COMMONWEALTH OF MASSACHUSETTS
Department of Environmental Quality Engineering
Division of Waterways

WATERFRONT PARK
New Bedford, MA

Draft Environmental Impact Report

JASON M. CORTELL and ASSOCIATES INC.
environmental consultants and planners

NOVEMBER, 1982

JASON M. CORTELL
AND ASSOCIATES INC.

DRAFT ENVIRONMENTAL IMPACT REPORT

WATERFRONT PARK
NEW BEDFORD, MA

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AND ASSOCIATES INC.

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ENVIRONMENTAL NOTIFICATION FORM

APPENDIX A
COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS

ENVIRONMENTAL NOTIFICATION FORM

I. SUMMARY

A. Project Identification
1. Project Name Waterfront Park

2. Project Proponent Massachusetts Division of Waterways
Address 1-11 Winter Street, Boston, MA 02110

B. Project Description: (City/Town(s) City of New Bedford
1. Location within city/town or street address See Attachment A

2. Est. Commencement Date: September, 1982 Est. Completion Date: September, 1983
Approx. Cost $ $3,550,000.00 Current Status of Project Design: 50 % Complete

C. Narrative Summary of Project
Describe project and give a description of the general project boundaries and the present use of the project area. (If necessary, use back of this page to complete summary).

The proposed site of Waterfront Park is a small cove of the Acushnet River which forms the eastern boundary of New Bedford (see Figures 1 and 2). Fairhaven is located to the east. The entire site comprises approximately 38.0 acres. Twenty-two (22) acres are a tidal bay with water depths ranging from 0-4 ft at mean high tide. Low lying areas above high tide consist of highly disturbed grass-shrub vegetation and a 4-acre recreational area with some play equipment, playfields, and a combination tennis court/street hockey area. There is also a manufacturing facility on the southern portion of the site.

The proposed project includes the placement of a perimeter road, as shown in Figures 2 and 3, isolating the cove from the remainder of the River. Fill placed behind the road will form a level area for subsequent development as a recreational area. Construction of the road will require removal of approximately 180,000 cubic yards (yd^3) of bottom sediment and replacement with suitable foundation and sub-base material. Excavated material will be used to fill the cove. An additional 295,000 yd^3 of material will be required to complete the project. Included with the perimeter road are limited parking (50 spaces) and two boat ramps. A picnic facility adjacent to the road, approximately 200 ft by 1,300 ft, is also planned. No specific recreational facilities have been proposed for the remainder of the site.

The immediate site surroundings include an industrial/manufacturing zone to the north, and immediately to the west. High density multi-family housing occurs to the north of the site and west of the industrial/manufacturing zone.

Copies of this may be obtained from:
Name: John J. Hannon & George Sheehan Firm/Agency: MA Division of Waterways
Address: 1-11 Winter Street, Boston, MA 02110 Phone No. 292-5692

 THIS IS AN IMPORTANT NOTICE. COMMENT PERIOD IS LIMITED.
For Information, call (617) 727-5830

Use This Page to Complete Narrative, if necessary.

This project is one which is categorically included and therefore automatically required preparation of an Environmental Impact Report: YES X NO _____

D. Scoping (Complete Sections II and III first, before completing this section.).

1. Check those areas which would be important to examine in the event that an EIR is required for this project. This information is important so that significant areas of concern can be identified as early as possible, in order to expedite analysis and review.

	Construction Impacts	Long Term Impacts		Construction Impacts	Long Term Impacts
Open Space & Recreation		X	Mineral Resources		
Historical			Energy Use		X
Archaeological			Water Supply & Use		X
Fisheries & Wildlife	X		Water Pollution	X	
Vegetation, Trees			Air Pollution		
Other Biological Systems	X		Noise		
Inland Wetlands			Traffic		
Coastal Wetlands or Beaches		X	Solid Waste		
Flood Hazard Areas		X	Aesthetics		X
Chemicals, Hazardous Substances, High Risk Operations	X	X	Wind and Shadow		
Geologically Unstable Areas			Growth Impacts		
Agricultural Land			Community/Housing and the Built Environment		X
Other (Specify) _____					

2. List the alternatives which you would consider to be feasible in the event an EIR is required.

See Attachment A

E. Has this project been filed with EOEA before? Yes _____ No X
If Yes, EOEA No. _____ EOEA Action? _____

F. Does this project fall under the jurisdiction of NEPA? Yes X No _____
If Yes, which Federal Agency? U.S. Army Corps of Engineers NEPA Status? No application for a Federal permit has been submitted.

G. List the State or Federal agencies from which permits will be sought:

Agency Name	Type of Permit
U.S. Army Corps of Engineers	Discharge of Dredged or Fill Material
MA Executive Office of Environmental Affairs	MEPA Approval
MA Office of Coastal Zone Management	Determination of Consistency
MA Division of Waterways	Dredging and Disposal of Dredged Material Permit
MA Division of Waterways	Chapter 91 - Waterways License
MA Division of Water Pollution Control	Sewer Extension and/or Connection
MA Division of Water Pollution Control	Water Quality Certification

H. Will an Order of Conditions be required under the provisions of the Wetlands Protection Act (Chap. 131, Section 40)?
Yes X No _____
DEQE File No., if applicable: _____

I. List the agencies from which the proponent will seek financial assistance for this project:

Agency Name	Funding Amount
Not Applicable	

II. PROJECT DESCRIPTION

A. Include an original 8½ x 11 inch or larger section of the most recent U.S.G.S. 1:24.000 scale topographic map with the project area location and boundaries clearly shown. Include multiple maps if necessary for large projects. Include other maps, diagrams or aerial photos if the project cannot be clearly shown at U.S.G.S. scale. If available, attach a plan sketch of the proposed project.

B. State total area of project: Approximately 38.0 acres
Estimate the number of acres (to the nearest 1/10 acre) directly affected that are currently:

1. Developed ..... 2.0 acres
2. Open Space/Woodlands/Recreation 14.0 acres
3. Wetlands ..... 22.0 acres
4. Floodplain ..... 22.0 acres
5. Coastal Area ..... 38.0 acres
6. Productive Resources
   - Agriculture ..... ___ acres
   - Forestry ..... ___ acres
   - Mineral Products ..... ___ acres

C. Provide the following dimensions, if applicable: See Attachment A
Length in miles 0.4 Number of Housing Units _____ Number of Stories _____

	Existing	Immediate Increase Due to Project
Number of Parking Spaces	0	50
Vehicle Trips to Project Site (average daily traffic)	0	200-400
Estimated Vehicle Trips past project site	10,100	100-200

D. If the proposed project will require any permit for access to local or state highways, please attach a sketch showing the location of the proposed driveway(s) in relation to the highway and to the general development plan; identifying all local and state highways abutting the development site; and indicating the number of lanes, pavement width, median strips and adjacent driveways on each abutting highway; and indicating the distance to the nearest intersection.

See Attachment A

III. ASSESSMENT OF POTENTIAL ADVERSE ENVIRONMENTAL IMPACTS

Instructions: Consider direct and indirect adverse impacts, including those arising from general construction operations. For every answer explain why significant adverse impact is considered likely or unlikely to result.

Also, state the *source* of information or other basis for the answers supplied. If the source of the information, in part or in full, is not listed in the ENF, the preparing officer will be assumed to be the source of the information. Such environmental information should be acquired at least in part by field inspection.

A. Open Space and Recreation

1. Might the project affect the condition, use or access to any open space and/or recreation area?
Yes x No _____

Explanation and Source:

The project area encompasses a 4.0 acre area known as Riverside Park. It presently contains basketball courts and a combination tennis court/street hockey area, both of which are lighted. Using the latter area's berm, it is flooded for skating during the winter. There is also an area of play equipment (swings and slides) and playfields.

The proposed project involves the construction of a site perimeter road which will provide access to the two boat ramps for public use. There will also be a 6.0 acre picnic area. The remainder of the site, approximately 32.0 acres, is for future recreational development, although no specific plans are proposed, and the area will, at least temporarily, remain an open field. Implementation of the project need not affect the existing recreational facilities until a plan for the entire area is developed. At such time, it is expected that the existing facilities would be upgraded or replaced.

B. Historic Resources

1. Might any site or structure of historic significance be affected by the project? Yes _____ No x

Explanation and Source:

No site or structure of historic significance occurs in the project area.

(Source: Massachusetts Historical Commission, 1981.)

2. Might any archaeological site be affected by the project? Yes _____ No x

Explanation and Source:

No known archaeological sites are located in the project area. The closest site of archaeological significance occurs in the Town of Fairhaven approximately 1.3 miles from the project site.

(Source: Massachusetts Historical Commission, 1981.)

C. Ecological Effects

1. Might the project significantly affect fisheries or wildlife, especially any rare or endangered species?
Yes _____ No x

Explanation and Source:

See Attachment A

2. Might the project significantly affect vegetation, especially any rare or endangered species of plant?
Yes _____ No X
(Estimate approximate number of mature trees to be removed: _____)

Explanation and Source:

See Attachment A

3. Might the project alter or affect flood hazard areas, inland or coastal wetlands (e.g., estuaries, marshes, sand dunes and beaches, ponds, streams, rivers, fish runs, or shellfish beds)? Yes X No _____

Explanation and Source:

See Attachment A

4. Might the project affect shoreline erosion or accretion at the project site, downstream or in nearby coastal areas? Yes X No _____

Explanation and Source:

According to the Massachusetts Coastal Zone Management Plan, the project area constitutes neither an area of shoreline erosion nor accretion. Thus, no impacts to these processes are anticipated. Additionally, the embankment of the perimeter road will be protected from erosion and tidal action by the use of riprap along the river slope.

(Source: Massachusetts Coastal Zone Management Plan, 1977.)

5. Might the project involve other geologically unstable areas? Yes _____ No X

Explanation and Source:

See Attachment A

D. Hazardous Substances

1. Might the project involve the use, transportation, storage, release, or disposal of potentially hazardous substances?
Yes X No _____

Explanation and Source:

All material for the proposed Waterfront Park will include sediments excavated from the perimeter road alignment. Additional fill may consist of New Bedford Harbor sediments dredged during channel maintenance activities periodically conducted by the U.S. Army Corps of Engineers. As New Bedford Harbor sediments have been documented to contain polychlorinated biphenyls (PCBs), the use of these sediments as fill may involve the transportation, release, and disposal of PCBs.

E. Resource Conservation and Use

1. Might the project affect or eliminate land suitable for agricultural or forestry production?
Yes _____ No X
(Describe any present agricultural land use and farm units affected.)

Explanation and Source:

See Attachment A

2. Might the project directly affect the potential use or extraction of mineral or energy resources (e.g., oil, coal, sand & gravel, ores)? Yes _____ No X

Explanation and Source:

The proposed project will not affect the potential use or extraction of mineral or energy resources. As previously noted, subsurface materials throughout the majority of the site consist of oily and organic silts, and fine to medium or fine to coarse sand.

(Source: Congdon, Gurney and Towle, Inc. in association with Goldberg-Zoino and Associates Inc., 1980. "Feasibility Study of Waterfront Park in New Bedford, Massachusetts.")

3. Might the operation of the project result in any increased consumption of energy? Yes X No _____

Explanation and Source:
(If applicable, describe plans for conserving energy resources.)

The proposed project will result in the consumption of energy both during and subsequent to construction. However, by providing a recreational area adjacent to a densely populated area, overall energy consumption for traveling to such a facility may be reduced. The extent of energy consumption will be dependent on the types of recreational facilities included in final design plans.

F. Water Quality and Quantity

1. Might the project result in significant changes in drainage patterns? Yes _____ No X

Explanation and Source:

The project site is located in the Acushnet River watershed. Although approximately 22.0 acres of surface water along the River are proposed to be filled, existing drainage patterns are not expected to be altered significantly. No other surface waters are associated with the project site.

2. Might the project result in the introduction of pollutants into any of the following:

(a) Marine Waters	Yes X	No _____
(b) Surface Fresh Water Body	Yes _____	No X
(c) Ground Water	Yes _____	No X

Explain types and quantities of pollutants.

See Attachment A

3. Will the project generate sanitary sewage? Yes X No _____
   If Yes, Quantity: 2,000-4,000 gallons per day
   Disposal by: (a) Onsite septic systems ..... Yes _____ No X
   (b) Public sewerage systems ..... Yes X No _____
   (c) Other means (describe) _____

See Attachment A

4. Might the project result in an increase in paved or impervious surface over an aquifer recognized as an important present or future source of water supply? Yes _____ No X

Explanation and Source:

The project site does not constitute an important aquifer in terms of present or future water supply. Due to the site's location immediately adjacent to the Achusnet River, recharge to the area is quickly discharged to the River, thus minimizing the site's suitability as a source of water supply.

5. Is the project in the watershed of any surface water body used as a drinking water supply?
   Yes _____ No X
   Are there any public or private drinking water wells within a 1/2-mile radius of the proposed project?
   Yes _____ No X

Explanation and Source:

See Attachment A

6. Might the operation of the project result in any increased consumption of water? Yes X No _____
   Approximate consumption 2,000-4,000 gallons per day. Likely water source(s) _____

Explanation and Source:

See Attachment A

7. Does the project involve any dredging? Yes X No _____
   If Yes, indicate:
   Quantity of material to be dredged See Attachment A
   Quality of material to be dredged See Attachment A
   Proposed method of dredging See Attachment A
   Proposed disposal sites See Attachment A
   Proposed season of year for dredging See Attachment A

Explanation and Source:

See Attachment A

G. Air Quality

1. Might the project affect the air quality in the project area or the immediately adjacent area?
Yes _x_ No _____

Describe type and source of any pollution emission from the project site._____

The project will yield a slight increase in the concentration of traffic-related air contaminants at and near the site. This will result from the traffic attracted to the facility, which is estimated to range from 200 to 400 vehicle trips per day. Access to the site will be primarily along Belleville Avenue to either Sawyer Street or Coffin Avenue and hence, to the site. The additional traffic amounts to an increase of approximately 4 percent on Belleville Avenue and approximately 8 percent along Sawyer Street and Coffin Avenue. These increases should yield only minor effects to air quality.

2. Are there any sensitive receptors (e.g., hospitals, schools, residential areas) which would be affected by any pollution emissions caused by the project, including construction dust? Yes _x_ No _____

Explanation and Source:

The only sensitive receptors located near the project site are residential areas south of Sawyer Street between Mitchell Street and Belleville Avenue, west of Belleville Avenue, and north of Coffin Avenue near Belleville Avenue.

3. Will access to the project area be primarily by automobile? Yes _x_ No _____

Describe any special provisions now planned for pedestrian access, carpooling, buses and other mass transit.

The major access to the site is expected to be via private automobile. There is, however, likely to be some pedestrian access to the waterfront from the playgrounds located to the west of the perimete road (see Figure 4). For this reason, the perimeter road plans include a full sidewalk, shown on Figure 3.

H. Noise

1. Might the project result in the generation of noise? Yes _x_ No _____

Explanation and Source:
(Include any source of noise during construction or operation, e.g., engine exhaust, pile driving, traffic.)

See Attachment A

2. Are there any sensitive receptors (e.g., hospitals, schools, residential areas) which would be affected by any noise caused by the project? Yes _x_ No _____

Explanation and Source:
The most immediate neighbors to the project site are industrial areas to the north and south along the riverfront, Sawyer Street, and Coffin Avenue, and to the west along Belleville Avenue. Residential areas are located north of Coffin Avenue near Belleville Avenue, west of Belleville Avenue, and south of Sawyer Street between Belleville Avenue and Mitchell Street. As stated in Section H.1, the nois effects of the proposed project along these streets will be slight.

I. Solid Waste

1. Might the project generate solid waste? Yes X No ____

Explanation and Source:
(Estimate types and approximate amounts of waste materials generated, e.g., industrial, domestic, hospital, sewage sludge, construction debris from demolished structures.)

Solid waste generated by the proposed project will primarily include that typical of recreational use areas. Although the precise quantity of solid waste will be dependent on final design plans and the types of recreational facilities ultimately proposed, the total amount of solid waste is expected to be accommodated by local landfill operations.

J. Aesthetics

1. Might the project cause a change in the visual character of the project area or its environs?
Yes X No ____

Explanation and Source:

Project-related activities associated with the visual character of the project area and environs primarily include the filling of approximately 22.0 acres of surface water along the Acushnet River; the construction of a perimeter roadway, boat ramps, and recreational facilities; and landscaping efforts. The landscaping program, which includes the use of indigenous species of trees, shrubs, and ground cover will result in the visual enhancement of the project area and serve as a buffer from surrounding residential and industrial land uses. Thus, positive impacts to the area's aesthetic character are anticipated.

2. Are there any proposed structures which might be considered incompatible with existing adjacent structures in the vicinity in terms of size, physical proportion and scale, or significant differences in land use?
Yes ____ No X

Explanation and Source:

See Attachment A

3. Might the project impair visual access to waterfront or other scenic areas? Yes ____ No X

Explanation and Source:

The proposed project will not significantly impair visual access to the waterfront along the Acushnet River. Rather, the proposed project will increase visual access by improving vehiclar and pedestrian approach. Additionally, the proposed parking area along the west side of the perimeter road and the parking shoulder and sidewalk along the east side of the roadway adjacent to the Acushnet River will enhance opportunities for viewing the waterfront area. Although landscaping efforts may limit visual access somewhat, particularly from the residential area along Coffin Avenue, such effects are expected to be minor.

K. Wind and Shadow

1. Might the project cause wind and shadow impacts on adjacent properties? Yes ____ No X

Explanation and Source:

Waterfront Park will not cause wind and shadow impacts on adjacent properties, due to the nature of proposed facilities, i.e., a roadway and recreational areas.

IV. CONSISTENCY WITH PRESENT PLANNING

A. Describe any known conflicts or inconsistencies with current federal, state and local land use, transportati... open space, recreation and environmental plans and policies. Consult with local or regional planning au... where appropriate.

The proposed project appears consonant with current Federal, State, and local plans and policies. A U.S. Army Corps of Engineers study on New Bedford Harbor recommended the site as a potential disposal area for dredged material. The Massachusetts Department of Environmental Quality Engineering, Division of Waterways, is the proponent of the action.

The New Bedford 1980 Master Plan shows the entire site as a proposed recreation area, and recommends a community park and multipurpose lot. The plan defines a community park as an area of at least 15 acres with a playfield, open areas, picnic area, and walks, and notes that such a park would have a service area of approximately 2.5 mile radius with 20,000-25,000 people. On a larger scale, the Master Plan notes the scarcity of recreational areas in New Bedford and proposes the development of 1,000 additional acres of recreation land. While the Master Plan shows the area as a proposed park, its existing zoning is industrial.

The Comprehensive Recreation and Open Space Plan, 1978-1983 contains a brief discussion of the existing recreation facilities at the site, and recommends the addition of shade trees and the improvement of pedestrian access.

V. FINDINGS AND CERTIFICATION

A. The notice of intent to file this form has been/will be published in the following newspaper(s):

(Name) Boston Globe	(Date) January 20, 1982
New Bedford Standard Times	January 20, 1982

B. This form has been circulated to all agencies and persons as required by Appendix B.

January 25, 1982 — Date

Signature of Responsible Officer or Project Proponent

John J. Hannon
Name (print or type)

Address MA Division of Waterways
1-11 Winter Street, Boston, MA 02110
Telephone Number 292-5692

January 25, 1982 — Date

Signature of person preparing ENF (if different from above)

Steven C. Davis, P.E.
Name (print or type)

Address Jason M. Cortell and Associates Inc.
244 Second Avenue, Waltham, MA 02154
Telephone Number 890-3737

Attachment A

The following discussion corresponds to those items noted in the Environmental Notification Form.

I.B.1

The project area is located in the North End section of New Bedford and is bounded on the north by Coffin Avenue, on the west by Belleville Avenue, on the south by Sawyer Street, and on the east by the Acushnet River (see Figures 1 and 2).

I.D.2

In addition to the proposed action and the no-action alternative, alternatives exist relative to both the ultimate use of the site and the methods by which it is developed. Such uses include various intensities and types of recreation development which may focus on different segments of the population. For example, the park may be oriented toward children or the elderly, or it may be designed as a neighborhood park or regional facility. Alternatives may encompass other uses, such as industrial/manufacturing or housing, as well.

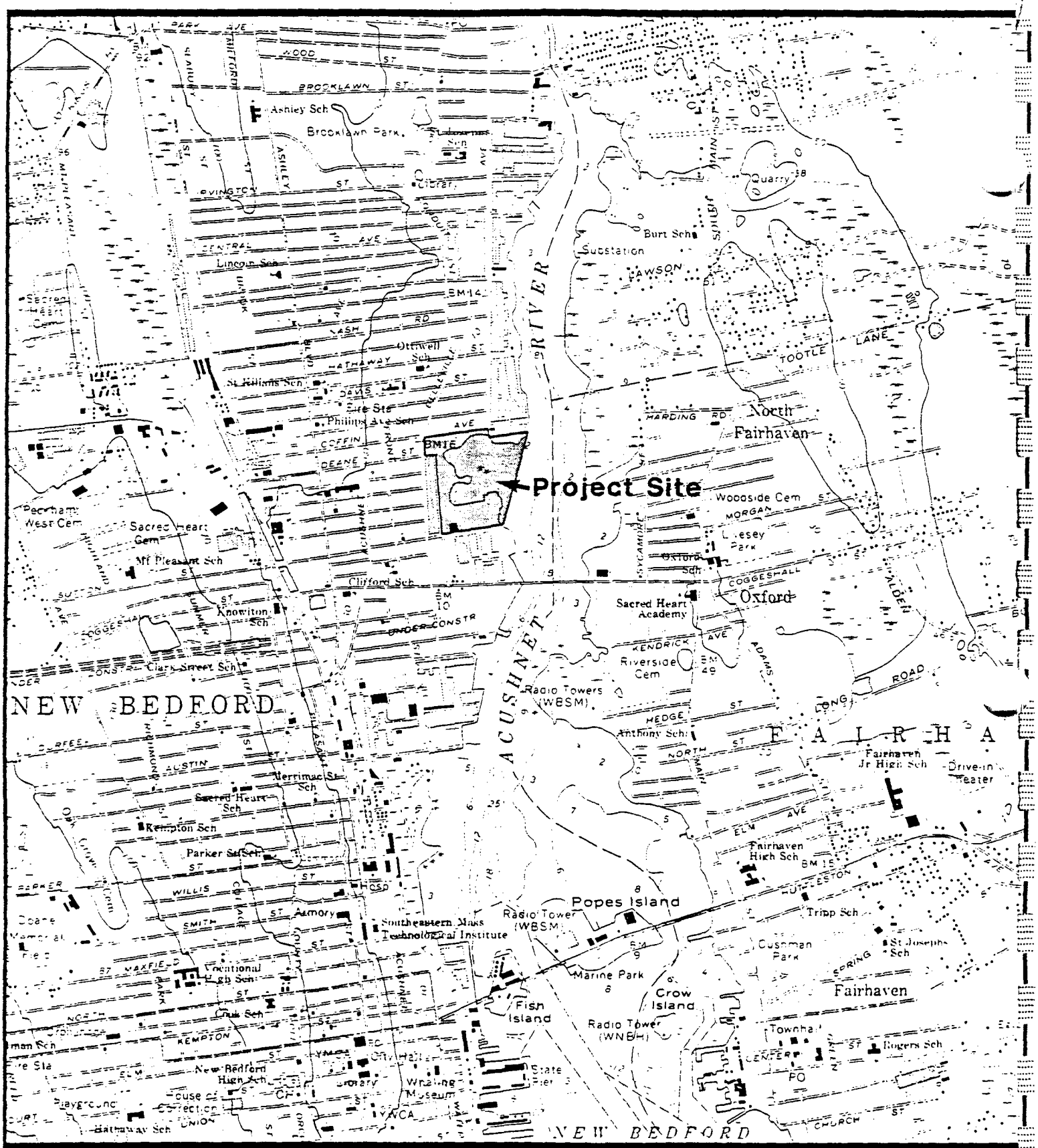
There are also alternatives for implementation of the project. These include the size of area to be filled; the method and timing of dredge and fill operations; the source and type of fill; and the method of transporting materials to the site.

II.C

The perimeter road, shown on Figures 2 and 3, will contain parking area for 50 automobiles. Depending on the intensity of use of the boat launching and picnic facilities, 2 to 4 complete turnovers of the vehicles in the lot can be expected per day. Thus, from 100 to 200 vehicles will arrive at and leave the site each day, yielding an average daily traffic (ADT) of between 200 and 400 trips. The ADT on Belleville Avenue past the site is now approximately 10,100 vehicles per day. Assuming that 50 percent of the traffic bound for the site will be new traffic and 50 percent will result from existing traffic, the increase in ADT on Belleville Avenue will be between 100 and 200 vehicles per day.

II.D

An access permit from the City of New Bedford will probably be required for the connection of the perimeter road to Sawyer Street and Coffin Avenue. These connections are illustrated on Figure 4. Additionally, Figure 4 shows the approximate ADT on the local roadways. These ADT estimates are based on 12 and 24 hour counts made by the City of New Bedford. (Source: City of New Bedford Traffic Study, 1977, 1978).

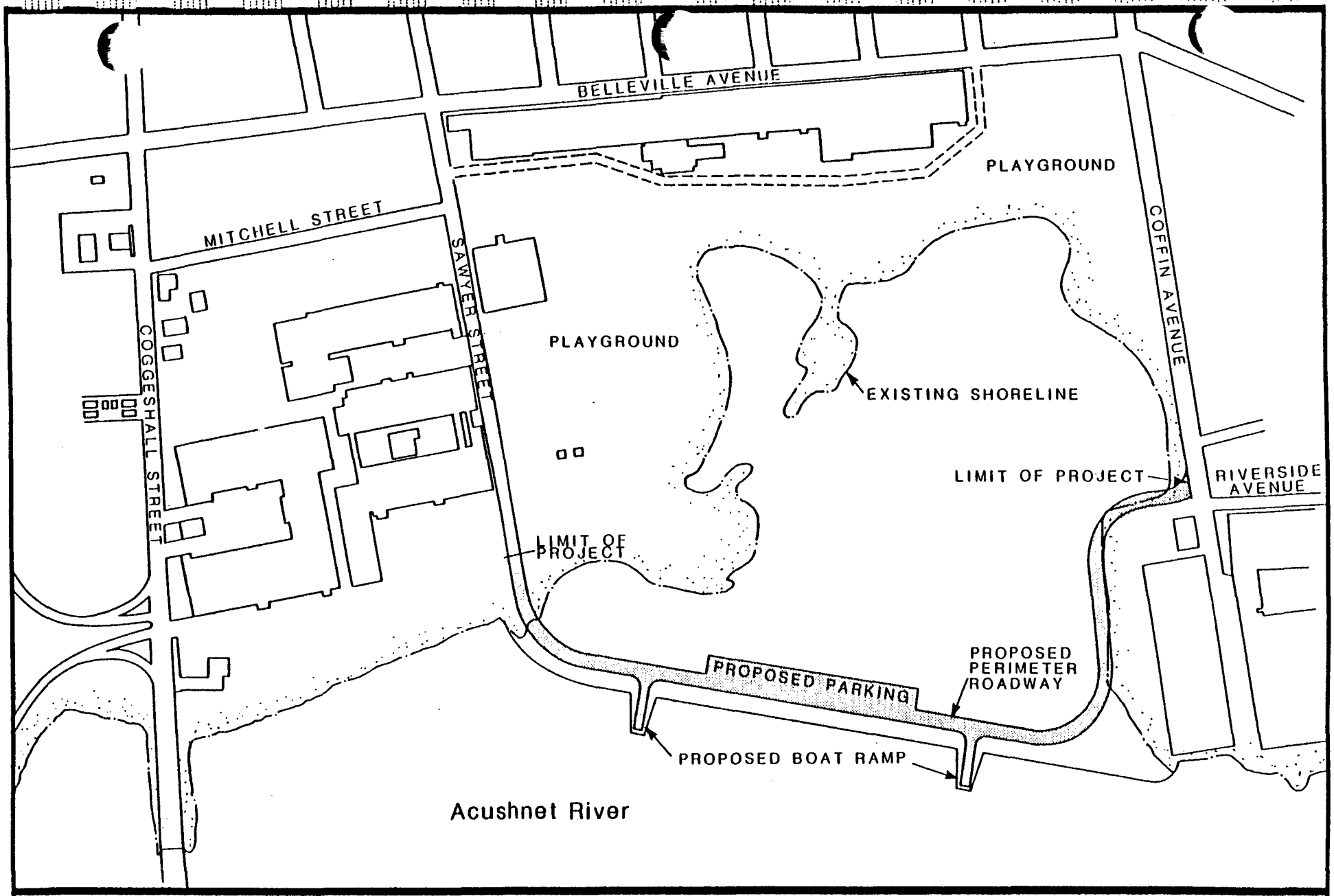


WATERFRONT PARK
New Bedford, Massachusetts

Regional Location

JASON M. CORTELL AND ASSOCIATES INC.

Figure 1



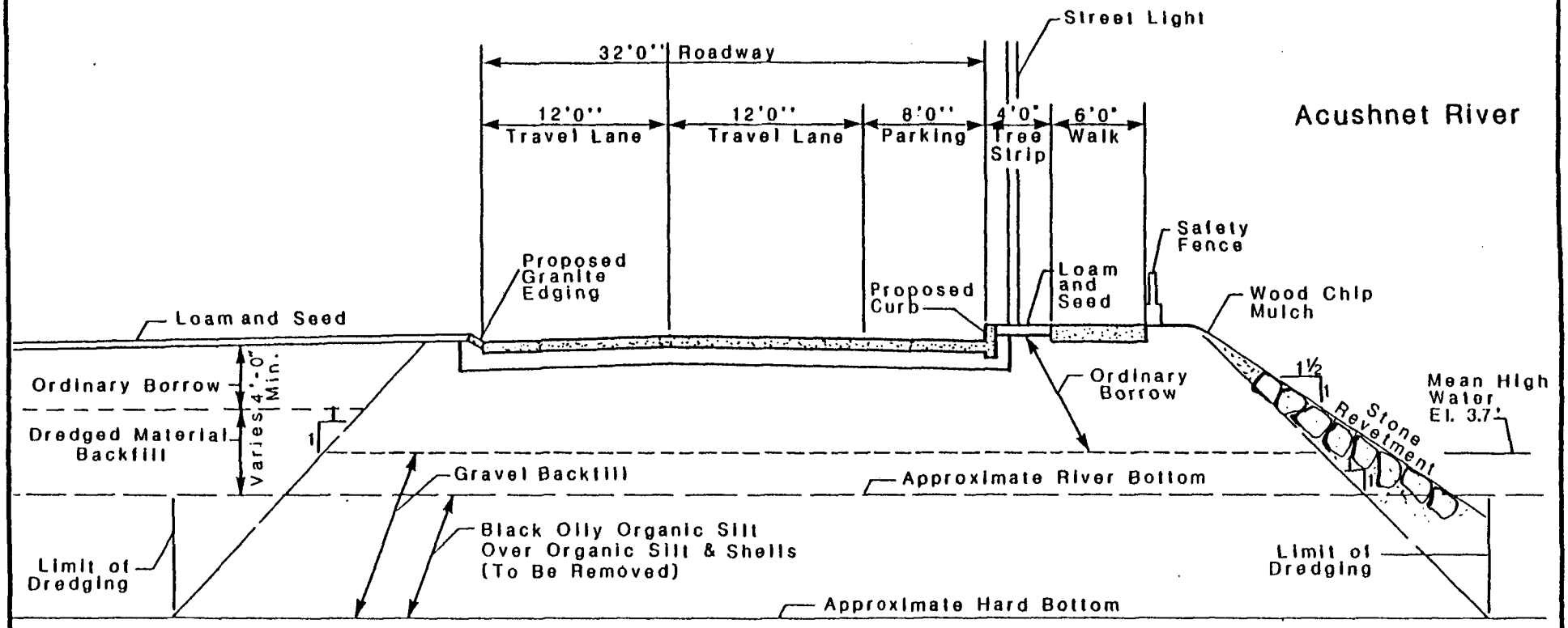
WATERFRONT PARK
New Bedford, Massachusetts

Site Location

JASON M. CORTELL AND ASSOCIATES INC.

0 125' 250'

Figure 2



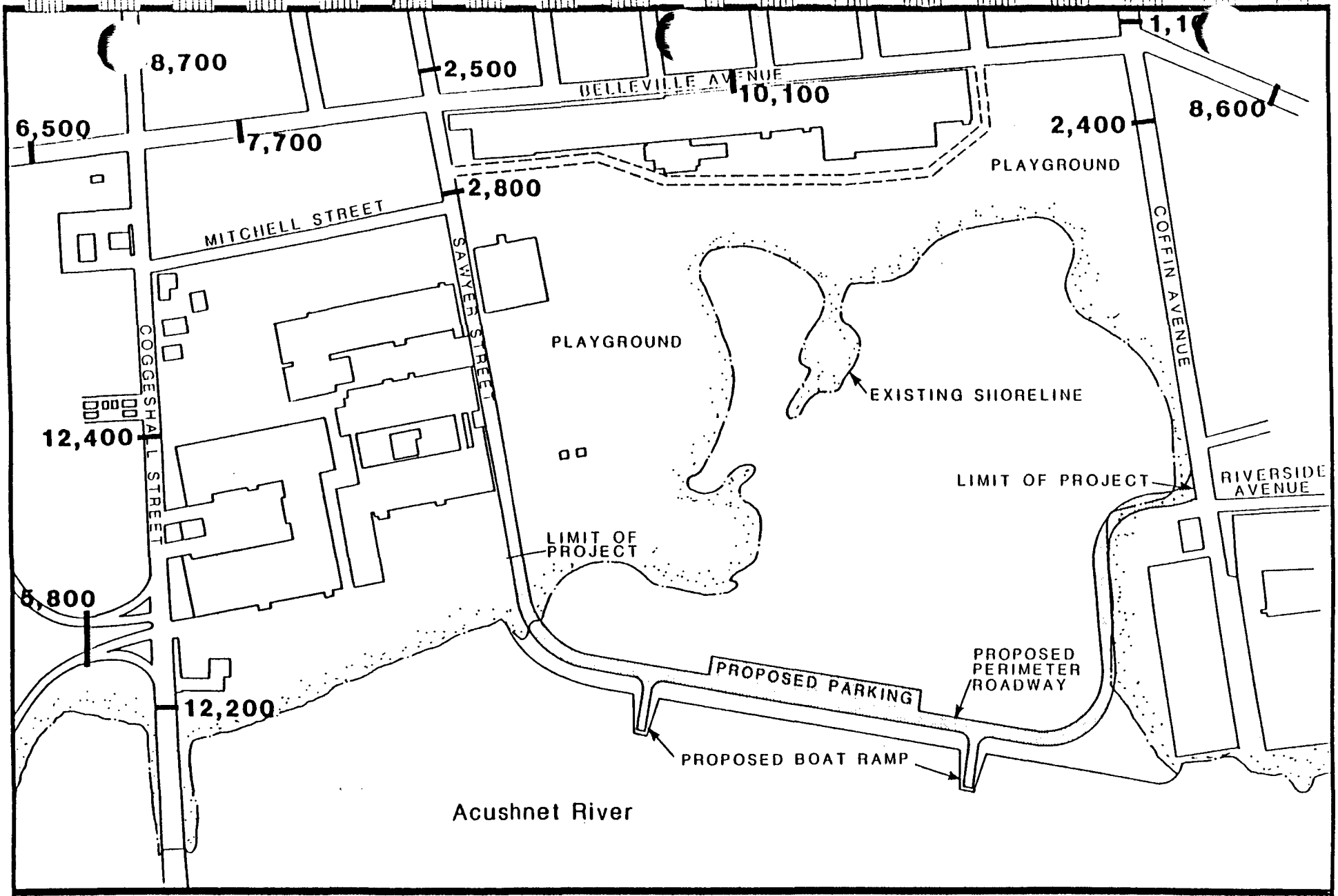
WATERFRONT PARK
New Bedford, Massachusetts

Perimeter Road Cross Section

JOHN M. CORTELL & ASSOCIATES INC.

0' 5' 10'

Figure 3



WATERFRONT PARK
New Bedford, Massachusetts

Local Roadway Access

—Average Daily Traffic

JASON M. CORTELL AND ASSOCIATES INC.

0 125' 250'

Source: NEW BEDFORD PLANNING DEPARTMENT (1978)

Figure 4

Sawyer Street, abutting the site on the south, is a two-way, two-lane undivided street with a pavement width of approximately 30 ft. Sawyer Street serves as the access way to several industrial buildings. The nearest intersection to the junction of the perimeter road and Sawyer Street is the intersection of Sawyer Street and Mitchell Street, approximately 850 ft west.

Coffin Avenue, abutting the site on the north, is also a two-way, two-lane undivided street. The pavement width is approximately 36 ft. Coffin Avenue intersects with Riverside Avenue nearby, directly opposite the proposed perimeter road. Several driveways off Coffin Avenue serve industrial buildings and residences to the north. The nearest major intersection is the intersection of Coffin Avenue and Belleville Avenue, approximately 1,000 ft to the west.

Although the site does not connect directly to Belleville Avenue, much of the traffic to and from the site will move along Belleville. Belleville Avenue, where it passes the western end of the site, is a two-way, two-lane, undivided street with a pavement width of approximately 40 ft. North of its intersection with Coffin Avenue, Belleville widens to approximately 48 ft and becomes a four-lane, two-way undivided street. The nearest major intersection to the north is the intersection of Belleville Avenue an Phillips Avenue, approximately 300 ft north of Coffin Avenue. To the south of the site, the nearest major intersection is Belleville Avenue and Coggeshall Street, 650 ft south of Sawyer Street.

III.C.1

Although construction activity will result in the alteration of approximately 22.0 acres of surface water and 14.0 acres of open space, fish and wildlife resources are not expected to be affected significantly. In terms of terrestrial wildlife species, the project area is relatively isolated. Surrounding and onsite land uses and the limited habitat availability preclude significant effects. No endangered or threatened species listed at either the Federal or State levels are known to occur in the project area.

(Source: U.S. Fish and Wildlife Service, 1980; MA Division of Fisheries and Wildlife, 1980.)

III.C.2

In addition to two recreational areas totaling approximately 4.0 acres, upland vegetative types associated with the project site primarily include early successional communities. Due to landscaping efforts associated with proposed recreational uses, potential impacts to vegetation will likely be minimal. No endangered or threatened plant species listed at either the Federal or State levels are known to occur in the project area.

(Source: U.S. Fish and Wildlife Service, 1980; MA Division of Fisheries and Wildlife, 1980.)

III.C.3

Based on flood hazard boundary maps prepared by the U.S. Department of Housing and Urban Development (1976), and the Massachusetts Wetlands Protection Act (MGL, Chapter 131, Section 40), the proposed project will result in the alteration of approximately 22.0 acres subject to the 100-year flood and 22.0 acres of estuarine wetlands, respectively. In each case, the area affected involves the portion of the Acushnet River proposed to be filled.

Regarding anadromous fish, the Acushnet River is used by alewives which migrate from the ocean through New Bedford Harbor and up the River to spawn. Consequently, the proposed project will potentially affect approximately 22.0 acres of migratory fish habitat. Similar losses of potential shellfish habitat will also occur. However, the Acushnet River inside the hurricane barrier, which includes the project area, is permanently closed to shellfishing, as well as the taking of bottom feeding fish and lobster.

(Source: U.S. Department of Housing and Urban Develoment, 1976; Rebard, K.E. and J.S. Decarlo, 1970. "Completion Report - Anadromous Fish Project." Massachusetts Division of Marine Fisheries, Boston, MA; Massachusetts Division of Marine Fisheries, 1980, Massachusetts Coastal Zone Management Plan, 1970.)

III.C.5

No geologically unstable areas are known to occur on or near the project site. A subsurface boring program conducted in the Acushnet River along the proposed perimeter road indicated the uppermost material to consist of oily silt approximately one to 5 ft in depth. This material is underlain by organic silt ranging from 3 to 13 ft in depth, and either fine to medium or fine to coarse sand. Additionally, borings conducted in the vicinity of the proposed project indicated the presence of buried peat.

To ensure the structural stability of the perimeter road, both oily and organic silt materials along the proposed alignment will be removed and replaced with gravel and sand backfill. The excavated silt materials are anticipated to be used as fill west of the perimeter road. It is expected that the need to conduct additional subsurface investigations throughout the remainder of the site will be dependent on final design plans.

(Source: Congdon, Gurney and Towle, Inc. in association with Goldberg-Zoino and Associates Inc., 1980. "Feasibility Study of Waterfront Park in New Bedford, Massachusetts.")

III.E.1

The project site, consisting primarily of an inlet associated with the Acushnet River, is not suitable for agricultural or forestry production. It is located in a

highly developed section of New Bedford, with onsite land uses including manufacturing and recreation, as well as vacant land. Surrounding land use consists largely of residential use. No impacts to agricultural or forestry production will result from project implementation.

(Source: Congdon, Gurney and Towle, Inc. in association with Goldberg-Zoino and Associates Inc., 1980. "Feasibility Study of Waterfront Park in New Bedford, Massachusetts.")

III.F.2

Construction and operational activities may result in the resuspension or introduction of pollutants into marine waters. During construction of the perimeter road, it is anticipated that turbidity and the transport of sediment potentially containing such pollutants as heavy metals and PCBs, for example, will be minimized by confining the construction area from the remainder of the Acushnet River. Upon completion of dredging operations and foundation construction associated with the perimeter road, the confining barriers would be removed.

Pollutants associated with project operation are primarily expected to include traffic-related substances, as well as deicing compounds applied during the winter months. The extent to which pollutants are introduced into marine waters, however, will be dependent on final design plans, including drainage facilities. Regarding drainage facilities, a 74 in. combination storm sewer pipe discharging to the Acushnet River presently extends beyond the easterly terminus of Sawyer Street. Perimeter road construction would cover this outfall location. The diversion or elimination of this outfall will be included in the final design plans.

III.F.3

The proposed project will result in the generation of sanitary sewage. It is anticipated that sanitary sewers will be installed along the perimeter road and that sanitary facilities will be connected to either the existing force main on Coffin Avenue or the interceptor on Belleville Avenue. Assuming two to four vehicles per day in association with the 50 parking spaces to be constructed during the project's initial phase, Waterfront Park will generate approximately 100 to 200 vehicles per day. Should each of these vehicles contain two persons, with each person generating approximately ten gallons of sanitary sewage per day, the proposed project will generate approximately 2,000 to 4,000 gallons per day of sanitary sewage. The precise extent of sewage generated upon total project completion will be dependent on final design plans.

III.F.5

The project area is not located in the watershed of a surface water used as a drinking water supply. Drinking water for the City of New Bedford is derived from the Quittacas Pond system located in the Town of Lakeville, Rochester, Freetown, and Middleborough. This reservoir is also located in the Taunton River basin, and more specifically, the Nemusket River watershed. No public or private drinking water wells occur within 0.5 miles of the proposed project.

(Source: Leo Strahoska, City of New Bedford Water Department, 1981.)

III.F.6

The proposed project will likely result in the increased consumption of water, particularly in terms of proposed sanitary facilities and fire protection measures. Water requirements during the initial phase of the project will be similar to the generated quantity of sanitary sawage, i.e., approximately 2,000 to 4,000 gallons per day. However, it is likely that additional water demands will occur in association with the landscaping maintenance. The precise extent of the project's water requirements will be dependent on final design plans. Potential water sources for Waterfront Park primarily include the City's existing source, i.e., the Quittacas Pond system

III.F.7

Construction of the perimeter road will involve the removal of approximately 180,000 yd^3 of oily and organic silt along the proposed alignment. This material will be used onsite as fill west of the roadway. As previously indicated, New Bedford Harbor sediments have been documented to contain PCBs, and the presence of various metals is also likely. Thus, such materials may occur in the sediments proposed to be removed.

Two methods of excavation are presently being considered, i.e., silt removal by a hydraulic cutterhead dredge and bulk excavation by dragline or clamshell. The latter method involves the installation of two parallel rows of cantilever sheeting to confine the area of excavation, with filling to occur in short continuous distances along the protected corridor. Approximately 295,000 yd^3 of fill are anticipated to be placed along the proposed perimeter road alignment. This material will consist of gravel, sand, and ordinary borrow. It is anticipated that dredge and fill activities will occur during the summer months.

(Source: Congdon. Gurney and Towle, Inc. in association with Goldberg-Zoino and Associates Inc., 1980. "Feasibility Study of Waterfront Park in New Bedford, Massachusetts.")

III.H.1

The proposed perimeter road, parking area, picnic area, and boat launch ramps may cause small increases in local noise levels. During the construction period of the project, construction activities will include dredging, filling, grading, and paving. Dredging will require one dragline or clamshell dredge. Filling activities may require as many as six trucks per hour to deliver fill and one or two bulldozers to place the fill. Grading and paving will require one bulldozer, one grader, and one paving machine. All of these noise sources will operate during normal working hours and will only affect the noise environment during the active construction period.

Long term noise sources will include traffic bound for the site, recreational users of the site, and boats launched at the site. The most significant single noise source will be automobile traffic. However, this estimated ADT increase of approximately 8 percent along Coffin Avenue and Sawyer Street and approximately 4 percent along Belleville Avenue will cause little or no noticeable change in noise levels.

III.J.2

The project site is presently zoned industrial, with surrounding lands consisting of residential, primarily multi-family, and industrial/manufacturing uses. In addition to the two onsite recreational areas, other recreational facilities occur in the vicinity of the proposed Waterfront Park. Waterfront Park will augment existing facilities and assist in meeting the recreational needs of the City of New Bedford as discussed in the City's "Comprehensive Recreation and Open Space Plan, 1978-1983." The proposed project is, therefore, compatible with both existing land uses and municipal recreation planning.

(Source: Congdon, Gurney and Towle, Inc. in association with Goldberg-Zoino and Associates Inc., 1980. "Feasibility Study of Waterfront Park in New Bedford, Massachusetts.")

JASON M. CORTELL
AND ASSOCIATES INC.

Scope

DRAFT ENVIRONMENTAL IMPACT REPORT

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, Massachusetts 02202

EDWARD J KING
GOVERNOR

JOHN A BEWICK
SECRETARY

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS

ON

ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME:	Waterfront Park
PROJECT LOCATION:	New Bedford
EOEA NUMBER:	4340
PROJECT PROPONENT:	DEQE-Division of Waterways
DATE NOTICED IN MONITOR:	February 11, 1982

Pursuant to M.G.L., Chapter 30, Section 62A and Sections 10.04(1) and 10.04(9) of the Regulations Governing the Implementation of the Massachusetts Environmental Policy Act, I hereby determine that the above referenced project does require the preparation of an Environmental Impact Report. The scope and alternatives for the EIR shall be as follows:

The Waterfront Park proposal is categorically included as more than ten acres subject to the wetland act are to be altered. Twenty-two acres of open estuary are to be filled, including a significant area of salt marsh fringing much of the estuary. Because of the salt marsh destruction, a variance of the wetland regulations is required for this project. This is obtainable only after denials by both the local conservation commission and regional DEQE office, and a subsequent adjudacatory finding of over-riding public need and equal protection for the interests of the Act (c 131 s 40) by the Commissioner. Additionally, if the "Park" is also to become a site for disposal of PCB contaminated dredge spoils with greater than 50 ppm PCB's, the site becomes a hazardous waste disposal site under both state and federal regulations. As such, an Environmental Impact Report is mandatory, and possibly also an EIS prior to EPA and COE approvals.

SCOPE

I. The report must first evaluate the impact of filling 22 acres of the New Bedford Harbor Estuary. The present biologic status of the area should be established in the following respects. The salt marshes, both high and low,must be mapped and quantified. The type and extent of the benthic community and shellfish populations must be determined. An anadromous fish run as well as marine finfish exist in the area. The area to be filled should be evaulated for its contribution in maintaining these, as well as its role in the food chain of the entire New Bedford Harbor area. Methods of protecting the identified values or of "providing equal protection" should be identified and evaluated.

II. The effects of the loss of tidal prism on flushing, tidal and flood levels should be evaluated. The desirability of encouraging increased recreational use of the harbor (which is now closed to lobstering, shell-fishing and fin-fishing) should be evaluated. Both short term and long term effects may be considered.

III. The materials to be dredged for the construction of the perimeter road should be evaluated including completion of the Standard Application Form for water quality certification for dredging and dredge spoils disposal. Due to past activities in the area, PCBs, polychlorinated hydrocarbons,and heavy metals (As, Ni, Zn,) should be evaluated An eleutriate test should be run to evaluate the reintroduction of heavy metals and PCBs into the water column during dredging and dredge disposal activities. The need to control turbidity/siltation should be evaluated and necessary measures identified.

IV. The site should be evaluated for its potential as a disposal site for a) highly PCB contaminated spoils and b) low-level PCB contaminated spoils (less than 50 ppm). How will the site be used to contain the dredge spoils from under the proposed roadway/dike? Will the existing sediments provide the necessary bottom liner? How will the site be dewatered to prevent contaminants from entering the remainder of the estuary? Should the perimeter road be down-graded to a path as discussed in earlier studies in order to maximize the disposal potential? How much cover and of what quality must be placed over the contaminated spoils? Will dust control be necessary prior to covering? Evaluate the safety of public utilization of the site following closure. How will the site be managed if the spoils arrive intermittently? Describe the licenses, permits, approvals needed for the operation and how the regulations under the same will be met.

V. The report should evaluate future uses of the site and identify any limiting factors or mitigation efforts needed for such use. If a "sports stadium" is part of the proposal, a traffic report should be prepared which identifies peak trip generation, routes, parking, peak LOS (current and proposed), and any corrective measures needed to increase capacity or reduce vehicle loads.

Copies of the Draft and Final reports should be provided to each state and fede agency with regulatory jurisdiction, and the city Board of Health, Conservation Commi Planning Board and City Council. Copies should be provided to the libraries of New Bedford and Fairhaven. A public meeting to present the findings of the Draft EIR shall be held in New Bedford at the start of the 30 day review period.

March 12 1982
DATE

Samuel G. Wyman for
JOHN A. BEWICK, SECRETARY

MEPA

The Commonwealth of Massachusetts

Executive Office of Environmental Affairs
Department of Environmental Quality Engineering
Division of Water Pollution Control
One Winter Street, Boston 02108

ANTHONY D. CORTESE, Sc. D.
Commissioner

March 12, 1981

John A. Bewick, Secretary
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, Massachusetts 02202

Re: EOEA No. 4340
Waterfront Park
New Bedford

Dear Secretary Bewick:

It is our understanding that the MEPA Unit is evaluating the need for an Environmental Impact Report (EIR) for the New Bedford Waterfront Park proposal. Should it be determined that an EIR is necessary, we suggest that the following be included as part of the EIR scope.

Since the river sediments in the vicinity of the project are known to be contaminated with polychlorinated biphenyls (PCB) and various heavy metals, a section of the EIR should be devoted to the evaluation of methods for dredging and disposal of bottom sediments. This may include comparing the benefits and problems associated with utilizing hydraulic or mechanical dredging equipment.

A discussion should also be included on any special handling or dewatering of the dredged material and the treatment of the elutriate should effluent contaminant levels be greater than Acushnet River background levels. Also, if this area should become the repository for PCB contaminated sediments, a discussion should be included which presents the methods to be employed during the placement of these materials. Will coal fly ash be used to immobilize PCB's and other contaminants in the sediments, or will other types of flocculants be used? It will also be necessary to outline the containment of these materials at the site, how leaching will be prevented and what type of final cover will be placed on the site.

Should you have any questions regarding these comments, please contact Richard Tomczyk at 292-5672.

Very truly yours,

Thomas C. McMahon
Director

TCM/RT/wp

COASTAL ZONE
MANAGEMENT

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, Massachusetts 02202

MEMORANDUM

TO: SAM MYGATT, DIRECTOR, MEPA UNIT

FROM: RICHARD F. DELANEY, DIRECTOR

SUBJ: SCOPE OF EIR FOR NEW BEDFORD WATERFRONT PARK PROJECT (EOEA #4340)

DATE: MARCH 15, 1982

The Coastal Zone Management staff has reviewed the ENF for the New Bedford Waterfront Park project, and participated in a scoping session for the EIR. Following are CZM's comments on the Waterfront Park proposal and a summary of issues to be addressed in an EIR.

The main objective of the proposed project is to create a recreational waterfront amenity in an economically and physically depressed area of New Bedford. CZM policies endorse increased recreational access to the waterfront, and the need for additional coastal recreation areas in New Bedford is apparent. CZM also believes that there is potential for the park proposal to be effectively combined with a disposal site for PCB contaminated dredge material. Such a combination, if properly designed, would have several benefits that will become apparent after the following examination of the Coastal Wetland Regulations.

First, the project proposal calls for filling in twenty-two acres of coastal resource areas including salt marsh, tidal flats, and land under the ocean. CZM policies as supported by the Coastal Wetland Regulations require close examination of such proposals to determine potential effects on the seven public interests of the Wetlands Protection Act. For example, one regulation forbids the destruction of saltmarsh; other regulations call for minimizing adverse effects on such public interests as marine fisheries, storm damage prevention, and flood control. The proposed project would destroy saltmarsh and could have severe adverse effects on marine fisheries, storm damage prevention, and flood control by removing productive habitats, by changing water circulation, and by decreasing the tidal prism of New Bedford Harbor.

Second, this project would have to be denied by DEQE following well established Departmental policy implementing the regulations for saltmarsh. It is possible that denial would also be mandated if the project does not meet the performance standards for land under the ocean and tidal flats.

Once a denial has been issued by DEQE, the applicant could request an adjudicatory hearing and, subsequently, a variance from the regulations. Although it is not possible to anticipate the decision in this hypothetical case, the project proponent would have to demonstrate equal protection to the interests of the Act, an overriding public interest in the project, and that the variance is necessary to accommodate the overriding public interest (see attached DEQE policy memoranda).

We believe that "equal protection to the interests of the Act" would require at a minimum, the transplantation and reestablishment of saltmarsh at an adjacent site. Depending on the outcome of further study, a variance could be required for alterations to tidal flats and land under the ocean, thus requiring some type of compensation for protection of marine fisheries, storm damage prevention, and flood control.

Use of the site for a park alone would have to be shown to be an overriding interest to the public interests of the Wetlands Act. It would also have to be shown that a variance is necessary despite the availability of upland acreage for recreation at this site.

CZM supports the study of this site as a disposal area for PCB-contaminated dredged material from New Bedford Harbor. The PCB problem in New Bedford Harbor is one of great significance and urgency: the continued presence of PCB-laden sediments in the harbor degrades the coastal environment, threatens public health, and impedes progress of important public works projects such as reconstruction of the Route 6 Bridge.

Use of the project area as a contaminated dredged material disposal site would still require a variance under the Wetlands Protection Act. However, it is quite possible that the safe containment of a maximum amount of contaminated dredged material could be interpreted as an "overriding public interest".* While use of the site for maximum dredged material containment may not preclude construction of some type of waterfront recreational facility, it should be pointed out that such dual use would have to be studied extremely carefully to ensure adequate protection of public health and safety.

Our comments on the ENF (see attachment) should assist you in developing the scope, when combined with the above discussion of wetland regulations issues. We would also like to list a number of additional issues that should be included in the scope, as follows:

1. Conduct a coast resource area-by-area investigation that explicitly details all impacts on the seven public interests of the Wetlands Act. Discuss the applicability of the variance procedure.

2. Study use of a containment barrier other than the proposed causeway fill. This causeway fill necessitates using up approximately 1/3 of the site disposal volume to prepare for the causeway described

* This use may be accommodated by a variance providing alternative sites are not available.

in the ENF park concept. The previous Feasibility Study, Waterfront Park, New Bedford presents a park plan which incluces a perimeter foot path rather than a road. This latter proposal, or one similar, would decrease the need for containment barrier dredging, as would location of the boat ramps in adjacent upland areas.

3. Study diking of the upland perimeter of the site to increase the total volume that the site will hold.

4. Study method of chemical, biological, or physical treatment of elutriate or supernatant water from the dredged material to ensure that PCB or other contamination does not re-enter the harbor.

5. Model diffusion of contaminants out of the disposal area through the containment devices at the perimeter, surface, and bottom.

6. Detail the conflicts between use of the site as a maximum volume spoil disposal site and waterfront recreation area.

7. Provide cross-sectional diagram of the containment area now and as it would appear after construction.

8. Detail chemical characteristics of material suitable for disposal at site. Emphasize federal and state regulations concerning hazardous wastes. Clearly state the constraints that hazardous waste regulations could place on site use.

9. If dredged material from several parts of the Harbor will be used as fill, how will these projects be coordinated so that the containment site is closed and secured quickly.

10. Describe the different effects of mechanical and hydraulic dredging on navigation, marine fisheries, and disposal site containment volume. Determine which dredging method or combination is preferable environmentally.

11. Discuss how all dredged materials will be contained, even during the construction phase of the project. Uncontained spoils, such as the ENF appears to call for, will be resuspended by waves and tidal currents causing re-contamination of the harbor and impacts on marine fisheries.

12. Study alternative sites for any of the types of developments proposed for the area. This study of alternative sites would be required to meet the "necessity test" should a variance be required for any of the proposals.

13. Model project effects on water circulation patterns, tidal range and currents and harbor tidal prism.

RFD::MEP:bam

COASTAL ZONE
MANAGEMENT

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, Massachusetts 02202

Memorandum 3 March 1982

To: Sam Mygatt, Director, MEPA
From: Richard Delaney, Director, CZM
Re: EOEA # 4340: WATERFRONT PARK, NEW BEDFORD, MASSACHUSETTS

The Coastal Zone Management staff has reviewed the ENF for Waterfront Park, New Bedford, Massachusetts. As presented, the ENF does not provide sufficient information regarding the proposed project scope, construction methods, and expected environmental impacts. Since the project involves alteration of more than ten acres of wetlands, an EIR will be required.

CZM will formally participate in developing a scope for the required EIR. In the meantime, following are some general concerns and questions raised by the ENF and which we would expect to see addressed in an EIR:

1. What is the scope of proposed activities for Waterfront Park? How does this Park proposal relate to the program recommended by Congdon, Gurney & Towle, Inc in the Feasibility Study, Waterfront Park, New Bedford, Mass. (September 1980)? In order to assess the environmental feasibility of such a project, proposed park activities will have to be more fully defined in an EIR.

2. The ENF fails to mention that an extensive fringe of saltmarsh rims the perimeter of the existing shoreline. A project involving fill of twenty-two acres of wetlands, including saltmarsh, would be denied under the Coastal Wetland Regulations; a variance from the regulations would be necessary to construct the park. The EIR should discuss the total area of saltmarsh proposed to be filled, and identify measures which would be taken to compensate for loss of saltmarsh.

3. The presence of PCBs in sediments to be dredged, transported, and used for fill seriously complicates the park proposal and raises many questions. Among them:

   - Is the proposed park intended to serve as a disposal site for the most heavily PCB-contaminated sediments in New Bedford Harbor? If so, how many cubic yards of fill will the park site accomodate, and will this site adequately address the problem of disposing of contaminated sediments from New Bedford Harbor?

   - Will an hydraulic or mechanical dredge be used? What methods will be employed to minimize resuspension of PCB-laden sediment?

- How will dredged material be transported to the park site?
- What type of confining barriers are proposed for use in the construction areas? How will their effectiveness be ensured?
- Will the cofferdam for the perimeter road be built in sections, or all at once? If built in sections, how will spoil from road construction be contained?
- How will perimeter road and boat ramp be made impervious to leaching of PCBs?
- How will dredged material be de-watered? How will drain-off material be monitored for presence of PCBs?
- How will park site be sealed to prevent release of PCBs? What percent of the total volume of fill at the park site will be occupied by this safety seal? How will park be rendered safe for public use and recreation?

4. The ENF fails to note (p. 2) that the proposed project will have long term impacts on: (1) fisheries and wildlife, and (2) other biological systems; and short term impacts on: (1) noise, and (2) traffic.

5. A project involving fill of twenty-two acres of tidal bay may significantly impact marine fisheries. Therefore, the EIR should describe results of a survey of benthic communities to identify the extent and nature of impacts to marine resources.

6. Introduction of twenty-two acres of fill in wetlands will also tend to reduce the tidal prism of New Bedford Harbor. What will the reduction in tidal prism be? How will the proposed project affect water circulation, currents, and protection from flooding?

7. What are the proposed locations and general plans for drainage structures at the park site?

8. The ENF does not identify the funding source for the proposed project. What sources of funding will be used?

RFD:FS

MEPA

#3000

COMMONWEALTH OF MASSACHUSETTS
Office of the Secretary of State

MASSACHUSETTS HISTORICAL COMMISSION
294 Washington Street
Boston, Massachusetts
02108
617-727-8470

MICHAEL JOSEPH CONNOLLY
Secretary of State

February 8, 1982

Secretary John Bewick
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

Attn: MEPA Unit

RE: Waterfront Park, New Bedford

Dear Secretary Bewick:

The staff of the Massachusetts Historical Commission have reviewed the Environmental Notification Form for the above listed project.

MHC files contain no record of prehistoric or historical archaeological properties within the project area, since no systematic surveys have been conducted in this area. The present use of the project areas as a playground recreation site (basketball and tennis court) may have resulted in disturbance to the ground. MHC feels that this project is unlikely to affect significant historic or archaeological resources. No further review is necessary for compliance with Section 106 (36CFR800) of the National Environmental Protection Act of 1966.

Sincerely,

Patricia L. Weslowski
Executive Director
State Historic Preservation Officer

xc: John J. Hannon, Mass. Div. of Waterways
1-11 Winter Street
Boston, MA 02110

Marshall W. Dennis
Jason M. Cortell & Assoc., Inc.
244 Second Avenue
Waltham, MA 02154

SRPEDD SOUTHEASTERN REGIONAL PLANNING AND ECONOMIC DEVELOPMENT DISTRICT
MARION, MASSACHUSETTS 02738, Tel. (617) 748-2100

February 11, 1982

John A. Bewick, Secretary
Executive Office of
Environmental Affairs
100 Cambridge Street
20th Floor
Boston, MA 02202

ATTN: MEPA Unit

REF: EOEA No. 4340/Mass. Division of Waterways
(Waterfront Park - New Bedford)

Dear Secretary Bewick:

We have received the above referenced Environmental Notification Form for review and comment under the provisions of the Mass. Environmental Protection Act.

As the regional planning agency, the Southeastern Regional Planning and Economic Development District anticipates that the proposed project will have no significant adverse impact on the environment in this area. It is consistent with regional plans and goals.

It is recommended that the site be filled with harbor dredged material, as the new New Bedford-Fairhaven Bridge EIS needs a place to deposit dredged material to finalize the study and begin design. Depositing dredge from the proposed bridge abutment area would improve the current environmental situation. Presently polluted material could be stabilized and contained behind a bulkhead of sheet piling. Following the recommended action would be an initial step in cleaning up the Acushnet River bottom sediments.

If you have any questions, please contact me or William Maravell, Environmental Planning Coordinator.

Sincerely,

Alexander V. Zaleski
Executive Director

AVZ:MSS:lam
cc: Mass. Division of Waterways
Conservation Commission - New Bedford
Mayor J. Markey - New Bedford
R. Davis
R. Walega

TO: Dave Shephardson

FROM: Fifi Nessen, Div. of Hazardous Waste

RE: New Bedford Waterfront Park Scope

Date: March 18, 1982

Thank you for sending me a copy of the scope for this project. Since you were in the field today and I will be in the field tomorrow, I thought it best to briefly jot some thoughts to you.

1. There is some discussion underway in the Department regarding the sequencing of this project. The question being raised is whether the wetlands variance issue whould be resolved before requiring EIR work to proceed. I believe you will hear from Jack Hannon concerning this.

2. You are correct about the issue of a hazardous waste disposal site, should the PCB concentration of the fill material be more than 50 ppm.

3. I agree that the question of compatibility of public safety and public health needs with the use of PCB contaminated fill material should be addressed. This issue is applicable even if PCB concentrations are less than 50 ppm because of volatilization and disperson of dust particles.

JASON M. CORTELL
AND ASSOCIATES INC.

Distribution

DRAFT ENVIRONMENTAL IMPACT REPORT

JASON M. CORTELL
AND ASSOCIATES INC.

DISTRIBUTION OF THE DRAFT ENVIRONMENTAL IMPACT REPORT

Copies of the Draft Environmental Impact Report (DEIR) will be forwarded to the following agencies:

Representative Roger R. Goyette

Massachusetts Executive Office of Environmental Affairs (MEPA Unit)

Massachusetts State Clearing House

Massachusetts Department of Environmental Quality Engineering (Boston)

Massachusetts Department of Environmental Quality Engineering (Southeastern Regional Office)

Southeastern Regional Planning and Economic Development District

New Bedford Conservation Commission

New Bedford Planning Board

Massachusetts Department of Environmental Management (Bureau of Solid Waste Disposal)

Massachusetts Division of Air and Hazardous Materials

Massachusetts Division of Water Pollution Control

Massachusetts Department of Public Works

Massachusetts Office of Coastal Zone Management

Fairhaven (Town Clerk)

U.S. Army Corps of Engineers

U.S. Environmental Protection Agency

JASON M. CORTELL
AND ASSOCIATES INC.

Summary

DRAFT ENVIRONMENTAL IMPACT REPORT

SUMMARY

The Massachusetts Division of Waterways proposes the construction of a Waterfront Park in New Bedford, MA. The location selected for the project is a small cove on the west bank of the Acushnet River approximately 1,000 feet north of the Coggeshall Bridge. The entire project site comprises approximately 38.0 acres, of which 21.2 acres are tidal cove. The project includes the immediate construction of a perimeter dike and roadway across the mouth of the cove, parking for 50 cars, two boat ramps, and a 6 acre picnic area. Long range plans for the site include the provision of a major multisport complex.

This proposed project affords the opportunity to utilize the area as a disposal site for dredged material from New Bedford Harbor and the Acushnet River. Disposal of this PCB- and metal-contaminated material is a high priority of local, Commonwealth, and Federal agencies. While the present proposed action does not include this use, the perimeter dike could serve as the containment structure for a disposal site. For this reason, preliminary consideration was given to this use of the Waterfront Park site.

A complete inventory of the area indicates that the natural resource value of the cove is limited. The soils in the cove consist of contaminated organic muck and tidal wetland peat. Upland soils are almost entirely composed of miscellaneous fill. Upland vegetation on the site consists predominantly of early successional species characteristic of a disturbed environment. The intertidal area contains approximately 2.7 acres of salt marsh vegetation. The cove also contains 21.2 acres of open water. Biological sampling indicated an impoverished benthic community dominated by duck clam and indicative of the stressed conditions in the cove. A hydraulic analysis of the cove and the Acushnet River revealed that the cove does not contribute substantially to tidal exchange, flushing, or flood water storage. Navigation in the cove is precluded by shallow depths.

An analysis of the existing human environment of the project site and area was also completed. The site is now occupied by a small neighborhood park, vacant land, and the open water of the cove. The entire project site is zoned for industrial use. Land use to the south, across Sawyer Street, is industrial. To the west, across Belleville Avenue, multi-family residential uses dominate. Across Coffin Avenue to the north, a mixture of industrial and residential use is found. An examination of traffic, air quality, and noise levels indicated that no major points of congestion exist in the project area and that both air quality and noise levels meet acceptable criteria.

Finally, a regulatory analysis of the proposed project, the future recreation uses, and the potential for the use of the site for dredged material disposal was made. This analysis revealed a complex regulatory process to be followed if the project is to move forward. Because of the wetland filling required, use of the site solely as a recreational facility is unlikely to meet the criterion of a demonstrable public need required under the Massachusetts Wetland Protection Act (M.G.L. Chapter 131, Section 40) and U.S. Army Corps of Engineers regulations governing dredge and fill activities (33 CFR 320-30).

In the impact analysis for this Environmental Impact Report (EIR), it is demonstrated that the Waterfront Park project, as proposed, can be carried out with limited effects on the natural environment. The project will, however, require the filling of 21.2 acres of open water and 2.7 acres of salt marsh vegetation. A net benefit to the human environment can be expected both from construction income and the provision of recreational lands on the waterfront.

The sediments to be disturbed during the construction of the dike were analyzed for bulk concentration of contaminants and potential releases during construction. It was found that the surface materials are highly contaminated with both metals and PCBs, but that the deeper sediments are substantially less contaminated. The elutriate analyses indicated that releases of metals, nutrients, and PCBs could be expected during construction activity. Water quality analyses indicated that existing concentration of both metals and PCBs in the Acushnet River now exceed Federal criteria.

Preliminary examination also indicates that the site might be suitable for the disposal of PCB- and metal-contaminated sediments from the Acushnet River and New Bedford Harbor. The deeper substrate in the cove is fine grained material and may be suitable to contain the dredged material. The proposed dike can be constructed as a tight containment for dredged material. The available volume of the cove is sufficiently large (approximately 400,000 cubic yards) to make its use as a disposal site economically viable. This, combined with the requirement for a showing of public need under Federal and State regulations, points to continued investigation of this use of the site as the most viable and beneficial course of action.

Filling of the 21 acre cove and 17 acre upland area for the creation of a Waterfront Park is not the recommended alternative. If the area is utilized to dispose of PCB- and metal-contaminated sediments, however, creation of a park as a secondary use would provide many benefits and needed recreation opportunities for the surrounding neighborhoods.

Section 1.0

PURPOSE AND NEED FOR PROPOSED ACTION

1.0 PURPOSE OF AND NEED FOR ACTION

The proposed Waterfront Park in New Bedford is located in a cove on the west bank of the Acushnet River approximately 1,000 ft north of the Coggeshall Bridge. The site, shown on Figure 1-1, comprises approximately 38.0 acres. Of this, 21.2 acres constitute a tidal cove with water depths ranging from 0 to 4 ft at mean high tide.

The proposed project, illustrated schematically on Figure 1-2, includes a perimeter dike and roadway to be located across the mouth of the cove, a 50 car parking area, two boat ramps, and a 6 acre picnic area. The remainder of the cove is to be filled to provide a location for future recreational uses.

The Waterfront Park, as proposed, can serve a variety of purposes and meet several identified needs in the community surrounding the site. The major purpose of the proposed project is to provide a waterside recreation area and boat launching facility. A secondary purpose is to provide the basis, through the creation of filled land, for a future recreation and sports complex. Finally, the site may be suitable as a containment site for PCB- and metal-contaminated sediments from New Bedford Harbor and the Acushnet River.

The recreational needs of the residential neighborhoods to the north and west of the site are now served by only two recreation facilities. Riverside Park, located on the western portion of the proposed project area, is a 4.4 acre park offering a playground, playfield, basketball court, baseball field, a tot lot, tennis, street hockey, and cold weather skating on the flooded tennis court. The Ottiwell School Playground, four blocks north of the site, provides an additional 1.1 acres of playground facilities. Neither of these sites provides any direct access to the Acushnet River. Even though Riverside Park is adjacent to the cove on the site, no boating access is provided, nor is any possible without extensive dredging in the cove. Thus, the project can meet its primary aim of providing a waterside recreation area and a boat launching facility where none now exists and can improve the amount and quality of recreational space available to the residents of the neighborhood. In addition, the placement of the proposed project across the mouth of the cove will make available a contiguous area of some 38 acres for a major expansion of both local and city wide recreation opportunity in the future. Finally, it is possible that the requirements for fill at the project site can be accommodated with dredged material from New Bedford Harbor and the Acushnet River and contribute to the timely solution of the PCB- and metal-contamination that is limiting all action in the Harbor and the Acushnet River.

This Environmental Impact Report (EIR) investigates the project as proposed, the alternatives to the proposed project, and the ability of the proposed project and alternatives to meet the primary and secondary aims of providing improved water based recreation, supporting future recreation development, and providing a potential site for disposal of contaminated dredged material.

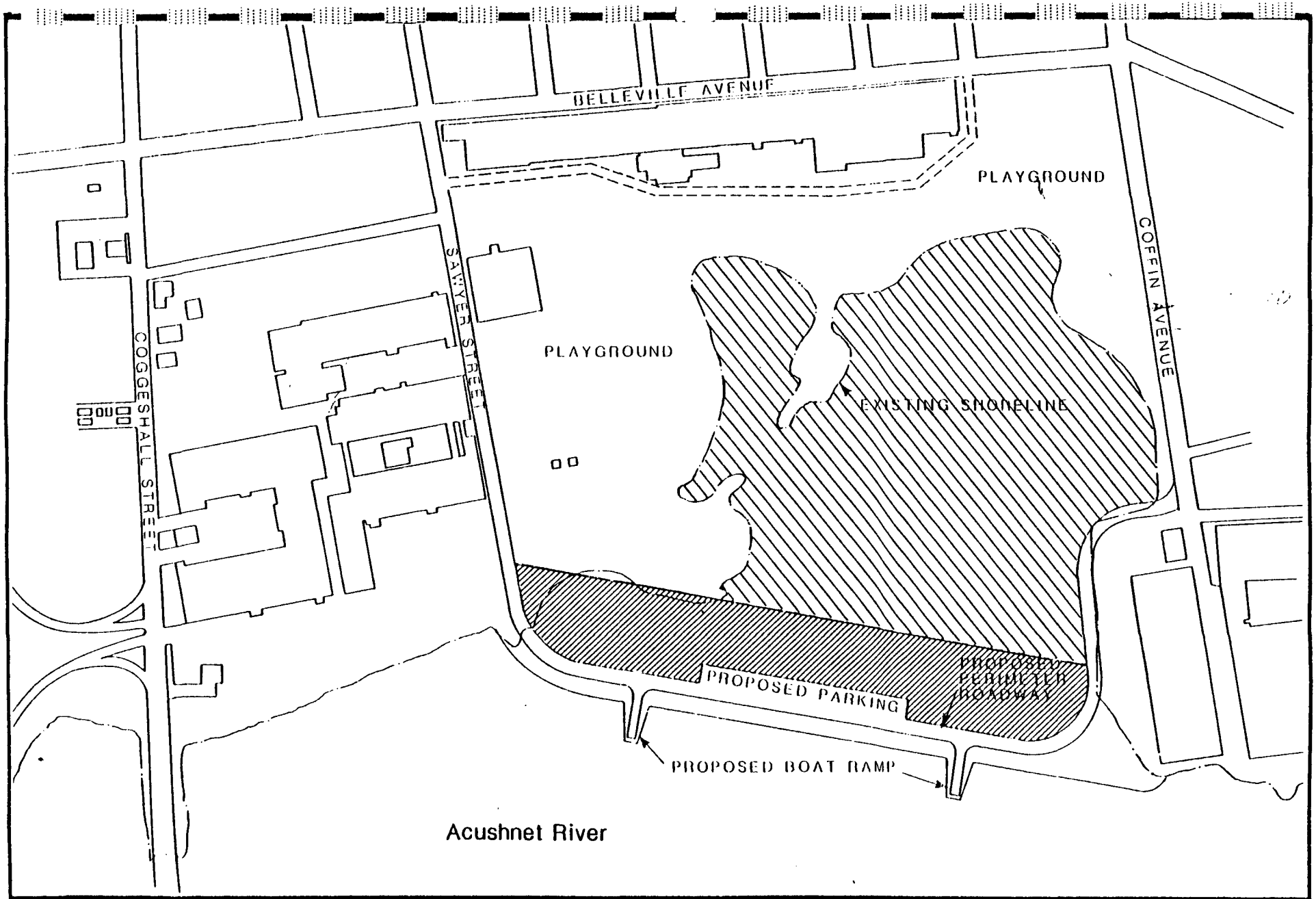
WATERFRONT PARK
New Bedford, Massachusetts

Regional Location

JASON M. CORTELL AND ASSOCIATES INC.

0 1000' 2000'

Figure 1-1



WATERFRONT PARK
New Bedford, Massachusetts

Project Schematic

Proposed Fill For Future Recreation Uses

Proposed Picnic Area

JASON M. C' AND ASSOC

0' 125' 250'

Figure 2

2.0 ALTERNATIVES

The Waterfront Park Project, as proposed, requires a relatively large location on the waterfront in New Bedford. For this reason, there are no appropriate alternative sites for the proposed project. The cove proposed for the project is the only sufficiently large area available. There are, however, numerous alternatives for the project on the proposed site. These include the No-Build Alternative, alternative designs, alternative construction methods, and land use alternatives for the completed project. The No-Build Alternative constitutes no construction on the site and a continuation of existing environmental conditions. All other alternatives are more complex in their effects.

2.1 Perimeter Road Alternatives

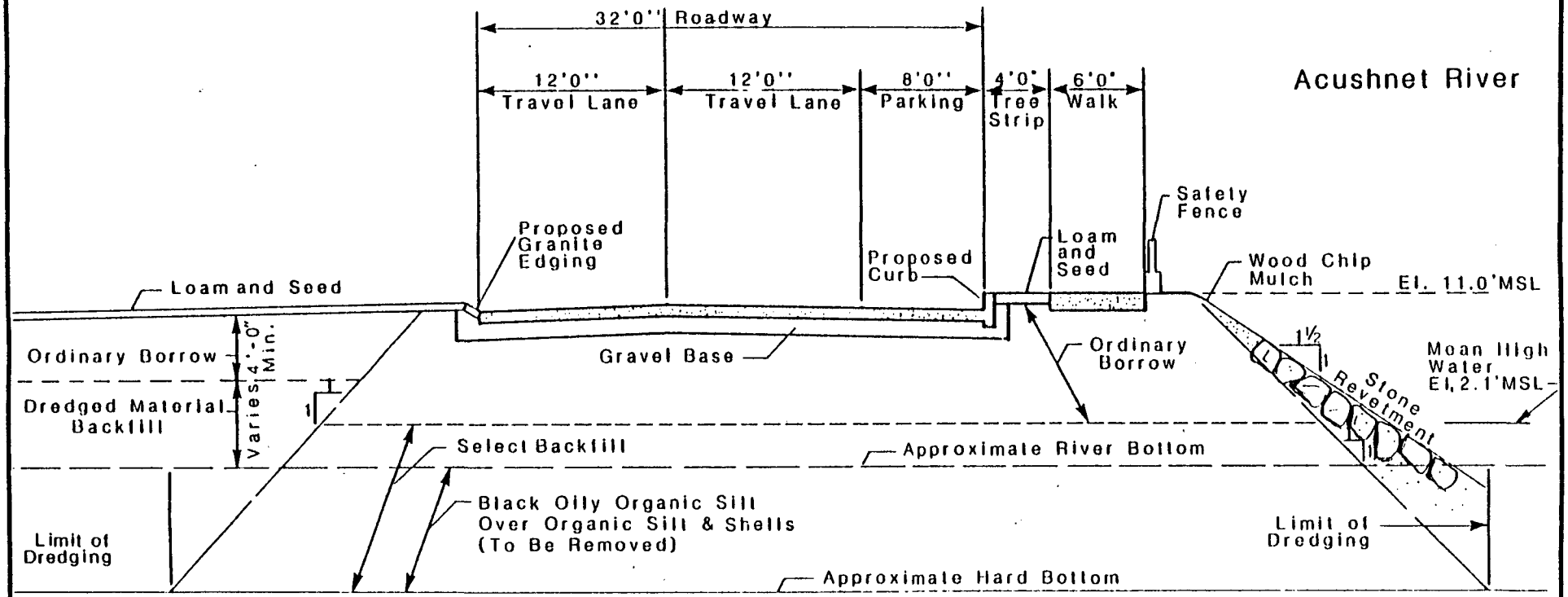
The key element of the proposed Waterfront Park is the construction of the proposed dike and perimeter road across the mouth of the cove. Once this structure is in place, further work in the cove will be effectively isolated from the Acushnet River and consequently, the potential for impact will be confined to the immediate area of construction activity. Three separate approaches to the construction of this project element have been evaluated.

2.1.1 Earth Embankment Construction

The Feasibility Study - Waterfront Park - New Bedford, MA (Congdon, Gurney & Towle, Inc., 1980) recommended an earth embankment constructed by dredging unsuitable material from the footprint of the perimeter dike, replacing it with select backfill, and constructing the embankment of ordinary borrow. This alternative is illustrated in Figure 2-1. The use of this method will require dredging to an average depth of approximately 12 ft over an area of approximately 200,000 square feet (ft^2), for a total of 90,000 cubic yards (yd^3) of dredging. This volume will then be replaced with select backfill to provide a suitable foundation for the ordinary borrow to construct the embankment. The volume of ordinary borrow necessary to complete the embankment will then be approximately 40,000 yd^3 to reach a final elevation of 11.0 ft MSL.

2.1.2 Rock Mat Construction

An alternative to the proposed construction method is the construction of a rock mat foundation for the embankment. This mat, consisting of approximately 60,000 yd^3 of rock fill, could be placed by barge or by push forward construction from the shore. The rock mat would displace a portion of the organic material found at the site as a mud wave to either side of the advancing foundation. The only required dredging would be the removal of the outer mud wave, approximately 30,000 yd^3, and its placement behind the



2-2

WATERFRONT PARK
New Bedford, Massachusetts

Perimeter Road Cross Section -
Earth Embankment Construction

JA[illegible]M. CORTELL
A[illegible]OCIATES INC.

ure 2-1

embankment. A proper bearing surface for the embankment could then be constructed by adding approximately 30,000 yd^3 of select backfill to the surface of the rock mat and completing the embankment with 40,000 yd^3 of ordinary borrow, as above. This alternative is illustrated in Figure 2-2.

2.1.3 Bulkhead Construction

A final alternative to the proposed construction method would be construction of the roadway on fill contained within a pair of cantilevered sheet pile walls. This alternative, illustrated in Figure 2-3, reduces the amount of dredging and replacement of unsuitable material considerably. The volume between the sheet pile walls requiring removal and replacement with select backfill would be 40,000 yd^3 under this alternative. The requirement for ordinary borrow to make the required 11.0 ft MSL grade would be reduced to 30,000 yd^3.

Various combinations of these three design and construction alternatives are possible, but these three represent the range of possible alternatives for this EIR.

2.2 Land Use Alternatives

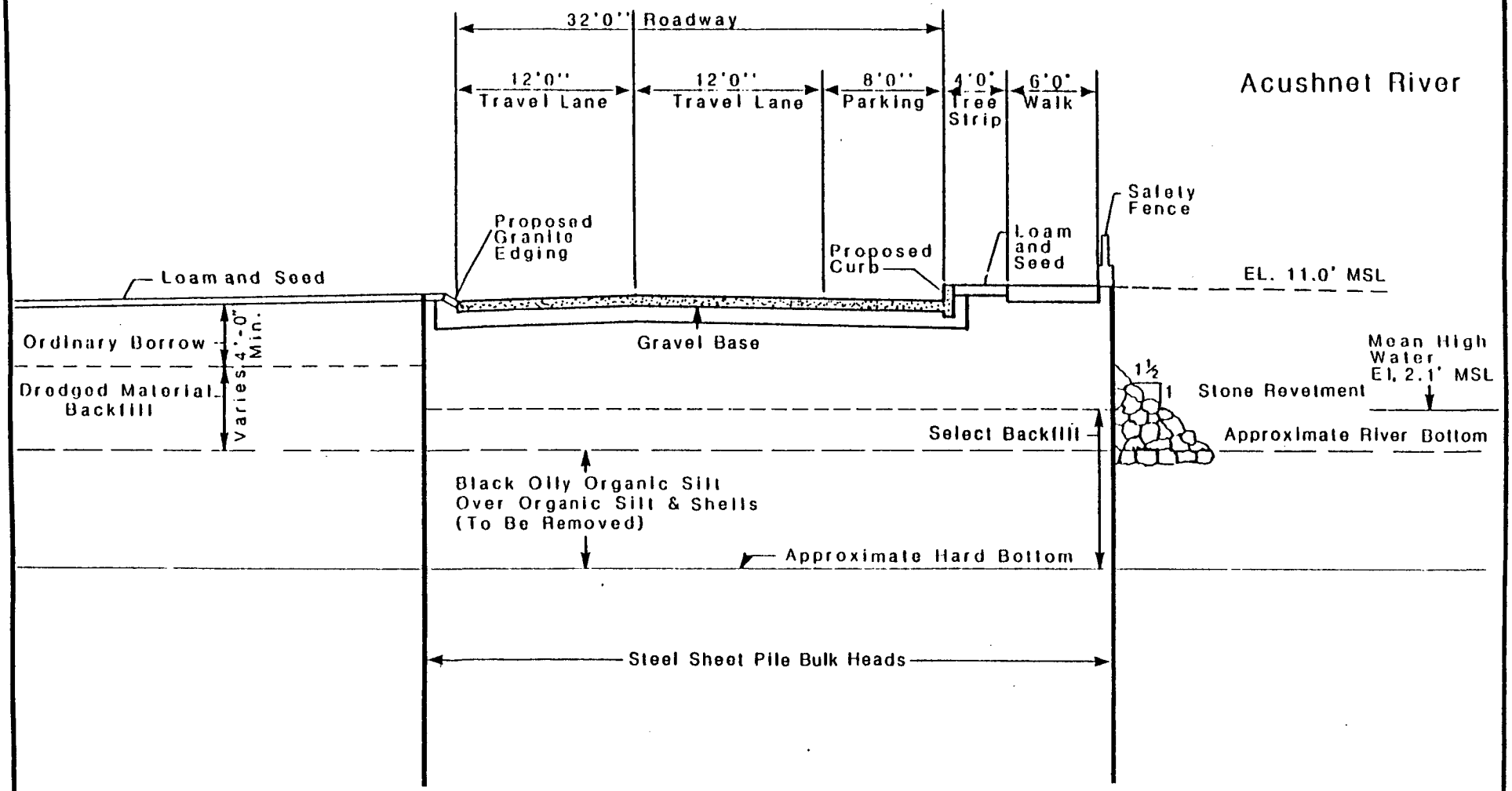
With the perimeter embankment and roadway in place, several alternative uses can be made of the enclosed area of the cove. These include the proposed Waterfront Park, use of the area for disposal of contaminated sediments, use of the area for future recreational facilities, and other potential future uses.

2.2.1 Waterfront Park

The proposed Waterfront Park, shown on Figure 1-2 in Section 1.0, consists of the proposed perimeter roadway, two boat launching ramps, a proposed parking lot for 50 cars, and approximately 6 acres of picnic grounds. This proposal leaves approximately 16 acres of the cove for a proposed fill for future recreational uses.

2.2.2 Dredged Material Disposal

The presence of a 22 acre fill site immediately adjacent to the Acushnet River presents the option of using the site to dispose of PCB- and metal-contaminated material from New Bedford Harbor and the Acushnet River. The base elevation of the cove is approximately Mean Low Water (-1.6 ft MSL) and the proposed elevation of the perimeter road is approximately 11.0 ft MSL. Thus, the cove could contain approximately 400,000 yd^3 of material. Because the material from the Harbor can be assumed to contain PCBs and metals, an impervious cover would be required. This could consist of a continuous 3-ft blanket of low permeability clay, graded to provide positive surface drainage, without infiltration and covered with 18 inches of top

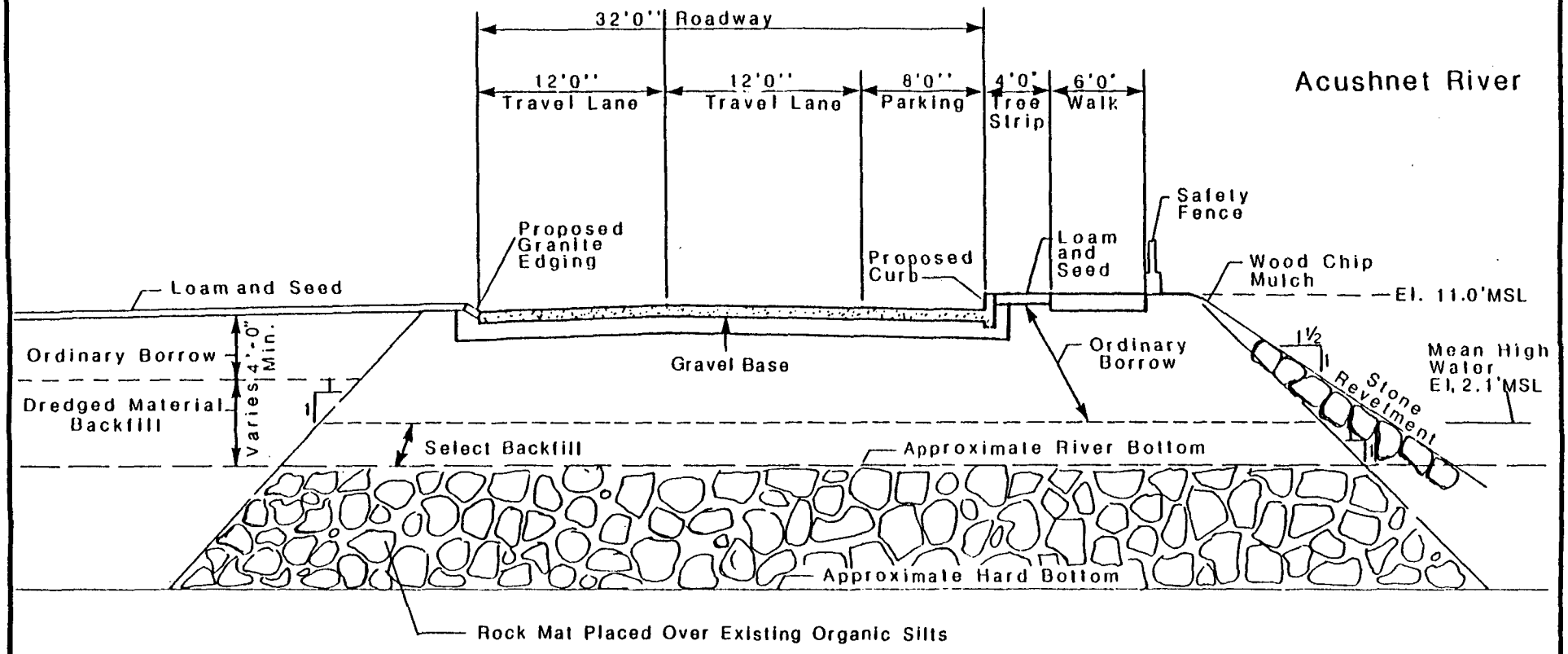


WATERFRONT PARK
New Bedford, Massachusetts

Perimeter Road Cross Section–
Bulk Head Construction

JASON M. CORTELL AND ASSOCIATES INC.

Figure 2-3

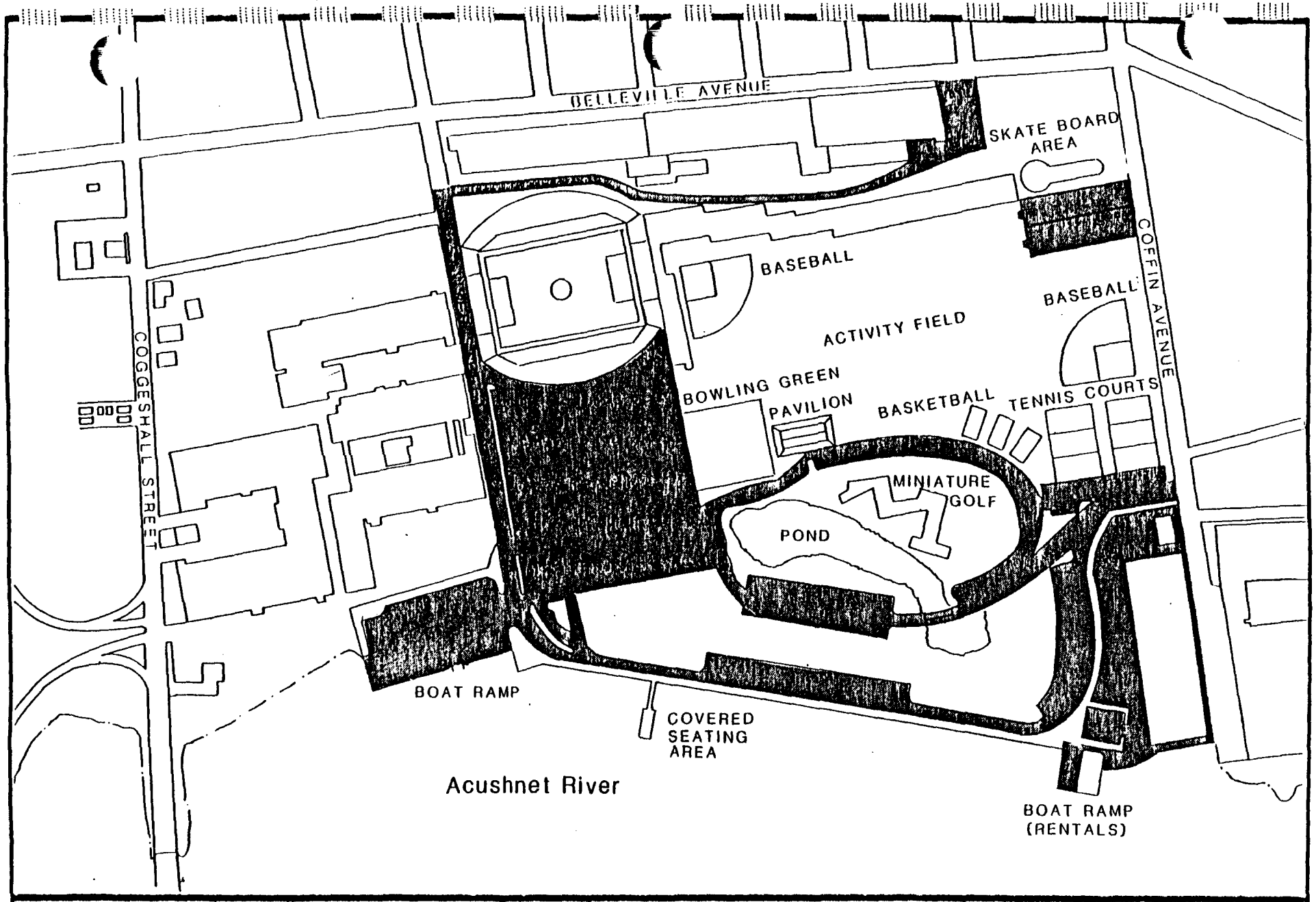


WATERFRONT PARK
New Bedford, Massachusetts

Perimeter Road Cross Section–
Rock Mat Alternative

J. M. CORTELL
ASSOCIATES INC.

Figure 2-2



WATERFRONT PARK
New Bedford, Massachusetts

Future Recreation Use

JASON M. CORTELL AND ASSOCIATES INC.

0' 125' 250'

Figure 2-4

soil to support vegetation. To provide for proper drainage, this cover should be mounded to provide a slope of approximately 2 percent. The required elevation in the center of the cove would be approximately 20.0 ft msl. At this time, it appears that no liner would be needed, since the existing materials are very fine grained and the embankment can be constructed to prevent groundwater migration offsite. While the complete analysis of this potential use is beyond the scope of consideration for the Waterfront Park, it does represent a realistic alternative that could be implemented in the near future. Thus, it will be analyzed in general terms here.

2.2.3 Future Recreation Uses

Regardless of the source of fill chosen for the area behind the perimeter embankment and roadway, long range plans for the Waterfront Park parcel call for the construction of major recreation facilities onsite. Figure 2-4 shows the conceptual plan for these facilities. The key feature of the plan is an 8,000 seat multi-use stadium suitable for soccer, football, track, and civic events. The plans also call for two baseball diamonds, three basketball courts, six tennis courts, a bowling green, a miniature golf course, a large activity field, a pavilion, two bandstands, a sailing area in an enclosed pond for young children, and an expansion of the boat launching facilities to include boat rental.

Parking proposed for the site would accommodate approximately 1,000 automobiles, sufficient for most of the facilities. Major events at the stadium would rely on additional parking planned for the area south of Sawyer Street and on parking agreements with neighboring industries for off hour use of their parking facilities. The total available parking in the immediate area is well over 4,000 spaces, sufficient for the full stadium population.

This future use of the site represents an upper bound on intensity of usage at the site and will be used in the impact analysis to estimate the maximum magnitude of the positive and negative effects of long term use of the site.

Section 3.0

DESCRIPTION OF EXISTING CONDITIONS

3.0 DESCRIPTION OF EXISTING CONDITIONS

The construction and use of the proposed Waterfront Park will modify the physical, biological, and human environment of the site and of surrounding areas. In order to provide a baseline against which the effects of the proposed Park can be measured, the following sections describe existing conditions and discuss anticipated trends in the near future. Data are presented on soils, water quality, aquatic biology, terrestrial ecology, social and economic conditions, traffic, air quality, and noise. In addition, a discussion of the complex regulatory framework pertinent to the proposed project and its alternatives is provided.

3.1 Soils and Sediments

The sediments of the area within and bordering the proposed Waterfront Park site consist of disturbed soils, made land, marsh soils, and riverine, beach, and tidal deposits. The areal change in sediment types is relatively rapid over short distances, as is common in water/land interface areas. In addition, vertical changes in sediment characteristics are abrupt. These are the result of geologic historical changes in local water levels, and hence, depositional environments, as well as the result of more recent changes in local land use.

3.1.1 Soils

The majority of the project site lies below mean high water (mhw) levels and is covered with tidal flat deposits, the characteristics of which are discussed in the following section. Exposed soils are limited primarily to the west and southwestern borders of the site.

The soils of the southwestern portion of the site consist of organic muck and tidal wetland peats. To a large extent, those soils have been disturbed by encroaching construction, buried by miscellaneous fill, or paved for parking and playground lots. Where exposed, the soils can be expected to have high clay and organic debris contents, and are poorly drained. The soils are commonly wet, the result of their proximity to areas inundated by tides.

The soils of the western border of the site are at a higher elevation and in undisturbed areas, will exhibit moderate drainage. These soils have somewhat stratified charcteristics, the result of flood events, but for the most part, are composed of intermixed sandy silts and clays. Much of this area has been disturbed by construction-related activities, and piles of mixed fill are abundant.

3.1.2 Sediment

Sediments within the cove and under the footprint for the dike have been documented from existing information as well as site-specific analyses. This

section presents information on the physical and chemical qualities of the sediments.

3.1.2.1 Sediment Characterization

Five borings were conducted along the dike footprint in 1980 as part of a feasibility study for the project (Congdon, Gurney, and Towle, Inc., 1980). Four borings were advanced to between 10-20 ft and one was advanced to 31 ft. The boring logs indicate a relatively thin layer of oily silt overlying organic silt. The depth of the oily silt ranged from 0.5 ft to approximately 3.5 ft. The organic silt layer was found to be 3.0 ft to approximately 10.5 ft in depth. The configuration of the silt layer suggests that at one time, a shallow channel was present from the cove to the Acushnet River. Gray/brown and gray sand is found below the silt. Bedrock was not encountered in the borings.

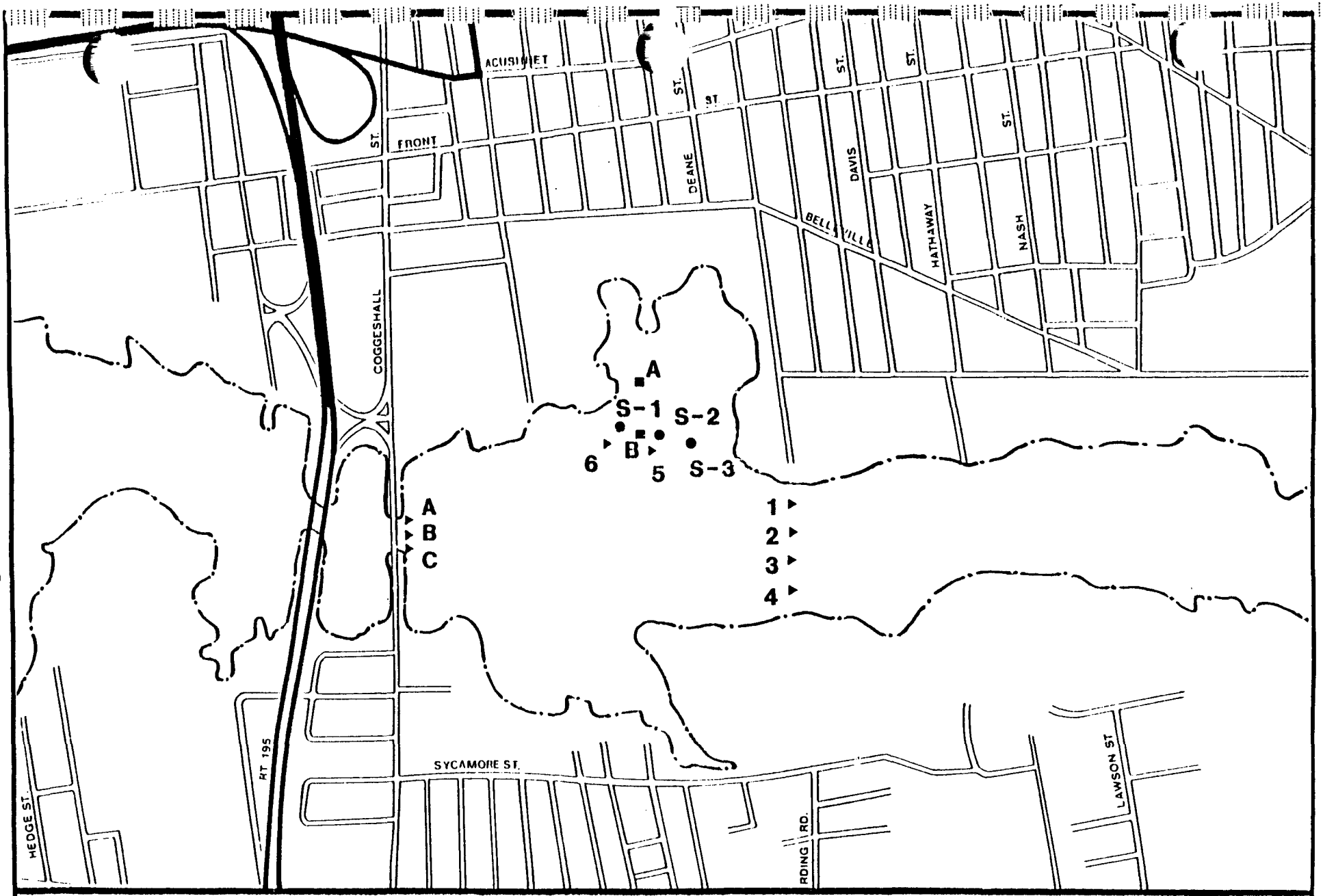
As part of the analytical work for this Environmental Impact Report, three thin wall Shelby tube cores were collected for chemical analyses in December, 1981 (see Figure 3-1). The logs of the cores are contained in Table 3-I. The present findings also indicate organic silt in the upper 2.5 ft as the predominant sedimentary material. Sand was found in Core 2 below 2.5 ft. Silt with gravel was found at Station 3. No log is presented for Station 3 because only a surface sample could be recovered.

Table 3-I

NEW BEDFORD CORE DESCRIPTIONS

#1	0-6"	Black organic debris with clay and abundant silt
	0-28"	Dark grey clayey silt with abundant shell fragments.
#2	0-7"	Black organic debris with clay and abundant silt
	7-12"	Same with abundant shell fragments. Includes small (1/4-3/4") whole shells and fragments of larger shells. Some snail shells apparent.
	12-18"	Dark, greenish grey, clay silt. Few shell fragments.
	18-20.5"	Coarse sand with shell fragments, clay and silt.
	20.5-29"	Dark, greenish grey clayey, silty, medium sand
	29-33"	Dark, greenish grey silt to coarse sand. Some pebbles and shell fragments.

Based on the percent silt/clay, the majority of sediment under the footprint is Type C material (that is, the silt/clay is greater than 90 percent and is more prone to chemical contamination than sediments with less silt/clay). The sediment found at Station 3 is of Type B with 88 percent of the material as silt/clay.



WATERFRONT PARK
New Bedford, Massachusetts

Sediment Sampling and Current Monitoring Stations

DWPC ■ Sediment Samples ●

Current Stations ▸

0' 500' 1000'

JASON M. CORTELL AND ASSOCIATES INC.

Figure 3-1

3.1.2.2 Sediment Quality

The only information on chemical content of the project area sediments other than PCBs is that which has been generated through this project. The Massachusetts Division of Water Pollution Control (DWPC), however, has analyzed sediments in this area for the presence of PCBs. DWPC sampling locations are also shown in Figure 3-1.

Chemical analyses were conducted on the three cores collected during 1981. Based on visual appearances of the cores, chemical analyses were stratified such that at Station 1, two vertical analyses were conducted; and three analyses were conducted at Station 2. One analysis was conducted on surface sediment from Station 3 due to lack of adequate penetration by the core. The result of the chemical analyses are indicated in Table 3-II.

The analyses indicate that chemical content of sediments is not totally uniform between the sample stations. For the most part, the surface sediments are significantly contaminated with metals and of Category 3 quality. The patchiness of sediment under the footprint indicate that chemical analyses at any one location cannot assure similar conditions will be found a short distance away. As an example, the mercury content of surface sediment at Station 1 was found to be of acceptable quality, while several hundred feet north at Station 2, the sediment was highly contaminated with the metal. The oil and grease content was acceptably low at Station 1, while at Stations 2 and 3, it was very high (4.8 percent at Station 3).

The vertical differences in chemical content, however, were probably the most significant findings of the analytical program. Highly contaminated surface sediments are found to grade quickly to cleaner conditions such that at one foot below the sediment surface, uncontaminated conditions are found.

Based on information from Woods Hole Oceanographic Institute (WHOI) (Ellis et al., 1977), a 1.5 to 2.0 foot depth of sediment appears to be a reasonable estimate of the extent of highly contaminated conditions. The WHOI cores 81-C9, 84-C11, 85-C12, 86-C13, and 87-C14 (all between Popes Island and Coggeshall Bridge) show significant gradation from highly contaminated sediments with metals at the surface to clean sediment within 1.5 to 2.0 foot of the surface. This is also generally consistent with data contained in the report prepared by Geotechnical Engineers (1982) for sediment in the immediate vicinity of Aerovox Inc. located several thousand feet upstream.

During preparation of this EIR, analyses were also conducted for the presence of the PCB compounds Aroclor 1242 and 1248. The analyses indicate that low amounts of these compounds are present at the locations tested. The data indicate that Aroclor 1248 is the most prevalent. Vertical gradation was found in the samples such that in samples deeper than 1 ft, less than 5 parts per billion (ppb) of either PCB compound is found.

During July, 1981, the DWPC conducted a series of sediment analyses for the presence of Arochlor 1248 and Arochlor 1254 in New Bedford Harbor and the

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Table 3-II

SEDIMENT CHEMISTRY

WATER QUALITY LABORATORY
ANALYSIS REPORT

PROJECT: NEW BEDFORD WATERFRONT PARK
PROJ/NO: 224

244 SECOND AVENUE
WALTHAM, MA 02154
617/890-3737

STATION:		1		1		2		2		2	
DATE:		1/5/82		1/5/82		1/5/82		1/5/82		1/5/82	
SAMPLE#:		4651		4652		4653		4654		4655	
TYPE OF ANALYSIS:		BULK		BULK		BULK		BULK		BULK	
SEDIMENT DEPTH:		0"-15"		15"-30"		0"-10"		10"-20"		20"-30"	
		CONC	CLASS	CONC	CLASS	CONC	CLASS	CONC	CLASS	CONC	CLASS
ARSENIC	mg/kg	88	3	21.3	3	116	3	13.4	2	8.7	1
CADMIUM	mg/kg	29.2	3	2.5	1	40.6	3	1.8	1	1.2	1
CHROMIUM	mg/kg	201	2	112	2	243	2	70	1	51	1
COPPER	mg/kg	786	3	23.1	1	1857	3	23.1	1	10.3	1
LEAD	mg/kg	101	2	7.7	1	114	2	4.4	1	2.1	1
MERCURY	mg/kg	.195	1	.1	1	1.66	3	.036	1	.045	1
NICKEL	mg/kg	72.7	2	22.8	1	137	3	15.3	1	5.5	1
VANADIUM	mg/kg	40.6	1	32	1	53.1	1	12.2	1	5.4	1
ZINC	mg/kg	523	3	55.1	1	1119	3	23	1	14.6	1
B	mg/kg		1		1		1		1		1
PEST.*	mg/kg	(.005	N/A	(.005	N/A	(.005	N/A	(.005	N/A	(.005	N/A
P/TOTAL	mg/kg	6.98	N/A	2.88	N/A	34.14	N/A	13.29	N/A	63.53	N/A
N/AMMONIA	mg/kg	11.8	N/A	12.6	N/A	10.7	N/A	4.9	N/A	2.3	N/A
TKN	mg/kg	1004	N/A	675	N/A	393	N/A	53.4	N/A	42.3	N/A
SOLIDS/T	%	54.4	N/A	61.5	N/A	46.4	N/A	70.4	N/A	82.3	N/A
SOLIDS/V	%	5.19	2	7.43	2	13.65	3	2.72	1	1.16	1
O&G	%	.4316	1	.0653	1	1.1884	3	.1908	1	.0581	1
SILT/CLAY	%	90	2	95	3	94	3	96	3	99	3
WATER CNT	%		1		1		1		1		1
AROCL.1242	mg/kg	.828		(.005		.017		(.005		(.005	
AROCL.1248	mg/kg	.184		(.005		.122		(.005		(.005	

*INCLUDING DDT, DDD, DDE, AND ELDRIN
ALL CONCENTRATIONS EXPRESSED ON DRY WEIGHT BASIS

CARLTON L. NOYES

mixed C6 data

JASON M. CORTELL
AND ASSOCIATES INC.

Table 3-II

SEDIMENT CHEMISTRY
(Continued)

WATER QUALITY LABORATORY
ANALYSIS REPORT

PROJECT: NEW BEDFORD WATERFRONT PARK
PROJ/NO: 324

244 SECOND AVENUE
WALTHAM, MA 02154
617/890-3737

STATION:	3
DATE:	1/5/82
SAMPLE#:	4556
TYPE OF ANALYSIS:	BULK
SEDIMENT DEPTH:	0"-5"

		CONC	CLASS
ARSENIC	mg/kg	111	3
CADMIUM	mg/kg	65	3
CHROMIUM	mg/kg	197	2
COPPER	mg/kg	2011	3
LEAD	mg/kg	137	2
MERCURY	mg/kg	.991	2
NICKEL	mg/kg	193	3
VANADIUM	mg/kg	57.5	1
ZINC	mg/kg	1437	3
PCB	mg/kg		1
PEST.*	mg/kg	(.005	N/A
P/TOTAL	mg/kg	50.32	N/A
N/AMMONIA	mg/kg	52.1	N/A
TKN	mg/kg	719	N/A
SOLIDS/T	%	36	N/A
SOLIDS/V	%	16.32	3
O&G	%	4.8473	3
SILT/CLAY	%	88	2
WATER CNT	%		1
AROCL.1242	mg/kg	.071	
AROCL.1248	mg/kg	.188	

*INCLUDING DDT, DDD. DDE, AND ELDRIN
ALL CONCENTRATIONS EXPRESSED ON DRY WEIGHT BASIS

CARLTON L. NOYES

Acushnet River. One of the sampling transects extended through the Cove which is being considered in this DEIR as the location for filling. Two of the sampling locations in the River were generally in the embankment footprint (see Figure 3-1). Arochlor 1248 was found in the sample at the concentrations noted below.

Sample Depth (in.)	Location A (mg/kg dry weight)	Location B
0-7	80	30
15-22	0.8	--
7-14	--	1.0

These and other DWPC data as well as recent Coast Guard information indicate a clear decline of PCBs with sediment depth. In a horizontal plane, the distribution of PCBs is patchy.

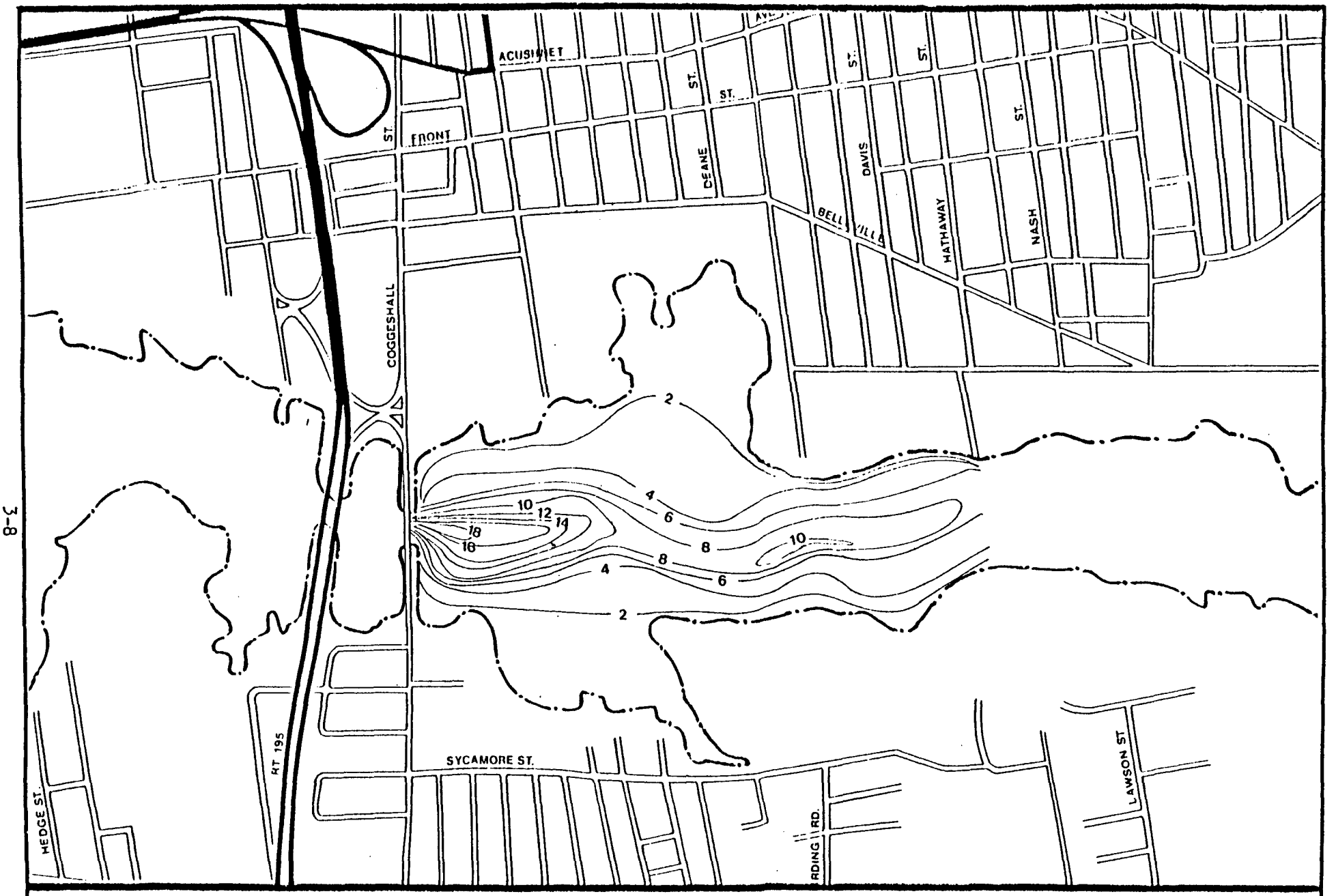
3.2 Surface Waters

The project site is located in the estuarine portions of the Acushnet River at the head of New Bedford Harbor. The River is approximately 600 ft wide at this point, although tidal and stream flow to (and from) New Bedford Harbor is confined to a single opening beneath the Coggeshall Bridge. The cross-sectional area beneath the bridge is approximately 2,800 ft^2, of which 1,800 ft^2 (or 64%) is utilized by water flow at mean high tide. The bridge has the effect of creating a sub-basin within New Bedford Harbor which extends from the Bridge to the uppermost portions of the estuary. Tidal influences at mean high tide extend northward up the river to the Main Street Bridge in Acushnet. At mean low water, the tide line is located approximately 800 ft south of the Bridge, or halfway between it and the Wood Street Bridge.

3.2.1 Bathymetry and Navigation

Figure 3-2 illustrates the bathymetric characteristics of the Acushnet River from the Coggeshall Bridge to a point 1,400 ft north of the project site. The map was developed from ten bathymetric profiles and has been adjusted to show water depths at mean low water (mlw). At mean high water (mhw), depths are increased by approximately 3.8 ft.

The greatest depths are associated with the main channel which trends northward through the center of the basin. The basin exhibits a typically riverine morphology, with water depths becoming more shallow rapidly both east and west of the channel. Beneath the Coggeshall Bridge, where water flow is constricted, the main channel has a depth of 19 ft mlw. Opposite the project site where flow is not constricted, the channel shallows to an average depth of 9 ft mlw. One hundred feet east and/or west of the channel, water



WATERFRONT PARK
New Bedford, Massachusetts

Bathymetry

0' 500' 1000'

DON M. CORTELL
ASSOCIATES INC.

gure 3-2

depths are commonly less than 3 ft mlw. Further upstream on the Acushnet River, shallow water also limits navigation.

Navigation within the project area basin by all but shallow draft vessels is limited primarily to the main river channel. Outside the channel, shallow water depths and abundant seaweed pose a hazard to motorized vessels. In addition, vessels approaching the basin from New Bedford Harbor are limited in size by the clearance beneath the Coggeshall and I-195 bridges. Clearance beneath these bridges ranges between approximately 10.3 and 7.5 ft at mlw and mhw, respectively.

3.2.2 Freshwater Hydrology

The dominant hydrologic forces within the project area basin are related to tidal flow, although the Acushnet River does contribute freshwater flow. The drainage basin of the Acushnet River above the tidal limit is approximately 18.4 square miles. Although no stream gage exists on the river, most rivers in New England produce a mean annual discharge (in cubic feet per second - cfs) equal to approximately 1.6 to 1.7 times their drainage basin area in square miles. Applying this equation to the Acushnet River results in an approximate mean annual freshwater discharge of 30 cfs. Over the course of a six and one-half hour ebb or flood tide, this represents an average freshwater input to the estuary of 700,000 ft^3. During the same six and one-half hour period, the tidal flow in or out of the basin (above the Coggeshall Bridge) is 65,664,000 ft^3. The freshwater input to the basin is therefore, only 1 percent of the average tidal input.

While the mean annual flow on the Acushnet River is approximately 30 cfs, flows will vary throughout the year. Studies by the USGS (1978) indicate that during dry periods, days in which no flow occurs are not uncommon. The predicted 7 day 10 year (MA_7CD_{10}) low flow is 0.1 to 0.5 cfs. Conversely, the 100-year storm will result in a flow of approximately 1,350 cfs on the Acushnet River.

3.2.3 Tidal Influences

The Acushnet River above the Coggeshall Bridge experiences diurnal tides with a mean tidal range of 3.8 ft and a maximum inequality between successive high tides of 1.2 ft (NOAA, 1981). The National Geodetic Vertical Datum (msl) at this locality is equal to a local tide level of 1.6 ft above mlw. The mean spring tidal range is 4.7 ft. During storms, stillwater elevations may be substantially increased by low atmospheric pressure and wind stresses. The maximum stillwater levels recorded in New Bedford Harbor were 10.0 ft above mhw (12.2 ft msl) and occurred on September 21, 1938 during a hurricane (ACOE, 1964). A similar storm today might not have the same impact on the upper portions of the Harbor and the Acushnet River estuary due to the numerous artificial barriers which have been subsequently constructed across the Harbor. These include three bridges, two with limited openings (Coggeshall and I-195) and the New Bedford Hurricane Barrier at the mouth of the Harbor.

In order to document the hydrologic characteristics of the area, two hydrographic surveys were undertaken. The first of these was conducted on November 13, 1981 and consisted of hourly current velocity measurements over a 13-hour tidal cycle at three stations beneath the Coggeshall Bridge. The second survey was conducted on December 11, 1981 at six stations within the basin. This survey consisted of current velocity measurements at each station every 1-1/2 hours over a ten hour period. The location of the current measurement stations for each survey are shown in Figure 3-1.

Table 3-III summarizes the tidal current velocity data collected during the course of the two hydrographic surveys. Because tidal flow between New Bedford Harbor and the study area basin is confined to the opening beneath the Coggeshall Bridge, flood and ebb velocities throughout the basin vary considerably. The narrow bridge underpass results in flood flows being directed up the main channel of the basin, where they are dominant. Conversely, ebb flow is relatively uniform throughout the basin, directed toward the Coggeshall underpass and dominant in the shallows to either side of the main channel.

Table 3-III

SUMMARY OF TIDAL CURRENT DATA
ACUSHNET RIVER, NEW BEDFORD, MA

Station	Average Depth (ft)	Average Velocity (ft/sec)		Maximum Velocity (ft/sec)	
		Ebb	Flood	Ebb	Flood
A	11.2	1.56	1.22	2.98	1.87
B	18.6	1.77	2.35	3.62	3.72
C	10.6	1.50	1.49	3.14	3.04
1	4.6	0.30	0.20*	0.47	0.38
2	6.3	0.30	0.36*	0.44	0.69
3	9.8	0.21	0.38*	0.39	0.71
4	4.9	0.25	0.12*	0.47	0.20
5	5.1	0.20	0.20*	0.29	0.29
6	4.2	0.23	0.19*	0.38	0.51

*Based on data from partial flood tidal cycle.

Evidence for the above discussion is apparent from the data from Stations 1, 2, 3, and 4 located across the basin immediately north of the proposed Waterfront Park site. Ebb currents dominated at Stations 1 and 4, while flood currents dominated at the mid-channel Stations 2 and 3. In addition, the variation between maximum ebb flow velocities for all stations was only 0.08 ft/sec, while for flood flows, the variation was 0.51 ft/sec.

In addition to influencing the direction and magnitude of tidal currents within the basin, the Coggeshall Bridge also affects the tidal duration. The bridge acts as a partial dam, limiting flow between the Harbor and the basin. During the survey of November 13, 1981, flood flow beneath the eastern side of the bridge underpass was recorded concurrent to ebb flow on the western side for 1 hour and 29 minutes. This overlap of ebb and flood flow is directly related to the narrow width (approximately 150 ft) of the channel through which the tidal prism must flow.

3.2.3.1 Excursion

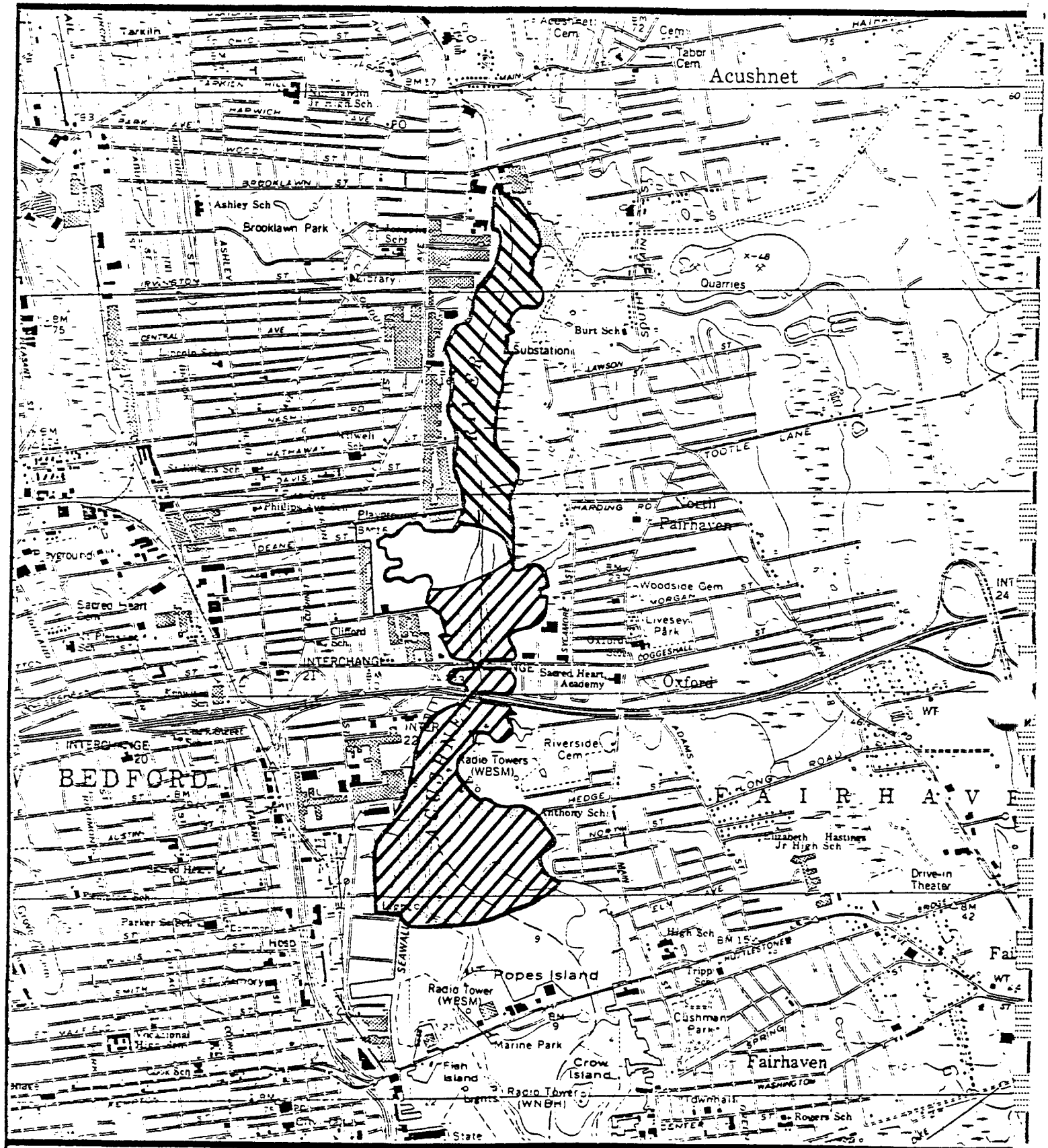
Excursion is the distance a particle of water will travel in the course of a single ebb or flood tide. Data obtained from the hydrographic surveys indicate that water from the Waterfront Park site will reach the upper estuarine limits of the Acushnet River during a single flood tide, while the ebb tidal excursion extends into New Bedford Harbor. The approximate limits of the ebb and flood excursions are shown in Figure 3-3. The ebb excursion calculations account for the increasing water velocity near and through the Coggeshall and I-195 bridge underpasses.

3.2.3.2 Tidal Prism

The tidal prism is the volume of water which flows into and out of a basin in the course of a complete flood/ebb tidal cycle. The tidal prism of the Acushnet River above the Coggeshall Bridge is 65,664,000 ft^3, as calculated from the tidal current data collected on November 13, 1981. This value is within 0.1 percent of that predicted by O'Brien's equation for stable inlets with two jetties along the Atlantic coast (Jarrett, 1976) with the eastern and western portions of the Coggeshall Bridge acting as jetties. These results indicate that the channel beneath the Coggeshall bridge is stable and should not presently be undergoing appreciable down-cutting or infilling.

3.2.3.3 Tidal Flushing

Flushing is the time, in complete tidal cycles, required for a complete exchange of a given volume of water within a basin. Flushing of the estuarine portion of the Acushnet River above the Coggeshall Bridge was determined using the Tidal Prism Method (Dyer, 1977) where the flushing time is calculated by dividing the sum of the tidal prism and the volume of water below mean low water (mlw) by the tidal prism. The basin prism was obtained as discussed above, while the mlw volume was obtained by assigning average mlw depths to five sections of the basin. A mlw volume of 25,524,000 ft^3 was calculated, which results in a flushing time for the basin of 1.4 tidal cycles, or approximately 18.2 hours.



WATERFRONT PARK
New Bedford, Massachusetts

Tidal Excursion
Flood Excursion
Ebb Excursion

JASON M. CORTELL AND ASSOCIATES INC.

0 1000' 2000'

Figure 3-3

3.2.4 Flooding and Floodplains

The Acushnet River above the Coggeshall Bridge has been designated as a Zone A-1 flood area with a 100-year storm base flood elevation of 6 ft msl (FEMA, 1982, In press). In relation to local sea levels, this would indicate water levels 3.8 ft above mean high tide levels, or 2.9 ft above local spring high tide levels.

Under existing conditions, much of the project site would experience minor flooding during the 100-year storm event. As much of the western border of the river is protected by seawalls, few of the industrial buildings adjacent to, and none of the residential units west of the site would undergo flooding. Along the eastern bank of the river, the marshes would be inundated.

3.2.5 Water Quality

Two sources of water quality data for the Acushnet River are available. These include the DWPC monitoring information from 1975 and the analysis of receiving water for this project's elutriate analysis and elutriate analysis conducted by Geotechnical Engineers (1982) for this New England Governors Conference. The DWPC water quality data are presented in Table 3-IV.

Although the DWPC data are somewhat dated, they nonetheless may serve to characterize present water quality conditions generally, especially when they are qualified with site-specific observations. The most notable aspects of the DWPC data are the total coliform and fecal coliform bacteria concentrations. During 1975, these bacteria were found to be significantly higher than the Class SB standard allows. These bacterial conditions are still likely true since during the course of the 1981 field investigations, raw sewage was observed to originate from each of two culverts at the ends of Coffin Avenue and Hathaway Street. During 1975, dissolved oxygen was less than the minimum of 6 mg/l required for SB waters and this condition may still be present.

Although only a short term analysis, the receiving water analyses also provide information on the soluble concentrations of typical water quality nutrients and metals. These data are contained in Table 4-I and are discussed in Section 4.5. The metals analyses indicated that cadmium, copper, mercury, nickel, zinc, and PCBs exceeded acceptable EPA concentrations.

3.3 Aquatic Biology

3.3.1 Benthic Flora and Fauna

Previous investigations of New Bedford Harbor benthos concentrated on the area south of the Coggeshell Street Bridge to the hurricane barrier, and the immediate coastal water outside this barrier (Ellis et al., 1977; Division of Water Pollution Control, 1971). Among the macrobenthos noted in samples from the Inner Harbor were polychaetes, mollusks such as Crepidula fornicata

Table 3-IV

WATER QUALITY SUMMARY ACUSHNET RIVER BY COFFIN AVENUE

Parameter		Maximum	Average	Minimum
Dissolved Oxygen	H	5.2/5/1	4.8/4.7	4.0/4.2
mg/l	L	7.7/4.8	5.7/3.6	3.9/2.8
Temperature	H	70/70	70/69	69/68
°F	L	75/74	74/73	72/72
BOD_5	H	1.0	1.0	1.0
mg/l	L	1.8	1.3	0.6
NH_3 - N	H	0.28	0.26	0.25
mg/l	L	0.31	0.26	0.22
NO_3 - N	H	0.0	0.0	0.0
mg/l	L	0.28	0.14	0.00
Total Phosphorus	H	0.06	0.06	0.06
	L	0.10	0.08	0.07
pH	H	8.1	8.0	8.0
	L	8.1	8.0	7.9
Total Alkalinity	H	107	106	104
mg/l	L	103	101	97
Total Solids	H	33,800	33,300	32,800
mg/l	L	34,200	33,450	32,300
Suspended Solids	H	2.0	2.0	2.0
mg/l	L	2.0	1.5	0.5
Total Coliform	H	900/100	750/100*	600/100
#/100 ml	L	7200/70000	540/3570*	10/400
Fecal Coliform	H	<10/<10	-	-
#/100 ml	L	3900/3000	200/170*	<10/<10
Chloride	H	17,500	17,250	17,000
mg/l	L	18,000	15,938	14,900
Color	H	15	12	10
Std. units	L	30	22	15
Iron	H	-	0.20	-
mg/l	L	-	0.20	-
Manganese	H	-	0.05	-
mg/l	L	-	0.05	-
Chromium	H	-	0.03	-
mg/l	L	-	0.05	-
Lead	H	-	0.35	-
mg/l	L	-	0.35	-
Mercury	H	-	0.55	-
µg/l	L	-	0.17	-
Nickel	H	-	0.15	-
mg/l	L	-	0.15	-
Zinc	H	-	0.05	-
mg/l	L	-	0.05	-

H = high tide grab sample
L = low tide grab sample
* = geometric mean
xx/yy = surface/bottom

Source: MA Division of Water Pollution Control, 1975

(slipper limpet), C. plana, and Anomia simplex (single shell), and crustaceans, Libinia emarginata (spider crab), and Callinectes sapidus (blue crab).

However, little quantitative or qualitative data exist on the benthic assemblage north of the Coggeshall Street Bridge on the Acushnet River, the locale of the proposed project. To determine accurately the benthic biology of the 22 acre project inlet, a dual phase field investigation was undertaken.

First, the site was assessed at maximum low tide and macrobenthic features noted. The northern section of the inlet revealed substantial growth of the green algae Ulva sp. and Enteromorpha sp. from near high water level to beyond low tide level, approximately 10 to 150 ft from shore. Aggregates of ribbed muscles, Modiolus demissus, were patchy in distribution. The southern portion of the site had a concentration of brown algae, Fucus sp., in addition to the green algae mentioned. Periwinkles, Littorina littorea, were ubiquitous, and a limited population of small soft shell clams, Mya arenaria, was noted.

The second phase of the field work involved shipboard benthic sampling with a $0.049m^2$ Ponar grab of the subtidal area of the site. A sampling transect consisting of three stations was established across the mouth of the study inlet (Figure 3-1). One grab was taken per station. Samples were sieved through a standard No. 30 mesh (0.59mm) on board ship and immediately preserved in neutral formalin. In the laboratory, the sample was sorted and macrobenthos recovered were identified to species. These analyses are presented in Appendix A and are tabulated in Table 3-V. Species diversity at these stations was very low, with duck clam, Mulinia lateralis, accounting for 89 percent of the total individuals from the three stations combined. Such low benthic diversity can reasonably be assumed to reflect stressful conditions in the Acushnet River as a result of documented organic and inorganic pollutants.

3.3.2 Shellfish

The limited soft shell clam population observed at the project site reached a maximum size of 1-1/2 inches (38mm) which is above the legal limit of 75mm. This size is far below the 5 to 6 inch norm for this clam in other Massachusetts harbors, and the clam population density of approximately $1/ft^3$ is low (Jerome et al., 1968). However, this limited resource is not utilizable as New Bedford Harbor inside the hurricane barrier including the project area is closed to the taking of shellfish. PCB concentrations in shellfish here are above the Federal limit of 5 mg/kg wet weight. Recent PCB analyses performed on Coggeshall Bridge area shellfish by the Massachusetts Office of Coastal Zone Management (MCZM) revealed 23 mg/kg wet weight in quahogs and 20 mg/kg wet weight in soft shell clams (MCZM, 1981). The FDA limit for edible finfish and shellfish is 5 mg/kg.

3.3.3 Finfish

Information on finfish in the Inner Harbor was obtained from the Massachusetts Department of Environmental Quality Engineering (DEQE) and

Table 3-V

BENTHIC ORGANISMS RECOVERED IN PONAR GRABS

Location	Number of Individuals
Station 1	
Mollusca	
Mulinia lateralis (duck clam)	14
Mya arenaria (soft shell clam)	1
Mercenaria mercenaria (quahog)	1
Annelida	
Polychaeta	
Nereis arenaceodonta	3
Station 2	
Mollusca	
Mulinia lateralis	27
Station 3	
Mollusca	
Mulinia lateralis	11

the National Marine Fisheries Service (NMFS) and is summarized in Table 3-VI. As with shellfish, there is a ban on the taking of bottom feeding fish inside the hurricane barrier due to PCB contamination of fish tissue above the Federal limit of 5 mg/kg wet weight. Anadromous alewife/blueback herring are known to migrate up the Acushnet River on their spring spawning runs.

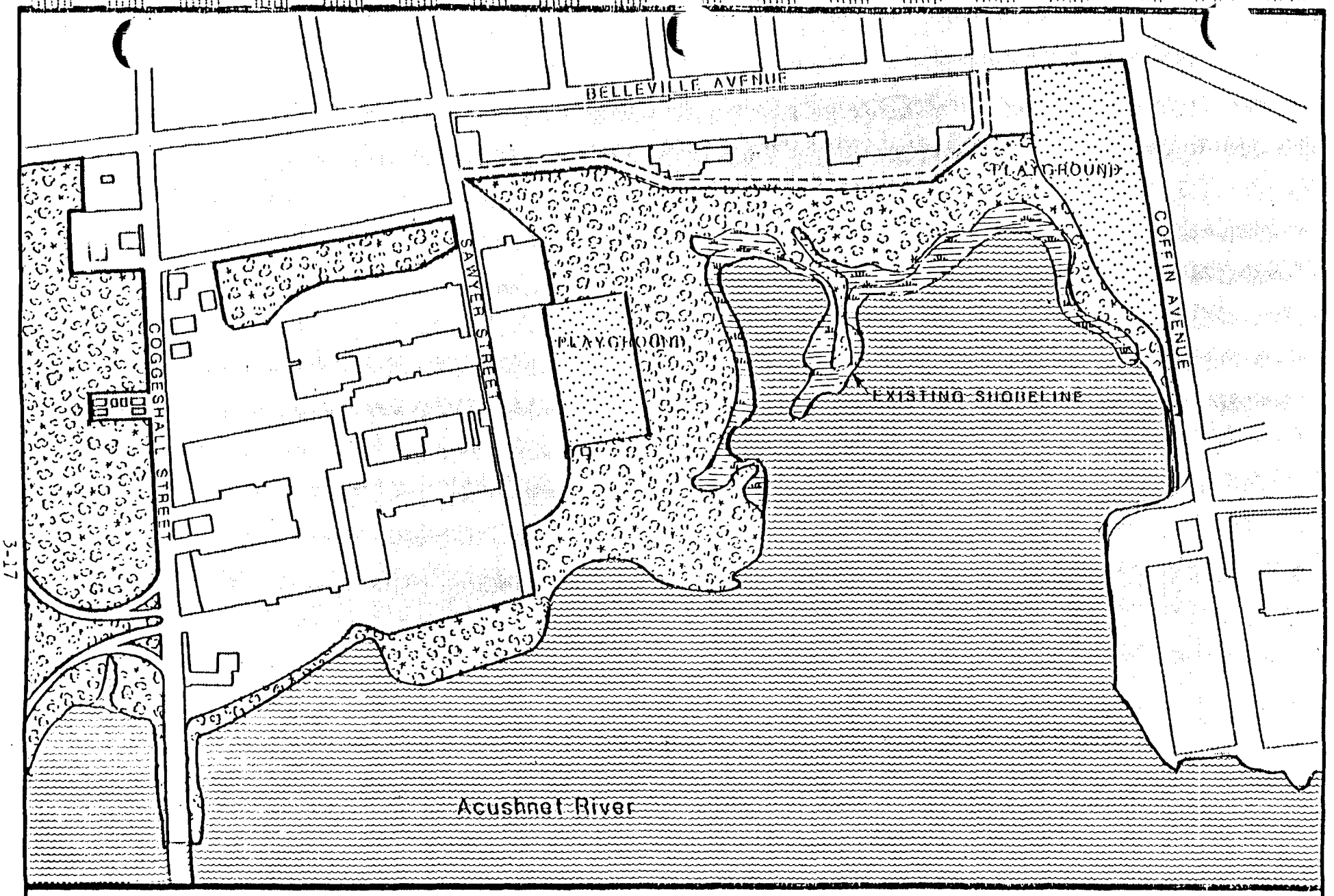
3.4 Vegetation, Wetlands, and Wildlife

The project area includes both upland and wetland vegetative community types. Upland communities comprise successional, open space, and developed lands; wetlands are limited to estuarine emergent (salt marsh) and estuarine open water communities (see Figure 3-4). A discussion of each of the site's vegetative types is presented below.

3.4.1 Upland Vegetation

Successional

As indicated in Table 3-VII, successional areas constitute approximately 11.0 acres (26.2%) of the project site. These areas are highly disturbed, with remnants of building foundations, various types of fill material, and discarded



WATERFRONT PARK
New Bedford, Massachusetts

JASON M. CORTELL AND ASSOCIATES INC.

0' 125' 250'

Vegetation

Successional
Open Space
Developed
Salt Marsh
Open Water

Figure 3-4

Table 3-VI

NEW BEDFORD HARBOR FINFISH SPECIES LIST

Scientific Name	Common Name
Alosa pseudoharengus	Alewife
Alosa aestivalis	Blueback
Poronatus triacanthus	Butterfish
Tautaglabrus adspersus	Curner
Parabehthys dentatus	Summer Flounder
Brevortia tyrannus	Menhaden
Opsanus tau	Toadfish
Stenatomus chysops	Scup
Myoxocephalus sp.	Sculpin
Clupea harengus	Sea Herring
Prionatus sp.	Sea Robin
Morone saxatilis	Striped Bass
Tautoga onitis	Tautog
Pseudopleuronectes americanus	Winter Flounder
Scophthalmus acquacus	Windowpane Flounder
Anquilla rostrata	Eel

debris (cans, bottles, shopping carts, furniture, and mattresses) occurring throughout the area.

These communities represent the initial stages of secondary succession, that is, vegetative community development proceeding in an area which already exhibits many of the characteristics necessary to community development, such as soils, nutrients, and the ability to retain water. Primary succession refers to the process which begins on an area not been previously occupied by a vegetative community, such as a newly exposed rock surface (Odum, 1959).

Although successional lands onsite are dominated by herbaceous plant species, individual or clumps of woody plant species are also present in scattered locations. Herbaceous plant species common to onsite successional areas include burdock, ragweed, Japanese knotweed, curled dock, wild carrot, tick-trefoil, switch grass, goldenrod, field pennycress, mullein, nightshade, rabbit's-foot clover, narrow-leaved plantain, milkweed, thistle, St. Johnswort, and reed grass. Woody plant species characteristically consist of tree-of-heaven, smooth sumac, and Norway maple, among others. With the exception of developed lands and open water, a list of the common and scientific names of plant species recorded for this and each of the following vegetative communities is presented in Appendix B.

Open Space

Open space areas include those portions of the site occupied by Riverside Park. As shown in Figure 3-4, the majority of the Park occurs along the

Table 3-VII

APPROXIMATE ACREAGE OF VEGETATIVE COMMUNITY TYPES

Vegetative Community Type	Acres	Percent of Site
Upland		
Successional	11.0	26.2
Open Space	4.4	10.5
Developed	2.7	6.4
Wetland		
Estuarine Emergent (Salt Marsh)	2.7	6.4
Estuarine Open Water	21.2	50.5
TOTAL	42.0	100.0

northern periphery of the project area; the remaining portion, consisting of a soccer field, is located in the southern part of the site. Collectively, Riverside Park totals approximately 4.4 acres (10.5% of the project area).

The vegetative diversity of open space lands is typically low. Grassed areas which are periodically maintained predominate. Additional plant species, however, include white clover, ragweed, narrow and wide-leaved plantain, and aster.

Developed

Developed lands in the project area include a paved parking lot along Coffin Avenue in the northeastern portion of the site and the New Bedford Textile Company building and adjacent unpaved parking areas immediately north of Sawyer Street. These areas are, for the most part, unvegetated and total approximately 2.7 acres (6.4% of the project area).

3.4.2 Wetland Vegetation

Wetland Classification

Wetlands in the project area were classified according to the scheme adopted by the U.S. FWS (Cowardin et al., 1979). This scheme is a hierarchical approach allowing for the classification of wetlands at various levels of specificity. For the purpose of this study, wetlands were denoted by system and class. Systems refer to a complex of wetlands and deepwater habitats that share the influence of similar hydrologic, geomorphologic, chemical, or biological factors; classes describe the general appearance of the habitat in

terms of either the dominant life form of the vegetation or the physiography and composition of substrate.

Only the Estuarine system is represented onsite. As defined by the U.S. FWS, Estuarine systems consist of deepwater tidal habitats and adjacent tidal wetlands that are usually semi-enclosed by land but have open, partly obstructed, or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land.

Classes represented onsite include emergent and open water. Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. Although not specifically identified in the U.S. FWS scheme, the inclusion of open water provides for the consolidation of wetland classes whose precise identification and delineation is primarily dependent on substrate composition, the percent of vegetative cover, and the frequency and duration of flooding. U.S. FWS wetland classes incorporated in the open water class include rock bottom, unconsolidated bottom, reef, streambed, rocky shore, and unconsolidated shore.

Estuarine Emergent (Salt Marsh)

Salt marsh communities occupy some of the area between mean low and mean high tide. The remaining portion of this area is occupied by unvegetated substrate.

Throughout this intertidal community of approximately 2.7 acres, saltwater cordgrass is the most abundant plant species. However, salt-meadow cordgrass and spike grass are also prevalent. Additional plant species characteristically include black rush, glasswort, orach, seaside goldenrod, reed grass, and marsh elder.

Although relatively limited on the project site, salt marsh communities occur in other locations along the Acushnet River. The more extensive of these communities are located opposite and north of the project site along the east side of the Acushnet River in the Towns of Fairhaven and Acushnet.

Estuarine Open Water

Open water, consisting of an inlet associated with the Acushnet River, constitutes approximately 21.2 acres (50.5%) of the project area. In terms of vegetation, intertidal and subtidal areas are dominated by various species of marine algae, including green (Ulva spp.) and brown (Fucus spp.) algae. A more detailed discussion of the site's aquatic environment is presented in Section 3.3.

3.4.3 Wildlife

The project area provides suitable habitat for a limited number of wildlife species. During field investigations conducted in November, 1981, only

greater black-backed gulls, herring gulls, pigeons, and Norway rats were observed onsite.

The low number and diversity of wildlife species is primarily due to the urbanized character of surrounding lands, the extent to which the site is isolated by development, and the highly disturbed nature of the project area itself. With the exception of birds, access both to and from the site is highly restricted. The site's close proximity to development and human activity as well as its limited vegetative diversity, also inhibit the presence of wildlife.

A list of the common and scientific names of representative wildlife species observed and/or expected to occur in the project area is presented in Appendix C.

3.4.4 Endangered and Threatened Species

Table 3-VIII provides a list of Federally-listed and proposed endangered and threatened species for Massachusetts. Due to the lack of suitable habitat, however, none of these species is likely to occur in the project area.

Under State regulations (321 CMR 8.00; April 17, 1980), only the Federally-listed species, as well as the small whorled pogonia (Isotria medeoloides) and the Plymouth red-bellied turtle are protected as threatened or endangered species. The whitlow-wort (Paronychia argyrocoma albimontana), however, is also being considered for listing at the State level. None of these species is known to occur in the project area.

3.5 Land Use and Zoning

The City of New Bedford exhibits a linear pattern of land use which follows the City's location along the Acushnet River and the location of the railroad which parallels the River. Manufacturing and industrial activities extend along the waterfront and railroad line. These industrial areas are paralleled by high density residential uses mixed with commercial and institutional uses which follow the major arteries. Further from the waterfront, lower density residential, public, and semi-public uses are located. Table 3-IX summarizes acre and percent distribution of New Bedford's total land area by major use divisions.

The importance of New Bedford Harbor to the City's economic well being is reflected in the land use policy for the waterfront area. The Harbor Master Planning Committee, created to consider issues relating to Harbor development, chose as an important planning goal, to enhance the community's economic development by providing ample opportunities for stable employment either by maintaining or expanding existing Harbor industries, retaining and protecting the existing fishing industry, or introducing new harbor-related industries. This policy translates to affording priority to water and marine dependent uses along the waterfront area and is consistent with plans and policies at other levels of government.

Table 3-VIII

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

Common Name	Scientific Name	Status	Distribution
FISHES:			
Sturgeon, shortnose*	Acipenser brevirostrum	E	Connecticut River and Atlantic Coastal waters
REPTILES:			
Turtle, green*	Chelonia mydas	T	Oceanic straggler in Southern New England
Turtle, hawksbill*	Eretmochelys imbricata	E	Oceanic straggler in Southern New England
Turtle, leatherback*	Dermochelys coriacea	E	Oceanic summer resident
Turtle, loggerhead*	Caretta caretta	T	Oceanic summer resident
Turtle, Atlantic ridley*	Lepidochelys kempii	E	Oceanic summer resident
Turtle, Plymouth red-bellied	Chrysemys rubriventris bangsi	E	Southeastern Massachusetts
BIRDS:			
Curlew, Eskimo**	Namenius borealis	E	Alaska and northern Canada to Argentina
Eagle, Bald	Haliaeetus leucocephalus	E	Entire state
Falcon, American peregrine	Falco peregrinus anatum	E	Entire state - re-establishment to former breeding range in progress
Falcon, Arctic peregrine	Falco peregrinus tundrius	E	Entire state-Migratory - no nesting
MAMMALS:			
Bat, Indiana**	Myotis sodalis	E	East & Midwestern USA
Cougar, eastern	Felis concolor cougar	E	Entire state - may be extinct
Whale, blue*	Balaenoptera musculus	E	Oceanic
Whale, finback*	Balaenoptera physalus	E	Oceanic
Whale, humpback*	Megaptera novaeangliae	E	Oceanic
Whale, right*	Eubalaena spp.(all species)	E	Oceanic
Whale, sei*	Balaenoptera borealis	E	Oceanic
Whale, sperm*	Physeter catodon	E	Oceanic
MOLLUSKS:			
None			
PLANTS:			
Pogonia, small whorled	Isotria medeoloides	Proposed	Northcentral and East USA
Whitlow-wort	Paronychia argyrocoma albimontana	Proposed	East and Midwestern USA

* Except for sea turtle nesting habitat, principal responsibility for these species is vested with the National Marine Fisheries Service.

** These species are not specifically listed as present in Massachusetts by the U.S. Fish and Wildlife Service. Their inclusion in this list is based on the Massachusetts Division of Fisheries and Wildlife, 1979 Massachusetts Species for Special Consideration. Fauna of Massachusetts, Series No. 5

Source: U.S. Fish and Wildlife Service, 1980.

Table 3-IX

NEW BEDFORD LAND USE DISTRIBUTION

Category	No. of Acres	% of Total Acreage
Residential	2,722.9	20.9
Commercial	597.7	4.5
Manufacturing	404.1	3.1
Institutional	238.7	1.8
Transportation, Communication, & Utilities	2,775.4	21.3
Open Space & Recreation	1,216.2	9.2
Vacant	5,129.6	39.2
TOTAL	13,084.6	100.00

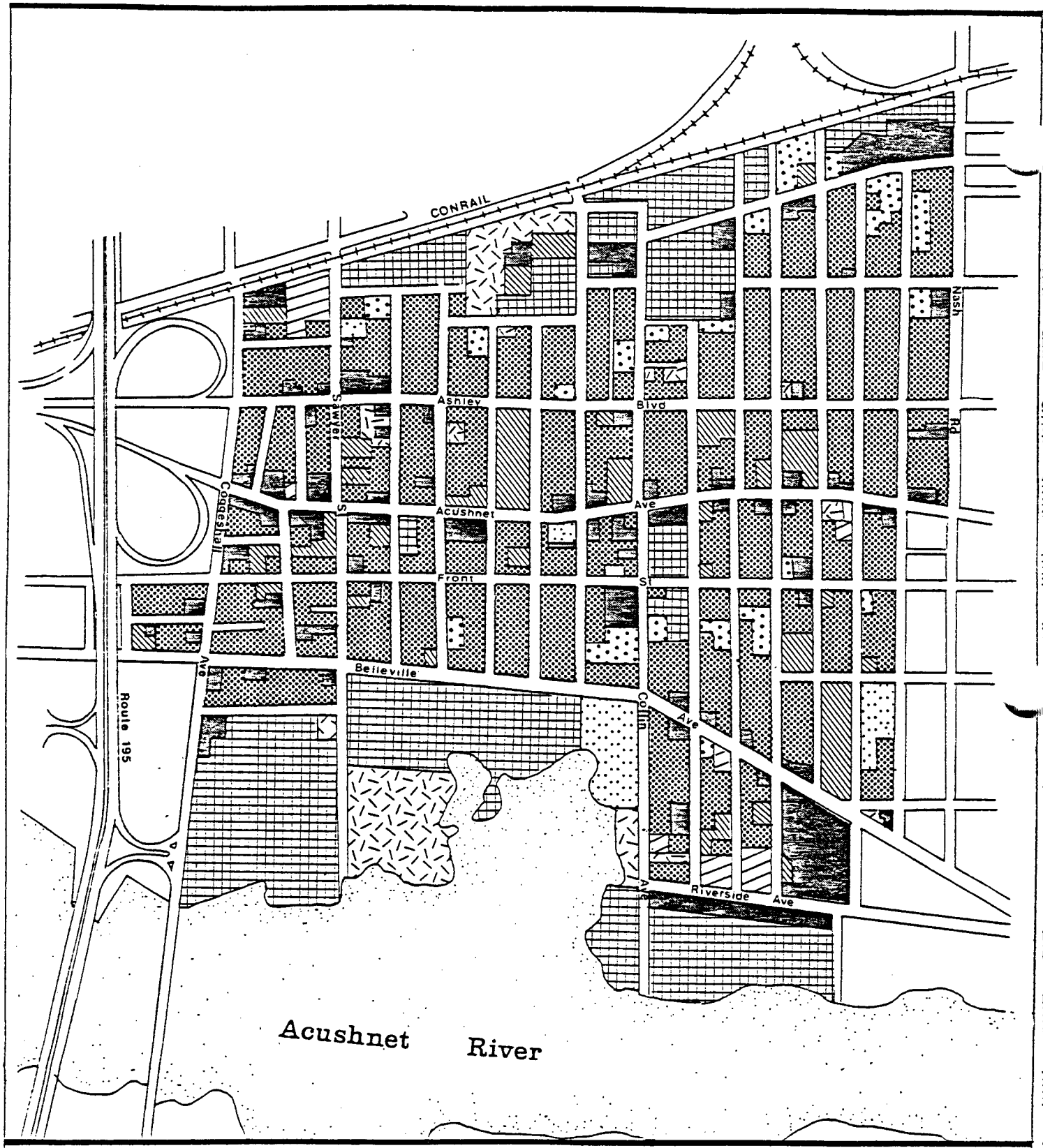
Source: New Bedford City Planning Department, 1964, 1972, 1978.

In the immediate project area, Interstate 195 crosses the Acushnet River with approximately 10.3 to 7.5 ft clearance underneath (mlw and mhw, respectively), effectively limiting marine related uses along the northern waterfront where the proposed project is located. As Figure 3-5 indicates, a small area in the northwest corner of the parcel is used for recreational purposes, while the rest of the parcel remains vacant. Appendix D lists principal owners of the parcels located at the project site. The southwestern and southeastern boundaries of the site abut manufacturing uses occupied by apparel textiles, metals and food manufacturing. Further west and directly north of the project area, there is high density multi-family residential development (more than 27 dwelling units per acre). The project area is zoned for Industrial B use which permits all developments except for residences and fish processing (see Figure 3-6). The land abutting the project to the north, west, and south is zoned for industrial, residential, and commercial developments.

3.6 Infrastructure

At the present time, there are no sewer or water connections available at the site. The periphery of the project area, however, is served by both water and sewer lines which extend along Belleville Avenue. On the southern border of the project site along and beyond the easterly terminus of Sawyer Street, is a 74 in. combination storm/sewer pipe which discharges into the Acushnet River.

Further south, in the vicinity of Coggeshall Street and Belleville Avenue, there is a sewage pumping station which pumps to the sewage treatment plant located at Fort Rodman.



WATERFRONT PARK
New Bedford, Massachusetts

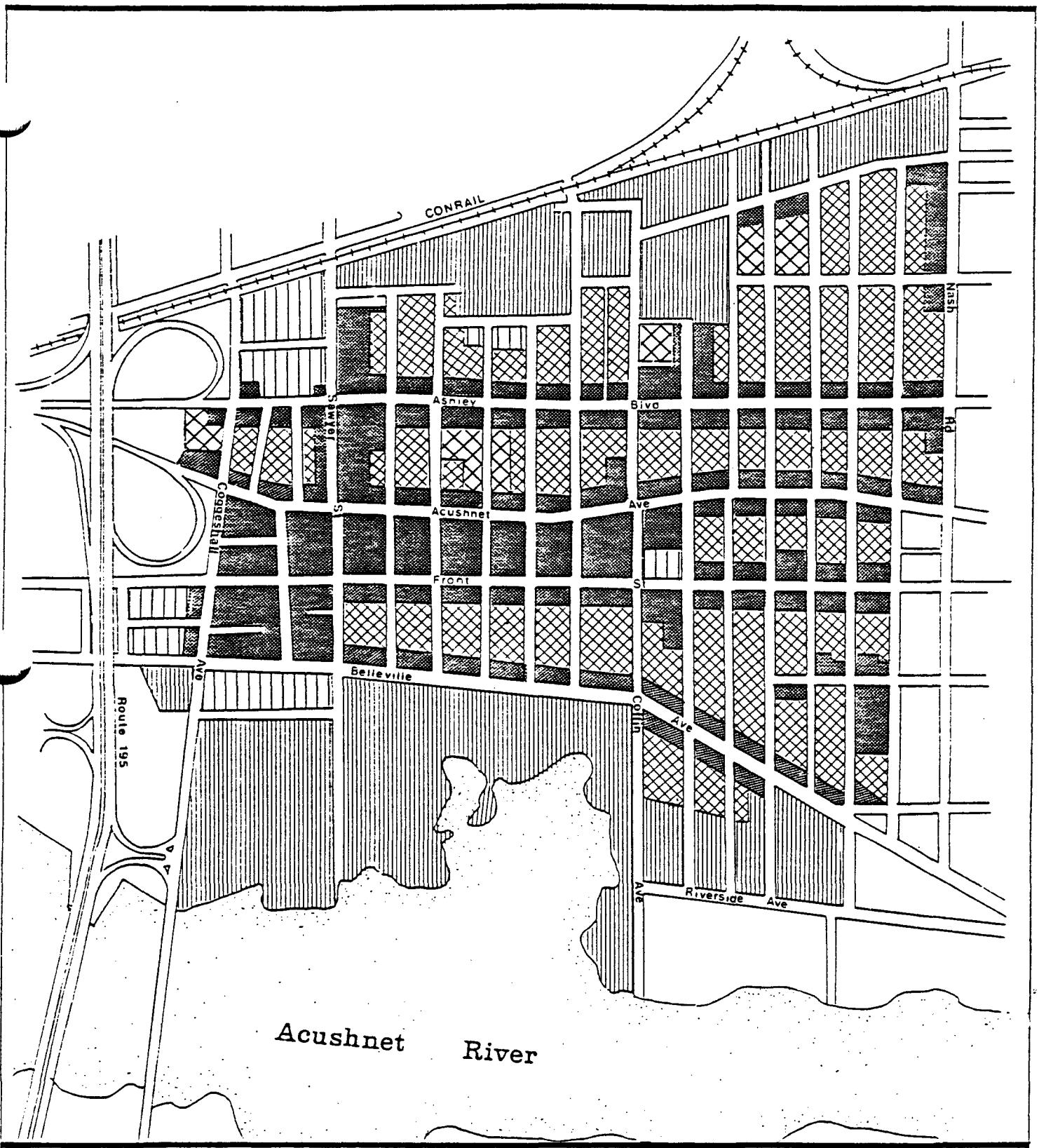
Land Use

- Services
- Utilities/ Parking
- Wholesale/ Retail Trade
- Cultural/ Recreation
- Vacant Land/ Structure
- Residential- Single Family
- Residential- Multi Family
- Manufacturing

JASON M. CORTELL AND ASSOCIATES INC.

0 250 500 750

Figure 3-5



WATERFRONT PARK
New Bedford, Massachusetts

Zoning

- Industrial A-Storage, Wholesale, Light Manufacturing
- Industrial B-All Uses Except Residential And Fish Processing
- Residence-Two Family
- Residence-Three Family
- Business

JASON M. CORTELL AND ASSOCIATES INC.

0 250 500 750

Figure 3-6

3.7 Demography

3.7.1 Population

Since 1950, population in the City of New Bedford has declined steadily. The total decrease over the past three decades amounted to 10 percent. Table 3-X contains population statistics and projections for the period from 1950 to 2000.

Table 3-X

POPULATION

Year	Population
1950	109,189
1960	102,447
1970	101,777
1980	98,478
1990	91,600 *
2000	93,200 *

*Projections

Source: 1950-1980 U.S. Bureau of Census; 1975 Mass State Census; Population Projections, Subtask 1.4 (SRPEDD), 1975.

The average population density in the city reached 5,082 inhabitants per square mile in 1980.

The New Bedford population is predominantly white, although this component of total population has declined from 94 percent in 1970 to 89 percent in 1980. Blacks and Spanish Americans constitute 3.5 percent and 4.6 percent of the population, respectively (U.S. Bureau of Census, 1980).

The median age in New Bedford has been declining in congruence with the national trend and reached 33.2 in 1980. The age group distribution of population over the last 30 years is presented in Table 3-XI.

During the last decade, the most significant population gains occurred in the 15-24, 25-44, and over 65 age groups with respective percentages of 6.8, 9.4, and 7.3. The school age population of New Bedford (0-19 age group) has declined 11.85 percent since 1960.

The residential area adjacent to the project site, also known as the North End district, belongs to one of the most densely populated parts of the City. The immediate project area (Census Tracts 6506 and 6507), experienced a disproportionately large population loss during the last two decades, over 15 percent as compared to 3.9 percent for the City as a whole. Migration to less

Table 3-XI

POPULATION DISTRIBUTION BY AGE GROUP

Age	1960	1970	1980
0-4	9,476	7,887	6,792
5-14	17,067	17,285	14,118
15-24	11,706	15,863	16,936
25-44	25,728	20,605	22,541
45-64	24,525	25,249	22,117
65+	13,975	14,888	15,974
TOTAL	102,477	101,777	98,478

Source: 1960-1980 U.S. Bureau of Census

densely populated parts of the City as well as the deteriorating quality of the housing stock in the area account for this trend.

3.7.2 Employment and Income

New Bedford's labor force increased 22.1 percent between 1970 and 1979, from 43,853 to 53,533 which is above southeastern Massachusetts region's average of 15.2 percent. Table 3-XII shows the percentage distribution of employment by major industry division.

Table 3-XII

EMPLOYMENT BY MAJOR INDUSTRY
(%)

Industry	1977	1978
Agriculture	2.5	3.0
Construction	2.2	2.2
Manufacturing	56.9	56.0
Transport, Communication, and Utilities	4.9	4.5
Wholesale/Retail	17.7	16.7
Finance	3.8	3.6
Services	12.0	14.0
TOTAL	100.0	100.00

Source: Mass Cities and Towns: Employment and Wages by Major Industry Division, 1977-78, December, 1978.

Manufacturing still represents the primary sector of employment for the majority of the City's labor force, reinforcing the industrial character of the City. Unemployment figures for the area are slightly above the Southeastern Region's average (8.1% vs. 7.0% in 1979).

The average annual wage in New Bedford was $9,458 in 1977, while the Region's average for the same year was $8,638. However, the City trails the region in terms of average family income and per capita income. In 1975, per capita income in New Bedford was $3,922 while the region averaged $4,468. New Bedford also has above the region's average percentage of families with incomes below the poverty level (15.3% vs. 11.7% in 1970).

3.7.3 Housing

There are 37,388 households in New Bedford of which 21,604 (58%) reside in renter-occupied units. The median contract rent in the City is $117.00 per month (U.S. Census Bureau, 1980), with an average size of a housing unit of 4.9 rooms. The average density per unit in 1980 was approximately 2.58 persons. Among the owner-occupied units, the median price is approximately $33,000. Table 3-XIII illustrates housing unit distribution by address.

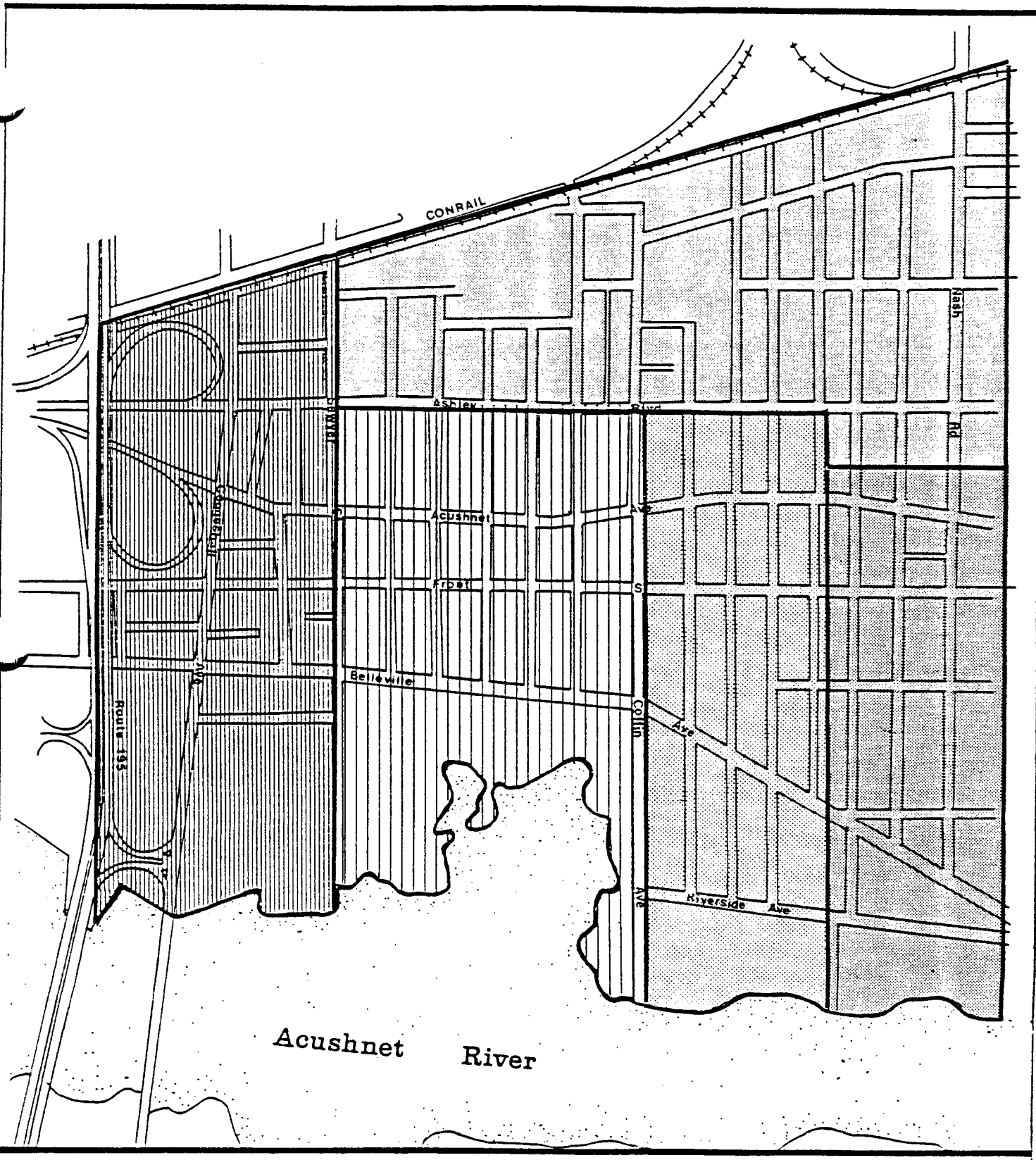
Table 3-XIII

HOUSING UNIT DISTRIBUTION	
Single-Family	15,949
1-9	21,558
10 or more	1,880
Mobile Homes, Trailers	95
TOTAL	39,482

Source: U.S. Bureau of Census, 1980.

Table 3-XIV shows vacancy statistics for New Bedford over the last decade. The vacancy rate of 8.9 percent in 1979 considerably exceeds the figure of 4 to 5 percent which is required to accommodate natural housing turnover in a community.

Figure 3-7 indicates the distribution of areas with varying vacancy rates thoughout the City. The immediate project area, Census Tracts 6, 7, and 12, exhibit above mean, high, and extremely high vacancy rates, respectively (from 9 percent to above 20 percent). The area contains primarily multi-family housing units.



WATERFRONT PARK
w Bedford, Massachusetts

Vacancy Rate

15-20%
‹6%
›20%
6-9%
9-15%

JASON M. CORTELL AND ASSOCIATES INC.

0 250 500 750

Figure 3-7

Table 3-XIV

VACANCIES AND VACANCY RATE

Year	Total No. of Dwelling Units	Vacancies	Vacancy Rate (%)
1970	36,577	1,760	4.8
1973	38,154	2,198	5.8
1975	38,658	2,625	6.8
1976	39,303	2,848	7.2
1977	38,310	3,365	8.8
1978	38,360	3,740	9.7
1979	38,436	3,422	8.9

Source: City Planning Department, New Bedford, 1979.

3.8 Economic Base

During the New England textile boom, the City of New Bedford developed the cotton fabric industry and in the early 20th century, the City had become the nation's leading producer of fine cotton fabrics. In the subsequent years, New Bedford's fabric industry diminished, primarily due to competition from areas where labor was significantly cheaper. During the readjustment period, the City's textile operations broadened, extending to finished goods manufacturing, but also attracting a number of new industries into the area.

Today, textile and apparel continue to be leading industries and major employers of the area. Significant levels of employment, however, can also be found in the manufacture of electrical, electronic components, as well as metal products. Table 3-XV lists the major employers in the City in the order of number of employees.

New Bedford's location on the coast has always supported a significant fishing industry which today accounts for approximately 3 percent of total employment. Besides being the leading scallop port in the country, New Bedford Harbor is active with deep sea fishing vessels and freight.

The project area, located amidst land zoned for industrial use, is surrounded by manufacturing, service, and retail outlets. A complete list of the area employers is provided in Appendix E.

3.9 Traffic, Air Quality, and Noise

The first stage in the Waterfront Park Project is to be the construction of a perimeter roadway connecting to Sawyer Street and Coffin Avenue. This roadway will provide a new traffic connection as well as access to the Park picnic area and boat launching ramps. Thus, some increase in local traffic can

Table 3-XV

MAJOR NEW BEDFORD EMPLOYERS

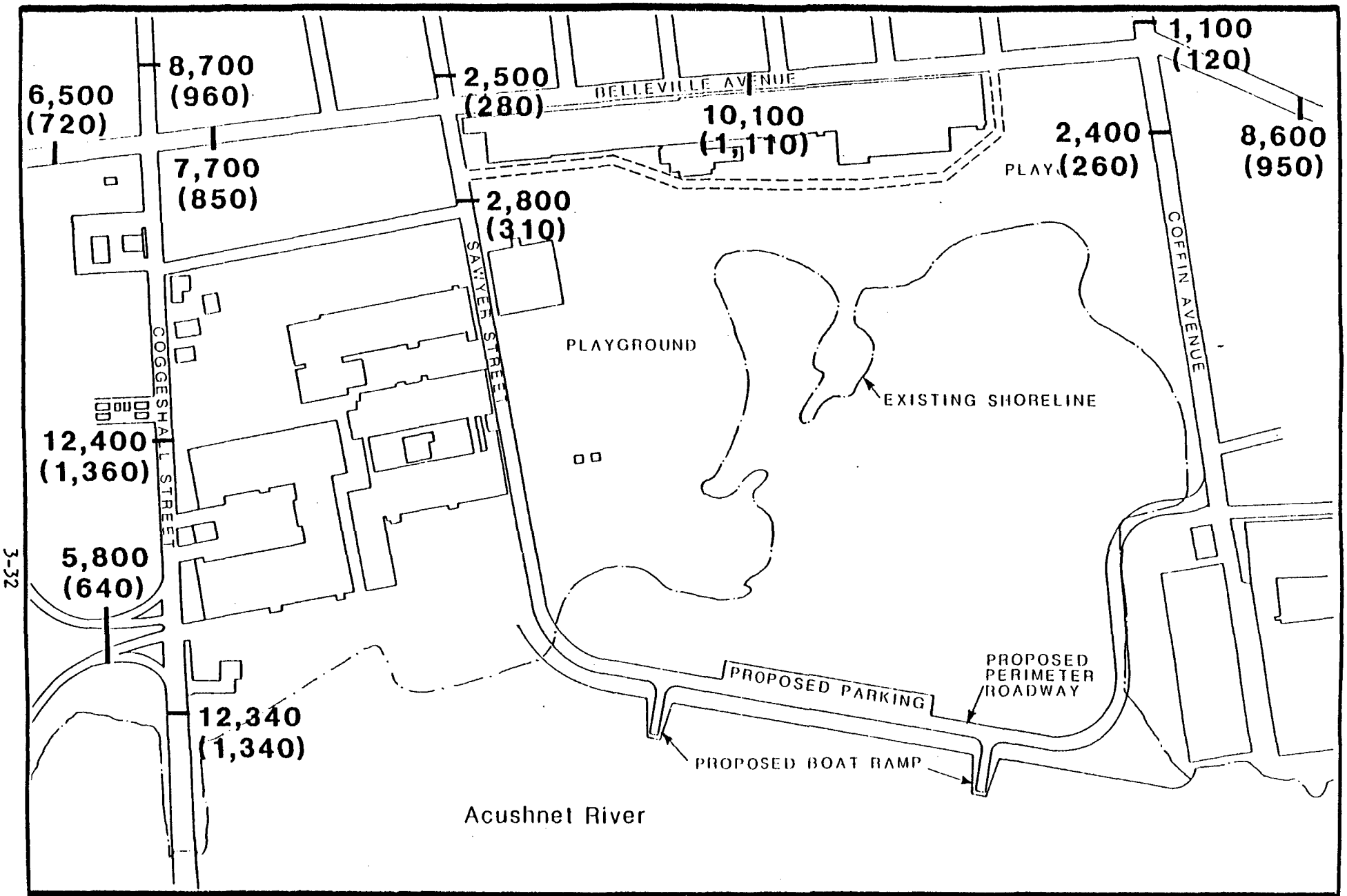
Employer	Product	Average Employment
Acushnet Co.	Golf equipment, molded rubber components	2,650
Cliftex Corp.	Men's sport coats and suits	1,450
Berkshire Hathaway Inc.	Synthetic fabrics	1,000
Cornell-Dubilier Electronics	Capacitors	1,000
Gulf & Western Mfg.	Metal cutting tools	1,000
Goodyear Tire & Rubber Co.	Rubber products	900
Calvin Clothing Corp.	Mens' & boys' clothing	800
Chamberlain Mfg. Corp.	Forging and machining steel and aluminum products	750
Aerovox Industries Inc.	Capacitors	650
Continental Screw Co.	Screws	600
PCI Group Inc.	Eyelets and rivets, tacks and nails, shoemaking supplies	550

Source: Directory of Massachusetts Manufacturers, 1980-81.

be expected, both from the provision of the new route and from the activity at the Park. Accordingly, documentation of the ambient air quality and noise conditions allows evaluation of potential traffic impacts and the attendant effects on air quality and noise.

3.9.1 Existing Traffic

Traffic in the project area was counted by the City of New Bedford Planning Department in 1977 and 1978 as part of their City of New Bedford Traffic Study. Figure 3-8 presents a summary of these data for the project area. The



WATERFRONT PARK
New Bedford, Massachusetts

Local Roadway Traffic
Average Daily Traffic —
Peak Hour Volume ( )

0' 125' 250'

Figure 3-8

data include both Average Daily Traffic (ADT) and Peak Hour Volume (PHV) for each street leading to the site.

Sawyer Street, abutting the site on the south, is a two-way, two-lane, undivided street with a pavement width of approximately 30 ft. Sawyer Street serves as access to several industrial buildings south of the site. Average daily traffic is 2,800 vehicles, with a peak hour volume of 310 vehicles.

Coffin Avenue, abutting the site on the north, is also a two-way, two-lane roadway. Coffin Avenue, with a pavement width of approximately 36 ft, serves residences and industrial buildings to the north of the site. Average daily traffic is 2,400 vehicles, with a peak hour volume of 260 vehicles.

Primary access to the area of the site from the north and south is provided by Belleville Avenue, which intersects both Sawyer Street and Coffin Avenue. Belleville both at and south of its intersection with Coffin Avenue, is a two-way, two-lane, undivided street with a pavement width of approximately 40 ft. North of Coffin Avenue, it widens to approximately 48 ft and becomes a four-lane, two-way street. The average daily traffic is 8,600 vehicles north of Coffin Avenue; 10,100 vehicles between Coffin and Sawyer; and 7,700, south of Sawyer. Peak hour volumes are approximately 11 percent of the ADT.

Primary east and west access to the project area is provided by C Street. Coggeshall, like Belleville, is a two-way, two-lane, undivid with a pavement width of approximately 40 ft. Average daily traf from a low of 8,700 vehicles west of Belleville to a high of 12,400 between Belleville and the I-195 ramps. Peak hour volumes vary fro 1,360 vehicles.

Finally, regional access to the site is provided by the I-195 ramps c to Coggeshall Street. These are one-lane separated ramps ser westbound lanes of I-195. Average daily traffic is 5,800 vehicles, v hour volume of 640 vehicles.

Traffic operating conditions in the area are good. Approximate service were determined for each intersection using the techniques o the Highway Capacity Manual (Highway Research Board, 1965). Service (LOS) is a letter designation representing operating condi ranges from LOS A, essentially free flowing traffic, to LOS F, congestion. The following LOS are applicable for peak hour conditions

I-195 Ramps and Coggeshall Street - A
Coggeshall Street and Belleville Avenue - B
Belleville Avenue and Sawyer Street - A
Belleville Avenue and Coffin Avenue - A

All intersections are now operating at or near LOS A and can be ex continue to function well over the next several years if there is no s change in traffic volumes.

3.9.2 Air Quality

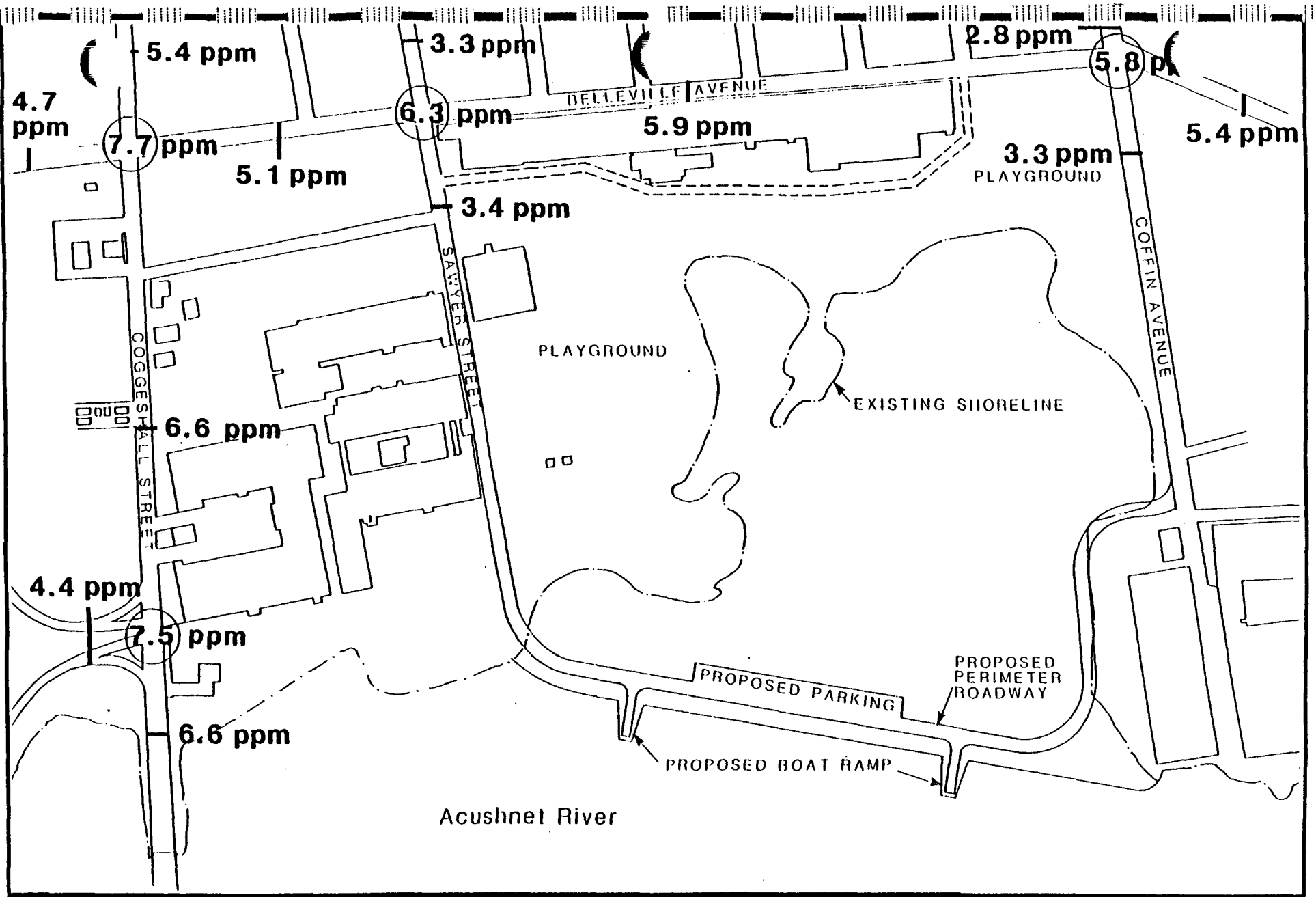
Traffic in the project area is the major source of local air contamination. For automotive traffic, carbon monoxide (CO) is the major component and is used to determine automotive air quality impacts. No measurements of existing air quality have been made in the immediate area, but simple modeling techniques were used to estimate the existing peak eight hour carbon monoxide concentrations adjacent to each of the major roadways in the area. The technique employed was the CALINE-3 Nomograph (FHWA, 1981). Calculations were made for peak traffic conditions during the winter months for a reference distance of 15 meters (approximately 50 ft) from each roadway segment and intersection in the area.

The results of that analysis are presented in Figure 3-9. These data indicate that the local air quality at the site is acceptable. The National and Massachusetts Ambient Air Quality Standard for eight hour CO concentration (9.0 parts per million) is not exceeded at any of the sites analyzed. The highest expected concentration is 7.7 parts per million (ppm) at the intersection of Belleville Avenue and Coggeshall Street. Because Federal emission controls will reduce automotive contaminants in the future, these concentrations can be expected to decrease by approximately 10 to 11 percent per year over the next several years, in the absence of significant traffic increases.

3.9.3 Noise

Automotive traffic may also be responsible for increased noise levels. No noise measurements have been made in the immediate area of the project, but as with air quality, simple modeling techniques are available to relate expected noise levels to observed traffic. In this analysis, the techniques presented in the User's Manual: FHWA Highway Traffic Noise Prediction Model SNAP 1.0 (Rudder and Lam, 1979) was used to estimate the peak hour L_{10} noise level in A-weighted decibels. L_{10} is that noise level exceeded 10 percent of the time during the hour and A-weighted decibels (dBA) are the customary measure of the human response to noise levels. Some caution should be observed in interpreting decibel noise, since the scale is logarithmic rather than linear. As an aid to interpreting noise level, Figure 3-10 shows the dBA equivalents of several common sounds.

The results of the noise estimation are shown on Figure 3-11. The noise levels shown are the peak hour L_{10} noise levels caused by the traffic on the area roadways and are representative of a reference distance of 15 meters (approximately 50 ft) from the edge of the pavement. No noise standards are directly applicable to the results. For comparison, however, the Federal Highway Administration has established Design Noise Levels for new highway construction. These design guidelines establish a peak hour L_{10} noise level of 70 dBA as acceptable in residential areas and a peak hour L_{10} of 75 dBA as acceptable in industrial areas. In no case does the expected noise level in the project area reach even the more stringent residential Design Noise



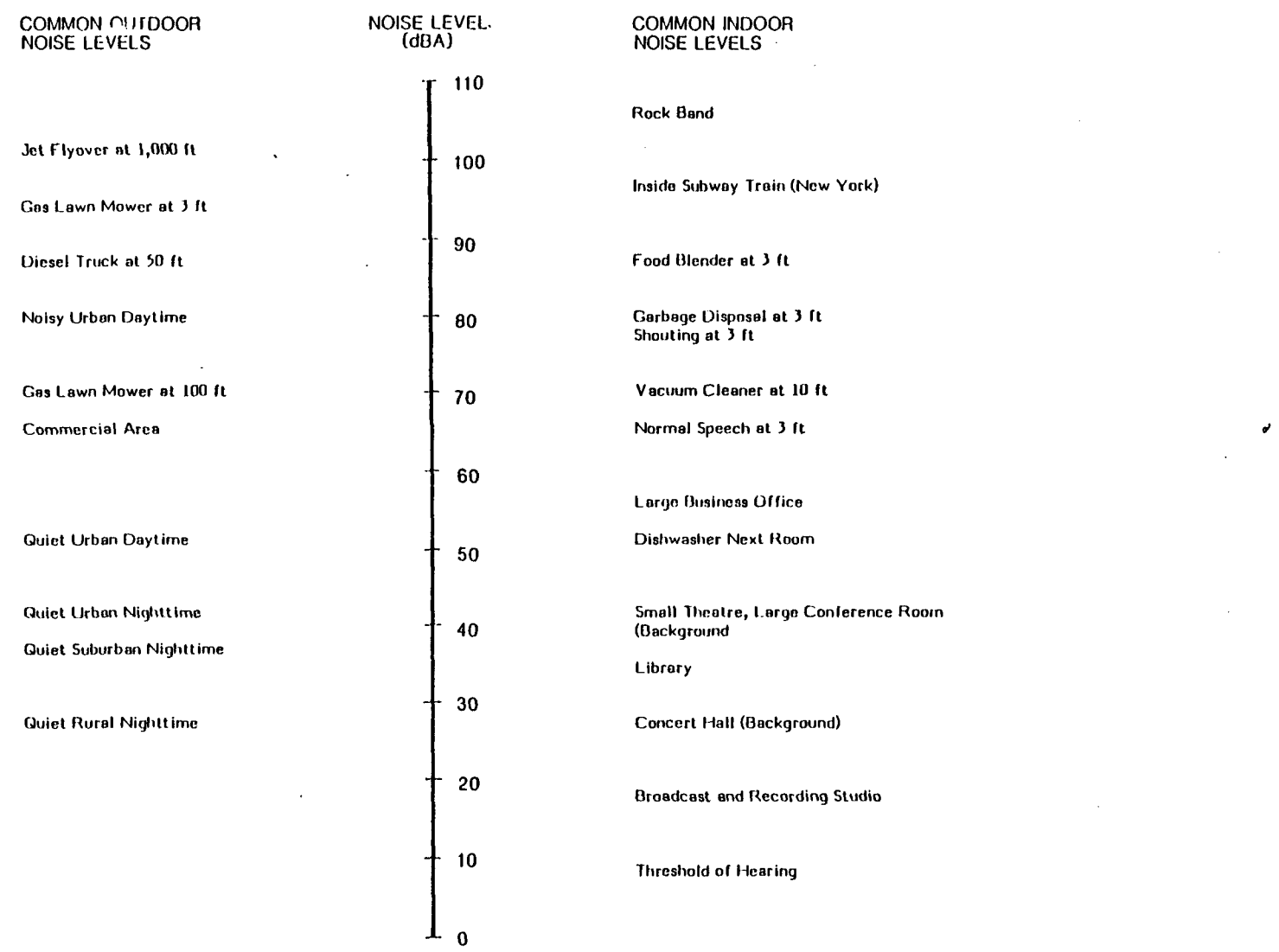
WATERFRONT PARK
New Bedford, Massachusetts

1982 Peak Eight Hour
Carbon Monoxide Concentration ppm

JASON M. CORTELL AND ASSOCIATES INC.

0' 125' 250'

Figure 3-9

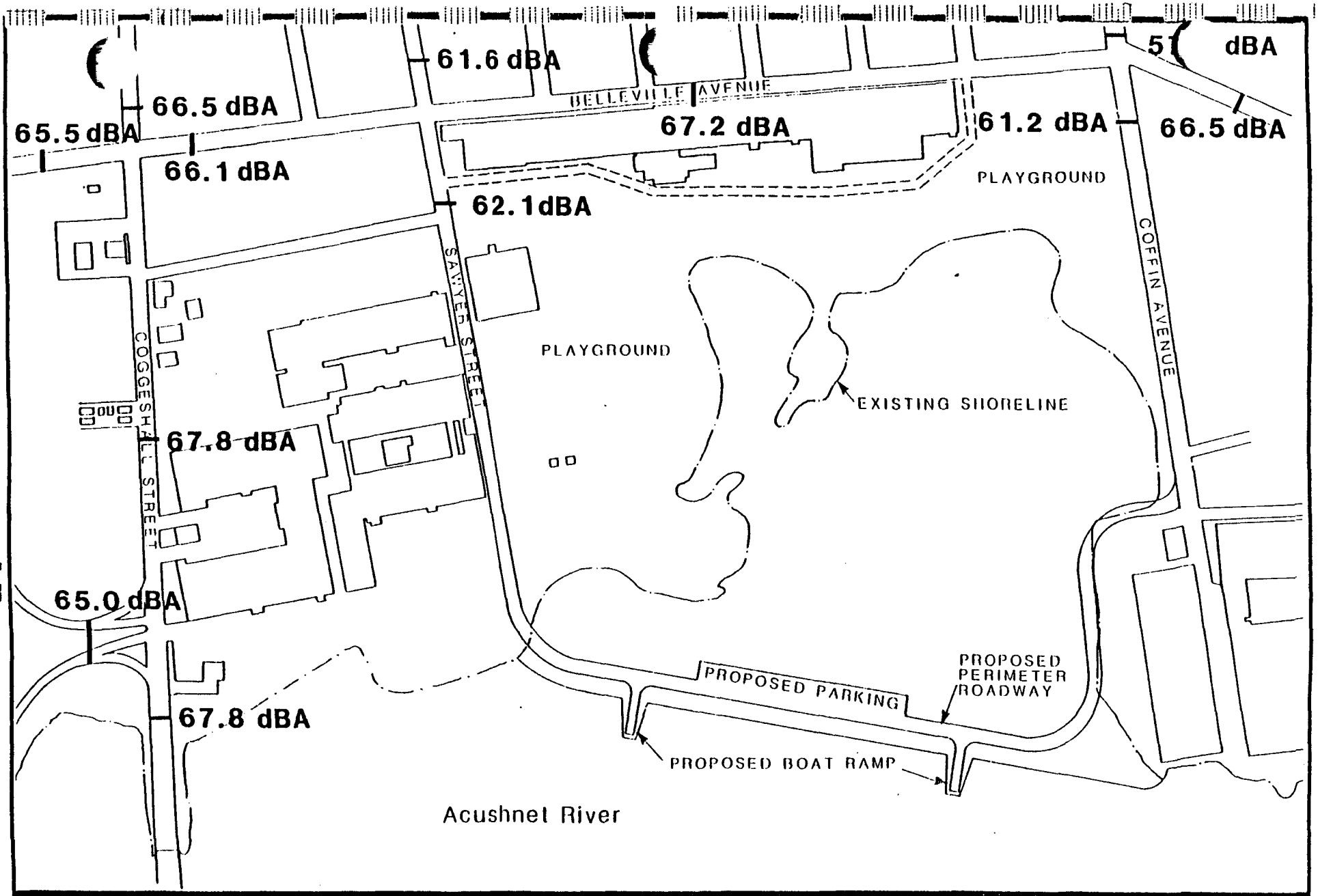


WATERFRONT PARK
New Bedford, Massachusetts

Typical Noise Level Chart

JON M. CORTELL ASSOCIATES INC.

Figure 3-10



WATERFRONT PARK
New Bedford, Massachusetts

1982 Peak Hour L_{10} Noise Level, dBA

JASON M. CORTELL AND ASSOCIATES INC.

0' 125' 250'

Figure 3-11

Level. Thus, the noise environment of the study area can be classified as acceptable. This condition will continue into the future in the absence of significant increases in traffic volumes.

3.10 Regulatory Framework

The Waterfront Park Project is subject to several permit review and approval processes under the jurisdiction of local, State, and Federal agencies.

3.10.1 Local Approval

The major approval process at the local level is Site Plan Review, a prerequisite to a Building Permit. Site plan review, conducted by the Planning Board, addresses all aspects of the project, including land use, socioeconomic concerns, and the capacity of available infrastructure to support the proposed project.

Other local approvals, such as curb cut permits or sewer and water connection approvals are minor, construction-related reviews.

3.10.2 State Regulatory Jurisdiction

3.10.2.1 Massachusetts Environmental Policy Act (MEPA)

The broadest environmental regulation is the Massachusetts Environmental Policy Act (MGL Chapter 30, Section 62A and 301 CMR 10 et seq.), under which this EIR has been prepared. As required by the regulations, an Environmental Notification Form (ENF) was submitted and public notice was given of the proposed project (February 11, 1982) after which a scoping session was held. This document, a Draft EIR, is being circulated for public comment and a hearing may be conducted. Following the close of the comment period, a Final EIR will be issued, setting out the selected alternative. Only after all MEPA requirements have been satisfied can other State agencies issue their permits.

3.10.2.2 Wetlands Protection Act

Waterfront Park, the construction of which will include activities affecting 21.2 acres of coastal wetlands, land subject to tides and floods, or land under the ocean, will be subject to the requirements of the Wetlands Protection Act (MGL Chapter 131, Section 40) and associated regulations (310 CMR 10.00-10.12 and 310 CMR 10.21-10.36). The act and regulations identify resource areas and wetland values or functions which are to be protected. Implementation of this act is administered locally by the New Bedford Conservation Commission. The Massachusetts Department of Environmental Quality Engineering (DEQE) has ultimate jurisdiction with respect to enforcement of the act, and is the agency which would hear an appeal to an order of the New Bedford Conservation Commission.

The Notice of Intent (NOI), and the Environmental Data Form (EDF) required under the Act, have not yet been filed pending development of actual construction drawings. In reviewing preliminary plans, the New Bedford Conservation Commission informally approved the concept of the Waterfront Park proposal, but voted to table any action until detailed plans, together with an NOI and EDF, are submitted.

The Act and regulations establish performance criteria protecting wetland resource areas and functions. Maintenance of these criteria must be insured before project approval and the granting of an "Order of Conditions." Of special importance are the regulations applicable to salt marshes, of which there are 2.7 acres onsite. Section 10.32(3) of the regulations state that:

> When a salt marsh is determined to be significant to the protection of marine fisheries, the prevention of pollution, storm damage prevention or groundwater supply ... a proposed project in a salt marsh, on lands within 100 ft of a salt marsh, or in a body of water adjacent to a salt marsh shall not destroy any portion of the salt marsh and shall not have an adverse effect on the productivity of the salt marsh.

The regulations also state that a salt marsh, as a resource area, shall be presumed significant to the protection of the interests of the Act.

There are two provisions in the regulations by which the proposed project may be approved, despite the prohibition of Section 10.32(3) of any filling or other activity which would adversely impact a salt marsh. First, the Act provides that, upon a "clear showing that a salt marsh does not play a role in the protection of marine fisheries, prevention of pollution, groundwater supply, or storm damage prevention," and a written determination to that effect by the review agency, the presumption of significance can be eliminated. In such a case, Section 10.23(3) would no longer be applicable and the project could be approved. The review and approval process includes the following steps:

1. Submission of NOI/EDF to New Bedford Conservation Commission
2. Wetlands Protection Act Hearing
3. Determination that Resource Area is Not Significant (Completion of Form 7)
4. DEQE Review of Determination
5. Order of Conditions

A second procedure by which Waterfront Park may be approved is through a variance from the regulations. Such a variance may be issued by the Commissioner of DEQE, waiving the application of the regulations, under two conditions:

1. The variance is necessary to accommodate an overriding community, regional, State, or national public interest; and

3.10.2.6 Water Quality Certification

Water Quality Certification is a prerequisite to several permits, including the State Chapter 91 Waterways License, the Dredge and Dredged Material Disposal Permit, and the Army Corps of Engineers Section 404 Permit. It is granted by the Division of Water Pollution Control under authority of MGL Chapter 21, Section 27(12) and Section 401 of the Federal Water Pollution Control Act (33 USC 1341).

The intent of the review is to insure that the proposed project will not cause a contravention of State water quality standards.

3.10.2.7 Coastal Zone Management Determination of Consistency

Both the Federal Coastal Zone Management Act and Massachusetts Coastal Zone Regulations (CMR 301.2) require that Federal and State actions be consistent with the State's Coastal Zone Management Program and Regulations. While no consistency certification has yet been submitted to the Office of Coastal Zone Managment (OCZM), they have reviewed preliminary project plans as described in the Environmental Notification Form submitted under MEPA. In concept, OCZM supports the Waterfront Park Project, particularly if it is tied to use of the site as a disposal area for PCB-contaminated dredged materials from New Bedford Harbor. OCZM does note, however, the presence of significant wetlands resources, expresses concern about effects to water quality, marine fisheries, and changes in New Bedford Harbor tidal circulation patterns. The full text of OCZM comments are reproduced in the scope of this document.

Close coordination with OCZM concerning project plans, impacts, and mitigation measures will continue.

3.10.2.8 Sewer Extension and/or Connection

The project, as presently planned, will require a Sewer Extension and/or Connection Permit (MGL Chapter 21, Section 43). The application for this permit, which has not yet been submitted, is reviewed by the Division of Water Pollution Control. The purpose of the review is to insure that the sewage system and treatment plant to receive the wastewater has the capacity and capability to treat the additional effluent adequately.

3.10.3 Federal Jurisdiction

Under Section 10 of the River and Harbor Act of 1899 and Section 404 of the Federal Water Pollution Control Act Amendments (FWPCA) of 1972, the Army Corps of Engineers (ACOE) is responsible for regulating all construction, excavation, dredging and filling activities occurring in, or otherwise affecting waters of the United States. As both dredging and filling are necessary components of the Waterfront Park proposal, a Department of the Army permit is required before work may begin. Information presented in this

report will serve as a basis for the Corp's review of the permit application. Among the many factors the Corps is mandated to consider in approving, denying, or conditioning a permit request are:

> ...conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, and in general, the needs and welfare of the people." (33 CFR 320.4(a)(1).

The FWPCA (known as the Clean Water Act) also states that applications for Section 404 permits are to be evaluated using guidelines developed by the Administrator of the U.S. Environmental Protection Agency (EPA), in conjunction with the Secretary of the Army. These guidelines (40 CFR 230) were published in the Federal Register on December 24, 1980, and became effective on March 23, 1981. These regulations provide guidelines both to selecting appropriate sites for dredged material disposal and for evaluating the impact of that disposal on the environment.

Prior to reaching a decision on the permit, ACOE may determine, based on the public interest values enumerated above, that a proposed project constitutes, "A major action significantly affecting the quality of the human environment." In such a case, an Environmental Impact Statement (EIS) will be required as set forth by the National Environmental Policy Act (NEPA) of 1970.

3.10.4 Applicability of the Resource Conservation and Recovery Act and the Toxic Substances Control Act

Depending upon the nature of the materials to be used as fill, particularly with respect to PCB concentrations, the project may be subject to the requirements of the Resource Conservation and Recovery Act (RCRA); Massachusetts regulations implementing RCRA at the State level; and the Toxic Substances Control Act (TSCA).

If dredged material to be disposed at the site meets the criteria of a hazardous waste, then the transport, treatment, if any, and disposal would be subject to the requirements of RCRA, MGL Chapter 21C, and pursuant regulations. Additionally, the Waterfront Park site would have to be designated as a hazardous waste disposal site under the Massachusetts Hazardous Waste Facility Siting Act (MGL Chapter 21D).

Regulations pursuant to TSCA provide requirements for the disposal of dredged materials which contain greater than 50 ppm of PCBs (40 CFR 761). Of most importance is the requirement that such materials be disposed in a secured chemical waste landfill. Section 761.106 provides for a special application process where such disposal is not practicable and an alternate disposal method is proposed.

Section 4.0

IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

4.0 IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

The construction of the proposed Waterfront Park at New Bedford will require the dredging of unsuitable material from approximately 6 acres within the Acushnet River, the construction of a dike and roadway, and the provision of a picnic area and two boat ramps. The dredging and construction of the dike have the potential to disturb sediments and to impact water quality in the Acushnet River. These impacts can, in turn, affect aquatic ecology. Terrestrial ecology will be affected by the conversion of both uplands and wetlands to maintained vegetative communities.

The Waterfront Park will also change the social and economic environment of the immediate area and, through the attraction of new traffic, will add to both air contamination and noise levels. Each of these effects is documented and discussed in the following sections. Primary attention is given to the proposed Waterfront Park and the alternatives for the construction of the required bulkhead. Additionally, discussions are provided for the longer range potentials for use of the lands behind the bulkhead for the disposal of contaminated dredged material from the Acushnet River and New Bedford Harbor and the construction of a multi-sports stadium and recreation complex.

4.1 Soils and Sediments

Under the No-Build Alternative, there will be no immediate impacts to the soils of the non-tidal portion of the project site. However, as it is apparent that the site is subject to random trash and fill dumping, a continued alteration of the soils can be expected.

The Perimeter Road Alternatives will not impact site soils as the road dike will be constructed over tidal areas. This aspect will be discussed in the following sections. The various options proposed for the area landward of the dike will impact site soils to varying degrees.

Recreational uses of the project site will require the filling and/or grading of areas landward of the dike. Soils currently altered with miscellaneous fill and trash will be covered and vegetated. Depending upon final location plans, parking areas, basketball courts, and related recreational areas requiring pavement will eliminate several acres of exposed soils.

The use of the area as a dredged material disposal site will result in the burial of all site soils. Material deposited here will require a clay capping and a vegetative cover.

4.2 Surface Water

4.2.1 Bathymetry and Navigation

The project area includes a small cove and surrounding lands on the western

border of the Acushnet River, north of the Coggeshall Bridge. Much of the cove portion of the site is exposed at low tide. No impacts to the bathymetry and/or navigation within the cove will result from the No-Build Alternative, and only marginal impacts are to be expected from implementation at the Perimeter Road Alternative because navigation in the cove is presently severely limited.

The proposed perimeter road will traverse the mouth of the cove, separating it from the Acushnet River Basin. Maximum water depths along the proposed road alignment are approximately 6 ft mhw and become more shallow rapidly inland of the road. Shallow water depths at this locality are a direct result of the protected location of the cove away from the main river and tidal channel. The area removed from the river basin by the proposed action is currently navigable by shallow draft vessels at high tide, but as noted above, much of this area is exposed land at low tide.

Because the waters of the project area represent such a small portion of the Acushnet River Basin, the loss of water area resulting from the construction of the perimeter road will not have a significant impact on the bathymetry or hydrographics of the Basin. Changes in the freshwater and saltwater input resulting from these modifications are discussed in the following sections.

4.2.2 Freshwater Hydrology

There are no surface freshwater bodies within or near the project area. Freshwater flow from the site is in the form of precipitation runoff from lands tributary to the cove; to a lesser degree, groundwater discharge of precipitation infiltrated through local soils; and precipitation which falls directly on the site's tidal waters.

The No-Action and the proposed alternatives will not change the volume of freshwater input to the basin river since runoff from the site will continue to flow toward the River. The proposed alternatives will require the eventual filling of 22 acres of inter-tidal area, and hence, will change the rate at which runoff reaches the river. In both cases, increased land area and vegetative cover will result in decreased runoff rates.

4.2.3 Tidal Influences

The use of the project area for recreational or dredge disposal purposes will require the filling of 21.2 acres of inter-tidal and open waters. However, because the area to be filled is within a shallow cove away from the main stem and tidal channels of the Acushent River Basin, the effects on basin hydrology will be slight.

The cove area that will be impacted has an area of 21.2 acres at mhw. At mean low water (mlw), the water surface area decreases to approximately 14.4 acres. Assuming an average area of 18.2 acres, and a tidal range of 3.8 ft, the

tidal prism lost to the river basin as a result of the construction of the perimeter road and cove filling will be approximately 3,013,000 ft^3. This represents 4.6 percent of the measured tidal prism of the Acushnet River Basin above the Coggeshall Bridge. The tidal prism of the basin following implementation of any of the build alternatives will be approximately 62,651,000 ft^3.

Flushing characteristics of the basin should not be changed by implementation of the proposed construction alternatives. This is due primarily to the fact that only a small percentage of the basin's low tide volume will be lost.

At low tide, nearly 7.6 acres of the cove constitute exposed tidal flats, while the remaining 14.4 acres have an average depth of only one foot. The mlw volume of this area is therefore 627,000 ft^3, or 2.5 percent of the 25,524,000 ft^3 mlw volume of the basin as a whole. Applying the post-construction values for mlw volume and prism to the Tidal Prism Method for calculating flushing times indicates a value of 1.4 tidal cycles. This is the same value that was calculated for the existing conditions (see Section 3.2.3).

4.2.4 Flooding and Floodplains

As noted in Section 3.2.4, 100-year flood levels on the Acushnet River in the project area are 6 ft msl, or 3.8 ft above mean high tide levels. This will result in flooding over most of the project site as it now exists .

The proposed alternatives will require a dike across the mouth of the cove with an elevation of 11.0 ft msl. The dike will extend to the intersection of Coffin and Riverside Avenues to the north, and Sawyer Street to the south (see Figure 1-2). A dike of this elevation would preclude flooding of the project area.

4.2.5 Water Quality

Disturbance of sediments, particularly those that are highly contaminated and have a high water content, will result in a release of chemical constituents to the overlying water. If the disturbance is severe, larger amounts of sediment are resuspended and depending on tidal conditions, water quality impacts can be exacerbated. It is conventional practice to determine how much chemical release will take place by conducting an elutriate analysis on the sediments to be dredged. In an elutriate analysis, one part of sediment is thoroughly mixed with 4 parts of water from the site in an aerobic environment. The supernatant water is filtered and the filtrate is analyzed for the chemical constituents. When compared with the chemical analyses of filtered background water, the amount of chemical release is determined. This testing procedure closely parallels hydraulic dredging but overestimates the potential impacts to water quality from clamshell bucket dredging.

In the instance of Waterfront Park, a series of elutriate analyses were conducted on each of the samples analyzed for bulk sediment composition (see

Section 3.1.2). Receiving water for the elutriate analyses was collected near Station 1 on an ebb tide. The results of the elutriate analyses are reported in Table 4-I.

The data in Table 4-I indicate release of metals, nutrients, and PCBs found in the surface sediments. The amount of chemical release was proportionate to the level of contamination. As an example, considerably greater release of metals was found in surface sediment from Station 2 where the more highly contaminated sediments were found. More PCBs were released from sediment at Station 1 where the highest PCB concentrations were found. Geotechnical Engineers also found the highest release of PCBs from the most highly contaminated sediment.

The degree to which water quality is altered to undesirable levels depends on the amount of sediment agitation taking place and the amount of dilution by water flowing past the construction site. These are discussed in the following sections.

4.2.5.1 Earth Embankment Construction

As indicated in Section 2.1.1, the method of constructing the roadway embankment recommended in the Feasibility Study was to excavate approximately 90,000 yd^3 and then backfill with select material. The dredging would be conducted in the wet.

Assuming that dredging is conducted with a 1.0 yd^3 capacity clamshell bucket dredge with a total daily output of approximately 300 yd^3, the unit would excavate approximately 250 yd^3 during each change in tide. A conservative estimate of bucket loss is 5 percent of its capacity. Therefore, over a 6.5 hour tide period, approximately 12.5 yd^3 of sediment would be lost and presumably resuspended. For this loss of sediment, to replicate the results of the elutriate analysis, 1,350 ft^3 of water is necessary. The volume of the tidal prism flowing past the site is approximately 65.6 million ft^3. The amount of dilution over a tide change therefore, is several orders of magnitude larger than dilution in the elutriate analysis and even in the near field (at the Coggelshall Street Bridge), the impacts to water quality are at the limits of calculation and probably would be undetectable.

4.2.5.2 Rock Mat Construction

The second least disruptive alternative to construction of the embankment foundation is use of a rock mat. In this alternative, large rock pieces are pushed forward by bulldozers or laid down by cranes. The rock sinks into the sediment and "chokes" the mud until stability is reached. Select backfill is then placed on top of the rock mat. The 60,000 yd^3 of rock required for the mat would displace its own volume in sediment resulting in a mud wave of approximately 30,000 yd^3 on either side of the embankment. Depending on the future use of the site (Boat Ramp), some or all of the mud wave may have to be removed. Removal could be conducted after the embankment is near

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Table 4-I

ELUTRIATE ANALYSIS

WATER QUALITY LABORATORY
ANALYSIS REPORT

PROJECT: WATERFRONT PARK
PROJ/NO: 324

244 SECOND AVENUE
WALTHAM, MA 02154
617/890-3737

STATION:		1	1	1	2	2	2	3
DATE OF ANALYSIS:		1/4/82	1/4/82	1/4/82	1/4/82	1/4/82	1/4/82	1/4/82
SAMPLE#:		4667	4651-E	4652-E	4653-E	4654-E	4655-E	4656-E
TYPE:		RCEIV WTR	ELUT	ELUT	ELUT	ELUT	ELUT	ELUT
SEDIMENT DEPTH:		—	0-15in.	15-30in.	0-10in.	10-20in.	20-30in.	0-5in.
ARSENIC	mg/l	.007	.05	.01	.07	.02	.01	.09
CADMIUM	mg/l	(.006	(.006	(.006	.006	(.006	(.006	.01
CHROMIUM	mg/l	.01	(.01	(.01	.04	.01	(.01	.02
COPPER	mg/l	.06	.06	.02	.17	.02	.01	.15
LEAD	mg/l	.11	.08	.06	.13	.1	.08	.11
MERCURY	ug/l	(.2	.2	(.2	.2	(.2	(.2	.6
NICKEL	mg/l	.23	.23	.2	.3	.2	.2	.3
VANADIUM	mg/l	(.01	(.01	(.01	(.01	(.01	(.01	.01
ZINC	mg/l	.1	1.1	.2	1.2	.1	.1	.5
P/TOTAL	mg/l	.13	.04	.11	.11	.16	.03	.05
N/AMMONIA	mg/l	.06	1.53	.3	.19	.01	.01	.33
N/NITRATE	mg/l	.99	.08	.09	.14	.12	.15	.15
TKN	mg/l	1.68	2.5	.74	1.09	.45	.49	1.21
O&G	mg/l	2.4	2.2	(2	(2	(2	(2	6
TOTAL PEST*	ug/l	(5	(5	(5	(5	(5	(5	(5
aroclor 1242	ug/l	(5	14	(5	27	(5	(5	12
aroclor 1248	ug/l	(5	84	(5	22	(5	(5	52

*TOTAL PESTICIDES CONSIST OF: DDT, DDD, DDE, ENDRIN, DIELDRIN, AND METHOXYCHLOR

CARLTON L. NOYES

final grade using a clamshell bucket dredge and disposing of the material inside the embankment. If there is no specific requirement for the removal of the mud wave, it could also be left in place.

4.2.5.3 Bulkhead Construction

Placement of a bulkhead followed by removal of organic silts to a good bearing surface is the most benign construction method in terms of potential impact to water quality. All construction is conducted essentially in the dry with little dispersal of water from within the bulkhead to the River. Sediment removed from the bulkhead is placed within the area to be filled with little to no impacts to water quality.

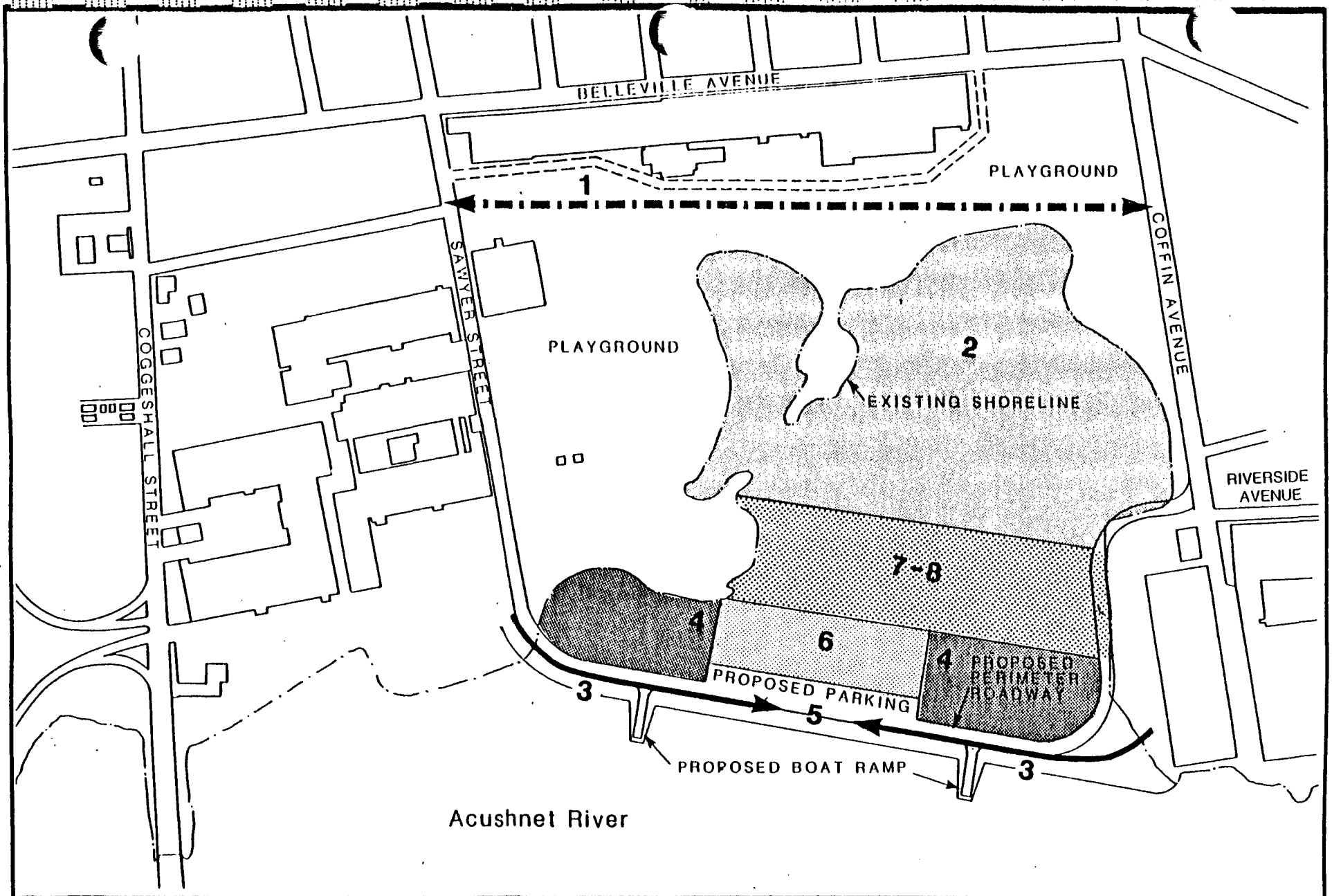
4.2.5.4 Long-Term Impacts to Water Quality

Whether the cove is filled with ordinary fill material or is filled with dredged materials, all surface runoff and storm sewers which currently enter the cove must be diverted. If filling is to be conducted with ordinary fill, the filling process should coincide with, or precede, embankment construction. It would be undesirable to construct the embankment first and later start filling unless adequate provisions have been made in the embankment for the daily passage of tide water. Otherwise, odors and anoxic conditions in the exposed sediment would certainly develop.

Two minor impacts will develop from filling with ordinary material. It is anticipated that filling would proceed from the periphery and be pushed into the cove. As a result, there will be a slight increase of suspended solids within the cove water derived from the fill itself. The dispersion of suspended solids into the Acushnet River will be minimal and under ordinary circumstances, will not result in a major discoloration of water. This statement can be made with reasonable certainty based upon experience with the fill project in Boston Harbor at the Massport facility. The Massport filling is a significantly larger project in much deeper waters and a higher energy environment and the results of monitoring indicate little to no detectable impact on Harbor water from suspended solids.

The second impact from filling with ordinary fill will be the generation of a mud wave. The potential volume of the mud wave cannot be estimated. However, it will form and it can be excavated under enclosed conditions as shown in Figure 4-1. The excavated mud can then be mixed with the general fill material prior to final grading.

Should the cove be filled with dredged material, the embankment will have to be designed and constructed as a low head dam. Since it appears that dredging of the upper 1 to 1.5 ft of sediment is necessary to remove the majority of recently deposited pollutants, it is likely that hydraulic dredging equipment would be used. The slurry discharged from the dredge will contain increased levels of metals, nutrients, and PCBs, as the elutriate analyses have



WATERFRONT PARK
New Bedford, Massachusetts

JASON M. CORTELL AND ASSOCIATES INC.

0' 125' 250'

Construction Sequence

1 Relocate storm drainage to Sawyer Street and Coffin Avenue storm sewers and construct site drainage system.
2 Advance fill from playgrounds on Sawyer Street and Coffin Avenue stopping approximately opposite Riverside Avenue.
3 Commence embankment construction from both ends.
4 Fill from completed ends of embankment.
5 Close embankment, making final closure at low tide.
6 Advance fill inward from enbankment.
7 Remove mud wave between fills and incorporate into Area 2 fill.
8 Finish filling.

Figure 4-1

indicated. When the slurry enters the cove, solids will settle and the remaining supernatant water will be significantly contaminated such that it cannot be returned to the River without first being treated to remove residual metals and PCBs. These aspects of handling the supernatant water are discussed in Section 5.0, Mitigation Measures.

4.3 Aquatic Biology

Construction of the embankment and filling of the cove will result in a loss of all marine biota inhabiting the site. Although these organisms continue to perform a part in the marine food chain and occupy a niche, they are most likely highly contaminated with metals and PCBs themselves.

4.4 Vegetation, Wetlands, and Wildlife

4.4.1 No-Build Alternative

Vegetative and wildlife conditions onsite will remain unchanged by this alternative. Consequently, successional trends will continue with the eventual replacement of unmaintained lands, dominated by herbaceous plant species, with woody shrub and tree species. It is anticipated that open space lands will be maintained and, thus, no alterations of existing conditions in these areas will occur. Wetland communities are also expected to remain relatively unchanged.

4.4.2 Perimeter Road Alternatives

Regardless of the method by which the Perimeter Road is constructed, a loss will occur of approximately 8.0 acres of existing lands, including approximately 0.3 acres of successional lands, 0.2 acres of developed lands, and 7.5 acres of open water. As previously indicated, this 8 acre area is planned to consist of the Perimeter Road, two boat ramps, a parking area for 50 vehicles, and picnic grounds.

Additionally, construction of the Perimeter Road will effectively isolate the remainder (approximately 13.7 acres) of the inlet. This portion of the inlet would no longer be subject to tidal influences and alterations of the area's existing hydrologic regime and water quality may be anticipated. Given these modifications, such long term effects as the alteration of the plant species composition of the site's salt marsh community and the conversion of this area to a freshwater wetland may be expected.

With both earth embankment and rock mat construction, elevated levels of turbidity and sedimentation will likely be associated with affected surface waters and wetlands. Such impacts are expected to be minimized, however, through bulkhead construction and the limiting of dredge and fill activities within cantilevered sheet pile walls.

4.4.3 Land Use Alternatives

Potential impacts associated with the construction of Waterfront Park are presented in Section 4.4.2.

With respect to the dredged material disposal alternatives, vegetative and wildlife impacts primarily include the eventual loss of the remaining 13.7 acres of open water onsite, as well as the salt marsh community. In contrast to the future recreation use alternatives, however, the use of the area west of the Perimeter Road exclusively for dredged material disposal will result in the creation of upland vegetative communities and wildlife habitat. Subsequent to the completion of disposal activities, topsoil adequate for the growth of vegetation would be distributed onsite and the area landscaped. Such habitat replacement would not be associated with the implementation of the future recreation uses alternative. Although some landscaping of the project area is likely, this alternative will effectively result in the conversion of existing vegetation and wildlife habitat to recreation lands.

4.4.4 Evaluation of Site Wetlands

The COE cites seven functions important to the public interest which may be performed by wetlands. The following discussion addresses each of these functions in relation to the wetlands located on the project site. In each instance, the wetland function is listed.

i. "Wetlands which serve important natural biological functions, including food chain production, general habitat, and nesting, spawning, rearing, and restings sites for aquatic and land species."

All wetland communities perform a role in food chain production or provide habitat suitable for wildlife, to some extent. Vegetation is a fundamental component of wetlands. In most typical food chains, plants serve as producers for consumer organisms, primarily animals. Also, since the availability of wildlife habitat is largely dependent on vegetation, any vegetated area will most certainly provide some of the life-sustaining requirements for various species of wildlife. Thus, the site's wetlands play a role in food chain production, and providing wildlife habitat.

The extent to which these wetlands provide valuable wildlife habitat, however, is limited. As stated in Section 3.4.3, this is due to the urbanized character of surrounding lands, the extent to which the site is isolated by development, and the highly disturbed nature of the project area itself. The site's close proximity to development and human activity, as well as its limited vegetative diversity, serve to inhibit the present of wildlife. Consequently, impacts to wetland vegetation and wildlife habitat are not considered significant.

Given their habitat requirements, no endangered or threatened species at either the Federal or State levels are likely to occur in the project area. Thus, the proposed Waterfront Park will not impact these species.

ii. "Wetlands set aside for study of the aquatic environment or as sanctuaries or refuges."

No such use of the project site is known.

iii. "Wetlands the destruction or alteration of which would affect detrimentally natural drainage characteristics, sedimentation patterns, salinity distribution, flushing characteristics, current patterns, or other environmental characteristics."

Project area wetlands do not play a major role in the above-mentioned factors.

With the possible exception of salinity distribution, significant adverse impacts to these factors are not anticipated (see Section 4.2). As indicated in Section 4.4.2, construction of the Perimeter Roadway would effectively isolate the inlet onsite from the Acushnet River. Consequently, it is probable that salinity concentrations in the isolated cove would decrease sufficiently to allow eventually for the conversion of the existing salt marsh to a freshwater wetland. Such impacts, however, are restricted to the project area and modifications to the salinity distribution in the remainder of the Acushnet River are not anticipated.

iv. "Wetlands which are significant in shielding other areas from wave action, erosion, or storm drainage. Such wetlands are often associated with barrier beaches, islands, reefs, and bars."

Due to the site's location behind the hurricane barrier and the riverine nature of the area, its significance in performing the above-mentioned functions is minimal. This function of the site's wetlands is further limited by the linear nature of the salt marsh and its relatively narrow width. Project-related impacts associated with these functions are, thus, not expected to be severe.

v. "Wetlands which serve as valuable storage areas for storm and flood waters."

The value of the site's wetlands as storage areas for storm and flood waters is quite limited due to the relatively small size and configuration, and their location immediately adjacent to the Acushnet River. Additionally, as sediment underlying the salt marsh are likely to be saturated for the majority of the time by diurnal tides, opportunities for these areas to serve as storage areas for storm and flood waters are extremely limited.

vi. "Wetlands which are prime natural recharge areas. Prime recharge areas are locations where surface and groundwater are directly interconnected."

Due to the proximity of the site's wetlands (salt marsh) to the Acushnet River, as well as the topography of this portion of the site, little opportunity, if any, exists for the accumulation of surface water in onsite wetlands. Additionally, the location of the salt marsh adjacent to the River is such that recharge resulting from precipitation and/or tidal inundation is immediately discharged to the Acushnet River. The relatively small size of the salt marsh also limits the recharge potential of project area wetlands. Given these factors, project-related impacts with respect to the recharge functions of onsite wetlands will be minimal.

vii. "Wetlands which through natural water filtration processes serve to purify water."

Wetlands (salt marsh) on the project site are not expected to serve a significant role in the maintenance or enhancement of water quality. This is primarily due to their relatively small size with respect to the volume of water associated with the remainder of the site and the Acushnet River. As such, the ability of these wetlands to reduce contaminant levels and project-related impacts to water quality resulting exclusively from the elimination of the wetlands is anticipated to be negligible.

4.5 Land Use, Demography, and Economics

4.5.1 No-Build Alternative

The No-Build Alternative would leave the existing uses of the project area unchanged. The northwest corner of the parcel will continue to be used for recreational purposes with the remaining area vacant. Any type of future land use will remain possible.

The No-Build alternative will have no influence on the existing demographic trends in the project area. Residential neighborhoods in proximity to the project site will probably continue to lose population in favor of less densely populated areas of the City. No economic stimulus to the area will be provided.

4.5.2 Perimeter Road Alternatives

Land Use

No matter which alternative for construction of the perimeter road is selected, the land uses on the project site will be altered. Construction of two boat ramps and a picnic area will open an additional six acres of land for recreational uses. The remaining approximately 16 acres of filled-in land will be temporarily vacant with an option for future recreational use. The perimeter road itself will occupy approximately 1.5 acres, thus committing additional land to transportation use.

Dedication of additional land for recreational uses, especially boating and picnicking, in the North End neighborhood is consistent with the general goals and objectives as stated in New Bedford's Comprehensive Recreation and Open Space Plan, 1978-1983, and the specific needs of the local neighborhood. The proposed picnic and boating area will provide for recreational needs of all New Bedford residents because the new facility will be easily accessible through public transportation, individual motor vehicles, or pedestrians.

The Acushnet River has been underutilized for water-related recreation. The proposed boating facilities will expand residents' options in this category while at the same time, the location of the project north of the Coggeshall Bridge will prevent any interference with New Bedford Harbor traffic.

On the local level, the New Bedford Open Space and Recreational Plan identified the needs to:

1. Maintain and upgrade the existing inventory in line with basic standards of parks and playground design;

2. Provide playground facilities in those densely-populated, low-income neighborhoods which have been identified as underserved.

3. Implement recreation and open space improvements in special areas which will not only benefit the population, but which will also serve to improve the climate for local economic development.

The proposed facilities will significantly upgrade the quality of recreation provided by the existing Riverside Park. The new project will also expand the service area of the existing facility to accommodate currently underserved parts of the North End neighborhood. Beautification of the neighborhood should improve its attractiveness to the local as well as more distant residents of New Bedford, thus making the North End district a more pleasant place to live. Influx of population seeking recreation should also have a positive impact on the local economic climate.

Demography

Population loss and increasing vacancy rates in the residential neighborhood adjacent to the project site appear to be the most significant problems of the area. Additional recreational facilities, especially geared toward family and young people's recreation, would tend to abate population loss among prime members of the working force. Expenditures associated with the project construction and economic activity generated by future users of the proposed facility should have a positive effect on income and employment among the local population.

Economics

The short-term economic impacts of the proposed Waterfront Park may be

expected to occur, both during and immediately after the construction period. Long-term effects, associated with the general revitalization of the area due to more vigorous recreational activity, are more difficult to project because of rapidly changing economic conditions in the country and unknown future degree of facility utilization.

During the construction period, direct economic effects will be primarily limited to the employment opportunities and income generated by the construction itself. Indirect impacts will result from the multiplier effect on the economy caused by the initial injection of construction capital expenditure.

Based on preliminary expenditure projections by Congdon, Gurney & Towle, Inc., manpower needs for construction of the perimeter road were estimated. It has been assumed that of total construction expenditures, 40 percent constitutes cost of materials, 25 percent outlay for labor, and the remaining 35 percent covers equipment costs, overhead, miscellaneous items and profit. Table 4-II estimates the total number of jobs required by each construction method for the duration of the project.

The direct construction employment will generate additional jobs in the economy through the demand for goods and services for the construction workers and their families as well as through the increased demand for the construction materials.

Not all of the jobs generated by the construction of Waterfront Park will be held by the New Bedford area residents. Only approximately 35 percent of construction jobs can be expected to be filled by local residents. Consequently, construction of the perimeter road will generate between 65 and 79 jobs in the area depending on the construction method chosen.

The direct construction expenditure money injected into the New Bedford economy will be spent and respent on goods and services in other sectors of economy, increasing sales and ultimately, incomes. These effects are summarized in Table 4-III. The total income increase within the region from this multiplier effect will range from $1,486,563 to $1,788,063 for different construction methods. The share of income remaining in the New Bedford area will range from $594,625 to $715,225.

4.5.3 Land Use Alternatives

The project as planned delineates approximately 6 acres of the site to be developed for recreational use. The effects of this land use alternative were evaluated in Section 4.5.2 and 4.5.3. The remaining 16 acres of the cove will remain vacant temporarily. It is possible that the remaining lands may be used for disposal of dredged material and that a major sports complex may be developed on the site.

Table 4-II

CONSTRUCTION AND RELATED EMPLOYMENT GENERATED BY CONSTRUCTION METHOD

Construction Method	Total Construction Costs ($)	Estimated[1] Manpower Costs ($)	Direct[2] Construction Jobs Generated	Jobs[3] Generated In Other Industries	Total Jobs	Regional[4] Share
Earth Embankment	3,550,000.00	887,500.00	48	139	187	65
Rock Mat	4,270,000.00	1,067,500.00	58	168	226	79
Bulkhead	4,163,000.00	1,040,750.00	56	162	218	76

Source: Jason M. Cortell and Associates Inc., 1982.
Congon, Gurney & Towle, Inc., September, 1980.

1 Labor costs are calculated as 25 percent of total construction cost.
2 Computed by dividing manpower costs by an estimated average 1982 construction wage for the New Bedford area of $18,565.00
3 Computed by multiplying direct construction jobs by a multiplier of 2.9.
4 Regional share of jobs assumed to be 35 percent.

Table 4-III

CONSTRUCTION AND RELATED INCOME GENERATED BY CONSTRUCTION METHOD
(in 1982 Dollars)

Construction Method	Total Cost	Expenditures[1] on Materials	Expenditures[2] on Labor	Regional Share[3]	Multiplier Effect Within Region[4]
Earth Embankment	3,550,000.00	1,420,000.00	887,500.00	594,625.00	1,486,562.50
Rock Mat	4,270,000.00	1,708,000.00	1,067,500.00	715,225.00	1,788,062.50
Bulkhead	4,163,000.00	1,665,200.00	1,040,750.00	697,302.50	1,743,256.25

Source: Feasibility Study Waterfront Park, New Bedford, MA. Congon, Gurney & Towle, Inc., 1980.
JMCA, 1982.

1 Material costs are calculated as 40 percent of total construction costs.
2 Labor costs are calculated as 25 percent of total construction costs.
3 Computed assuming a maximum regional share of 20 percent for materials-related income and 35 percent for labor-related income.
4 Computed by applying a multiplier of 2.5 to expenditures on materials and labor.

Dredged Material Disposal

The use of the cove as a dredged material disposal site for New Bedford Harbor and the Acushnet River does not depend on the Waterfront Park development but can be treated as an addition to the proposed use resulting in intensive utilization of the site.

The effects on area demography and economics resulting from the construction of the disposal site will be primarily due to construction and site operation expenditures. Using the data for construction of a similar facility on the Hudson River (U.S. EPA, 1981) and estimates for New Bedford (Malcolm Pirnie, 1981), the construction and operation costs of the New Bedford disposal site could be estimated to range from $8 million to $9.6 million.

The effects of these expenditures on local and regional income and employment are derived in Tables 4-IV and 4-V. The assumptions used for calculations are described in Section 4.5.2. Construction of the disposal site for contaminated dredged material will create between 59 and 74 jobs in the New Bedford area. The regional share of income resulting from this initial expenditure will range from 0.9 to 1.1 million dollars. The total income increase within the region from the multiplier effect will range from 2.3 to 2.8 million dollars.

Both employment and income effects resulting from construction expenditures will be present only during the construction period itself. A longer term economic effect will result from dredging of the New Bedford Harbor and the Acushnet River. Improved passage conditions should add to the economic vitality of the water related businesses.

Future Recreation Uses

The construction of major recreational facilities behind the perimeter embankment and roadway represents further increase in intensity and land utilization. The proposed multi-use stadium, baseball diamonds, tennis and basketball courts, and boat rental facilities will enhance the regional character of the Waterfront Park, providing unique recreational opportunities for the New Bedford area residents.

Future expansion of recreational uses on the project area will intensify the positive effects on local demography described in Section 4.5.2. Further stimulus to the local economy can be also expected due to a larger volume of people visiting the area.

The economic effects associated with the facility expansion expenditures are presented in Tables 4-IV and 4-V. Current estimates project the total cost of the additional facilities to range from 3.2 to 5.5 million dollars (Source: Personal Communication, Representative Roger R. Goyette). During the construction period, the local area should gain between 37 and 65 jobs while the share of generated income will fall between 0.4 and 0.8 million dollars. The multiplier effect will bring the total increase of income within the region to 1 to 2 million dollars.

JASON M. CORTELL AND ASSOCIATES INC.

Table 4-IV

CONSTRUCTION AND RELATED EMPLOYMENT GENERATED
BY LAND USE ALTERNATIVE

Alternative Method	Total Construction Costs	Estimated[1] Manpower Costs	Direct[2] Construction Jobs Generated	Jobs[3] Generated In Other Industries	Total Jobs	Regional[4] Share
Disposal site for contaminated material	8.0 - 9.6	0.8 - 1.0	43.0 - 54.0	125.0 - 157.0	168.0 - 211.0	59.0 - 74.0
Other Recreational Uses	3.2 - 5.5	0.5 - 0.9	27.0 - 48.0	78.0 - 139.0	105.0 - 187.0	37.0 - 65.0

Source: Jason M. Cortell and Associates Inc., 1982.
Congon, Gurney & Towle, Inc., September, 1980.

1 Labor costs are calculated as 25 percent of total construction cost.
2 Computed by dividing manpower costs by an estimated average 1982 construction wage for the New Bedford area of $18,565.00
3 Computed by multiplying direct construction jobs by a multiplier of 2.9.
4 Regional share of jobs assumed to be 35 percent.

Table 4-V

CONSTRUCTION AND RELATED INCOME GENERATED BY LAND USE ALTERNATIVE
(in 1982 Dollars)

Alternative Use	Total Cost (millions)	Expenditures[1] on Materials (millions)	Expenditures[2] on Labor (millions)	Regional Share[3] (millions)	Multiplier Effect Within Region[4]
Disposal site for contaminated material	8.0 - 9.6	3.2 - 3.8	0.8 - 1.0	0.9 - 1.1	2.3 - 2.8
Other Recreational Uses	3.2 - 5.5	1.28 - 2.2	0.5 - 0.9	0.4 - 0.8	1.0 - 2.0

Source: Jason M. Cortell and Associates Inc., 1981.

1 Material costs are calculated as 40 percent of total construction costs.
2 Labor costs are calculated as 25 percent of total construction costs.
3 Computed assuming a maximum regional share of 20 percent for materials-related income and 35 percent for labor-related income.
4 Computed by applying a multiplier of 2.5 to expenditures on materials and labor.

4.6 Traffic, Air Quality, and Noise Impacts

The proposed Waterfront Park, with or without any major additional use of the site, will provide a new traffic path along the water front and will attract traffic to the area. This increased traffic can have an effect on both traffic-related air quality and noise. These potential effects are described below for each major alternative.

4.6.1 Traffic Impacts

The construction of the proposed Waterfront Park will cause very little construction-related traffic. The construction crew will yield approximately 10 peak hour vehicle arrivals. A maximum of approximately 6 trucks bringing fill could arrive each hour during the working day. These additional volumes of traffic are insignificant when compared to the existing peak hour traffic volumes on the area roadways. Post-construction traffic, on the other hand, may cause a significant increase in total traffic volumes.

4.6.1.1 Waterfront Park Traffic

The Waterfront Park, as proposed, will provide parking for 50 automobiles. Because much of the usage will be by local residents, arrival and departure times may coincide with evening peak traffic periods as people stop by the park after working hours. The maximum traffic that might be generated can be estimated by assuming that each available space fills and empties once during the peak traffic hour. This would result in a total of 100 peak hour trips, 50 bound for the site and 50 leaving the site. Essentially, all of these trips would be made by private automobiles.

4.6.1.2 Sports Complex Traffic

The major long range proposal for the property would lead to the construction of an 8,000 seat multi-sport stadium onsite. The detailed design of such a stadium is not available, but the magnitude of traffic attracted by the facility can be estimated accurately. The U.S. EPA (1978) provides estimation techniques in Guidelines for Air Quality Maintenance Planning and Analysis - Volume 9 (Revised): Evaluating Indirect Sources. Appendix A to Volume 9 indicates that the total number of automobiles arriving at a sports complex prior to an event can be estimated from the equation:

$$V = AP/Avo$$

where:

V = volume of automobiles
A = expected attendance
P = percent arriving by car
Avo = average vehicle occupancy

To estmate the worst case, the attendance (A) is set equal to the seating capacity of the stadium. The percent arriving by car (P) suggested by the EPA is 88 percent. Similarly, an average vehicle occupany (Avo) of 3.5 people per vehicle is recommended for football stadiums. These last two figures may be somewhat conservative (leading to overprediction) at Waterfront Park, since much of the area to be served is within walking distance, but the conservative figures will be used in the traffic, air quality, and noise analyses.

Using the worst case values for all factors, the total number of vehicles arriving for an event is 2,010. It is further assumed that all of these vehicles arrive in one hour and that the event takes place at the end of a normal work day, so that sports complex traffic and daily peak hour traffic coincide.

4.6.1.3 Traffic Distribution

Based on the distribution of existing traffic on the roadway system, all of the expected worst case traffic from the Waterfront Park and from the Sports Complex were distributed onto the street network. Arrival and departure patterns were assumed to be symmetrical and the origins of the traffic were assumed to be the same as the existing traffic. This is a satisfactory assumption for a park designed to serve primarily local needs.

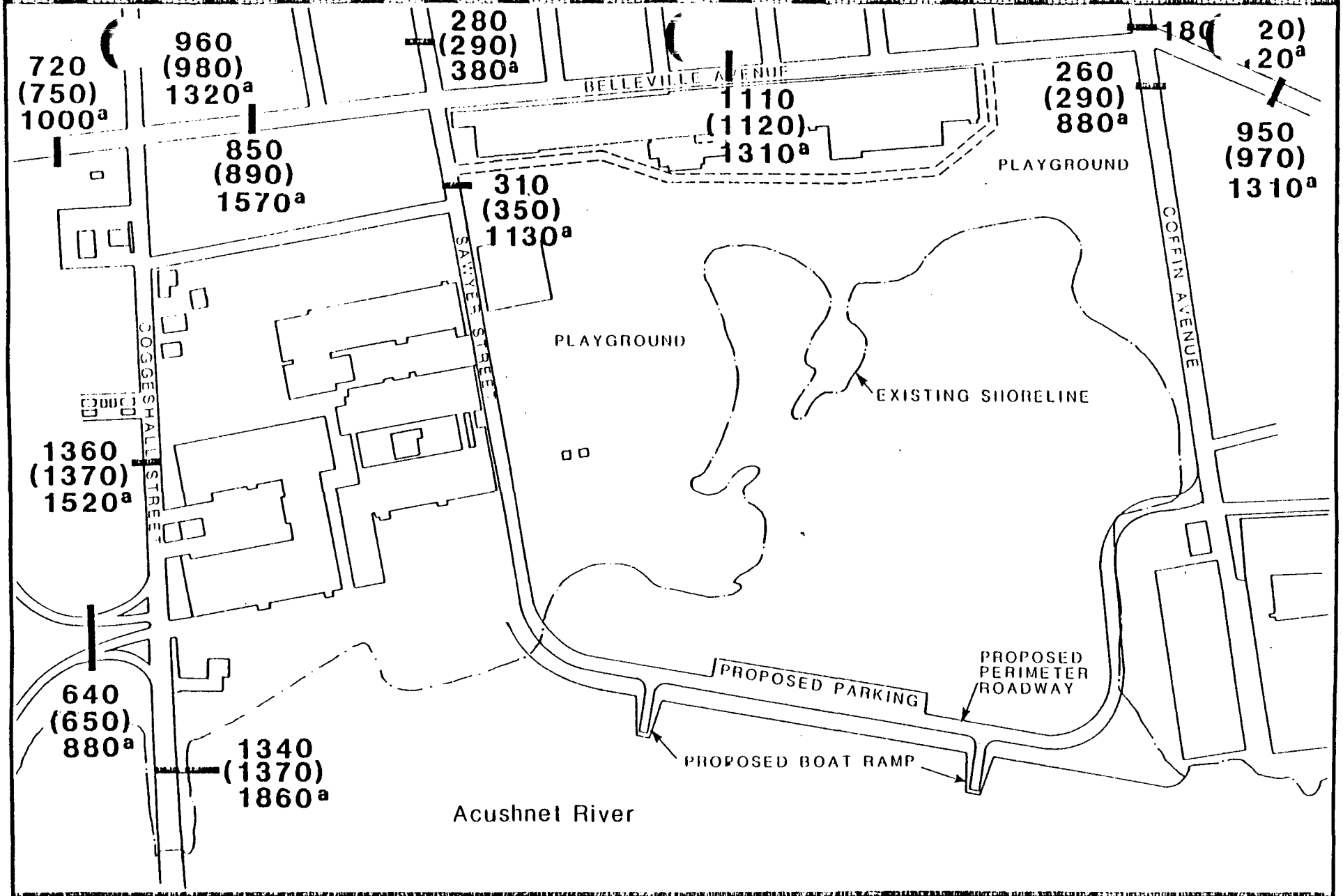
Figure 4-2 shows the results of this traffic distribution on peak hour traffic volumes. The existing peak hour volumes are presented for comparison.

The data contained in Figure 4-2 indicate that the Waterfront Park, as proposed, will have negligible effects on traffic conditions. The largest absolute and proportional increase will be experienced on Sawyer Street, where an additional 40 vehicles will cause a 13 percent increase in peak hour traffic. These same automobiles, when they enter Belleville Avenue, will mix with a much larger stream of existing traffic and will cause only a 5 percent increase in traffic on Belleville Avenue between Sawyer Street and Coggeshall Street.

Should the Sports Complex be constructed, more substantial increases in peak hour traffic can be expected. Peak hour traffic on Sawyer Street will be increased from 310 to 1,130 vehicles, an increase of 365 percent. Even on Belleville Avenue, the increase will be substantial, increasing the current 850 vehicles per hour to 1,570 vehicles per hour, nearly doubling the total peak hour traffic between Sawyer Street and Coggeshall Street.

4.6.1.4 Effects on Operating Conditions

Although no detailed traffic studies have been made of the proposed Waterfront Park or of the Sports Complex, the general effects of the potential traffic increases on peak hour operating conditions along the area roadways can be determined using an approximate determination of Level of Service



WATERFRONT PARK
New Bedford, Massachusetts

1987 Peak Hour Traffic Volumes

Existing **xxx**

Sports Complex [a]

Waterfront Park **( )**

JASON M. CORTELL AND ASSOCIATES INC.

0' 125' 250'

Figure 4-2

(LOS) for each major intersection. The techniques presented in the Highway Capacity Manual (Highway Research Board, 1965) were used to assign an LOS to each intersection. These are presented in Table 4-VI, along with the corresponding designation for existing traffic conditions (see Section 3.9.1).

Table 4-VI

IMPACT ON TRAFFIC LEVEL OF SERVICE

Intersection	Existing LOS	Waterfront Park LOS	Sports Complex LOS
I-195 Ramps at Coggeshall Street	A	A	E
Coggeshall Street at Belleville Avenue	B	B	D
Belleville Avenue at Sawyer Street	A	A	E
Belleville Avenue at Coffin Street	A	A	B

The modest volume of traffic attracted to the proposed Waterfront Park will have no noticeable effect on the peak hour operating conditions of the area roadways. In no case will the LOS be decreased.

The Sports Complex, on the other hand, will attract far more automobiles and could have a substantial effect on peak hour Level of Service. As indicated in Table 4-IV, all intersections in the immediate area will experience reduced levels of service on those days when events are planned for the facility. Three of the intersections (Coggeshall at the Ramps, Coggeshall at Belleville, and Belleville at Sawyer) could experience reductions to LOS D or E. Generally, LOS C is the minimum design standard for urban and suburban areas. In order to meet such a standard, modifications would be required to each of these three intersections. In all three cases, adding a lane to each major approach would be sufficient to provide Level of Service C under the peak conditions. It is assumed that any plan for the Sports Complex would include these and perhaps other traffic improvements.

4.6.2 Air Quality

The projected increases in traffic in the area will be the primary source of increases in air contamination. As pointed out in Section 3.9.2, the effects of this traffic can be modeled using the CALINE-3 Nomograph (FHWA, 1981). To provide comparative estimates, air quality calculations were made for peak traffic conditions during winter months for both the Waterfront Park traffic and for the Sports Complex traffic. All calculations were made for a reference distance of 15 meters (approximately 50 ft) from each roadway segment and intersection. Traffic data were taken directly from Figure 4-2.

The results of the calculation of peak eight-hour carbon monoxide (CO) concentration (the most sensitive measure of automotive air contamination) are presented on Figure 4-3. In all cases, calculations were made for 1987, the assumed year of full operation of the Park. Data are presented for the No-Build Alternative, for the Park, and for the Sports Complex to allow direct comparison of effects.

Figure 4-3 demonstrates that no contraventions of ambient air quality standards are anticipated. The ambient air quality standard for eight-hour CO concentration is 9.0 ppm and the maximum expected concentration is 7.2 ppm along Coggeshall Street with the Sports Complex. Because of the anticipated improvements in average vehicle emissions, this maximum concentration is somewhat less than the existing maximum (7.5 ppm) reported in Section 3.9.2.

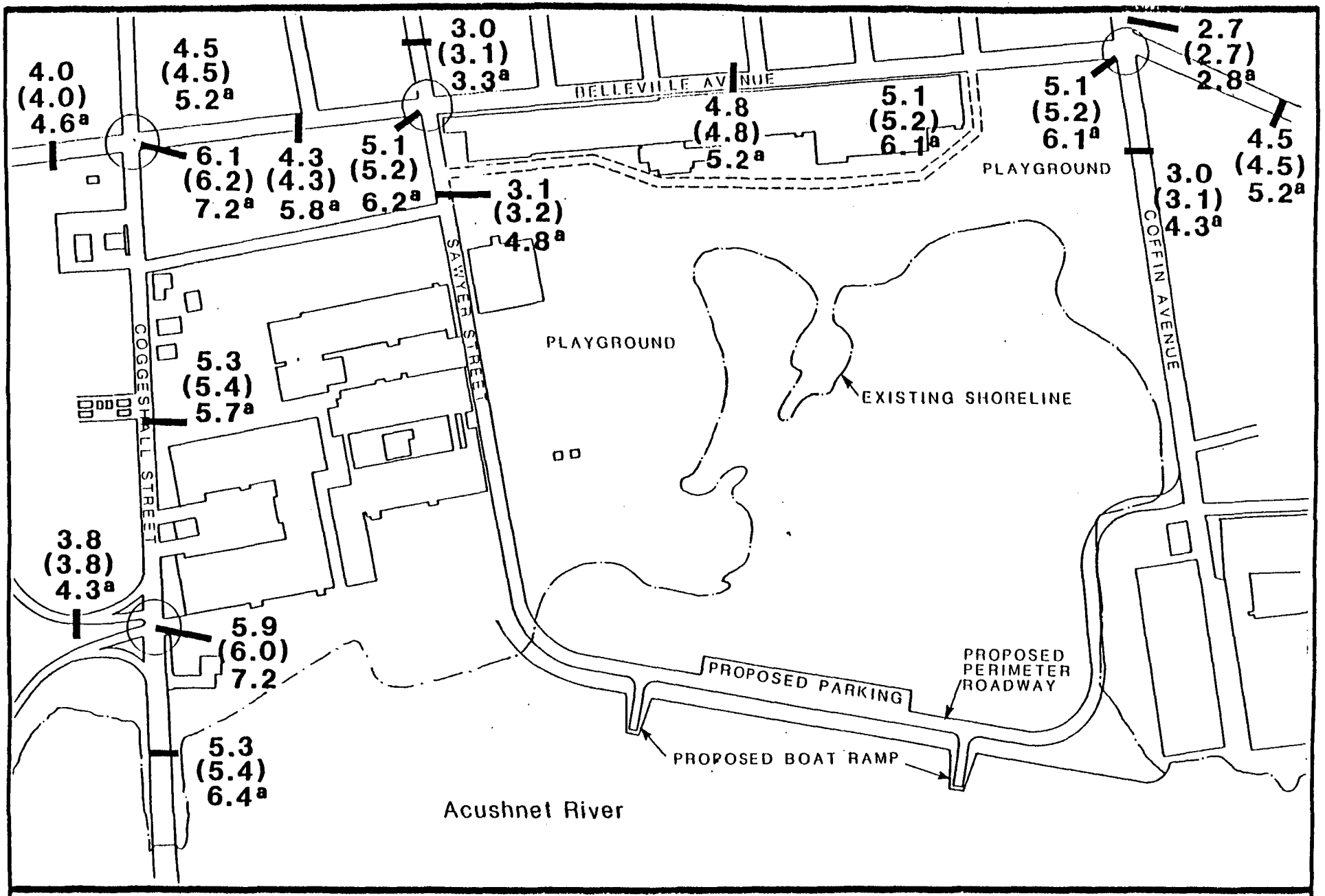
There are, however, clear differences among the alternatives. The No-Build situation will yield the lowest concentrations of air contaminants at all locations. The small increases in traffic associated with the Waterfront Park will cause minor increases in air contamination, ranging from a minimum of zero to a maximum of 0.1 parts per million (ppm). The Sports Complex, with its substantial increase in traffic volumes, will lead to increases ranging from 0.1 ppm to 1.7 ppm. Even so, no contravention of standards is anticipated and no significant adverse effect can be expected.

4.6.3 Noise Levels

Noise impacts may result from the proposed Waterfront Park project, both during and after construction. During the construction period, equipment noise onsite will be the primary source. After construction, traffic attracted to the site will be the primary source.

4.6.3.1 Construction Noise

The construction of either the earth fill or the rock mat embankment can be carried out with a small complement of equipment. At peak construction, it is likely that a dredge would be operating near the dike and that two trucks and



WATERFRONT PARK
New Bedford, Massachusetts

1987 Peak Eight Hour Carbon Monoxide Concentration

No Build **xx**
Sports Complex [a] Waterfront Park **( )**

JASON M. CORTELL ASSOCIATES INC.

0' 125' 250'

Figure 4-3

two bulldozers would be constructing the dike. Should the bulkhead alternative be chosen, a pile driver would replace the dredge. Based on data contained in Construction Noise (U.S. EPA, 1971), the noise levels associated with these two groups of equipment were estimated.

A dredge will produce approximately 80 dBA at a reference distance of 50 ft. Trucks can be expected to produce 82 dBA. Adding these noise levels logarithmically, the resulting reference noise level at 50 ft from the active work area will be 92 dBA. This noise level will exist during the peak construction period for the earth embankment and rock fill alternatives.

For the bulkhead alternative, replacing the dredge with a pile driver at 95 dBA will raise the reference noise level to 97 dBA at 50 ft.

In both cases, these noise levels will be reduced at distances greater than 50 ft. Because construction equipment is a point source of noise, this reduction will amount to approximately 6 dBA for each doubling of distances. The closest noise receptor is the industrial building located 100 ft north of the dike area. Here, peak construction noise levels will be approximately 86 dBA for the earth and rock fill alternatives and approximately 91 dBA for the pile driving portion of construction of the bulkhead alternative.

The nearest residential receptors are located approximately 160 ft from the north end of the embankment along Coffin Avenue. At these locations, the noise reduction will amount to approximately 10 dBA. The maximum construction noise level will thus be 82 dBA for the embankment or rock mat construction process and 87 dBA for the bulkhead alternative.

Finally, the largest concentration of residences is located 1,300 ft from the dike location along Belleville Avenue and the residential streets to the west. At these locations, the distance attenuation will be 28 dBA and the resulting noise levels will be 64 dBA for the embankment and rock mat construction and 68 dBA for the pile driving portion of the bulkhead construction.

These noise levels will affect receptors only during the normal working hours on weekdays during that portion of the construction period when the work is located closest to each receptor. For this reason, the impacts of construction noise, although noticeable, will be of short duration and of limited significance. No evening or weekend construction is planned, further limiting the magnitude of construction noise effects.

4.6.3.2 Traffic Noise

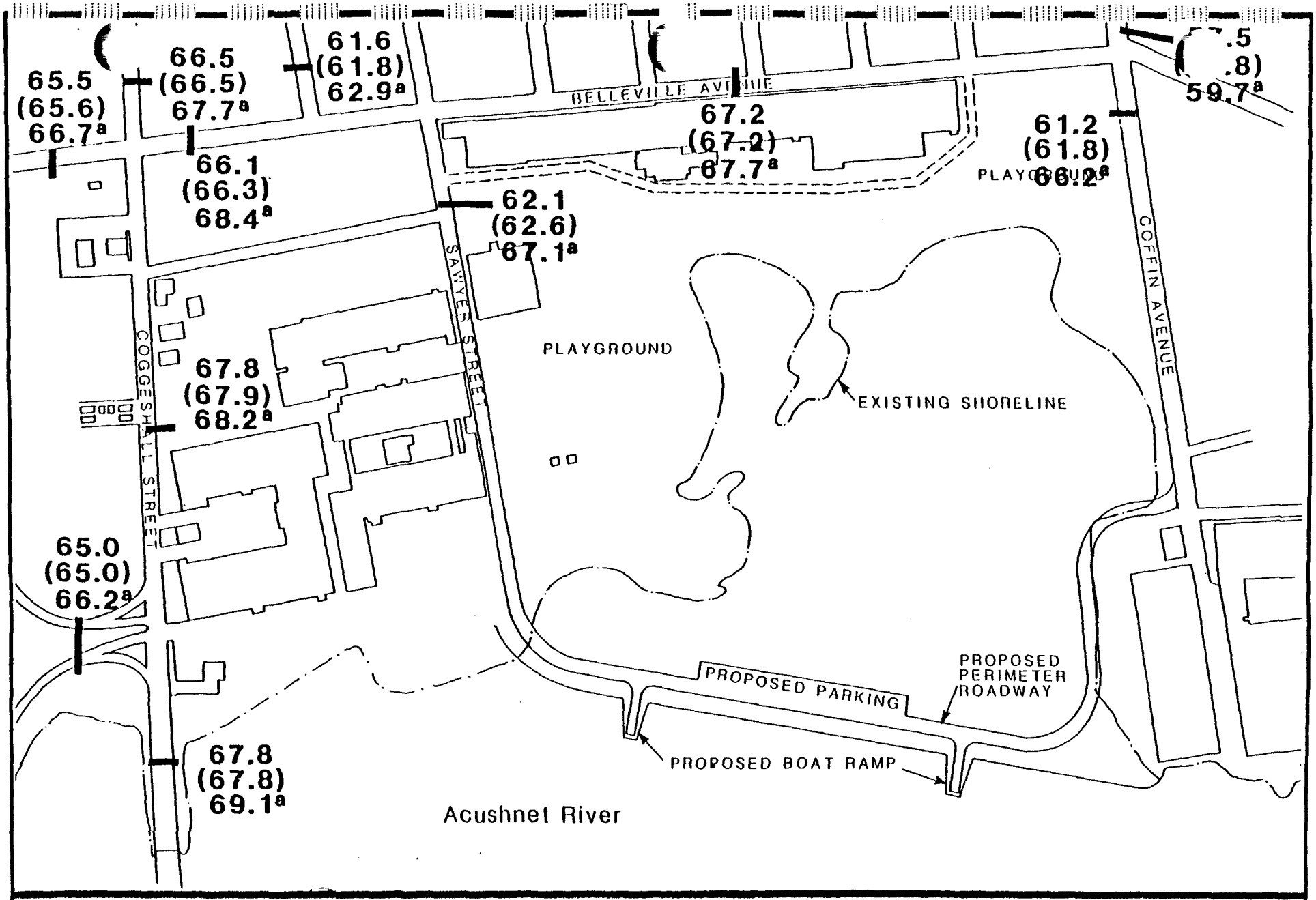
The long-term operation of the Waterfront Park or of a Sports Complex could yield regular increases in peak hour traffic noise levels. The techiques described in Section 3.9.3 were used to estimate the potential noise levels

adjacent to the major roadways leading to the site from the addition of traffic bound to the site. The peak hour L_{10} noise levels for each alternative and the existing noise levels are illustrated on Figure 4-4.

Because the traffic increases associated with the Waterfront Park are modest, the impacts on the noise environment will also be modest. The maximum increase in noise level will be experienced along Sawyer Avenue and Coffin Avenue, where approximately 0.5 to 0.6 dBA will be added to existing noise levels.

The addition of the more substantial traffic for a Sports Complex would lead to increases of approximately 5 dBA in these same locations. In no case, however, will the total traffic noise level exceed the 70 dBA peak hour L_{10} Design Noise Level (DNL) for residential areas. This DNL, used by the Federal Highway Administration, represents a criterion to which noise levels can be compared, not necessarily a desirable level.

Even though there will be no noise levels in excess of the DNL, there will be a noticeable impact from the Sports Complex. Most human listeners can reliably detect a change between 1 and 3 dBA in noise levels. The changes associated with the operation of Waterfront Park are less than 1 dBA and will likely be unnoticeable. The increases associated with traffic attracted to the Sports Complex on the other hand, will reach 5 dBA and are likely to be noticeable to the average listener.



WATERFRONT PARK
New Bedford, Massachusetts

1987 Peak Hour L_{10} Noise Level, dBA

No Build **xx**
Sports Complex [a] Waterfront Park **( )**

JASON M. CORTELL AND ASSOCIATES INC.

0' 125' 250'

Figure 4-4

Section 5.0

MITIGATION MEASURES

5.0 MITIGATION MEASURES

For most impact areas, the effects of the proposed Waterfront Park project are expected to be negligible or positive. Exceptions to this are the areas of water quality; vegetation, wildlife, and wetlands; and traffic.

5.1 Water Quality

To mitigate potential impacts to water quality, several measures are available. First, it is always desirable to minimize the introduction of suspended solids to water from a construction project. In the case of the embankment and filling of the Cove, deployment of silt curtains would be a desirable mitigation measure. A 6 ft silt curtain deployed around the leading edge of the embankment as construction progresses would provide considerable control over dispersion of sediments. The silt curtain would be even more desirable if wet dredging for the foundation were to take place.

Should the Cove be filled with dredged material, the supernatant water must be treated to remove heavy metals and PCBs. PCBs are non-polar compounds and as such, they have a low solubility in water and are more commonly associated with strong polar materials such as oils and fine sediment particles. Chen et al., (1976), found PCBs to be associated with fine organic and inorganic particles of 8 microns or less in size. Additionally, Tofflemire (1976) found PCBs to be more concentrated in the woody and more volatile finer particles than coarser materials in Hudson River sediments. Tofflemire also found that during hydraulic dredging operations, a scum would develop on the water surface at the dredging and disposal areas. The scum was highly concentrated with PCBs.

It must be expected, therefore, that given the amount of petroleum residuals, volatile solids, and fine sediment particle sizes in New Bedford Harbor and the Acushnet River, release of PCBs to the water will most certainly take place during dredging. Therefore, if one were to control the amount of oil and organic materials in the supernatant water, the majority of PCBs (and metals) would also be well controlled. This control can be accomplished by different means. Suspended solids can be removed from supernatant water by the addition of a chemical coagulant or flocculant. The chemical would be added to the water as it flowed into a smaller sedimentation basin.

Alternatively, solids could be removed by mechanical means with hydroclones or vortex clarifiers installed either on the dredge line, or along a sedimentation basin. Mechanical separation has two advantages in that it removes contaminants as well as greatly reducing the water content of sediment being disposed inside the Cove. Its major disadvantage is the higher operational cost.

The possible need for additional chemical treatment to polish supernatant water before discharge may be necessary with either alternative. The most opportune treatment alternative, however, can only be determined through a specific treatability study which evaluates all treatment alternatives with both highly contaminated sediments and average materials.

5.2 Vegetation, Wetlands, and Wildlife

Mitigation measures associated with the Perimeter Road alternatives and Waterfront Park primarily include the maintenance and enhancement of the site's existing vegetative communities. Additionally, the removal of the debris and rubble onsite would serve to reduce existing rat populations. Wetland-related impacts may also be minimized by the selection of that construction alternative which reduces opportunities for the increased turbidity and sedimentation, i.e., bulkhead construction.

The revegetation and landscaping of disturbed areas as soon as possible following project completion, regardless of the alternative, will serve to minimize erosion and sedimentation, as well as expedite the replacement of wildlife habitat. Due to the extent of development proposed for the future recreation use alternative, however, greater opportunities for vegetative and wildlife mitigation are associated with the dredged material disposal alternative. Subsequent to the completion of dredged materal disposal, the distribution of topsoil and the planting of various species of indigenous trees, shrubs, and ground cover will provide habitat suitable for a variety of wildlife species. In contrast, limited opportunities for wildlife and naturally occurring vegetative communities will result from the implementation of the future recreation use alternative.

5.3 Traffic Mitigation

The construction of the Waterfront Park, as proposed, will have minor effects on area traffic volumes and on related air quality and noise levels. If, however, the Sports Complex is added to the site at some future date, traffic and related impacts could be substantial. In this event, a complete traffic study would be required and it is likely, as discussed in Section 4.9.1, that traffic improvements would be required to mitigate the negative effects of traffic increases.

Section 6.0

LIST OF CONTACTS

6.0 LIST OF CONTACTS

Massachusetts Department of Environmental Management
Wetland Restrictions Program
Leverett Saltonstall Building
100 Cambridge Street
Boston, MA 02202

David Kennedy
City of New Bedford
133 William Street
New Bedford, MA 02740

Federal Emergency Management Office
Room 462
John W. McCormick Post Office and Courthouse
Boston, MA 02109

Gerald Szal
Massachusetts Division of Water Pollution Control
Water Quality & Research Branch
P.O. Box 545
Westborough, MA 01581

David Shepardson
Executive Office of Environmental Affairs
MEPA Unit
100 Cambridge Street
Boston, MA 02202

Theodore Harrington
U.S. Coast Guard
Marine Safety Office
Providence, RI

Section 7.0

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7.0 REFERENCES

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Appendix A

MARINE MACROINVERTEBRATE ANALYSIS

ORGANISM	L/I	A	TOTAL #	NO. /M2	RELATIVE ABUNDANCE %
PORIFERA					
TOTAL					
CNIDARIA					
Hydrozoa					
Scyphozoa					
Anthozoa					
TOTAL					
CTENOPHORA					
TOTAL					
PLATYHELMINTHES					
TOTAL					
[illegible]TEA					
TOTAL					
ANNELIDA					
Hirudinea					
Oligochaeta					
Archiannelida					
Polychaeta					
Nereis arenaceodonta			3		
TOTAL					
S[illegible]NCULOIDEA					
TOTAL					

Marine Macroinvertebrate Analysis Part A

Sample #4567

STATION NUMBER: 1

COLLECTION LOCATION: New Bedford Harbor

COLLECTED BY:

DATE COLLECTED:

METHOD OF COLLECTION: Ponar Dredge

TOTALS: PARTS A,B,C,D

TOTAL NO. OF ORGANISMS: 19

TOTAL PHYLA: 2

TOTAL GENERA: 4

DIVERSITY INDEX:

TOTAL DRY WEIGHT:

IDENTIFIED BY: Brian Kelly

L = larvae
I = immature
A = adult
N.Q. = not quantitative

JASON M. CORTELL AND ASSOCIATES INC.

ORGANISM	L/I	A	TOTAL #	NO/ M2	RELATIVE ABUNDANCE %
MOLLUSCA					
Amphineura					
Scaphopoda					
Gastropoda					
Bivalvia					
Mulinia lateralis			14		
Mya arenaria			1		
M. mercenaria			1		
Cephalopoda					
Other					
		TOTAL			

Marine Macroinvertebrate Analysis

Part B

REMARKS:

L = larvae
I = immature
A = adult
N.Q. = not quantitative

JASON M. CORTELL AND ASSOCIATES INC.

ORGANISM	L/I	A	TOTAL #	NO./M²	RELATIVE ABUNDANCE %
PORIFERA					
TOTAL					
CNIDARIA					
Hydrozoa					
Scyphozoa					
Anthozoa					
TOTAL					
CTENOPHORA					
TOTAL					
PLATYHELMINTHES					
TOTAL					
RTEA					
TOTAL					
ANNELIDA					
Hirudinea					
Oligochaeta					
Archiannelida					
Polychaeta					
TOTAL					
CULOIDEA					
TOTAL					

Marine Macroinvertebrate Analysis Part A

Sample #4658

STATION NUMBER: 2

COLLECTION LOCATION: New Bedford Harbor

COLLECTED BY:

DATE COLLECTED:

METHOD OF COLLECTION:

TOTALS: PARTS A,B,C,D

TOTAL NO. OF ORGANISMS:

TOTAL PHYLA:

TOTAL GENERA:

DIVERSITY INDEX:

TOTAL DRY WEIGHT:

IDENTIFIED BY: Brian Kelly

L = larvae
I = immature
A = adult
N.Q. = not quantitative

JASON M. CORTELL AND ASSOCIATES INC.

ORGANISM	L/I	A	TOTAL *	NO/ M2	RELATIVE ABUNDANCE %
MOLLUSCA					
Amphineura					
Scaphopoda					
Gastropoda					
Bivalvia					
Mulinia lateralis			27		
Cephalopoda					
Other					
		TOTAL			

Marine Macroinvertebrate Analysis Part B

REMARKS:

L = larvae
I = immature
A = adult
N.Q. = not quantitative

JASON M. CORTELL AND ASSOCIATES INC.

ORGANISM	L/I	A	TOTAL #	NO /M²	RELATIVE ABUNDANCE %
PORIFERA					
TOTAL					
CNIDARIA					
Hydrozoa					
Scyphozoa					
Anthozoa					
TOTAL					
CTENOPHORA					
TOTAL					
PLATYHELMINTHES					
TOTAL					
[illegible]RTEA					
TOTAL					
ANNELIDA					
Hirudinea					
Oligochaeta					
Archiannelida					
Polychaeta					
TOTAL					
[illegible]CULOIDEA					
TOTAL					

Marine Macroinvertebrate Analysis Part A

Sample #4659

STATION NUMBER: 3

COLLECTION LOCATION:

COLLECTED BY:

DATE COLLECTED:

METHOD OF COLLECTION:

TOTALS: PARTS A,B,C,D

TOTAL NO. OF ORGANISMS:

TOTAL PHYLA:

TOTAL GENERA:

DIVERSITY INDEX:

TOTAL DRY WEIGHT:

IDENTIFIED BY: Brian Kelly

L = larvae
I = immature
A = adult
N.Q. = not quantitative

JASON M. CORTELL AND ASSOCIATES INC.

ORGANISM	L/I	A	TOTAL #	NO/ M²	RELATIVE ABUNDANCE %
MOLLUSCA					
Amphineura					
Scaphopoda					
Gastropoda					
Bivalvia					
Cephalopoda					
Other					
		TOTAL			

Marine Macroinvertebrate Analysis Part B

REMARKS:

No living mollusca, only 15 empty shells of bivalve Mulinia lateralis

L = larvae
I = immature
A = adult
N.Q. = not quantitative

JASON M. CORTEZ AND ASSOCIATES INC.

Appendix B

PLANT SPECIES LIST

Appendix B

A LIST OF THE COMMON AND SCIENTIFIC NAMES OF PLANT SPECIES
RECORDED FOR THE PROJECT AREA

Common Name	Scientific Name	Successional	Open Space	Salt Marsh
Norway Maple	*Acer platanoides*	x		
Tree-of-Heaven	*Ailanthus altissima*	x		
Smooth Sumac	*Rhus glabra*	x		
Willow	*Salix spp.*	x		
Catalpa	*Catalpa bignonioides*	x		
Marsh Elder	*Iva fratescens*			x
Bayberry	*Myrica pensylvanica*			
Burdock	*Arctium minus*	x		
Curled Dock	*Rumex crispus*	x		
Milkweed	*Asclepias syriaca*	x		
Lamb's Quarter	*Chenopodium alba*	x		
Wild Carrot	*Daucus carota*	x		
St. Johnswort	*Hypericum perforatum*	x		
Ragweed	*Ambrosia artemisiifolia*	x	x	
Japanese Knotweed	*Polygonum cuspidatum*	x		
Narrow-leaved Plantain	*Plantago lanceolata*	x	x	
Wide-leaved Plantain	*Plantago major*		x	
Evening Primrose	*Oenothera biennis*	x		
Tick-trefoil	*Desmodium spp.*	x		
Wild Cucumber	*Echinocystis lobata*	x		
Mullein	*Verbascum thapsus*	x		
Aster	*Aster spp.*	x	x	
Thistle	*Cirsium spp.*	x		
Field Pennycress	*Thlaspi arvense*	x	x	
Rabbit's-foot Clover	*Trifolium arvense*	x		
White Clover	*Trifolium hybridum*		x	
Nightshade	*Solanum dulcamara*	x		
Goldenrod	*Solidago spp.*	x		
Seaside Goldenrod	*Solidago sempervirens*			x

Appendix B
(Continued)

A LIST OF THE COMMON AND SCIENTIFIC NAMES OF PLANT SPECIES
RECORDED FOR THE PROJECT AREA

Common Name	Scientific Name	Successional	Open Space	Salt Marsh
Saltwater Cordgrass	*Spartina alterniflora*			x
Salt-meadow Cordgrass	*Spartina patens*			x
Black Rush	*Juncus gerardi*			x
Spike Grass	*Distichlis spicata*			x
Orach	*Atriplex patula*			x
Glasswort	*Salicornia europea*			x
Reed Grass	*Phragmites communis*	x		x
Switch Grass	*Panicum virgatum*	x		x

Appendix C

WILDLIFE SPECIES LIST

Appendix C

A REPRESENTATIVE LIST OF WILDLIFE SPECIES OBSERVED OR EXPECTED TO OCCUR IN THE PROJECT AREA

Common Name	Scientific Name
Mammals	
Norway Rat	*Rattus norvegicus*
House Mouse	*Mus musculus*
Birds	
Greater Black-backed Gull	*Larus marinas*
Herring Gull	*Larus argentatus*
Spotted Sandpiper	*Actitus macularia*
Mourning Dove	*Zenaidura macroura*
Flicker	*Colaptes auratus*
Blue Jay	*Cyanocitta cristata*
Robin	*Turdus migratorius*
Starling	*Sturnus vulgaris*
Red-wing Blackbird	*Agelaius phoeniceus*
Common Grackle	*Quiscalus quiscula*
House Sparrow	*Passer domesticus*
Pigeon	*Columba livia*
Reptiles	
Eastern Garter Snake	*Thamnophis sirtalis*
Amphibians	
None	

Appendix D

LAND OWNERSHIP

APPENDIX D

WATERFRONT PARK PROJECT SITE LAND OWNERSHIP

Site Plots, Lots, Size, and Owners (see Plot Maps for locations)

Plot 100

Lot 83 (159,889 ft^2) - City of New Bedford
Lot 84 (3,779 ft^2) - City of New Bedford
Lot 85 (133,920 ft^2) - Whitman Development Corporation
c/o Manual Avila, P.O. Box 54, Adamsville, RI 02801

Plot 99

Lot 81 (317,230 ft^2) - New Bedford Reconstruction
Corporation, 45 Cove Street, New Bedford, MA 02744

Plot 93

Lot 220 (154,363 ft^2) - New Bedford Reconstruction Corp.
(see above)
Lot 119 (77,387 ft^2) - Raymond Tye and Irving S. Goulston,
New Bedford Textile Co., P.O. Box C 712, New Bedford, MA 02741
Lot 120 (338,100 ft^2) - City of New Bedford

Plot 93

Lot 167 - south of Sawyer Street, adjacent to River -
(801, 397 ft^2) - Fairhaven Mills Realty Corporation, 85 Coggeshall
Street, New Bedford, MA

Appendix E

COMMERCIAL AND MANUFACTURING FACILITIES

APPENDIX E

COMMERCIAL AND MANUFACTURING FACILITIES ADJACENT TO THE SITE

1. Coffin Avenue

   Augat Ceramic Materials
   Ceramic Manufacturing Division, Augat
   American Press Printers
   Riverside Quality Outlet
   Mars Supermarket and Discount Department Store
   (Coffin and Riverside Avenues)
   Star Plating Company Inc. - Plant No. 2
   Star Plating Company Inc.

2. Belleville Avenue

   Fairhaven Corporation Factory and Outlet
   Marblehead Manufacturing Co. Inc.
   Peter Augustus, Inc.
   New Bedford Coat Factory Outlet
   Cape Cod House and Fence
   H. Loeb Corporation

3. Sawyer Street

   New Bedford Textile Co.
   O.V. Dress Manufacturing Co.
   Sandler of Boston Inc.
   Eastern Sportswear Factory Outlet

JASON M. CORTELL
AND ASSOCIATES INC.