

URBAN WATERFRONT PROBLEMS AND POTENTIALS OF BOSTON

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February, 1975

Submitted to the Department of Architecture in partial fulfillment of the requirements of the degree of Master of Science in Architecture Studies at Massachusetts Institute of Technology

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ABSTRACT

The essence of this thesis is based on the fact that downtown waterfronts are special urban areas in a city. These areas offer unique opportunities for providing cultural and recreational public amenities to urban life. The important difference between water as a natural resource and water as an urban amenity lies in the relationship of water with the urban form. In downtown waterfronts two opposite forces confront each other. From the landside urban landuse, transportation network and real estate speculations compete against the waterside forces of water related activities and the right of public to use the waterfront for recreation and other activities. Finding the balance between these two forces is the key to successful use of downtown waterfronts.

This thesis examines the prospect of finding a balance for the development of Boston's downtown waterfront. The problems and potentials of Boston's waterfront is analyzed first to form the basis for evaluating the existing and proposed development plans on the waterfront. The results of more than two decades of development activities have left Boston's waterfront short of the balance which makes the difference between the waterfront as an enjoyable public area and the waterfront as an overbuilt extension of downtown urban fabric. The implications of the existing and proposed developments are analyzed to assess the future of Boston's waterfront.

The synthesis of this analysis identifies the major concerns for the present and future development activities and formulates the directions and guidelines for developments. These guidelines are proposed as broad based outlines and illustrated examples of critical spot are provided as images of developments following the guidelines.

Thesis Supervisor : **Dennis Frenchman**

Title : **Lecturer in Urban Design**

Principal, Lane/Frenchman Associates, Inc.

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SECTION 1

INTRODUCTION

Urban waterfronts are by definition the interface between land and water. The waterfronts may vary enormously in type and character as well as size and age depending on individual cities. The term "urban waterfront" customarily applies to the port areas of large metropolitan regions like Boston, New Orleans, San-Diego, Seattle etc. or small sized towns and cities located along navigable waters.

Since its foundation in 1636, Boston's fortune had been linked to its harbor. Over these more than 200 years of Boston's history, Boston was able to accommodate growth and development through massive landfill projects. Two third of the landmass of what is Boston today is manmade land (fig. 1). Though the presence of a large and protected port was the primary reason for the settlement in Shawmut peninsula, like many other North American cities, the waterfront of Boston was the most neglected part of the city from the end of the 19th century to the middle of 20th century.

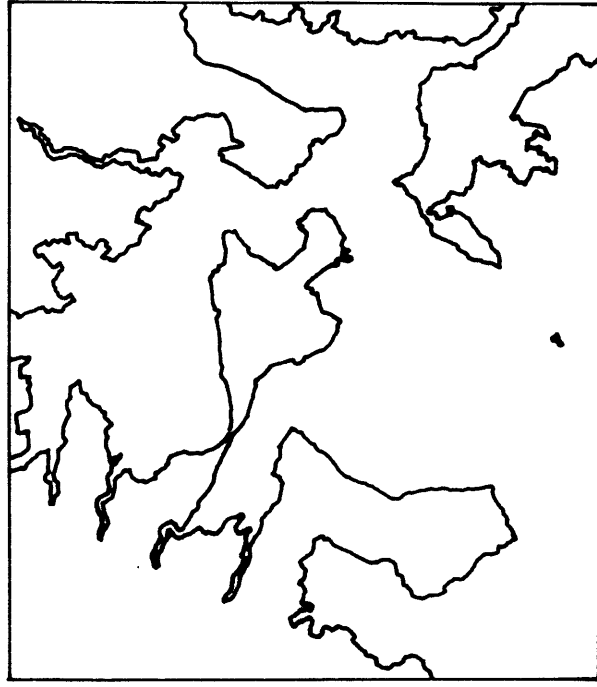
The limited land resource of Boston continued reclaiming land from the harbor to accommodate new warehouses and shipping facilities as port activities intensified. By the end of the 19th century perpetual landfill activities by competitive merchants and business people created large waterfront areas in Downtown, Fort point Channel, South Boston and Charlestown neighborhood.

Until the advent of train and trucking facilities, Boston and other harbor based cities were completely dependent on the harbor. The hustle and bustle of the activities, the sea-faring men, taverns and warehouses were the only aspirations of the city dwellers. The harbor meant the economy of the city and the harbor activities maintained the lifeblood of each city. The essence of harbor activities was different then. It was motivated by economic and business opportunities.

By 1850, Boston was a thriving and vital seaport community. The port prospered largely due to the increased demand for shipping and the large existing merchant fleet. Extension of trade was resulting in the extension of the edge of water on new filled land.

By the turn of the nineteenth century, Boston had become one of the country's primary ports: the gateway to Europe, the Orient and the West Indies. The shipbuilding industry was strong and in 1820's when the mayor decided to take advantage of the port's growing trade by constructing a trading center, consisting of three

FIGURE 1



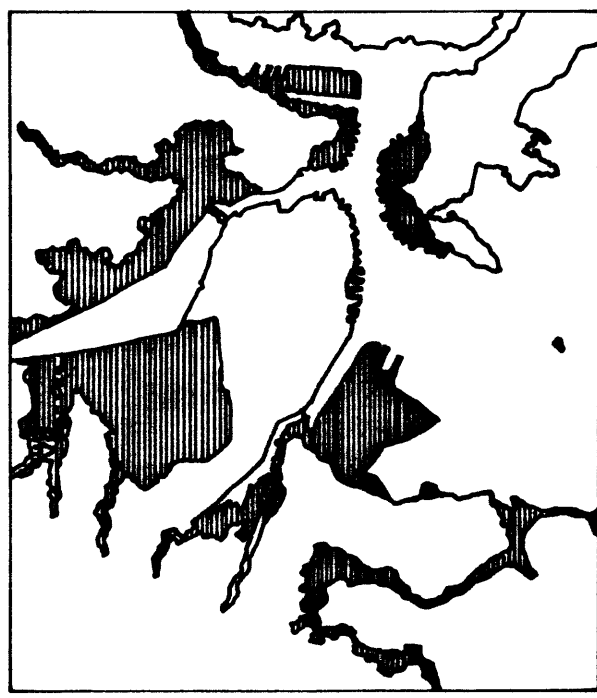
1800



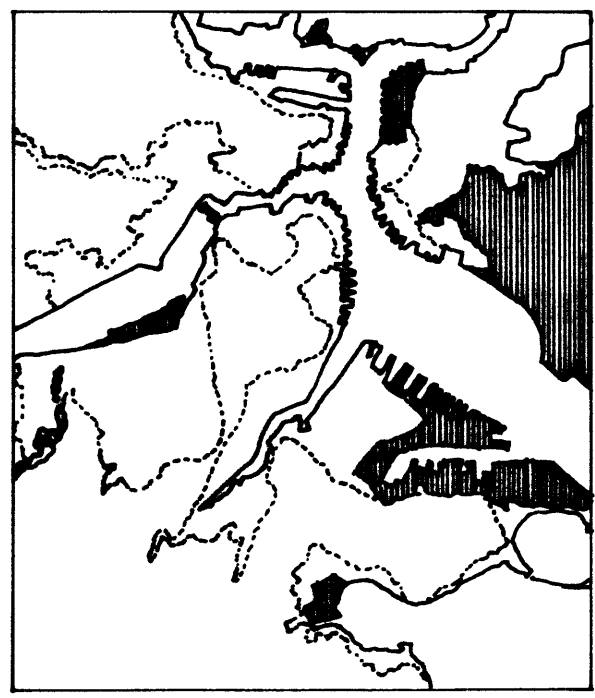
1800-1850

LAND CREATION IN BOSTON

1850-1900



1900-1960



huge granite buildings, next to Fanuel Hall. They were designated the Quincy Market, the North Market and the South Market.

Boston's decline as the port city started in the mid 1800's when changes in shipping needs, increased costs and urban growth patterns rendered many of Boston's piers inadequate and underused. But these changes were compounded by the civil war, which shifted the nations commerce away from the port of Boston. New piers designed and built for the new steam powered ships were located in South Boston and East Boston where land prices were lower. With the rapid development of rail transportation the city's central waterfront finally lost all its ocean going commerce to new piers with rail connections. These facilities were located away from downtown congestions of the central waterfront.

Despite their decline in importance the piers along the central waterfront were still operational at the turn of the century. The primary activities were related to serving local coastal commerce and the fishing industry. Fishing is Massachusetts' oldest industry. In 1914 the Fish Pier was built in South Boston and the industry moved to the new facility. It was built to help relieve the congestion at the other wharves at the harbor. At the time it was built the Fish Pier was the largest and the most modern plant of its kind in the world. It contained some of the most sophisticated equipment for fish handling, including its own ice plant with a tiny railroad on the roof capable of distributing ice to each dealer, a cold storage facility, a central heating system and a telegraph communication system.

With the development of the fish pier the central waterfront became functionally obsolete. The old structures along the waterfront which had been used as shipping and receiving headquarters were slowly converted to industrial wholesale and storage facilities. The buildings were old and ill-suited to the new uses and the property values in the area began to decline. By the mid 1950 the area was considered by the local government to be in " an advanced state of urban decay " (). An indication of the decline can be found in the tax assessment records of the city. From 1950 to 1960 the taxable value of the waterfront fell by 30 percent. The urban waterfront area was a health, safety and fire hazard. What was previously Boston's front door, it's main access route and activity center, had become a drab, dirty and for the most part closed to the public.

Recognizing the need for change Boston Planning Board recommended redevelopment of the area in 1956. Following another study in 1959 the Waterfront Redevelopment Division of Greater Boston Chamber of Commerce prepared an early redevelopment plan.

The early redevelopment plan established several important concepts that formed a basis for recycling the central waterfront. The area of downtown Boston marked for redevelopment covered approximately 100 acres. Thus the plan became known as " the hundred acre project " and contained the following primary objectives.

- * Open the city to the sea for the people-oriented and leisure use.
- * Reinforce the neighboring districts (Government Center, Financial District, North End): eliminate blight.
- * Preserve historic buildings.
- * Create a waterfront residential community.
- * Increase city visitor and attendant facilities and accommodation.
- * Strengthen the city's economic base, attract private investment, increase employment and increase municipal revenues.

The challenge for planners directing the Hundred Acre Project was to concentrate on developing the waterfront as a public amenity with multiple use related more to urban living than water related industries. The success of this redevelopment was considered crucial in attracting private investments in the waterfront and the Financial District.

The plan was approved by the city in 1964. It's basic concept of mixed people oriented use seemed highly feasible.

According to the overall planning strategy recreational, residential, retail and commercial development occurred on the waterfront. The resulting upgrading improved the financial and physical potential of the whole area driving up land cost and gentrifying the image of the waterfront. The expensive rental units and condominiums brought in a group of wealthy professionals and drove low income people and small business concerns away to other more affordable parts of the city.

Riding the wave of development activities the planning objectives began to lose their control on the outcome of the developments. The city's objectives seemed to have narrowed down to zoning

control and improving the city's tax base only. Development became the key issue not the waterfront: the public amenity.

The result, as can be seen today cannot be regarded as a total failure of the planning objectives. In fact the catalyst effect has perhaps surpassed the planner's expectations, the city's badly needed revenues got the boost they needed, the developers reaped profits unexpected even by their most optimistic estimates and the Bostonians got a partial taste of maritime activities and limited view of the harbor.

Admittedly, the role of the waterfront as the part of history and the asset of public have been downplayed. Waterfront area have been revived, not the " Waterfront " in it's true sense which had the potential of offering extensive maritime activities to the Bostonians and visitors. Instead, all that has materialized so far are a waterfront park, an aquarium, restaurants and meagre public access to the water's edge.

Very few sites remain today to alter the nature of use of the waterfront area. But whatever site is left, is the last opportunity for Boston to regain the lost cause of developing a part of Boston's maritime history and a people oriented place. The existing plans for development show no indication of accommodating substantial maritime uses. The absence of a master plan is also resulting in the limited plot by plot micro view of the waterfront, proliferating repetition of profitable commercial and luxury residential developments. Despite the already revitalized state of the area and increasing private investments, the planning objectives for the waterfront have not been re-evaluated and no new strategy have been formed to transform the waterfront into a mirror of its long and important maritime history.

Boston needs to form a new set of objectives based on the existing situation and its future potentials. It needs to transform the waterfront from just another district of Boston to an intensive public oriented, participatory and live throbbing area of cultural and recreational activity.

WATERFRONT TODAY

The study area of this report is limited to the section of the waterfront which relate directly to Boston's downtown. Effectively this area stretches from the Charlestown Bridge near North End to the Commonwealth Pier-5 in the South Boston waterfront across Fort Point Channel (fig.2).

Three key factors make this area the target for intense development speculations. First, it's proximity to downtown; second, the lack of area for the expansion of downtown facilities, and the third, recent revitalisation of this area by several projects on the waterfront and adjunct properties. The projects executed in the last two decades and the existing facilities comprise the waterfront today and forms the basis of this thesis.

PHYSICAL

The study area of the waterfront display a variety of uses street pattern and architectural heritage. Despite the renewal and redevelopment activities different characteristics are visible in different parts of the waterfront which have retained most of their physical characters and use patterns. This adds to the variety of the waterfront but makes the task of concieving a unified wholistic vision impossible to attain. Owing to this diversity most of the developments have occured on ad-hoc piece-meal fashion, a tedious but often rewarding process of renewal. The resulting developments have been able to relate and complement individual area character as well as land use pattern. Considering their use pattern, and physical charateristics downtown waterfront can be divided into three distinct areas. These are 1) North End Waterfront, 2) Central Waterfront and 3) Fort Point Channel.

NORTH END WATERFRONT:

North End Waterfront is located on the waterside of Atlantic and Commercial Avenue between the Charlestown Bridge and the Waterfront Park (fig.). On the waterside, North End Waterfront has retained most of it's original configuration of wharves and warehouses. Once overbuilt and abandoned, it is very much active today through the successful reuse of four of it's historic wharves to condominium and marginal office spaces. Selctive retail and commercial activity has provided a mixture of uses which has maintained the variety of this area. The rest of the area provides office, industrial, retail and recreational facilities. There are two

FIGURE 2



**BOSTON
WATERFRONT**

major public offices in the North End waterfront. They are the Food and Drug Administration and the Coast Guard facilities. Besides these, Lewis, Union, Lincon and Commercial wharf have varied private office facilities in the ground and first floor. Small retail and commercial, and service facilities are scattered throughout the area, majority of which being located in the ground floor space. The MDC skating ring and the North End park are the public recreational facilities provided. Many renowned quality restaurants are located between the Waterfront Park and the Coast Guard Facilities.

On the land side of Commercial Avenue is the North End, implicitly an integral and the ignificant historical part of the waterfront. It is also the oldest and the most unique residential community of the waterfront. " First settled in 1630's the North End was the most populous and elegant part of the town which contained fine residences on slopes that commanded views both sea ward and landward. "(1) In its early days, the north end was divided into a number of large lots along a few lanes and main roads. These largely irregular shaped lots have since then been divided and sub-divided but the original street boundaries and their relationship to the sea is clearly visible today (fig.).

The uniqueness of the North End is derived from it's physical and social fabric, as well as it's local and national historical significance. It consists of small scale buildings and streetscapes, utilizing similiar material throughout a free flowing street pattern and consistent architectural character (fig.).(2) The community is basically of itallian heritage and forms a strong ethnocentric neighborhood. The social fabric is one in which there exists an active viable pattern of social communication mutual support and identification with the area. There is also a myriad of small businesses serving the community and others seeking personal and ethnic related services.

North End waterfront is the most significant section of Boston Downtown Waterfront. It has displayed its potential at accommodating change and enhancing its cultural history through preservation. Succesful adoptive reuses of this area are the conversion of four historic wharf structures- Union Wharf, Lewis Wharf, Lincon Wharf and commercial wharf into residential and mixed commercial developments; and the successful conversion of Prince spaghetty

(1) Boston Waterfront Redevelopment, Educational Marine Exchange Report, Lane Frenchman Associates.

(2) Rebuilding Central Artery, Harvard GSD report.

Warehouse into elderly housing. Consistent style and character of renovation and new construction activities have maintained the architectural heritage of this area.

Once the hub of the harbor activities, today North End Waterfront is conspicuously residential in its use and character. The office, retail and commercial facilities blend unobtrusively in the otherwise tranquil environment of suburban charm. This quality and its proximity to downtown amenities has made this area highly desirable for residential uses.

CENTRAL WATERFRONT

The central waterfront is the area between the Waterfront Park and Rowes and Fosters Wharf at the mouth of the Fort Point Channel (fig).

Site of the Great Cove of Boston Harbor of 1633, featured the longest and the most important wharf of 1721 (Long Wharf, over 800 ft long) and the site of the historical Fanuel Hall building, Central waterfront was the most important and the most active part of the harbor. Long wharf was connected to the State House via State Street and featured a long row of warehouses all along its half mile length (fig.4).(1) Main features of Central Waterfront consists of Long Wharf, Central Wharf, Waterfront Park, India Wharf and Rowes and Fosters wharf.

WATERFRONT PARK : The most prestigious development of the waterfront, this 4.5 acre public park delineates the boundary of the Great Cove. The south edge of the park borders the Marriott Hotel, a 450 room luxury facility while the north and west side borders the Atlantic Avenue. East side of the park provides sweeping view of water and is part of the ' Harbor walk' system (fig.6).

LONG WHARF : Located at the Northern edge of Waterfront Park, Long Wharf is the site of the renovated Chart and Custom House and the temporary ticketing and docking facilities of Boston Harbor Cruises. The Chart House is a restaurant while the Custom house is mixed commercial and residential space. The bulkhead of Long Wharf is vacant and inaccessible today, but has substantial development potential.

CENTRAL WHARF : Located adjacent to Long Wharf, Central Wharf houses the New England Telephone building and the Aquarium.

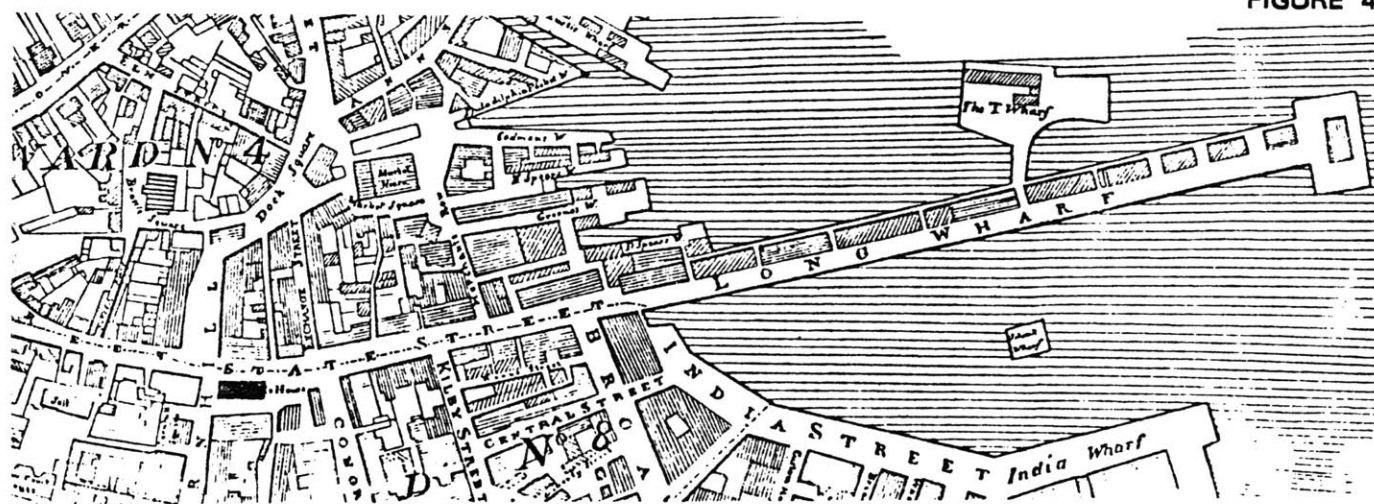
(1) A Topographical history of Boston, Walter Muir & Hill.

FIGURE 3



Fanuel Hall and Quincy Market
with Great Cove extending up to this area

FIGURE 4



State Street and Long Wharf as they
appeared on the Hales map of 1814. The
Old State House is shown in black.

Long Wharf in 1814, lined with warehouses all along its length

The Aquarium is the most visited recreational facility in the area. The barge Discovery is permanently moored on the wharf's southern edge.

INDIA WHARF : Site of the original warehouse designed by Charles Bulfinch, dating back 1805, India Wharf was the trade link between East, Far East, Mediteranean and Boston. It presently houses two forty story apartment towers known as Harbor Towers. Staggered in between the Harbor Towers and the Aquarium is a parking complex with restaurant as ground floor usage.

ROWES AND FOSTER'S WHARF : Located south of India Wharf the area is now utilized as commercial parking lot. Part of the dilapidated bulkhead is also used by the Habor Island Cruise Boats as terminal facility.

FORT POINT CHANNEL AREA : The channel is located between the South Boston warehouse district and the South Cove area. Three 19th century bridges - the Northern Avenue Bridge, the Congress Street Bridge and the Summer Street Bridge connects the downtown and South Station area with the warehouse district and it's hinterland. These bridges are also the most visible landmarks of the area.

The most important public use of the Fort Point Channel area occur between the Congress Street Bridge and The Northern Avenue Bridge . The Boston Tea Party Museum, Museum of Transportation and the Children Museum are located in this section. The eastern edge of the channel between the Congress and Summer Street Bridge is blocked by buildings extending up to the edge of water. Rest of the edge of Fort Point Channel is occupied by office, industrial and warehouse facilities. At the mouth of Fort Point Channel extending east is Pier 1-4, a 35 acre open area overlooking the harbor. At present this site is being used for commercial surface parking facilities.

RELATIONSHIP TO THE CITY

HISTORICAL

Boston, like most other American port cities is no longer related to or dependent on the waterfront for economic or business activities. The city's historical dependence on the waterfront as the lifeline of economic base has been severed in the first half of the nineteenth century.

The renewal program started in 1965 was an effort based on the historical importance of Boston's waterfront as 'the window of the world'; the aim of this effort was to open the window again to a fresh new world. Preservation and linkage was used to maintain and recreate the relationship of the waterfront to the downtown area and the city as a whole. To maintain the 18th and 19th century maritime architectural heritage many of the surviving structures were renovated for adoptive reuse like residential and office facilities. The warehouse style of these structures and the famous granite masonry construction successfully preserved the 18th century character of Boston's waterfront. Preservation of Fanuel Hall, Dock Square, Hay Market area, Custom House, Pilot House have added important historical reference points of Boston's maritime history.

Re-enactment of important historical events of the harbor activities is another important aspect of the waterfront's historical relationship to the city. The Freedom Trail, Boston Tea Party, The Boston Massacre, Landing/Return of the British Troops and many other historic occasions which happened in or around Boston, are but some of the potential re-enactments on the waterfront. Added to this is the traditional cultural and ethnic occasions of the North End Italian community which can keep the historical relationship of the waterfront alive and significant.

PHYSICAL

THE EDGE : Physically waterfront is the north and eastern edge of the city. Founded on a peninsula, Boston's waterfront physically is the edge between the harbor and downtown area. This character is prevalent for all the seaport cities in America. Waterfront in cities, which are bisected by a river can only eventually be located in the center of the city. Finger like wharf configuration offer substantial water frontage on the waterfront. The existing wharf structures are the survivors the eighty or more wharves that were created to meet the increasing harbor activities in the 19th century. Other wharf structures and warehouses have been destroyed by fire and dilapidation.

INTERFACE WITH CITY REGIONS

The North End residential area, the Central Artery, the Downtown, Fort point Channel and the warehouse district of South Boston are the regions which are directly related to the waterfront (fig.21). Fanuel hall Market, Government Center, and downtown retail core relate to the waterfront on a secondary level, i.e. via a transition zone.

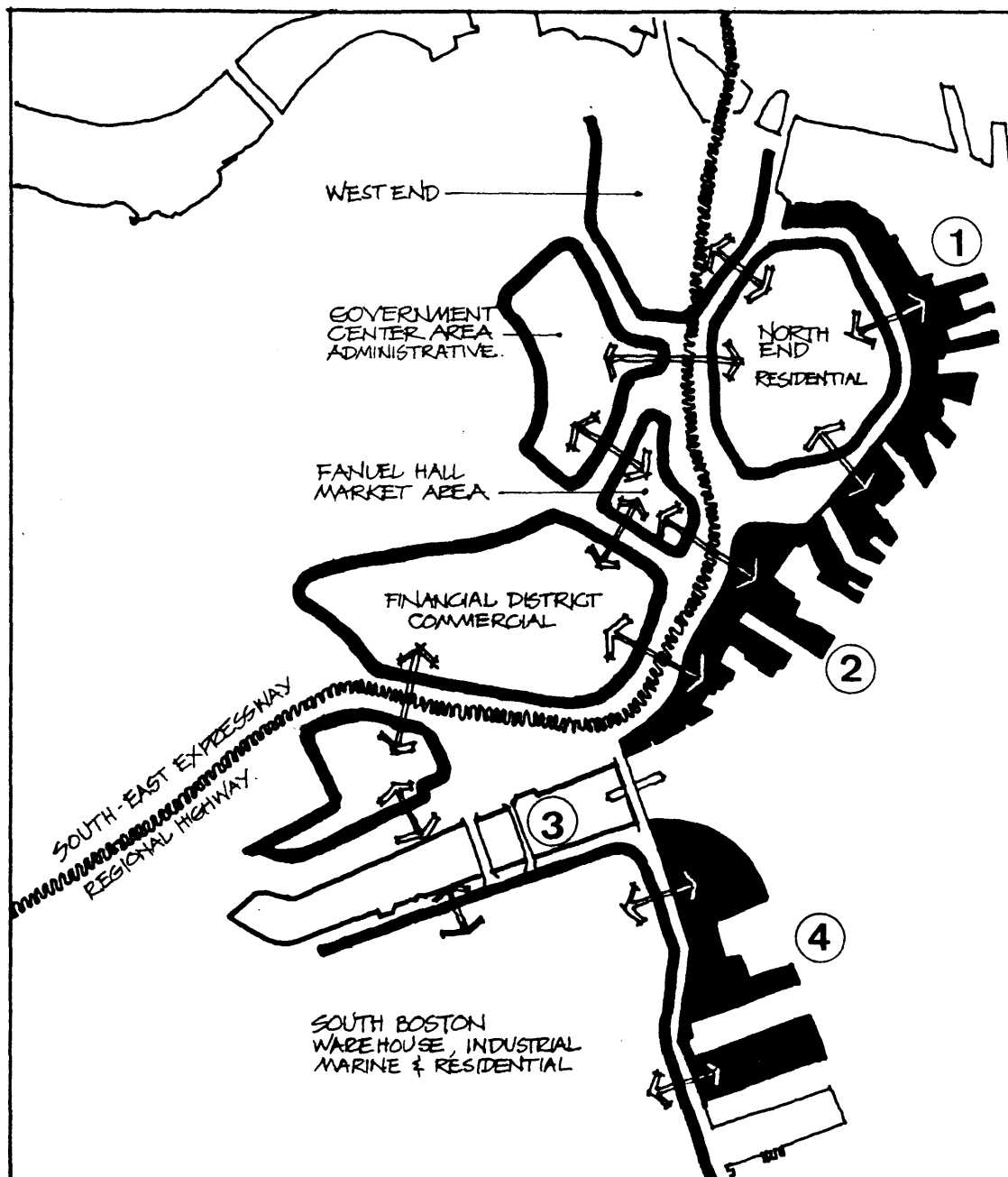
NORTH END : Seperated by the Central Artery from the downtown, North End is the landside region of the North End Waterfront. The Commercial street is the seam running in between the waterfront and the residential area. It also acts as the transitional feature between the North End residential fabric and the wharves on the waterfront. North end also provides the transition of downtown highrise structures through the residential structures on Copp's hill in North end to the 6-8 storied warehouse structures on the waterfront (fig.). The homogeneous architectural character of the waterfront and the North End unify these two regions in a visual harmony.

North End also features the Hanover Street, the primary commercial street of this region. Hanover street is the last part of the earliest route to the sea and provided the only connection between the Shawmut Penninsula and it's hinterland. At present Hanover Street terminates at the Coast Guard Facilities located on the waterfront across Commercial Avenue. It is also the most visible physical link between the North End and the downtown area. The transition between the downtown core and the North End is however , physically and visually disrupted by the existence of the Central Artery's ugly and enormous structures and the rampways to the entrance of the Summer Tunnel. The rest of the uneven secondary street system of the North End on the Commercial Avenue make the Waterfront readily accessible from many vantage points.

North End also contains some of Boston's oldest buildings and building sites (fig.5)(1) which depict several layers of its maritime heritage. Of these, Old North Church, built in 1723 is the oldest surviving church in Boston. The church is located on the highest elevation in North End and offers commanding view of the harbor

(1) prologue '75 BOSTON, report BRA, 1971

FIGURE 21



INTERFACE WITH CITY REGIONS

- 1. NORTH END WATERFRONT
- 2. CENTRAL WATERFRONT
- 3. FORT POINT CHANNEL
- 4. SOUTH BOSTON WATERFRONT

leading to its use as reconnaissance site during the revolution.(1) North Square, located at the crossing of Moon Street and North Street was a lively locality of 1700's and has retained much of its original qualities which make it a special place to this day. Three important landmarks have survived on this square. They are, the Sacred Heart Church founded in 1833, Paul Revere's house built in 1890 and Pierce Hitchborn House built in 1890. Copp's Hill cemetery which overlooks the North End Park was established in 1659 and is the largest of the city's ancient cemeteries. The hill of this burial ground remain as an important feature of this area today.

GOVERNMENT CENTER & FANUEL HALL MARKET : Historically Fanuel Hall demarcated the edge of the Great Cove of Boston's maritime history. Even after the cove was filled Fanuel Hall continued to be associated more as waterfront facility than downtown market area. The importance of Fanuel Hall as waterfront facility was lost after Central Artery was built as a physical barrier in the 1950's. The artery, to this day remain as a visual and physical barrier between the waterfront and the downtown area. After the development of Government Center and successful renovation of Fanuel Hall and Quincy Market area and re-establishment of " the walk to the sea " (fig.6)(2) the physical and psychological link between the two areas have been restored.

The strongest and the most important sequence of physical links between the downtown and waterfront area is the sequence of City Hall Plaza, Dock Square, Fanuel Hall & Quincy Market area and the Waterfront Park. All these recent developments have successfully anchored the waterfront with the downtown area.

FORT POINT CHANNEL & SOUTH BOSTON AREA : Fort Point Channel simultaneously demarcates and links the industrial warehouse district with downtown. They are linked by Northern Avenue , Congress Street and Summer Street in the east- west direction. Of these links Northern Avenue and Summer Street provide access beyond the warehouse district to South Boston area. Separated by the channel downtown and the warehouse district display distinctly different morphology , street pattern and landuse.

(1) Boston Downtown Waterfront Project, Lane/Frenchman, Inc.

(2) prologue '75 Boston, BRA report, 1971.

HISTORIC BUILDINGS AND SITES IN CENTRAL BOSTON

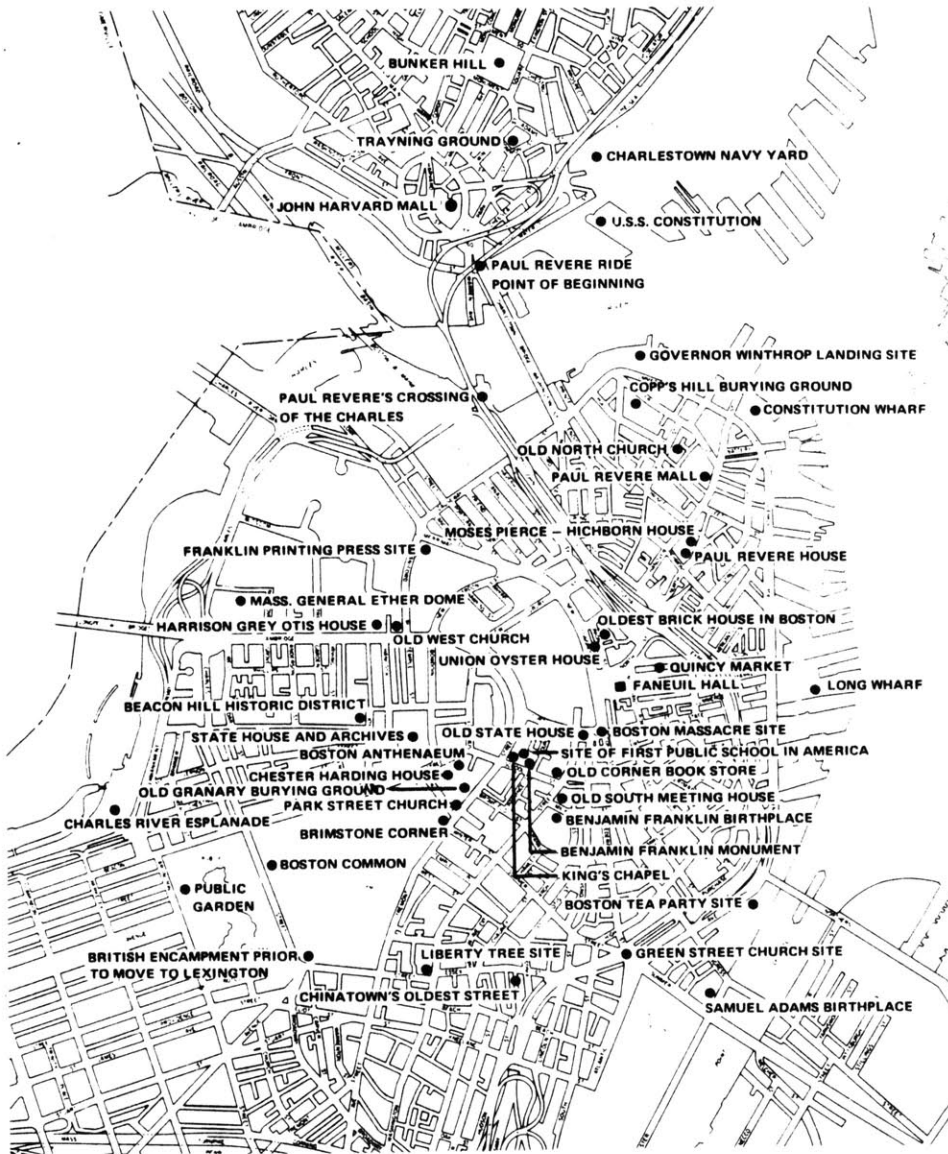


FIGURE 5 Historic building sites

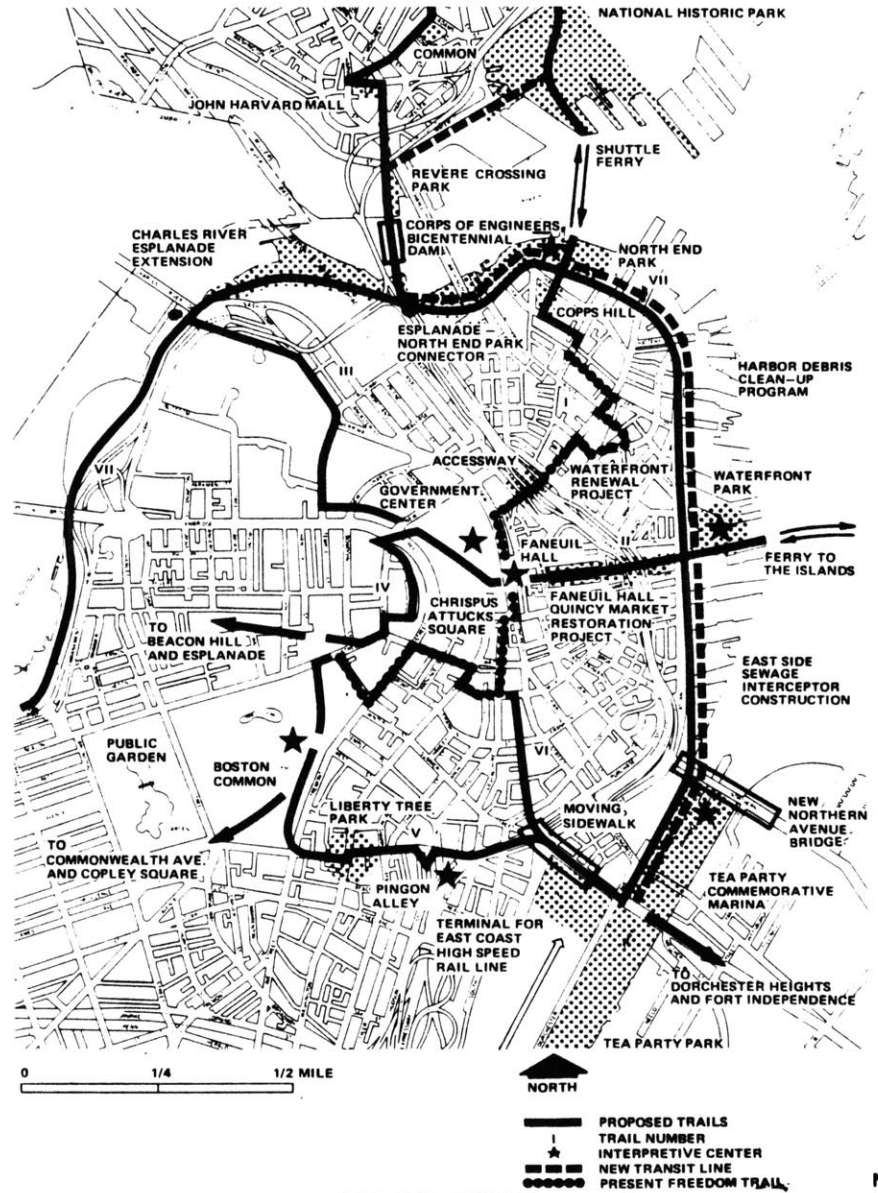


FIGURE 6 Proposed walk to the sea

SECTION 2

WATERFRONT USES

There are a few characteristics which essentially differentiates urban waterfront development from other development and renewal efforts. These differences constitute the uniqueness of waterfront areas. It is thereby imperative that, a logical and successful development identify these differences. Proper analysis of these characteristics and imaginative implementation are key to the most harmonious and successful waterfronts.

The basic asset of waterfront area is the interface between land and water. Water being the available and the most dynamic resource it is only logical that developments take maximum advantage of this unique resource.

Water in the urban context differs from water bodies in parks and other undeveloped natural settings. While water in park and other natural setting complement the landscape to create a complete natural environment; water in the urban context interacts with a manmade hostile environment of highways and buildings. This situation undermines the primary importance of water as a natural resource, but like streets, sidewalks, cinemas, museums and restaurants turn out to be an important public amenity of urban living. Unlike other public amenities water has the potential to provide urban life with the most unique and certainly the most diversified set of facilities and activities. It is therefore, important to explore the full range of possible waterfront activities and implement the ones which are best suited to the individual urban and cultural context.

Urban context refers to the unique set of relationships or linkages that exist between a city and it's waterfronts. These factors determine the parameters for the use of waterfront areas. For instance, some waterfronts are heavily industrialized reflecting current or past port related functions. Other waterfronts are primarily resort areas and still others are dominated by commercial facilities. More commonly, urban waterfronts like Boston are composed of a mixture of industrial, commercial, residential, recreational and transportation uses. Based on the relationship of these uses to water, waterfront uses are classified as water related uses, water dependent uses and uses that are neither dependent nor related to water resource.

WATER DEPENDENT USES

As the term implies, are those uses which cannot exist on any other location but the water's edge. Obviously included in this category are port terminals for general commerce, ferry and passenger services, marine construction and repair services, marinas and mooring areas and the tugboat and barge companies. On human activity level swimming, fishing, boating and a few other sports are the most active popular water dependent activities.


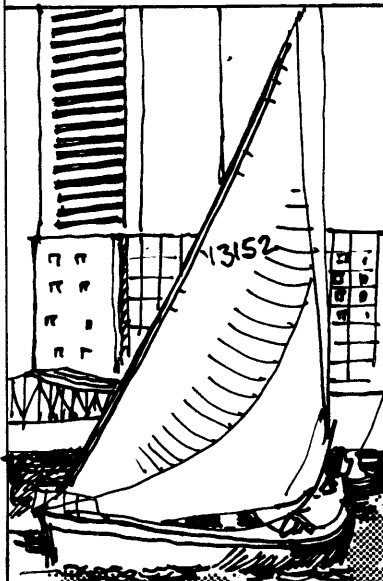
WATER RELATED USES

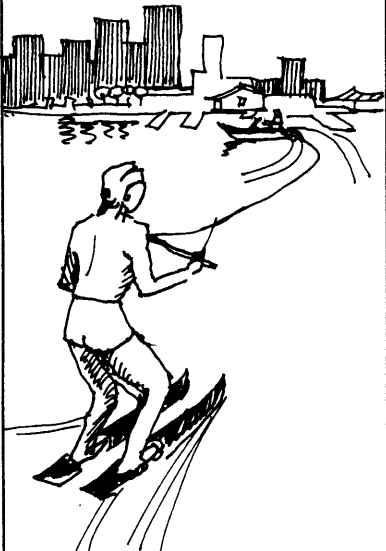
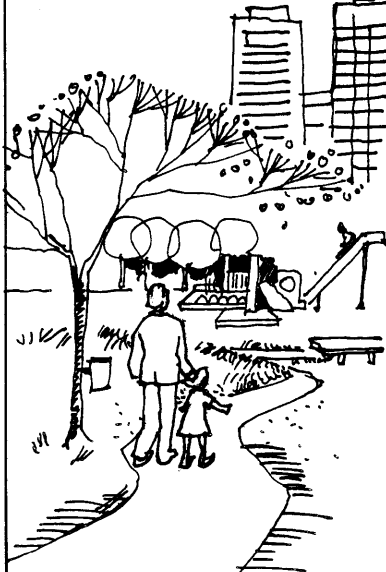
Water related uses are those which can be helped by its location on the water but would function away from the waterfront as well. In other words, if real cost saving or revenue advantage can be attributed to a waterfront location, the use can be considered as water related use. Included in this category are single user terminals, lumber mills, seafood processing plants, sand and gravel companies, petroleum handling and processing plants, parks, public resorts aquariums and restaurants.


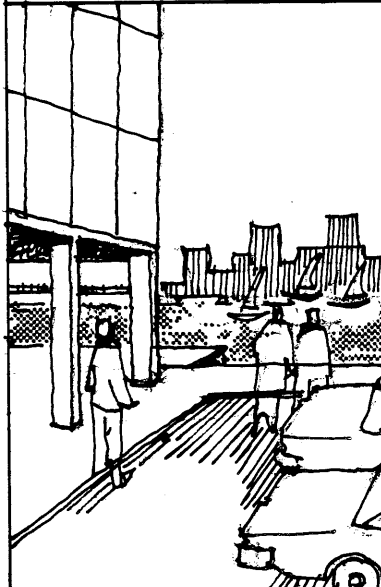
OTHER USES

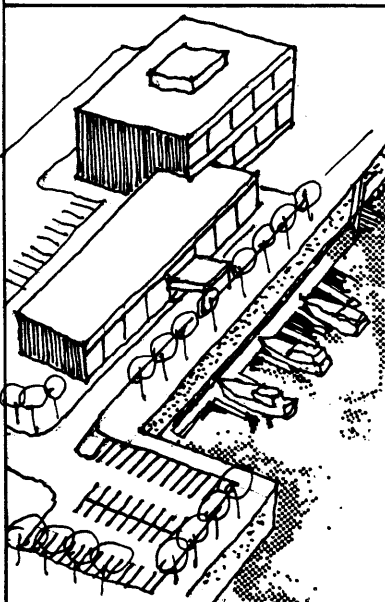

Waterfront uses that are neither dependent nor related to the water are those which can locate equally well away from the shoreline. Included in this category are apartment buildings, hotels, taverns, private residences, warehouses not directly associated with waterborne commerce, parking, convention facilities and retail and sales activities.

Following is given an illustrative chart of the most popular as well as the most probable uses, and their suitability to Boston's waterfront:

USE	TYPE	REQUIREMENT/PROBLEM
 <p>FISHING</p>	<p>ACTIVE RECREATION AND WATER DEPENDENT</p> <p>SUITABLE IN A LIMITED SCOPE</p>	<ul style="list-style-type: none"> ● ANGLING DECK/ PLATFORMS ● AREA FREE OF BOAT TRAFFICS ● UNPOLLUTED WATER ● SUPPORTING FACILITIES LIKE SHOPS FOR PURCHASING FISHING GADGETS & BAIT. ● PARKING FACILITIES. <ul style="list-style-type: none"> ● POLLUTED BASINS OF DOWNTOWN. HARBOR AREAS. ● LIMITED PARTICIPATION. ● PARKING AT THE WATER EDGE. ● FINANCING RELATED FACILITIES.
 <p>BOATING</p>	<p>ACTIVE RECREATION AND WATER DEPENDENT</p> <p>SUITABLE BUT REQUIRES PROPER FACILITIES</p>	<ul style="list-style-type: none"> ● MARINA ● PARKING FACILITIES. ● BOAT CLUB STRUCTURE. ● WIDE WATER BODY ● RESCUE FACILITIES ● BOAT REPAIR & SERVICING ● BREAK WATER <ul style="list-style-type: none"> ● INTERFERENCE WITH REGULAR. COMMUTING ACTIVITIES. ● PERSONAL HEALTH HAZARD. ● POPULAR BUT EXPENSIVE. ● PROVISION OF PARKING.

USE	TYPE	REQUIREMENT/PROBLEM
 <p>WATER SPORTS</p>	<p>ACTIVE RECREATION AND WATER DEPENDENT</p> <p>NOT SUITABLE FOR BOSTON</p>	<ul style="list-style-type: none"> ● MARINA ● PARKING FACILITIES ● BOAT CLUB STRUCTURE ● LARGE WATERBODY WITHOUT ANY OTHER CROSS-TRAFFIC. ● SERVICE & REPAIR STATION FOR SPEED BOATS. <hr/> <ul style="list-style-type: none"> ● INTERFERENCE WITH NORMAL HARBOR TRAFFIC. ● HEALTH HAZARD FROM POLLUTED WATER. ● WARM WEATHER SPORT. ● MONOPOLIZES WATER USE.
 <p>PARKS</p>	<p>PASSIVE RECREATION AND NOT WATER RELATED</p> <p>SUITABLE</p>	<ul style="list-style-type: none"> ● COMPATIBLE CLIMATE. ● LARGE AREA. ● PUBLIC FINANCING. ● MAINTENANCE. ● POLICING. <hr/> <ul style="list-style-type: none"> ● LIMITS POTENTIAL COMMERCIAL USAGE. ● FINANCE & MAINTENANCE. ● SUSCEPTIBLE TO CRIMINAL ACTS. ● LIMITED OR NO USE IN WINTER. ● NO ECONOMIC GAIN FOR THE CITY.

USE	TYPE	REQUIREMENT/PROBLEM
 <p>PROMENADE</p>	<p>PASSIVE RECREATION AND WATER RELATED</p> <p>SUITABLE AND SHOULD HAVE HIGH PRIORITY</p>	<ul style="list-style-type: none"> ● SPACE ON THE WATER'S EDGE. ● CONTINUITY OF ACCESS ● LANDSCAPING, PAVEMENT & PEDESTRIAN AMENITIES ● PUBLIC FINANCING. ● MAINTENANCE. <hr/> <ul style="list-style-type: none"> ● INEFFECTIVE IN CLOSELY WHARVED WATERFRONTS. ● RESTRICTS USE OF WATER'S EDGE FOR OTHER WATER RELATED ACTIVITIES ● FINANCING AND MAINTENANCE ● LIMITED USE IN WINTER
 <p>OFFICE</p>	<p>COMMERCIAL AND NOT WATER RELATED</p> <p>SHOULD GET SECONDARY PRIORITY</p>	<ul style="list-style-type: none"> ● HIGHRISE STRUCTURES ● PARKING FACILITIES ● VEHICULAR ACCESS ● SUBSTANTIAL INVESTMENT <hr/> <ul style="list-style-type: none"> ● INCOMPATIBLE WATERFRONT USE. ● CREATES PRESSURES ON EXISTING INFRASTRUCTURE. ● INHIBITS UNRESTRICTED PUBLIC USE ● INACTIVE AFTER OFFICE HOURS ● RESTRICTS VIEW OF WATER ● INFLUENCE ON ADJACENT LAND USE.

USE	TYPE	REQUIREMENT/PROBLEM
 <p data-bbox="219 1039 414 1102">RETAIL</p>	<p data-bbox="584 577 828 766">COMMERCIAL AND NOT WATER RELATED</p> <p data-bbox="584 1029 812 1123">SELECTED TYPE RETAIL IS DESIREABLE</p>	<ul style="list-style-type: none"> ● PERMANENT STRUCTURES. ● VEHICULAR ACCESS FOR SERVICING. ● LOCAL CUSTOMER POPULATION. ● PUBLIC TRANSPORTATION FACILITY. ● ADEQUATE PARKING SPACE. ● STORAGE FACILITIES. <hr/> <ul style="list-style-type: none"> ● INCOMPATIBLE WATERFRONT USE. ● CREATES PRESSURES FOR OTHER COMPLEMENTARY COMMERCIAL DEVELOPMENTS. ● REQUIRES VEHICULAR ACCESS. ● INCREASES LAND VALUE AND RENTS OF ADJACENT AREAS.
 <p data-bbox="227 1785 462 1837">HOUSING</p>	<p data-bbox="592 1239 836 1428">RESIDENTIAL AND WATER RELATED</p> <p data-bbox="584 1795 755 1858">SECONDARY PRIORITY</p>	<ul style="list-style-type: none"> ● GOOD WATER VIEW. ● PARKING FACILITIES. ● COMMUNITY FACILITIES. ● HIGHER INVESTMENT. ● ADEQUATE INFRASTRUCTURE. ● SECURE ENVIRONMENT. ● PRIVATE MARINA. <hr/> <ul style="list-style-type: none"> ● DEVELOPMENT OF EXPENSIVE HOUSING. ● PRIVATE PARKING & MARINA. ● REDUCES PUBLIC UTILIZATION OF WATERFRONT LAND. ● RICH NEIGHBORHOOD INDUCES CRIME. ●

SECTION 3

PROBLEMS AND POTENTIALS

INTRODUCTION

" There is a quality about water which calls to the most deep rooted and atavistic part of our nature. In the deep canyons of our cities, water, along with fire, trees and the almost hidden sky above, are the elements which can still tie us to our primitive past. Of all these water and fire evokes the most direct responses. "(1) Waterfront implies the presence of water in the urban setting. Water which not only invokes our basic instincts but reflects the problems and potentials of our cities as well. Boston's downtown waterfront is no exception in this respect. The problems may have a different dimension and may differ in their intensity, but it is there.

Before indulging into the problems and potentials of Boston's waterfront, it is necessary to establish the key factors which influenced its development. These key factors must be identified first so that the subsequent analysis may be attuned to the contextual background.

A RESOURCE

" The basic human interest in the amenities and attractions of water bodies, together with the kinds of dramatic proposals which waterfront locations stimulate, results in a high degree of public excitement over waterfront's development. Where this type of land is available in or close to an urban center the most obvious reuses are quality housing and recreation, including marinas, aquarium, restaurants, theaters, promenades, etc. If the location is close enough to the downtown center, it might also be attractive for prestige commercial buildings."(2) Boston's waterfront had lost its importance and vitality as the lifeblood of the city's economy and as a physical asset to the city by the end of 19th century. Industrial wholesale and storage functions with a scattering of offices, restaurants and fresh markets had replaced marine functions which had moved to East and South Boston prior to World War I. These new uses however; were increasingly handicapped by the progressive decay and obsolescence of the old structures. As a result, the last

(1) Lawrence Halprin in "Cities"

(2) Daniel Ahrens, Journal of Housing, 1964.

forty years before 1964 had seen the acceleration of blight, during which period not a single substantial structure was built.

The factors that generated interest in utilizing the waterfront as a resource were the existing interest in urban renewal and the declining economic base of Boston.

During the sixties, urban renewal as a planning process was still evolving. Promotion of urban renewal under the strong leadership of Mayor Collins and the imaginative interpretations of Edward Logue created a very strong base for exploring the possibilities of a new future for Boston. Studies were done in this context by the U.S. Department of Agriculture (1950), City Planning Board (1956), Chamber of Commerce (1959) and various other groups such as Architectural Heritage and Society for Preserving New England Antiquities. All these studies pointed out to waterfront as a substantial resource to the city of Boston.

Finally, one other factor which contributed to waterfront development during the 1970s was the availability of federal funding for public improvements. In that decade most cities used one or more resources of federal financial assistance in their waterfront development projects. This is not to imply that waterfront development is exclusively dependent upon federal funds. John's Landing in Portland, Oregon, and Palmer Point in Greenwich, Connecticut, for example, are private development ventures. However, in many cases, as in Boston, federal funding was the catalyst for attracting private investment in the waterfront.

ECONOMIC

The severe decline of socio-economic condition of Boston prior to the 1960's greatly influenced the subsequent revitalization of the waterfront. The decline of the city's tax base was caused by reduced private investment, flight of wealthy citizens to the suburbs, stagnation of retail activities in the downtown core and the blighted condition of the waterfront.

Walter McQuade in Fortune magazine described Boston's economic conditions: " If the new mayor had drawn a balance sheet of Boston in early 1960, the list of debits would have been long. Perhaps the most obvious minus was Boston's waterfront. It was dead. Business had moved out; the big ships were no longer putting in and Boston was then considered an edge of a market, not a center. Also facing the new mayor was the fact that the central retail district of Boston looked to be on it's last legs. Ancient in its buildings, in its growth lagging behind the suburbs, downtown had

only two notable smug departmental stores. These were the Jordan Marsh and Filenes. In 10 years 14,000 jobs had disappeared and \$78 million of taxable income had evaporated just in the central business district."

The last two decades of development of the waterfront and the downtown core has revitalized the economy of the city. It has strengthened the office, retail and housing market and has generated a stiff competition in the private sector to win new development proposals in the city. The market demand for new developments is still strong but the development in certain sectors are on their way to saturation. Boston is now the most lucrative city for new investment.

The flight to the suburbs in the sixties, left most of the neighborhoods of Boston going downhill, in somewhat stratified ethnic enclaves; median family income was the lowest of seven major U.S. metropolitan areas. Again quoting McQuade's article in Fortune: " the leaders of the exodus were the old Boston families and prominent business proprietors of the city, who simply withdrew from their civic responsibility, leaving dear Boston to the devices of Irish politicians and their Italian immigrant allies. The anciently rich and their trustees stored their stocks and bonds in safe deposit in Providence.

Private investment in Boston had been low for a number of years before 1960 and the exceedingly blighted condition of the waterfront as well as the lack of other economic activities diminished the chances of new investments. The waterfront area was excessively built-up and BRA studies showed such environmental deficiencies as overcrowding of structures, obsolete building types, incompatible land uses, poorly designed inefficient streets, inadequate public utilities and numerous burned out or vacant properties having a blighting influence on this as well as the adjacent areas.

PHYSICAL

There are usually three predominant physical configurations of sea-port waterfronts. Peninsula, cove and a combination of peninsula and cove. Historically Boston was found on a peninsula, and the waterfront began on the peninsula wharving out numerous wharves out into the harbor to accommodate its ever increasing port activities. In 1633 the Great Cove was the centre of the port of Boston. By the year 1900 the cove was filled and Boston's waterfront attained the physical configuration it is now.

The existing peninsula shape of downtown waterfront accommodates the wharves better than the accommodation of the wharves in a cove. The diverging wharves create a wider channel at the waterside of the peninsula but limits the scope of visibility of the total waterfront. The lack of comprehensive view of the total environment on the waterfront reduces its potential and actual active environment. It also reduces the visual treasure of sweeping shoreline which offers a psychological access to the entire area. A comprehensive visual cue also enhances the variety of the environment and provokes the exploratory instincts in our minds. It can be assumed that the success of the Great Cove of Boston was determined as much by the importance of Boston in trade routes as it was on the configuration of the cove. The flourish of port activities were multiplied by the visibility of the total port activity which amplified the 'hustle & bustle' of the harbor and facilitated information exchange among the traders and local business people. Even in the present day, the success of active waterfronts is dependent on the configuration of its shoreline. The huge success of Baltimore in converting the waterfront into an active public place was made possible, to a large degree, by the existence of the bay area. Boston has lost the Great Cove and the South Cove to the city's need to expand its land resource. At present only the Fort Point Channel and the remnants of the Great Cove area offer substantial shoreline view and make the difference between the wide open water of the harbor and the water of the cosy cove. The navigable water law limits all kinds of landfill activities in the Boston harbor to the bulkhead of the wharves, excluding of course, the navigable channels, but the possibility of creating a new cove by landfill activities or by floating structures can be explored.

Physical barriers are the most imposing obstacles restricting the depth of the waterfront area. In many instances the construction of modern bridge, tunnel and highway system across waterways and along urban shoreline was done at the expense of reducing the domain of the waterfront areas to a mere long thin strip of land adjacent to the wharves. The placement of highways along urban waterfronts was not accidental- waterfront land was available and underutilized. In some waterfronts as in the case of Boston the road system was integrated with train line in the center to facilitate easier movement of goods and cargo travelling to and from inland and the port.

The depth of Boston's waterfront is defined by the Atlantic Avenue and Commercial Avenue in the Central and North End sections and by the Atlantic Avenue, Dorchester Avenue and Northern Avenue in the Fort Point Channel area. Excepting the Long Wharf area in the Central Waterfront and the waterside area of the Northern Avenue, between Pier 4 and the mouth of the Fort Point

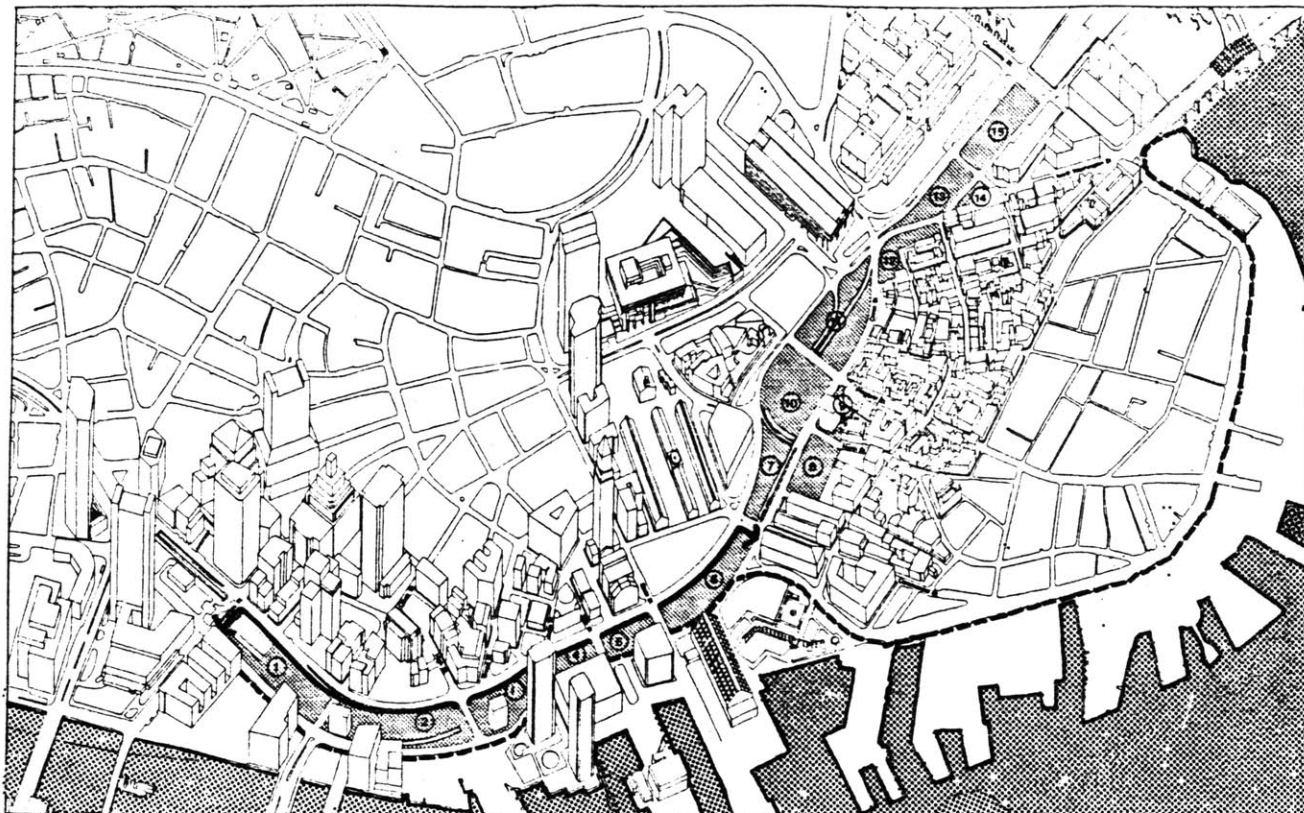
Channel area the depth of the waterfront area is limited to the length of the individual wharf only. Heavy traffic circulation at its landside and the overall shallow depth of the waterfront area inhibits the 'inside' feeling in most of its length. The waterfront area therefore, characterizes as the land edge of the downtown area, as a strip of buffer between the water and the heavy traffic circulation bordering the downtown skyline.

The Central Artery which is the most imposing barrier between the downtown and waterfront area had been a strong catalyst in discouraging the expansion of the downtown development in the waterfront area. It has also reduced the physical and visual accessibility of the waterfront. Although the historic North End community have been cut off from the city by the Central Artery, it is widely believed to have prevented the threat of encroachment of downtown commercial landuses in the North End. The present proposal of depressing the Central Artery will make available approximately 20 acres of open land. Integration of this strip of land in the waterfront area would increase the depth of the waterfront area (fig 8) which would enhance the qualitative characteristics of the waterfront. This strip would also act as the negotiation zone to develop public marine related facilities.

Waterfront section on the water side of Northern Avenue, between the Fort Point Channel and Pier 4, has the open developable land of maximum depth. The pending proposal of realigning Northern Avenue would add more land to its area and facilitate smoother connection between South Boston and downtown core. Pier 1 and 2 located at the mouth of the Fort Point Channel offers the best view of the whole of the Central, the North End waterfront and the Charlestown Navy Yard. Its location at the mouth of the channel also makes the harbor waters as well as the channel visually and physically accessible.

The fingerlike wharves on the waterfront provide adequate water frontage in the whole area. The channels in between the wharves provide convenient marina facility for the waterfront residents. These channels also provide framed vista of the water. In places like in between the Union and Sarjent's wharf and in between Commercial and Lewis wharf the channel extends right up to the side of Commercial Avenue which provides the most direct view of the water to the pedestrians as well as to the motorists. Most of these edges however, require structural as well as aesthetic improvements. The rotting timber piers and the crumbling stone retaining walls make access from the water hazardous and unpleasant. These environmental textures once had been an integral part of the the totality of the waterfront, but in the wake of the changing function and new development image of the area, remain as frayed

FIGURE 8



Land available after the depression of Central Artery
Existing Depth of Waterfront
Increased depth of Waterfront

Source: EIR, Third Harbor Tunnel

edges of a gilded dress. Particularly notable are the end of the channels which abut right against the road. These are devoid of any function and thereby tend to collect dirt and garbage both on the water and landside of the edges. Structural decay is most prominent in these sections which has resulted in their closure to any public access. These pockets however have a very strong potential to become cosy viewing decks, sitting spaces, and places for providing illustrative informations to the pedestrians. Proper design of the channel ends would act as successful binding element of already developed wharves.

Waterfronts are located on different types of water bodies- on coasts, along rivers, at the terminus of shipping channels, or alongside bays and coastal inlets- and the condition of these water resources varies significantly with each location. The more important factors are the dimensions and the configurations of the body of water, the water resource dynamics, and the water quality. To a great extent these factors dictate the potential water-related uses of the shoreline. In general terms the larger the dimensions of the water body, the greater the potential of water related uses. The relationship is based on common sense: obviously, a deep water harbor located on a large coastal bay is able to accommodate uses that inland river port with a narrow channel and shallow marina cannot. Although it is usually advantageous to have a deep water harbor, in Seattle the water depth is so great that it restricts the distance structures can be built out from the shoreline. As a result piers were built on the city's waterfront angling out away from the seawall to make them long enough to accommodate cargo ships. But, more often if the waterfront development is stifled by water depth, it is because shallow conditions prohibit some water oriented uses. The fluctuation of tide water is an important factor which affect the type of use the waterfront area can accommodate. In coastal seaports, for example tidal fluctuations and wave actions significantly affects waterfront developments. For example, in San Francisco and Seattle, breakwaters are necessary to protect marina slips and docking facilities from the destructive force of wave action. This requirement increases development and maintenance cost. To overcome the problems caused by water level fluctuations waterfront developments are confined to higher elevations. Boston has a significantly high tidal fluctuation among the North American cities. The highest recorded fluctuation of tide is almost 12 feet. This inhibits types of developments like promenades, restaurants and other uses which can be greatly benefitted from the closeness of water most of the time.

ACCESS

Historically Boston was very much oriented to the water and the south slope of Beacon Hill, where major public buildings were constructed, provided a vantage for the harbor and downtown. The loosely radial pattern of the streets down from the center of commerce and government to the shore still prevails, although the sense of the connection between the heart of the city and the shore is not as strong as it was in Boston's era of maritime trade.

Just as human life is dependent upon a circulation system, the life of a city is supported by a network of transportation elements. In this respect accessibility - the relative ease of movement to and from a site - is an important characteristic in any urban location. For waterfront it takes on even more significance because of conditions inherent to land and water transportation. Furthermore, accessibility is a function of travel time, distance and comfort. Thus in theory the proximity of urban waterfronts to city centers would make them highly accessible. This is rarely the case, however; unless a waterfront has a long history of waterside use. Typically a variety of physical, institutional, and psychological barriers exist eliminating the land and water access.

The waterfront renewal area of Boston is the closest point of the Central Business District to Logan International Airport. It is within walking distance to rail terminals; is served directly by the central artery, connecting to all expressways, and is served directly by rapid transit ride to any of the city's cultural, entertainment and educational facilities. "overlooking Boston harbor, which by day or night is an impressive stretch of urban scenery, the project area is rich in that special atmosphere created by centuries of sea-faring men. "(1)

PEDESTRIAN ACCESS

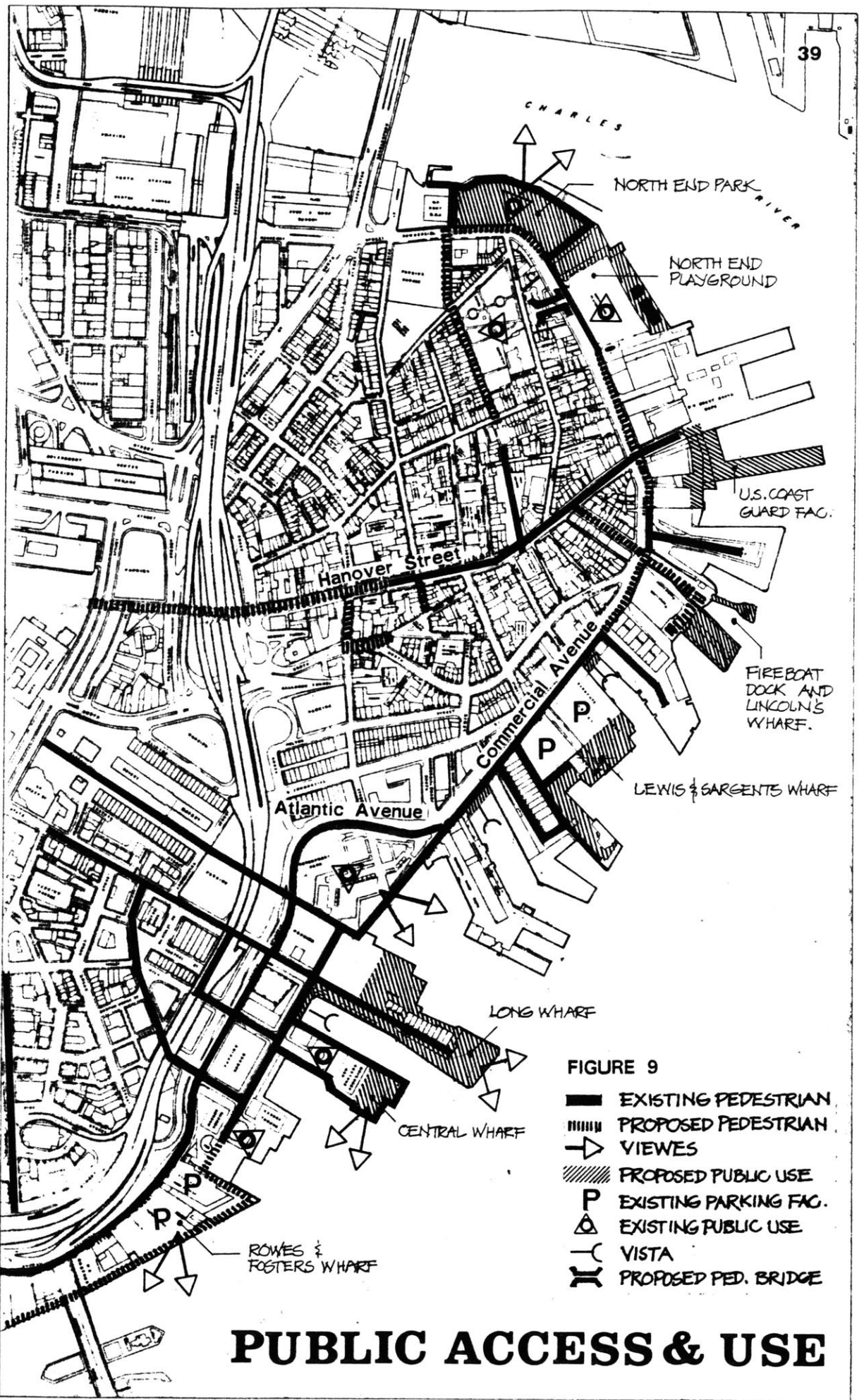
Boston is a city which can be best experienced and enjoyed on foot. The city as a whole displays the existence of historical and modern development side by side, while on the street level the proximity of the commercial, recreational and historical facilities makes the pedestrian's experience of Boston a total experience. Boston's waterfront, the oldest and the most significant part of the city's history therefore, can only add to complete the experience. Initial objective of planners and city fathers were to make the whole waterfront accessible to the Bostonians. Special emphasis was given on the aspect of pedestrian access to facilitate the

(1) Report on Downtown Waterfront Fanuel Hall urban Renewal Plan, Greater Boston Chamber of Commerce.

revival of the uses of waterfront facilities by the city people. Due to many physical, legal and institutional constraints the city had to settle for only limited public access to only a few sections on the waterfront.

In the central waterfront, major pedestrian access exists as connection to the Central Business District along the Government Center and Waterfront Park axis, and as connection to the North End waterfront and Government Center through the historic Hanover Street (fig9). The most obvious and historic connection to the waterfront is through the State Street connecting the Long Wharf and the State House. But due to the intense highrise development on both sides of State Street and the lack of pedestrian environment has reduced the possible potential of pedestrian linkage along this route. The orientation of the Government Center MBTA station towards the city hall plaza also draws most of the pedestrian circulation along Quincy Market Area. The State Street connection however serves only as the reference to the historic linkage between the State House and Long Wharf on the waterfront. Both the State Street and the Fanuel Hall and the Waterfront Park connection suffer from the existence of the central artery as a visual barrier. The Milk Street connects the retail core of downtown Boston with the Central Wharf. This connection provides both pedestrian and vehicular access to the Central waterfront. The 'route to the sea, will provide a principal means of deliniating the most visible pedestrian access from the center of the city to the waterfront area. Integral to this concept is the development - at the end of those routes - of public access along the water's edge.

Hanover Street provides the aspect of connecting and providing the most significant sequence of Boston's maritime history. At present the Hanover Street connection is the oldest existing route to the sea. From the center of the city Hanover Street connects sequentially - Government Center, Hay Market Square, Paul Riviera Mall, Old North Church, St. Stephen Church and the U.S. Coast Guard Facility located across the Commercial Avenue. The last section of the Hanover Avenue on the waterside of Commercial Street, however terminates a little short of the water's edge. But public access to this last section of the historic "walk to the sea" is inhibited by the the security requirements, mode of operation and institutional characteristic of the Coast Guard Facilities. Access to the water at the end of Hanover Street may be worked out by mitigation measures and innovative desgn of Coast Guard facilities operation and public access route, but the institutional environment and lack of public activities would substantially dampen the utilization of the access. Hanover Street also happens to be the main activity spine of North End. It is live round the clock with activities. Retail, commercial and tourist activities are visible part of the environment



PUBLIC USE

 PROPOSED
 EXISTING

1. LEWIS AND SARAGENTS WHARF
2. LONG WHARF
3. PROPERTY AVAILABLE FOR AIR-RIGHT DEVELOPMENT
4. BASE OF N. AVENUE BRIDGE

5. BOSTON EDISON PROPERTY
6. PIER 1-3, ANTHONY'S PROPERTY
7. PIER - 4, RESTAURANT AREA
8. COMMONWEALTH PIER - 5
9. CITY PROPERTY
10. END OF FORT POINT CHANNEL

Water's edge should be used for public activities and special water related uses only

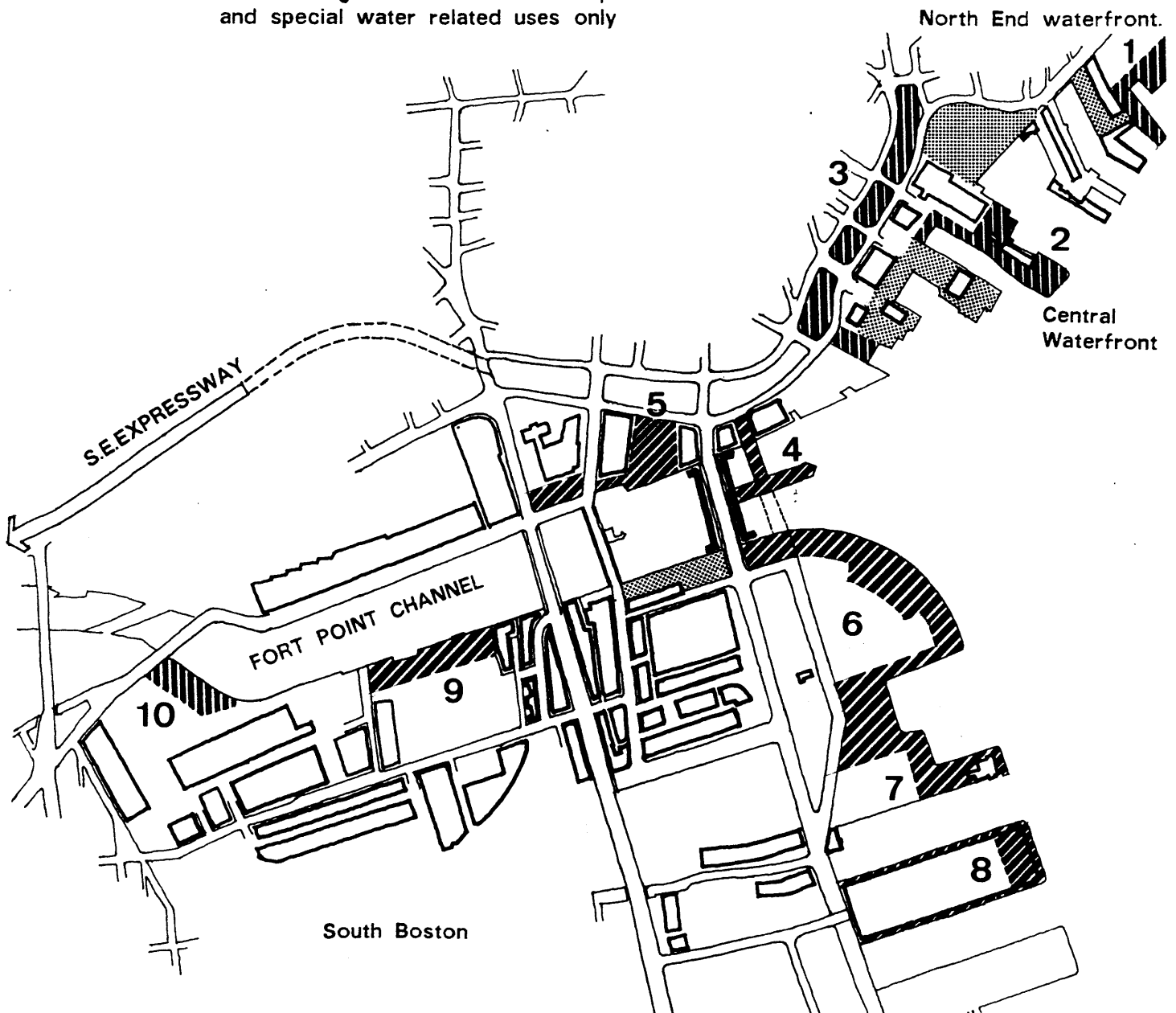


FIGURE 23

throughout the day whereas at night people flock at the bars and come to dine at the finest Italian restaurants in the city. Development of public information and guiding system to integrate North End Square, Paul Riviera House and the Copp's Hill Cemetery would enrich the walk to the sea as well as the public image of North End. Copp's Hill Cemetery and terrace, overlooking the North End Playground is one of the most unique visual as well as experiential assets of the waterfront. Improvement of access facilities between these areas would enrich recreational aspects of the waterfront.

FORT POINT CHANNEL

Fort Point Channel area is the remnant of the most important section of Boston's industrial waterfront. Around 1870, the berthing of longer vessels and demand for additional harbor frontage induced the dredging in Fort Point Channel. 1200 ft. wide strip of mud and marsh was cleared along the east bank of the channel to create new warehouse and docking facilities. The subsequent proliferation of railroads which led into the wharves all along the waterfront resulted in cutting off access to the waterfront of 1800, particularly in the South Cove area. Through World War II, the downtown and the Fort Point Channel area were active ports of Boston's maritime commerce. Since the end of the war, technological changes in shipping industry resulted in the concentration of these uses at specialized facilities elsewhere in the city. By 1940's the wool industry, which was the most important part of the economic activity of this area, was severely threatened by the invention of synthetic. The survival of the Fort Point Channel area industries became dependent on new method of operation and technology or they faced relocation. Many industries preferred to locate their industries elsewhere in the state while most of the other industries changed to printing, mailing and supply houses. Some of the buildings were razed down to use the property for parking facilities. The resulting loss of the functional mode of the area deteriorated the environment rapidly. Although some buildings have been adopted for reuse in the last decade this area still portrays the picture of abandonment and deterioration. The three 19th century bridges spanning the channel and commercial warehouses still remind one of the industrial era of Fort Point Channel.

Currently most of the edges of the channel is inaccessible to the public. Institutional constraint, privately owned land, hazardous condition of the edges, buildings extending up to the channel restrict public access at most part of the channel's edge. Although the channel can be viewed in its totality from the bridges, major barriers of physical access include the U.S. Postal Service which has expropriated section of the northern embankment and the Dorchester

Avenue Bridge and the fact that building at several locations extend upto the edge of the channel. present provision of public access on the edge of the channel on the Museum Wharf have effectively opened up the channel area between Northern Avenue Bridge and the Congress Street Bridge.

Extension of access from the Museum Wharf along the southern edge of the channel, towards the end of the channel could be provided by mandatory public access requirement in future developments. Recently completed office construction at the corner of Congress and Sleeper Street has provided public access along the edge of the channel in the form of covered corridor at the water's edge. However, the frontage of the new office facilities into the corridor and the higher elevation of the plinth of the adjacent property would make the access facility semi-private or at best semi-public instead of public in character. This would severely restrict the possibility of public activities on this part of the water's edge. A significant opportunity to open for public access the entire southern side of the channel may be offered by the pending construction of the east side waste water interceptor pipe at the base of the embankment. Preliminary profiles fixed by flow requirements indicate that the top of the pipe will be located at or just below the mean low water line. This means that portions of the enclosure may need to be visible at low tide. A key proposal of this study is that a promenade be incorporated into the design of waste water pipe along its entire edge route. A walking surface to be constructed at a level above the high tide, would obscure the pipe and provide excellent public access at a level lower than the surrounding streets. At the outer extremity where the pipe turns inland, now proposed in the vicinity of Rowes and Fosters wharf, the walk would meet the public access spaces and boat terminals proposed for this site.⁽¹⁾

WATERFRONT CONSTITUENCY

The urban context of the waterfront is strongly related to the distinctive characteristic of its constituency. Normally there are two constituencies: a primary group composed of people who use the waterfront as a residence, a place of work, or recreation resource, and a secondary group composed of people who occasionally go to the waterfront, have no direct involvement with it, but feel that the water's edge is a public resource and are concerned about it. The characteristics of both these groups vary significantly depending on the mix of land and water uses. In some cases there is a special constituency that exists because of a specific physical or cultural

(1) Boston Downtown Waterfront Project, Lane/Frenchman Inc.

feature of the city's shoreline. Usually this is a small but vocal group that has a narrowly defined interest in the waterfront. These different groups have different notions of their priorities on the waterfront which are affected by the future development programs. Since urban waterfront land is generally a limited resource the primary waterfront constituency sometimes has, what is called 'a lifeboat mentality'. That is, once a user group is entrenched in a waterfront location they do not want to share the resources with others, even if it is for a similiar type use. Often the implication of development to create a new primary constituency is rightly resisted by the existing constituency of the waterfront. The reason for such resistance is based on the threat of rise of rent and property value following typical renewal interventions. This inevitably forces out small business and low income people whose existence on the waterfront was dependent on the poor condition and low rent of the available housing. Development of housing facilities on Boston's central waterfront initially posed no physical threat to the North End Community but the converted wharf buildings and other speculative action forced many single households and low income families to shift to other affordable neighborhoods of the city. The scarcity of land, the water as a valuable resource, the proximity to downtown facilities and the high cost of providing public facilities turned out expensive housing and condominiums on the Central and North End waterfront of Boston. Physically the North End community protected its own shape by conscious and organised resistance to the demise of any structure in the vicinity of their locale and also gained legal jurisdiction to reject unfavourable or unsympathetic development proposals on the waterfront. But the quality of the new waterfront community became a social barrier to the homogeniety of the waterfront constituency. The difference in their background and heritage created a new community worlds apart from each other. The newly found residential uses affected the North End area in an unlikely manner. As is typical of situations like this, well to do families moved to the new housing creating surplus housing which are rented on temporary basis and this created a transient population. As in the case of North End, traditionally a tightly knit itallian community, has become attractive to newcomers due to it's proximity to downtown, Fanuel Hall Market area and the adjacent revitalised waterfront. The demographic character of the area is changing dramatically. The percentages of housing that are families in the waterfront and North End has decreased from sixty four percent in 1970 to forty two percent in 1980 and the number of single person household has increased. Half the residents in the waterfront now live alone.(1)

(1) EIR, Third Harbor Tunnel, Oct 1983.

Only five percent of the waterfront residents are under age 18, while this age group comprises twenty two percent of Boston's population. The waterfront's elderly population increased from four percent in 1970 to 13 percent in 1980.(1) This increase is attributed to the development of two elderly housing projects which are primarily occupied by residents from the North End. The rapid demographic change of North End residential community can be extremely detrimental to the active and friendly social heritage so much characteristic of the area. Increase in single person household and existence of transient population would reduce the street life of the community and destroy the cultural fervor of North End. Acute disintegration of the social fabric of North End may also affect its physical fabric in its attempt to accommodate the changing demand of a different demography.

The area immediately to the east of Fort Point Channel contains a mix of land uses and is slowly changing from industrial to a commercial and residential area. There are approximately 100 existing residences near Fort Point Channel area; these include both developer financed condominiums and artists lofts. This area is also one of the most important for future residential, office hotel and industrial development of Boston.

Present development speculations in this area however, indicate a substantial increase in the population of this area. The Boston Wharf company has substantial land holdings in this area and plans residential and office developments. Pier 1-4 owned by Anthony Anthanas, are the proposed site for offices, hotels and residential developments. Increase of development activities of this area will inspire more warehouse to residential conversions. Ultimate quality and density of population of this area would be determined by the connection of downtown area to the proposed conversion of South Boston waterfront as navy port.(2)

(1) Boston Tommorrow, BRA report, December, 1983.

(2) City Records, June, 1982

SECTION 4

RECENT DEVELOPMENT TRENDS

Large urban renewal schemes are complicated and time consuming. The physical and potential decline of the city's oldest part occur over a substantial period of time of the city's history. Public interventions to eliminate this decline usually occurs at a time when most part of the renewal area have undergone an advanced stage of decay, deterioration and abandonment. Usually public sector initiates an overall plan for the development and starts the renewal process. This encourages subsequent developments by private sectors while the public authorities control and regulate the nature of developments.

In the beginning the renewal process generates multiplied development speculations. So, when the initial priorities of developments are fulfilled subsequent development proposals are affected by the planning regulations, market demands and the immediate priorities. This phase of development is therefore, modified by the assessment of present needs and the future implication of the proposals. The change in the nature of development reflect the existing market demand and the projected market demand of the future. The mere economics of the projects, however; cannot justify the development trend. In this phase, compatibility of the proposals, socio-economic impacts and the qualitative aspects of the project assume greater priority.

Analysis of the recent development trends, however; can reveal the motivations behind the development proposals which act as the indicator for assessing the future.

Boston's downtown waterfront is in it's last stage of development. The last remaining land resources on the waterfront is going to be filled up to give shape to a total waterfront. The present proposals, therefore; have an important role in the future of the waterfront. To determine the direction the total waterfront would be taking it is necessary first to have an overview of the development activities and existing proposals.

An inventory of the present ongoing developments and existing proposals is given below (table I).

Table I: below is an inventory of development activities between the period 1983 - 1986. The project listed have been approved by the BRA for construction.

PROJECTS	LOCATION	TYPE	TOTAL AREA
Conversion of Fish Pier	South Boston	Office.....80,000 sft. Industrial... 143,000 "	
Conversion of Atl.Ave. bldg.	390-400 Atl.Ave	Office.....100,000 " Retail.....17,000 "	
Rehab of GSA Appraiser bldg.	Northern & Atlantic Ave.	Office.....105,000 "	
Conversion of Sleeper St.	Fort Point Channel	Residential...88 D.U.	
Conversion of 303 Congr.	Fort Point Channel	Office.....68,000 "	
Rehab of Boscom at Commonwealth Pier-5	South Boston	Hotel.....316,000 " Office.....30,000 " Exbtn/confce.221,000 " Trade Mart...364,000 " Retail.....23,000 " Restaurant....49,000 " Ship Trmnl....37,000 " Parking.....271,000 "	
Conversion of N.End Museum	Lincoln Whrf.	Museum.....6,500 "	
Conversion of Condos.	Lincoln Whrf.	Residential..191 D.U.	
Rowes & Foster Wharf	Waterfront 324-386 Atl. Ave.	Office.....225,000 " Retail.....14,500 " Residential..250 D.U. Boat Trmnl....8,000 " Parking.....21,000 "	
Marketplace Center	200 State St.	Office.....273,000 " Retail.....64,000 " Museum.....30,000 " Parking.....6,700 "	
Pier 1-4	Northern Ave.	Office..... 1,727,000 Residential..1,000,000 Hotel..... 1,010,000 Retail..... 115,000 Marina..... Parking..... 1,417,000 Amphitheatre.. " Restaurant.... "	
Sargent's Wharf	N.End Waterfront	Residential..200 D.U. Retail.....10,000 " Office.....20,000 " Parking.....24,000 " Marina.....50 Slips	

ANALYSIS OF RECENT DEVELOPMENTS

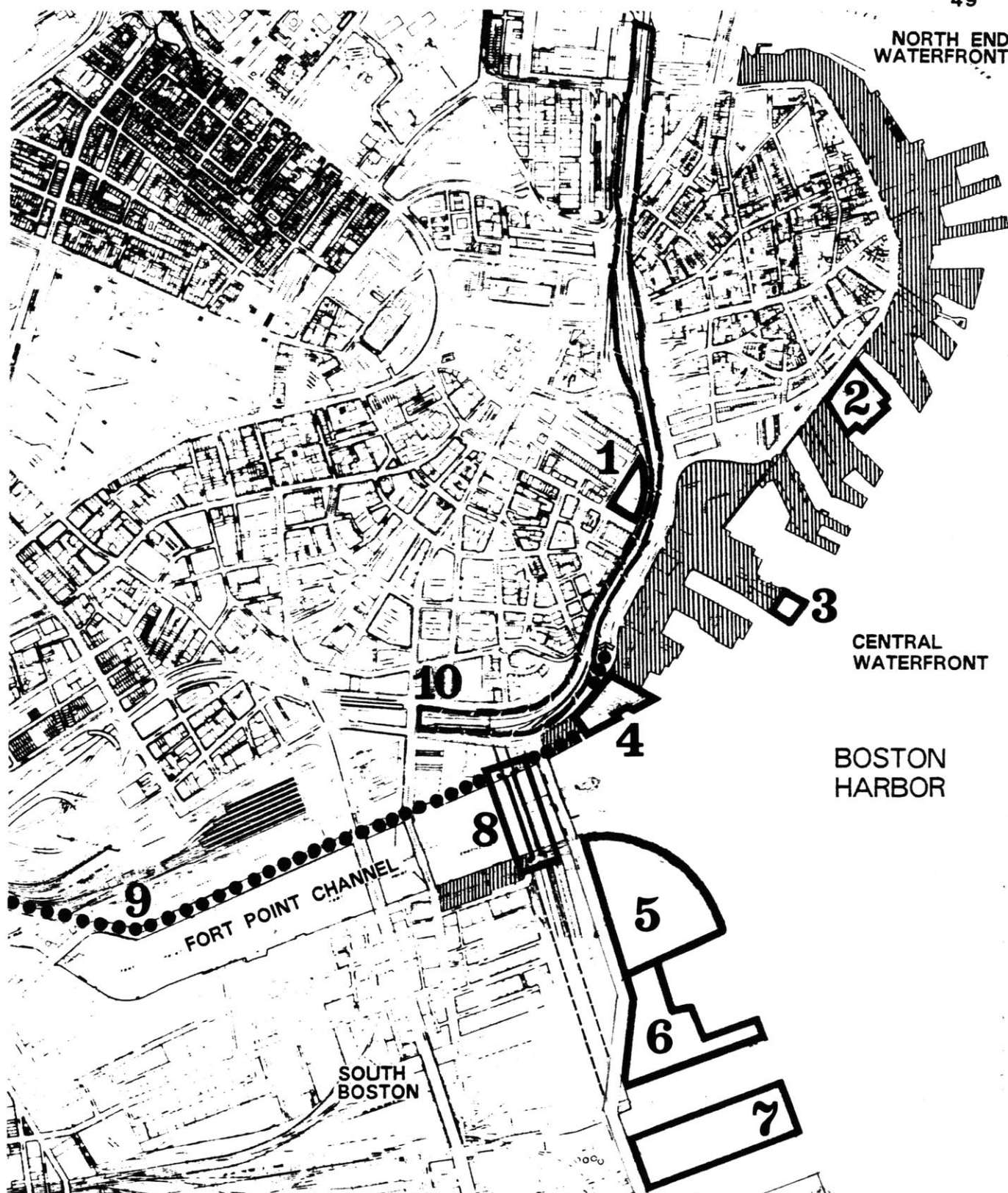
The recent development proposals and already approved developments show a distinct trend in the nature and scale of the projects. The five most important projects which would have profound affect on the totality of the waterfront and its adjacent areas are: first, the Market Place Center; second, mixed use development on the Rowes and Foster's Wharf; third, the proposed mixed use development of Pier 1-4; fourth, Boscom development proposal of hi-tech and mixed use development on Commonwealth Pier-5 and the fifth one is the proposal to depress the Central Artery (fig.10).

The trend is visibly commercial in its overtone and it incorporates large development parcels as one project. The concept of mixed use is being implemented as a mitigation instrument between the BRA and the developer concerned. With a still live market of commercial development the developer is building the maximum possible commercial facilities, on the other hand the BRA is trying to incorporate its major concerns like parking facilities, improvement of the infrastructure, extension of the downtown development, and community concerns like providing more housing and public facilities. But the concept of mixed use itself is no guarantee that the area would stay alive and therefore useable and safe round the clock. Large parcel developments as a single project create a psychological barrier for a greater cross section of the society due to the gentrified elegant finish and expensive facilities. The enormity of the project creates many complex design issues of circulation, compatibility of uses, and defuses the proper density of use at street level and other public places. As opposed to incremental development, changes in large projects become expensive, time consuming and creates complex litigation pocesses. To sum it up the basis of mixed use development fails to the end product of sanitized, organised and expensive environment. The time and resources spent behind large projects also make interventions futile.

The follwing are the highlights of the recent trends:

DEVELOPMENTS ARE PREDOMINANTLY LARGE MIXED-USE PROJECTS:

Present day development scenerio on the waterfront is the beginning of a " new generation " of developments. It would affect the direction of the future environment of the waterfront. At present 5 different large mixed use projects are in various stages of design and implementation. Three of the projects are located in the Fort Point Channel area of South Boston. One is

NORTH END
WATERFRONTCENTRAL
WATERFRONTBOSTON
HARBOR

FORT POINT CHANNEL

SOUTH
BOSTON

FIGURE 10

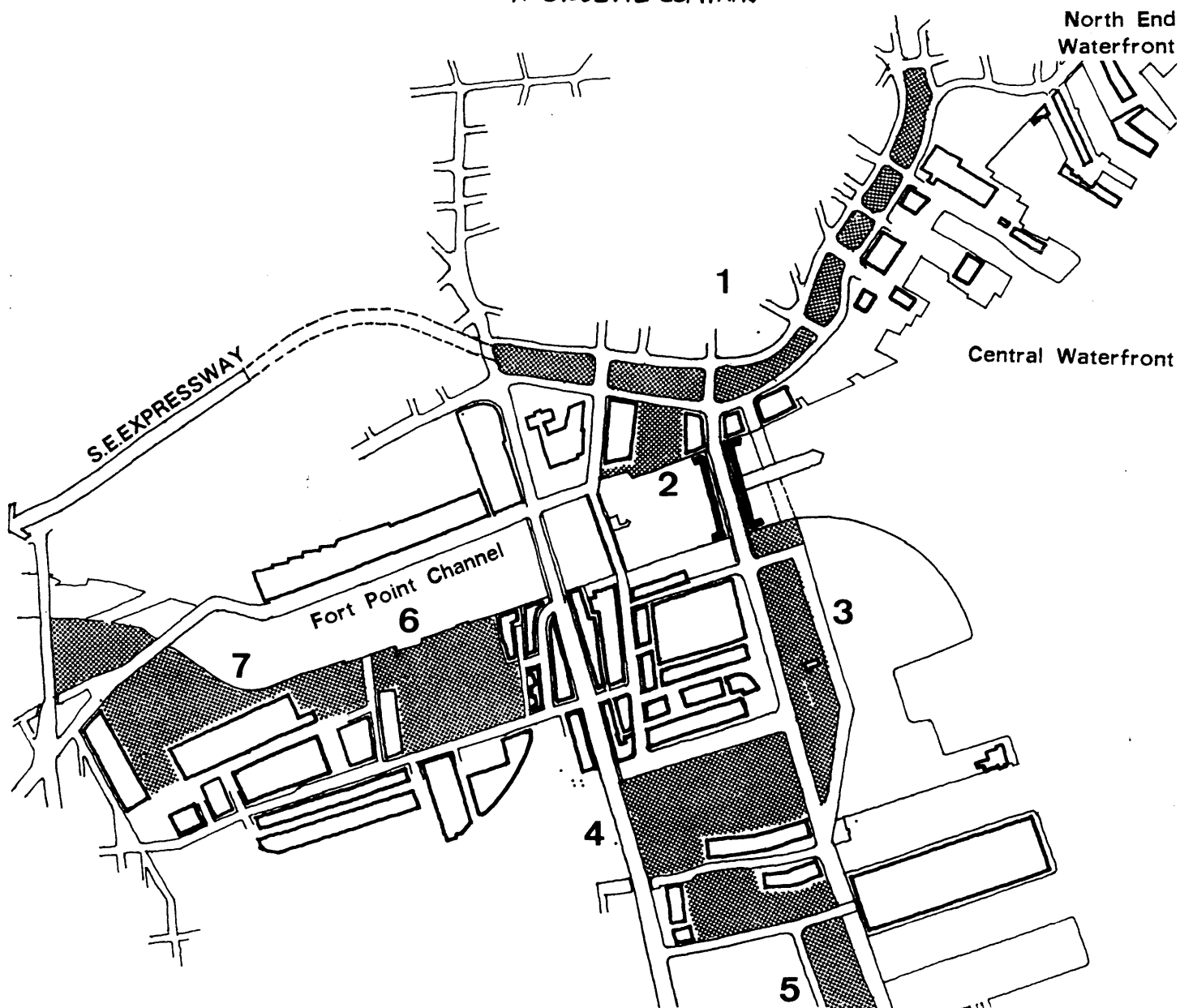
EXISTING DEVELOPMENT **PROPOSALS**

- | | |
|------------------------------|-----------------------------------|
| 1. MARKETPLACE CENTER | 5/6 PIER 1-4, |
| 2. LEWIS AND SARGENT'S WHARF | 7. COMMONWEALTH PIER-5 |
| 3. LONG WHARF | 8. NEW NORTHERN AV. BRIDGE |
| 4. ROWES & FOSTER'S WHARF | 9. EAST SIDE INTERCEPTOR |
| | 10. DEPRESSION OF CENTRAL ARTERY. |

CRITICAL SITES

■ CRITICAL SITES FOR FUTURE DEVELOPMENTS

1. SITES AVAILABLE AFTER THE DEPRESSION OF THE CENTRAL ARTERY, FROM SOUTH STATION TO THE WATERFRONT PARK.
2. BOSTON EDISON PROPERTY.
3. SITE BETWEEN EXISTING & REALIGNED NORTHERN AVE.
4. CABOT CABOT & FORBES PROPERTIES.
5. PENN CENTRAL PROPERTY
6. TOWN AND CITY PROPERTIES.
7. GILLETTE COMPANY.



located in between the Central waterfront and the Fanuel Hall area while the fifth project has been proposed for the most lucrative developable land on the North End waterfront. All the sites are large compared to plot by plot developments executed on the waterfront so far, varying between three to thirty five acres. Located on important locations over the total waterfront each site is owned by single owners and had been used for profitable surface parking only (fig.9). Although no structures existed on these sites on the eve of urban renewal program, lack of alternative parking facilities maintained the parking priority of these sites.

Particularly important are the two projects on South Boston waterfront. One is the Boscom development project on Commonwealth Pier-5, the other is the enormous proposal for Piers 1-4 (table II). Main theme of all the projects are mixed use development of residential, commercial, retail, parking, public open spaces and possible maritime facilities. Excepting Commonwealth Pier-5 development which is based on the concept of computer trade mart and convention facilities all other developments have residential and office uses as the major elements. Maritime facilities are confined to the provision of some marina slips and accessibility on the water's edge.

Table II

NAME	LOCATION	SITE (acres)	DEV.AREA (s.ft)
BOSCOM	South Boston	11	1,311,000 sft.
PIER 1-4	South Boston	34.9	4,469,000 sft.
ROWES & FOSTERS WHARF	Central Waterfront	3.8	665,000 sft.
MARKET PLACE CENTER	Central Waterfront	2.5	374,000 sft.
SARGENTS WHARF	North End	4.2	510,000 sft.

WATER DEPENDENT FACILITIES ARE BEING PATRONIZED IN EXCHANGE OF INTENSE COMMERCIAL DEVELOPMENTS:

The rationality of development and implementation of proposals have taken a complex shape in Boston owing to several factors.

Lack of city funds to invest directly in developments has given birth to the innovative public-private financing system, where basically government authorities exercise their power of approval in exchange of investments from the private sectors. The developers, having to bear the cost of improvement of related infrastructure or incorporating low yield facilities like public amenities intensifies other commercial development facilities to maintain their profitability. Beside public-private financing locational and economic factors also mitigates the logic of development proposals. Due to waterfront's proximity to downtown, development proposals tend to capitalize on the intense highrise commercial landuse pattern adjacent to the area. Water being another locational advantage, waterfront is also extremely attractive and economically more profitable for condominium developments. On the other hand, the guidelines for development require public access and provision of maritime facilities to be integrated or improved in the proposals.

The outcome is the resultant of these factors. Commercial developments are maximized within allowable limit while water related maritime facilities are incorporated in a marginal scale. The city's inability to provide funds to support the public improvements reduces its bargaining capacity for a more equitable use of maritime facilities.

As is visible from table II, major portion of the development is providing for residential, office and parking. Excepting the Rows and Foster's wharf project no other development has provided any sizable and public maritime facility.

LACK OF DOWNTOWN GROWTH AREA IS RESULTING IN PROLIFERATION OF CBD TYPE HIGHRISE OFFICE, RETAIL AND PARKING DEVELOPMENT ON THE WATERFRONT AREA:

At present Boston is experiencing the highest per capita investment in this country. This economic resurgence is resulting in rapid development of office, retail, hotel, industrial and residential facilities. The effect of the developments is highly visible in the soaring city skyline.

Central Boston is the area which is undergoing substantial change at a rapid pace and awesome magnitude, particularly in the development of its office sector.

The unprecedented growth of office sector have been rightly influenced by the nationwide growth trend of many of Boston's office sectors - banking, insurance and investment services, business management, administrative and consulting services as well as accounting, engineering, legal, medical, educational and other professional services. With a low vacancy rate and ever increasing market demand for quality office spaces, Boston has consumed " 14 million sft. of office space since 1975; another 7.8 million sft. are scheduled to be ready by 1986 and has a projected market demand for 10-14 million sft. office space between 1986 and 1992 "(1)

Central Boston, landlocked by special zoning districts and historic neighborhoods like the North End, Waterfront, Back Bay, Beacon Hill and Fort Point Channel has already exhausted it's land resources. Future accommodation of market demand for growth offers only a few options. It can build on whatever open and available land resource it has; it can destroy older lower height buildings to build highrise office towers expanding vertically; it can encroach on its neighboring districts or it can channelize developments to different other regions. Of all these options, encroaching on the land resources of the neighboring districts, particularly of waterfront, offer the most viable natural option for expansion. Waterfront's proximity, availability of underutilized vacant land, dilapidated old structures and minimum relocation problems and as in the case of Boston, lack of strict use guidelines make waterfront area vulnerable to encroachment. Also, the capacity of office tenants to pay higher rent or tax make office development most attractive for investment returns.

Ongoing and proposed projects on the waterfront comprise of a total 8 million sft. floor space to accommodate office, retail, parking, hotel, marina, museum and residential facilities. The largest portion of the developments comprising approximately 3 million sft. i.e. 37.5% would be office space; parking would comprise another 2 million sft. i.e. 25% while residential, retail and all other facilities would comprise of the remaining 37.5% of the total floor space. With more than 62% share of office and parking space only the developments can hardly be categorized as logical development pattern of the waterfront area. The development is the waterfront version of downtown development pattern.

The mixed use emphasis of the developments also reflect not tailored to the needs of waterfront development. Large mixed use developments have set the market trend of this decade in Boston. Height limitation and other development guidelines have maintained the development height to a modest 165 ft. on the waterfront sites,

(1) Boston Tomorrow, BRA publication, Oct. 1983.

but in all its essence the proposed and ongoing proposals on the waterfront are same trendy development as Copley Place, Lafayette Place, Market Place Center, Fort Hill Square development, and Dewey Square development.

BOSTON'S HI-TECH INDUSTRY AND INSTITUTIONAL EXCELLENCE IS INDUCING A STRONG DEMAND FOR TRADE-MART, CONVENTION AND RELATED FACILITIES:

Boston's image nationally and globally is closely tied with its pre-eminence in education, research and medicine. The institutions have grown steadily despite fluctuations in the local and national economy and have been integral to the regional growth in hi-technology and bio-medicine. Institutes, comprising over sixty percent of tax-exempt property do not contribute directly to the economy of the city, but had been crucial to the development of hi-tech industry, gate shows, conventions and visitor related facilities.

Currently there are two major gate show and convention facilities in Boston which attract 5% of the national convention market every year. The facilities are the Hynes Auditorium, a publicly owned convention center, and the Bayside Exposition Center - a new privately owned gate show facility. The national convention market is growing at the rate of 2% annually, of which Boston is expected to attract 10% per year by 1990 as opposed to the existing 5% per year. The increased convention market demand would require expansion of the existing facilities as well as creation of new facilities. The growing demand has prompted BRA to undertake the expansion of the Hynes Auditorium and the proposed development of Commonwealth Pier-5 as a major new convention facility. Commonwealth Pier-5 was a former gate show facility and the present proposal would use it as a hi-tech mart - a reflection on Boston's research activities and hi-tech industry. Primarily a center for marketing hi-tech products to trade representatives, space would also be provided for general trade gate shows and convention. Complementing the growth of convention facilities hotels, retail and other integral visitor related service facilities have already been proposed for the adjacent site Pier 1-4.

Considering the discontinuation of the function of Hynes Auditorium during its renovation, the Commonwealth Pier-5 facility would become the new hub of convention and gate show activities once it is completed. The site being accessible from the airport and close to the downtown core would generate development

activities on the developable land in the area. It can be assumed that future development would require providing additional gate show and other visitor related facilities. Increased vehicular traffic and height limit of development may restrict the scale of future developments to modest scales but this area would become the choice site for addition or extension of convention and visitor related facilities.

WATERFRONT AS A PUBLIC AMENITY IS BEING SACRIFICED TO THE PROSPECT OF IMPROVING THE CITY'S TAX BASE AND BOOSTING UP THE JOB MARKET:

" How ironic is the pattern of flight from the cities to the shore lying areas miles from home where fishing, boating, swimming, and other water sports are all consuming past times for millions of Americans. To overlook the enormous potential of the waterfront at a city's doorstep for similar water-related recreation is a dreadful oversight. "(1)

The most important slogan for the redevelopment of urban waterfronts was " To give the waterfront back to the people ". Waterfront was considered a resource, rightfully belonging to the people. The city authorities had an implicit moral responsibility to develop public amenities on the waterfront. Amenities which are natural attractions and recreational function as water related activities. Swimming, boating, fishing, cruises and other water sports are the most direct active functions while walking, sitting, watching, browsing and enjoying the scenery are the passive water related public functions. The urban context of the waterfronts however, have materialised retail, restaurants, aquariums, sea food processing and marketing facilities, amphitheaters, walkways and parks which are essentially public amenities of urban life. These facilities have been successful in inducing intense public usage of waterfront area.

In the first phase of the development of Boston's waterfront, planners categorically aimed at people-oriented use instead of water related uses. Waterfront park was the main focus of development and was intended to be the main catalyst for generating future development activities in the area. Since the waterfront park the amenities which may be considered public in the use sense are the aquarium, restaurants, access to a limited part of the water's edge. The Boston Boat Club on Lewis Wharf offer boating facilities to its members only which limits it's usage

(1) Reviving the urban waterfront, Partners for Livable space.

to a very small group of people only. High membership fees (\$450 - \$750 /year) are also deterrent to the use of this boating facility by ordinary citizens. Even this facility is being threatened by the crumbling state of the structure it is housed in and the usual office residential development speculations. The reality of the development is that, the major public amenity which has benefitted from from its location at the water's edge is the limited walk to the sea. Excepting the access to the Waterfront Park and North End Park's water edge and the recently completed pedestrian deck at museum wharf, the fragmented and ojective nature of the walk and the high income privatised residential quality of the environment transformed the concept of walk to the sea to legal pedestrian trespassing around restricted properties. Devoid of proper pedestrian amenities on the walkways and the left over views of the water provided so far signifies that the design proposal had never been evaluated for the effectiveness of public amenities provided. Revenue generating developments were the main concern of the city authorities.

Present development proposals at Long Wharf, Rowes and Foster Wharf, Pier 1-4, and Commonwealth Pier-5 would incorporate public amenities in the developments. Long Wharf bulkhead is being developed as a public space, maritime displays and boat terminal which would support extensive public uses of it's water edge. Rowes and Foster Wharf would provide a cruise terminal and generous public walkway aroud its facilities. But the absence of extensive sitting, landscaping and other pedestrian elements and lack of any other interest generating activities would restrict the intense public use of this facility . The configuration and expensive condominium development and private office uses would result in the existing privatization syndrome of the public spaces.

Development on Commonwealth Pier-5 would provide cruise berthing facilities on the eastern apron. The access to this part of the water's edge may be restricted to the patrons of the cruises only; a control necessary to curb confusion, overcrowding, soliciting and other inconveniences.

Pier 1-4, the largest single development to occur on the waterfront as well as in Boston has recieved initial and enthusiastic approval from the city hall. " the preliminary master plan for this area is consistent with the overall objectives of this area. We are pleased that the initial concept takes into account the city's desire to have active uses and public access at the water's edge " said Robert Ryan, BRA director.(1) The proposal design however

(1) City Records, March '83

tell a different story. The public access and walkway provided around the inner bay which is separated from the water by 1000 units of expensive condominium development (fig.) of high and medium rise structures completely blocking any visual or public access and use of the water's edge. An amphitheater has been provided on the water's edge suggesting public usage but its location and accessibility is questionable for proper and effective public usage.

This project alone is expected to generate 10-15 million annually in revenues and would create jobs for Bostonians. The trade-off seems to be consistent with other waterfront developments.

FUTURE WATERFRONT ENVIRONMENT IS HEADING TOWARDS A NON-SPONTANEOUS, SANITIZED AND EXPENSIVE ENVIRONMENT FOR THE USE OF MEDIUM TO HIGH INCOME GROUP:

The existing facilities and the future proposal on the waterfront are the main proponents of the future of waterfront environment. Including the proposal projects waterfront would facilitate residential, office, retail, parking, hotel, marina, convention and other recreational facilities. Each use has a set of environmental implications. Of major concern is the gentrified ambience of the environment which is diametrically opposite to the spontaneous, live and public environments.

The clientele of the developments are also the major inducing element of the environmental quality. Patrons of the proposed residential, office and hotel facilities would be wealthy citizens, visitors and the business community. Catering to their needs, the restaurants and retail facilities would be classy renowned facilities which would have top national standing for their quality and image. In the Rowes and Foster Wharf development the public facilities of retail and restaurants would get substantial clientele from its own resident tenants as well as the Harbor Tower residents, the office and business community. Needless to say that ordinary people would seldom be able to afford its services. Development on the South Boston waterfront pose even a more acute condition for public use. These projects would feature 1000 unit expensive condos, Hyatt Regency Hotel, retail, office, computer trade mart, restaurants, an inner bay and cruise facilities. The environment would have the richest residents, leading business people and wealthy cruise patrons. The trade mart, hotel, offices and most of the service facilities would be dependent on the trade mart activities." The success of trade mart operations depend largely upon convenient and fast servicing of business customers who arrive with specific shopping list and

tight schedule. Thus the personal services and recreational facilities would have to be designed to operate for maximizing the convenience of its patrons.⁽¹⁾ This would lead to the exclusive use of the facilities by its patrons and limited and preferential treatment to the general public. Development of specialty shopping, boutiques and brand name establishments are an integral characteristic of such developments and the controlled elegance as well as the price tag itself would be enough to keep ordinary people from indulging in any dream of using such facilities. Particularly this area may turn into a forbidden city within a city.

There would not be any charm of Quincy Market, the lure of Filene's basement, the street activity of Washington Mall, the spontainety and color of Haymarket, the culture of Hanover Street, the variety of Harvard Square, the authenticity of Chinatown, festivity of North and South End, publicness of Boston Commons or the economy of suburban supermarkets. It would be nothing that Boston cares for. Without the trivia and variety of public places, without the joy of participation, without affordable impulse shopping and worst of all without a sense of history and identification with the environment, waterfront is headed towards a future of banal private place.

NO CONSIDERATION HAS BEEN SHOWN TO IDENTIFY AND UTILIZE THE DIVERSE AND RICH CULTURAL HERITAGE OF THE WATERFRONT:

Almost all the development activities are programmed to facilitate housing, and interrelated commercial facilities. The provision of public facilities have been limited to strips of pedestrian walkways at the edge of the water only. The only other public facility provided in the developments is the proposed Marine Museum in the Marketplace Center project.

The motivations of the developments are purely commercial. The diverse and historic cultural context of the waterfront has been completely overlooked. Besides historical incidents, there are many colorful and significant cultural traits existing in the North End residential area and the Fort Point Channel area. Facilities could be provided in the form of open space or Community Centers specially designated to facilitate ethnic cultural occassions and festivities. Fort Point Channel area is at present the living quarters and working place of almost 350 artists who have formed an organized nucleus behind the Children Museum. In a two day open house in Oct.

(1) EIR, prepared by SOM, Sept.'82

1982, 6000 people visited the artists studio and living quarters.(1) Part of the warehouse district could be developed as Artist's Village and artist's workshops and gallery could be developed with outdoor sculpture gardens and places where people could go and watch the artists at work.

(1) Boston Globe, Oct. 6, 1982

SECTION 5

CONCLUSION

DEVELOPMENT PHILOSOPHY

Every American city in this century, be it new or old, has had many diverse and brutal forces working on it. These forces demanded change irrespective of the city's ability or desire to do so. No city could resist the forces for long. Each did its best to rejuvenate and reshape itself to the demands of change. Either there was advance or a slide.

Boston, a distinctive and conservative city was a complete city at the beginning of the 20th century when an Englishman made a considerable judgement by writing: "What primarily differentiated Boston from other American cities is this: It is finished; I mean complete. Of the other cities one may say: They will be. Boston is." (1)

But in the ensuing half century Boston learned that no city can stand still on the slope of American History. Boston discovered this frightening truth the hard way. Boston, the lover of history, the complete city, stagnated in its own splendor. Having hit the bottom economically with the departure of textile mills and other large industries the city authorities, the politicians, the real estate fraternity and the business people nudged Boston towards change in the 1960s.

The most urgent task for Boston was to revitalize the downtown and the adjacent downtown waterfront. The remedy for downtown Boston seemed to be in building up a new image for the city by reviving its development activities. The downtown waterfront, part of an overall plan for developing the downtown was considered as a major contributor to the viability of the downtown. This contribution was expected to occur at two levels. First, the assets and resources of the waterfront were expected to be appended to the inventory of downtown and second, the downtown waterfront was expected to aid the ailing downtown in its recovery by accommodating the problems of downtown - providing highway access, parking lots, housing for the executives, additional office space and mixed use liveliness. It is apparent that these assumptions were based on the idea of waterfronts as an integral part of the downtown area and overlooked the particular attributes of waterfront as a special development area.

(1) Architectural Forum, May 1964.

The historic, commercial and spatial relationships suggest that downtown and waterfront areas are interdependent. That is, if the waterfront area is considered as only an adjacent land resource to the downtown area. But the existence of water on one side of the waterfront changes the balance of this relationship to the core. With the water on one side and downtown on the other typical downtown waterfronts are subjected to two distinctly different forces. The downtown area on the landside forces commercial, transportation and real estate speculations, on the other hand from the waterside water dependent and water related activities and the public's legal right to use the waterfront for various recreational purposes create a different kind of development pressure on the waterfront.

The key to successful waterfront development lies in the balance of these two opposite forces. The balanced development again is relative to the individual circumstance and special characteristics of each waterfront. These factors are the determinants of the special characteristics of individual waterfronts and transform the waterfront into recreational, residential industrial or just downtown waterfronts.

For cities like Boston, which has a long and rich history of waterfront uses, the waterside forces and historical importance of the area should get preference over the more compelling forces of downtown development activities. The paralyzing question regarding the preferred uses for downtown waterfront is, however, how much of the two forces can be accommodated to develop a waterfront which would maintain its character as an attractive waterfront but still maintain a healthy and logical relationship with the downtown area. What sort of balance would allow unrestricted public use of the waterfront while encouraging also non water related viable development to co-exist? What sort of usage can provide much needed public recreation on the waterfront while still respecting the tradition and cultural significance of the waterfront?

The controversy over the proper use of waterfront areas is rooted in the change of the urban image of the waterfront. During its active days in the 18th and the 19th century the dependence of the city's economy on harbor activities fostered an image of the harbor as the heart of the city, pumping vital lifeblood to the city and its surrounding regions. But in the urban context the harbor was hardly a public amenity to enjoy, to visit, or to live with. The waterfront was a place filled with merchandise and warehouses, smelling of the stench of fish and burly sweating strange men, it was a throbbing, noisy and crowded place. It was vital but for most people intimidating. People who lived in the harbor area had strong ties with the harbor activities. The subsequent decline of the

port activities finally alienated the people from the waterfront in the early 20th century.

The difficult task is to incorporate new uses in the waterfront area which would turn it into a special public place. Most of the water dependent and water related activities are not compatible on downtown waterfronts. Water dependent uses like marine construction, service facilities, barges and mooring areas, and port facilities require large tracts of cheap land to operate. These uses are also incompatible with the downtown land use and urban texture of its surroundings. Water related uses like lumber mills, sea food processing plants, sand and gravel plants, and other such uses which can gain economic benefit from its location on the water's edge are also not feasible on downtown waterfronts due to its land use pattern and environmental constraints. Water sports and other water related recreations have also shifted away from downtown areas to outlying suburban locations and places organized to provide such facilities.

The process of urban renewal and revitalization of downtown areas finally projected an opposite image of waterfront as the most desired front court of the city. Renewal in downtown had the problem of upgrading its facilities and image but retained the same functional use as before. Whereas the waterfront had lost all its original functions but promised the potential of becoming the most important public asset to the city. The task was unusually complicated by the functional vacuum existing on the waterfront and left it extremely susceptible to the more dominant force of downtown commercial and expensive housing developments. It is easy to preserve and develop areas with distinct functional characteristics like the financial district Hay Market, Back Bay, Beacon Hill or North End residential area. People have a protective attitude towards these areas. With the original function lost, preserving and developing the characteristic use of the waterfront became a very difficult task.

The above factors have led to the adoption of popular urban activities on the waterfront. Shopping, dining and watching activities and people seem to be the most popular urban activities of present times and comprise some of the main attractions of the waterfront too. Boating and cruise activities are still popular in the downtown waterfront. Other public facilities like promenades, parks, aquariums, museums and outdoor festivals are the important facilities which have been successfully implemented in the waterfronts. It is obvious that the change in the socio-economic condition of the society have necessitated uses on the waterfront which are very much urban in nature and if not compatible the successful waterfront uses are at least complementary to its location on the waterfront.

CRITICAL FACTORS

Considering the analysis of the problems and potentials of Boston and its present development activities and development proposals the following factors are considered in the future development of downtown waterfront.

FUNDING

Boston has very limited funds to spare for investing in developments. In fact, the city cannot even allocate enough funds to maintain its infrastructure. Due to intense development activities major improvement of infrastructure and provision of new facilities are urgently required. Alternative fundings are available through federal aids or private fundings. Availability of federal funds is complicated by the difference between the city's development needs and the priorities of federal assistance program. Large private sector developments therefore are at present the only means to improve the city's infrastructure and public facilities. Improvement of affected infrastructure is nowadays an integral part of the total project. These arrangements require mutual mitigation measures between the developers and the city authorities but on the other hand reduces the pressure on the city's meagre budgets.

OVERBUILDING

Real estate developments tend to follow a variant of "Parkinson's Law" in seeking and filling the maximum permitted density. When high densities exist especially if they have been recently built, usually set the model for the future - it seldom goes the other way.⁽¹⁾ Recent downtown highrise developments have affected the waterfront development activities in the same way. Extenuating circumstance like aviation routes have limited the building heights for Rows and Foster's Wharf developments to a maximum of 165 feet. The development proposal therefore have not exceeded the limit but it has not also utilized the lower building line of the adjacent Appraiser Building. Developments in Pier 1-4 have also utilized the maximum available height limit whereas the height and density references of the industrial warehouse district have not been used. The resulting effect has cut off visual and physical access on the waterfront by walling off the water.

SCALE RELATIONSHIP

Boston is made up of a variety of scales which reflects its building up over time. Usually as design guidelines the height of the nearest building is taken as the reference for new developments, or

(1) Planning for Amenity Benefits of Urban Resources, Arthur Cotton Moore Associates, 1971.

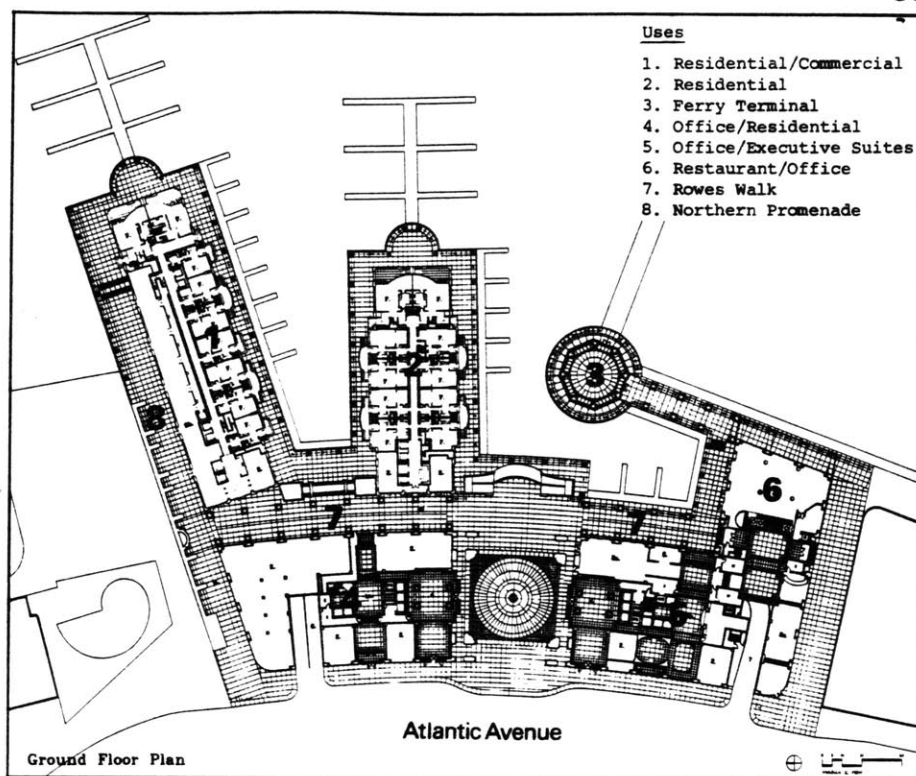
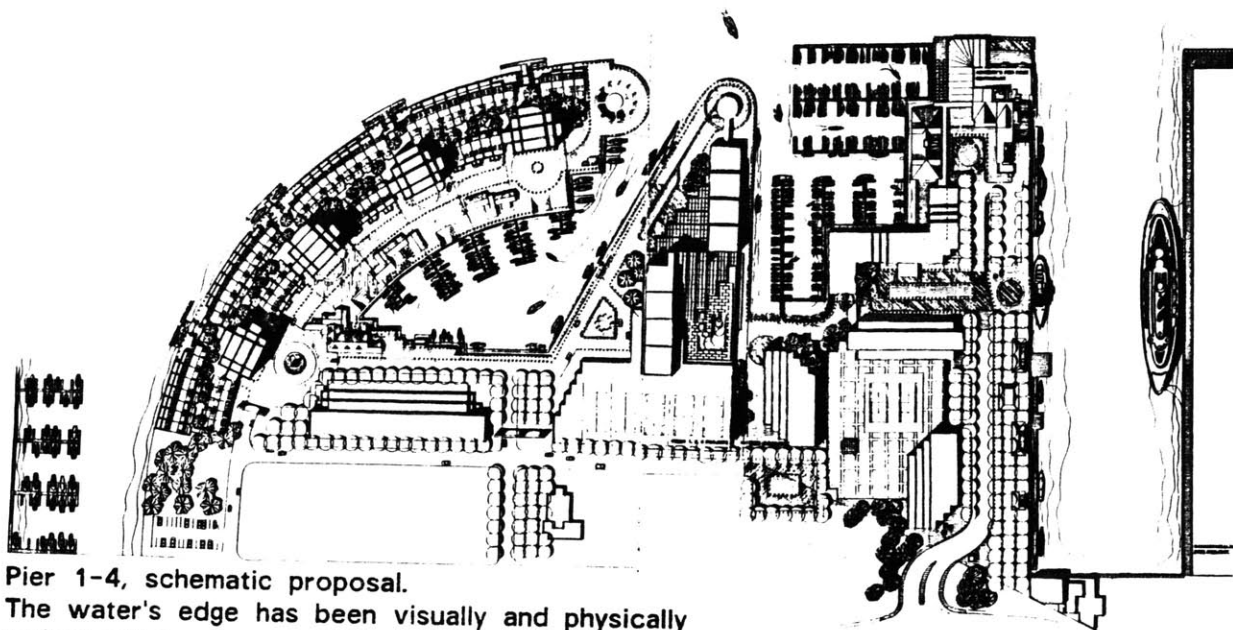


FIGURE 11

Plan of Rowe's and Foster Wharf development. Adequate public access have been provided by proper design.



FIGURE 12



Pier 1-4, schematic proposal.

The water's edge has been visually and physically walled off by the curvilinear condominium lowrise and tower complex. Public access is limited around the ceated bay shape only.

it can be the median between the higher and lower structures to create a transition, contrast by abruptly changing the scale as in the case of Harbor Towers development. But contrast seldom creates any positive effect on the environment. On the other hand uniform height of all the structures also may create a wall effect cutting visual access to the water as is observed on the eastern side of the Fort Point Channel area. Imaginative interplay of building heights and orientation to the water satisfies people's aesthetic desire to experience different spatial qualities, views and vistas and adds a variety to the environment. Developments on the waterfront should exploit these aspects by imaginative design strategies.

DESIGN

For successful public places effectiveness of design is more important than the programming of its facilities. Good design solutions can best exploit the merits of a program whereas a valid and promising program can become an irreversible problem like the development of the Harbor Tower buildings.⁽¹⁾ As is observed in the Rowes and Foster's wharf development effective design has provided adequate and attractive public access and public facilities in the project (Fig.11,12) whereas the development on the Pier 1-4 project has completely failed to provide these facilities. To protect and enhance the special attributes of the waterfront the effectiveness of design should be thoroughly examined before approving the project for construction.

IMAGE

Boston's waterfront recalls an image that is exciting colorful and something special particularly in relation to its history. Present day waterfront has an appeal to the tourists and wealthy citizens who can afford it. But for Bostonians in general and the special interests of the waterfront community the area is turning into the "Gold Coast" of the East. It has been unduly privatized and has lost its spontaneous public character. It is important to restore the colorful exciting, historic image of the waterfront as a tribute to its history and do justice to the public's legal right to enjoy the waterfront as an urban amenity.

GUIDELINES FOR DEVELOPMENT

The following guidelines are suggested for the future developments of Boston's downtown waterfront.

PUBLIC CHARACTER

Waterfront areas should be as much accessible and open to the public as possible. To achieve the public character of the waterfront important aspects of public places like the aspects of people oriented uses, visibility of activities and unrestricted access to the water should be provided. (fig.20

People oriented uses are those which draw residents, worker and visitors from the surrounding areas as well as the whole city. Commercial uses like shops, restaurants, entertainment, recreation and tourist facilities and public uses like civic centers, museums, aquariums and parks thrive on public use and should be incorporated throughout the waterfront area. Residential, office and industrial uses tend to privatize the area for the exclusive use of the particular residents and workers only. These uses should be given secondary preference in their location and relationship to the water's edge. Facilities of public use should be given maximum use of ground floor space and best orientation to the water.

Activities should also be highly visible to the passerby public to generate impulse participation and active image. Visible active environment also creates a effective domain far beyond its physical definition.

Unrestricted access is another crucial aspect of public places. Pathways connections and promenades should be well defined and should have an encouraging environment to allow people to explore the area as much as possible

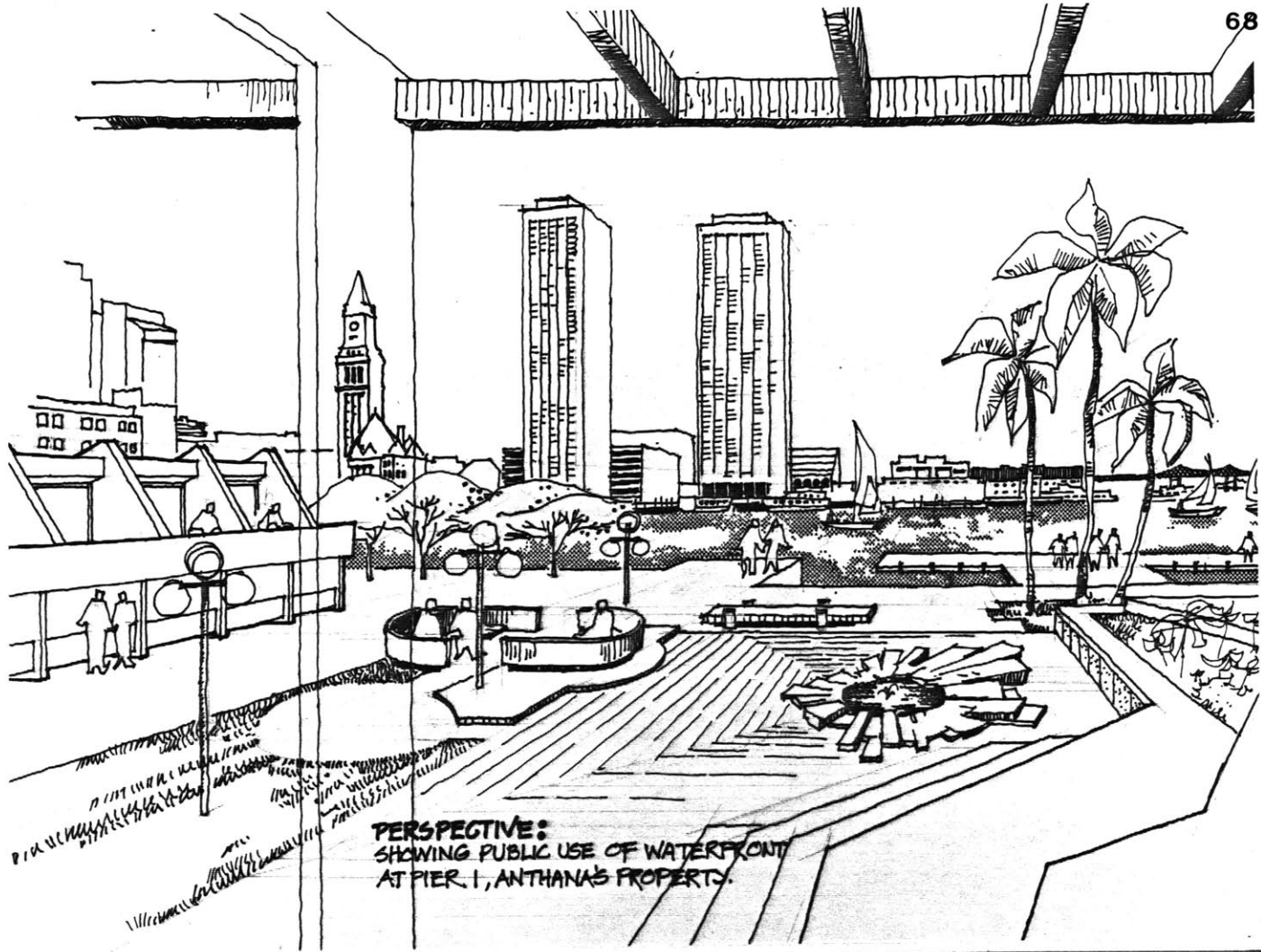
Use of pedestrian character of the walkways, signs illustrating the related facilities are ways of achieving intensive usage of the place. Inhibiting environmental elements like sentry boxes and private property signs should be avoided to enforce unrestricted publicness of the area.

1. PUBLIC ACCESS

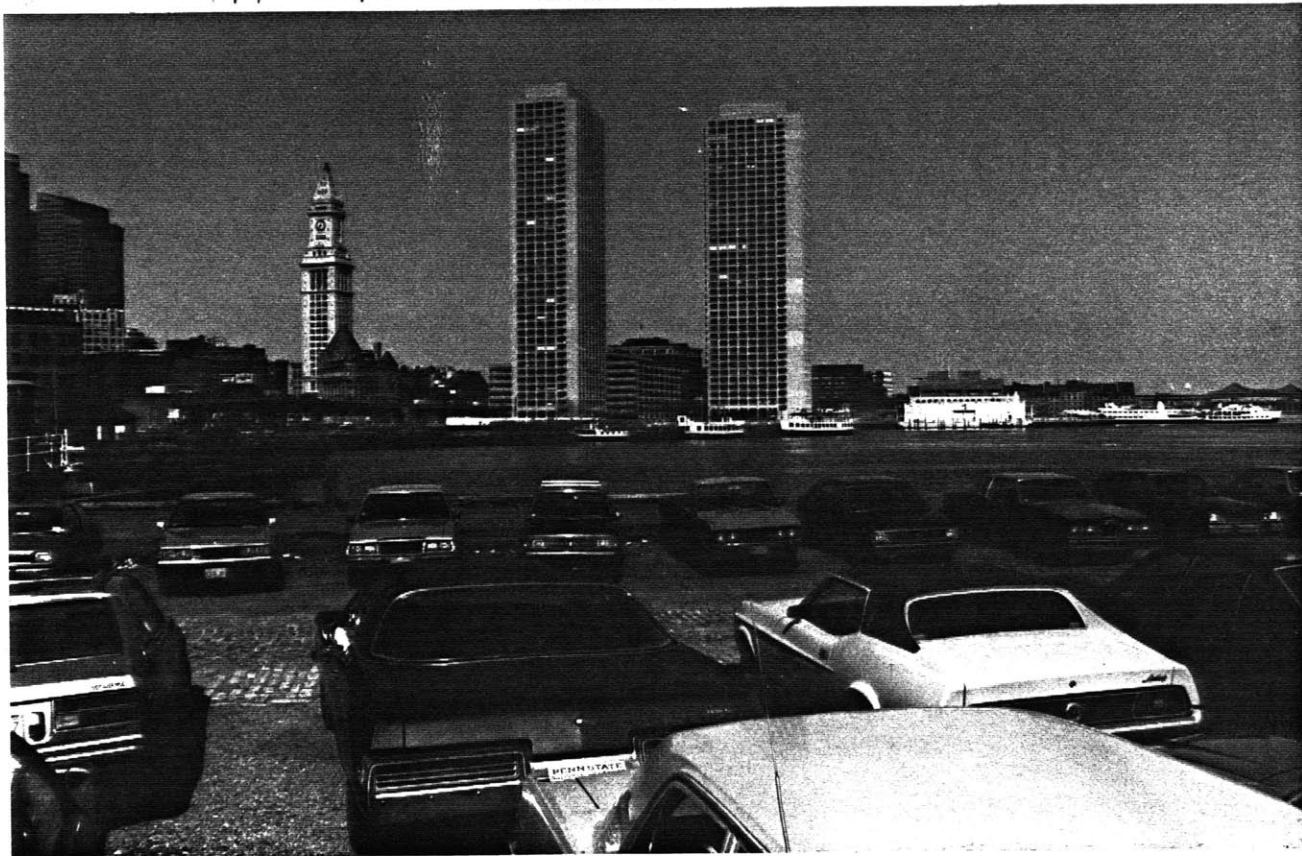
Maximum public access should be provided all along the water's edge (fig9) New developments on Sargent's wharf, Pier 1-4, Boscom and the eastern side of the Fort Point Channel should have public access as the design requirement for project approval. Unutilized wharf bulkheads of North End Waterfront and portions of the channel where the buildings extend right up to the edge of the water should be upgraded by providing access in the form of decks over the water.

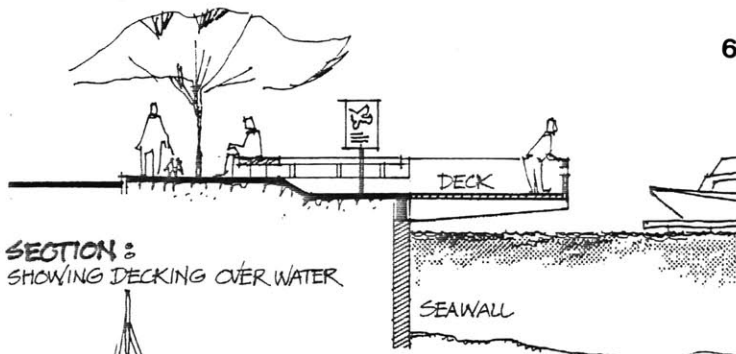
2. IMPROVEMENT OF EDGE CONDITIONS

Crumbling sea walls and rotting wooden piles are scattered all over the waterfront (fig. ,) creating access hazards and

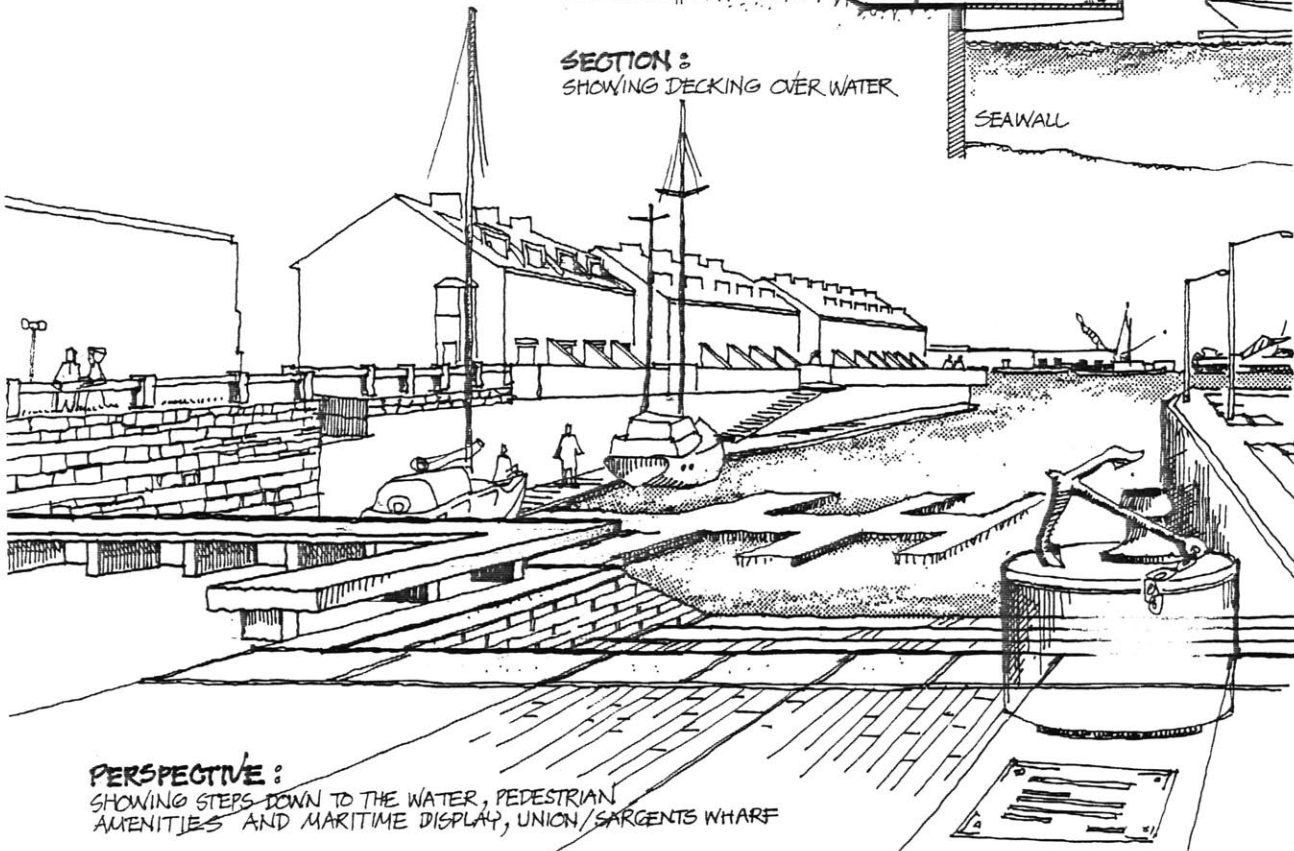


PERSPECTIVE:
SHOWING PUBLIC USE OF WATERFRONT
AT PIER 1, ANTHANA'S PROPERTY.





SECTION :
SHOWING DECKING OVER WATER



PERSPECTIVE :
SHOWING STEPS DOWN TO THE WATER, PEDESTRIAN
AMENITIES AND MARITIME DISPLAY, UNION/SARGENTS WHARF



bearing a sign of decay. These should be repaired, removed as part of provision of public access to the water's edge.

3. ACCESS TO THE WATER

Actual access to the water should be provided by steps down to the water at selected places like in between the Sargent's and Union Wharf (fig.15), edge of Waterfront Park, Long Wharf, and portions of Fort Point Channel on the eastern side.

4. PUBLIC UTILITIES

All developments must provide adequate public utilities like information boards, signs, relevant historic illustrations, seating, lights, eating places, toilets, telephones and adequate landscaping (fig.).

5. ENHANCEMENT OF CHARACTER

Artifacts and elements which are identified with maritime activities and waterfront character should be extensively used to enhance the special character of the environment. The proposed example of outdoor maritime display is an example of such enhancement. Elements like moored boats, anchors and chains, capstans, chains and other relevant sculptures should be used to create special atmosphere of active public places on the waterfront (fig.16).

6. INTRODUCE STREET ACTIVITIES

Street activities are important urban elements of interesting public places. Spontaneous and organized street activity would increase the public character of the waterfront. These activities would include vendors, street performers, artists at work, and street performances. These activities would be distributed at important pedestrian circulations and activity nodes (fig.17).

SPECIAL USE

Particular attention should be given to the use of the water's edge. The water's edge being the interface between the land and water, it should be developed specifically for water related activities. Fishing Piers, promenades, and other activities which can be used for relaxation, entertainment, recreation and public events and outdoor stalls take maximum advantage of the waterfront location. Swimming in the downtown waterfront can also be a highly desirable use. Boats and boat related activities are the most dynamic water related uses. Ferry, excursion boats, small row boats, boat restaurants and ice cream parlors, pedalo boats, fishing boats and historic boats and ships are examples of Boats and Boat related uses.

1. PROMENADE

Two major public promenades should be developed on the waterfront. One should connect the end of the Fort Point Channel along its eastern edge to the Rowes and Foster's Wharf development connecting the opposite side of the channel from the Children Museum to the end of Pier 1-4 (fig.) This promenade should be integrated with the construction of the East Side Interceptor to be built along the edge of the channel. Two levels can be created in the promenade to facilitate different use and nearness to the water.(1) Abundant seating, landscaping and outdoor stalls should be provided at the wider sections of the promenade.

The second promenade should be developed inland along the land available after the depression of the central artery. This promenade should be aligned along the Atlantic Avenue which can be relocated on the downtown edge of the depressed artery and would extend between the Federal Reserve Bank area and the waterfront park (fig.17). The character of this promenade should be that of a pedestrian mall like Quincy Market area and should have complementary public uses developed at the ground floor level. The intersections of the promenade with transverse roads going towards the edge of the water should be paved with similar materials to maintain the visual continuity and a sense of uninterrupted length of the promenade.

2. CREATION OF AN ACTIVE BAY

Entrance of Fort Point Channel should be developed as an active bay area of the waterfront. Small private and public boat activities should be provided at the bay area. A marina should be created attached to the base of the existing Northern Avenue Bridge (fig.18).(2) The existing base and the structure should be rehabilitated to provide restaurant and marina office activities. The base platform can be used for sea food festivals and other colorful occasions. One side of the base area can be used for fishing activities. (fig.19

3. MAINTAIN WATER LEVEL

New Northern Avenue Bridge can be used as a dam to maintain a steady level of water close to the land level. This would satisfy people's psychological need to be near to water and

(1) Boston downtown waterfront project, Lane/Frenchman Assoc. Inc.

(2) Report, Sasaki Associates.

NODE/LINK

- EXISTING ACTIVITY NODES
- PROPOSED NODES
- - - PROPOSED LINKS
- ➔ PROPOSED PROMENADE
- ↔ EXISTING LINKS
- *

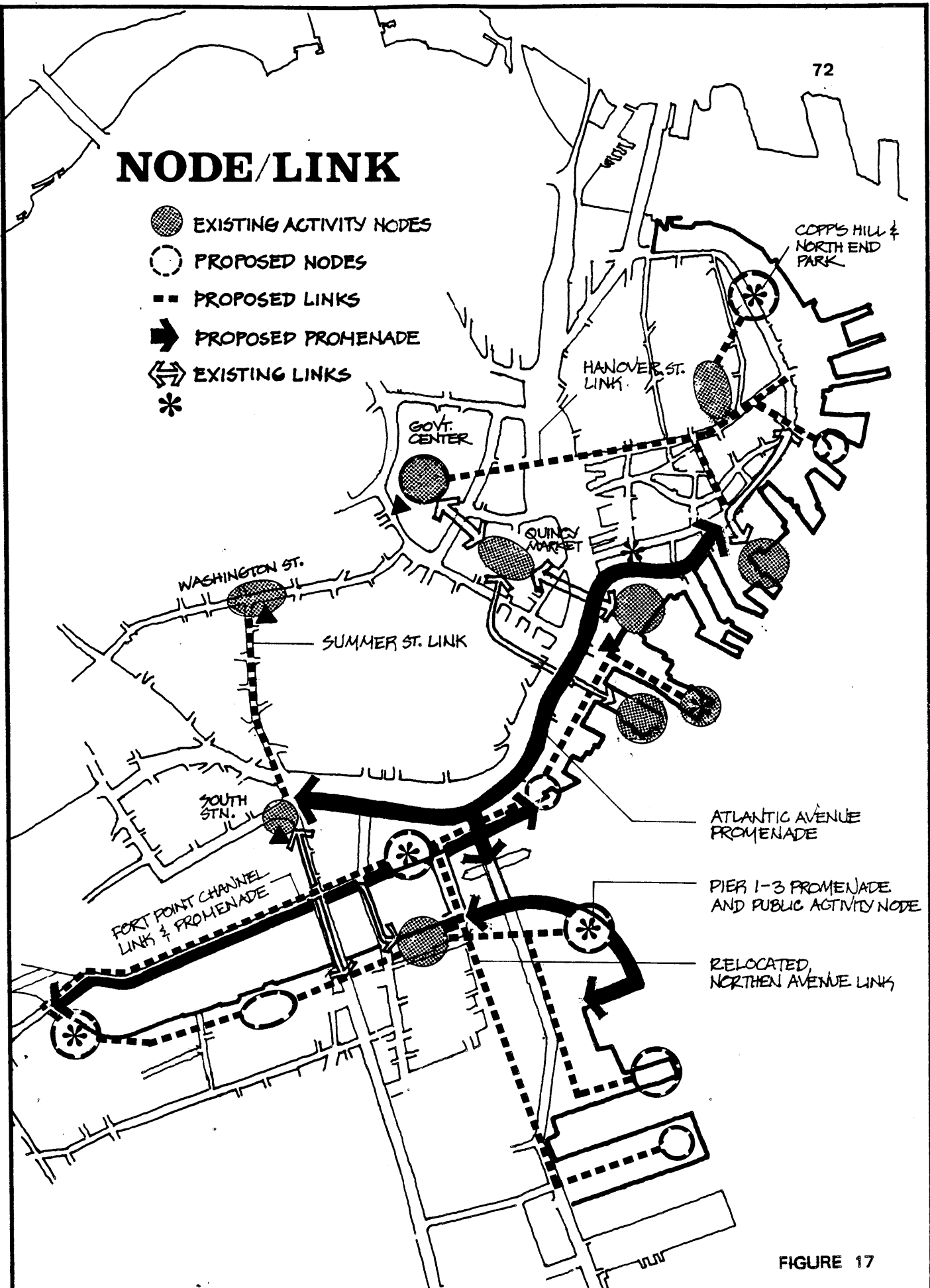
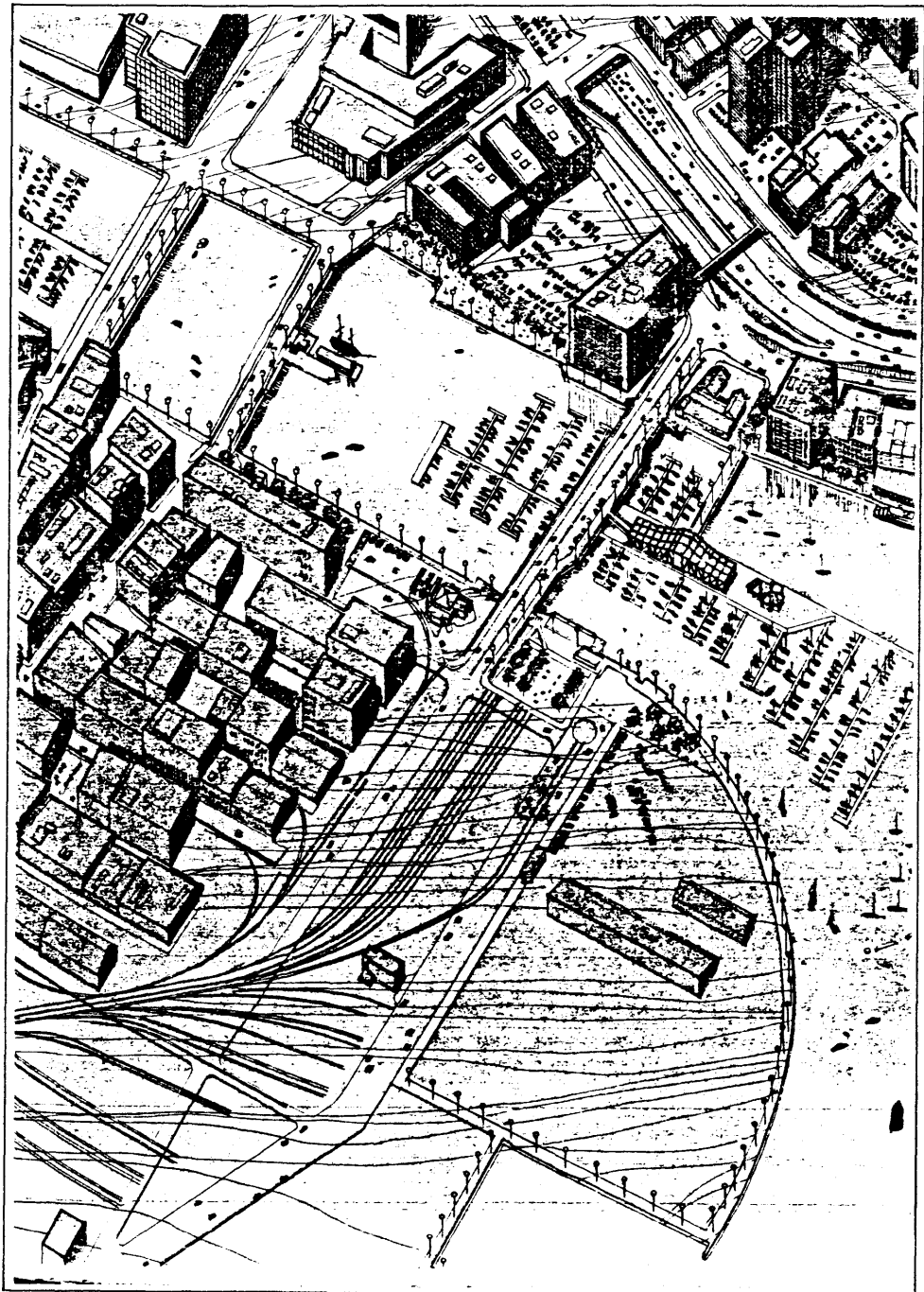


FIGURE 17

Active bay area proposal at the Mouth of Fort Point Channel. The base of the Northern Avenue Bridge would be connected to a marina while the base itself can support special maritime retail, cultural and recreational uses.



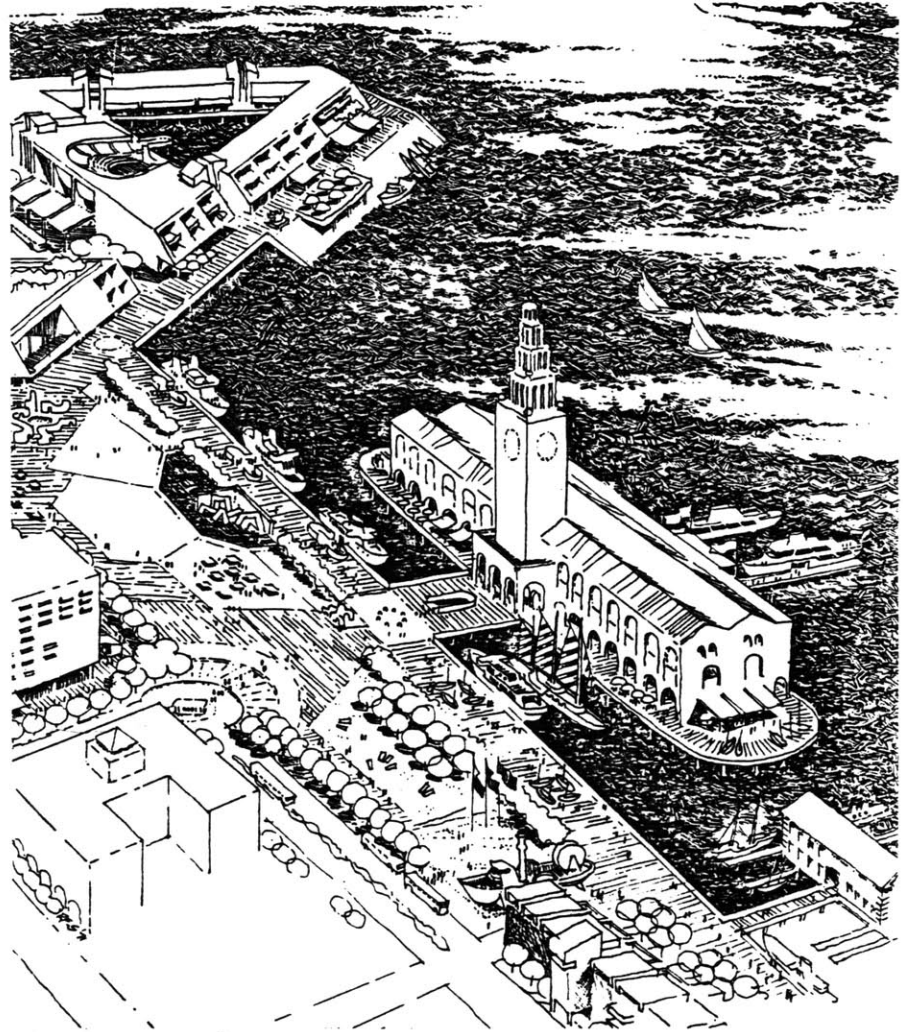
Source: Boston Harbor , Sasaki Associates

FIGURE 18

would convert the channel into a huge basin for swimming, pedallo, small row boats, boat restaurants and would eliminate unsightly edge conditions of the channel. the dam control can also facilitate treatment of the water to achieve usable quality for swimming. The existing treated water discharge facility at the end of the channel may have to be reviewed for adjustments.

4. STRUCTURES ON THE WATER

End of the Fort Point Channel provides an excellent location for building a floating or supported structure on the water. The structure should be an annex to the public facility proposed for the end of the channel. The location is highly desirable for restaurants but community facilities like youth clubs, performing art centers and artists galleries and workshops may be more compatible use for public cahracter of the facility.



Structure on water at San Francisco Waterfront
Source: Livingstone and Blaney



Floating Structures Illustration
Source: Arthur Cotton Moore Associates.

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