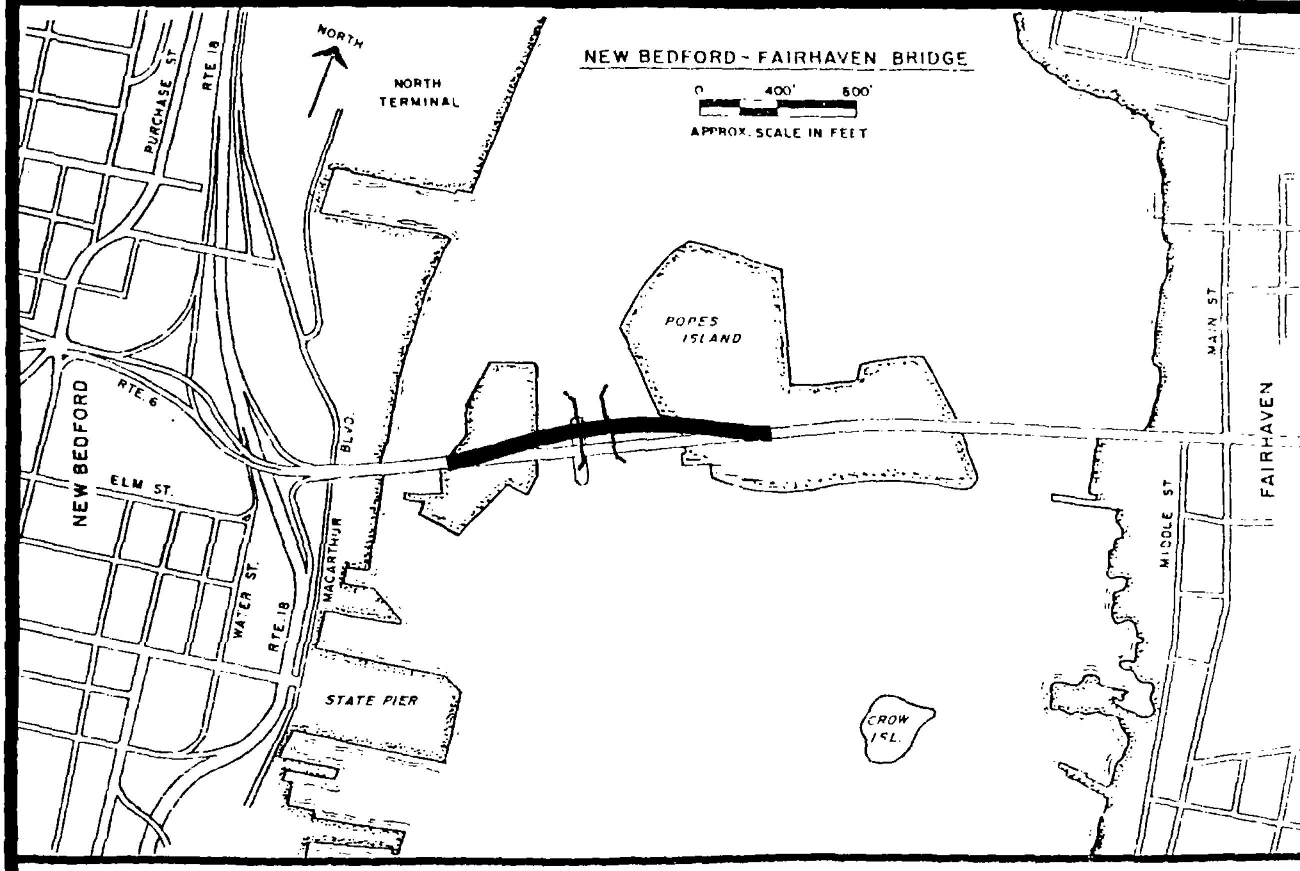
Loss of Direct Access to Route 6: All Island Business

Objections:

- Displacement of waterfront dependent industries.
- Elimination of Marine Park.
- Loss of direct access to both Fish Island and Popes Island.

NEW BEDFORD-FAIRHAVEN BRIDGE **FIGURE G14**

Alternative 5a



NORTHERN ROUTE - MINIMUM ALIGNMENT WITH EXISTING BRIDGE CLOSED

Total Length of Construction: 1700'

Navigational Clearance: 20'±

4(f) Takings: None

Business Takings: Frionor, WBSM

Loss of Direct Access to Route 6: Outdoorsman, Sanchez Marine

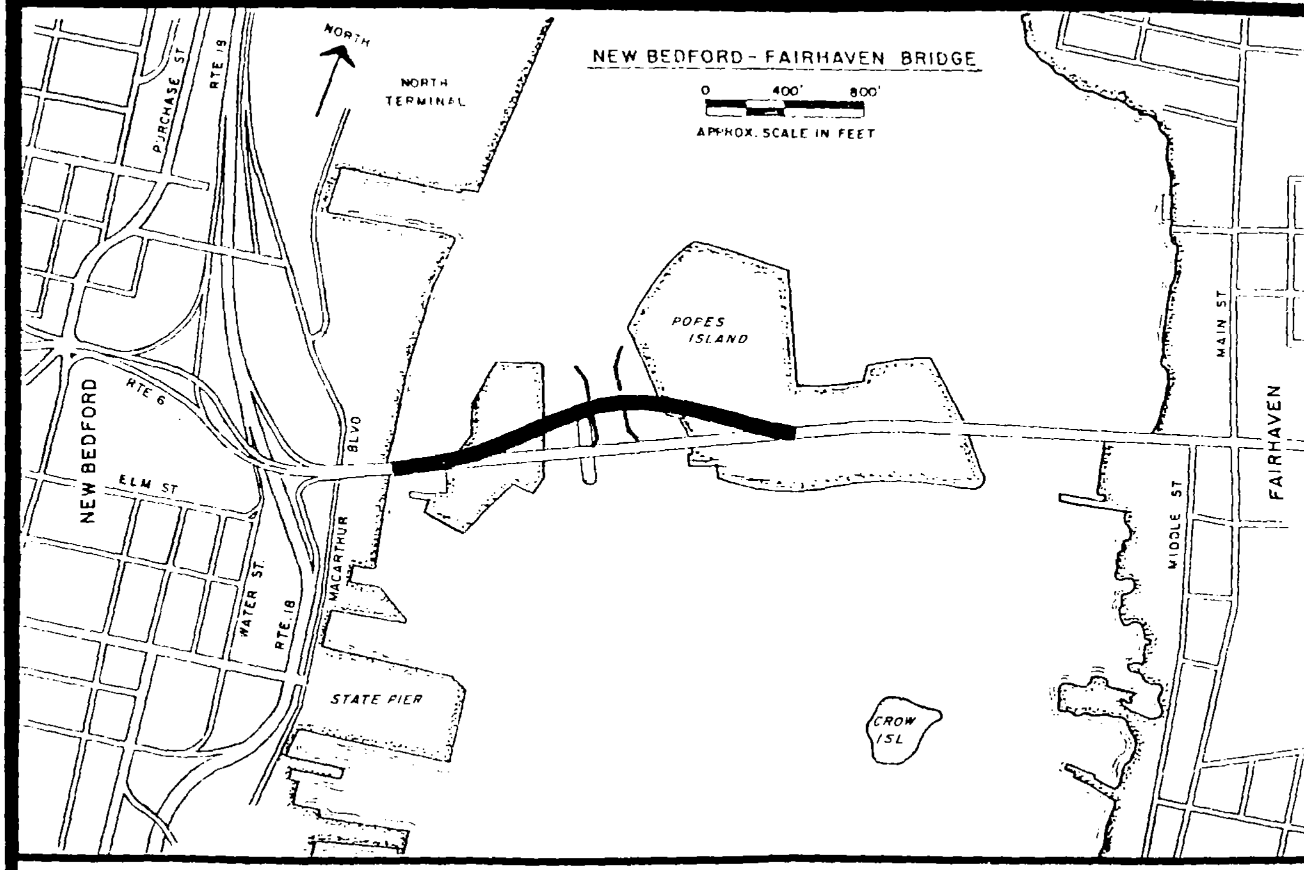
Objections:

. Prevents navigational access to Upper Harbor for the entire period of construction.

. Displacement of a waterfront dependent industry.

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE G15

Alternative 5b



NORTHERN ROUTE - MINIMUM ALIGNMENT

Total Length of New Construction: 2000'

Navigational Clearance: 20±

4(f) Takings: None

Business Takings: Frionor, WBSM, New England Ropes, Service News, Superior Welder, Advance Cup, Glen Oil

Loss of Direct Access to Route 6: Outdoorsman, Sanches Marine, Island Service, Hydro-dredge

Objections:

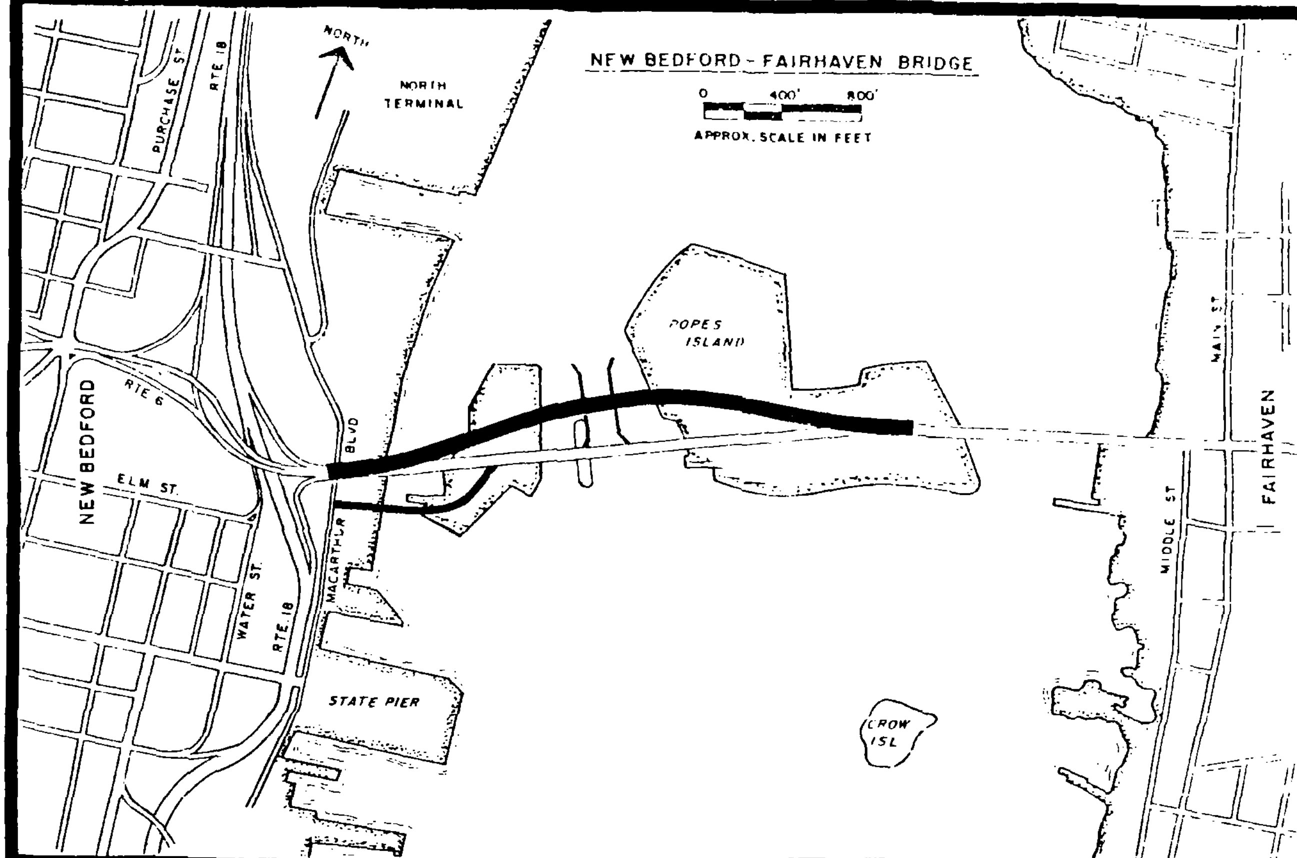
. Large number or takings.

. Roadway alignment is marginal with respect to design criteria.

. Displacement of a waterfront dependent industry.

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE G16

Alternative 5c



NORTHERN ROUTE - MODIFIED ALIGNMENT

Total Length of New Construction: 2600'

Navigational Clearance: 50'±

4(f) Takings: None

Business Takings: Frionor, Service News, Superior Welder, Advance Cup, New England Ropes, Dugan Buick - Pontiac, Glen Oil, Portion of Hydro-dredge, Portion of Crystal Ice, Portion of WBSM

Loss of Direct Access to Route 6: WBSM, *Outdoorsman, Island Service*, Sanchez Marine, Hydro-dredge

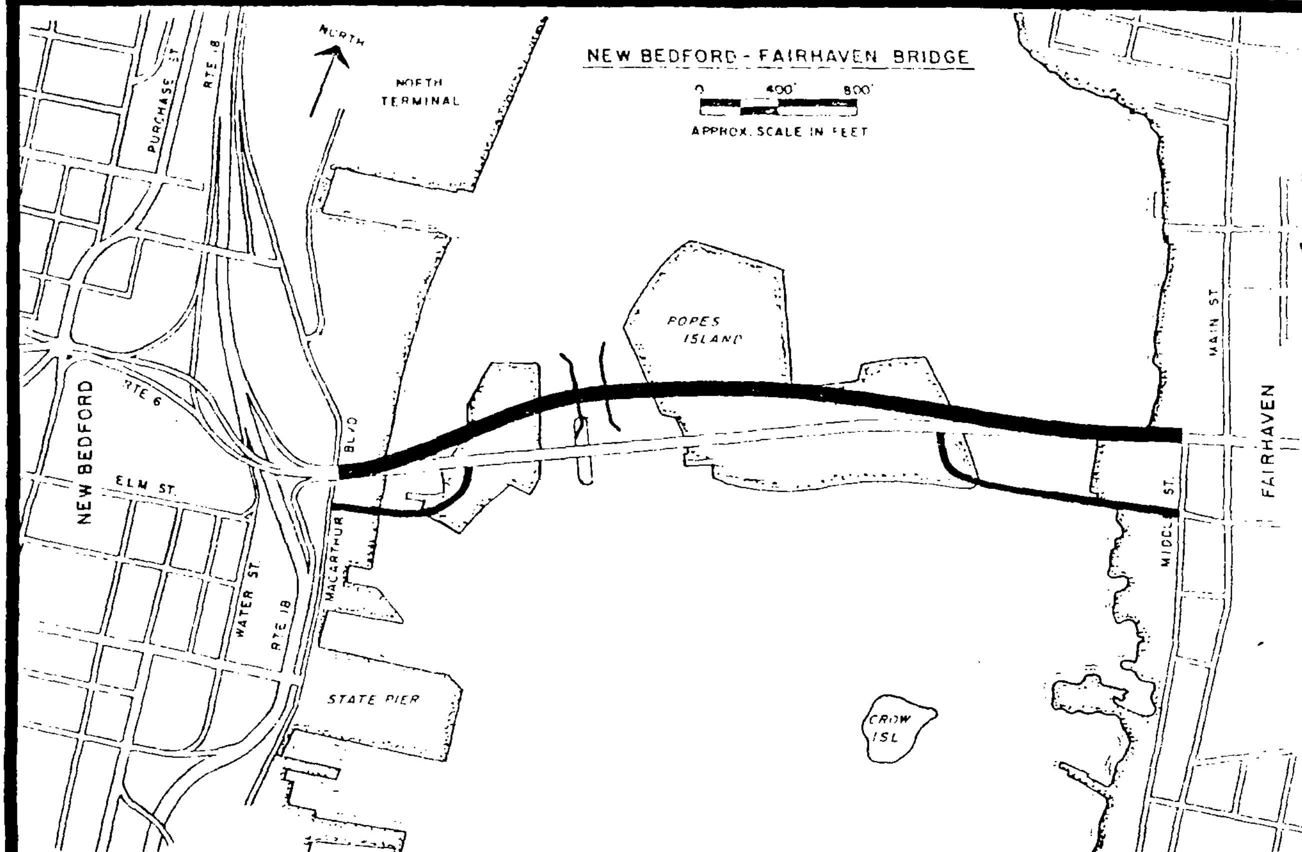
Objections:

. Large number of takings.

. Displacement of waterfront dependent industries.

NEW BEDFORD-FAIRHAVEN BRIDGE **FIGURE G17**

Alternative 5d



NORTHERN ROUTE - FULL ALIGNMENT

Total Length of New Construction: 4000'

Navigational Clearance: 60'±

4(f) Takings: For access road. 1½ acres ±

Business Takings: Frionor, Service News, Superior Welder, Advanced Cup, New England Ropes, Dugan Buick - Pontiac, Glen Oil, Ground Round, Portion of Hydro-dredge, Portion of Crystal Ice, Portion of WBSM, Portion of Fairhaven Hardware

Loss of Direct Access to Route 6: Island Service, Sanchez Marine, WBSM, Outdoorsman, Fairhaven Hardware, Hydro-dredge

Objections:

. Large number of takings.

. Displacement of waterfront dependent industries.

NEW BEDFORD-FAIRHAVEN BRIDGE FIGURE G18

B. SEDIMENT SAMPLES

As described in Chapter II, sediment samples were taken in the area of the existing New Bedford-Fairhaven Bridge in the Spring of 1982. The following are the results of that sampling program.

LIST OF FIGURES AND TABLES

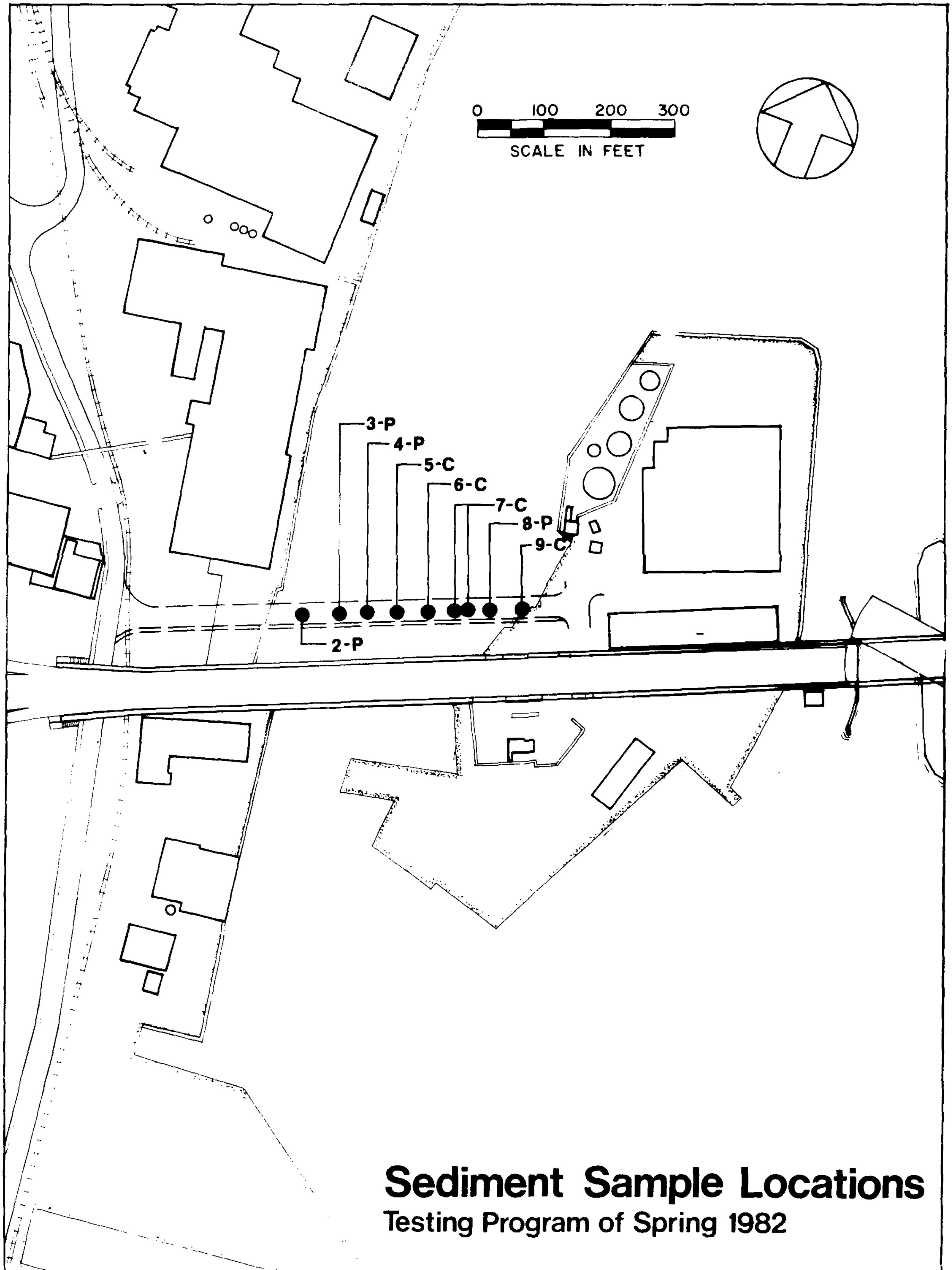
Figure B1 - Sediment Sample Locations, Testing Program of Spring 1982 283

Figure B2 - Sediment Sample Locations, Testing Program of Spring 1982 284

Table B1 - Surface Sediment Samples in Bridge Area 285

Table B2 - Sediment Samples at Various Depths in Bridge Area 286

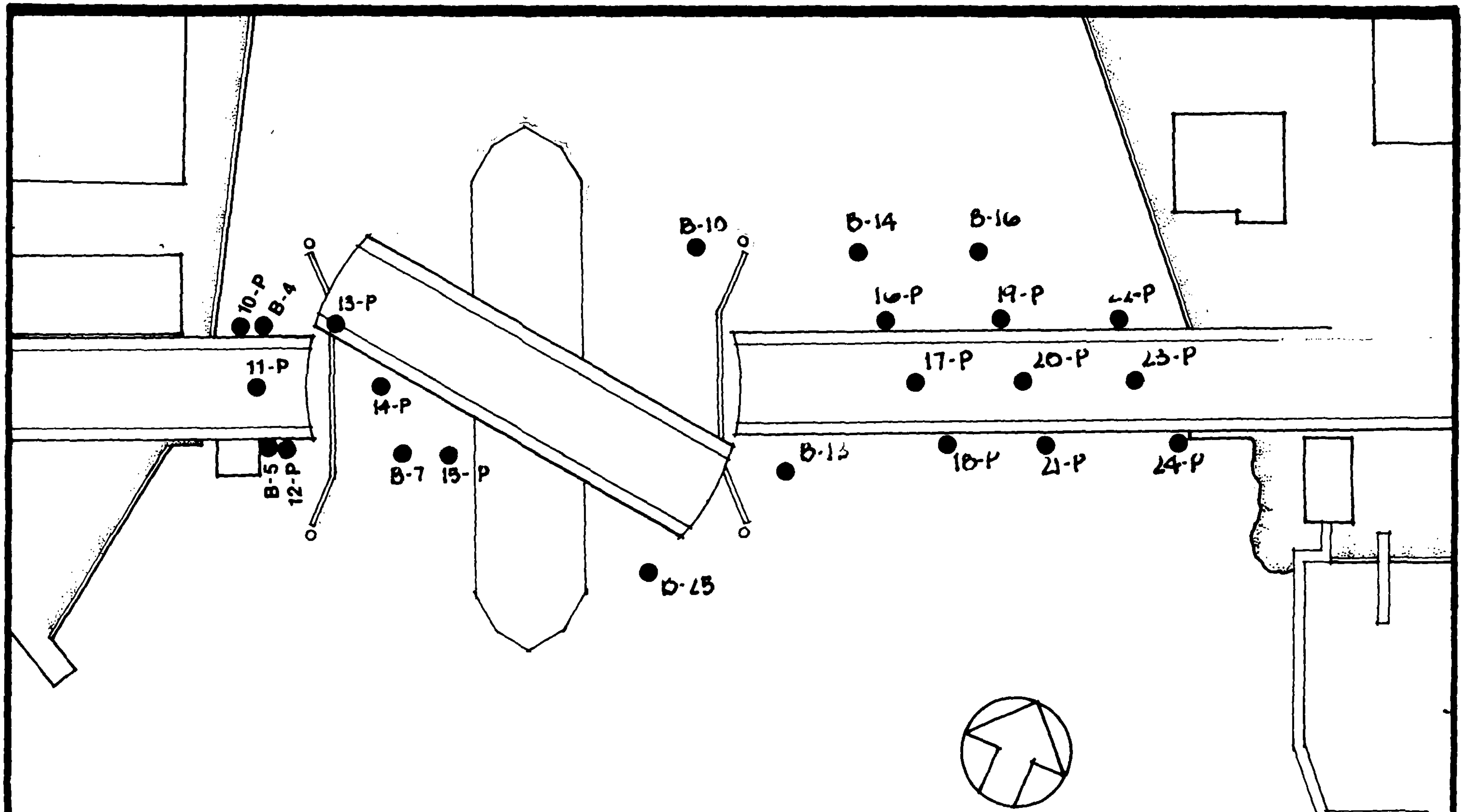
Table B3 - EP Toxicity Test for Lead 287



Sediment Sample Locations

Testing Program of Spring 1982

NEW BEDFORD-FAIRHAVEN BRIDGE **FIGURE**



Sediment Sample Locations

Testing Program of Spring 1982

NEW BEDFORD-FAIRHAVEN BRIDGE

FIGURE B2

SAMPLE NO.	SOURCE	COPPER	LEAD	ZINC	CHROMIUM	CADMIUM	NICKEL	SILVER	MERCURY	ARSENIC	o/o VOLATILE SOLIDS	OIL & GREASE PPM	TOTAL PCB'S Mg/kg DRY WT.
006254	2-P	360	140	210	130	1.9	20	1.9	0.46	5.6	4.9	29	10
006255	3-P	250	130	170	100	1.9	28	1.9	0.40	6.2	5.4	24	6.9
006256	4-P	1,100 / 1.4	300 / 0.6	720 / 16	580 / 0.09	14 / 0.44	68 / 0.84	6.0 / 0.01	0.72 / 0.001	15 / 0.010	14	26	36
006257	8-P	1,400	170	570	800	27	78	3.8	1.3	11	17	56	74
006258	10-P	220	340	280	90	3.9	35	2.0	0.20	4.7	7.9	29	7.6
006259	11-P	300	220	390	100	3.9	39	0.0	0.47	4.7	7.6	21	9.3
006260	12-P	300	280	360	140	4.0	40	2.0	0.43	4.4	4.8	17	6.9
006261	15-P	1,900 / 2.1	380 / 4.0	950 / 12	470 / 0.32	9.5 / 0.25	45 / 0.54	1.9 / 0.02	0.47 / 0.0014	12 / 0.002	9.3	42	19
006262	17-P	540	540	380	300	9.9	48	5.9	0.66	6.5	10	13	13
006263	18-P	220	1,300	220	110	7.5	30	3.9	0.59	15	5.3	12	9.8
006264	20-P	710	340	500	410	5.9	51	5.9	0.65	6.7	11	19	18
006265	21-P	330	940	280	190	6.3	28	4.7	0.33	18	9.0	67	9.2
006266	22-P	340	310	240	200	7.2	31	3.6	0.21	1.6	8.6	11	9.6
006267	23-P	740	310	430	230	7.2	45	1.8	0.72	0.0	9.1	28	24
006268	24-P	460	610	290	300	5.7	38	3.8	0.28	3.2	5.8	9.5	17
006269	5-C	1,200	46	680	320	16	68	2.0	1.2	1.2	13	71	63
006270	6-C	990	17	670	320	15	71	1.9	3.1	3.4	15	28	47
006271	7-C	2,200	370	840	940	16	86	2.0	2.4	13	15	1,200	120
006272	7-C'	1,100	11	610	200	9.3	47	0.0	1.4	1.5	13	170	100
006273	9-C	970	55	870	170	4.0	42	0.0	1.9	1.4	26	57	16

Source: DEQE Sampling Program of April 1982

Surface Sediment Samples in Bridge Area

NOTES

1. Total metals are expressed as Mg per kg dry weight.
2. The lower figure for samples No. 006256 and 006261 are EP Toxicity values.

NEW BEDFORD-FAIRHAVEN BRIDGE

TABLE B1

SAMPLE NO.	SOURCE	Tot. PCB's Mg/kg DRY WT.	OIL & GREASE ppm	COPPER	LEAD	ZINC	CHROMIUM	CADMIUM	NICKEL	SILVER	ARSENIC	MERCURY
006502	B-5 0- 3'	2.4	Insufficient Samp.	180	900	320	40	0.0	20	0.0	1.3	0.2
006501	B-7 0- 2'	10.	2.2	860	620	170	110	0.0	20	0.0	1.2	0.3
C06500	B-7 2- 4'	N.D.	0.0	10	16	16	3.9	0.0	0.0	0.0	0.2	0.0
006503	B-13 0- 2'	4.5	0.0	130	340	120	50	0.0	20	0.0	2.4	0.2
006505	B-13 6- 8'	N.D.	0.0	9.6	10	20	7.7	0.0	3.8	0.0	0.4	0.0
006504	B-13 10-12'	N.D.	0.0	5.4	20	10	5.4	0.0	1.8	0.0	0.2	0.0
006579	B-4 0 -2'	8.9	730									
006580	B-4 4- 6'	2.7	60									
006581	B-10 0- 2'	8.5	80									
006582	B-10 2- 4'	2.7	50									
006583	B-10 4- 6'	N.D.	30				- NOT REQUESTED					
006584	B-10 6- 8'	N.D.	20									
006585	B-14 0- 2'	4.8	16									
006586	B-14 4- 6'	N.D.	10									
006587	B-16 0- 2'	5.4	16	110	120	90	25	0.0	20	0.0	1.5	0.3
006588	B-16 2- 4'	1.2	7.0	170	260	130	40	0.0	30	0.0	1.9	0.3
006589	B-16 4- 6'	0.2	40	9.1	20	20	7.3	0.0	20	0.0	0.7	0.0
006590	B-25 0- 2'	3.3	30	230	250	120	110	0.0	10	0.0	1.2	0.3
006591	B-25 2- 4'	1.0	20	20	40	30	10	0.0	3.9	0.0	0.6	0.0
006592	B-25 4- 6'	N.D.	16	8.4	15	25	8.4	0.0	10	0.0	1.2	0.0

NOTES

1. Total metals are expressed Mg per kg dry weight.
2. ND means none detectable.

Source: Joint DEQE and DPW Sampling Program of May 1982

Sediment Samples at Various Depths in Bridge Area

NEW BEDFORD-FAIRHAVEN BRIDGE **TABLE B2**

EP Toxicity Test for Lead

The Commonwealth of Massachusetts
Department of Environmental Quality Engineering

Special Analysis

NEW BEDFORD

Collector: Tomczyk/DPW

Source A Acushnet Ri., Composite (Station 18P, 21P, 24P)

Source B " " " (Station 5-B,7-B)

	A	B
Sample No.	R90937	R90938
Date of Collection	4/1/82	4/1/82
Date of Receipt	4/1/82	4/1/82
DATE ANALYZED	6/22/82	6/22/82
LEAD	1.5	0.12

EP Toxicity test performed in accordance with the Federal Register Vol., 45, No. 98. May 19, 1980. Mg/l.

NEW BEDFORD-FAIRHAVEN BRIDGE TABLE B3

C. LETTER OF CONSISTENCY WITH STATE IMPLEMENTATION PLAN FOR OZONE AND CARBON MONOXIDE

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
Department of Environmental Quality Engineering
Southeast Region
Lakeville Hospital, Lakeville, Massachusetts 02346
947-1231, Ext. 680-684

S. Russell Sylva
Commissioner

PAUL T. ANDERSON
Regional Environmental Engineer

March 22, 1985

Robert J. McDonagh, Chief Engineer
Department of Public Works
Ten Park Plaza
Boston, MA 02116

RE: SMAPCD - NEW BEDFORD - EOEA #3572 - Environmental Assessment For the Replacement of the New Bedford - Fairhaven Bridge

ATTN: Mr. Frank Bracaglia, Chief,
Environmental Section

Dear Mr. McDonagh:

The Department of Environmental Quality Engineering (DEQE) has reviewed the Environmental Assessment for the New Bedford-Fairhaven Bridge Replacement project. Based upon this review, conducted by staff from the Division of Air Quality Control's Boston Office, we offer the following comments relative to the Commonwealth's transportation project review consistency criteria:

1. <u>Consultation with DEQE</u>:

   The Department of Public Works (DPW) has worked with the DEQE throughout the project development process, leading to agreement on the types of analyses to be performed and on the key assumptions used prior to performing the analyses. This criterion has been met.

2. <u>Performance of an adequate air quality analysis</u>:

   Microscale and mesoscale analyses were performed for this project. Both analyses developed emission factors utilizing EPA's Mobile-2 Emission Factor Model. The mesoscale analysis applied DEQE approved assumptions to the Mobile-2 program to develop composite emission factors, which were then applied to total VMT changes. The result is an adequate mesoscale analysis.

   The microscale analysis was divided into two portions. The first portion utilized the Caline 3 model, an FHWA and EPA approved model that calculates CO emissions from a line source. The second portion reviewed CO impacts at intersections due to detoured traffic. This analysis utilized EPA's <u>Guideline For Air Quality Maintenance Planning and Analysis, Volume 9 (Revised): Evaluating Indirect Sources</u>.

Both models utilized the Mobile-2 emission factors and previously agreed to operating assumptions. Both methodologies resulted in an adequate air quality analysis. This criterion has been met.

3. Hydrocarbon Analysis:

The results of the mesoscale analysis are the basis for assessing a project relative to this criterion. The results indicate that total hydrocarbon emissions will not increase due to the implementation of this project. This criterion has been met.

4. Carbon Monoxide:

Both the Caline 3 and the Volume 9 analyses demonstrate that the project will not result in any exceedances of the National Ambient Air Quality Standards. This criterion has been met.

In summary, the Environmental Assessment for the New Bedford-Fairhaven Bridge Replacement project meets all four criteria and is therefore consistent with the Massachusetts 1982 State Implementation Plan for Ozone and Carbon Monoxide.

Very truly yours,

For the Commissioner,

Vaughan M. Steeves, Chief
Air Quality Control Section

SRS:VMS:yw

cc: Bea Reynolds, MDPW
Tom Wholley, EPA
Gabe Brazao, FHWA
Samuel G. Mygatt, MEPA
John Mahoney, Sverdrup & Parcel