BOSTON INNER HARBOR PASSENGER WATER TRANSPORTATION PLAN

City of Boston
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Boston Redevelopment Authority
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Prepared by
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With
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Boston Inner Harbor Passenger Water Transportation Plan

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All photos included in the report were taken by Charles Norris of TAMS unless otherwise noted.

1.

EXECUTIVE SUMMARY

1.0 Executive Summary

1.1 Purpose and Approach

The Boston Inner Harbor Passenger Water Transportation Plan is intended to play a pivotal role in the next phase of harbor revitalization. The recent expansion of water transportation facilities and services, such as the Harbor Express and World Trade Center routes, and proposed new services to Salem, Provincetown and Scituate, all attest to the growing appeal of water travel and harbor access by boat for visitors and commuters. With the renewed energy and investment in waterfront redevelopment as signaled by plans for the South Boston waterfront, East Boston, Fort Point Channel, Battery Wharf and the Harbor Islands Recreational Area, the time is right to enhance and expand the harbor water transportation network Ferry travel for the year round commuters and seasonal recreation users is expected to increase dramatically in the next decade, according to growth trends of existing services combined with market demand projections from previous reports. As the landside travel routes around the harbor continue to be increasingly congested, even after the Central Artery project is complete, the water ferry routes can provide more efficient and enjoyable access to Harbor front destinations.

The key to stimulating potential projected growth of the Boston Harbor water transportation network is to greatly expand capacity and improve the quality of Inner Harbor terminal facilities, along with their respective intermodal connections on the downtown waterfront, the financial and visitor core of the metropolitan area. Based on the findings of this report regarding the existing conditions and future needs of the inner harbor ferry services, an action plan is recommended which combines public and private energies to provide the necessary terminal infrastructure for the 21st century. Such a plan will need to consider the following report findings:

- Scheduled year round commuter transit ferry services, including inner and outer harbor routes, have the potential to nearly triple in the next decade, from their current level of 1.3 million to 3.8 million annual riders. Seasonal excursion transit services are projected to expand at a similar rate from the current 227,000 to 870,000 riders.
- Over 90% of these riders are expected to pass through downtown terminals with the majority using the core area from Long Wharf to Rowes Wharf and the Old Northern Avenue Bridge.
- Current terminal facilities including publicly and privately managed docks in the core area are operating at capacity during the peak season.
- Additional public and private dock space and support services are needed in the central terminal area in order to accommodate the projected growth of commuter and excursion transit services, as well as other competing excursion ferry demands which are also expected to increase.
- The greatest demand for increased terminal docking is projected for the central area because of the short walking distances to the financial district, retail core, hotels and visitor destinations.
- There are also ferry infrastructure needs outside the downtown core in the surrounding Inner Harbor districts to accommodate existing community needs and waterfront development growth. The South Boston waterfront district has the greatest potential for growing ferry service demand from the combined pressures of the waters edge development, combined with the new convention center. East Boston will need new and expanded terminals to serve expected new

residential growth as well as cultural and open space expansion. Charlestown will also need new and expanded terminal facilities to serve the existing community and *U.S.S. Constitution* visitors as well as further development of the Navy Yard.

- A coordination of public and private efforts will be needed to expand ferry services in the central core and surrounding districts, building on the cooperation which has been demonstrated in recent efforts such as the South Boston Seaport Plan and East Boston Masterplan. The current ferry terminal docks and services are owned and operated by a divers array of public and private entities.
- Intermodal passenger connections need to be reestablished for the inner harbor ferry network, including pedestrian, bicycle, transit, and other modes. As the Central Artery is depressed and replaced by a surface park, the downtown will be reconnected to the harbor in a dramatic new way. Similarly the new harborwalk connections and increase in waterfront activities and destinations in the surrounding districts will create major new markets for ferry connections and neighborhood gateways.
- The action plan is needed so that implementation of high priority projects can begin at once, and that mid-term terminal needs can be identified in advance and reserved for future expansion. Terminal design guidelines are also needed to insure that the harborwide ferry system works a seamless whole, and is accessible and inviting for all users.

The critical challenge is to determine how and where to provide appropriate terminal and boating facilities to encourage full growth of the ferry industry in response to the increasing demand for new routes and services. At present, there are several major infrastructure limits to such growth, including: a shortage of terminal sites, minimal support facilities, and not enough layover berthing space in the Inner Harbor for the wide range of emerging vessels and services. Objectives identified for improving the Inner Harbor infrastructure include:

- Existing terminal sites need to diversify and expand.
- New sites need to be secured and developed to respond to growth pressures.
- Consistent terminal design standards need to be applied for improved access, safety and amenity.
- Innovative public and private funding techniques are needed to address the variety of site ownership patterns, conditions and terminal needs.
- Terminal management and ownership patterns need to be periodically reassessed and new terminals need to become available for multiple operator use.

Approach: The purpose of the study was to assist the City in preparing a comprehensive development plan for expanded and new passenger water transportation terminals. The report acknowledges that much service route planning, market demand and service assessment has been completed and documented in reports during the past ten years. These studies provided a good basis for predicting the type and variety of ferry route expansion to be expected in the next 15 years. Regarding the location and use of terminal sites, a public outreach process was also included to seek a consensus by a cross section of public and private stakeholders.

The project approach included the synthesis of past planning reports and current Harbor ferry experiences, with new evaluations of primary and secondary site needs and facility implementation options to develop an achievable Action Plan. The synthesis process, however, incorporated new

dimensions and factors not fully developed in previous ferry reports including the following key elements:

- Coordination of terminal plans with the South Boston Waterfront Plan, the East Boston Masterplan, Charlestown Navy Yard completion plans, and the Boston Harbor Islands National Recreation Area Plan.
- Coordination of terminal plans with an Inner Harbor Watersheet Management Plan.
- Adaptation of the future ferry plans to artery and tunnel construction phasing, impacts and changes.
- Response to a new and dynamic wave of waterfront revitalization in all Inner Harbor districts.
- Application of new funding resources including federal Transportation Equity Act of the 21st Century (TEA-21) programs, the 1996 state Transportation Bond Bill, and private development/Chapter 91 public benefit contributions.;
- Keeping pace with national trend of growing popularity and demand for ferry transportation in other harbor metropolises such as New York, Seattle and San Francisco.
- Accommodation of emerging new passenger water transportation routes and services.
- Provision of facilities to accommodate emerging new vessel technologies providing fast, environmentally friendly and affordable options, such as the Massachusetts built catamarans serving Boston Harbor and Massachusetts Bay.

1.2 Goals for an Inner Harbor Ferry System

There are a number of important passenger water transportation issues which were identified in the inventory and evaluation process. In conjunction with the objectives stated in the study scope of work, these issues were translated into goals and priorities for completion of the plan.

- Develop a State-of-the-Art 21st Century Ferry Network: The current ferry system needs an expanded and enhanced terminal and service network to realize its full potential in serving the people of Boston.
- Increase Vessel Docking Capacity: Expand berth capacity and terminal locations based on study quantification of demand and preferred expansion sites.
- Encourage Intermodal Ferry and Landside Connections: A wide range of excursion and transit types of ferries all prefer use of the same central terminal sites. Different ferry services should be interconnected at primary or hub terminals. Such terminals should also maximize landside intermodal connection options.
- Increase Operator Access to Public Docking Space and Public Landings: There are limited docking slots available in the inner harbor for transit, excursion, or private vessel docking because of current terminal ownership and management patterns. The study suggests alternative management and ownership policies for new and existing terminals.
- Establish a City Role in Route Franchises and Services: Existing operations include a wide variety of operations contracts and franchises by public and private entities. A consistent set of operations patterns for transit type ferries is needed, to be coordinated with the MBTA, Massport, DEM and private operators, and may influence future dock management and lease policies.

- Agreement on Terminal Design and Accessibility Standards: All inner harbor ferry terminals have different access patterns and most are not accessible by ADA and MAAB compliance standards for marine transit facilities. Universal access and terminal design guidelines are described for existing and new terminal facilities.

1.3 Summary of Project Findings and Recommendations

The project findings are summarized in this report according to the sequence of tasks conducted.

- Chapter 2 describes the inventory of past, present and future ferry routes including a brief history of ferry services in the inner harbor, the existing routes and functional categories, recent growth trends for ferry services, projected ridership growth, and proposed and potential services.
- Chapter 3 discusses terminal facility conditions, design guidelines and proposed terminal sites.
- Chapter 4 includes the inner harbor waterfront district descriptions, terminal concept plan outline, and composite plan recommendations, which were a major focus of the project.
- Chapter 5 presents the proposed strategy for implementation, the potential funding sources, and the proposed Action Plan.

1.31 Existing Routes and Services (Chapter 2)

Ferry Routes and Services - Past, Present, and Future: Local and coastal ferries were once the principal means of transportation in Boston and New England. Traditional inner harbor ferry systems provided the links across Boston Harbor and its many embayments as critical intermodal city and regional travel systems. Many roadways and landside transit connections terminated at ferry landings, providing multiple intermodal routes. The first public ferry charter was licensed by the Great and General Court in 1630 for a route from Boston to Cambridge, with the revenues supporting Harvard College. At the height of their use by 1900, ferries were used extensively to cross the harbor for rail connections such as the Rowes Wharf - Lynn narrow gauge link and other East Boston ferries. Coastal intercity steamer routes on year round and seasonal schedules docked at the downtown core pier area along Atlantic Avenue to the north and south shores, as well as well as to more distant ports such as Yarmouth, Nova Scotia, Portland, New York, and Philadelphia.

Current and emerging routes often follow historic patterns, and utilize terminals at many of the same piers which once served the steamer and inner harbor ferry fleets. Such historic intermodal pathways can be instructive in enhancing existing terminals and in establishing new terminal locations.

Existing Services and Functional Categories: Current ferry operations include various combinations of year round and seasonal services, commuter transit and recreational functions. The focus of this report is on those year round and seasonal services which provide point to point transit connections. While other seasonal excursion and charter services are vital to the harbor ferry system and share terminal space with the transit services, they are not included in the route analyses. For purposes of this plan, ferry functions with transit components were divided into several categories which reflect the current operation patterns:

- **Year Round Commuter to Work Transit Services** (Described in maps and tables as "Transit Ferry Services"):
  - Inner Harbor Transit routes such as Long Wharf to Pier 4 Navy Yard shuttle, and the Rowes to Logan Airport Shuttle.
  - Outer Harbor Transit routes such as Hingham to Rowes, and the Quincy Fore River to Airport and Long Wharf commuter routes.

- **Seasonal Excursion Transit Services** (Described in maps and tables as "Excursion Ferry Services"):
  - Inner Harbor shuttles such as the Water Taxi and Cultural Loop services.
  - Outer Harbor excursion routes including the Harbor Islands Park service and the World Trade to Provincetown service.

Ferry Service Expansion in the Past Decade: Existing transit and excursion services are shown in Figure 1.22. With few exceptions, the majority of the existing transit and excursion routes have origins or destinations at docks in the downtown core zone. The existing routes are served by multiple private operators who utilize a wide variety of vessel sizes and performance characteristics in the existing ferry fleet. They range from older, slower, multi-deck excursion ferries, to the converted Gulf of Mexico crewboats used on commuter runs, to the recent state-of-the-art, fast catamarans which are among the most advanced in the nation.

Ferry Ridership Growth in the Past Decade: Ridership and route surveys indicate that much of the resurgence in ferry use has occurred during the past ten years, particularly for year round commuter functions. During that period, new inner harbor services were introduced, including the Long Wharf to Navy Yard shuttle, the Long Wharf to Airport shuttle, the Lovejoy to Navy Yard shuttle, and the Lovejoy to World Trade Center via Federal Courthouse shuttle. New outer harbor year round services include the Quincy/Fore River to Logan and Long Wharf route which operates 7 days a week, and seasonal service from Salem to Downtown, as well as the MWRA passenger services to Deer Island from Quincy/Marina Bay and Pier 4/Navy Yard. All types of ferry service ridership have grown in terms of passengers carried during the past decade, with the largest percentages of increase occurring in the transit type inner harbor shuttles and outer harbor commuter services.

Recreational and excursion services have also grown and diversified with the addition of dinner cruises, whale watches, water taxi, and the largely land-based Duck Boats. The report focuses, however, on those excursion services which actually provide a seasonal point-to-point transit function. Inner harbor routes in this category would include downtown (Long or Rowes Wharves) to in the Navy Yard (Pier 1 or Pier 4), the Cultural Loop, and other weekend and off-peak weekday services. Outer Harbor services would include the seasonal Harbor Islands routes from Downtown to Georges, and the World Trade to Provincetown route, soon to be upgraded in 1999 with catamaran service.

Terminal facilities and berthing space for transit during this decade have not expanded to keep pace with the cumulative growth of transit and recreation routes. Downtown dockage is operating at capacity during the peak use summer months.

The new higher speed vessel technologies introduced in the past three years with the four new fast catamarans operated by Harbor Express and Boston Harbor Cruises, have provided faster, more

competitive alternatives to landside auto and transit commuting options along south shore corridors from Quincy, Hingham and Hull to the airport and downtown. They are also more effective as excursion carriers during off peak and weekend periods on charters and whale watch expeditions, being able to complete multiple round trips in the time ordinarily required by older monohulls.

Ferry Ridership Growth Projections: While the total annual ridership numbers of ferries appear to be relatively small compared to major regional land based transit systems, they provide increasingly more attractive travel alternatives to numerous north and south shore coastal communities. In attracting new regular riders, they also are beginning to add up to significant numbers when translated into reduction of auto trips along congested corridors, most notably the Southeast Expressway, and easing the burden on downtown and inner city neighborhood traffic and parking congestion. For example, all of the Harbor Express airport riders are eliminating two way auto trips through South Boston, downtown and East Boston. As such the commuter and airport shuttle routes are a benefit to Boston in easing congestion and should continue to be supported with actions to substantially increase ferry ridership.

Proposed and Potential Services: Future Ferry Ridership Could Triple by 2010: Ridership projections for transit ferries during the next ten years are surprisingly significant, indicating that potential growth of all existing and new services could triple current annual levels for commuter and excursion transit ferries combined. The ridership growth calculations are summarized in Table 1.2, based on previous market demand studies completed in the past ten years. The projected growth includes expansion of year round inner and outer transit services as well as seasonal excursion transit routes.

Table 1.2: Ridership Projections by Route - Summary of All Inner and Outer Harbor Services

Ferry RouteType	Operators	Existing Services: 1997 Ridership (annual)	Existing Services: Projected 2010 Ridership (annual)	Potential New Services(Next 10 years): Projected 2010 Ridership (annual)	Total Projected 2010 Ridership (annual)	Projected % Growth: 1998 - 2010
Inner Harbor Transit	BHC, HE, RLS	426,000	1,535,000	582,000	2,100,000	490%
Outer Harbor Transit	BHC, MBL, HE	886,600	1,276,000	400,000	1,676,000	190%
Inner Harbor Excursion	CWT, BHC, MBL	66,384	190,400	336,000 *	527,000	790%
Outer Harbor Excursion	ACC, BAY, BHC, MBL, HE	161,000	339,000	? (No Projections Available)	339,000	210%
TOTALS	**7 Operators**	**1,540,000**	**3,340,000**	**1,318,000**	**4,658,000**	**302%**

* Includes Cultural Loop

Operator Key:
ACC - A.C. Cruise Lines
BHC - Boston Harbor Cruises
CWT - City Water Taxi
HE - Harbor Express
MBL - Mass. Bay Lines
RLS - Rowes Wharf Airport Shuttle

1.32 Terminal Facility Conditions, Location Needs, and Design Guidelines (Chapter 3)

Potential new transit and excursion services are shown in Figure 1.23. New year-round transit services are planned for the inner harbor, as well as the north and south shore to downtown, in addition to expansion of existing services. Seasonal recreational transit services are planned including restoration and expansion of the Cultural Loop, modified and expanded Harbor Islands Park routes, seasonal connections to the north and south shore, and increased service to the Cape including Provincetown.

The potential exists for further expansion of these types of ferry service, as well as a longer haul auto and passenger ferry services from Boston to Maine and/or Nova Scotia, highspeed links to other Massachusetts Bay ports, and a variety of new inner harbor links in response to new waterfront development initiatives.

Such new services will need substantially expanded and improved docking opportunities at appropriate downtown and inner harbor locations. Flexibility for expansion will need to be built into the framework of existing and new terminal sites. In keeping with the current use patterns, it is projected that over 90% of the total users by 2010 will pass through downtown core terminals en route to core work destinations and visitor attractions.

Site Selection Criteria: Terminal location selection is based on a combination of factors including primary market demand regarding trip origin and destination site requirements, in combination with ferry facility configuration needs. The site selection criteria were based on a combination of previous route and market demand studies, an evaluation of current route performance and expansion needs, and projection of new waterfront growth and development demands. Because of the wide range of ferry services and corresponding terminal docking needs, two new descriptive categories were defined to assist in the site selection process including; types of ferry service by functional use, and terminal facility designation by activity. Standard location assessments include such waterside factors as route functions, berthing demands, competing watersheet uses, visibility from public access points, fairway adjacency, weather protection and harbor fetch. Landside locational factors include existing property conditions, projected adjacent landuses, intermodal connections, walking distance radii, transit connections and where applicable, parking availability. The criteria were used for screening and selecting sites as well as for designating roles and phased implementation.

- All terminals should, to the degree feasible, accommodate multiple ferry functions to provide intermodal transfer opportunities.
- All terminals will need to be fully accessible in accordance with current Massachusetts Architectural Access Board (MAAB) guidelines, consistent with the Americans with Disabilities Act (ADA) requirements, and meet other applicable harborwide guidelines and regulatory standards such as Chapter 91.
- Public landings and water taxi/Cultural Loop docks should be included and maintained at most primary and secondary terminals, where appropriate as navigation conditions, watersheet area, and dock management permits.
- Waterside support facilities should include vessel layover berthing, day to day servicing, and maintenance and repair resources within the inner harbor convenient to terminal facility sites.
- Landside support facilities should include ticketing, waiting, information and restrooms.

- Landside intermodal linkages should be provided wherever practical including all modes ranging from pedestrian and bicycle, to bus and taxi drop-offs, a well as MBTA subway and commuter rail proximity. Parking requirements may vary with the specific sites and are not generally required for the inner harbor.

Terminal Facility Design Guidelines: Boston Harbor ferry operations currently are served by a wide range of public and private ferry terminal facilities which have evolved over time. As many of the facilities were developed as private docks, or as temporary facilities for construction mitigation of various waterfront transportation and development projects by a multiplicity of owners and agencies, there is little or no consistency from one location to another. Current ferry riders and operators encounter many different configurations from one landing facility to another, with widely varying float sizes, gangway lengths and slopes, and limited user amenities. Only two ferry terminals in the Inner Harbor currently meet state (MAAB) and federal (ADA) standards for marine facility access; Lovejoy Wharf and the Harbor Express dock at the North face of Long Wharf. All other ferry terminals are deficient in terms of state MAAB regulations covering the Americans with Disabilities Act (ADA). Moreover, the existing facilities leave much to be desired in terms of application of Universal Access design principles to the marine facilities, which are directed at creating safe and easy to use access patterns for all users, and which can greatly improve access and path of travel for all users.

As the number of ferry routes, and variety of vessels will continue to expand based on recent trends and forecasts, there is a need for expanded capacity, and an opportunity for more standardization of terminal facilities, particularly regarding consistent MAAB access, operator needs, user amenities, and basic public safety requirements. The purpose of the design guidelines section is to describe the range of conditions at existing terminal locations, identify needs for facility improvement, and quantify capacity and expansion needs based on the ridership and route changes identified in the previous chapter. The focus is on all terminal facilities serving a public transportation purpose, as previously defined, including commuter and recreational links, as well as needed support facilities.

The guidelines are not intended as a prescriptive set of regulations, but rather are intended to encourage the orderly enhancement and expansion of public and private ferry facilities by different proponents. They are intended to accommodate different vessel needs, while also improving the quality and safety of the land to water transition for ferry riders. The guidelines address both the specific facility design needs as well as general aspects such as terminal management options, route management consistency, and terminal/watersheet management issues.

The terminal facility design objectives help define which terminals are intended to be included and covered by the design guidelines:

- For each selected existing or new terminal site, there needs to be a future use program or functional vision with priority activities identified which best match the site conditions. Each terminal site will be assigned a terminal facility activity designation:
  - Primary or Hub Site
  - Secondary
  - Cultural Loop/Water Taxi/Public Landing
  - Layover Berthing
  - Service and Maintenance

- Specific ferry route functions were used to determine the terminal facility program needs for each terminal site.

  -Transit Ferry Services which provide point to point, scheduled, year round, peak hour plus services including inner harbor currently known as "shuttles", outer harbor (currently known as "commuter" or "airport express"). Freeboard heights: 3'-6" to 7'-6".
  - Excursion Transit Services which provide point to point, scheduled, seasonal services including inner harbor, outer harbor (including harbor islands) and Massachusetts Bay (including north shore, south shore, Cape Cod and points beyond). Freeboard heights: 3'-6" to 7' - 6". These would also apply to non-transit excursion or larger charter vessels, such as harbor tours, whale watch, dinner cruise, etc.
  - Water Taxi and Cultural Loop Services which provide scheduled and on call, year round and seasonal, point to point inner harbor links. Freeboard heights: 2 feet to 3 feet.

Selected Terminal Sites for the Concept Plan: The recommended terminal sites were selected through a process of evaluating alternative site options within each of the four Inner Harbor waterfront districts: Downtown Boston, South Boston, East Boston and Charlestown. A map of the proposed terminal sites is shown in Figure 1.32. The active passenger loading sites were divided into three categories based on their relative importance to each district and the volume of services either currently accommodated or projected:

1. **Primary or District Hub Sites**
2. **Secondary Sites**
3. **Layover Berthing and Servicing**

Table 1.3: Summary of Proposed Terminal Sites:

Primary Sites:	Secondary Sites:	Layover Berthing and Servicing Sites
Downtown: - Long Wharf /Central Wharf # Long North Long South Long/Central Shuttle Central Wharf - Rowes/400 Atlantic Ave #	- North Station/Lovejoy Wharf - South Station/Russia Wharf*	
South Boston: - World Trade Center # West Marine Terminal East Marine Terminal*	- Museum Wharf - Federal Courthouse - Fan Pier Basin - Wharf 8 # - Black Falcon/Reserve Channel	- Fish Pier - South Boston - Wharf 8 - South Boston # - World Trade Center #
East Boston: - Logan South	- Lewis Mall - Liberty Plaza/Central Square*	- Massport Shipyard/Boston Marine Works# - Pier 1/ East Boston
Charlestown: - Pier 4/Navy Yard	- Pier 1/Pier 2 Constitution - Pier 10 Navy Yard*	- Pier 10/11 - Navy Yard* - Pier 3 - Navy Yard*

* Denotes new terminal facility; all others are expansions of existing terminals or layover sites.
\# Denotes terminal with multiple dock facilities

All primary and secondary terminals should include a public landing wherever appropriate with several specific exceptions: Long/Central MBTA Shuttle and Federal Courthouse.

1.33 Proposed Water Transportation Districts and Terminal Concept Plans (Chapter 4)

The major focus of the plan was to develop a pattern of terminal locations for the four ferry districts and facility design guidelines for individual terminal locations. The district plans provide a framework for future terminal locations and functions. Concept phasing plans were then prepared for the specific terminal facility locations as described in more detail in section 4 of the report. The plans were intended to serve as programs and sketch layouts for terminal needs, and as a basis for preliminary cost estimates of selected terminals. The concept plans were not intended as final plans for the facilities, and it is assumed that each will require the standard design and engineering services before implementation.

Downtown Waterfront District (Figure 1.41): The greatest demand for expansion of ferry services, and corresponding need for increased public berthing space and expanded terminal facilities is along the downtown waterfront, particularly around the central business district and visitor attractions. The downtown district is by far the most active ferry destination serving the largest cross section of the metropolitan area population including residents, commuters, and visitors. The Downtown District and its recommended terminal sites are shown in Figure 1.41.

An estimated 95% of annual Boston Harbor ferry passengers use the terminals in the downtown area, with over 90% using the core terminals from Long to Rowes Wharf. Projections indicate that future markets will dictate a continuation of that pattern. It is proposed that combined public and private efforts will be needed to expand central multi-service ferry hub capacity by doubling the amount of berthing space. Market demand projections indicate that terminal sites will need to be expanded at Long Wharf, Central Wharf, Rowes Wharf and possibly at Old Northern Avenue Bridge.

Opportunities exist for greatly improved intermodal connections at the waters edge. The most dramatic improvements will be realized with the replacement of the elevated Central Artery by a linear park in the downtown core district. Pedestrian and bicycle access will be improved by expansion of the Harborwalk along the waters edge and through sidewalk streetscape improvements along key radial streets. Transit access improvements are needed by linking terminals by local bus to regional subway, rail and air links. Major regional transit ferry links need to be better connected at the major downtown intermodal hubs; at North Station by expanding Lovejoy Wharf and associated shuttle ferry links, and at South Station through new shuttle services provided at a new Russia Wharf terminal.

The waterfront piers area between Long Wharf and the Old Northern Avenue Bridge is proposed for designation as a downtown core ferry terminal hub. The new multi-faceted ferry hub needs to accommodate a full range of ferry services from transit to excursion, and should include a designated site for short and long term use as the major downtown Harbor Islands Gateway at Long Wharf North Terminal.

Another important excursion transit service which would be important to the vitality and enjoyment of the waterfront by Boston residents and visitors alike would be the proposed revival of the Cultural Loop shuttle in time for the millennium celebrations. The service would serve as useful traffic relief function by allowing institutional visitors to park in one perimeter or central location and visit multiple destinations around the inner harbor before returning to their cars.

It should be noted that in asddition to the terminals studied in this report, there are numerous standalone water taxi docks throughout the inner harbor, particularly along the North End waterfront. Many of these docks provide the opportunity for touch and go public landings.

Downtown Terminal Concept Plans: Included in the detailed descriptions of proposed facility plans in Chapter 4 of the report are the following recommended Downtown Boston district terminals.

- Long Wharf and Central Wharf (District Hub Terminal)
  - Long/Central Existing Conditions)
  - Long/Central Short-Term
  - Long/Central Mid-Term
- Rowes Wharf / 400 Atlantic Avenue (District Hub Terminal):
  - Rowes/400 Atlantic Avenue Short-Term
  - Rowes/400 Atlantic Avnue Mid-Term
- Lovejoy Wharf / North Station
  - Lovejoy Wharf / North Station - Option 1
  - Lovejoy Wharf/North Station - Option 2
- Russia Wharf/South Station - Short-term

South Boston Waterfront District (Figure 1.42):

With the opening of the Boston Convention and Exhibition Center, along with new commercial, residential and port uses, South Boston is the area likely to see the greatest growth of new services and ridership volume outside the downtown core. The Seaport Public Realm Plan of 1999 identified the key ferry terminal locations for the South Boston Waterfront District which are described in more detail in this report.

- An expanded World Trade Center Marine Terminal on both sides of Commonwealth Pier would continue to serve as the primary South Boston ferry hub.
- Other passenger terminals should be developed or expanded at Museum Wharf, Federal Courthouse, Fan Pier Basin, Wharf 8, and Pier 1 in the Reserved Channel..
- Intermodal connections are needed to link the new South Boston Waterfront development to cross harbor ferry routes through pedestrian ways, shuttle buses, the new Silver Line transitway, and park-and-float links.
- Service and layover berthing opportunities exist along Northern Avenue and are located at World Trade apron, Fish Pier east, and a reconfigured Wharf 8.

South Boston Waterfront Terminal Concept Plans: Included in the detailed descriptions of proposed facility plans in Chapter 4 of the report are the following South Boston Waterfront District terminals.

- South Boston Waterfront District - Public Realm Plan
- World Trade Center (District Hub Terminal)
  World Trade Center - Short-term
  World Trade Center- Mid-term
- Museum Wharf - Mid-term
- Federal Courthouse - Short-term
  Federal Courthouse - Mid-term Fan Pier Basin - Mid-term

- Wharf 8/Fish Pier - Short-term
- Wharf 8/Fish Pier - Mid-term
- Reserved Channel/Pier 1 - Mid-term

East Boston Waterfront District (Figure 1.43):

The revitalization of East Boston will depend on improved public transportation including integral ferry connections to key waterfront locations with anticipated new residential, commercial and recreational (East Boston Greenway, Priors Park expansion) development. As a community which was once totally dependent on ferry links to downtown Boston and other cross harbor destinations, East Boston can benefit from having expanded and new terminal locations at strategic points.

- Multi-purpose terminals are recommended to be located at Liberty Plaza in Central Square, Lewis Mall, and Logan Passenger Water Transportation Terminal.
- The Logan Terminal should continue to serve as the primary site in East Boston owing to the diversity of services currently using and projected to use the terminal.
- Shuttle services to Downtown, Charlestown and South Boston hubs should link East Boston to other recreational and transit ferry services such as the Harbor Islands Park via Long Wharf and North Station via Pier 4 and Lovejoy.
- Intermodal links are needed to the residential neighborhoods and Blue Line, by improved Harborwalk and shuttle buses.
- Layover berthing and servicing facilities should continue at a variety of East Boston pier sites, particularly including ship repair and maintenance services.

East Boston Terminal Concept Plans: Included in the detailed descriptions of proposed facility plans in Chapter 4 of the report are the following East Boston district terminals.

- East Boston District Masterplan
- Logan Passenger Water Transportation Terminal (District Hub Terminal)
  - Logan Terminal - Existing
  - Logan Terminal Short-term
- Lewis Mall - Mid-term
- Liberty Plaza/Central Square - Mid-term

Charlestown Waterfront District (Figure 1.44):

The shuttle and excursion ferry services to Charlestown are currently the second most heavily used in the inner harbor as they serve year round two-way commuter needs, and recreational visitors to the *USS Constitution* and National Park attractions, as well as seasonal marina and entertainment trips. Improved and expanded terminal facilities are needed to meet growing demands for the short and enjoyable trip to and from the Navy Yard, and the Charlestown neighborhoods.

- An expanded Pier 4 should continue to serve as the primary Charlestown terminal due to its central location. Increased shuttle services are expected along with an expanded water taxi/cultural loop landing.
- Other passenger terminals should include replacement for the Constitution Wharf landing at either Pier 1 or Pier 2, and a new terminal at Pier 10 as the Yards End development fills in.
- Layover berthing and servicing opportunities should be implemented in the short-term at Pier 3, and in the mid-term at Pier 11.

Charlestown Terminal Concept Plans: Included in the detailed descriptions of proposed facility plans in Chapter 4 of the report are the following Charlestown district terminals.

- Pier 4/Navy Yard (District Hub Terminal)
  Pier 4 - Mid-term
- Pier 1/Pier 2/Constitution - Mid-term
- Pier 3 - Short-term
- Pier 10 - Mid-term

Composite Ferry Facilities Concept Plan: The Composite Boston Inner Harbor Passenger Water Transportation Plan consists of the aggregate of phased expansion and new construction of ferry terminal and service sites, as well as appropriate landside infrastructure improvements and intermodal links. The recommended network of public water transit and excursion landings should provide new opportunities for expansion of ferry services to meet the increasing seasonal and year-round demands within and beyond the Inner Harbor. The mid-term composite plan for ferry terminal locations is shown in Figure 1.23, which includes all proposed terminals and routes. While many of the future sites are ones currently used for ferry landings, they will need to be transformed in a variety of ways to serve projected growth, in accordance with the recommended terminal design guidelines:

- Increased dock flexibility for a variety of vessel types and sizes
- Increased berthing capacity, particularly at primary terminals and in the downtown hub.
- Consistent universal access design for the full spectrum of users.
- Expanded intermodal connections with transit, Harborwalk and city streets.
- Public touch-and-go landings and water taxi/Cultural Loop accommodations wherever appropriate at terminal sites.
- New public/private management mechanisms for terminals to encourage multiple operator time-slots with City-owned or state-owned piers as the key terminal locations.
- Integrated communication system of signs, electronic travel data, and audio information.

1.34 Implementation Strategy and Funding Options (Chapter 5)

Implementation Principles - Public Terminals and Private Operations: The recommended short and long term implementation strategy can best be described as encouraging the development of public terminals and private operations, for those transit focused ferry services addressed in this plan. Through the inventory and interview process, the current patterns of ownership, management and functional uses of the existing terminals were found to be a complex combination of public and private ownership,

jurisdiction and ferry operations. Three alternative future patterns of combined terminal ownership and ferry operation were considered: 1) maximum private terminal and dock control, 2) blended public dock ownership and private management, and 3) maximum public dock management and dock control.

An increase in publicly owned and managed docks appeared to have advantages in terms of rapidly increasing the capacity for ferry docking, and optimizing operator access to the piers, particularly in the downtown core. For many of the existing and expanding terminals, the prevailing pattern appeared to be private dock management regardless of ownership and lease patterns, however, and was recommended as the preferred general direction for the City to take for several reasons, rather than developing a new area of city government responsibility for dock ownership and management. On the other hand, in instances where public funding would be available for new or improved terminal facilities, the City or another public transportation agency would be obliged to serve as the public sector owner, based on current federal and state funding program requirements. Therefore a balanced approach was recommended to include both private and publicly owned and managed terminals, depending on the individual context.

Phasing Plan - Priority Projects: The following projects are listed in order of importance in meeting the growth needs of the expanding ferry operations in Boston Harbor. The highest priority projects are the primary or hub sites which serve each of the four Inner Harbor districts. The next level of priority projects are those secondary sites which serve the districts, including service and layover berthing. A third level of priority would be those projects more likely to be implemented later in the mid term time frame. Projects which are most likely to be initiated by the BRA are designated with an asterisk.

High Priority:

- **Downtown Hub Terminal:** The highest priority includes those projects which are in the central waterfront from Long Wharf to Rowes Wharf. These components include expansion of docking capacity and access for all types of ferry uses in the primary downtown destination area. Specific projects would include Long North*, Long/Central Shuttle*, Long South, Central Wharf, and Rowes/400 Atlantic.
- **Logan Passenger Water Transportation Terminal/ East Boston Hub Expansion:** Access improvements and dock capacity expansion are a high priority for Massport and the increasing variety of operators serving Logan Airport.
- **World Trade Center/ South Boston Hub Terminal Expansion:** Expansion of dock capacity and higher visibility terminals for year round are a priority in providing multimodal transit options as the various South Boston Waterfront projects develop including the convention center, World Trade Center expansion, hotels and other development on Northern Avenue.
- **Pier 3 and 4 /Charlestown Navy Yard:** Expansion of the increasingly busy Pier 4* terminal combined with a new service and layover site at Pier 3* are important for the harbor related neighborhoods as well as for seasonal visitors to the many historic attractions.

Second Priority:

- **Russia Wharf/South Station:** Construction of the long awaited ferry terminal which will provide the connection to commuter rail and the Fort Point Channel is an important priority for the Downtown district.

- **Lovejoy Wharf/North Station:** While already in operation, Lovejoy Wharf needs a permanent location with expanded capacity as well as landside access improvements prior to the completion of the north section of the Central Artery.
- **South Boston Secondary Sites:** Fan Pier, Museum Wharf, Wharf 8* and Pier 1/ Reserved Channel* all need to be phased in as surrounding development creates new demand for ferry services. Excursion facilities will become increasingly important in South Boston as the Convention Center is completed.
- **East Boston Secondary Sites:** A new terminal at Liberty Plaza and the landside enhancement of Lewis Mall* are both important for future shuttle and excursion connections to and from East Boston.
- **Pier 1-Pier 2/Constitution:** The major visitor dock needs added capacity and improved access in Charlestown, to accommodate increasing volumes of seasonal and year round visitors.
- **Layover Berthing and Service Facilities:** Such support facilities are needed as downtown volumes grow and the traditional dockside layover is no longer feasible.

Third Priority:

- **Pier 10/Yards End*:** A third Navy Yard terminal will be needed as the Yards End area is built out over time. Excursion operators provide seasonal connections from downtown terminals. At present there is insufficient demand to support scheduled year round ferry transit services or seasonal shuttle connections.

Funding Options: Preliminary cost estimates for the various terminal sites indicate the capital costs for fully accessible facilities can range from less than $100,000 for a small expansion or retrofit to multi-million dollar new hub terminals, depending on the size and complexity of the project. The individual terminal projects were assessed in terms of potential public and private funding sources as shown in Table 1.4. Those terminals with funds which are committed are marked with an asterisk*.

The key to public funding sources for Table 1.4 includes the following:

- CA/T - Central Artery EIS Commitment
- TBB - State EOTC Transportation Bond Bill
- TEA21 - Federal Transportation Program - Ferry Discretionary, Enhancement Funding, Intermodal, CMAQ (Air Quality), FHWA Intermodal Connectors
- Massport
- NPS - National Park Service
- GSA - General Services Administration

Private funding sources for terminal construction and improvements include the following:

- NEAq - New England Aquarium
- Children's Museum
- BHC - Boston Harbor Cruises
- WTC - World Trade Center
- Miscellaneous private developers as noted

Table 1.4: Project Phasing and Funding Sources
(City initiated or assisted projects in **Bold.** Other terminals are managed and funded either privately or by other state public agencies such as the MBTA)

Terminal:	Potential Funding Source(s):
1) Short Term (1999-2003)	
- Long North/T Wharf Phase I	**TBB/TEA 21**
- Long Wharf North/TWharf II	**TBB/TEA 21**
- Long South Phase I*	Private - BHC
- Long South Phase II	Private - BHC
- Long /Central MBTA Shuttle Phase I	**TBB/TEA21**
- Long /Central MBTA Shuttle Phase II	**TBB/TEA 21**
- Central South	**TBB**
- Rowes/400 Atlantic Phase I	**TBB/TEA21**
- Rowes Wharf/400Atlantic Phase II	**TBB/TEA21**
- Russia Wharf	CA/T
- Lovejoy Wharf*	CA/T
- World Trade Center Phase I	Massport/WTC - Chap.91
- Wharf 8 Phase I*	Private - Harborlights
- Logan Terminal*	Massport
- Lewis Mall Landside	**TBB/TEA21,** Clippership/Pier 1 - Chap.91
- Pier 4/Navy Yard	**TBB/TEA21**
- Pier 3/Navy Yard	**TBB/TEA21**
2) Mid-term (2004-2008)	
- Long Wharf North/T Wharf III	**TBB/TEA 21**
- Central/India Phase I	**TBB/TEA 21**
- Central/India Phase II	**TBB/TEA 21**
- World Trade Center Phase II	Massport/WTC/Chap.91
- Wharf 8 Phase II	EDIC/Private/Chap.91
- Lewis Mall/Clippership/Pier 1	Clippership+Pier 1/Chap.91
- East Boston service and layover	Pier 1/Private
- Museum Wharf	Childrens Museum
- Fan Pier	Private - Hyatt/Fan Pier - Chap.91
- Pier 1/2 Charlestown	NPS
- Pier 4/NavyYard expansion	**City**
- Liberty Plaza/Central Square	Private - Liberty Plaza/Shaws/Chap91
- Federal Courthouse Expansion	GSA
- Pier 10/Navy Yard	Developer/Chap91

* Represents projects which had funding secured at the time of the report.

1.4 Action Plan for Infrastructure Investments

Action Plan for Infrastructure Investments: A phased Action Plan is recommended for design and construction of all proposed Inner Harbor Terminal facilities. Several of the high priority projects, such

as the Downtown Hub and World Trade Center Terminals, are to be implemented over two or more of the action phases. The time frames for the action plans are based on best information available at the time of the report completion, and subject to ongoing adjustment and modification over time as a dynamic process. The action plan is intended, however, to provide an initial timeline and critical path for the priority projects identified in the plan.

The Action Plan tables indicate the lead public or private entity for each of the identified projects. The City of Boston projects are designated for BRA lead or coordination. The proposed action plan is described in three time frames, each of which includes appropriate levels of planning, funding, and implementation. The phases are summarized in the respective tables:

Phased Action Plan: A phased Action Plan is recommended for design and construction of all proposed Inner Harbor Terminal facilities. Several of the high priority projects, such as the Downtown Hub and World Trade Center Terminals, are to be implemented over two or more of the action phases. The time frames for the action plans are based on best information available at the time of the report completion, and subject to ongoing adjustment and modification over time as a dynamic process. The action plan is intended, however, to provide an initial timeline and critical path for the priority projects identified in the plan.

The tables indicate the lead public or private entity for each of the identified projects. The City of Boston projects are designated for BRA lead or coordination. The coordination role may vary from significant involvement such as with the Rowes Wharf Operations Board, to design review for other public agency or private entity leads where issues such as Harborwalk, public realm design, zoning, Municipal Harbor Plan and/or other approvals may be needed.

The proposed action plan is described in three phases, each of which includes appropriate levels of planning, funding, and implementation. The phases are summarized in the respective tables:

- **Short Term Actions - 1999 to 2003 (Table 1.5A):** The immediate short term actions (1999 to 2003) include planning, permitting, funding, and early implementation actions on designated priority projects. The immediate actions are in response to increasing demands for downtown terminal space, new waterfront development initiatives around the inner harbor, and actively matching those projects with available state and federal funding programs as well as with private funding initiatives. The immediate action phase also recognizes the need to allow time for design coordination and permitting requirements. The City, the MBTA and Massport have already initiated a number of the early action short term projects through design and funding phases, as described in the terminal descriptions. The hub projects in each District remain a high priority, with a particular focus on the downtown primary terminal components at Long/Central and Rowes/400Atlantic.

- **Mid Term Actions - 2004 to 2008 (Table 1.5B):** the mid term actions represent the later phases of high priority projects along with second and third priority projects. There are many factors which might alter the phasing of these projects including the actual fluctuations in market demand for ferry services, and the rates of waterfront development buildout in the various districts. Completion of the downtown hub projects and South Boston Waterfront projects will remain as high priorities in the two areas for which sustained development growth is expected.

By the same token, if new development patterns emerge more rapidly than currently projected in areas such as East Boston or Charlestown, some of the mid-term projects may need to be accelerated, or new ones added.

- **Long Term Actions - 2009 and Beyond (No Table):** Ferry services and terminal project needs are difficult to project beyond the designated mid-term time frame, and have not been identified in the report. New technologies in water transportation, such as longer range, highspeed passenger and vehicle ferries such as those successfully operating in Europe and the Pacific Rim, may need to be included in the Inner Harbor terminal facility plans at such time as markets are identified, and investor/operators become seriously interested.

Table 1.5A: Phased Action Plan for Implementing Inner Harbor Terminal Facilities
SHORT TERM ACTIONS 1999 - 2003

Phased Actions	Responsibility			Planning/ Funding	Implementation
	City of Boston	Other Public*	Private		
1. ISSUE PLAN:	BRA Lead	Coordination Various	Coordination Various	Fall '99	NA
2. LONG/CENTRAL HUB					
2A Long/Central MBTA Shuttle - Phase 1	BRA Lead	MBTA, EOTC Trans. Bond	NEA, BHC	'99	May '00
2A Long/Central MBTA Shuttle - Phase II	BRA Lead	MBTA, EOTC Trans. Bond	NEA, BHC	'00	April '01
2B Long Wharf Harbor Islands Gateway	BRA Lead	DEM, MDC, NPS	NEA, BHC, HE	'99 Contract Award	April '00
2C Long Wharf North/'T' Wharf Phase I Improvements	BRA Lead	EOTC Trans. Bond TEA 21	HE	'99	April '00
2C Long Wharf North/'T' Wharf Phase II Improvements	BRA Lead	EOTC Trans. Bond	HE	May - Dec. '01	April '02
2D. Long Wharf - South Face Restoration Phase I	BRA Lease Coordination	MBTA	BHC Lead	June-Sept.'99	April '00
2D. Long Wharf - South Face Restoration Phase II	BRA Lease Coordination	MBTA	BHC Lead	'01	April '02?
2E. Central Wharf North dock Expansion	BRA Coordination		NEAq Lead	'99	April '01
2F. Central Wharf - South Pier Expansion	BRA Coordination		NEAq Lead	'99	June '01
3. ROWES WHARF HUB					
3A. Rowes/400Atlantic Dock Extension and Access Phase I	BRA Oper'ns Board Coordination	MBTA, EOTC Trans. Bond	Rowes Lead	'99	April '00
3A. Rowes/400Atlantic Dock Extension Phase II	BRA Operations Board Coordination	MBTA, EOTC Trans. Bond	Rowes Lead	'01	Dec. '02

3B. Northern Avenue Bridge Replacement	PWD/BRA	Various		'00	'01 to '02
4. LOVEJOY WHARF: Expansion and/or Relocation	BRA Coordination	CAT/MDC Lead	Hoffman Prop.	'01	April '02 - '03
5. RUSSIA WHARF: Temp. Terminal at Museum Wharf	BRA Coordination	CAT Lead w/ MBTA	Children's Museum	'99	May '00
6. FEDERAL COURTHOUSE: Access		GSA Lead w/ MBTA		Aug. '98	Aug. '99
7. WORLD TRADE CENTER: Expansion Phase I	BRA Coordination	Massport Lead	World Trade Center	'00	April '01
8. WHARF 8: New Shuttle Terminal Dock	BRA Lease Coordination	Various	Harborlights Lead	May '99	July '99
9. LOGAN TERMINAL: Expansion	BRA Coordination	Massport Lead		'99	May '00
10. LEWIS MALL: Landside Access Improvements	BRA Coordination	Massport	Clippership/ Pier 1 Lead	'01	April '02
11. LIBERTY PLAZA: New Terminal Planning	BRA Coordination		Liberty Plaza/Shaw's	'01	April '02 to '05 ?
12. PIERS 3 & 4/CNY: New Service and Expansion	BRA Lead	EOTC Trans. Bond	CNY Abutters	'01	April '02
13. PIER 1-2/ CONSTITUTION: New	BRA Coordination	NPS Lead	Various Operators	'01	April '02

* All new terminals or major alterations are likely to require DEP Chapter 91 permits and coordination.

Note: The timing of all phased actions depends on securing individual project funding including grant awards. Therefore it is recommended that the Short Term Action Plan schedule be updated every 6 months to reflect any changes in time frames.

Table 1.5B: Phased Action Plan for Implementing Inner Harbor Terminal Facilities MID-TERM ACTIONS 2004-2008

Phased Actions	Responsibility:			Planning/ Funding	Implementation
	City of Boston	Other Public*	Private		
1. LONG/CENTRAL HUB					
1A Long Wharf North/'T' Wharf Phase III Improvements	BRA Lead	EOTC Trans. Bond	HE, Cannon Marina	'04	'05
1B. Central Wharf Expansion Phase II	BRA Coordination		NEAq Lead	'03	'05
1C. Central Wharf /India Wharf Expansion Phase I	BRA Lead	EOTC Trans. Bond	Harbor Towers, NEAq	'03	'04
1D. Central Wharf /India Wharf Expansion Phase II	BRA Lead	EOTC Trans. Bond	Harbor Towers, NEAq	'04 -'05	'05 -'06
2. RUSSIA WHARF: New Permanent Terminal	BRA Coordination	CAT Lead w/ MBTA	Russia Wharf/Beco	'99	'04
3. WORLD TRADE CENTER: Expansion Phase II	BRA Coordination	Massport Lead	World Trade Center	'03	'04-'05
4. MUSEUM WHARF: New Terminal	BRA Coordination		Children's Museum	'03?	'04-'05?
5. FAN PIER: New Terminal	BRA Coordination		Hyatt Develop.	'00-'02 ?	'03-'05?
6. WHARF 8: Phase II Terminal and Service	EDIC Lead	Various	To be Determined	'03	'04-'05
7. PIER 1/BLACK FALCON: Expanded Terminal	BRA Lead	Various	To be Determined	'04	'05+
8. LEWIS MALL: Terminal Expansion	BRA Coordination	Massport	Clippership/ Pier 1 Lead	Jan- June '03-'04?	'04-'05
9. LIBERTY PLAZA: New Terminal Planning	BRA Coordination		Liberty Plaza/Shaws Lead	Jan- June '01-'02	'03-'05 ?

* All new terminals or major alterations are likely to require DEP Chapter 91 permits and coordination.
Mid-Term Action Schedule should be updated annually.

Note: The timing of all phased mid term actions also depends on securing individual project funding including grant awards. Therefore it is recommended that the Mid Term Action Plan schedule be updated annually to reflect any changes in time frames.

Action Plan: Public and Private Coordination Initiatives

In addition to the actions needed to initiate, coordinate and promote infrastructure investments, there are a number of institutional actions by the City of Boston and others which are needed in terms of public and private sector coordination.

Facilitating Ferry System Growth: Levels of City Involvement. As new terminal projects are initiated, the city can play a variety of roles in facilitating development from planning to funding coordination to active project management and ownership.

- Level 1: City and BRA take an active lead role for initiating priority terminal projects through city property management, and direct terminal development and ownership.
- Level 2: City and BRA take a partnership or coordination role with other public agencies such as the MBTA or DEP, with private sector partners such as a ferry or marina operator, and/or with a private institution. Primarily for properties with some form of city ownership, such as old Northern Avenue Bridge.
- Level 3: Regulatory review lead by BRA in terms of expediting specific required review and approval procedures for projects under BRA jurisdiction including projects such as the Fan Pier or Clippership Wharf. Coordination with state regulatory entities also required.
- Level 4: Design review role for projects initiated by other public or private entities, but have specific interfaces with the Harborwalk, public parks, or other city owned properties.

Institutional Coordination: Various levels of Interagency review and coordination with the private sector are recommended to keep projects moving smoothly through design and implementation. The two public forums and subsequent meetings with stakeholders during the project proved to be useful in terms of coordination and acceleration of decision making regarding specific terminal sites and ferry routes. These would include the following:

- **Public and Community Involvement:** Operators, users, abutters, TSM members, Harbor Alliance etc. It is recommended that there be a continuation of annual or semi-annual passenger ferry forums including coordination and participation by the BRA, Massport, the MBTA, and the National Park Service, the Seaport Advisory Council, and Massachusetts Passenger Vessel Operators (MAPVO). BRA, Massport and MBTA to serve as co-leads.
- **City of Boston Interagency Coordination:** Establish City interagency cooperation on dock management, watersheet management, and service upkeep with BRA or BTD as lead
- **City/State/Federal Interagency:** Coordinate with all state agencies involved with ferry services and facilities. Continuation of the interagency meetings on a regular schedule with sessions focussed on Intermodal transportation and the evolving role of ferries. EOTC as the lead.
- **New Public/Private Ferry Management Entities:** For specific primary or secondary terminal areas where a public/private partnership is involved, legal establishment of coordinating entities

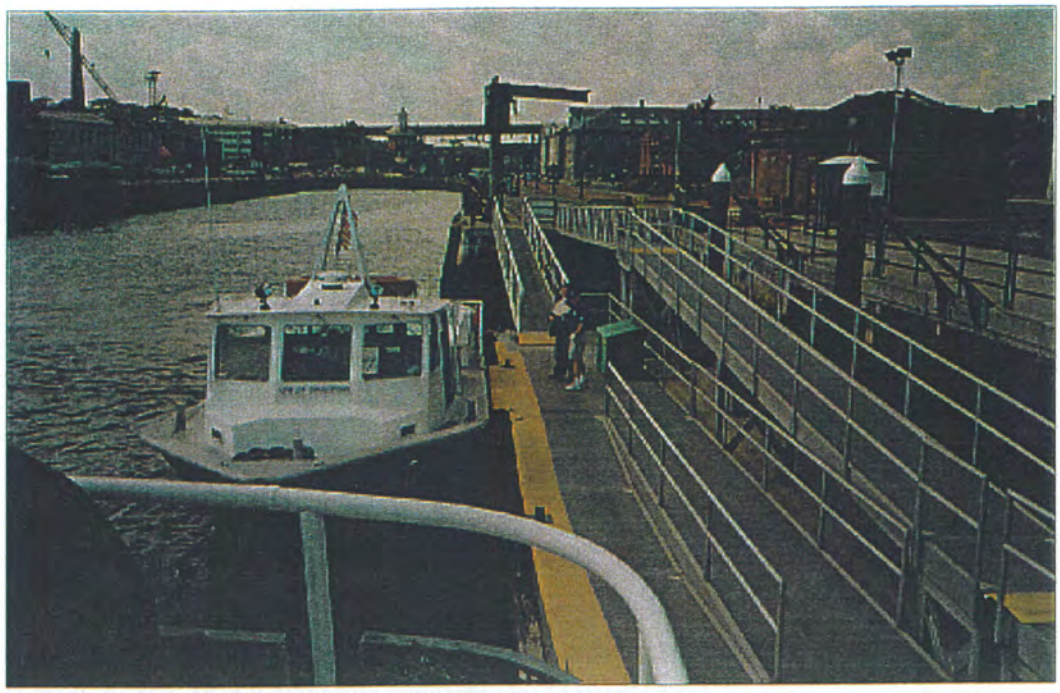
modeled after the Operations Board at Rowes Wharf may serve as useful device for ongoing dock and route management, as well as help in securing public funding.

Watersheet Management Programs and Related Ferry Planning Initiatives: The general vessel traffic activity continues to increase in Boston Harbor, with the growing volumes of commercial shipping, ferries and excursion operations all competing with recreational boating of all scales and sizes within a finite Inner Harbor navigational area. There appears to be a clear need to complete the next prescriptive of the phases watersheet management plan started by the Urban Harbors Institute in 1998. It was apparent in discussing specific recommended sites, that more definition is needed from both the city and state regarding location of terminals on watersheet areas, fairway and turning basin requirements, regulatory jurisdictions and other key concerns. Other recommended city initiatives include consolidation of a ferry operations and ridership data base, and coordination of a comprehensive ferry information system.

- **Watersheet Management Plan - Part II:** It is recommended that the next critical phase of a watersheet management program be initiated with input from a group of stakeholders regarding the scope of work and design criteria. The work should build on the initial products prepared by the Urban Harbors Institute.

- **Ferry Operations and Ridership Data Base:** Expansion and consolidation of existing data collection efforts by Massport, the MBTA and private operators to accurately record annual ridership and survey information, for purposes of improving services and building awareness of the increasing importance of ferry services to the commuter needs and growing visitor economy of the harbor area. It is recommended that the City, which has the broadest interest in all transit and non-transit ferries, take the lead in coordinating the data base.

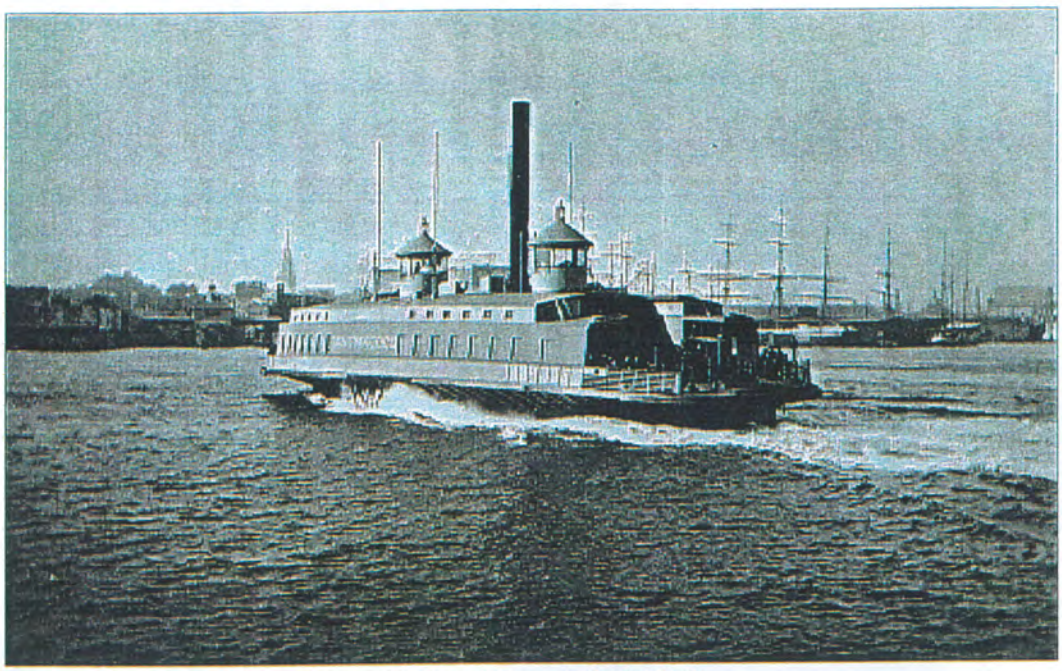
- **Comprehensive Ferry Information System:** Many creative efforts to jointly market and inform public about all transit and excursion ferry services have been initiated during the past several years, such as the signage programs initiated by the BRA in conjunction with Harborwalk and CAT coordination, joint advertising and T-pass programs by the MBTA, and innovative marketing and franchising of airport intermodal ferry services by Massport have all contributed to increased awareness and ferry use. There are opportunities for the City to take the lead in expanding these marketing efforts over the coming years to create a more cohesive, user friendly, multi-faceted ferry network that places the Boston ferries on a par with the top international passenger water transportation systems.



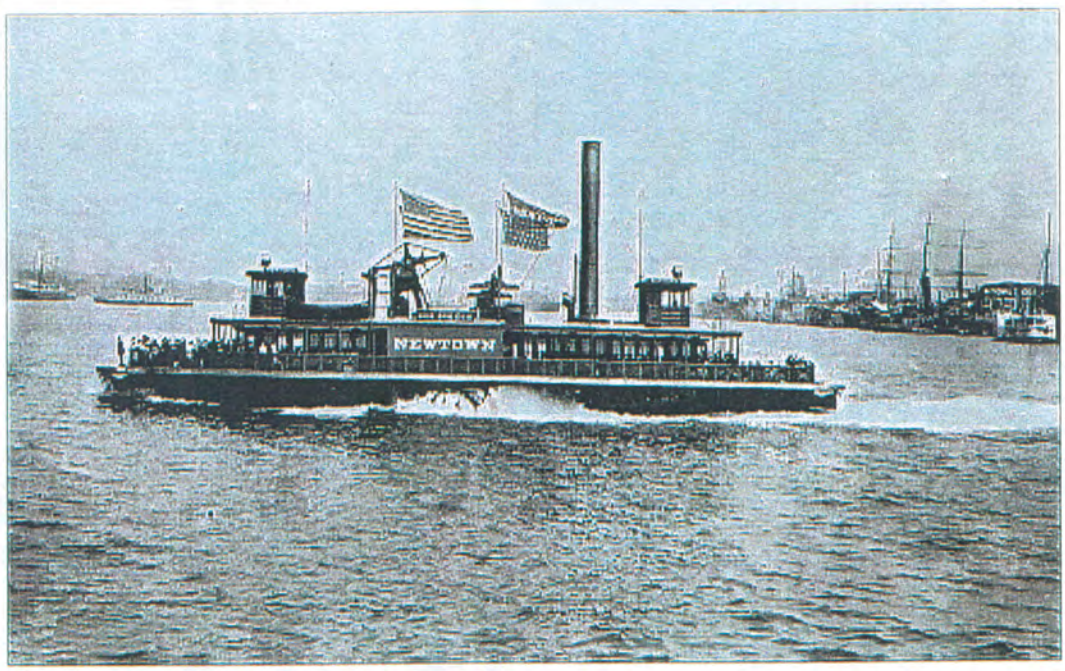
Long Wharf - Navy Yard Shuttle at Pier 4/Charlestown

Harbor Express Commuter/Airport Ferry at Long Wharf

Figure 1.1 - Photos of Existing Ferry Services

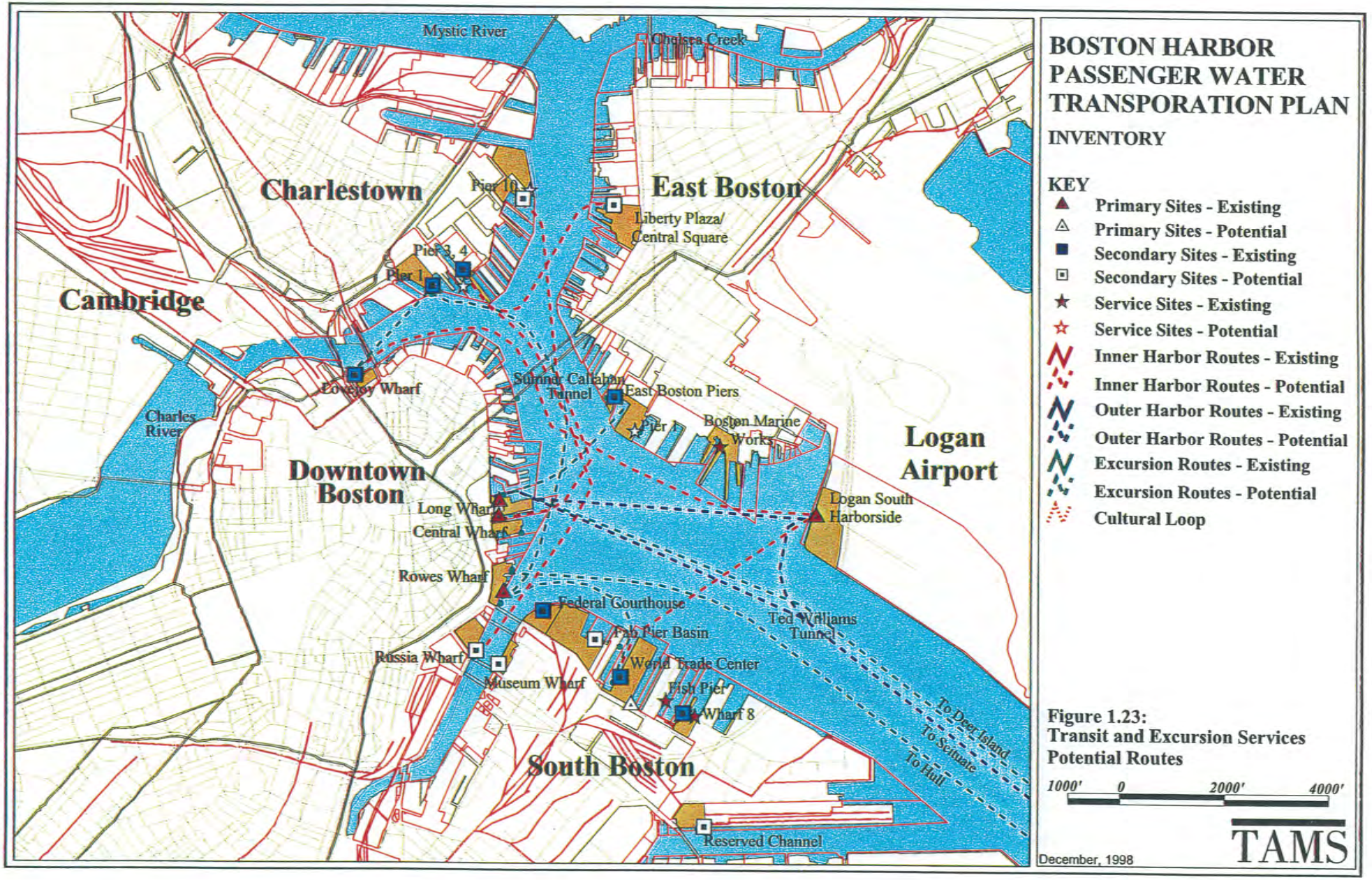


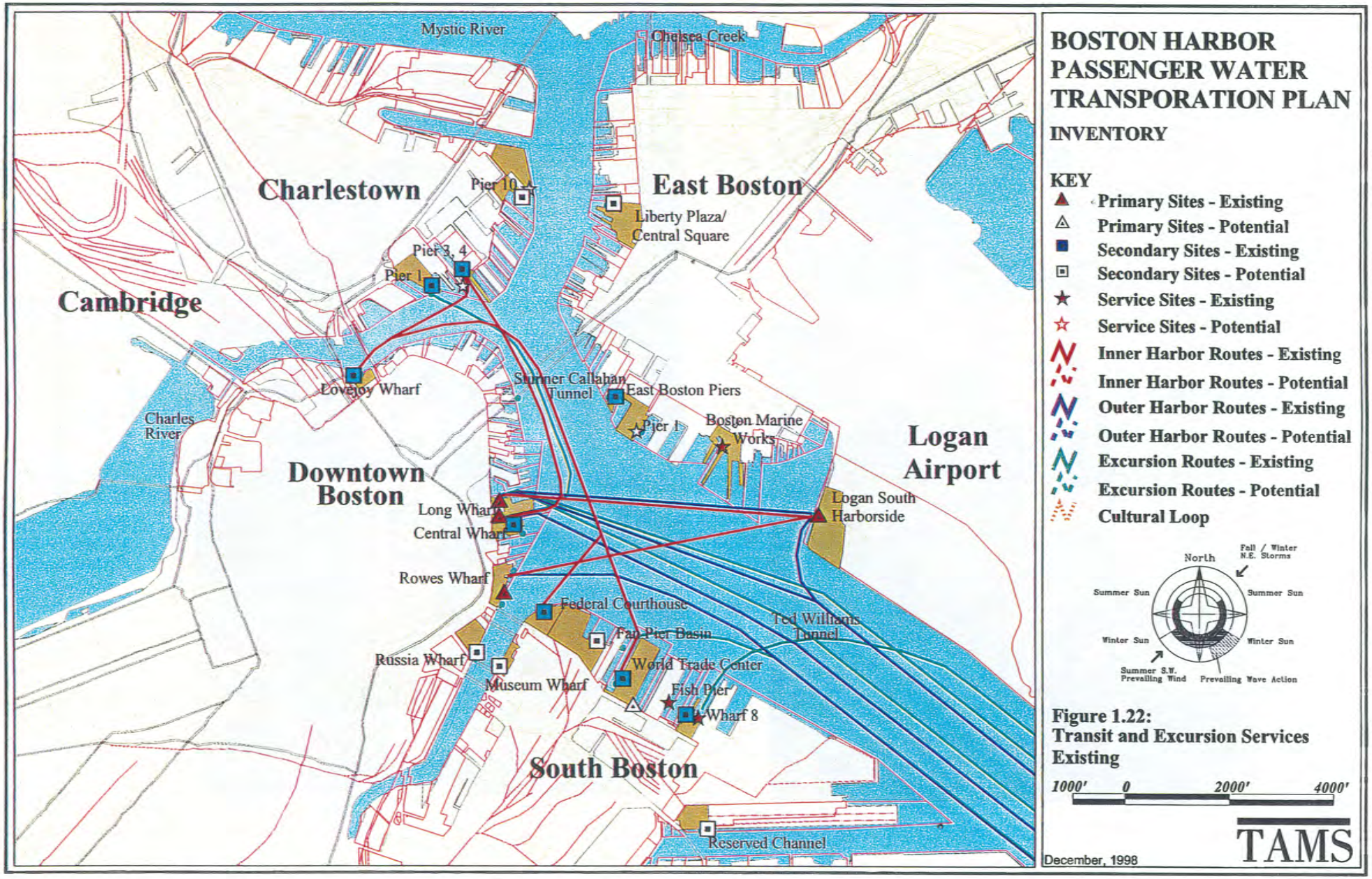
Boston, Revere Beach and Lynn Railroad Ferry (1875-1940)



Newtown, East Boston Ferry

Figure 1.21 - Photos of Historic Ferry Vessels


Mystic River
Chelsea Creek
Charlestown
East Boston
Pier 10
Liberty Plaza/
Central Square
Pier 3, 4
Pier 1
Cambridge
Lovejoy Wharf
Sumner Callahan
Tunnel
East Boston Piers
Pier 1
Boston Marine
Works
Charles
River
Logan
Airport
Downtown
Boston
Long Wharf
Central Wharf
Logan South
Harborside
Rowes Wharf
Federal Courthouse
Fab Pier Basin
Ted Williams
Tunnel
Russia Wharf
World Trade Center
Museum Wharf
Fish Pier
Wharf 8
To Deer Island
To Scituate
To Hull
South Boston
Reserved Channel
BOSTON HARBOR
PASSENGER WATER
TRANSPORATION PLAN
INVENTORY
KEY
Primary Sites - Existing
Primary Sites - Potential
Secondary Sites - Existing
Secondary Sites - Potential
Service Sites - Existing
Service Sites - Potential
Inner Harbor Routes - Existing
Inner Harbor Routes - Potential
Outer Harbor Routes - Existing
Outer Harbor Routes - Potential
Excursion Routes - Existing
Excursion Routes - Potential
Cultural Loop
Figure 1.23:
Transit and Excursion Services
Potential Routes
1000' 0 2000' 4000'
December, 1998
TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

INVENTORY

KEY

- Primary Sites - Existing
- Primary Sites - Potential
- Secondary Sites - Existing
- Secondary Sites - Potential
- Service Sites - Existing
- Service Sites - Potential
- Inner Harbor Routes - Existing
- Inner Harbor Routes - Potential
- Outer Harbor Routes - Existing
- Outer Harbor Routes - Potential
- Excursion Routes - Existing
- Excursion Routes - Potential
- Cultural Loop

Figure 1.22:
Transit and Excursion Services Existing

1000' 0 2000' 4000'

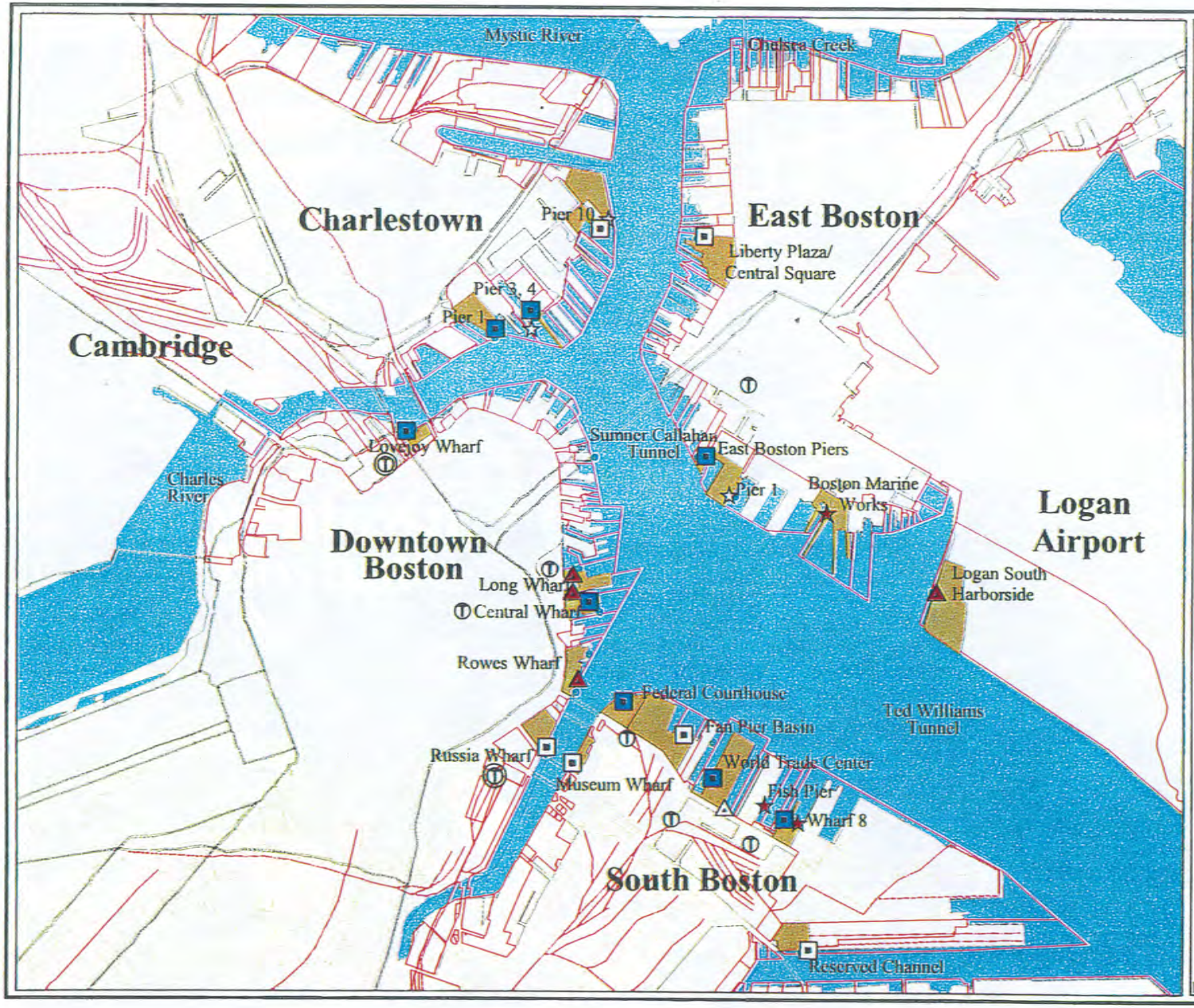
December, 1998

TAMS

Long Wharf/Central Wharf Terminal - Existing Conditions

Rowes Wharf/400 Atlantic Avenue Terminal - Existing Conditions

Figure 1.31 - Photos of Current Terminal Conditions



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

INVENTORY

KEY

- ▲ Primary Sites - Existing
- △ Primary Sites - Potential
- ■ Secondary Sites - Existing
- ▣ Secondary Sites - Potential
- ★ Service Sites - Existing
- ☆ Service Sites - Potential
- Ⓣ T-Stations

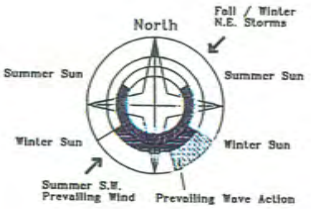
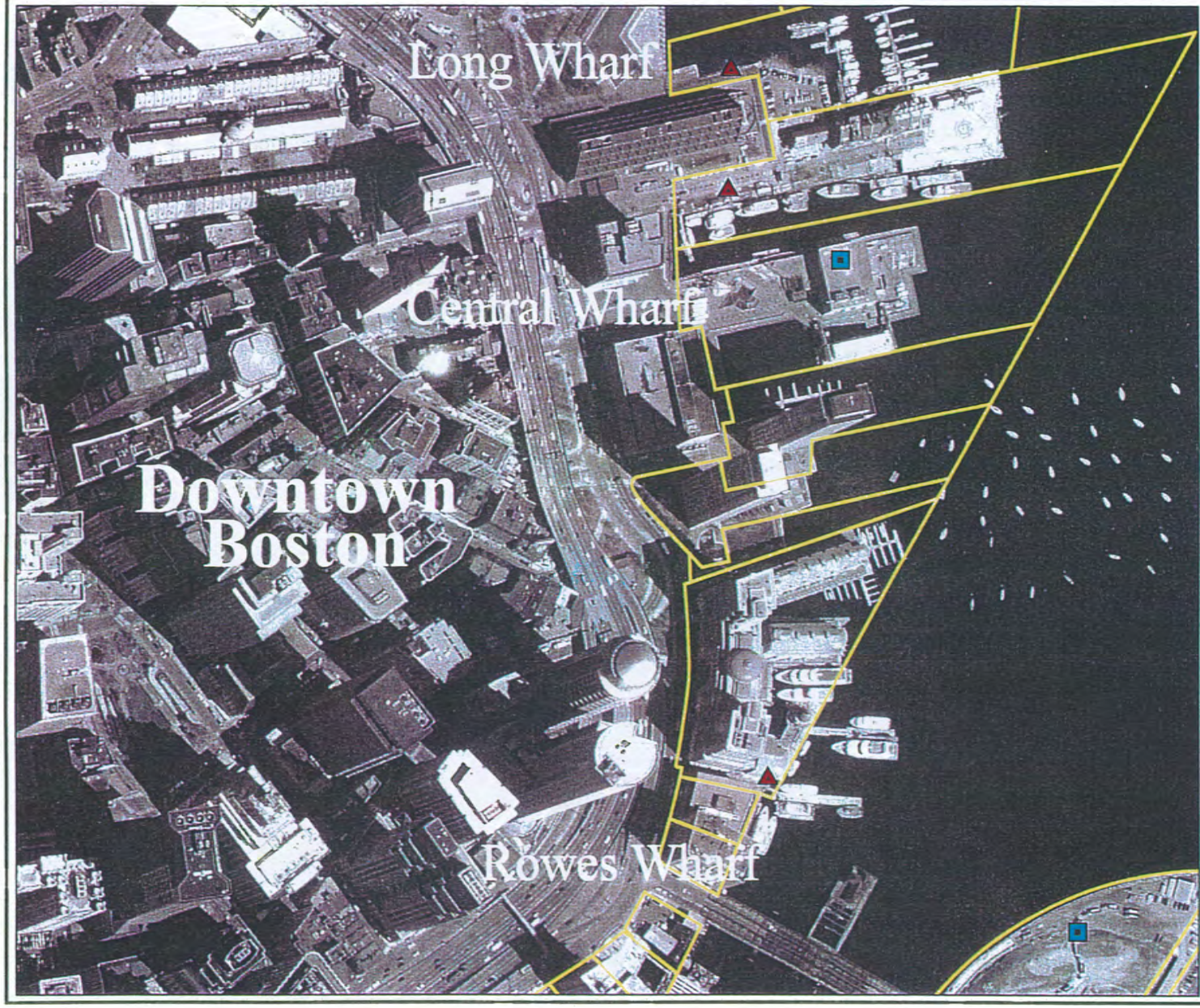


Figure 1.32:
Intermodal Terminal Facility Linkages

1000' 0 2000' 4000'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TRANSPORTATION CONCEPT PLAN

KEY

- ▲ Primary Sites - Existing
- △ Primary Sites - Potential
- ■ Secondary Sites - Existing
- ▣ Secondary Sites - Potential
- ★ Service Sites - Existing
- ☆ Service Sites - Potential

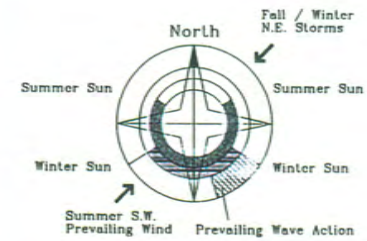
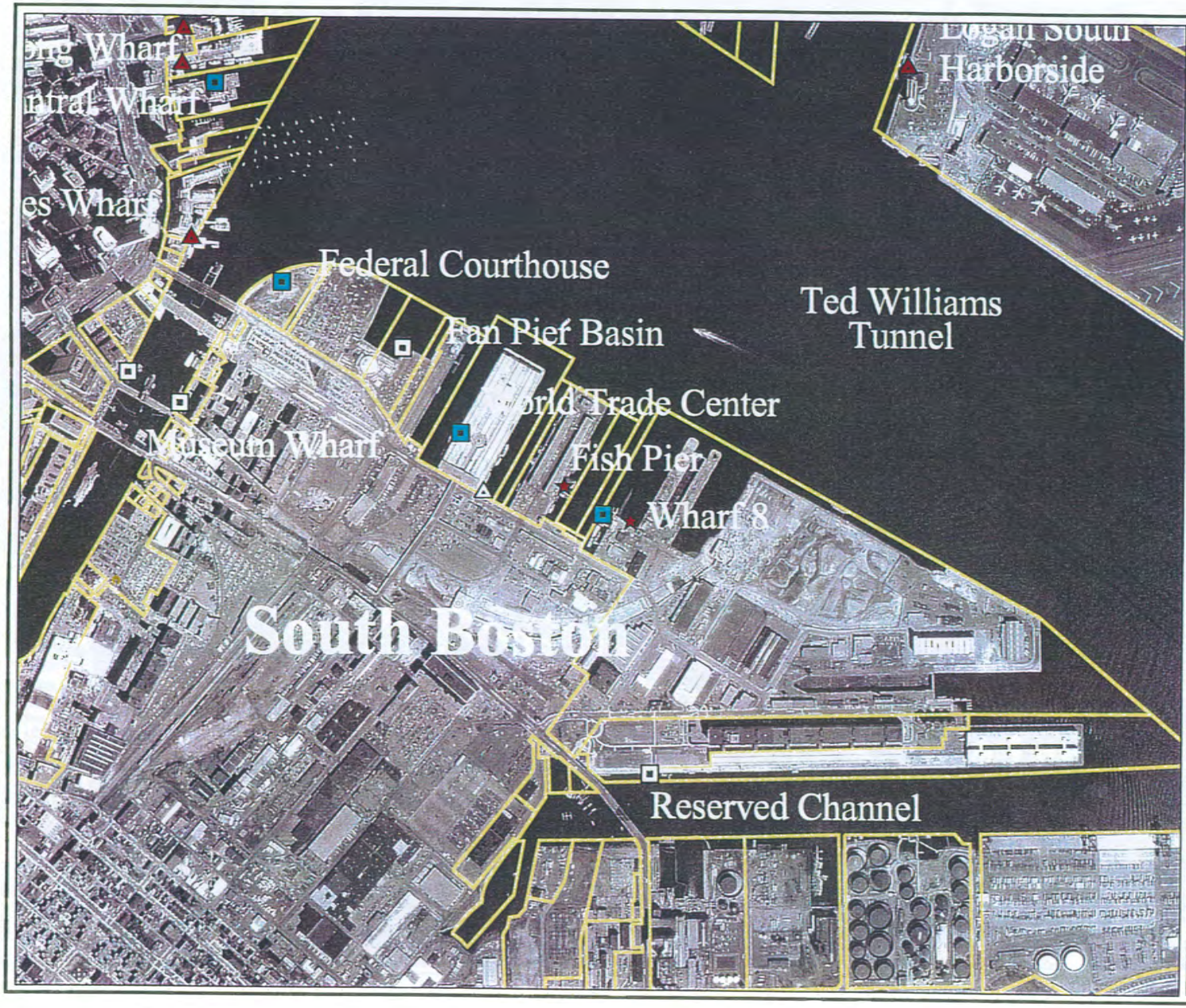


Figure 1.41
Downtown Hub Terminals

75' 0 150' 300'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TRANSPORTATION CONCEPT PLAN

KEY

- Primary Sites - Existing
- Primary Sites - Potential
- Secondary Sites - Existing
- Secondary Sites - Potential
- Service Sites - Existing
- Service Sites - Potential

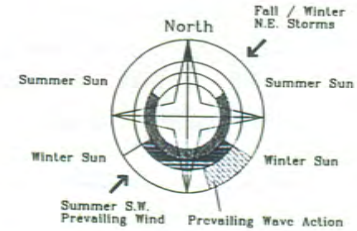
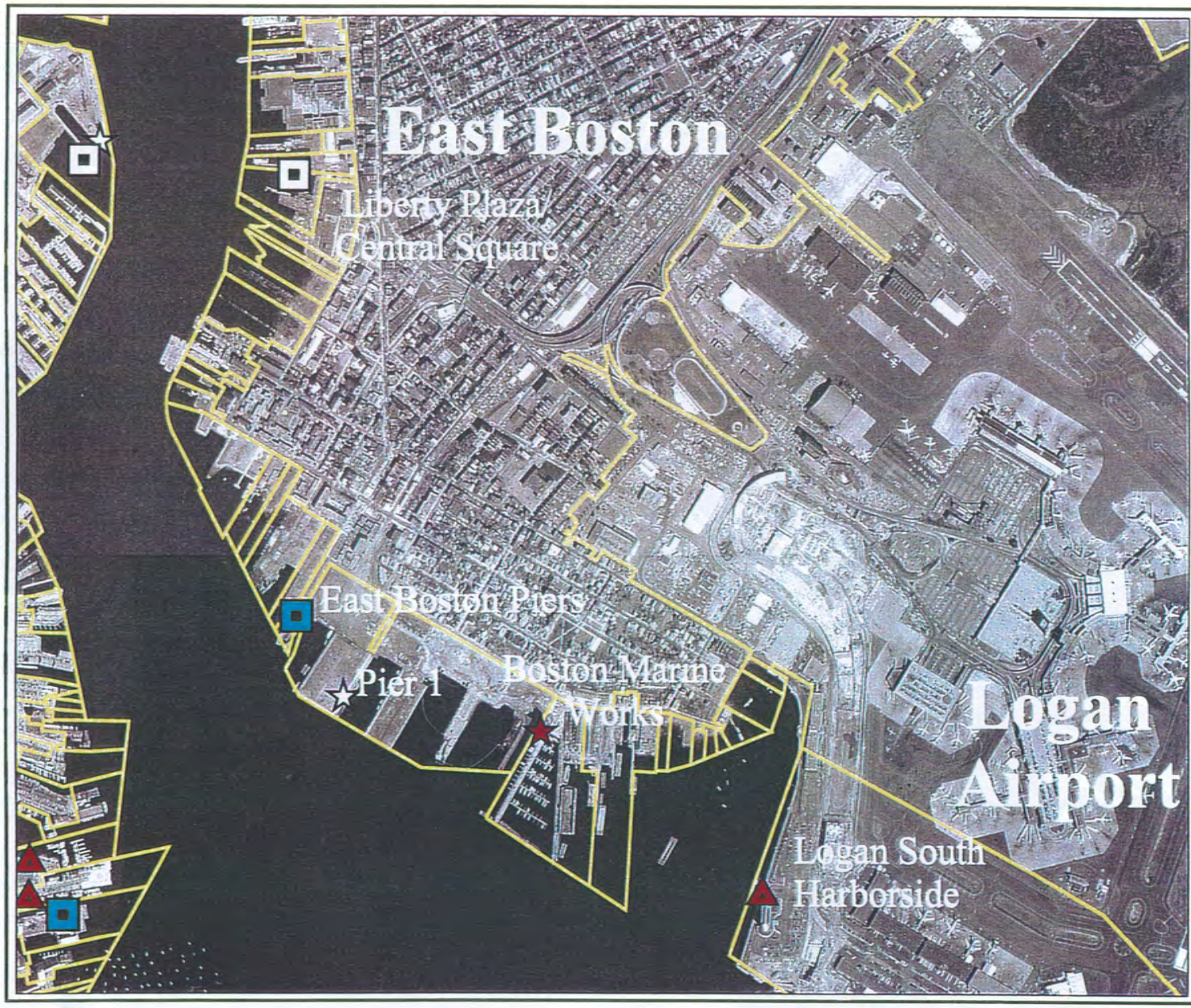


Figure 1.42
South Boston Waterfront Aerial

500' 0 1000' 2000'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TRANSPORTATION CONCEPT PLAN

KEY

- ▲ Primary Sites - Existing
- △ Primary Sites - Potential
- ■ Secondary Sites - Existing
- ▣ Secondary Sites - Potential
- ★ Service Sites - Existing
- ☆ Service Sites - Potential

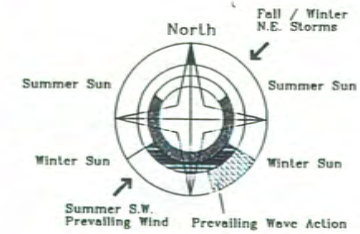
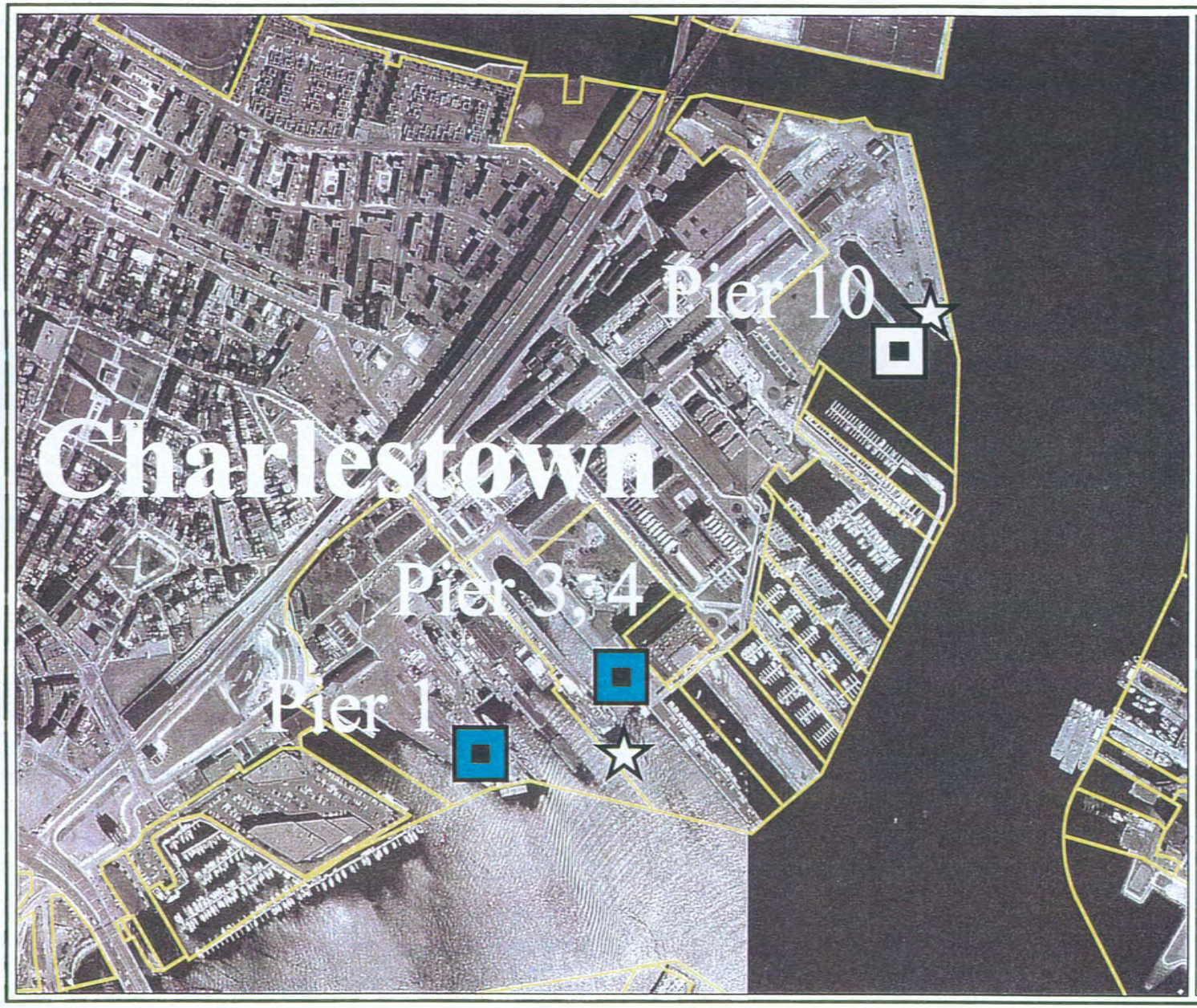


Figure 1.43
East Boston
Aerial

500' 0 1000' 2000'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TRANSPORTATION CONCEPT PLAN

KEY

- Primary Sites - Existing
- Primary Sites - Potential
- Secondary Sites - Existing
- Secondary Sites - Potential
- Service Sites - Existing
- Service Sites - Potential

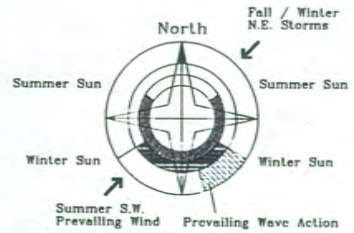


Figure 1.44
Charlestown
Aerial

250' 0 500' 1000'

December, 1998

TAMS

2.

INVENTORY OF BOSTON HARBOR FERRIES: Facilities, Services and Water Transportation Plans

2.0 Inventory of Boston Ferry Facilities, Services and Water Transportation Plans

2.1 Historic Ferry Routes: The Primary Transportation System

Local and coastal ferries were once the principal means of transportation in Boston and New England. Traditional inner harbor ferry systems provided the links across Boston Harbor and its many embayments as critical intermodal city and regional travel systems. Many roadways and landside transit connections terminated at ferry landings. The first public ferry charter was licensed by the Great and General Court in 1630 for a route from Boston to Cambridge, with the revenues supporting Harvard College. Coastal intercity steamer routes operated on year-round and seasonal schedules docked at the downtown core pier area along Atlantic Avenue. Routes linked Boston to the north and south shores, as well as well as to more distant ports such as Yarmouth, Nova Scotia, Portland, New York, and Philadelphia. At the height of their use by 1900, ferries were used extensively to cross the harbor to East Boston and Chelsea, as well as for rail connections such as the Rowes Wharf - Lynn narrow gauge link.

The history of ferries in connecting Downtown Boston and East Boston is representative of the role that ferries once played as critical link in the metropolitan transportation system. Ferry services played a critical role in transportation from East Boston to the downtown waterfront through the middle of the 20th century, when the vehicle and transit tunnels were built. East Boston was built on several harbor islands, the primary of which was originally known as Noddle's Island, and grew rapidly from 8 residents in 1833 to over 30,000 at the peak of the maritime industry in the 1880's. As shown in Figure 2.2, Historic Ferry Routes, there were at least three regularly scheduled passenger and vehicle ferries in 1886,, and the waterfront served as a major shipping and shipbuilding component of the Boston economy. In 1890, it is reported that the two city-run East Boston lines carried over 10,200,000 foot passengers and over 900,000 horse drawn vehicles. The residents of the thriving maritime industrial neighborhood complained of the one cent fare as being "discriminatory and oppressive."

With the construction of the Callahan and Sumner Tunnels, along with the Blue Line tunnel in the 1940's and 50's, the need for the daily ferries declined rapidly, although there was an overlap for several years of the Peoples Ferry, which ran from Maverick Wharf at the south end of Border Street to Battery Wharf in the North End. After an absence of nearly 30 years, ferry services resumed to East Boston, in the late 1980's with the start-up of downtown shuttle service connecting the new Logan South terminal at the airport to Rowes Wharf.

Current and emerging routes throughout the harbor often follow historic patterns, and utilize terminals at many of the same piers which once served the steamer and inner harbor ferry fleets. Such historic intermodal pathways can be instructive in enhancing existing terminals and in establishing new terminal locations.

Evolution of inner Harbor Ferry Operations: Key events in the evolution of inner harbor related ferry services are included in the following chronology. Several different sources were used including Portrait

of a Port by Bainbridge Bunting (1971), American Ferryboats by John Perry (1957), King's Handbook of Boston Harbor by M. F. Sweetser (1883), Ferries of America by Sarah Bird Wright (1987), and the Massachusetts Ferry Project by Boelter Associates (1997).

Boston Harbor Ferry Chronology:

- 1630-31: First licensed ferry in Massachusetts operated from Boston to Charlestown, with revenues supporting Harvard College.
- 1631: Winnesimmett ferry operations initiated from Chelsea to Charlestown and Boston.
- 1635: Boston to Cambridge penny ferry established.
- 1637: Neponset River crossing established along the road to Boston.
- 1638: Fore River Ferry route established.
- 1700's: Multiple routes continued as river crossings until first bridges were built.
- 1829: First coastal steamboat routes begin operation with the establishment of the Boston Hingham Steamboat company. The *Eagle* provides service from Boston to several north and south shore ports.
- 1831: Steam ferries introduced on the Winnessimmett service.
- 1833: First Boston to East Boston ferry service begins.
- 1852: East Boston Ferry Company established with service from Sargent's Wharf to Lewis Street. City management of ferry starts in 1870.
- 1853: The Peoples Ferry established with competing East Boston service with a north end connection from Lincoln Wharf to Border Street. City management starts in 1864.
- 1860's: "Fast" Steamer service begins from Boston to Nantasket marking a new era in seasonal excursion or leisure ferry service.
- 1875: Feeder ferry for the Boston, Revere & Lynn Railroad narrow gauge line with a terminal between Rowes and Fosters Wharves. Ferry-rail link continues until 1940.
- 1890: The East Boston ferries carry over 10,200,000 foot passengers and 900,000 carriages per year.
- 1900-1920: Peak period of passenger ferry operations as daily transit and seasonal excursion services, prior to construction of bridges and tunnels across the harbor and rivers.
- 1952: The Peoples Ferry from East Boston ceases to operate after several years of competition with the vehicular tunnels and Blueline transit service.
- 1975: Boston to Hingham service reestablished by Mass Bay Lines. State assistance provided in 1977.
- 1984: Boston to Hingham service expanded with state assistance as commuter relief for Southeast Expressway construction, with private operators managed by the MBTA.
- 1985: Rowes Wharf to Logan Airport Shuttle service initiated as a demonstration project by Massport in conjunction with Rowes Wharf development.
- 1987: Long Wharf to Charlestown Navy Yard Shuttle service initiated by the state as mitigation for the Central Artery North Area (CANA) construction, managed by the MBTA. First accessible terminal added at Pier 4 in the Navy Yard in 1989.
- 1996: East Boston service revived from Long Wharf to Lewis Street managed by the MBTA.
- 1997: Service from North Station/Lovejoy to South Boston/World Trade Center initiated as mitigation for the Central Artery Third Harbor Tunnel project, managed by the MBTA.

- 1997: Quincy/Fore River to Logan Airport and Long Wharf service initiated by Harbor Express with state of the art fast catamarans.

2.2 Existing Services and Functions:

A functional classification of ferry systems in Boston Harbor was needed in order to assess current ferry operations and to project the route and terminal needs for the future.

Existing Services and Functional Categories: Current ferry operations include various combinations of year round and seasonal services, commuter transit and recreational functions. The focus of this report is on those year round and seasonal services which provide point to point transit connections. Seasonal excursion and charter services are vital to the harbor ferry system and share terminal space with the transit services and will continue to do so. However, they have not been included in the route analyses in this report since such services generally do not provide point to point transportation service, but are characteristically "out-and-back" type excursions. For purposes of this plan, ferry functions with point to point transit components were divided into several categories which reflect the current operation patterns:

- **Year Round Commuter to Work Transit Services** (Described in maps and tables as "Transit Ferry Services"):
  - Inner Harbor Transit such as the Long Wharf to Pier 4 Navy Yard route, and the Rowes to Airport Shuttle.
  - Outer Harbor Transit such as the Hingham to Rowes, and the Quincy Fore River to Airport and Long Wharf routes.

- **Seasonal Excursion Transit Services** (Described in maps and tables as "Excursion Ferry Services"):
  - Inner Harbor shuttles such as the Water Taxi and Cultural Loop services.
  - Outer Harbor excursion routes including the Harbor Islands Park service and the World Trade to Provincetown service.

A series of route maps were prepared based on an inventory of the existing and potential services in the Inner Harbor. The route map bases included all types and locations of both existing and proposed terminal sites, which are described in greater detail in Chapter 3.

- **Primary Sites**
  - Existing
  - Potential
- **Secondary Sites**
  - Existing
  - Potential
- **Service Sites**
  - Existing
  - Potential

The routes were also divided into several classifications which generally reflected distances traveled, route purpose, and vessel size required.

- **Inner Harbor Transit Routes**
  - Existing
  - Potential
- **Outer Harbor Transit Routes**
  - Existing
  - Potential
- **Excursion Routes**
  - Existing
  - Potential
- **Cultural Loop/Water Taxi Routes**

Existing services are represented by typical vessels shown in the photos in Figures 2.1A and 2.1B. Each route is generally served by different sets of vessel types. For example the water taxis are generally smaller more open vessels with passenger capacities of under 20 persons, designed for short hops and quick landings around the inner harbor. The inner harbor shuttle vessels carry 40 to 100 passengers, for short trips and quick loading times. The south shore commuter vessels and new Provincetown ferries are fast catamarans with capacities of 150 to 350 passengers. Conventional monohull ferries serve the Harbor Islands and traditional Provincetown routes, with capacities in excess of 500 passengers.

Route maps for existing and potential services are broken down into several service classification categories and include the following:

- **Inner Harbor Transit Routes - Existing (Figure 2.3) :** The following year round transit routes were operating in the inner harbor in 1999.

  1. Pier 4 / Charlestown Navy Yard to Long Wharf: by Boston Harbor Cruises (BHC) under contract to the MBTA; 7 days/week.
  2. Rowes Wharf to Logan Airport: by Rowes Wharf Company; 7 days/week.
  3. Lovejoy Wharf to Federal Courthouse to World Trade Center: by BHC under contract to the MBTA; 5 days/week.
  4. Lovejoy Wharf to Pier 4 / Charlestown Navy Yard: by BHC under contract to MBTA; 5 days/week.
  5. Long Wharf to Logan Airport: by Harbor Express (HE); 7 days/week.

- **Inner Harbor Transit Routes - Existing and Potential (Figure 2.4) :** Additional potential routes identified included:

  1. Lovejoy to Pier 4 to Logan Airport: Potential expansion of existing Lovejoy to Pier 4 route; 7 days/week.
  2. East Boston / Liberty Plaza to Pier 4: Potential new linking service to Pier 4 routes; 7 days/week.
  3. East Boston / Lewis Mall to Rowes Wharf: Potential to revive East Boston service to

downtown; 7 days/week.

4. World Trade Center to Logan Airport: Potential new airport shuttle; 7 days/week.
5. Russia Wharf to Pier 4: Committed new service to operate connecting South Station area to Charlestown; 7 days/week.
6. Pier 10 / Charlestown Navy Yard to Rowes Wharf: Future potential route as Yards End area of the Navy Yard is built out; 5 days/week.

- **Outer Harbor Transit Routes - Existing (Figure 2.5) :** The following longer distance, year round, commuter transit routes were operating in 1999.

1. Hingham / Hewitts Cove to Rowes Wharf: Operated by BHC by contract with the MBTA and by Massachusetts Bay Lines (MBL); 6 days/week.
2. Hull / Point Pemberton to Long Wharf: Operated by Harbor Express under contract to the MBTA; 5 days/week.
3. Quincy / Fore River to Logan Airport to Long Wharf: Operated by HE; 7 days/week.
4. Rowes to Deer Island: Operated by BHC under contract to the Massachusetts Water Resources Authority; 5 days/week primarily for Deer Island contractors and employees, and part time for visitors (until facility construction is complete).
5. Pier 4 to Deer Island: Operated by BHC (same as above route).

- **Outer Harbor Transit Routes - Existing and Potential (Figure 2.6) :** Additional potential transit routes would include:

1. Salem to Downtown (Long or Rowes): Potential for year-round Salem (or other North Shore towns) to downtown; 5 days/week. The currently operating service is seasonal and does not offer commuter service after November.
2. Scituate to Downtown (Long or Rowes): Potential service from South Shore; 5 days/week. A feasibility study was being completed in the fall of 1999, titled Scituate Ferry Feasibility Study, for the Town of Scituate. (Not shown on map)

- **Excursion Transit Services - Existing (Figure 2.7) :** Current inner harbor excursion services providing point to point transit links in 1999 included:

1. Long Wharf / Rowes Wharf to Pier 1 / Navy Yard: Operated by BHC and MBL seasonally for visitors to the U.S.S. Constitution and Navy Yard Park; 7 days/week.
2. Boston Water Taxi: Operated seasonally connecting numerous on call landings throughout the inner harbor; 7 days/week.
3. Long to Pier 4 / Navy Yard: Various inner harbor shuttle operations provide important intermodal services for visitors to view the harbor and specific waterfront sites; 7 days/week.
4. Salem to Downtown (Long or Rowes): Seasonal route operated by BHC for visitors to Salem and for residents from Salem to downtown.

- **Excursion Transit Services - Existing and Potential (Figure 2.8) :** Additional seasonal excursion routes include the following:

Inner Harbor:

1. Cultural Loop: Various stops including the Children's Museum/ Boston Tea Party, Rowes Wharf, World Trade Center, Aquarium, Hanover Street, Fleet Center, Constitution, and Lovejoy; seasonal; 7 days/week.
2. Lewis Mall to Long Wharf: Seasonal; 7 days/week.
3. World Trade Center to Rowes to Pier 4 / Navy Yard: Seasonal; 7 days/week.

Outer Harbor / Massachusetts Bay:

4. Downtown to Scituate: Seasonal; 7 days/week.
5. Downtown to Deer Island via Spectacle Island: Seasonal visitor route to Harbor Islands and Deer island; 7 days/week.
6. Downtown to Hull (Nantasket): Seasonal; 7 days/week.
7. Downtown to Cape Cod and Provincetown: Seasonal; 7 days/week.

- **All Transit and Excursion Services - Existing (Figure 2.9) :** The composite map of all existing transit and excursion services includes all routes described in Figures 2.3, 2.5, and 2.7. The routes include year round and seasonal services with varying weekday and weekend schedules. The services are provided by six different operators.

- **All Transit and Excursion Services - Existing and Potential (Figure 2.10) :** The composite plan for existing and potential services includes all routes shown in Figures 2.3, 2.4, 2.5, 2.6, 2.7 and 2.8. The services would be operated by the six existing operators plus potential new operators.

2.3 Ferry Service and Ridership Growth in the Past Decade: 1988 - 1998

Service and Route Expansion: Existing transit and excursion services are shown in Figure 2.29. With few exceptions, the majority of the existing transit and excursion routes have origins or destinations at docks in the downtown core zone. The existing routes are served by multiple private operators who utilize a wide variety of vessel sizes and performance characteristics in the existing ferry fleet. They range from older, slower multi-deck excursion ferries, to the converted Gulf of Mexico crewboats used on commuter runs to the most recent state of the art fast catamarans which are among the most advanced in the nation.

Recreational and excursion services have also grown and diversified with the addition of dinner cruises, whale watches, harbor tours, charters, and the largely land-based amphibian Duck Boats. The report focuses, however, on those excursion services which actually provide a seasonal transit function. Inner harbor routes in this category would include downtown (Long or Rowes Wharves) to in the Navy Yard (Pier 1 or Pier 4), the Cultural Loop, and other weekend and off-peak weekday services. Outer Harbor services would include the seasonal Harbor Islands routes from Downtown to Georges, and the World Trade to Provincetown route, soon to be upgraded in 1999 with catamaran service. It should be noted that those excursion services that do not provide a point to point transit function are often accommodated at

the same or adjacent berthing areas as the scheduled transit ferries, and the terminals shown often include substantial amounts of such vessel berthing.

Ridership Growth in the Past Decade: Ridership and route surveys indicate that much of the resurgence in ferry use has occurred during the past 10 years, particularly for year round commuter functions. During that period, new inner harbor services were introduced, including the Long Wharf to Navy Yard shuttle, the Long Wharf to Airport shuttle, the Lovejoy to Navy Yard shuttle, and the Lovejoy to World Trade Center via Federal Courthouse shuttle. New outer harbor year round services include the Quincy/Fore River to Logan and Long Wharf route which operates 7 days a week, and seasonal service from Salem to Downtown, as well as the MWRA passenger services to Deer Island from Quincy/Marina Bay and Pier 4/Navy Yard. All types of ferry service ridership have grown in terms of passengers carried during the past decade, with the largest percentages of increase occurring in the transit type inner harbor shuttles and outer harbor commuter services.

Terminal facilities and berthing space for transit during this decade have not expanded to keep pace with the cumulative growth of demand for transit and recreation routes. Downtown dockage is operating at capacity during the peak use summer months.

The new higher speed vessel technologies introduced in the past three years include 4 new fast catamarans operated by Harbor Express and Boston Harbor Cruises, and 1 operated by Bay State Cruises (BSC). These vessels have provided faster, more competitive alternatives to landside auto and transit commuting options along south shore corridors from Quincy, Hingham and Hull to the airport and downtown by HE and BHC, and to Provincetown by BSC. They are also more effective as excursion carriers during off peak and weekend periods on charters and whale watch expeditions.

2.4 Ferry Ridership Projections and Route Expansion: 1999 - 2010

Future Ferry Ridership Could Triple by 2010: Ridership projections for transit ferries during the next ten years are surprisingly significant, indicating that potential growth of all existing and new services could triple current annual levels for commuter and excursion transit ferries combined. The total potential ridership growth calculations are summarized in Table 2.5, based on previous market demand studies completed in the past ten years. The projected growth includes expansion of year round inner and outer transit services as well as seasonal excursion transit routes.

Ferry Ridership Growth Projections: While the total annual ridership numbers of ferries appear to be relatively small compared to major regional land based transit systems, they provide increasingly more attractive travel alternatives to numerous north and south shore coastal communities. In attracting new regular riders, they also are beginning to add up to significant numbers when translated into reduction of auto trips along congested corridors, most notably the Southeast expressway, and easing the burden on downtown and inner city neighborhood traffic and parking congestion. For example, all of the Harbor Express airport riders are eliminating two way auto trips through South Boston, downtown and East Boston. As such the commuter and airport shuttle routes are a benefit to Boston in easing congestion and should continue to be supported with the objective of substantially increasing ridership.

The ridership growth calculations are summarized in a series of tables derived by synthesizing results of previous market demand studies completed in the past ten years and updating those projections based on current ridership counts.

- Table 2.1 summarizes Potential Inner Harbor Transit Route Ridership Growth, and corresponds to routes shown in Figure 2.4.
- Table 2.2 summarizes Potential Outer Harbor Transit Route Ridership Growth, and corresponds to routes shown in Figure 2.6.
- Table 2.3 summarizes Potential Inner Harbor Excursion Route Ridership Growth, and corresponds to routes shown in Figure 2.8.
- Table 2.4 summarizes Potential Outer Harbor Excursion Route Ridership Growth, and corresponds to routes shown in Figure 2.8.
- Table 2.5 summarizes All Potential Inner and Outer Harbor Transit and Excursion Route Ridership Growth, and corresponds to routes shown in Figure 2.10.

Table 2.1 Ridership Growth by Route - Inner Harbor Transit

Ferry RouteType	Operator	1988 Ridership (annual)	1994 Ridership (annual)	1997 Ridership (annual)	% Growth 10 years	Projected 2010 ridership (annual)	Projected % Growth 1998 - 2010
Pier 4/CNY to Long Wharf *	MBTA/ BHC	Not Operating	210,566	270,058	100%	384,000**	
Rowes to Logan (Airport Shuttle)	Massport/ Rowes Wharf	(Not Found)	197,615	132,542	?	544,000**	
Lovejoy to WTC	MBTA/ BHC	Not operating	Not operating	3,174 (5 month)	100%	544,000**	
Lovejoy to Pier 4/ CNY *	MBTA/ BHC	Not operating	Not operating	5,893 (5 month)	100%		
Lovejoy to Pier 4 to Logan	MBTA?	Not operating	Not operating	Not operating	-	358,000**	
Long Wharf to Logan (Airport Shuttle)	Harbor Express	Not operating	Not operating	Not available	100%	25,000(est.)	
East Boston to Long Wharf *#	MBTA/ BHC	Not operating	Not operating	14,508	100%	38,000(est.)	
Pier 4/CNY to Russia	MBTA?	Not operating	Not operating	Not operating	-	224,000**	
TOTALS				**426,175**		**2,100,000**	492%

* Route also serves excursion function during off-peak periods
** Projections from "1994 Boston Inner Harbor Water Transportation Study"
# Recent service discontinued.

Table 2.2 Ridership Growth by Route - Outer Harbor Transit 3/7/99

Ferry RouteType	Operator	1988 Ridership (annual)	1994 Ridership (annual)	1997 Ridership (annual)	% Growth 10 years	Projected 2010 ridership (annual)	Projected % Growth 1998 - 2010
Hingham to Rowes/ MBTA	MBTA/BHC		568,110	558,186		1,025,000**	
Hingham to Rowes/ MBL	MBL		Not operating	204,632			
Hull / Pemberton to Long	Harbor Express			38,000		51,000**	
Quincy (Shipyard) to Logan	Harbor Express	Not operating	Not operating	85,794		200,000#	
Quincy (Shipyard) to Long *	Harbor Express	Not operating	Not operating	Not operating		400,000#	
Salem to Logan & Long *	BHC	Not operating	Not operating	Not operating		Not Available	
MWRA/ Rowes to Deer Island	MWRA/Revere-Lynn	Not operating	Not available	410,000		Not Available	
MWRA/ Pier 4 CNY to Deer Island	MWRA/ Revere-Lynn	Not operating	Not available			Not Available	
TOTALS				**886,612**		**1,676,000**	189%

* Route also serves excursion function during off-peak periods
** No projections from previous studies: estimate based on 3% annual ridership growth
*** Interpolated projections from "1988 Logan Airport/Boston Harbor Water Transportation Study"
# Operator projections

Table 2.3 Ridership Growth by Route -Inner Harbor Excursion

Ferry RouteType	1997 Operator	1988 Ridership (annual)	1994 Ridership (annual)	1997 Ridership (annual)	% Growth 10 years	Projected 2010 ridership (annual)	Projected % Growth 1998 - 2010
Cultural Loop#	Bos. WaterTaxi	Not operating	Not operating	6,748		9,100*	
Water Taxi	City Water Taxi	Not operating	Not operating	9,636		13,000*	
Long to Pier 1/ CNY	BHC	Not available	Not available	50,000			
Rowes to Pier 1/ CNY	MBL	Not available	Not Available	-		505,000**	
WTC to Fan Pier to Pier 4	Not operating	Not operating	Not operating	-			
TOTALS				66,384		527,000	790%

* No projections from previous studies: estimate based on 3% annual ridership growth
** Projections from "1994 Boston Inner Harbor Water Transportation Study"
# Recent service discontinued.

Table 2.4 Ridership Growth by Route -Outer Harbor Excursion

Ferry RouteType	Operator	1988 Ridership (annual)	1994 Ridership (annual)	1997 Ridership (annual)	% Growth 10 years	Projected 2010 ridership (annual)	Projected % Growth 1998 - 2010
Wharf 8 to Gloucester	AC Cruise Lines	Not available	Not available	11,000*		14,800**	
WTC to Provincetown	Baystate/Spirit Cruises	Not available	Not available	55,000*		74,000**	
Long to Harbor Islands	DEM-MDC/ BHC	120,000 total approx. / multiple operators	75,000 total approx./ single operator	95,000*		250,000***	
Downtown to Hingham #	BHC, MBL	Not available	Not available	Not available		?	
Downtown to Quincy/ Fore River #	HE	Not operating	Not operating	Not available		?	
Downtown to Salem #	HE (demo1998)	Not operating	Not operating	Not operating		?	
Downtown to Scituate #	-	Not operating	Not operating	Not operating		?	
Downtown to Nantasket #	-	Not operating	Not operating	Not operating		?	
TOTALS:				**161,000**		**339,000**	210%

* Estimated from 1997 Massachusetts Ferry Project

** No projections from previous studies: estimate based on 3% annual ridership growth

*** Estimated based on current Harbor Islands Ferry Study and preliminary medium level visitation projections

\# Represents off-peak excursion (non-commuter) ridership on commuter routes

Table 2.5: Ridership Projections by Route - Summary of All Inner and Outer Transit and Excursion Harbor Services

Ferry RouteType	Operators	Existing Services: 1997 Ridership (annual)	Existing Services: Projected 2010 Ridership (annual)	Potential New Services(Next 10 years): Projected 2010 Ridership (annual)	Total Projected 2010 Ridership (annual)	Projected % Growth: 1998 - 2010
Inner Harbor Transit	BHC, HE, Rowes	426,000	1,535,000	582,000	2,100,000	490%
Outer Harbor Transit	BHC, MBL, HE	886,600	1,276,000	400,000	1,676,000	190%
Inner Harbor Excursion	CWT, BHC, MBL	66,384	190,400	336,000*	527,000	790%
Outer Harbor Excursion	ACC, BAY, BHC, MBL, HE	161,000	339,000	? (No Projections Available)	339,000	210%
TOTALS	**7 Operators**	**1,540,000**	**3,340,000**	**1,318,000**	**4,658,000**	**302%**

* Includes Cultural Loop
ACC - A.C. Cruise Lines
BHC - Boston Harbor Cruises
CWT - City Water Taxi
HE - Harbor Express
MBL - Mass. Bay Lines
Rowes - Rowes Wharf Airport Shuttle

Potential new transit and excursion services are shown in Figure 2.8. New year round transit services are planned for the inner harbor, as well as the north and south shore to downtown, in addition to expansion of existing services. Seasonal recreational transit services are planned including restoration and expansion of the Cultural Loop, modified and expanded Harbor Islands Park routes, seasonal connections to the north and south shore, and increased service to the Cape including Provincetown.

The potential exists for further expansion of these types of ferry service, as well as a longer haul auto and passenger ferry services from Boston to Maine and/or Nova Scotia, highspeed links to other Massachusetts Bay ports, and a variety of new inner harbor links in response to new waterfront development initiatives. While such service analysis was beyond the scope of this report because there were no specific proposals at the time, accommodation of such routes and the larger vessels needed should be considered in the short term planning period.

Such new services will need substantially expanded and improved docking opportunities at appropriate downtown and inner harbor locations. Flexibility for expansion will need to be built into the framework of existing and new terminal sites. In keeping with the current use patterns, it is projected that over 90% of the total users by 2010 will pass through downtown core terminals en route to core work destinations and visitor attractions.

2.5 Inventory of Facilities, Services and Water Transportation Studies

Summary of Past Planning Studies for Ferry Services: The TAMS team reviewed relevant ferry planning documents, and identified the categories of summary information to be documented. Some of the information on terminal sites and ridership projections was found to be dated. For example, concept designs/cost proposals from the 1988 and 1989 Massport water transportation studies preceded adoption of ADA and MAAB compliance standards and is no longer applicable in terms of design and cost estimates. On the other hand ridership data which is 9-10 years old is generally still applicable because of limited population growth and shifts in job locations. Categories of information collected from the earlier studies include existing and proposed routes, existing and proposed terminals, and ridership demand projections. Information gathered was limited to those routes with stops in the inner harbor.

Summary Descriptions of Ferry Studies Reviewed: A limited number of ferry studies were found to be relevant to the current project.

- *Massachusetts Ferry Project*: (1997) Prepared for Massachusetts EOTC by Boelter & Associates, Inc.
- *Boston Harbor Water Transportation Study- 1994:* Prepared for Massachusetts Highway Department, Central Artery /Tunnel Project by TAMS Consultants, Inc. and Cambridge Systematics, Inc.
- *Boston Inner Harbor Water Transportation Study:* (1989) Prepared for Massport, EOTC, the Legislative Special Committee on Marine Transit, MBTA, and the Massachusetts Department of Public Works by TAMS Consultants and Charles Norris.
- *Logan Airport / Boston Harbor Water Transportation Study:* (1988) Prepared for Massport,

EOTC, and the Legislative Special Committee on Marine Transit, by TAMS Consultants and Charles Norris.

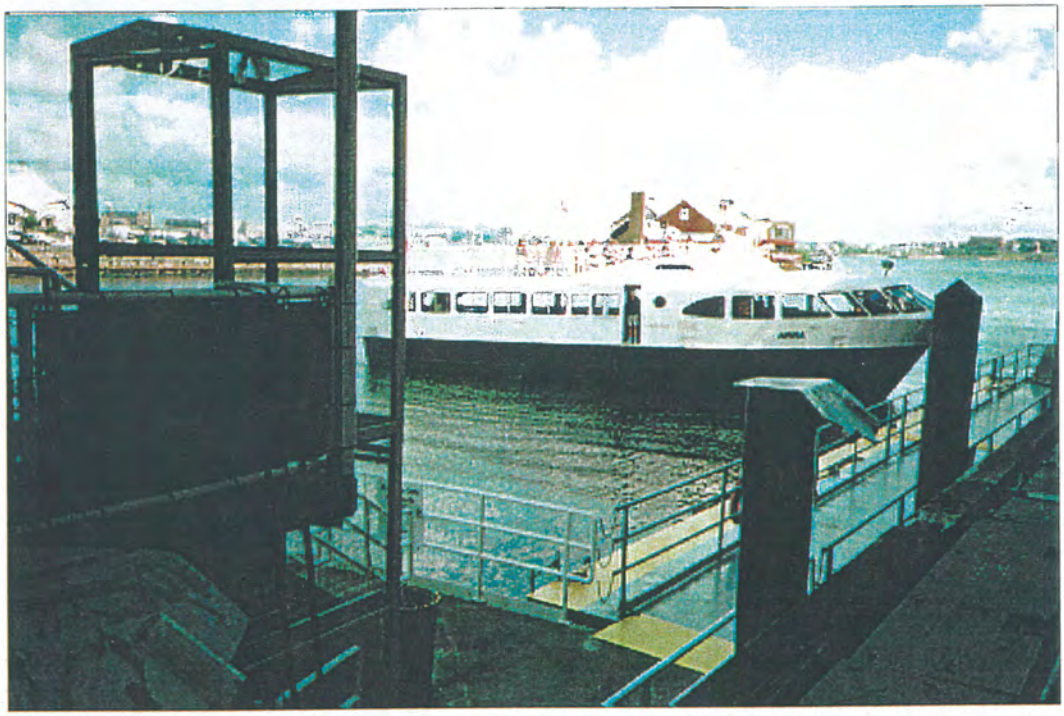
Urban Harbors Watersheet Management Database: In 1998 the Boston Harbor Watersheet Management Plan was prepared by the Urban Harbors Institute at the University of Massachusetts, Boston, for the City of Boston Environment Department. The portion of the database and mapping which covered the inner harbor was used as a base for the water transportation inventory. The route maps in Chapter 2, the terminal sitemaps in Chapter 3, and the district aerial photos in Chapter 4 were all derived from the Arc-View maps from the Watersheet Management Plan.

Boston Harbor Cruises Excursion Ferries at Long Wharf

Boston Water Taxi at Long Wharf

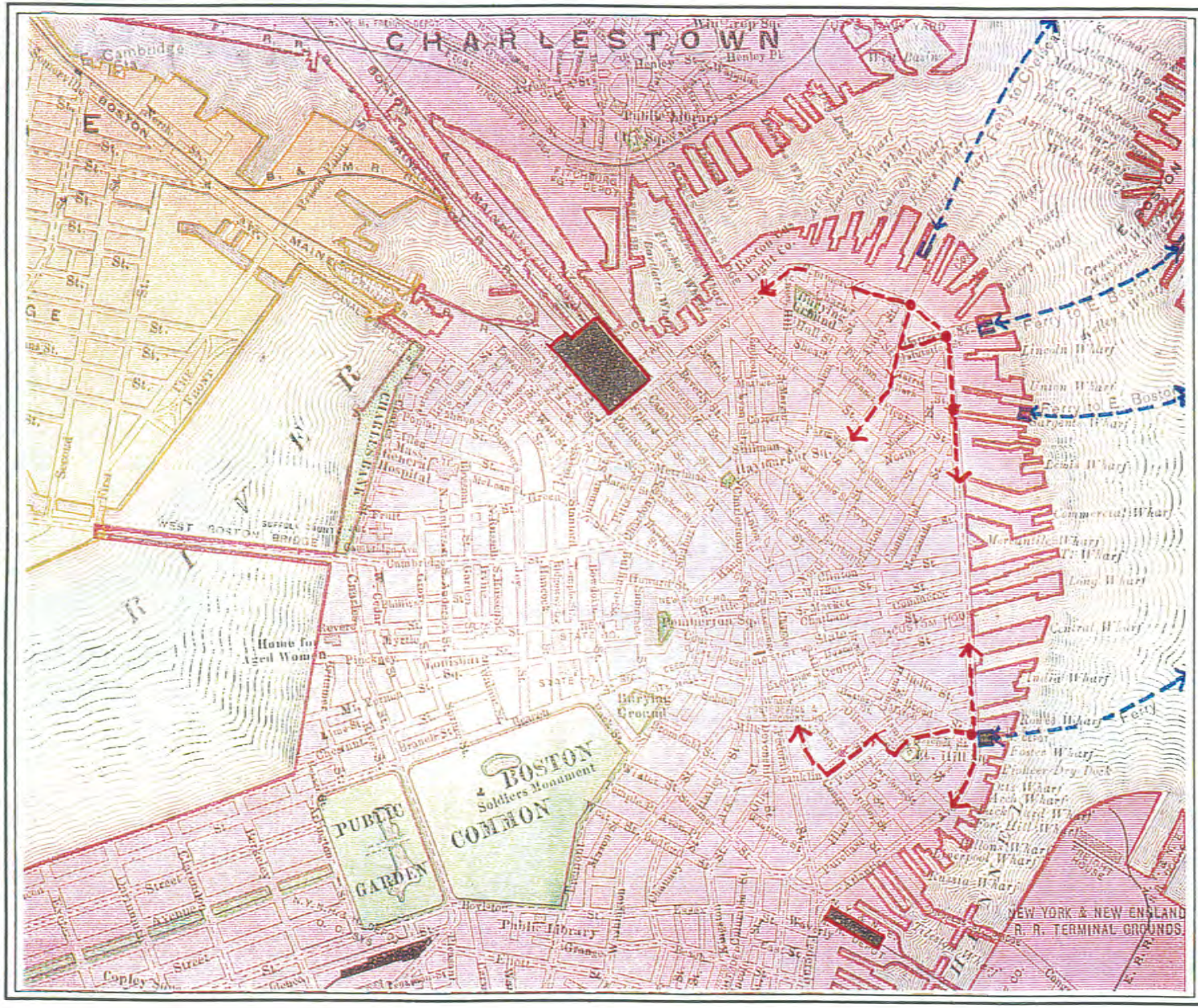
Figure 2.1A- Photos of Existing Ferry Services

Commuter Ferries at Rowes Wharf



World Trade Center/Federal Courthouse/Lovejoy Shuttle at World Trade Center

Figure 2.1B- Photos of Existing Ferry Services



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

INVENTORY

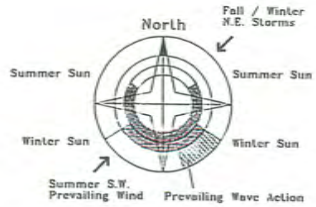


Figure 2.2
Historic Ferry Routes

December, 1998

TAMS

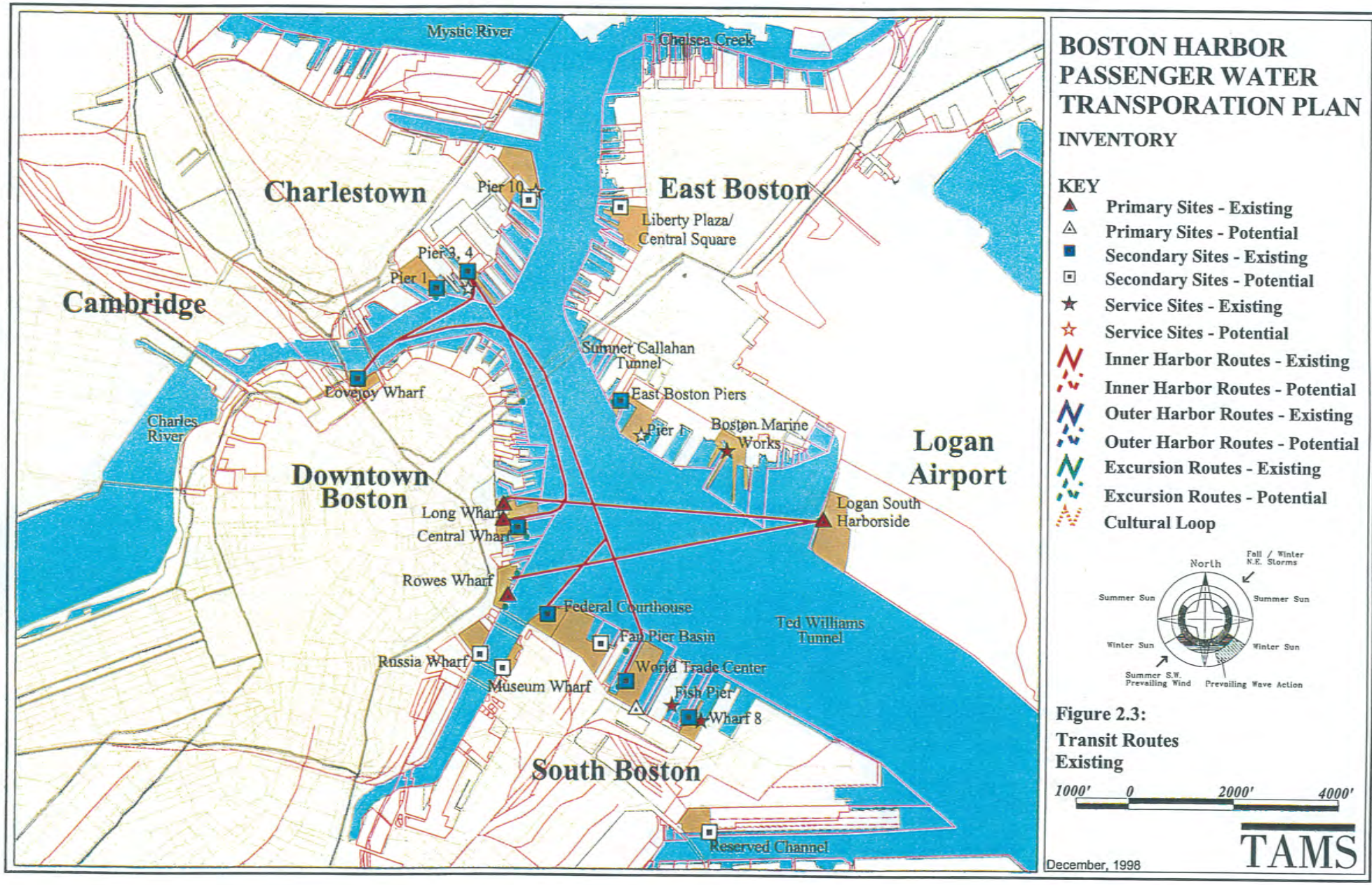
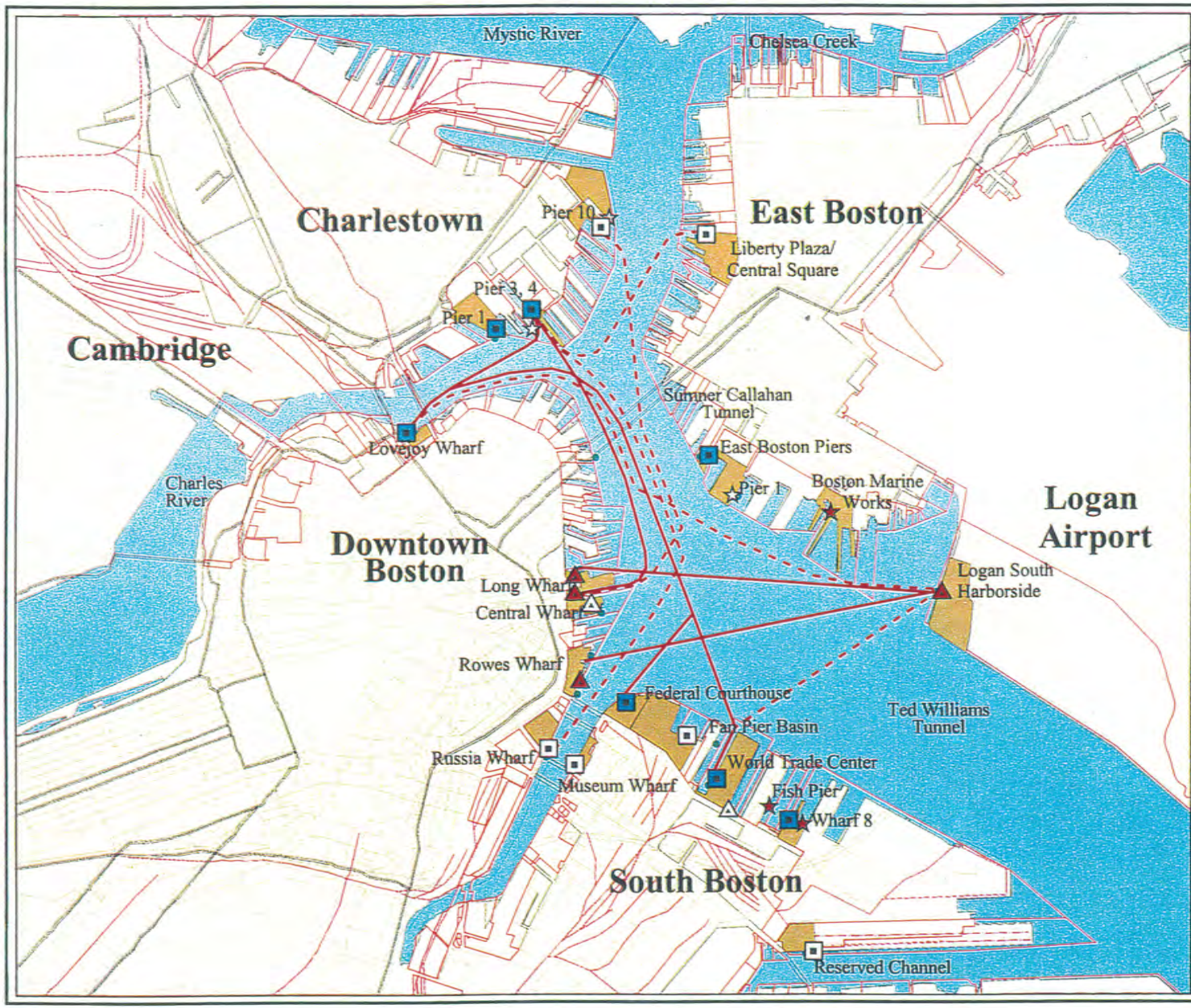


Figure 2.3:
Transit Routes
Existing



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

INVENTORY

KEY

- Primary Sites - Existing
- Primary Sites - Potential
- Secondary Sites - Existing
- Secondary Sites - Potential
- Service Sites - Existing
- Service Sites - Potential
- Inner Harbor Routes - Existing
- Inner Harbor Routes - Potential
- Outer Harbor Routes - Existing
- Outer Harbor Routes - Potential
- Excursion Routes - Existing
- Excursion Routes - Potential
- Cultural Loop

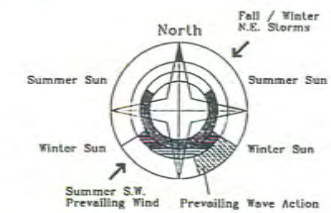


Figure 2.4:
Inner Harbor Transit Routes
Existing and Potential

1000' 0 2000' 4000'

TAMS

December, 1998

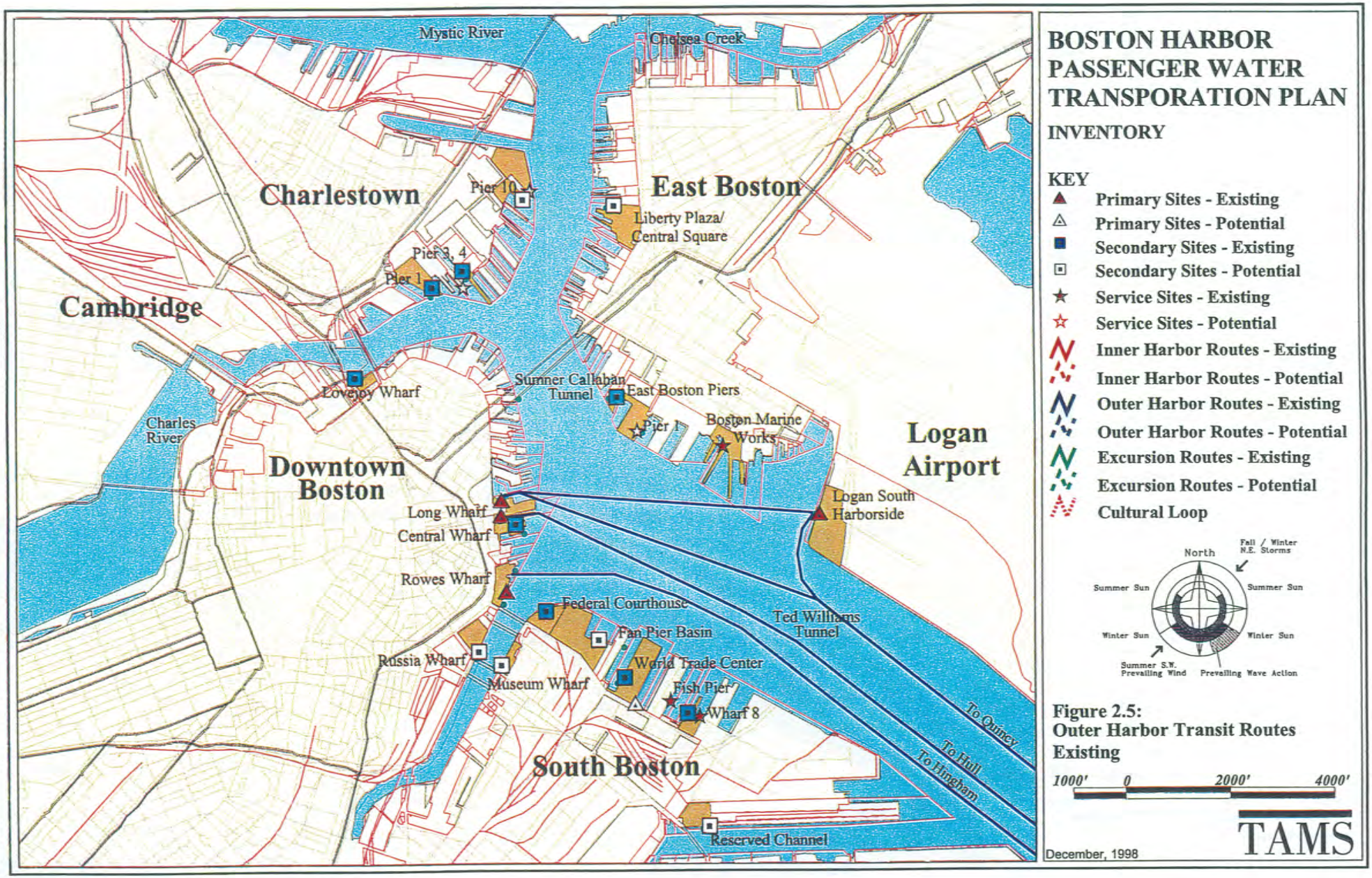
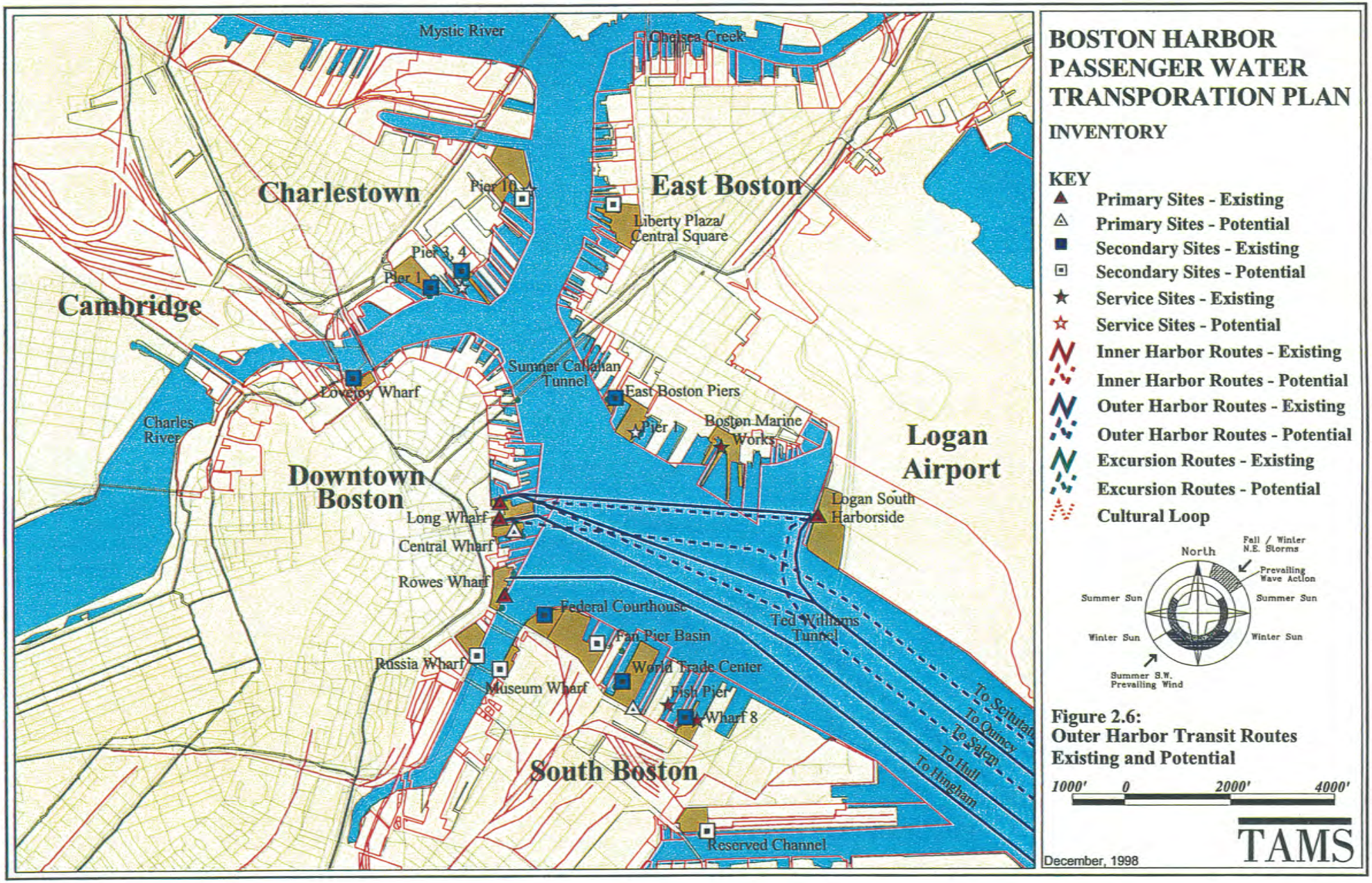


Figure 2.5:
Outer Harbor Transit Routes
Existing



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

INVENTORY

KEY

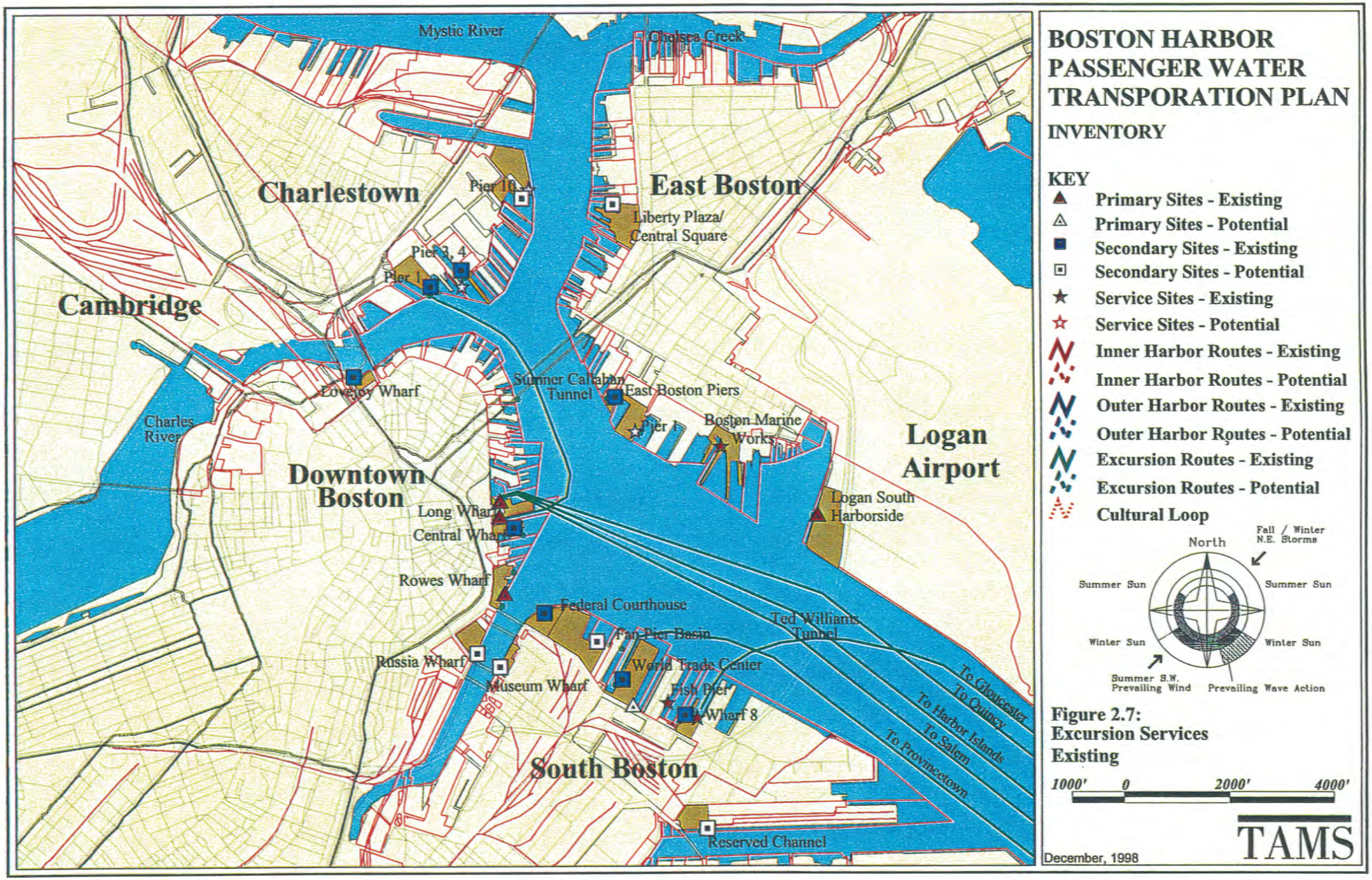
- Primary Sites - Existing
- Primary Sites - Potential
- Secondary Sites - Existing
- Secondary Sites - Potential
- Service Sites - Existing
- Service Sites - Potential
- Inner Harbor Routes - Existing
- Inner Harbor Routes - Potential
- Outer Harbor Routes - Existing
- Outer Harbor Routes - Potential
- Excursion Routes - Existing
- Excursion Routes - Potential
- Cultural Loop

Figure 2.6:
Outer Harbor Transit Routes
Existing and Potential

1000' 0 2000' 4000'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

INVENTORY

KEY

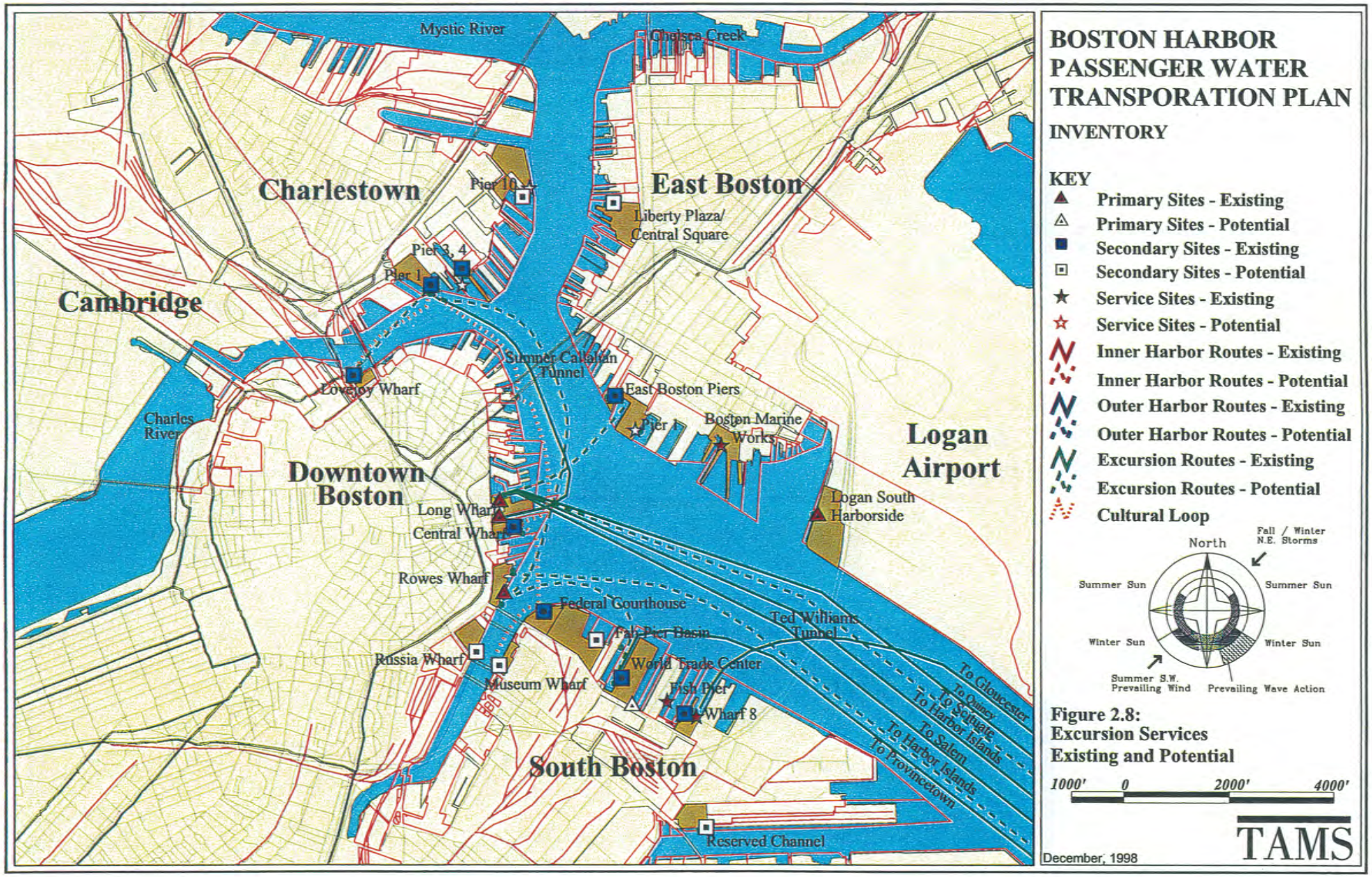
- Primary Sites - Existing
- Primary Sites - Potential
- Secondary Sites - Existing
- Secondary Sites - Potential
- Service Sites - Existing
- Service Sites - Potential
- Inner Harbor Routes - Existing
- Inner Harbor Routes - Potential
- Outer Harbor Routes - Existing
- Outer Harbor Routes - Potential
- Excursion Routes - Existing
- Excursion Routes - Potential
- Cultural Loop

Figure 2.7:
Excursion Services Existing

1000' 0 2000' 4000'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

INVENTORY

KEY

- Primary Sites - Existing
- Primary Sites - Potential
- Secondary Sites - Existing
- Secondary Sites - Potential
- Service Sites - Existing
- Service Sites - Potential
- Inner Harbor Routes - Existing
- Inner Harbor Routes - Potential
- Outer Harbor Routes - Existing
- Outer Harbor Routes - Potential
- Excursion Routes - Existing
- Excursion Routes - Potential
- Cultural Loop

Figure 2.8:
Excursion Services
Existing and Potential

1000' 0 2000' 4000'

December, 1998

TAMS

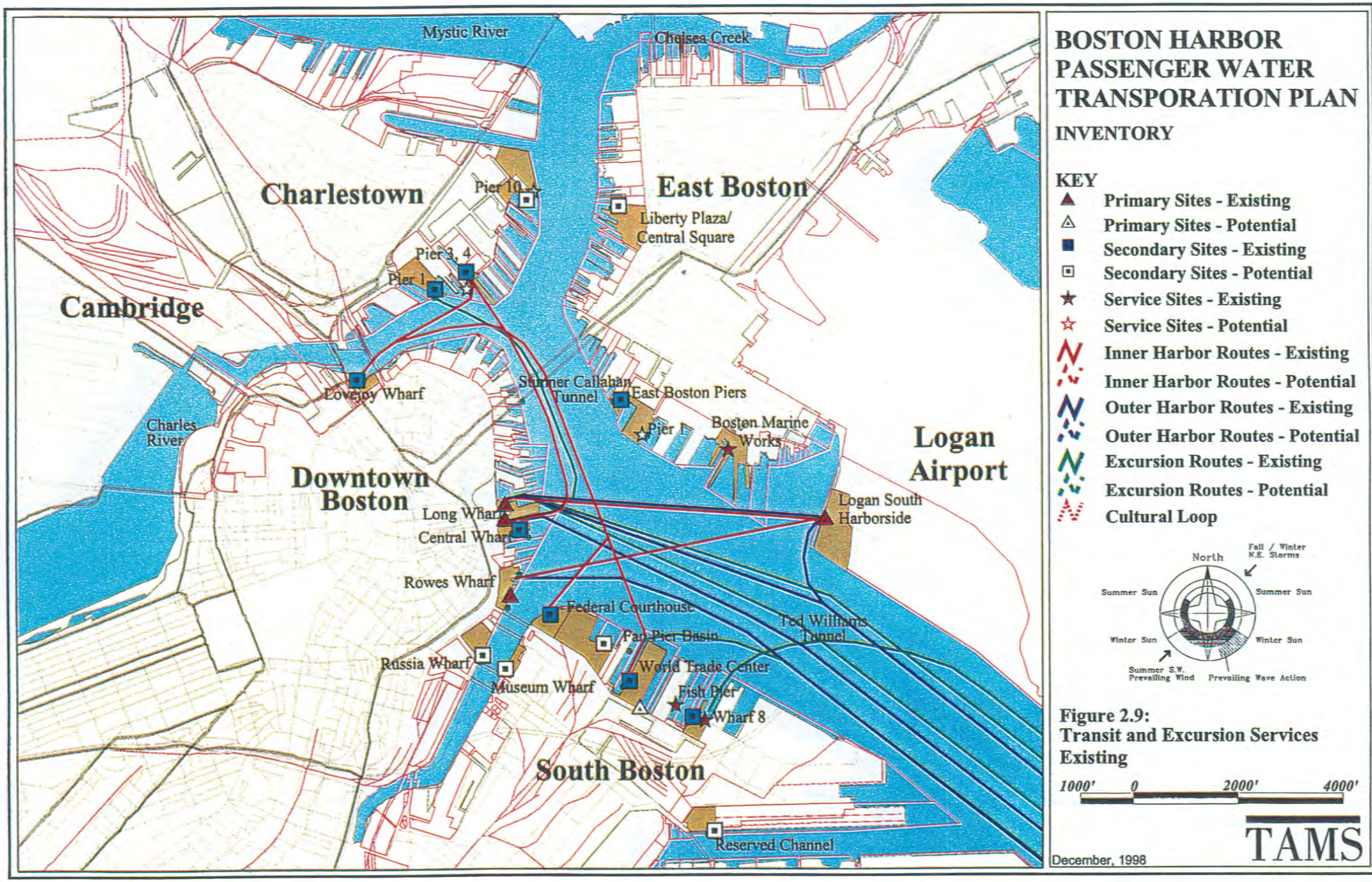


Figure 2.9:
Transit and Excursion Services Existing

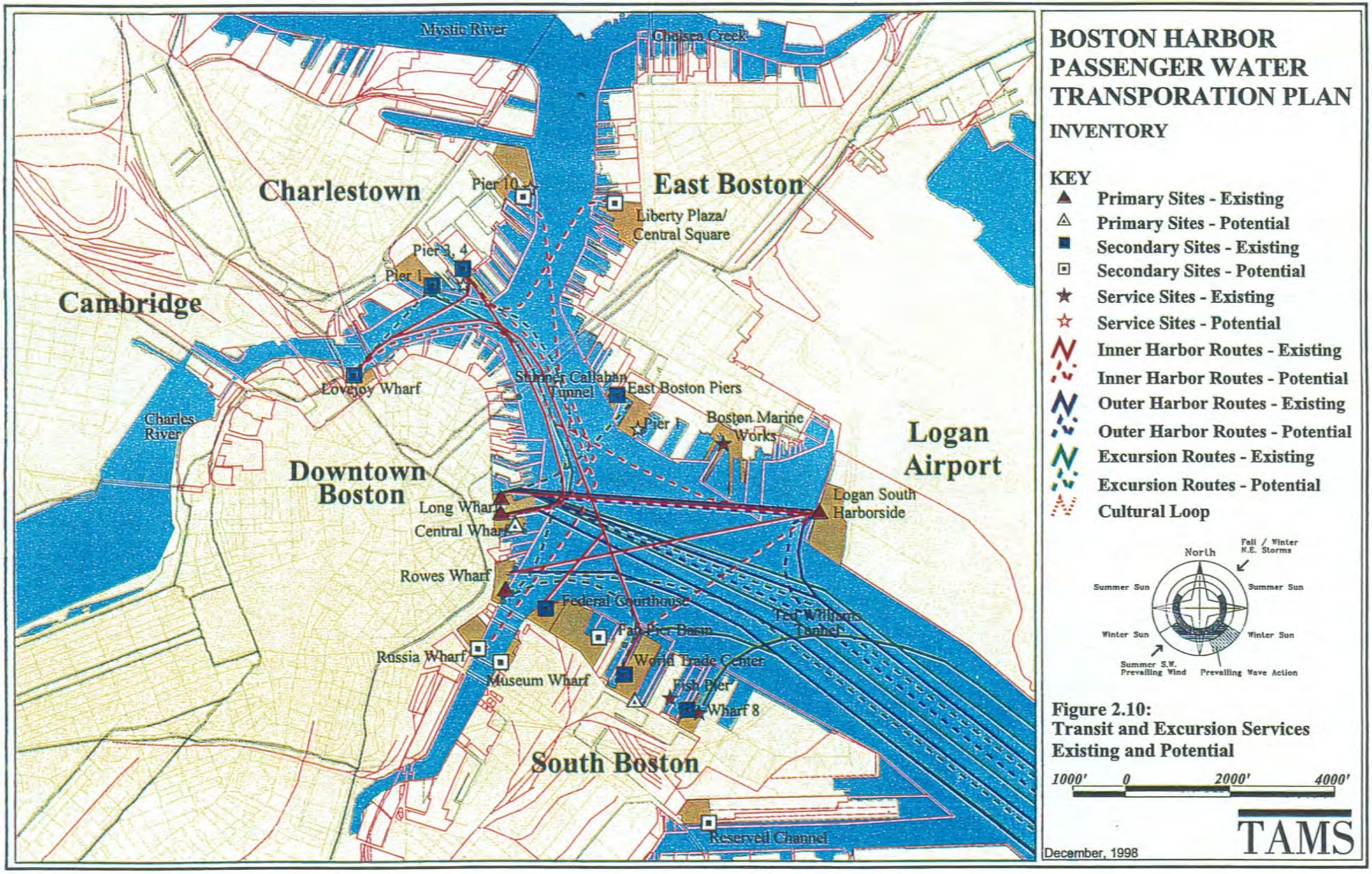


Figure 2.10:
Transit and Excursion Services
Existing and Potential

3.

TERMINAL FACILITY CONDITIONS, NEEDS AND DESIGN GUIDELINES

3.0 Terminal Facility Conditions, Needs and Design Guidelines

3.1 Current Terminal Conditions: A Patchwork of Public and Private Landings

The inventory of existing terminal facilities revealed a wide variety of physical conditions, ownership and management characteristics, and accessibility levels. The existing conditions for the individual terminals are summarized in the Chapter 4 descriptions of the individual terminals.

Existing and potential terminal locations are shown in Figure 3.1. The sites are categorized according to function as described in the following terminal guidelines section. The existing terminal sites are summarized in Table 3.1 by functional category: 1) primary or hub sites, 2) secondary, or 3) as layover berthing or servicing. Fully accessible terminals are indicated with an asterisk. While other ferry landings exist in the harbor, such as water taxi stops, or excursion/charter docks, they are not included in the table, since they fall outside the report focus on transit related ferry services. By the same token, many of the existing terminals listed include excursion berthing and/or water taxi landings.

Table 3.1: Summary of Existing Terminal Sites:

Primary or Hub Sites:	Secondary Sites:	Layover Berthing and Servicing
Downtown: **- Long Wharf */Central Wharf** **- Rowes Wharf**	- North Station/Lovejoy Wharf*	
South Boston: **- World Trade Center***	- Federal Courthouse* - Wharf 8* - Black Falcon/Reserved Channel	- Fish Pier - South Boston - Wharf 8 - South Boston - World Trade Center
East Boston: **- Logan South**	- Lewis Mall/East Boston*#	- Massport Shipyard/Boston Marine - Pier 1/East Boston
Charlestown: **- Pier 4/Navy Yard**	- Pier 1/Constitution	- Pier 10/11 - Navy Yard

* Denotes presence of at least one accessible terminal and float dock.
# Temporarily relocated to Little Brewster Island

Terminal Facility Site Location Criteria and Design Guidelines: The water transportation terminal facility plan is based on two complementary sets of guidelines: 1) terminal site selection criteria and 2)

terminal facility design recommendations. The two sets of guidelines were developed to cover the inner harbor ferry terminal sites and facilities anticipated during the next ten years. The design guidelines are based on current vessel and dock technologies, which have evolved considerably since earlier harbor water transportation plans were completed. For example, the current Boston Harbor vessel fleet includes fast catamarans of different sizes which are both bow loading and side loading. Several successful, but different, examples of fully accessible terminals now exist at inner harbor sites. Furthermore, new vessel technologies have proven to be successful in other contexts which may need to be accommodated in Boston Harbor, and new ramp, gangway, and float technologies are available commercially. Such new vessel and terminal access developments have been incorporated in the facility guidelines and standards proposed.

The marine environment in Boston Harbor includes a wide assortment of existing waterside and landside conditions at ferry terminal sites which need to be considered in facility guidelines. Waterside conditions include such variables as navigational constraints, wind and wave exposure, dredge depth, watersheet configuration, wave action, property ownership, pier and dock configuration, and current ferry use commitments. Landside conditions include such factors as intermodal access features including Harborwalk connections, view corridors, existing and proposed development, property ownership, pier or wharf deck height (which varies considerably at different inner harbor locations), bulkhead conditions, and site history regarding former pier configuration. Because of the many variables and special conditions from site to site, the site criteria and terminal design recommendations are generally presented as guidelines rather than as regulatory standards, with the exception of those requirements covered by city and state codes and licensing requirements.

3.2 Terminal Site Location Criteria

Terminal location selection is based on a combination of factors including primary market demand regarding trip origin and destination site requirements, in combination with ferry facility configuration needs. The site selection criteria were based on a combination of previous route and market demand studies, an evaluation of current route performance and expansion needs, and projection of new waterfront growth and development demands. Because of the wide range of ferry services and corresponding terminal docking needs, two new descriptive categories were defined to assist in the site selection process including; types of ferry service by functional use, and terminal facility designation by activity. Standard location assessments include such waterside factors as route functions, berthing demands, competing watersheet uses, visibility from public access points, fairway adjacency, weather or "fetch" exposure, and seasonal sun exposure. Landside locational factors include existing property conditions, projected adjacent landuses, intermodal connections, walking distance radii, transit connections and where applicable, parking availability. The criteria were used for screening and selecting sites as well as for designating roles and phased implementation.

- All terminals should, to the degree feasible, accommodate multiple ferry functions to provide intermodal transfer opportunities.
- All terminals will need to be fully accessible in accordance with current Massachusetts Architectural Access Board (MAAB) guidelines, consistent with the Americans with Disabilities

Act (ADA) requirements, and meet other applicable harborwide guidelines and regulatory standards such as Chapter 91.

- Public landings and water taxi/Cultural Loop docks should be included and maintained at most primary and secondary terminals, where appropriate as navigation conditions, watersheet area, and dock management permits.
- Waterside support facilities should include vessel layover berthing, day to day servicing, and maintenance and repair resources within the inner harbor convenient to terminal facility sites.
- Landside support facilities should include ticketing, waiting, information and restrooms.
- Landside intermodal linkages should be provided wherever practical including all modes ranging from pedestrian and bicycle, to bus and taxi drop-offs, a well as MBTA subway and commuter rail proximity. Parking requirements may vary with the specific sites and are not generally required for the inner harbor.

B. Specific Terminal Facility Location Criteria:

1. Terminal Functional Designations: Terminals are characterized as being Primary, Secondary, Water Taxi/Cultural Loop/Public Landing, and Service/Layover Berthing, depending on site location and predominant service functions accommodated. Other types of terminals including cruise, charter, or turnaround excursion are not included in the functional categories for purposes of this plan. Site categories include the following:

- **Primary:** High volume, multiple use, hub/receiver location
- **Secondary:** Medium volume, limited use, spoke/feeder location
- **Water Taxi/Cultural Loop/Public Landing:** Low volume, limited use, may be combined with public landing for touch and go use, at multiple locations. While designated as a separate functional use, these facilities would be combined with primary or secondary sites, as appropriate, for purposes of this report. Separate facilities currently exist, but have not been included in the inventory or proposed terminal selections.
- **Layover Berthing:** No passenger volume, limited shared use, peripheral locations.
- **Service Berthing:** No passenger volume; specialized services may include fueling, pump-out, routine maintenance, supplies; limited shared use, peripheral locations; may be combined with layover berthing or separate. Fro purposes of this report in terms of maps and descriptions, service and layover berthing are combined into a single use category.

2. Ferry Route Service Functions: Route service functions are defined to differentiate terminal site needs as well as to determine the terminal facility program needs for each terminal site. Larger ferries and the longer distance routes will require larger scaled docks, higher float freeboards, and more ample landside access and support functions. Conversely the smaller capacity, inner harbor services will have different sized docks, freeboards and landside support.

- **Transit Ferry Services:** which provide point to point, scheduled, year round, peak hour plus off peak services including inner harbor services currently known as "shuttles", outer harbor services currently known as "commuter" or "airport express". While these services were once focused primarily on peak hour weekday periods, new work patterns and the inclusion of airport

- Airport links: require walking distance to downtown and bus links at airport

- **Inner Harbor Shuttles:**
  - Serving downtown employment destinations: require average 7 min walk and transit links.
  - Serving other inner harbor district employment destinations: require average 7 min walk and transit links.
  - Airport links: require walking distance and transit links at downtown, and bus links at airport
- **Seasonal Excursion Transit Links:**
  - Mass Bay and beyond: require generally larger (250-300 passenger, 120 foot berth), high freeboard, off-shore capable vessels, parking and transit links.
  - Harbor Islands National Recreation Area: requires downtown primary/hub gateway site, medium vessel (149 passengers, 90 foot berth) with transit links and intermodal shuttle links to inner harbor neighborhoods.
- **Cultural Loop:** requires multiple terminal stops, in proximity to major attractions for smaller vessels (49 passengers, with 16 foot clearance for Fort Point channel, 50 foot berth), can be combined with water taxi or water shuttle berth.
- **Water Taxi:**
  - Single operator (current status): requires multiple stops (30 foot berth) with low freeboard access, and call phones.
  - Multiple operators (future): requires multiple stops (50 foot berth) with low freeboard access
- **Public Landings:**
  - Central location: requires low freeboard, clearly signed, dedicated berth space (60 feet) for touch and go use.
  - Neighborhood location: requires low freeboard, clearly signed, berth space (60 feet) for touch and go use, can be combined with water taxi at some sites
- **Service and Layover Berthing:**
  - Service berthing: multiple sites for 1) fueling with dockside tank truck access,, and 2) repairs and maintenance with boatyard services.
  - Layover berthing: multiple sites for 1) provisioning, stores with truck access, 2) pumpout stations, 3) layover berthing for out of service vessels, 4) crew parking and locker room facilities.

3.3 Terminal Facility Design Guidelines

Boston Harbor ferry operations currently are served by a wide range of public and private ferry terminal facilities which have evolved over time. As many of the facilities were developed as private docks, or as temporary facilities for construction mitigation of various waterfront transportation and development projects by a multiplicity of owners and agencies, there is little or no consistency from one location to another. Current ferry riders and operators encounter many different configurations from one landing facility to another, with widely varying float sizes, gangway lengths and slopes, and limited user amenities. Six ferry terminals in the Inner Harbor currently meet state (MAAB) and federal (ADA) standards for marine facility access in 1999. They include Lovejoy Wharf, the Harbor Express dock at Long Wharf North, Federal Courthouse, Lewis Mall, World Trade Center Marine Terminal, and the Wharf 8 shuttle dock. While technically in compliance, the World Trade Center shuttle terminal is not recommended because of its deficiencies in terms of configuration. The dock is too narrow

(approximately 6 feet clear) for vessel loading and unloading, has only an open stair (subject to icing) instead of ramps to the float, and separate and unclear paths of travel. All other ferry terminals are deficient in terms of state MAAB regulations covering the Americans with Disabilities Act (ADA). While it is sometimes claimed that a dock is "partially accessible" during certain tide conditions, it is more accurate to describe a facility as accessible (at all required tide ranges) or not accessible as regards to meeting both MAAB and ADA definitions. Moreover, the non-compliant existing facilities leave much to be desired in terms of application of Universal Design access principles to the marine facilities, which are intended to create safe and easy to use access patterns and paths of travel for all users (including elderly, travelers with luggage, children, etc.).

In order to evaluate existing terminal conditions and future needs, this report includes a set of terminal facility design guidelines to improve and standardize the terminal facilities, focusing on those in the Inner Harbor. The design guidelines were developed to cover all general terminal facility design and projected berthing space needs by site and by use, and to encourage development of a consistent set of terminal and support facilities for the Boston Harbor. These guidelines are not intended as a prescriptive set of regulations, but rather are intended to encourage the orderly enhancement and expansion of public and private ferry facilities by different proponents. They are intended to accommodate different vessel needs, while also improving the quality and safety of the land to water transition for ferry riders. The guidelines address both the specific facility design needs as well as general aspects such as terminal management options, route management consistency, and terminal/watersheet management issues. The guidelines were developed based on several sources of information; document search of previous plan reports, inventory of existing facilities, interviews with current operators, and terminal design experience of the project team.

A. Terminal Facility Design Objectives: The objectives help define which terminals are intended to be included and covered by the design guidelines:

1. For each selected existing or new terminal site, there needs to be a future ferry use program with priority activities identified which best match the site conditions. Each terminal site should be assigned a terminal facility activity designation:
   - Primary or Hub Site
   - Secondary
   - Service /Layover Berthing

2. Specific ferry route function definitions are used to determine the terminal facility program needs for each terminal site as described in the site criteria in the following categories:
   - Transit Ferry Services
   - Excursion Transit Services
   - Water Taxi/Cultural Loop/Public Landing Services

3. Ferry terminals may often accommodate more than one type of use, as long as the watersheet and landside conditions support multiple ferry activities.
4. All new terminals and new vessels should be designed to be ADA accessible. All existing terminals should be retrofitted to meet state MAAB and ADA standards to ensure maximum

access and transfer ability of the total system. It should be noted that universally designed ADA access also meets the needs of travelers with luggage, parents with young children, and less mobile elderly, making such terminals and vessels more user friendly for all ferry riders.
5. All existing and new terminals should have Chapter 91 licenses and be consistent with the City of Boston Municipal Harbor Plan.
6. The aggregate network of existing and new terminals should be user friendly by incorporating common elements of access systems, visibility, signage and graphics, public facilities and furnishings, and safety standards. To the extent possible, these should be coordinated with Harborpark design standards.

B. Specific Terminal Facility Design Guidelines:

1. Different ferry uses have varying float and ramp needs:

- Low freeboard - Water taxi, cultural loop, and public landing: approximately 2'-0".
- Medium freeboard - Side loading ferries: approximately 3'-6" to 4"-0".
- High freeboard - End loading catamarans: approximately 6'-0" to 7'-6".

2. ADA Access (Required) and Universal Design Access (Recommended)

2.1 **For access from landside deck or pier level to transfer float.** Floats are required for boarding, as opposed to access from the deck level of a full height pier, since many of the current and future fleet of vessels will have a single primary deck level, particularly as ADA standards for new vessel access are established. Existing terminals which serve as good models for access design are shown in Figure 3.8, which shows the Harbor Express terminal at Long Wharf, and figure 3.9, which shows the Lovejoy Wharf terminal at North Station. These represent two examples of combined fixed ramp and moveable gangway access to serve medium to high volume ferry operations. The alternative gangway and ramp-rider system is shown in Figure 3.10, which depicts the Federal Courthouse terminal. While other marine access systems may be considered other than those described, they must meet all required MAAB standards as well as vessel berthing program needs on a site by site basis.

- Access to meet MAAB and ADA requirements from sidewalk and deck level to boarding areas, usually floats, for a mean average tide range of 9'-6" (Boston Harbor). Required for all terminals except service and layover terminals. Includes all required signage, way finding and informational systems. Several different access options may be used to accommodate different site conditions:

  1) Moveable gangway and fixed ramps (maximum slopes vary from 1:12 (30 feet or less) to 1:20 (over 30 feet) depending on the length) A concept design for mixing the longer moveable gangway and shorter (30 foot maximum length) is shown in Figure 3.3. This is the preferred universal design solution since it has the greatest capacity for all users including those with disabilities and it has the same path of travel for all users. Wherever possible this approach should be used. This option generally requires a barge

of approximately 100' by 25', in addition to 50' or longer gangways, depending on the elevation of the adjacent pier or wharf deck. Examples of such existing installations include Long North, Lovejoy Wharf, and Lewis Mall.

2) Moveable gangway (maximum recommended slope of 1:20) and rampalator. A concept design for combining the two is shown in Figures 3.4, and a manufacturers rendering (Ramprider) is shown in figure 3.5. To be used in locations where smaller volumes of passengers are to be accommodated (if initial tests in Washington State and at Federal Courthouse prove satisfactory) and/or where the watersheet area is limited. Only one or two persons can use the system at one time, and the system is not suitable terminals accommodating groups of persons with mobility disabilities. The current example of a such a system is at Federal Courthouse.

3) Moveable gangway (maximum slopes vary from 1:12 to 1:20 depending on the length) and elevator (Figure 3.4): to be used for shuttle ferries or smaller vessels only at sites where the available watersheet is too limited for the full fixed ramp and moveable gangway, or the rampalator and moveable gangway systems. The system has the same limitations for accommodating groups as option 2. The current example of such a system is at the World Trade Marine Terminal shuttle dock .

- Where ADA access Options 2 and 3 (limited capacity systems) are used, universal design access should also be provided to the greatest degree possible from sidewalk and deck level to boarding level for all patrons; use of ramps with gradual slopes to accommodate travelers with luggage, elderly and parents with children for all scheduled ferry services. Universal design would suggest maintaining moveable gangways of 50 feet or more, or fixed ramps of 1:12 with a maximum 30 foot length for the 9'- 6" tide range. In other words, provision of an elevator or a rampalator should not relieve the need to provide long gangways and fixed ramps. An existing example would be Federal Courthouse.

2.2 For access from floats to vessels.

- Access to meet MAAB and ADA requirements for boarding vessels to be achieved through a combination of standard freeboard heights on floats and transfer ramps or gangways: An example of a multiple freeboard float is shown in Figure 3.6. Differentials in heights from float to vessel should be minimized to correspond to MAAB transfer guidelines. This may require building up on top of standard freeboard floats to match specific vessel landing needs. For example, if a regularly scheduled side-loading catamaran with a 5'-0" freeboard portal needed to use a standard 4'-0" freeboard float, the operator might need to build a platform and ramp on the float to minimize the transfer difference. It should be noted that the recommended standard freeboard heights for floats are for the lowest common denominators at 2"-0", 4'-0", and 6'-6", so that built-up platforms can be installed for specific vessel boarding needs.

2.3 Universal Design as Preferred Access Design Solutions.

- It has been demonstrated at several Boston terminals and others worldwide, that the application of broader access design principles beyond just technically meeting the MAAB and ADA requirements can benefit the broadest needs of transportation users. Designs should be simple and easy for users to understand, as well as physically accommodating to the broadest range of users. For example, providing a single path of travel ramp and gangway solution as is currently

used at the Harbor Express terminal at Long Wharf North or the MBTA terminal at Pier 4 in the Navy Yard, are not only a clearer for the users to understand, but also physically more manageable for elderly, children, or persons carrying luggage. By contrast a terminal which is hidden from view, and has separate and unclear paths of travel via a stair and elevator, such as the shuttle dock at World Trade Center, compromises the access needs for all users.

3. Dock/Ramp Equipment and Materials

Standard waterside equipment should include the following :

- Lighting and convenience outlet
- Non-skid surfaces
- Covered ramp
- Bollards, cleats, fenders, etc. for vessel tie-up
- Snow removal space and equipment
- Life preservers
- Ladder from water to float surface
- Schedule and information board

4. Deck/Pier Equipment

Standard landside equipment should include the following :

- Lighting and convenience outlet
- Non-skid surfaces on approach paths
- Covered waiting area
- Schedule and information board
- Emergency phone
- Flexible signage

5. Intermodal Connection Requirements for Terminal Sites

Different terminal sites and ferry functions will require multiple combinations of the following:

- Commuter Rail links to North and South Station; within a 5 minute walk.
- Rail Transit links at multiple inner harbor sites; within a 5 minute walk.
- Bus curbside stops; within a 3 minute walk.
- Taxi curbside capability at nearest public way.
- Parking; none required.
- Sidewalk or Harborwalk connection to first public way.
- Service/public safety access to dockside.
- Intermodal advertising for different public and privately operated services should be systematized and expanded from efforts initiated by the MBTA.
- Directional signage between modes needs to be expanded from current BRA Harborwalk initiatives, particularly through the duration of the Central Artery construction.

C. Terminal Management Options: Many variations of public and private management presently exist

at inner harbor terminals, with the result that there are a limited number of ferry docks where both public dock ownership and management occur. Operators who do not have control over specific dock spaces have few options to secure landing space in the downtown waterfront area. An objective for future management would be to increase the number of publicly owned terminals and managed terminals to allow for more publicly available, competitively priced landing slips to accommodate the expected ferry industry growth. The current pattern of publicly owned and privately leased spaces will undoubtedly continue, as will operators interests in owning key terminal locations. However, as additional terminal locations are developed, more diversity of management and slip availability will be needed to attract new routes and operators. Multiple ownership/management combinations are likely to continue.

- Public ownership/Public management: city or state ownership and management for primary and multi functional secondary sites.
- Public ownership/Private management: Minimum conditions for many state and federal funding assistance programs, acceptable for limited route terminals.
- Private ownership/Public management: Not eligible for state and federal funding assistance, appropriate for limited route terminals.
- Private ownership/Private management: acceptable for limited or single routes or franchise conditions.

D. Route Management Consistency: Most existing routes have different ownership and management jurisdictions at different terminals. Operators might benefit from more consistency of terminal and route franchise management to simplify franchise agreements and dock use, particularly for state subsidized operation contracts. Where multiple ownership remains necessary, methods for facilitating dock use, competitive slip pricing, and franchise agreements will be needed.

E. Relationship of Terminals and Waterway use to Watersheet Management: With the increased use of the inner harbor for recreational, ferry and other maritime activity, increased attention to watersheet management at the terminal level and at the harbor level will be needed.

- Fairway designation and cooperation between adjacent properties and conflicting water uses.
- Fairway standards are needed for various combinations of ferry and recreational vessel berthing needs:
  - One way channel = 2 x vessel beam; i.e. 30' beam requires 60' channel
  - Recreational vessel slip perpendicular to fairway requires 1.75 x boat length
  - Where no fairway exists between abutting properties, each property is responsible for 50% of the fairway.
- Channel and buffer zone watersheet guidelines are needed as traffic increases for purposes of public safety.
- Location of marinas, mooring fields, sailing schools and other recreational and small boat activities should avoid areas of heavy shipping and active ferry routes.
- Wake and speed guidelines should be reviewed and revised as appropriate for public safety and environmental protection as new vessel technologies are introduced.

3.4 Selected Terminal Sites for Concept Plan

The terminal sites were selected based on a combination of factors: site inventories conducted by the consultant team, previous route and demand studies, evaluation of current route performance and expansion needs, and interviews with stakeholders. In addition the site selection responded to new harborwide waterfront development projections for the coming decade. The selection of sites and identification of terminal needs were closely coordinated with waterfront district plans prepared by the BRA such as the Public Realm Plan for the South Boston Waterfront and the East Boston Master Plan, both of which were conducted in parallel with the water transportation plan, and with previous plans such as the Charlestown Navy Yard Master Plan and the Central Artery Boston Inner Harbor Water Transportation Study of 1994.

Specific terminal site location assessments included a variety of waterside and landside factors. Waterside location factors included route functions and corresponding vessel types, berthing demands, competing watersheet uses and navigation factors, dock visibility from public access points, fairway availability, site weather exposure, and harbor fetch. Landside location factors included existing and projected adjacent landuses, intermodal connections and transit proximity, walking distance radii, curbside dropoff, and parking availability.

Selected Terminal Sites for Concept Plan: The recommended terminal sites were selected through a process of evaluating alternative site options within each of the four Inner Harbor waterfront districts: Downtown Boston, South Boston, East Boston and Charlestown. A map of the proposed terminal sites is shown in Figure 1.32, which includes expansion of all of the existing sites. Passenger loading sites were divided into three categories based on their relative importance to each district and the volume of services either currently accommodated or projected:

- Primary or District Hub Sites
- Secondary Sites
- Layover Berthing and Servicing

Table 3.2: Summary of Proposed Terminal Sites:

Primary or Hub Sites:	Secondary Sites:	Layover Berthing and Servicing
Downtown: **- Long Wharf /Central Wharf #** Long North Long South Long/Central Shuttle Central Wharf*# **- Rowes/400 Atlantic Ave #**	- North Station/Lovejoy Wharf - South Station/Russia Wharf*	
South Boston: **- World Trade Center #** West Marine Terminal East Marine Terminal*	- Museum Wharf - Federal Courthouse - Fan Pier Basin - Wharf 8 # - Black Falcon/Reserve Channel	- Fish Pier - South Boston - Wharf 8 - South Boston # - World Trade Center #
East Boston: **- Logan South**	- Lewis Mall - Liberty Plaza/Central Square*	- Massport Shipyard/Boston Marine Works# - Pier 1/ East Boston
Charlestown: **- Pier 4/Navy Yard**	- Pier 1/Pier 2 Constitution - Pier 10 Navy Yard*	- Pier 10/11 - Navy Yard* - Pier 3 - Navy Yard*

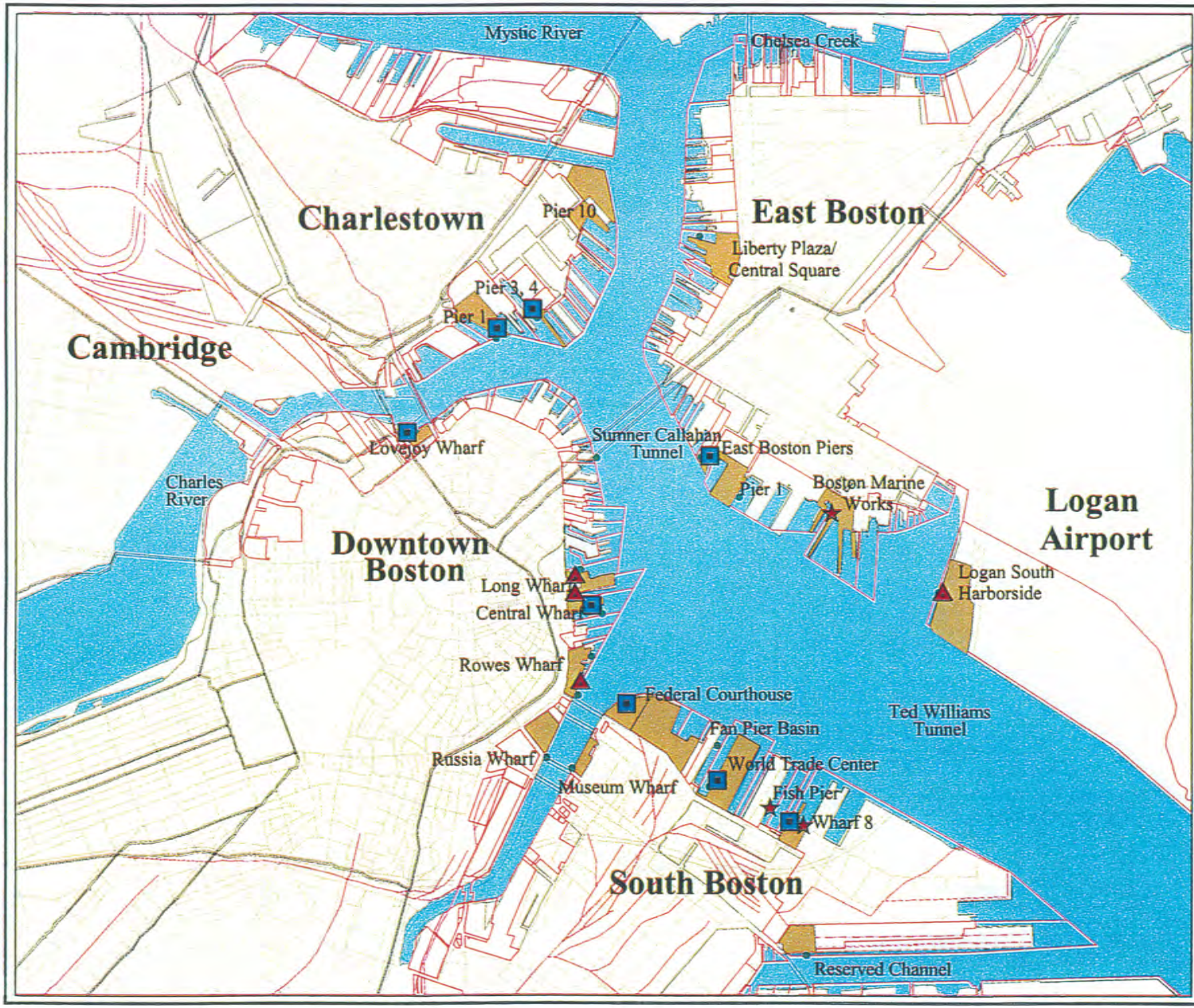
* Denotes new terminal facility; all others are expansions of existing terminals or layover sites.
\# Denotes terminal with multiple dock facilities

All primary and secondary terminals should include a public landing wherever appropriate with several specific exceptions: Long/Central MBTA Shuttle and Federal Courthouse.

3.5 Proposed Routes and Intermodal Connections

There are two important types of intermodal connection proposed in the plan: ferry to land connections, and ferry to ferry connections. The ferry to land connections, as described in the guidelines, include transit connections, vehicular drop-off facilities, pedestrian links to the Harborwalk and to local street systems, and communications such as signage, radio, electronic and other information systems. The ferry to ferry connections can also play an important role in both commuter travel and seasonal excursion activity. For example, the three smallest capacity ferry links including water taxi, cultural loop and shuttle are all linked to larger commuter or excursion routes at multi-purpose terminals so that efficiencies can be gained between short haul, cross inner harbor trips and the longer trips to the north or south shore, or to the Harbor Islands National Recreation Area.

The proposed commuter routes with intermodal land transit connections are shown in Figure 3.6. The ferry to ferry intermodal connections are best shown in Figure 2.10 showing the convergence of longer distance outer harbor routes with the array of shorter hop services in the inner harbor. The primary or hub terminals serve as the major intermodal connection locations in each case.



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

INVENTORY

KEY

- ▲ Primary Sites - Existing
- △ Primary Sites - Potential
- ■ Secondary Sites - Existing
- ▣ Secondary Sites - Potential
- ★ Service Sites - Existing
- ☆ Service Sites - Potential

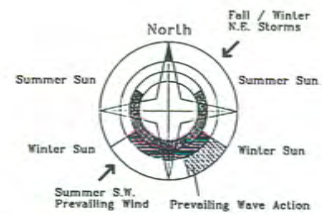


Figure 3.1:
Terminal Locations
Existing

1000' 0 2000' 4000'

TAMS

December, 1998

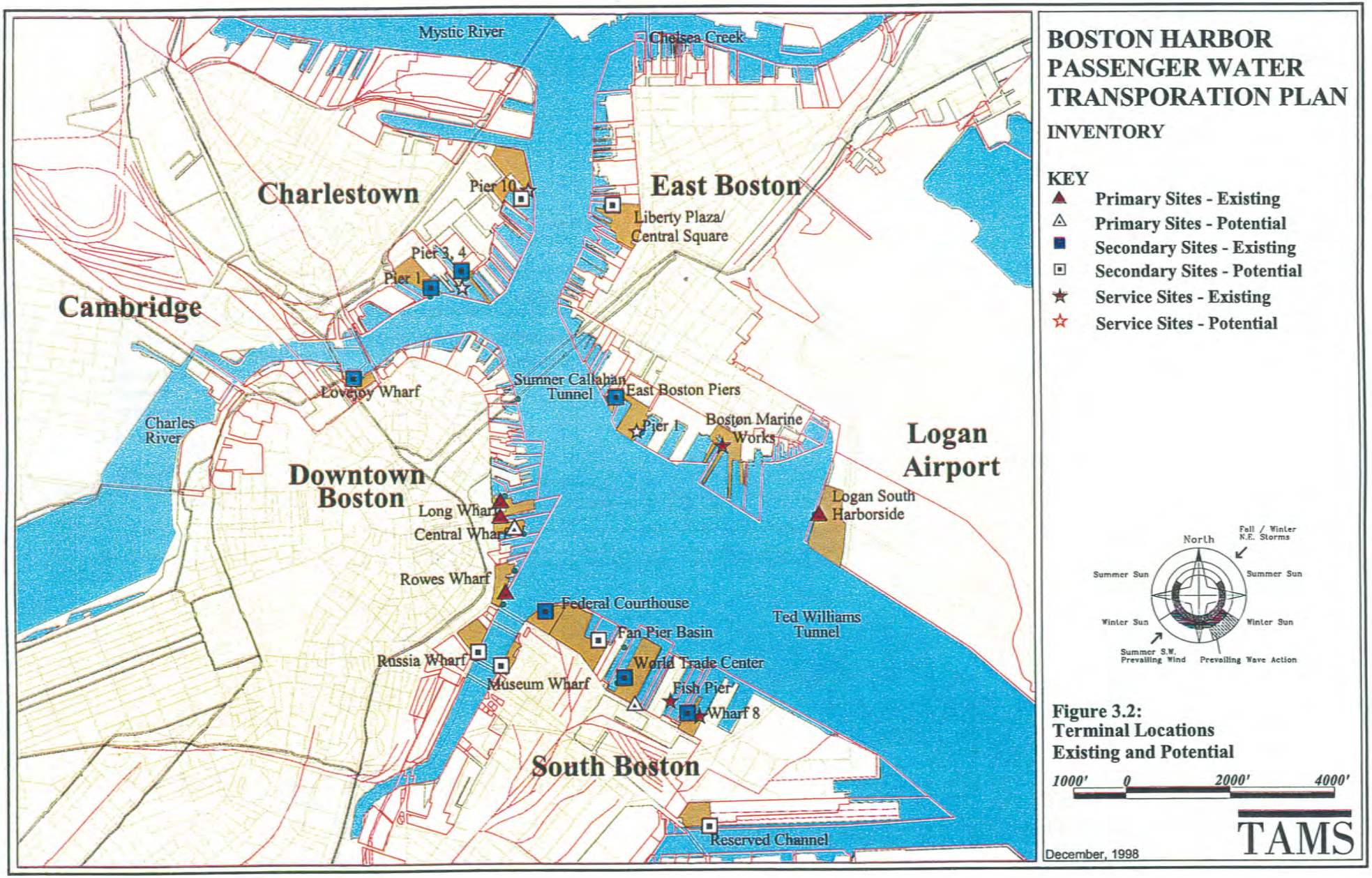
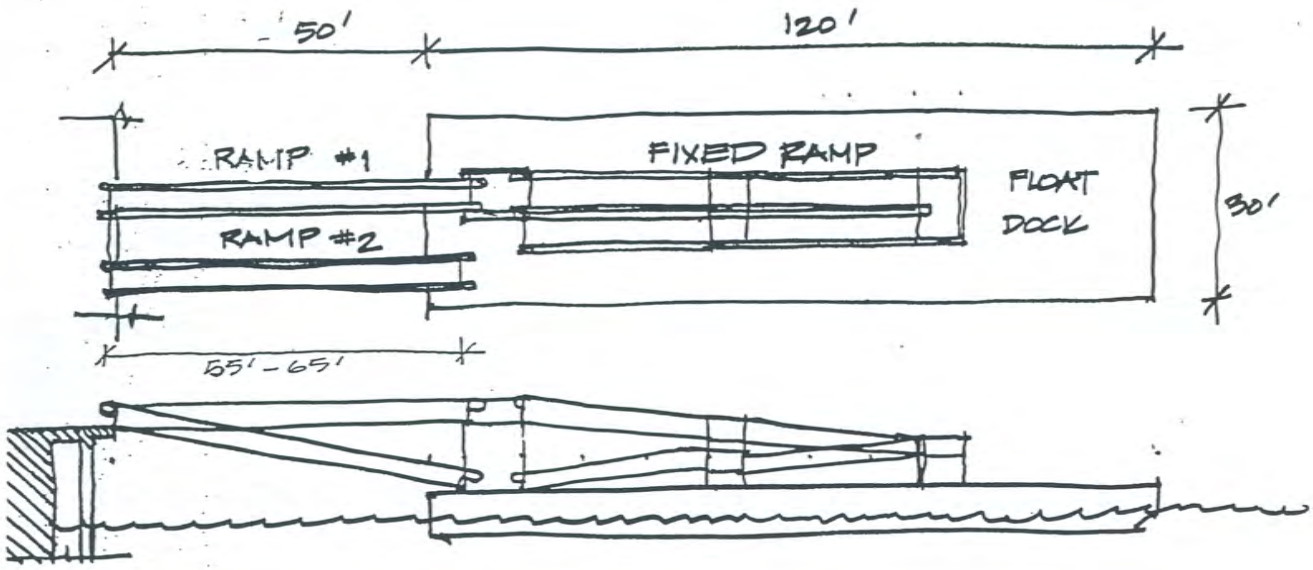


Figure 3.2:
Terminal Locations
Existing and Potential



1. FIXED RAMP AND MOVEABLE GANGWAY SYSTEM

BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

DESIGN GUIDELINES

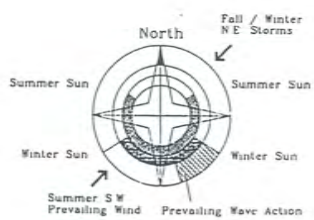
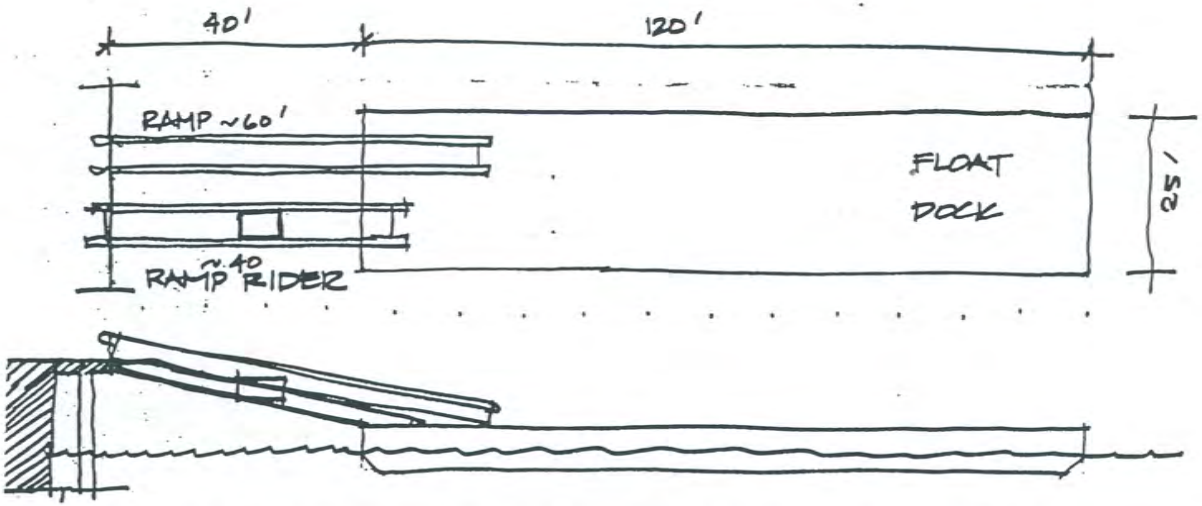


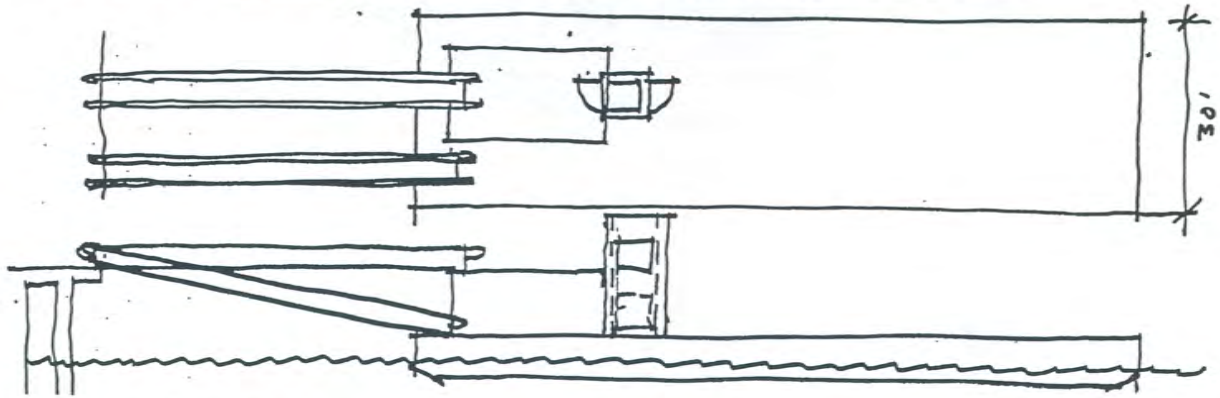
Figure 3.3
Terminal Dock and Access
Option 1
Fixed Ramps and Gangway

December, 1998

TAMS



2. RAMP-RIDER AND MOVEABLE GANGWAY SYSTEM



3. ELEVATOR AND MOVEABLE GANGWAY SYSTEM

BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

DESIGN GUIDELINES

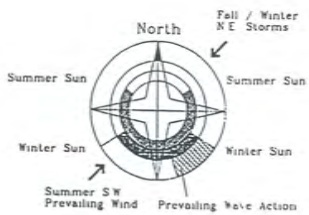


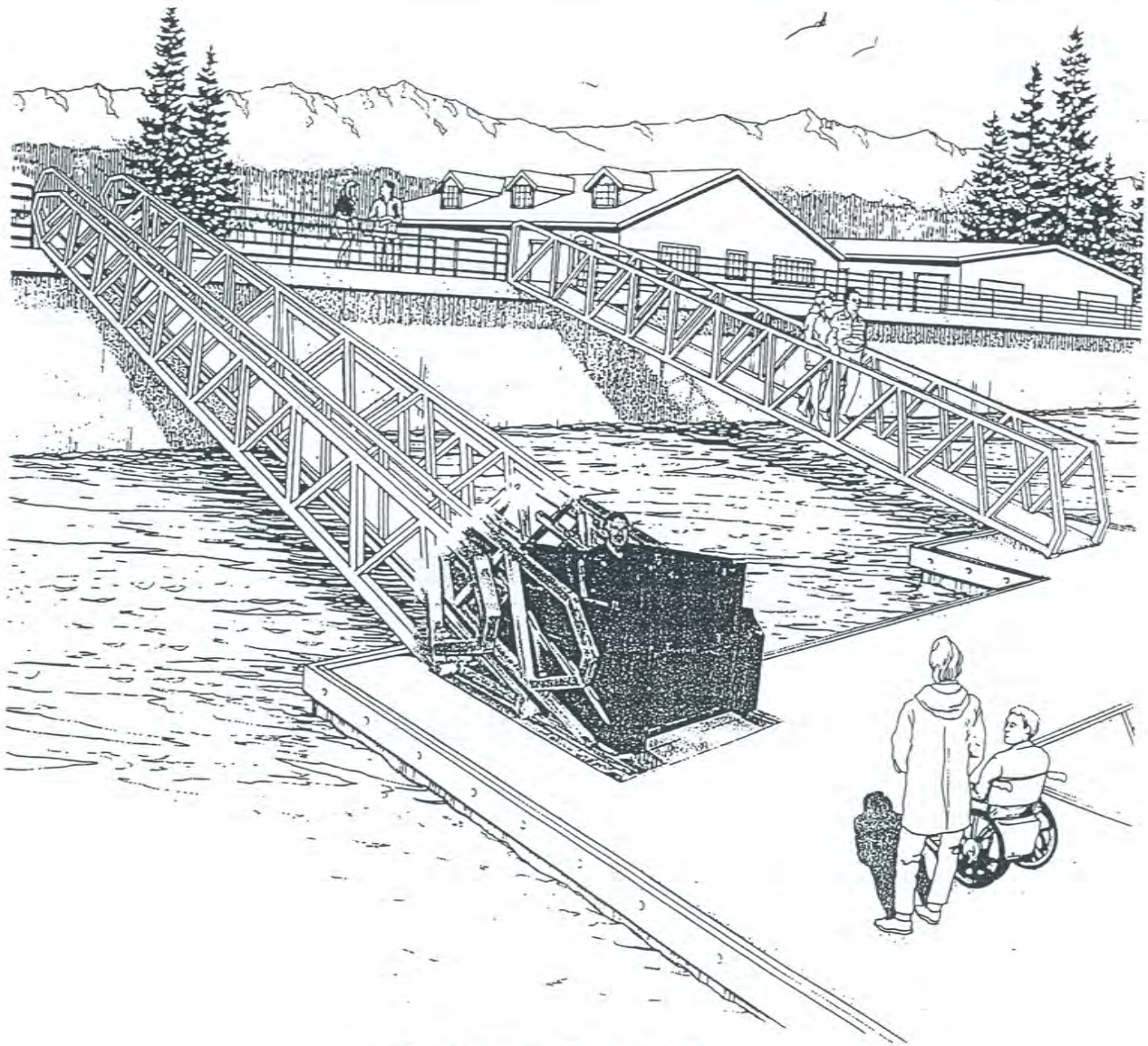
Figure 3.4
Terminal Dock and Access
Option 2
Ramp-rider and Gangway

December, 1998

TAMS

BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

DESIGN GUIDELINES



The Marina Ramp Rider

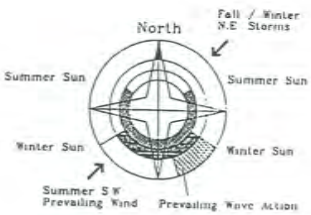
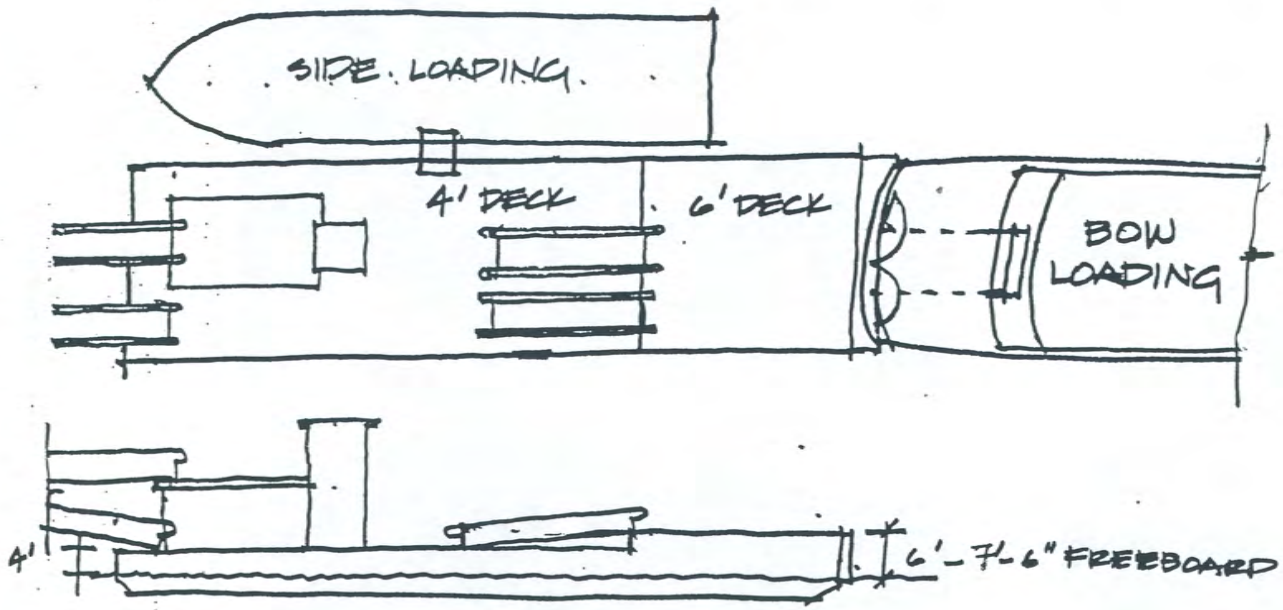


Figure 3.5
Terminal Dock and Access Option 2
Ramp-rider Hardware

December, 1998

TAMS



4. FLOAT WITH COMBINED 4FT AND 7FT FREEBOARD

BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

DESIGN GUIDELINES

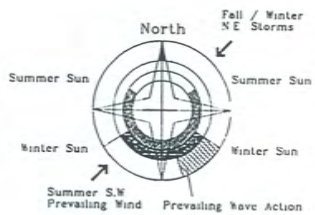
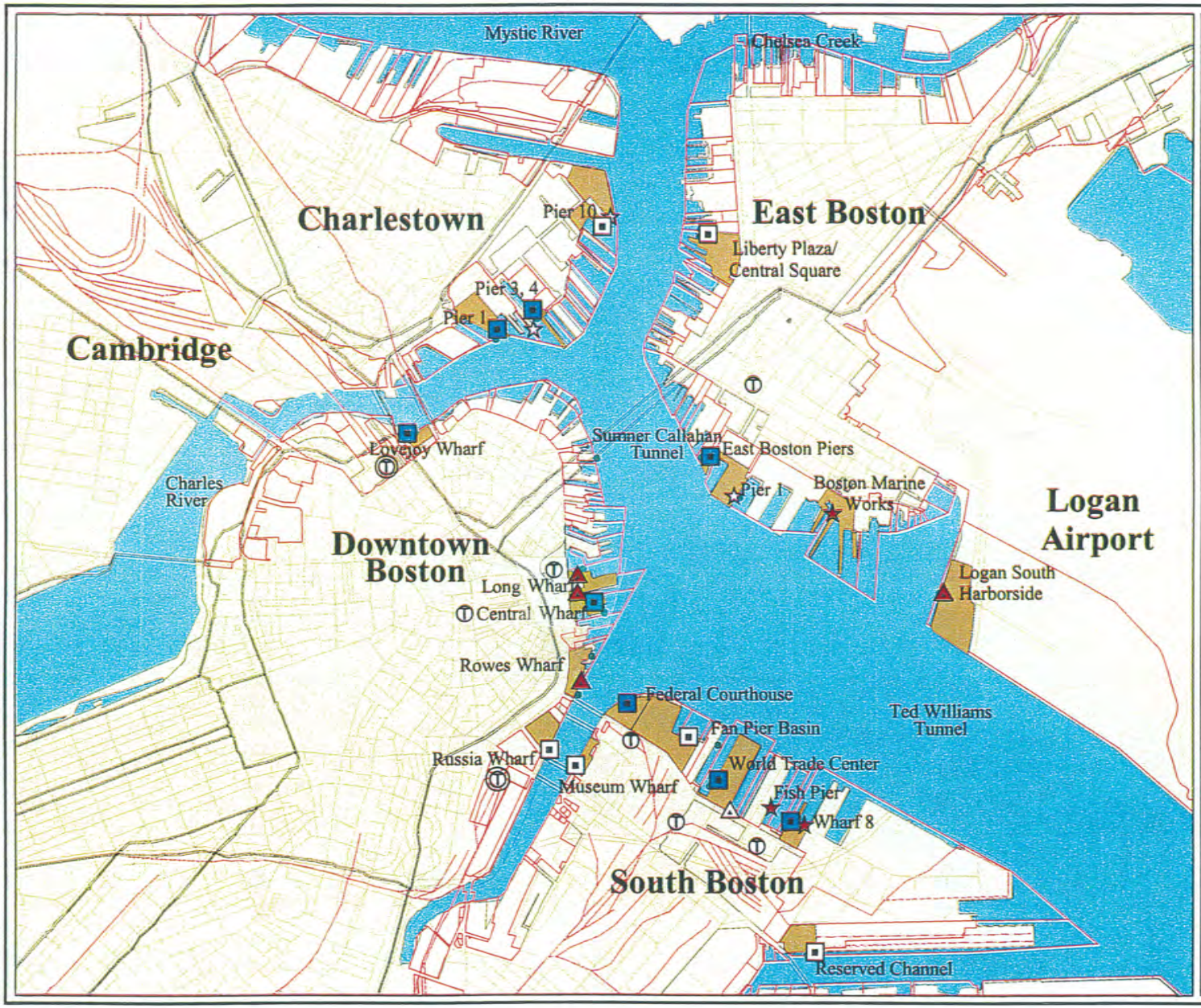


Figure 3.6
Terminal Dock and Access
Option 3
Elevator and Gangway

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

INVENTORY

KEY

- Primary Sites - Existing
- Primary Sites - Potential
- Secondary Sites - Existing
- Secondary Sites - Potential
- Service Sites - Existing
- Service Sites - Potential
- T-Stations

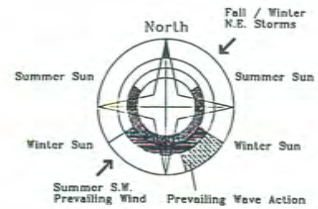
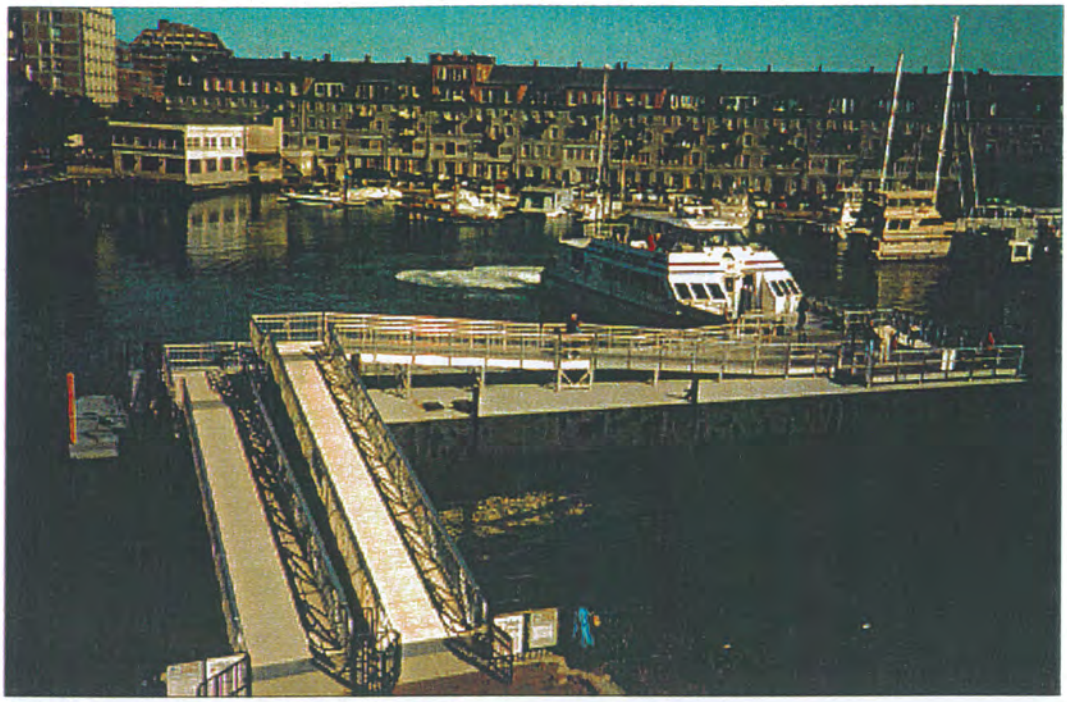


Figure 3.7:
Intermodal Terminal Facility Linkages

1000' 0 2000' 4000'

December, 1998

TAMS



Harbor Express Terminal at Long North

MBTA Shuttle Dock at Long/Central and Intermodal Connections

Figure 3.8 - Photos of Existing Terminals

Commuter Ferries at Rowes Wharf

Lovejoy Wharf / North Station

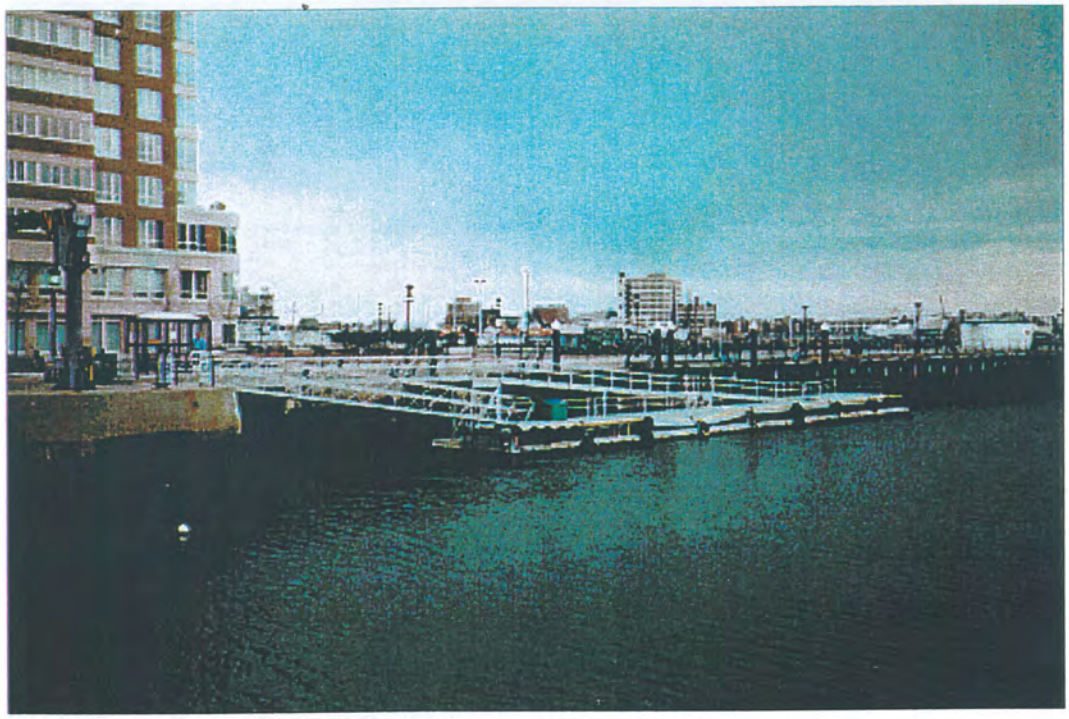
Figure 3.9 - Photos of Existing Terminals

World Trade Center Marine Terminal with Spirit of Boston

Federal Courthouse with Ramp Rider

Figure 3.10 - Photos of Existing Terminals

Logan Passenger Water Transportation Terminal



Pier 4, Charlestown Navy Yard

Figure 3.11 - Photos of Existing Terminals

Fish Pier Fuel and Ice Service Area

World Trade Center, Layover Berthing

Figure 3.12 - Photos of Existing Terminals

4.

PASSENGER WATER TRANSPORTATION CONCEPT PLANS

4.0 Passenger Water Transportation Plan:

4.1 A Plan for Ferry Terminal Expansion: Inner Harbor Districts and Terminal Sites

A primary focus of the study is to translate the demand projections into specific guidelines for terminal facility development within Boston Inner Harbor. The following chapter describes recommendations for the proposed terminal locations in terms of intended ferry service uses, conceptual plans for each terminal, phasing needs, and management and ownership characteristics. The chapter is divided into four sections corresponding to the geographic districts in the inner harbor: the Downtown, the South Boston Waterfront, East Boston, and Charlestown. It should be stressed that while the individual site concept plans are described and presented in some detail, and represent the best assumptions regarding stakeholders expressed interests, they are intended as guidelines and are not to be considered as zoning plans or final designs. Most of the terminal plans have not yet been designed or engineered beyond the concept level, and are therefore subject to change. In those cases where the plans are more fully developed, it is so noted in the text.

The water transportation plan consists of phased expansion and new construction of ferry terminal and service sites, as well as appropriate landside infrastructure improvements and intermodal links. The terminal recommendations are based on design guidelines described in the previous chapter. The resulting network of public water transit and excursion landings will provide new opportunities for expansion of ferry services to meet the increasing variety of demands within and beyond the Inner Harbor. While many of the future sites are currently used for ferry landings, they will need to be transformed in a variety of ways to accommodate and encourage the potential growth. Key terminal needs applicable to all Inner Harbor sites include the following:

- Increased dock flexibility for a variety of vessel types and sizes
- Increased berthing capacity, particularly at primary terminals and in the downtown hub.
- Consistent universal access design for the full spectrum of users.
- Expanded intermodal connections with transit, Harborwalk and city streets.
- Public touch-and-go landings and water taxi/Cultural Loop accommodations wherever appropriate at terminal sites.
- New public/private management mechanisms for terminals to encourage multiple operator time-slots with City-owned or state-owned piers as the key terminal locations.
- Integrated communication system of signs, electronic travel data, and audio information.

With respect to public landings, there is a growing need to provide convenient docking and mooring opportunities for transient visiting vessels. Many have identified the need for both public mooring fields and additional transient marina slips in appropriate areas of the inner harbor, to accommodate short term and overnight visits. While this plan recommends public touch and go landings for transient boaters, as integral to the inner harbor terminal network, the issues of mooring fields and transient slips are beyond the current scope. Accommodations for transient boat operators would be beneficial to the local and visiting boating public, and should be addressed as a future phase of the study which would focus on balanced use of the harbor watersheet.

The recommendations for terminal sites and plans for each district are based on a synthesis of factors: the site analyses, market demand surveys, and interviews and meetings with stakeholder groups, terminal managers and ferry operators. The harborwide plan is graphically described through a combination of exhibits described earlier in the report; 1) the existing and proposed transit and excursion routes as shown in Figure 2.10, 2) the composite plan of inner harbor existing and proposed terminal sites as shown in Figure 3.2, and 3) the map of proposed harbor-wide intermodal connections shown in Figure 3.6.

Inner Harbor District Plans: The inner harbor geography naturally divides the waterfront into four distinct districts within the City of Boston. The scope of the study did not include either Chelsea or Everett, neither of which is currently served by scheduled ferry services.

- **Downtown Waterfront:** The greatest demand for increased public berthing space and expanded terminal facilities is along the downtown waterfront, particularly around the central business district and visitor attractions. The primary central hub terminal consists of multiple dock locations in a concentrated area including Long and Central Wharves and the Rowes Wharf/400 Atlantic Avenue site. Major regional transit intermodal ferry links are to be included at secondary terminals at North Station (expanded Lovejoy Wharf) and South Station (new Russia Wharf). The terminals are intended to accommodate the full range of ferry services including a permanent downtown Harbor Islands Gateway at Long Wharf. The City is encouraging the revival of the Cultural Loop shuttle in the short term, and hopefully in time for the millennium celebrations.

- **South Boston Waterfront:** With the opening of the Boston Convention and Exhibition Center, along with new commercial, residential and port uses, South Boston is the area likely to see the greatest new growth of ferry services outside the downtown core. The primary hub terminal in the Seaport is projected to be World Trade Center, based on its central location. Other secondary passenger terminals are projected at Museum Wharf, Fan Pier Basin, Wharf 8, and Pier 1 in the Reserve Channel. Service and layover berthing opportunities along Northern Avenue at World Trade Center, Fish Pier and Wharf 8.

- **East Boston Waterfront:** The revitalization of East Boston will depend on improved public transportation including integral ferry connections to key waterfront locations with anticipated new residential, commercial and recreational (East Boston Greenway and Piers Park) development. As a community which was once totally dependent on ferry links to downtown Boston and other cross harbor destinations, East Boston can benefit from having expanded and new terminal locations at strategic points. Logan South will continue to be the primary East Boston terminal based on its high volume of use. Multi-purpose secondary terminals are to be located at Liberty Plaza/Central Square, and Lewis Mall. Layover berthing and servicing facilities exist at a variety of East Boston pier sites, particularly including ship repair and maintenance services, and need to be reserved for the future.

- **Charlestown Waterfront:** The shuttle and excursion ferry services to Charlestown are among the second most heavily used in the Inner Harbor as they serve year round two way commuter needs, as well as recreational visitors to the *USS Constitution* and National Park attractions as

well as seasonal marina and entertainment trips. Improved and expanded terminal facilities are needed to meet growing demands for the short and enjoyable trip to and from the Navy Yard, and the Charlestown neighborhoods. Pier 4 will continue to serve additional routes and remain as the central primary terminal. Secondary passenger terminals will include an improved Pier 1 (or a possible relocation to Pier 2), and a new terminal at Pier 10 as Yards End development fills in. Layover berthing and servicing opportunities exist at a reconfigured Pier 3, and Pier 11.

Recommended Terminal Sites: The recommended terminal sites are identified by ferry district and by function in Table 4.1. All primary and secondary terminals would include water taxi and public landings except where such activities are inappropriate for navigational reasons as would be the case at the Long/Central MBTA Shuttle dock, or for dock management reasons such as at the Federal Courthouse where security concerns preclude such a facility. Various terminal locations have multiple terminal facilities with differing functions including existing and proposed docks. These would include such sites as Long and Central Wharves, Rowes Wharf, and World Trade Center.

The levels of commitment and implementation status for the proposed terminal sites and plans vary widely depending on market demand, ownership and use. Numerous discussions of the proposed plans have occurred with operators, owners and other terminal stakeholders, and the plans reflect many of their interests. As previously noted, the recommended plans are intended primarily as a framework and guidelines for more detailed configuration and design resolution, particularly at sites where there is private ownership and/or dock management. In cases where the City owns the sites and will need to implement such plans, the descriptions and concept plans are more detailed in the report, and in many cases the initial steps towards funding and implementation have already been initiated.

Table 4.1: Summary of Proposed Terminal Sites:

Primary Sites:	Secondary Sites:	Layover Berthing and Servicing
Downtown: **- Long Wharf /Central Wharf #** Long North Long South Long/Central Shuttle Central Wharf* **- Rowes/400 Atlantic Ave #**	**- North Station/Lovejoy Wharf** **- South Station/Russia Wharf***	
South Boston: **- World Trade Center #** West Marine Terminal East Marine Terminal*	**- Museum Wharf** **- Federal Courthouse** **- Fan Pier Basin** **- Wharf 8 #** **- Black Falcon/Reserve Channel**	**- Fish Pier - South Boston** **- Wharf 8 - South Boston #** **- World Trade Center #**
East Boston: **- Logan South**	**- Lewis Mall** **- Liberty Plaza/Central Square***	**- Massport Shipyard/Boston Marine Works#** **- Pier 1/ East Boston**
Charlestown: **- Pier 4/Navy Yard**	**- Pier 1/Pier 2 Constitution** **- Pier 10 Navy Yard***	**- Pier 10/11 - Navy Yard*** **- Pier 3 - Navy Yard***

* Denotes new terminal facility; all others are expansions of existing terminals or layover sites.
\# Denotes terminal with multiple dock facilities

All primary and secondary terminals should include a public landing wherever appropriate with several specific exceptions: Long/Central MBTA Shuttle and Federal Courthouse.

4.2 Downtown Waterfront District

The greatest demand for increased public berthing space and expanded terminal facilities is along the downtown waterfront, particularly relating to the central business district and visitor attractions. An estimated 95% of all annual Boston Harbor ferry passengers pass through the terminals in the downtown area, with over 90% using the core terminals from Long to Rowes Wharf. Growth projections indicate that future markets will dictate a continuation of that pattern. It is proposed that combined public and private efforts will be needed to expand central multi-service ferry hub capacity by doubling the amount of berthing space. The Downtown Waterfront District currently includes two primary terminals at Long/Central Wharves and Rowes Wharf, and one secondary terminal at Lovejoy Wharf. An additional secondary terminal has long been committed for Russia Wharf, and is scheduled for construction soon. These sites are identified in Figure 4.1-1. The following descriptions of downtown terminal sites are intended to demonstrate the capacity of existing and new sites to respond to the projected growth demands.

On the landside, opportunities exist for greatly improved intermodal connections at the waters edge. The most dramatic improvements will be realized with the replacement of the elevated Central Artery by a linear park in the downtown core district. Pedestrian and bicycle access will be improved by expansion of the Harborwalk along the waters edge and through sidewalk streetscape improvements along key radial streets. Transit access improvements are needed by linking terminals by local bus to regional subway, rail and air links. Major regional transit ferry links need to be better connected at the major downtown intermodal hubs; at North Station by expanding Lovejoy Wharf and associated shuttle ferry links, and at South Station through new shuttle services provided at a new Russia Wharf terminal.

The waterfront piers area between Long Wharf and the Old Northern Avenue Bridge serves as a downtown core ferry terminal zone. The core zone needs to accommodate a full range of ferry services from transit to excursion, and should include a designated site as the major downtown Harbor Islands Gateway at Long Wharf.

Another excursion transit service which would be important to the vitality and enjoyment of the waterfront by Boston residents and visitors alike would be the proposed revival of the Cultural Loop shuttle. The service would provide an effective means of traffic relief by allowing cultural visitors to park in one perimeter (or central) location and visit multiple destinations around the inner harbor before returning to their cars.

The two largest downtown terminal areas, at Long/Central Wharves and Rowes Wharf/400Atlantic Avenue comprise the core facilities of the downtown ferry district. Both are well situated within a 10 to 12 minute walking distance of an area which includes the financial district, Government Center and many important cultural attractions, as well as the downtown shopping district. In addition the two terminal sites provide good intermodal transit connections, and are within a short walk from MBTA subway stations. The Downtown core terminal area and proposed pier locations are shown in Figure 4.1-2. The two existing terminals at Long and Rowes Wharves are currently operating at capacity during peak seasons, and are expected to accommodate the overwhelming share of new growth, projected to increase to over three times the current ridership, over the next ten years. The two hub terminals

accommodate the full range of scheduled passenger water transit services including commuter, inner harbor shuttle, water taxi, and seasonal recreational ferry services, as well as providing docking facilities for most of the harbor's non-transit recreational ferries. Proposed water taxi and public landing floats are intended to also accommodate the restoration of the Inner Harbor Cultural Loop service, which will link the major waterfront cultural institutions and historic areas. Short term terminal expansion and access improvements for the downtown hub locations represent Boston's highest immediate priorities for increasing public water transit capacity in the downtown core.

In addition to the two central downtown locations, two other downtown terminal sites are also critical to the projected Inner Harbor ferry system. The existing terminal at Lovejoy Wharf provides intermodal ferry links to North Station commuter rail as well as MBTA Orange and Green Line services, while also serving the North End neighborhood and the Fleet Center. The soon to be built Russia Wharf terminal will provide a similar connection to regional transit services at South Station. Both terminals are part of the Central Artery project, providing transit alternatives during the highway construction process. The Lovejoy Wharf and Russia Wharf terminals are designed for Inner Harbor shuttle services, as well as water taxi and potential seasonal recreational services.

Complementary to these four primary and secondary water transit terminals are additional water taxi and Cultural Loop landings for various exisiting and proiposed locations around the downtown waterfront. Such water taxi sites along the North End waterfront include Lincoln Wharf (existing) and Battery Wharf (proposed). Such sites may double as Cultural Loop landings, depending on the nature of the service as it evolves. While water taxi and Cultural Loop sites have been discussed as part of primary or secondary sites as part of this report, the "stand-alone" sites which have much greater flexibility in terms of location and use, have not been addressed specifically in the maps or descriptions. It should be recognized, however, that such landings are an important component of the Inner Harbor terminal system and should be encouraged wherever local demand warrants.

This section describes in detail the recommended concept plans for the primary, secondary and service terminal sites in the Downtown Waterfront District.

4.2.1 Long Wharf and Central Wharf:

Situated at the heart of the downtown waterfront, the Long/Central Wharf complex of ferry landings is one of the two primary terminals serving this downtown hub, in close proximity to, Government Center, the Financial District, the North End neighborhood, the Aquarium Blue Line MBTA station, Faneuil Hall/Quincy Market, the New England Aquarium and other major work and visitor destinations. Two well protected vessel basins are contained between Commercial and Long Wharves, and Long and Central Wharves, while a less protected basin is defined by Central and India Wharves to the south. The Long/Central Wharf area is of particular importance to the City of Boston because of the city ownership of the perimeter of Long Wharf, thereby providing the best opportunity for creating a diversified ferry terminal complex, with as much as 1500 additional linear feet of active terminal berthing capacity.

Long Wharf was built in the early 1700's, and at one time extended nearly 2000 feet into Boston Harbor. A second connected pier, known as "T Wharf", was built on the north side, to increase ship berthing

capacity in this deep water area of the inner harbor. Today, Long Wharf is less than half its original length, and all that remains of T Wharf is a field of deteriorating pilings. In the 1980's , a master plan was prepared for a three phase restoration of Long Wharf , which was to include a park at the east end, stabilization of the deteriorating south face bulkhead and pier, and reconstruction of T Wharf, incorporating expanded ferry docks with a permanent Harbor Islands Gateway. Only the first phase was completed, and the state legislated funds for the other two phases were eventually redirected to another unrelated project. Three of the proposed component terminal projects for the Long/Central complex can combine to complete the vision for restoration of Long and T Wharves as the vibrant gateway to the harbor, and terminus of the historic Walk-to-the-Sea.

The basins and the existing dock arrangements include a variety of terminal types and uses. On the north side next to the Marriott Hotel, the Harbor Express terminal is privately owned and operated in a space leased from the BRA, and provides commuter service to the South Shore and shuttle service to the airport, while also accommodating the water taxis. Harbor Express also carries excursion passengers to and from Quincy seven days a week, with significant service and ridership on weekends and evenings. The south side of Long Wharf currently is leased by the BRA to Boston Harbor Cruises, which operates the current Harbor Islands National Recreation Area ferry, and a seasonal link to the *USS Constitution*, as well as whale watch and harbor cruise services. An MBTA terminal for Inner Harbor shuttle services is located between Long and Central Wharf parallel to Atlantic Avenue.

Central Wharf is owned by the New England Aquarium, which maintains docks on the north face for use by its whale watch and harbor tour vessels. The south face is largely devoted to berthing the *Discovery*, a barge providing Aquarium exhibits and performance space. The inner basin face of Central Wharf is not currently useable for docking because of insufficient water depth at low tide. The *Discovery* is moored up to the Aquarium property line and limits the size of vessel access to the inner basin.

The north face of India Wharf is currently devoted to small recreational boat slips, as a lease arrangement with a private dock manager separate from the Harbor Towers residential complex. The slips are suitable only for smaller recreational vessels. An earlier extension of the pile secured slips outboard of India Wharf was destroyed by a storm in the late 1980's and has not been replaced.

Terminal Design and Service Objectives: Multiple opportunities exist for the much needed expansion of terminal capacity in the three basins, and several projects were already in the planning stages for implementation at the time of this report. Already serving as a primary downtown terminal, the needs have been identified for significant expansion of berthing capacity for a broad range of ferry services including commuter, inner harbor shuttle, water taxi and cultural loop, the long designated Harbor Islands Gateway, and public landing space for visiting vessels. Objectives for the Long/Central terminal improvements include the following:

- Increase public berthing and terminal capacity in the strategic downtown location.
- Preserve and expand existing ferry services, while allowing for new uses such as the permanent Harbor Islands Gateway and public landing facilities.
- Provide full ADA and MAAB access to docks for the public terminal facilities, as well as for tour vessel docks where possible. (The Harbor Express terminal is currently the only fully accessible dock facility in the downtown core area).

- Improve localized navigation by selective dredging, notably in the Commercial/Long Wharf basin for ferries as well as other recreational vessels.
- Improve landside access and support functions including Harborwalk and pedestrian connections, protected waiting areas, and improved signage.
- Restore deteriorating bulkheads and pier structures where needed such as the south face of Long Wharf.
- Locate ferry uses with sensitivity to watersheet characteristics and navigational limitations.

Proposed Concept Plans (Figures 4.2-1, 4.2-2 and 4.2-3): The Long/Central area includes five distinct terminal project opportunities which would address the objectives described above. The individual project components are based on specific evolving plans which are at various stages of conceptual planning, funding, design and implementation. Taken together, the five potential project initiatives offer by far the greatest opportunity to add docking and berthing capacity to the downtown waterfront. The projects, including short and mid term actions, are shown in Figures 4.2-1 and 4.2-3, and the consist of the following components: 1) Long Wharf North Terminal, 2) Long Wharf/Central Wharf MBTA Shuttle Terminal, 3) Long Wharf South Pier Restoration, 4) Central Wharf South Pier, 5) India Wharf Terminal and Public Landing.

In the concept plans and maps which apply to the Long/Central terminal complex, the following clarifications may be useful.

- The terminal concept plans show activity zones for ferry use by hatching and color which are intended as generalized descriptions, rather than as strict zoning designations.
- The proposed dock uses indicated in the plans are not intended to imply any change of current ownership or lease arrangements.
- The designation of a Harbor Islands Gateway location has changed several times during the study. Temporary locations are indicated in the short term at the Long North, Long South and Central North docks to allow for some flexibility for the 2000 start-up of the next Harbor Islands ferry contract. Depending on which operator secures the service contract, the operators will be expected to use their own facilities or negotiate terms with other dock managers until a permanent Gateway is available. The permanent location is proposed for the new Long North Terminal described below. The City is currently trying to secure funding for the North Terminal project. The "H" designation on a map is not intended as a right for a non-resident operator to use the dock.

4.2.1-1 Long Wharf North Terminal (T Wharf):

The restoration of a pier in the location of the former T Wharf offers one of the single best opportunities to increase ferry dock space and berthing capacity in the downtown ferry hub area. The original T Wharf was built as a pile supported pier which, after a long and colorful history, was removed in the early 1970's as derelict and no longer needed. The 1984 plans for restoration of T Wharf included reconstruction of the full height pier. The current plans shown in Figures 4.2-1 and 4.2-3, include, instead, a floating pier which optimizes the use of the narrow waterway for vessel berthing, but also allows ample room for completion of the pedestrian Walk-to-the-Sea. The plan would be implemented

in two time frames: short term improvements from 1999 to 2003, and mid term improvements from 2004 to 2008. Recommended short term programs may include multiple phases. Photos of the existing Harbor Express and water taxi terminal are shown in Figures 1.31, 3.8, and 5.1.

Terminal Ferry Uses: The proposed short and mid term improvements to the north side of Long Wharf would serve commuter, tourist, and airport operations, providing much needed expansion of terminal space in the downtown ferry district. The new Long Wharf North terminal is intended to expand much needed public ferry landing capacity to relieve the heavily used existing docking facilities at the Long and Rowes Wharves. In addition, the new terminal complex would complete the long standing plans to restore "T" Wharf and establish a permanent Harbor Islands Gateway location.

Long Wharf North Terminal Improvements: Short Term. The Long Wharf North Terminal needs substantial expansion and improvement to be turned into a full service water transportation facility. This would allow for projected growth needs for such ferry uses as commuter, shuttle, Harbor Islands Gateway, seasonal excursion, water taxi, and cultural loop connections to Fanueil Hall and Christopher Columbus Park. In addition, floats would be provided at the inboard end as a public landing and short term layover space. The recommended short term terminal improvements area is shown in Figure 4.2-1, includes phases I and II of the North Terminal expansion as indicated within the heavy dotted line, and is proposed to include the following components:

Phase I would consist of dredging the basin and relocating the Harbor Express dock and ramps closer to the granite bulkhead and original T Wharf alignment.

- Dredging of the Basin: The area in front of Christopher Columbus Park would be dredged by 3 to 5 feet to allow for the existing commuter ferry floating dock to be moved closer to the north face of Long Wharf, to facilitate navigation of the larger ferries, and to allow for other recreational boating which shares the basin.
- Harbor Express Dock Relocation: the existing dock would be moved parallel to the bulkhead and the ramps relocated to the west end on axis with the "Walk to the Sea".

Phase II would consist of adding new floats for commuter, Harbor Islands, and shuttle vessels, to the end of the relocated Harbor Express dock, and building a new accessible ramp entry to the east end.

- Addition of 180 feet of New Floats: extending from the relocated existing Harbor Express float, would expand the terminal berthing capacity to accommodate up to 4 commuter ferries,, and a downtown gateway for the Harbor Islands National Park Area ferry system. The addition of a low freeboard 80 foot float to the west end of the Harbor Express barge would provide an expanded water taxi stop, a cultural loop landing and a public touch and go landing.
- Provision of an Accessible Ramp System: A new access system would be added at the east end of the new floats which meets federal ADA and state MAAB requirements. The fixed and moveable ramp system would connect to the Harborwalk, and complement the existing privately maintained accessible ramp which serves the Harbor Express float.
- New Waiting Area: A waiting kiosk and information station with seasonal weather protection would be provided as an integral part of the Harborwalk and new plaza area at the end of the

Marriott Hotel. The waiting kiosk would be designed as a temporary terminus for the Walk-to-the-Sea path which connects past the park through Quincy Market to the State House.

- Pedestrian Access and Harborwalk Improvements: Associated pedestrian access improvements to the new terminal gateway location will be included in the Phase I project , including permanent improvements to the temporary Harborwalk pedestrian path, with new surface treatments, lighting, signage, benches, and landscaping.

Long Wharf North Terminal Improvements: Mid Term. It is also recommended that the T Wharf replacement would continue in the midterm to complete the Long Wharf North Terminal, by extending the floating dock to the end of Long Wharf, including reconfiguration of the Boston Water Boat Marina This would allow for additional projected growth needs for such ferry uses as commuter, Harbor Islands Gateway, and seasonal excursion services as well as a number of transient recreational and charter boat slips within the marina basin. The recommended mid term or phase III terminal improvements area is shown in Figure 4.2-3, within the heavy dotted line, and is proposed to include the following components:

- The addition of 360 linear feet of new 30 foot wide floats, extending eastward from the phase I floats to complete the floating replacement of T Wharf, which would expand the terminal berthing capacity to accommodate 3 more commuter ferries as well as excursion and charter vessels, and an additional 200 feet of 4-foot freeboard floats along the edge of Columbus Park as a public landing expansion.
- Selective dredging of the basin area currently occupied by the Boston Water Boat Marina.
- The replacement slips for the existing marina in the new basin created by the T Wharf extension.
- Addition of new small vessel, public landing floats along the east face of Waterfront Park for water taxi, Cultural Loop, touch and go landing, and short term recreational boat docking and access.

Terminal Ownership and Management: The BRA owns the Long Wharf North perimeter and the City's Parks and Recreation Department owns the east edge seawall of Christopher Columbus Park. The Harbor Express terminal and Boston Water Boat Marina areas are leased by the BRA to private operators. Both tenants are generally supportive of the proposed plans on the assumption that their leases would be renewed. Management of the new facilities might then be divided between the City for the new terminal and public landings, Harbor Express for their modified dock, and the marina operator for his floats. As the plans are further refined, more formal negotiations and agreements will certainly be needed. The City intends to maintain ownership and some degree of management to be eligible for some of the federal and state assistance grants being sought.

Project Funding Status: At the time of the report the BRA was seeking capital funding assistance from the statefor design and construction of phase 1 short term improvements for the Long Wharf North Terminal, and capital funding for design and construction of the phase II short term improvements from the U.S. Department of Transportation through TEA-21 programs.

4.2.1-2 Long Wharf South Pier Restoration:

Terminal Ferry Uses: The ferry uses for Long Wharf South are projected to be predominantly a combination of seasonal excursion and charters, the services include some of the scheduled point-to-point non-commuter transit services (labeled excursion/transit in the plans) such as the current Harbor Islands contract and the Constitution Pier service to Charlestown. The Long Wharf South Pier Restoration and continuing use of the pier for excursion services is regarded as a major component of the Long/Central hub terminal, and a major contributor to the continually expanding waterfront tourism market. The privately funded restoration of the Long Wharf South pier face will help to maintain these activities into the next century. Long Wharf South has served for many years as the Harbor Islands Gateway as it continues to do through 1999. BHC continues to contribute in many ways to a wide variety of water transportation services, as both a contract transit operator and as a market responsive private operator. As such the use of BHC's leased pier facilities are continually supporting combinations of transit and excursion services and therefore defy strict categorization by use.

Long Wharf South: Short and Mid Term; The south face is currently leased from the BRA by Boston Harbor Cruises (BHC) which has its central excursion, charter and Harbor Islands services operating from the site. The pile supported pier and bulkhead have been in serious need of stabilization and restoration for nearly 20 years. Based on discussions with BHC, the operator has recently reached an agreement with the BRA to privately fund the needed construction for the first phase of the repair in exchange for an extended lease. The improvements will include stabilization of the granite bulkhead, construction of a replacement pile-supported pier, and paving and streetscape improvements to a section of State Street adjacent to the south face. At the time of interviews with BHC, the project was scheduled to begin in 1999 with the initial phase I section of approximately 200 linear feet starting at Atlantic Avenue. A possible mid term phase II could proceed after phase I completion, extending out to the east end park for which dock restoration was completed in the mid 1980's. BHC's extended lease arrangement with the BRA and City, makes the substantial investments in pier repair and improvement worthwhile for the private ferry operator, while relieving the City of an infrastructure maintenance cost.

Terminal Ownership and Management: The terminal would be managed by BHC, and would most likely continue to operate as the home base for the BHC fleet. It serves as the primary boarding location for many of the BHC ferry services, while also being used for layover including servicing, provisioning, and routine vessel maintenance. Cooperation will be needed between the City and BHC during the Long Wharf/Central MBTA Shuttle Terminal construction and beyond with respect to navigation and berthing for shuttle vessels, in exchange for use of the new accessible ramp entry.

4.2.1-3 Long Wharf/Central Wharf MBTA Shuttle Terminal:

The Long/Central MBTA Shuttle Terminal is another high priority project component of the Long/Central hub terminal. The dock needs substantial expansion and access improvements to accommodate increasing service demand and to be turned into a fully accessible water transportation facility. This would allow for projected growth needs for exclusive inner harbor ferry shuttle uses, including expansion of the Charlestown service and addition of other routes to North Station, East

Boston and South Boston Waterfront , as needed. The current ramp and float configuration does not meet MAAB and ADA standards, and a new ramp system is needed along with wider floats. At present the MBTA shuttle services are operated by Boston Harbor Cruises, which also leases the adjoining south pier face of Long Wharf. Photos of the existing terminal facilities are shown in Figures 1.31, 3.8, and 5.1.

Terminal Ferry Uses: The proposed short term improvements to the Long/Central MBTA Shuttle Terminal would serve growing commuter and tourist shuttle needs for this popular area in the downtown ferry district. The combination of expanded shuttle docks in the Long/Central terminal complex would be attractive for either additional MBTA contracted service as needed or for other privately operated, non-subsidized shuttle operations in the inner harbor. If it is possible through tighter scheduling of landing times, the unallocated berthing slots could be made available for fee to other qualified operators. The potential need for as many as three slips including possible part-time use of the potential adjacent Aquarium floats (as yet not in place) is based on the market projections that additional cross harbor routes could become attractive for unsubsidized or subsidized operations. The question of dock management and receipt of landing fees would need to be negotiated between the City, the MBTA, and the New England Aquarium. If multiple operators are to use the terminal, a third party day to day dock management approach may be desirable.

Long/Central MBTA Shuttle Terminal: Short Term Figure 4.2-2): Expansion of the MBTA Shuttle Terminal will need to balance several competing interests at the west end of the Long/Central basin. Current vessel turnaround and berthing space is limited by Boston Harbor Cruises wide beamed floating cafe "The Boat", which may need to be considered for future relocation further east on Long Wharf to allow for the expanded width needed for the MBTA dock, in exchange for access to the BHC floats via a new ramp system. In the short term BHC has agreed to improve the south face of Long Wharf privately, but will therefore need to make full use of the improved facilities for their excursion operations.

On the north face of Central Wharf and adjacent to the MBTA dock, the New England Aquarium plans to add floats to accommodate their own fleet of vessels, including their new whale watch catamaran and occasional visiting vessels. The Aquarium has indicated a willingness to enter discussions on providing berthing space on a shared basis for a limited portion of the inboard end to the north face, to accommodate any new MBTA shuttle vessels which may be needed, although none are currently planned. The shared area is shown as the boldly striped orange and green area in the plans. The Aquarium has expressed a particular need for daily use of the space during the 6 month summer season. The Aquarium would also have an interest in use of the proposed new access ramps. While there are few conflicts during the winter months for the shuttle terminal, the summer time demand continues to grow for all of the transit and excursion services using the narrow basin.

Docking for the water taxi, cultural loop, and public landing would not be included at this location, because of the large amount of larger ferry vessel use in this narrow basin, but would be available nearby on the north side of Long Wharf, and in the mid term on the south side of Central Wharf.

The recommended improvements to the MBTA Shuttle Terminal are proposed to be completed in the short term, as the BRA is pursuing funding for the project as a joint City of Boston/MBTA effort. The short term terminal improvement area is shown in Figure 4.2-1, as the area within the dotted area, and as

a more detailed concept sketch plan as shown in Figure 4.2-2. Proposed improvements should include the following components:

- Floats: The addition of 150 feet of new medium freeboard (4'), 30 foot wide floats, extending from Long Wharf to Central Wharf parallel to Atlantic Avenue, to accommodate up to 2 shuttle ferries. Approximately 80 feet of the adjacent Aquarium floats would be shared used at peak hours, to provide an additional shuttle landing. Pedestrian links would be provided at BHC and Aquarium floats at either end, to allow use of the new access ramps.
- Dredging: A small amount of dredging is needed at the southwest corner of the basin to allow for the floats to function. Funds are currently being sought by the City for this action.
- Provision of an Accessible Ramp System: A new access system would be added to the new floats which meets federal ADA and Massachusetts Architectural Access Board (MAAB) requirements. The fixed and moveable ramp system would connect to the Harborwalk, at both the Long Wharf and Central Wharf ends, and could be used for access to both BHC and Aquarium float systems. Figure 4.2-2 depicts a conceptual sketch plan for incorporating the preferred fixed ramp with moveable gangway access system.
- A New Sheltered Waiting Area: A weather protected waiting kiosk and information station would be provided as a replacement for the current small shed as an integral part of the Harborwalk.
- Pedestrian Access and Harborwalk Improvements: Associated pedestrian access improvements to the new terminal gateway location will be included in the project, including permanent improvements to the Harborwalk pedestrian path, with surface patching, lighting, signage, benches, and landscaping.

Long/Central MBTA Shuttle Terminal Improvements: Mid Term. No additional capital improvements would be anticipated in the mid-term. However, with the completion of the Central Wharf/South Pier and the Long Wharf North Terminal facilities in the short term, it will be possible to shift some of the shuttle service growth to one or both of the nearby locations if demand increases for new services, and to relieve the need for part time use of the Aquarium's docks on the north side of Central.

Terminal Ownership and Management: It is proposed that the terminal would be managed by the City and MBTA in cooperation with the New England Aquarium and Boston Harbor Cruises. For purposes of MBTA contracted shuttle services, there could be a tighter schedule of slotted landing times which coincide with the contracted schedule. The recommendation is for the expanded berthing be managed with timed landing slots of 10 to 15 minutes during peak weekday and seasonal weekend periods, to achieve the highest level of use. It is suggested that any layover berthing by shuttle vessels during peak use hours be done at other non-downtown sites, rather than tying up the limited space at Long Wharf.

Project Funding Status: At the time of the report the BRA was seeking funding assistance for dredging and for design of the facility, which would be owned by the City of Boston and used for MBTA shuttle services. Maximum use of the limited berthing space is recommended through timed landing slots and non-exclusive landing rights to make the facility a public dock. The non-exclusivity objective would be facilitated by the addition of berthing capacity.

4.2.1-4 Central Wharf South Pier:

As part of the permitted plans for the phased expansion of the New England Aquarium, the south face of Central Wharf has been projected to add to smaller vessel capacity for the Long/Central hub. The intended terminal uses are for vessels including possible shuttle, water taxi, cultural loop, and public touch and go landing services. The south face area has not been used for ferry docking for several reasons; the *Discovery* occupies much of the navigable water area, the inner basin flats out at low tide where the former pile supported pier was located, and the area is generally exposed to wave and fetch because of the short projection of India Wharf. The Aquarium is currently designing a pile supported expansion of the South Pier and associated dock. The concept plan is shown for the short term in Figure 4.2-1.

It should be noted that as the final plans for the IMAX and East Wing of the Aquarium are finalized, that there are requirements for ongoing reviews with public regulatory agencies, the abutters and other interest groups. The plans described in this section are far from being final commitments and will need to respond to all of the referenced reviews. The concept presented is one which is consistent with the Long/Central hub concept, but is subject to further review and change, as South Pier and IMAX plans are completed.

Ferry Uses: The completion of the short term construction of the South Pier and its associated ferry and water taxi dock may provide an opportunity for accommodating some of the projected shuttle growth and relieve some of the pressure on the Long/Central MBTA Shuttle Terminal dock. The types of vessels using the dock would be "smaller" than the "larger" vessels using the Central/Long Wharf watersheet. The project is regarded as integral component for the expansion of capacity for the Long/Central complex and is the principal location committed by the Aquarium for a combined shuttle, water taxi, and public landing terminal facility.

Central Wharf South Pier- Short Term: The south pier and dock construction have been conditionally permitted under Chapter 91 as part of the Aquarium master plan. Components of the proposed project include: a pile supported timber pier located between the new IMAX and the West Wing, a medium freeboard barge, an accessible fixed ramp and gangway system, and landside signage, waiting and communications elements. While not included specifically in the current permitted plan, it is also recommended that accommodations be made in the design for a lower freeboard float component to serve Cultural Loop, water taxi, and public landing needs as part of the dock facility.

As permitted, the terminal float would be located facing outward towards the harbor in the present location of the *Discovery* which will eventually be removed. The activation of the South Pier dock will depend on the timing of the removal of the *Discovery*. The pier extension allows for deeper water for the spud barge and shuttle vessels. The smaller water taxi float would be incorporated into the shuttle dock.

Channel access between the *Discovery* and the India Wharf marina slips is currently somewhat limited at about 30 feet clear, but would be expanded to 50 feet once the *Discovery* is relocated. The proposed new timber decked South Pier would serve as a wider Harborwalk link to the proposed new dock, and would also have appropriate benches, lighting and directional signs. The new deck area at the base of the wide steps would serve as an inviting south facing plaza, and waiting space for the ferry terminal.

Central Wharf South Pier-Mid Term: Although not included in the current Aquarium plans for the South Pier project, the terminal facilities could potentially be expanded during the mid term in one of several ways, depending on market demand for additional shuttle or water taxi capacity at Long Wharf and Central Wharf. One possible configuration is shown in Figure 4.2-3. After the South Pier is completed and the *Discovery* is removed, and when the East Wing and associated pier extension to the east are complete, the fairway or access channel will be much wider, and the eastern end of the pier face will offer more frontage for maritime uses. When the East Wing is completed, the outboard end of the pier could be used as berthing of research, historic or other visiting vessels.

Terminal Ownership and Management: The terminal ownership and management for the South Pier and dock are being negotiated based on the conditions of the application for state transportation funding. At the time of the report the arrangements were that the Aquarium would grant easements for the dock to the BRA, which in turn would approve a management and use plan which would best serve the public.

4.2.1-5 India Wharf Terminal and Public Landing, Mid Term:

A mid to longer term opportunity to provide additional multiple use dock and public landing capacity was identified as part of a potential reconstruction of India Wharf to the East and its marina slips. It should be noted that this potential project component represents a finding and recommendation of this study for future consideration, and is not necessarily associated with the previously described South Pier project. The plans shown in the mid term in Figure 4.2-3 are presented as a future possibility and are not supported or advocated at this time by either the New England Aquarium or Harbor Towers.

India Wharf once extended out to the Pier and Bulkhead Line, and more recently consisted of a set of pile secured floating slips. The BRA has expressed an interest in expansion and reconfiguration of the float system along East India Row, past Harbor Towers and along the pile field of the former pier, as shown in Figure 4.2-3. The potential multi-use dock facility could include additional ferry terminal space for shuttles, excursion and possibly commuter ferries, while at the same time providing much needed public transient boat slips. The floating docks extending away from India Wharf out towards the pier line would also act as a breakwater and wave fence for the south face of Central Wharf. The implementation would take place primarily in the mid to long term time frame. Prior to formalizing such a plan, full review and agreement would be needed with property owners, abutters and other stakeholders

The opportunities for additional "smaller" vessel berthing are described in terms of two potential phases involving the basin area along East India Row and along the north face of India Wharf.

The India Wharf plans are presented for discussion purposes only, and do not as yet represent any clear direction or agreements with the two adjacent land owners.

Terminal Ferry Uses: The India Wharf component of the Long /Central water transportation hub would be a mid term opportunity to add capacity to the downtown public ferry terminal zone. In addition the new finger pier would provide a public transient recreational boating facility, while also restoring the protected basin between Central and India Wharves.

India Wharf Terminal and Public Landing - Mid Term Phase I: The mid term phase I concept plan (Figure 4.2-3) shows the initial low freeboard float elements which would be installed along East India Row at some point after the completion of the Central Wharf South Pier face and shuttle terminal. The floats would extend parallel to the existing seawall along the Harborwalk between Central and India Wharf at the west end of the basin, and might require some spot dredging. Access to the floats would be via a new 60 foot ramp at the India Wharf end, as well as a connection to the new South Pier dock by ramp at the Central Wharf end. The phase I elements could include 120 linear feet of low freeboard float to serve as a water taxi, Cultural Loop, and public landing dock. Landside improvements should include signage, communications for the water taxi, and use of the Central South Pier waiting area.

India Wharf Terminal and Public Landing - Mid Term Phase II: The mid term phase II concept plan also shows the possible construction of a new floating pier along the north face of India Wharf and extending out to the pierhead line along the path of the former pile field. A new full access set of ramps would be located at the east end of India Wharf. The shuttle ferry use of the docks, if any, would be located at the western end of the basin, based on increased market demand. An additional accessible ramp system would be included at the east end of India Wharf. The outer floats and slips would serve as public landing, layover berthing and transient tie-up for visiting recreational vessels. The more exposed south side of the new floating finger pier could be used by larger visiting vessels, in excess of 80 feet. The elements of the mid term implementation could include up to 500 feet of medium freeboard spud barges, a wave screen float at the east end, 5 transient slip floats, a full access ramp and gangway unit, and landside improvements. Construction should also include removal of the existing piles and floats of the existing marina slips.

Terminal Ownership and Management: The terminal and landing facilities could be initiated as a City and BRA initiative with respect to management, leased from the current marina operator. Any final design and management agreements for the India Wharf docks and town landing would certainly require cooperation between City and the two adjacent property owners, the Aquarium and Harbor Towers. At the time of the report only preliminary discussions had taken place, with no clear consensus of opinion on the project.

4.2.2-1 Rowes Wharf / 400 Atlantic Avenue

Rowes Wharf currently serves as the second major component of the Downtown Ferry District. Within a short walk of the Financial District and most downtown areas, the passenger marine terminal serves as an active and diversified gateway linking the city and the harbor. The site has served for many years as the water transit terminal for Hingham commuter service and the Rowes to Logan Airport shuttle, as well as a base of operations for seasonal excursion and charter services operated by BHC and Mass Bay Lines. The commuter and excursion vessels use the Shuggart float, which is managed jointly by the Rowes Wharf Company and the MBTA. With the addition of a second floating finger pier in 1993, Rowes Wharf has served as the home base for the *Odyssey* dinner cruise and as transient berthing for a range of visiting historic and private vessels. Layover berthing for the commuter ferries is provided at floats in front of the adjacent 400 Atlantic Avenue. The terminal also includes an enclosed shore side ticketing center, which includes ticketing, information, public restrooms, and operators offices. Photos of the existing terminal facilities are shown in Figures 1.31, 3.9, and 5.2.

Many of the highly successful ferry and marine components were included as developer requirements as part of the long term lease of City owned property. As part of these lease conditions, there is also a triangular public/private advisory dock management entity known as the Operations Board, which consists of Rowes Wharf, DEM, and the BRA, with responsibilities for overseeing berthing and management decisions for the Shuggart commuter dock facilities including such key factors as berthing rates.

Terminal Design and Service Objectives: The commuter dock has long operated at capacity year round within the context of the dock slots allocated to the operators. The MBTA contracted Hingham commuter service operator, BHC, uses the terminal for excursion and charter operations in season when not fulfilling schedule requirements for the commuter runs. A second operator, Mass Bay Lines, also has long term docking rights, and uses the terminal as a home base for their excursion, charter, and non-contracted Hingham commuter services. While there appears to be ample space for the current Airport Shuttle, the owner/operator, Rowes Wharf Company, is seeking opportunities to expand to other areas of the harbor and could outgrow the current dock facility as demand for new services increases. Dock level access was not an issue when the original terminals were designed. None of the commuter, shuttle or excursion docks are accessible at all normal tide conditions, and do not meet MAAB and ADA standards. Primary needs for the terminal include the following:

- Expanded berthing capacity for commuter ferries, excursion services and shuttle operations.
- Accessible circulation systems to all public docks for commuter, shuttle, and excursion/transit services
- Addition of water taxi, cultural loop, and public landing dock facilities.

Proposed Concept Plan: The terminal owner, Rowes Wharf Company, recognizes the demand for additional ferry docking space and is currently seeking to expand the commuter/excursion dock facilities to the southeast to increase capacity. A joint grant has been filed by Rowes Wharf and the MBTA to acquire additional floats to be located in front of 400 Atlantic Avenue and the adjacent Coast Guard building. At report date it was uncertain whether the access improvements were intended to be included

in the short term or at a later mid-term phase of the project. The primary purpose for the expanded docks is to provide additional boarding and berthing space to relieve the overcrowded commuter float.

Terminal Ferry Uses: Rowes Wharf currently provides a broad mixture of transit and excursion services, combined with an enclosed ticketing and waiting area. Current ferry functions include the previously described commuter activities, as well as the Logan airport shuttle and numerous excursion activities. The proposed functions for the expanded short term pier will include added capacity for the peak hour commuter uses and off-peak excursion uses. The mid-term recommendations would expand commuter/excursion capacity, and add shuttle dock sites.

Short Term Terminal Components (Figure 4.3-1): Included in the current joint application by Rowes Wharf and the MBTA to EOTC for Transportation Bond Bill funding and requests for approximately 250 feet of new floats with a 4-foot freeboard for the additional commuter and excursion ferry berthing. In addition, a new MAAB compliant access system is proposed to provide links to existing and new fronts. It is recommended that such a system, which was not yet designed, should provide access to the existing Shuggart commuter floats and the Logan shuttle docks as well as to the new expansion floats. It is further recommended that the new floats be a minimum of 20 feet in width to allow for boarding and pedestrian movement.

Mid-Term Terminal Components (Figure 4.3-2): Further expansion of the floats in the mid-term is recommended by the study, to take advantage of the increasingly desirable Rowes Wharf site, as the Artery depression is completed. While final plans will need to be coordinated by Rowes Wharf and the Old Northern Avenue Bridge replacement project (described in section 4.2.2-2), it is proposed that several expansion steps be considered.

- Extension of the existing Shuggart float by 80 feet.
- Addition of a smaller, new 120-foot finger pier parallel to the existing Shuggart floats.
- Addition of a new accessible ramp entrance at the GSA Building and Old Northern Avenue Bridge.

The additional finger pier floats would result in a net increase in commuter/excursion vessel berthing. The remaining floats parallel to 400 Atlantic could then be used for expanded shuttle landing area.

Terminal Ownership, Management, and Project Funding Status: It is recommended that the current Operations Board management system be expanded to include the new short and mid-term expansion areas. The ownership of the new floats will depend on funding sources and ownership/lease arrangements in front of the three adjacent properties. A watersheet management plan may need to be prepared by the City for the mouth of the Fort Point Channel, and should consider such factors as fairways, front development rights and identification of compatible vessel uses.

At report date, decisions on state funding of the short term expansion had not yet been announced. State funding for capital costs for the pier would require public ownership and/or dock management.

4.2.2-2 Old Northern Avenue Bridge Replacement

The city-owned Old Northern Avenue Bridge will be replaced with a new pedestrian crossing including active water transportation facilities. The BRA had issued a Request for Proposals in early 1999 soliciting interest in the site, and in July 1999 granted tentative designation to Forest City Enterprises, which proposed a mix of public uses including a variety of water uses. However, at the end of 1999, the developer withdrew the proposal and the City decided to replace the existing bridge with a new footbridge for pedestrians and bicycles, along with a terminal and docks for water transportation.

New ferry uses on the reconstructed bridge will be considered as an expansion of the multi-use dock and access program proposed for Rowes/400 Atlantic at locations noted in Figure 4.3-2 with asterisks. A new ramp access location at the intersection of the Harborwalk and Old Northern Avenue Bridge on the channel side of the GSA Building could be shared by the new Rowes/400 Atlantic floats and the new bridge of the related floats. For purposes of the preceding description of Rowes/400 Atlantic plans in section 4.2.2-1, no specific references have been made to potential new bridge elements. However, the Rowes/400 Atlantic plans are configured to allow for new bridge floats to be developed, and could be further adjusted as needed depending on the final alignment.

4.2.3 Lovejoy Wharf

The existing terminal at Lovejoy Wharf was constructed in 1997 to provide a ferry link to North Station as part of a package of environmental mitigation measures required as part of the Central Artery project. The floating terminal is located within a three to four minute walk of commuter rail and subway platforms. The specific terminus location was intended to be temporary, with the fronts and vamps to be relocated to a reconstructed Lovejoy Wharf at a later date.

The terminal is currently used for shuttle services to Pier 4/Navy Yard, Federal Courthouse and World Trade Center. A water taxi landing is also available. Usage of the site and routes has been limited for several apparent reasons: 1) service, or headways, at peak hours has been limited and at irregular intervals, 2) site construction phasing has discouraged users, and 3) competition with free shuttle bus connections to the World Trade Center.

Terminal Design and Service Objectives: The current dock facility is one of the few fully accessible terminals in the inner harbor. The 120-foot long front has two freeboard heights at 4 feet for shuttle vessels, and a 2 feet for water taxis. An ample sheltered waiting area is included at the site. Capacity for berthing of ferry vessels is limited by the single loaded configuration, which was originally intended for the relocation parallel to Lovejoy Wharf.

Projected route expansion at the terminal for new shuttle routes indicates a need for doubling berthing capacity. Other needs would include a vehicular drop-off area, and direct pedestrian connections to North Station commuter rail and subway locations. The water-taxi, cultural loop, and public landing area needs to be expanded.

- Expanded shuttle berth capacity by 60 linear feet for a total of 180 linear feet.
- Expansions of water taxi and public landing berth to 60 feet.
- Provision of vehicular drop-off at future site.
- Provision of safe, inviting pedestrian walkways connecting terminal to North Station.

Proposed Concept Plan: As part of the Central Artery project, the original master plan for the continuation of the esplanade park past North Station included relocation and expansion of the current Lovejoy Wharf Terminal from its present location on Lomasney Way to a reconstructed Lovejoy Wharf in front of the Hoffman Building. The configuration of the walkway and park in that area is currently undecided, and leaves two options for the future site of the terminal: 1) in its present location or 2) in the original master plan site with potential modifications. Until the plans are finalized for the park and walkway, it will be difficult to determine the final siting. For purposes of the study, the current location, with expansion modifications, is described as the short term site (Figure 4.4-1), and the relocated and expanded facility at a reconstructed Lovejoy Wharf is shown as the mid term site (Figure 4.4-2). A photo of the existing terminal is shown in Figure 3.9.

Terminal Ferry Uses: Lovejoy Wharf would continue to serve principally as a shuttle terminal, with facilities for water taxi, cultural loop, and public landing. Excursion use of the terminal by larger vessels is limited by the North Washington Street Bridge clearance.

Short Term Terminal Components (Figure 4.4-1): The short term concept plan assumes that the terminal remain in its current location at Lomasney Way. Expansion of the terminal float would include addition of 10-foot wide floats among the currently inaccessible south face, with 4-foot freeboard to increase berthing for shuttle vessels. In addition, a 20-foot extension at the end of the float with 2-foot freeboards would increase the water taxi public landing capacity.

Mid Term Terminal Components (Figure 4.4-2): The midterm concept plan shows the relocation of the current terminal to a reconstructed Lovejoy Wharf. The relocated float would remain single loaded, and would add a new 120-foot, 4-foot freeboard addition for shuttle vessels, and a 60-foot addition for water taxi/cultural loop/public landing. The primary access would be at the North Station end of the floats along with the relocated waiting shelter.

Terminal Ownership, Management and Project Funding Status: Since the proposed esplanade park would be a public MDC facility, it is assumed that the terminal would remain in public ownership. Similarly, since the current ferry services are contracted by the MBTA, it would be likely that a similar management responsibility would continue. The current terminal was funded by the Central Artery Project. Future expansion funding might include relocation by the Central Artery as part of the esplanade extension. Park additions and modifications might require other funding sources, depending on the final location, ownership and management decisions.

4.2.4 Russia Wharf

The Russia Wharf Terminal was proposed to be the shuttle terminal link to South Station commuter rail, bus, and Red Line subway. The terminal was proposed to serve shuttle routes to the Charlestown Navy Yard and other inner harbor sites with poor transit connections to South Station. The project is intended to be built as a Central Artery Project (CAT) environmental impact measure to relieve central area traffic during construction. The terminal construction was delayed from its original 1996 completion date because of a combination of Central Artery and MBTA Silver Line busway construction, and delayed opening of Old Northern Avenue Bridge.

The Russia Wharf / Boston Edison (BECO) site was selected because of its short walking distance to South Station. The new Northern Avenue Bridge has a clearance of 17 feet at high tide, which would allow most shuttle ferries access to the inner basin. Congress Street and Summer Street bridges, by contrast, are too low to allow normal ferry access further up the Channel.

Terminal Design and Service Objectives: The Russia Wharf terminal was designed for the CAT at the same time, with the same specifications as the Lovejoy Wharf terminal. The ramps and floats were to be identical, while the landside waiting and access was to be tailored to the Russia Wharf site. Service and terminal design objectives to meet future projected demands are also similar to Lovejoy Wharf, with an anticipated need for increased capacity beyond the initial design specified.

- Total shuttle ferry berthing capacity of 180 linear feet.
- Water taxi / Cultural Loop / Public Landing capacity of 60 linear feet
- Fully accessible fixed and moveable ramp entry system.

- Sheltered waiting area.
- Vehicular drop-off.
- Safe and inviting walkway to South Station.

Proposed Concept Plan: The Russia Wharf terminal is still intended to be built by the CAT, to be turned over to the MBTA for contracted shuttle routes. During the course of the report, completion plans for the terminal have changed several times, regarding siting and construction phasing. At the final report date, the CAT announced a two phased implementation. The final location would be the originally proposed Russia Wharf / BECO site with modifications to the landside waiting area and ramp connections. In the shorter time frame, until Silver Line and artery construction at the Russia Wharf / BECO site is completed, the CAT is considering building the final floats and ramps and locating them temporarily at the Children's Museum Wharf across Fort Point Channel. Final design changes, siting and implementation schedules had not been finalized at the report date.

For purposes of this report, the original site plan is shown for the mid-term with modifications at a concept level proposed by this study for guideline purposes. The plan shown does not represent the CAT design, which was not yet completed.

The short term site location at the Children's Museum is not included as it was intended only as an interim measure.

Terminal Ferry Uses: Proposed ferry uses include inner harbor water shuttle connections from South Station to Charlestown Navy Yard and other inner harbor commuter origins or destinations. In addition the water taxi, cultural loop and public landing functions are also essential components of the plan. It should be noted that the interim siting of the terminal at the Children's Museum is intended to provide South Station service at an earlier date than the Russia Wharf site allows. The added walking distance of approximately 4 to 5 minutes across the Congress Street Bridge, which is scheduled for concurrent reconstruction, may diminish the attractiveness of the shuttle service to new users.

Short Term Terminal Components: The terminal fronts and ramps would be constructed and installed at a Children's Museum Wharf site. The design specifications would be identical to the initial Lovejoy Wharf terminal, including a single loaded 120-foot shuttle dock with a small water taxi landing at its outbound end.

Mid-Term Terminal Components (Figure 4.5-1): In the mid-term, the terminal would be relocated to the RussiaWharf/BECO site. The report recommends several modifications to the original proposed CAT plan. The dock becomes double-loaded by the west side. The water taxi public landing is moved to the west inbound end. The float is angled toward the mouth of the channel to allow easier ferry access to both sides of the float. The ramps are connected to the Harborwalk edge. The waiting area is set inboard of the Harborwalk, and smaller in area than the original. A pedestrian walk across the rebuilt edge of Russia Wharf, as in the original plan, is included. Vehicular drop-off would be at a cul-de-sac at the end of the reconstructed Pearl Street.

Terminal Ownership, Management, and Project Funding Status: While it is assumed that the completed mid-term pier would be turned over to the MBTA, consideration might be given to involving

the BRA and future developer of the BECO site to provide ongoing landside coordination. The dock components described would be the responsibility of CAT, as originally included in the Russia Wharf plans with some landside modifications. Any expansion of float dock capacity through addition of west side floats would be the responsibility of others who take over ownership and management.

BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TRANSPORTATION CONCEPT PLAN

KEY

- ▲ Primary Sites - Existing
- △ Primary Sites - Potential
- ■ Secondary Sites - Existing
- ⊡ Secondary Sites - Potential
- ★ Service Sites - Existing
- ☆ Service Sites - Potential

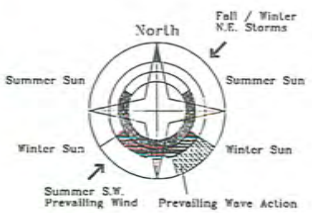
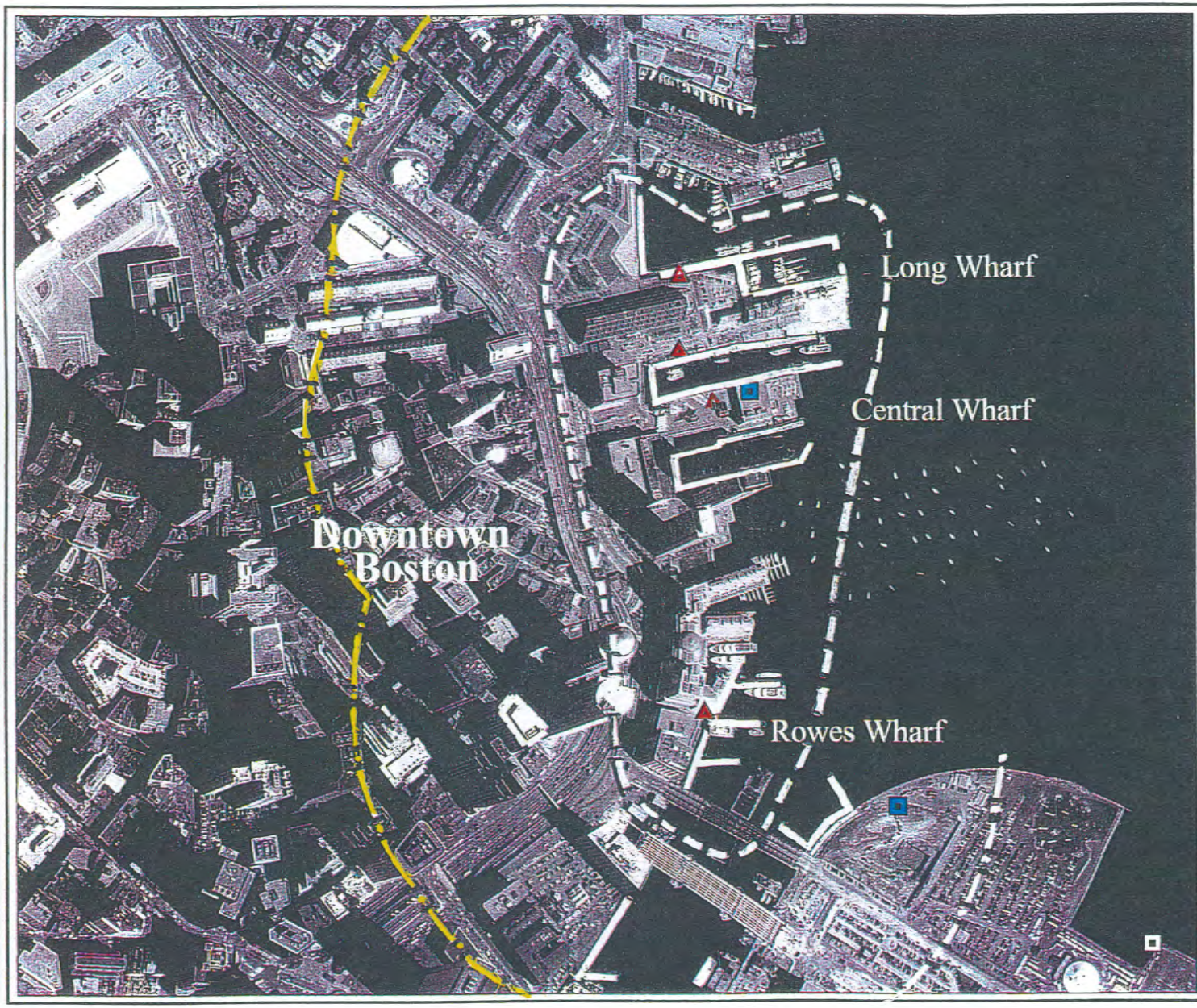


Figure 4.1-1
Downtown District Aerial

1000' 0 2000' 4000'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TRANSPORTATION CONCEPT PLAN

KEY

- Primary Sites - Existing
- Primary Sites - Potential
- Secondary Sites - Existing
- Secondary Sites - Potential
- Service Sites - Existing
- Service Sites - Potential
- 10 Minute Walking Radius

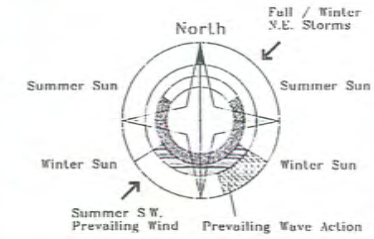


Figure 4.1-2
Downtown Hub Terminals

200' 0 400' 800'

December, 1998

TAMS

BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock
  New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

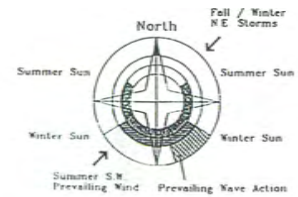
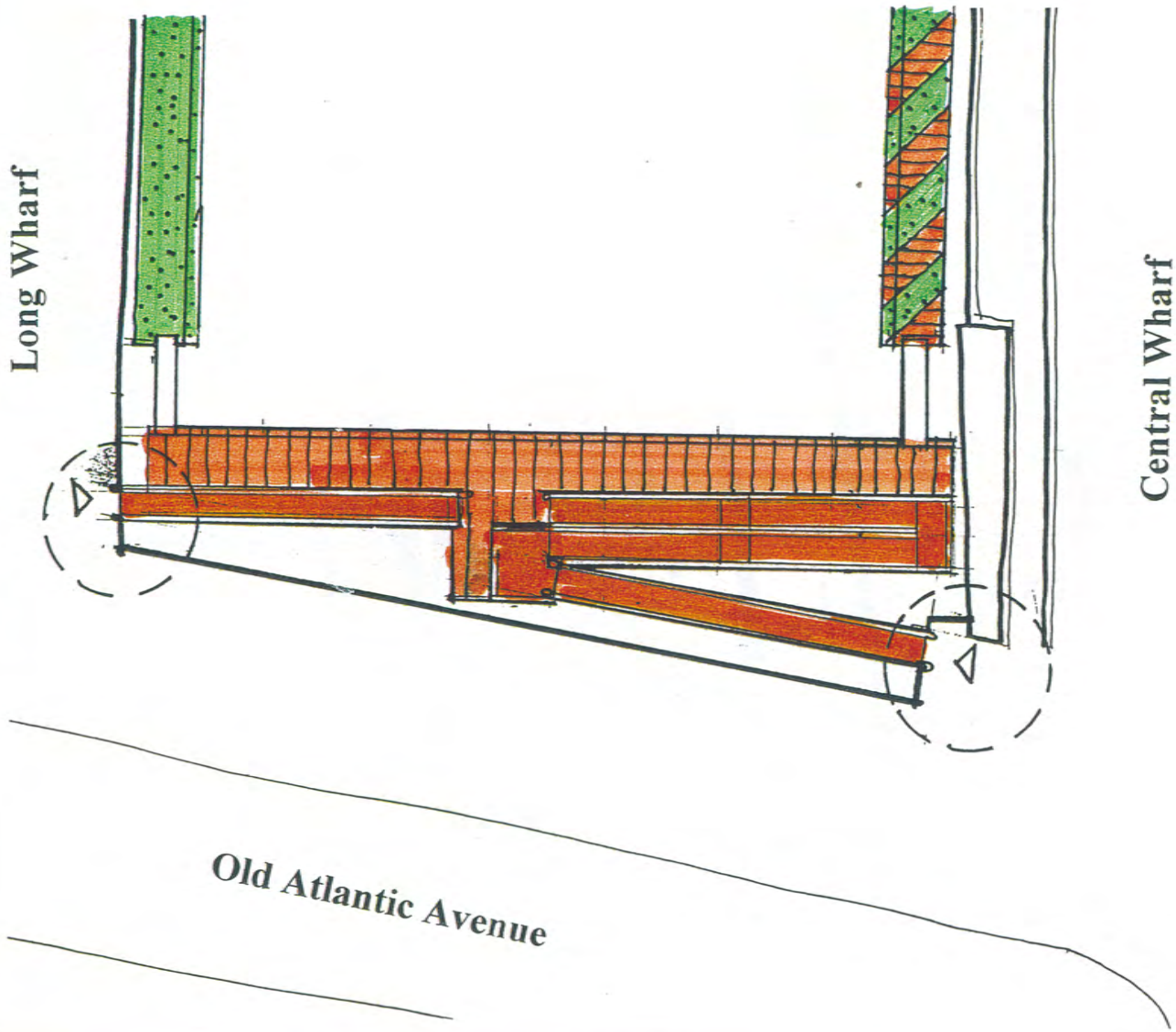


Figure 4.2-1
Long/Central Wharf
Short-Term

62.5' 0 125' 250'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock
  New Float Dock
- Accessible Float Dock Location

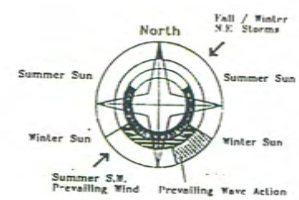


Figure 4.2-2
Long/Central MBTA Shuttle Terminal
Short-Term

0 25' 50'

December, 1998

TAMS

BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock
- New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

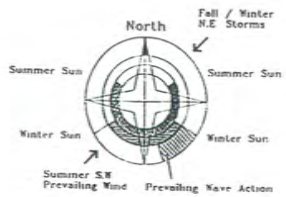
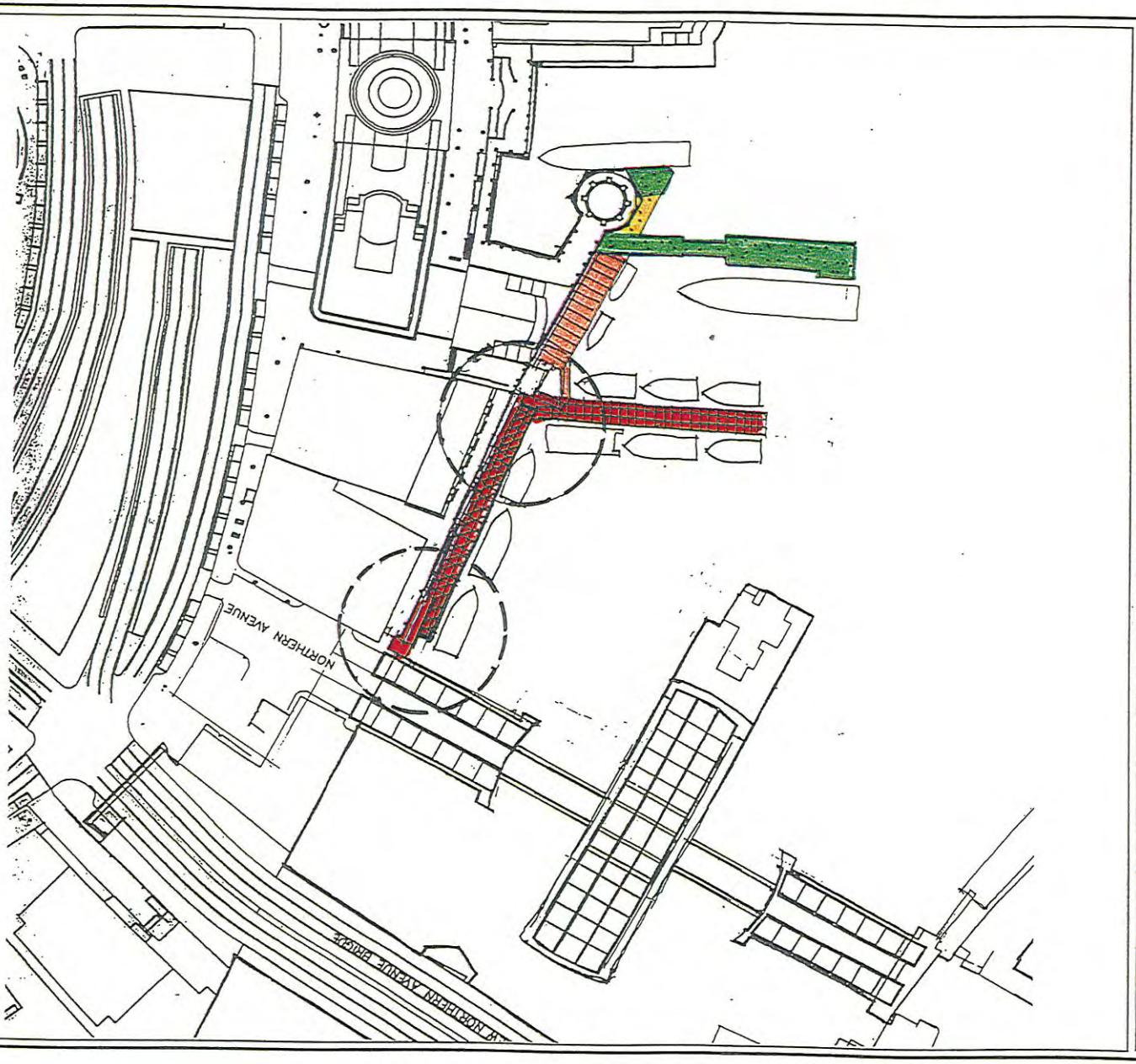


Figure 4.2-3
Long Central Wharf
Mid-Term

62.5' 0 125' 250'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock / New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing

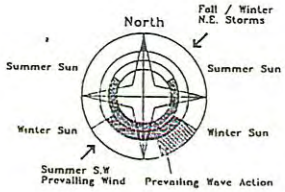
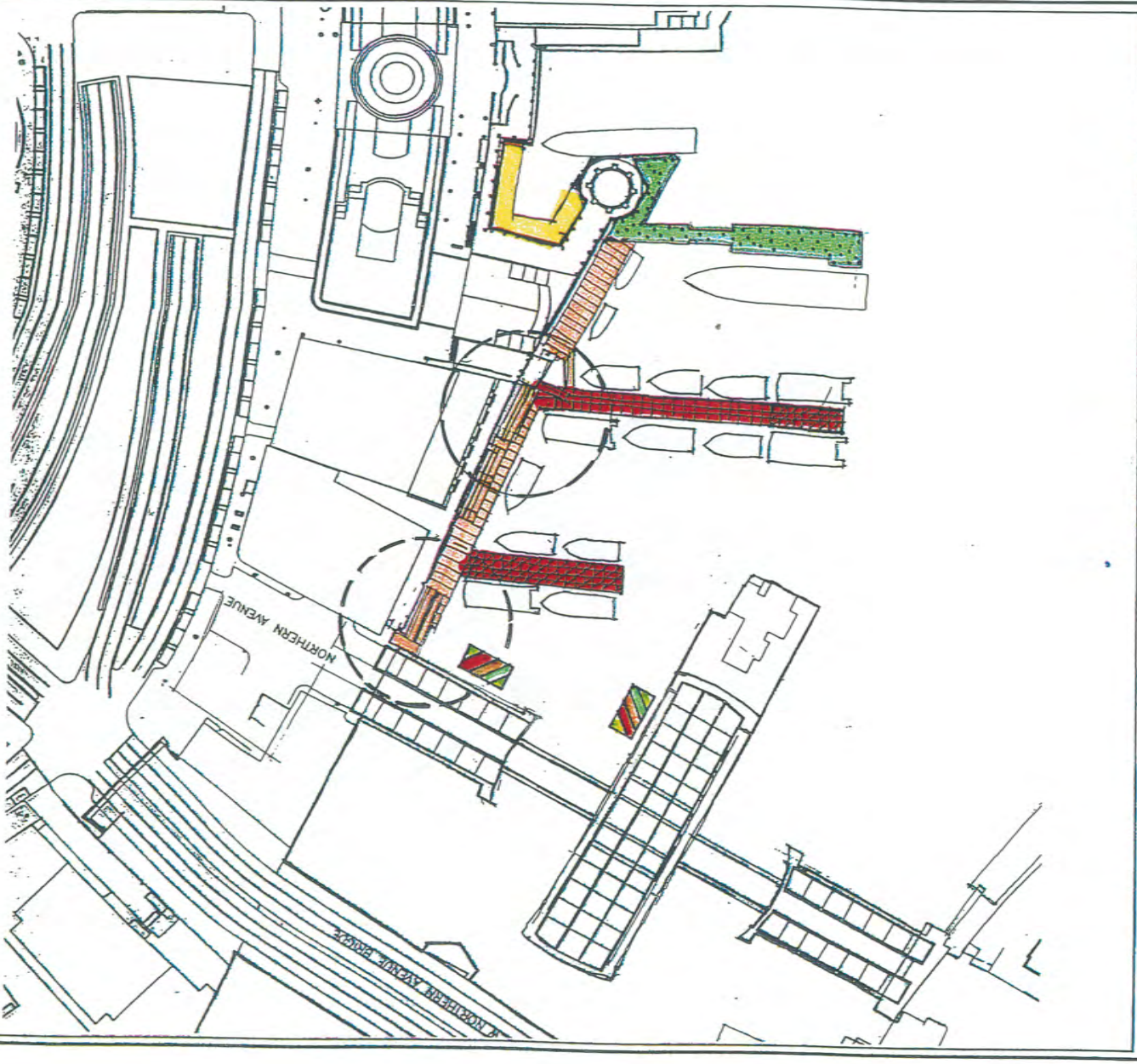


Figure 4.3-1
Rowes Wharf/400 Atlantic Short-Term

50' 0 100' 200'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock / New Float Dock
- Accessible Float Dock Location
- Future Terminal Docks/Uses at Old Northern Avenue Bridge Depend on Final Project Configuration

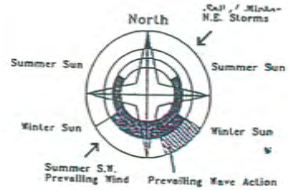


Figure 4.3-2
Rowes Wharf/400 Atlantic
Mid-Term

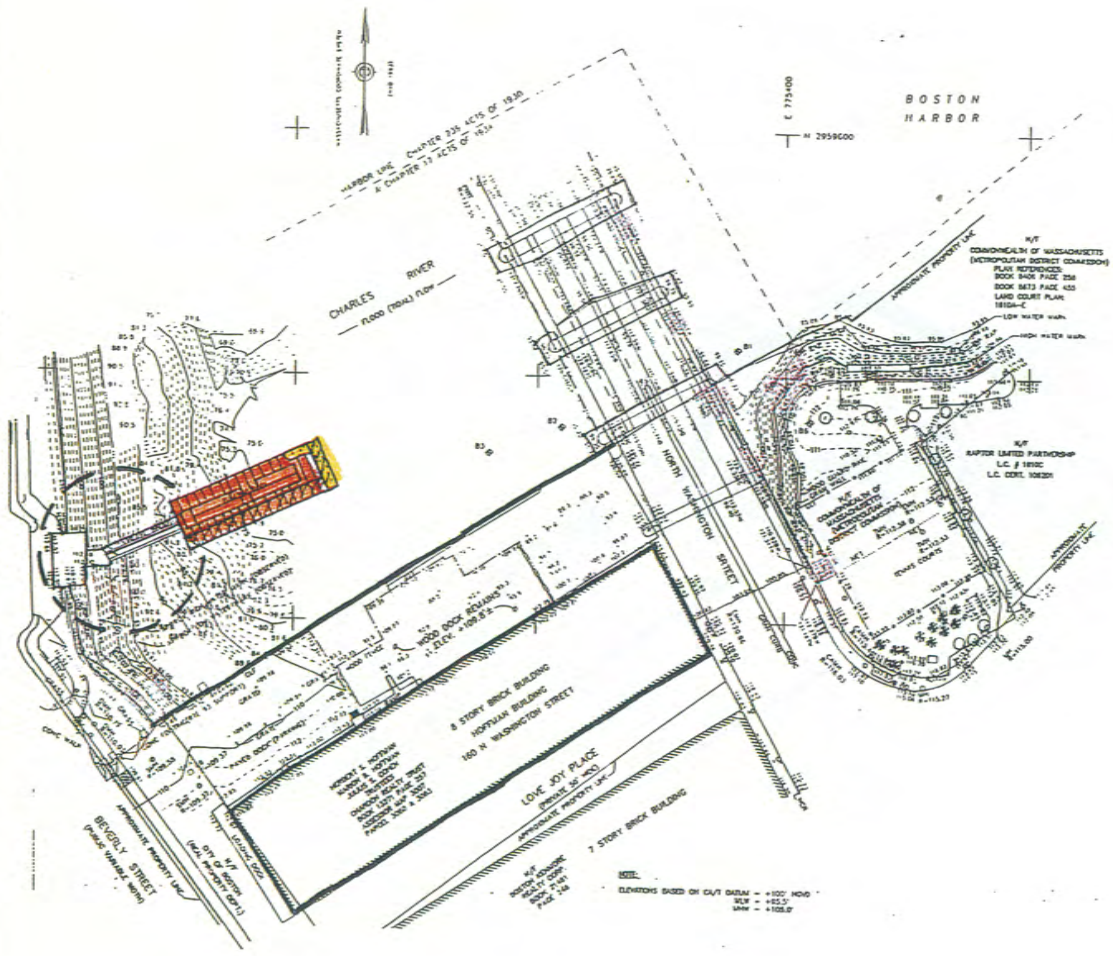
50' 0 100' 200'

December, 1998

TAMS

BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN



KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock
  New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

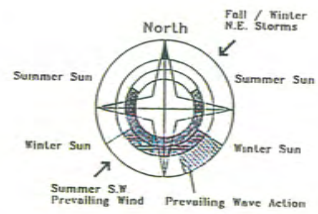


Figure 4.4-1
Lovejoy Wharf/North Station
Option 1 Short-Term

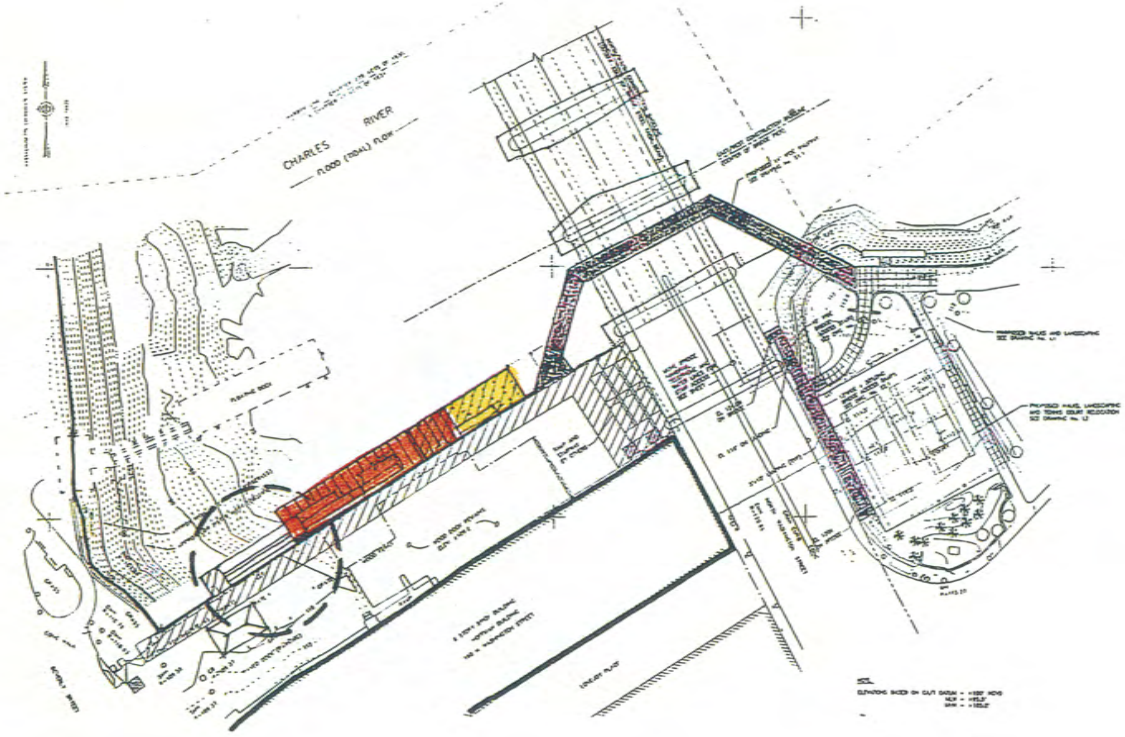
50' 0 100' 200'

December, 1998

TAMS

BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN



KEY

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- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock
- New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

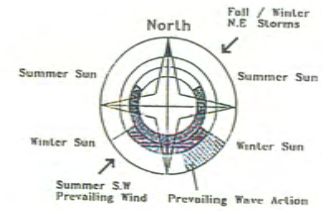
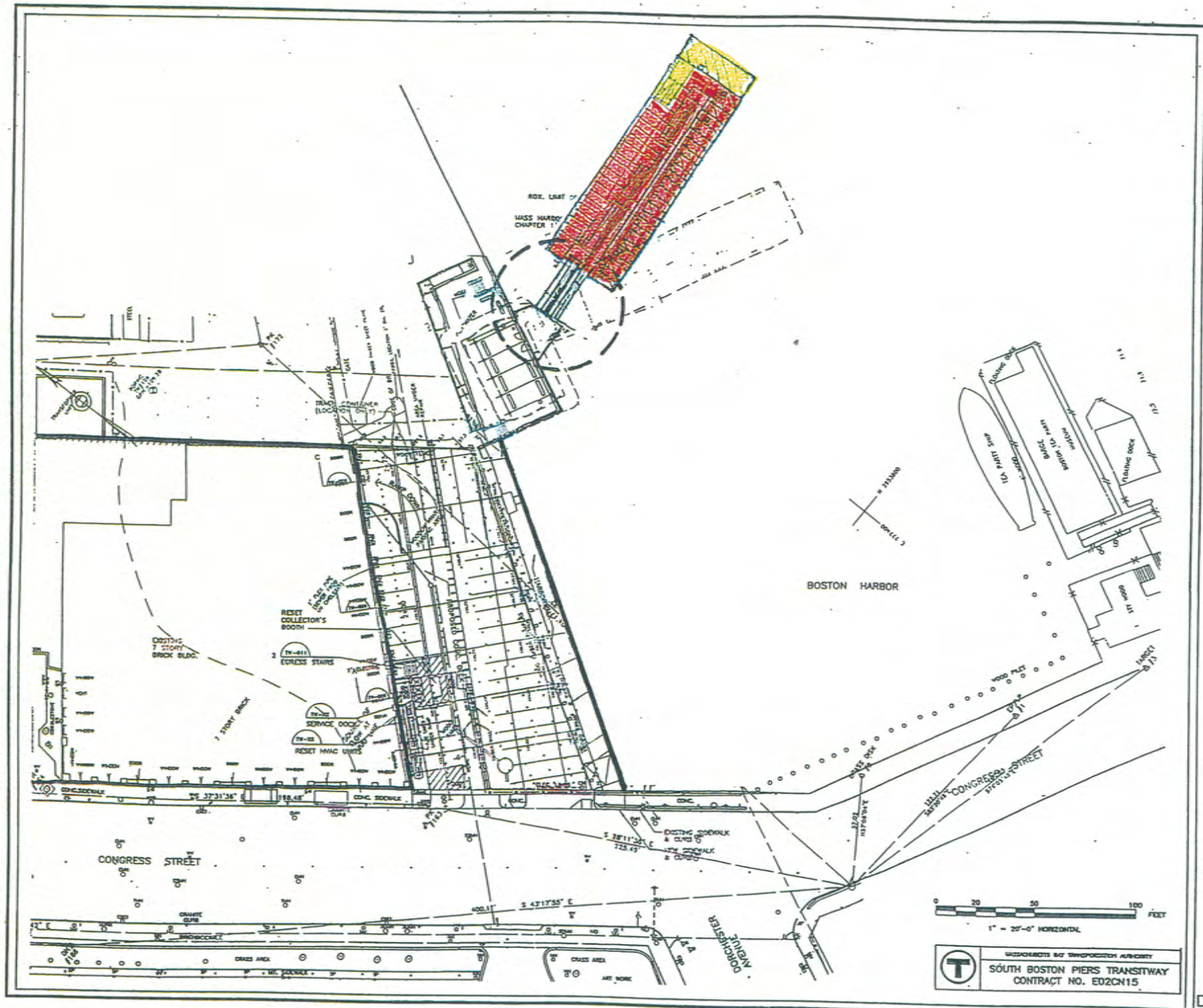


Figure 4.4-2
Lovejoy Wharf/North Station
Option 2 Mid-Term

50' 0 100' 200'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock
- New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

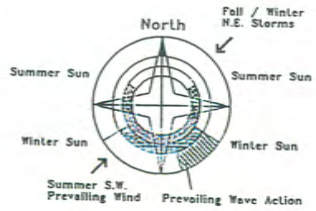


Figure 4.5-1
Russia Wharf/South Station
Mid-Term

December, 1998

TAMS

4.3 South Boston Waterfront District

The water transportation plan for the South Boston Waterfront has many unique challenges and opportunities in responding to the district's evolving ferry service demands. The district is currently projected to have major development growth over the next 10 years and beyond. With district access greatly enhanced by completion of the third harbor tunnel and central artery extension, the South Boston waterfront is to include such major projects as the new Convention Center, redevelopment of the Fan Pier and other major parcels as mixed residential, office, hotel and retail, and a variety of cultural destinations. The water transportation plan is specifically tailored to anticipate such development and to become an integral component of the district transportation system. Existing and proposed terminal sites included in the district are shown in Figure 4.6-1.

Comprehensive development guidelines for the area were described in the South Boston Public Realm Plan completed by the BRA in February of 1999. Many aspects of the district ferry plan presented in this section were included as components of the water transportation plan and water use management plan for the BRA report as shown in Figure 4.6-2. The specific terminal plans presented in this section, however, were then further developed in conjunction with specific emerging projects, parcel development, and stakeholder interests.

Historic Context: Passenger water transportation had not played a major role in the South Boston waterfront area until the last decade. Prior to the opening of the World Trade Center (WTC) on Commonwealth Pier in the early 1980's, there were few excursion and no transit ferry services in the seaport area. During the 1970's and 1980's, excursion ferries used docks near Northern Avenue in two locations; at Pier Seven near Jimmy's Harborside Restaurant and at the Fan Pier end of the Northern Avenue Bridge. The working port stretched from Fort Point Channel to the Reserved Channel, and there are no indications that any public ferry landings or year round transit ferries operated along the piers.

After the establishment of the World Trade Center as an important work destination and conference center, it gradually became the most active ferry terminal along Northern Avenue because of the landside activity combined with the availability of apron space for larger and smaller ferry vessels, as well as excursion vessels. Since that time, World Trade Center has served as an active boarding and berthing site for a variety of excursion and charter vessels, The excursion services have benefited from proximity to the downtown combined with ample parking, which has become increasingly scarce at downtown sites. In addition to the passenger terminal sites, the South Boston Waterfront has also provided servicing facilities including fueling and provisioning as well as layover berthing and maintenance sites at various locations including World Trade Center, the Fish Pier and Pier Seven/Wharf 8.

Existing and Potential Ferry Services and Routes: The South Boston terminals presently play a useful role in the harborwide network at several levels. Existing and potential terminal and service facilities are shown in Figure 4.6-1. Excursion terminals continue to operate at World Trade Center in support of several services including the *Provincetown,* and the *Spirit of Boston,* and at Wharf 8 for A.C. Cruise Lines service to the North Shore. In the summer of 1999, a shuttle dock was installed to serve the new Harborlights Pavilion. In addition to the excursion terminal sites, the first scheduled inner harbor shuttle

service in South Boston started in 1998 connecting World Trade Center to North Station commuter rail and subway via Lovejoy Wharf. A private service to Thompson's Island operates from the city maintained dock at the Summer Street end of the Black Falcon Pier in the Reserved Channel. Fuel dock and ice facilities remain at the east side of the Fish Pier, and layover berthing continues at World Trade Center. Water taxi stops are located at multiple sites from Fort Point Channel to the Reserved Channel.

A variety of docks and service facilities are currently located along the Seaport waterfront, with multiple ownership and management conditions. A growing number of excursion operations have located at piers during the past few years, and provide a variety of seasonal services. Year round scheduled service is limited to the World Trade to North Station route, which will continue to operate as a mitigation measure for the duration of the Central Artery project. With respect to passenger access from the landside, none of the terminals are currently accessible by ADA guidelines or state MAAB standards with the exception of the World Trade Center Marine Terminal.

- **Museum Wharf:** The Fort Point Channel area currently includes several privately owned water taxi stops including Museum Wharf. Vessel access to the Basin is limited by the New Northern Avenue Bridge to 17 feet, and by the Old Northern Avenue Bridge, which has a closed position clearance of 7 feet at high tide and which is opened on demand for vessels requiring more clearance. Vessel access is even more limited to the inner basins by the Congress Street Bridge clearance of 5 feet at high tide.
- **Federal Courthouse:** At the Old Northern Avenue Bridge entrance, a new GSA owned ferry landing exists at the Federal Courthouse, which is being used by a variety of charter services, and a limited term demonstration stop on the World Trade to North Station shuttle.
- **Pier 4:** A private water taxi stop exists at Anthony's Pier 4 restaurant.
- **World Trade Center:** The World Trade Center currently serves as the primary ferry terminal on the South Boston Waterfront, including the recently built Marine Terminal on the west side of the pier which serves the dinner cruise *Sprit of Boston* and the North Station shuttle. The shuttle dock has limited capacity for vessels and passengers and is hidden from public view along Northern Avenue. Additional landings and berthing sites are leased to various excursion and charter operators.
- **Fish Pier:** On the east side, an apron berthing is reserved for truck fueling for ferry and other commercial vessels. The nearby ice facility serves the fishing fleet as well as ferry vessels.
- **Wharf 8:** The landing next to Atlantic Avenue serves as the boarding and berthing location for A.C. Cruise Lines, an excursion operation. The remainder of the dock space is used by lobster boats. In 1999, a shuttle dock was installed at the new Wharf 8 location for the Harborlights Pavilion to serve patrons of the seasonal music series.
- **Black Falcon/Reserved Channel:** A small float dock is maintained by the City as a limited use facility for adjacent Marine Industrial Park commercial vessels as well as the Thompson's Island ferry.

District Water Transportation Objectives: Water transportation can play a critical role in the development of a vibrant seaport area, with the gateway terminals providing year round activity centers similar to San Francisco, and the ferry routes providing efficient and enjoyable links to other harbor destinations. While serving as an integral component of the public transportation network for daily commuters to and from South Boston waterfront points, the ferry routes will also provide access to the

greater Harbor for visitors and residents alike. With connections to the future Silver Line and the trolley way Urban Ring, the ferry routes will become part of an intermodal web serving the waterfront district and neighborhoods beyond.

- Develop Intermodal Links Between the Water Transit System and New South Boston Destinations: The future ferry links can provide seamless passenger connections to and from the South Boston Waterfront for commuters, residents and visitors if the terminals are sited strategically, and are featured as prominent waterfront gateways. Pedestrian access is an important priority in making direct and inviting links to emerging destinations such as the Convention Center, as well as nearby Silverline transit stops. Vehicular drop-offs for MBTA buses, shuttle buses and taxis are also key.
- Provide Multiple Use Dock Facilities: The terminals need to be designed to accommodate a wide range of interconnecting transit and excursion ferries. Terminal gateways should be designed with different sizes of interconnected docks to allow for a mixture of vessel types and sizes. A public landing and water taxi dock should also be included at each site, wherever appropriate.
- Reserve Sites for Ferry Terminal Gateways at Key Waterfront Locations: Just as land-based transit terminals need to be designated as public spaces, ferry terminals also need to have such public designation, particularly for new development sites such as the Fan Pier. The critical sites identified need to be reserved for future implementation.

South Boston Waterfront District Plan and Harborwide Connections: The water transportation facilities and services can provide vibrant gateways to and from the South Boston Waterfront District. For first time visitors and long time residents, arriving from the airport by boat to the Boston waterfront can be an exhilarating experience. As new harborfront vistas and gateways are created, a water arrival and departure can be a memorable Boston experience as are the current ferry connections to the downtown at Rowes and Long wharves. The South Boston ferry terminals may also serve as gateways for District visitors and residents to other regional attractions such as the Harbor Islands, Salem and the Cape. In addition, the daily shuttles and commuter services can provide the daily commuters to and from the District with efficient and enjoyable links across the harbor.

South Boston Waterfront Terminal Concept Plans: Primary and secondary ferry terminals will need to be reserved at specific locations as sequential phases of the District area are built. Layover berthing and servicing sites will also need to be reserved at appropriate existing and new locations. In the near term, passenger ferry terminals are likely to be concentrated predominantly at expanded existing dock sites. In the next ten years, existing facilities are likely to be further expanded and new terminals added as waterfront sites become more fully developed. The following section describes in detail the recommended concept plans for the South Boston terminal sites, starting with the primary terminal at World Trade Center and continuing with secondary and service sites. In cases where service sites are combined with passenger facilities, such as at World Trade Center and Wharf 8, they are described together in the same section.

4.3.1 World Trade Center (Figures 4.7-1 Short Term and Figure 4.7-2 Mid Term)

As the primary terminal in South Boston, the existing World Trade Center Marine Terminal will be expanded on both sides of Commonwealth Pier, which is currently the most active and diversified area

along the South Boston Waterfront. With the proposed reconfiguration of Viaduct Street as a key pedestrian link, the terminal will be best situated to serve the new Convention Center and related new development. As shown in the short term in Figure 4.7-1, and in the mid term in figure 4.7-2, the terminal will accommodate a full range of interlinking services including inner harbor shuttle, seasonal excursion, water taxi and cultural loop as well as charter, and eventually commuter service. By locating components of the expanded ferry terminal along Northern Avenue as well as the inboard ends of the pier apron, the ferry landings will have the greatest exposure and access for pedestrians. In addition to passenger terminals, the WTC apron is large enough to provide layover berthing, as well as to accommodate other excursion services. If the pier is eventually used for more frequent cruise vessel visits, as a backup to Black Falcon, the ferry terminals will provide immediate water transit options for visiting passengers. Photos of the existing marine terminal and the east face of Commonwealth Pier are shown in Figures 3.10, 3.12, and 5.2.

Site Conditions and Design Objectives: The World Trade Center activities increased substantially with the addition of the first phase hotel of an office and retail complex located across Northern Avenue, completed in 1997. A new Marine Terminal facility was built on the northwest (west) pier face at Northern Avenue, primarily to serve as the landing for the *Spirit* dinner cruise excursion operation, and includes a temporary small (60' by 10') shuttle dock at the outboard end. The extensive Commonwealth Pier perimeter of 2400 feet will also continue to serve various excursion vessels.

Both northwest and southeast faces of Commonwealth Pier are well protected from wind and wave action. The deck height is 18 feet above MLW, creating the need for a longer ramp to the floats than at many other inner harbor sites. Because of the considerable length of the pier, 1200 feet, the Northern Avenue ends of the apron are strongly favored for shuttle and other services. While the southeast (east) face is favored year round owing to longer hours of sun, the northwest (west) face is in sunlight during the afternoon, which can be important during winter months. The pier is owned by Massport, and leased to and managed by the World Trade Center.

Terminal Ferry Uses: A variety of terminal locations and services are provided from WTC at present. A shuttle service to Lovejoy Wharf and Federal Courthouse was initiated by the MBTA in 1997, and continues to attract expand ridership as it becomes better known to commuters from the north areas. A seasonal service to Provincetown is provided by Baystate Cruise Lines from the west face. A variety of other excursion and charter services are also based at floats on the east face. Future services would include; expanded year round shuttle services to a variety of inner harbor sites including downtown and Logan Airport, seasonal transit/excursion services to the Harbor Islands, North Shore, South Shore and Cape Cod. In addition, water taxi and Cultural Loop landings are needed in conjunction with public landing space. The rate at which new or expanded terminal facilities would be required will depend on the schedule and location of new development within walking distance of the various terminal locations.

Short Term Components (Figure 4.7-1): The short term expansion on the west face is recommended to include additional floats to accommodate smaller vessels including the water taxi, cultural loop and public landing. The new floats would be parallel to Northern Avenue, in full view of users, and would be accessible via new ramps at the Marine Terminal entry way. The *Spirit* dock, small shuttle dock and Provincetown ferry berth would all remain in place along the apron.

The east face components would include a 120-foot commuter and excursion dock parallel to the apron. In addition, a 100-foot shuttle dock would be installed parallel to Northern Avenue. The two new east face float docks would be served by a covered waiting area and accessible ramp system located at the corner of the apron and Northern Avenue, with an appearance similar to the existing west face Marine Terminal entrance.

Landside improvements during the short term could include such features as a widened pile-supported timber sidewalk along Northern Avenue on both the east and west sides. This expansion of the Harborwalk would allow additional waiting areas for ferry patrons, as well as providing more flexibility for adequate curb space for connecting shuttle buses and vehicular drop-off. As much as 12 feet could be built away from the existing bulkhead over an area which includes combined sewer outfalls (CSO's) and some shoal areas which are non-navigable. Signage and lighting would also be included at each phase to amplify new docks and services.

Mid-Term Components (Figure 4.7-2): Further expansion of east and west face dock facilities would be proposed for the mid-term in response to completion of the Convention Center and related hotel, office and retail development. On the west face, a new shuttle dock in the form of a finger pier would be added at the westerly end of the small boat landing, with access remaining at the existing Marine Terminal entry way. On the west face the initial commuter dock could expand and/or move to the north, allowing additional shuttle dock space at its original dock site. The area parallel to Northern Avenue would be filled in with floats for water shuttle and water taxi/cultural loop landing, with a new entry ramp connecting to the west face of the Fish Pier.

Layover berthing would continue along unused portions of the apron, and would be particularly useful for WTC leased services. Land based improvements would include further expansion of intermodal shuttle bus and pedestrian pathways, as well as adequate curb-based bus storage for package tour groups. Further signage would be completed to announce new services and dock locations.

Ownership, Management, and Funding Status: The Commonwealth Pier apron is owned by Massport and leased to the World Trade Center. The Northern Avenue bulkheads on the east and west sides of the pier are owned by Massport including the sidewalks and roadway. While the apron is presently managed by the World Trade Center, and is likely to continue as such, the expansion of ferry facilities and diversification of uses may require more active involvement by Massport.

The original Chapter 91 license for World Trade Center included an agreement to build a permanent accessible terminal of 120 feet in length, contingent on construction and lease-up milestones for the office complex. The east side terminal facility parallel to the apron presents an opportunity to fulfill this requirement. Other dock components might require various combinations of public (Massport) and private (World Trade Center and operators) investment.

4.3.2 Museum Wharf

The Children's Museum (Figure 4.8-1) is a suitable site for a seasonal water taxi, cultural loop, and public landing facility, expanding the current dock attached to the Museum's floating restaurant. With

the proposed Russia Wharf/BeCo shuttle terminal scheduled for short term implementation, and the existing Federal Courthouse terminal both within a short walking distance, the shuttle and larger vessel terminal needs are well covered for the foreseeable future. The ferry docks are also used by the nearby Boston Tea Party, only a minute's walk away from the current water taxi stop. Indeed, at the time of the report completion, the Central Artery was proposing to locate the Russia Wharf terminal at the Childrens Museum temporarily until construction activities at Russia/BeCo were complete.

Terminal Ferry Uses: The existing water taxi and proposed cultural loop services would constitute the primary activities at Museum Wharf following the relocation of the temporary installation of the shuttle dock and proposed services to the Charlestown Navy Yard. Further use of the site for scheduled water transit services is limited by the relatively long walking distance to South Station for potential shuttle connections, and by the height restrictions of the Moakley Bridge for larger excursion vessels. Ferry access to the Museum may become quite popular during the forthcoming reconstruction of the Congress Street Bridge, which is likely to inhibit both pedestrian and vehicular traffic to the site. It is recommended that a consortium of inner harbor museums and cultural attractions consider reactivating the Cultural Loop, in combination with park and ride sites, which would provide a much needed alternative to travel between the currently dispersed sites .

Mid-Term Components: There are several possible locations and configurations for the Childrens Museum small boat dock. Expansion of the current facility on the outboard face of the floating restaurant is shown in Figure 4.8-1, with a new accessible ramp system replacing the current entry stair/ramp. Alternatively the Museum may reorient the restaurant parallel to the Congress Street Bridge; in which case the dock area might be the same, but the access ramp would require an altered location at the north end of the barge. Landside improvements would include a waiting area, if not included on the barge, and signage directing riders to the dock and describing the services.

Ownership and Management: The Childrens Museum would contrive to own and manage the terminal assuming continued use of the barge. Similarly, funding of the dock expansion and improvements would be the responsibility of the Museum.

4.3.3 Federal Courthouse (Figure 4.9-1 and 4.9-2)

The existing Federal Courthouse Terminal was completed along with the site landscaping in 1998. The dock facility was served initially by a single ramp and was not compliant with access requirements. When the federal management entity, the General Services Administration (GSA), requested that the MBTA include the Courthouse in a shuttle route from North Station to World Trade Center, commitments were made to adding a mechanical ramp/lift commercially called a Ramp-Rider, the first such device to be installed in the Boston Harbor. In addition to the dock facilities, there is an enclosed waiting and ticketing area, along with rest rooms and office facilities, located in the nearby arcade of the Courthouse. A photo of the existing terminal is shown in Figure 3.10.

Terminal Ferry Uses: A program of vessel uses has evolved including the North Station/Lovejoy shuttle, a seasonal ferry to Little Brewster Island and its lighthouse as part of the Harbor Islands National Recreation Area service, and a variety of excursion services. The GSA has declined to have a water taxi

dock or public landing at the site, for security reasons, but would accommodate a cultural loop service if it were activated.

Short Term Components (Figure 4.9-1): The short term dock improvements including addition of an accessible ramp system, the Ramp-Rider, addition of required dock hardware including lighting, fenders, and mooring cleats, and completion of the landside facilities were all completed in 1999. These improvements allowed start-up of the short term ferry uses. The installation of the Ramp-Rider will provide a useful test of the durability and capacity of the approved access system for possible applications at other sites, particularly where limited volume services are required and/or where physical constraints preclude other ramp configurations.

Mid-Term Components (Figure 4.9-2): The dock facilities have the potential to be expanded with the addition of two finger piers, of 120 feet each. These would allow for tripling berthing capacity at the Courthouse. The purpose would be to expand shuttle capacity, add a cultural loop landing and increase excursion and charter capacity. The diversified terminal is expected to be used by visiting vessels such as the schooner *Ernestina Hanes*, as well as other scheduled shuttle, cultural loop activities, and Harbor Islands links.

Ownership, Management and Funding Status: The dock is owned by the GSA and managed by a contracted private dock manager. The facility was funded through federal programs as part of the Courthouse construction. It is assumed that future expansion will be funded by the GSA in a similar manner.

4.3.4 Fan Pier (Figure 4.10-1)

The Fan Pier basin terminal site is included as a featured element in the master development plan for the mixed use waterfront complex currently in the planning and design process. The currently exposed basin area would be protected by the addition of a breakwater along the harbor edge, and a floating multi-purpose dock facility added in the central area. While the details of such a terminal are still emerging, there are several terminal design guidelines which might be considered for the final layout and organization as described in the mid-term component section.

The phasing of overall Fan Pier construction is still evolving, but generally anticipates a major build-out of the site during the next 4- to 5-year period. For purposes of this report it is assumed that the ferry terminal transit and excursion uses are most likely to occur early in the mid-term time frame.

Terminal Ferry Uses: The mixture of recommended uses is based on the current understanding of land-use and density proposed for the site. At full build-out there is likely to be a demand for shuttle connections to such sites as North Station, Downtown, and Airport. In addition, water taxi and cultural loop landings would be useful, as well as excursion type links. The organization of such uses would include the smaller water taxi and cultural loop landing at the inboard end, followed by the shuttle dock zone in the middle and the excursion and charter activities at the outboard end.

Mid-Term Components (Figure 4.10-1): The new Fan Pier Basin terminal will be included as the surrounding site is developed, and sufficient demand is created for transit or excursion services. The figure shows a multi-purpose floating terminal superimposed on the current site masterplan. The inboard western corner of the basin appears to be the best location based on the proposed landside street and harborwalk plan. In addition, the terminal floats are located over a shoal area in the middle of the basin which is the remnant of a former pier site, which should reduce the need for dredging. The terminal will need an adequate turning basin for harbor shuttle and excursion vessel access. Protection of the basin area from the general harbor chop and the northeast fetch will be important to the success of the ferry terminal. The protected basin and terminal can serve as an activity generator, and could have the character of a Rowes Wharf depending on the type of adjacent building development and ground level uses that evolve. Landside improvements which should be included would be an accessible ramp system, a covered waiting area and ticketing area, signage throughout the site and along Northern Avenue, vehicular drop-off area, and preservation of view corridors to the terminal location.

Ownership, Management and Funding Status: It is assumed that the ownership and management of the ferry terminal will be the responsibility of the Fan Pier management entity. The funding for construction of the dock facility is likely to be a chapter 91 responsibility in providing active maritime uses for the basin and for the site as a whole.

4.3.5 Wharf 8

The basin between Wharf 8 and the Fish Pier is the widest along the harbor front, and offers many opportunities for water transportation facilities and services. The following facilities are proposed to expand existing excursion and service sites;

- Wharf 8 passenger terminal
- Wharf 8 layover berthing and provisioning
- Fish Pier East fuel and ice service docks

The existing excursion terminal serves as the current home base for A.C. Cruise Lines, which provides seasonal service to Gloucester and Cape Ann, as well as other excursion activities. A new excursion and shuttle terminal site was developed at the north face of Wharf 8 adjacent to the drydock in the short term to serve the new Harborlights pavilion, which opened in the summer of 1999, as well as existing excursion operations as shown in Figure 4.11-1. As additional dock and berthing capacity is added to the basin, layover berthing and servicing opportunities may become available. A photo of the existing terminal is shown in Figure 5.3 in the last chapter.

Opposite Wharf 8 on the inboard end of the southeast face of the Fish Pier, an important fueling area allows harborwide vessels to be refueled at dockside by trucks from the pier deck. In addition, there is an adjacent ice company which serves all of the fishing fleet as well as the excursion ferries.

Ferry Uses: The terminal would continue to serve excursion services such as AC Cruise lines as well as provide shuttle docking for nearby commercial uses such as Jimmy's Harborside and other entertainment

activities. The inboard end of the Fish Pier would retain its pier side fueling site and ice house for ongoing use by ferry vessels and other commercial vessels

Short Term Components (Figure 4.11-1): The new shuttle dock was located on the north bulkhead face of Wharf 8 next to the drydock to encourage seasonal shuttle ferry services for the new Harborlights Pavilion. In addition, improvements are proposed for the A.C. Cruise Lines terminal area and partial expansion of the working vessel and layover slips.

Mid-Term Components (Figure 4.11-2): The mid-term components would further develop the excursion dock facilities, would locate a shuttle dock and water taxi/cultural loop dock closer to Northern Avenue, and would expand the layover berthing slips and service options. The larger sized slips would be primarily for commercial vessels rather than as a private marina facility.

Ownership, Management and Funding Status: Wharf 8 is owned by the City and is managed by the BRA/EDIC. Funding for the expansion of the multi-purpose terminal including shuttle and excursion docks would be the joint responsibility of EDIC and private development/Chapter 91, with such public funding sources as the Transportation or Seaport Bond Bills.

4.3.6 Black Falcon/Reserved Channel

The current dock facility is located at western end of the Reserved Channel next to the summer street Bridge with a cul-de-sac road access within the Boston Marine Industrial Park (BMIP). The dock use is presently limited to commercial and charter vessel activity with occaisional water taxi service, but with no regularly scheduled transit or excursion services. The dock has served as the primary base for the privately operated Thompson Island ferry since the Kelly's Landing dock was damaged several years ago, and was no longer available. The ramp access does not currently meet ADA and MAAB requirements, and a new system may be needed if ferry services expand, and the dock becomes a public landing.

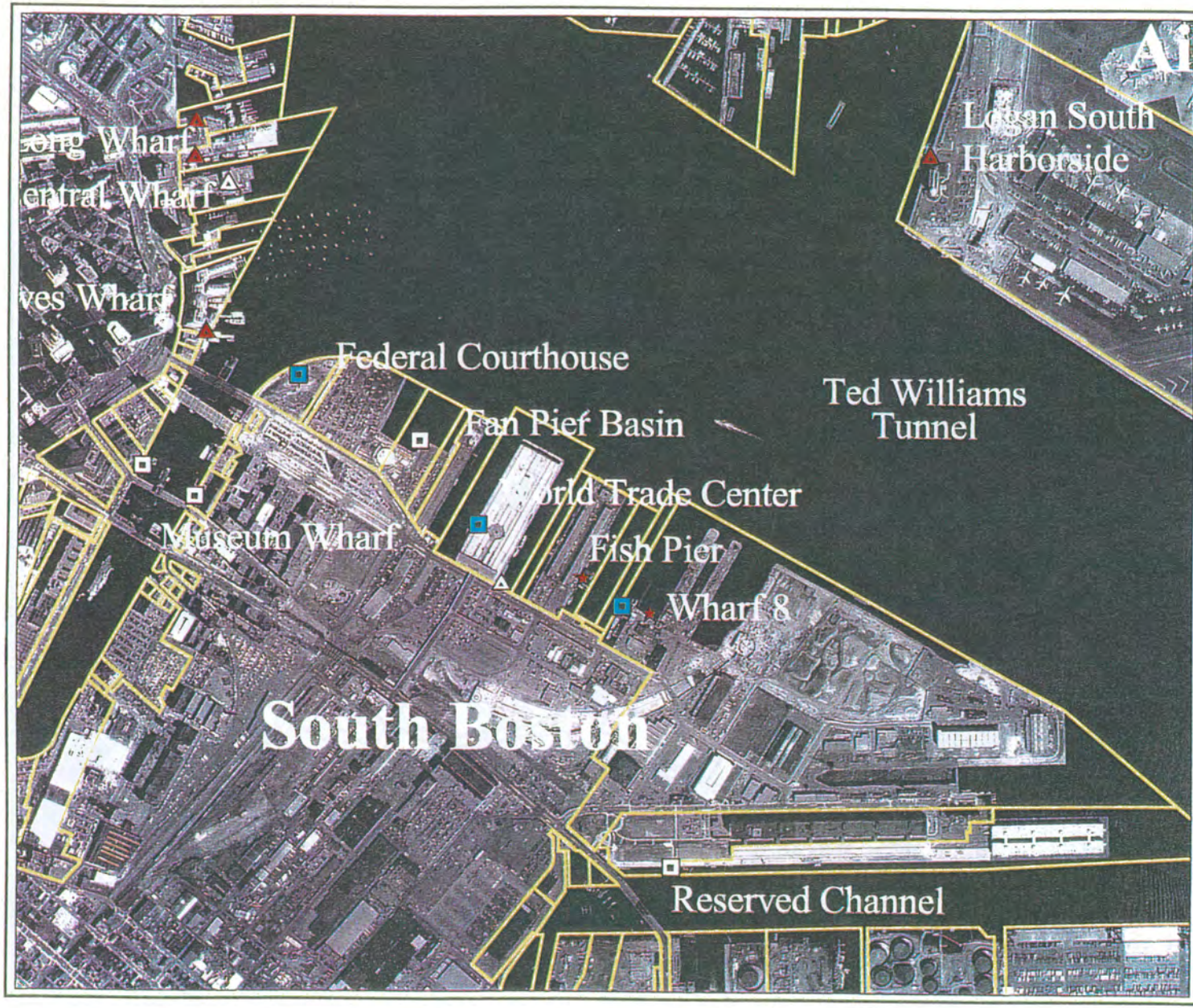
An expanded multi-use dock should be considered at the current Pier 1 site, at such time as specific ferry demands are identified. The dock would serve such markets as the proposed adjacent commercial and industrial uses, while continuing to allow for charter or ferry service for cruise visitors to the Black Falcon Terminal, as well as periodic events such as the tall ships. Regularly scheduled shuttle services do not appear feasible because of the excessive distance by water to other inner harbor sites. However, seasonal shuttle operations, limited to periods of visiting cruise vessels, may become an attractive transit connection to downtown and other Inner Harbor attractions.

No plan is provided for this site since there are no scheduled services projected at this time, but should be developed when a more specific terminal needs are identified. The following description is contingent on such demands.

Mid-Term Components: The dock floats could be expanded at the inboard end of the Reserved Channel near the Summer Street Bridge. An accessible ramp system might be included, depending on the nature of projected ferry services. Since scheduled services are not anticipated, the site may be a good

candidate for a ramp-rider type of accessibility device, since the anticipated volumes of service are relatively small, and larger charter groups could be scheduled around tide schedules, when the primary ramps provide full accessibility. A covered waiting area is also recommended as the site is currently wide open and affords no shelter.

Ownership, Management and Funding Status: The dock is owned and maintained by the BRA/EDIC. If the terminal is to be used more extensively for Black Falcon cruise activities, cooperation with Massport on management and funding may be appropriate. Depending on the Chapter 91 requirements for new building development adjacent to the dock location, there may also be opportunities for private sector contributions to capital improvements as well as ongoing maintenance and management.



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TRANSPORTATION CONCEPT PLAN

KEY

- Primary Sites - Existing
- Primary Sites - Potential
- Secondary Sites - Existing
- Secondary Sites - Potential
- Service Sites - Existing
- Service Sites - Potential

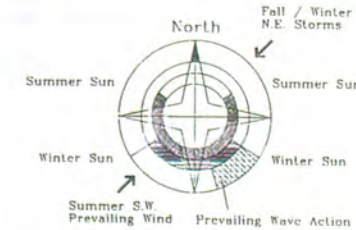


Figure 4.6-1
South Boston Waterfront
Aerial

500' 0 1000' 2000'

December, 1998

TAMS

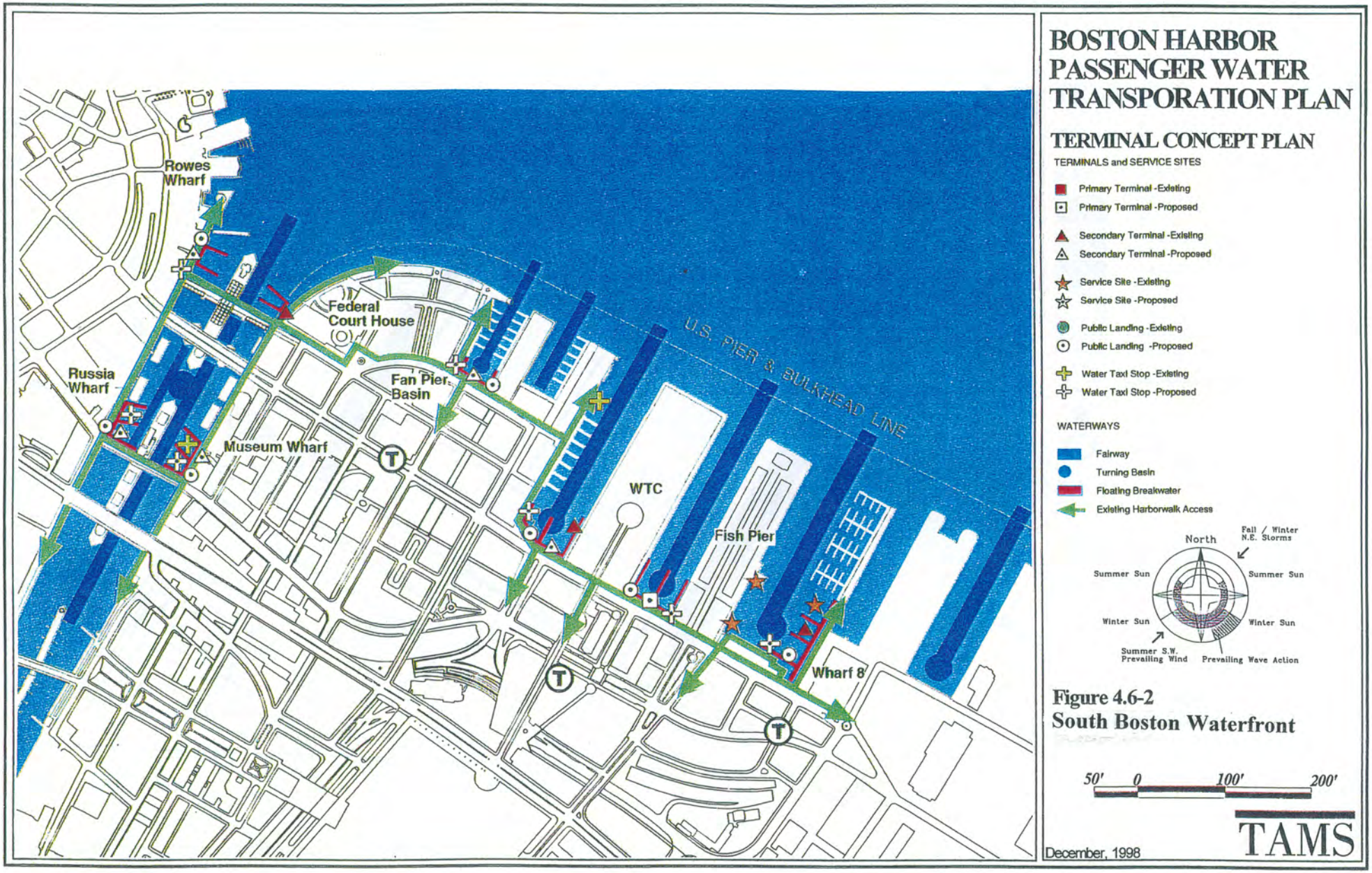


Figure 4.6-2
South Boston Waterfront

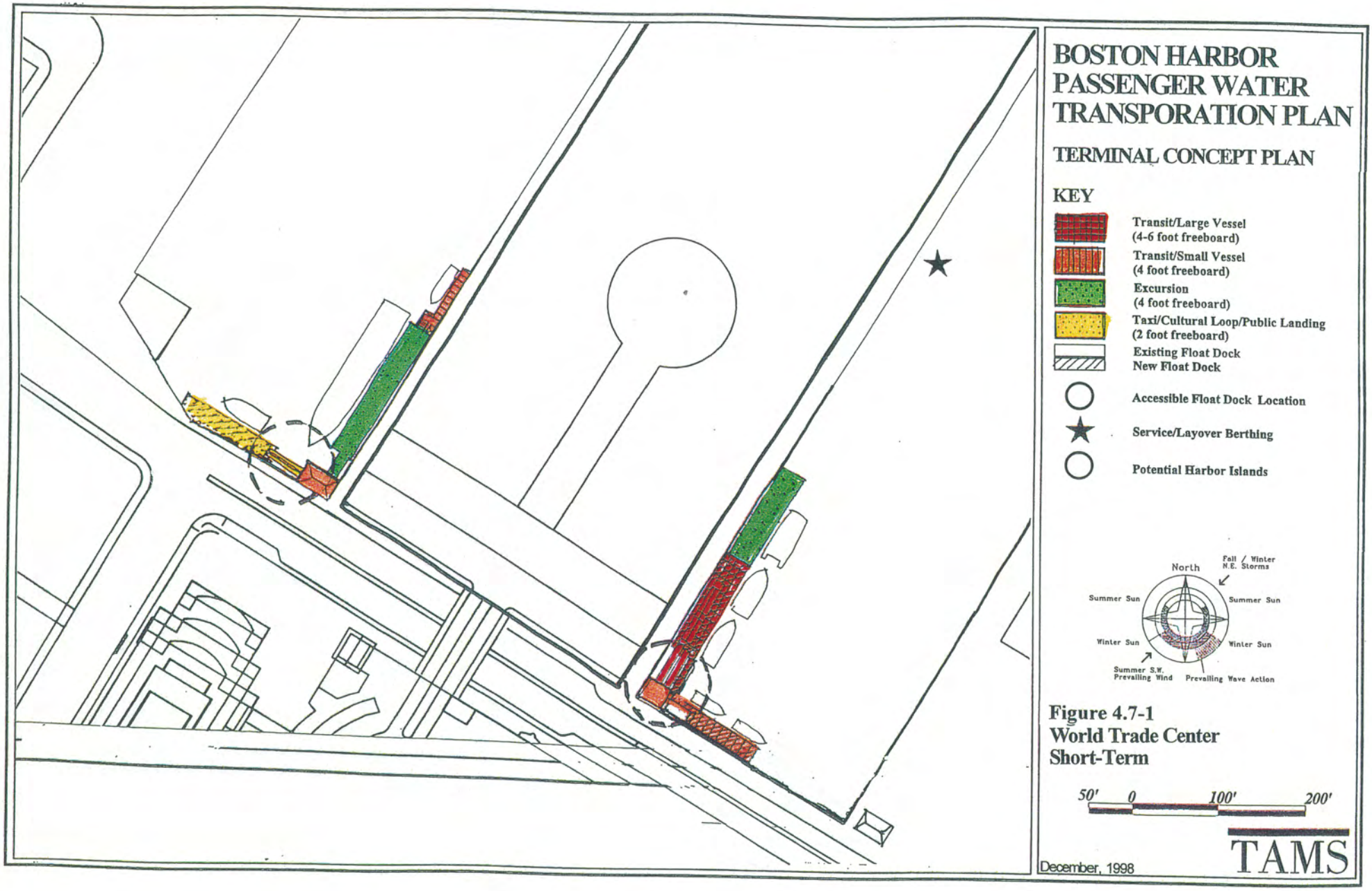
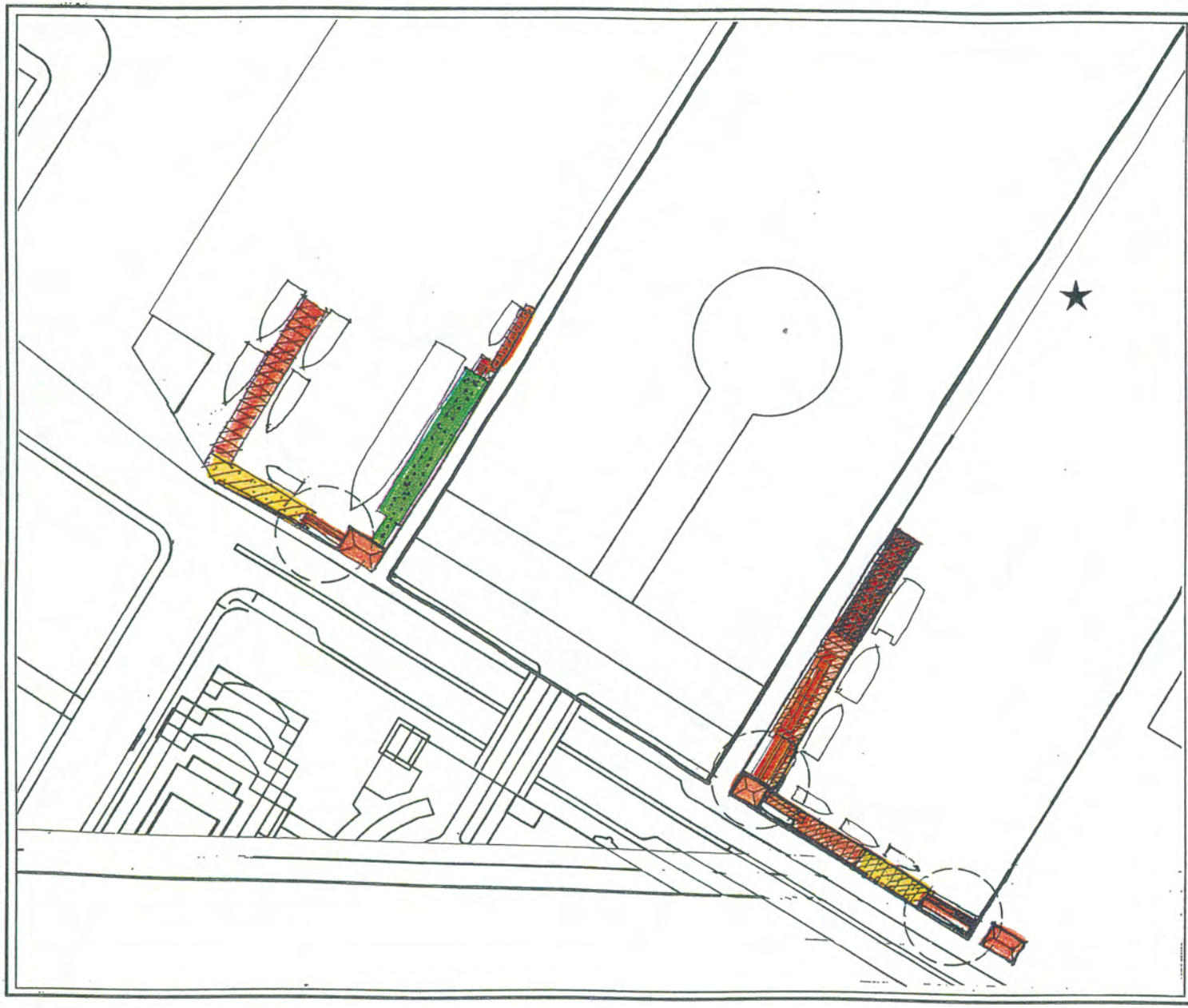


Figure 4.7-1
World Trade Center
Short-Term



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock
  New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

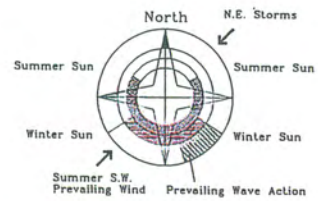
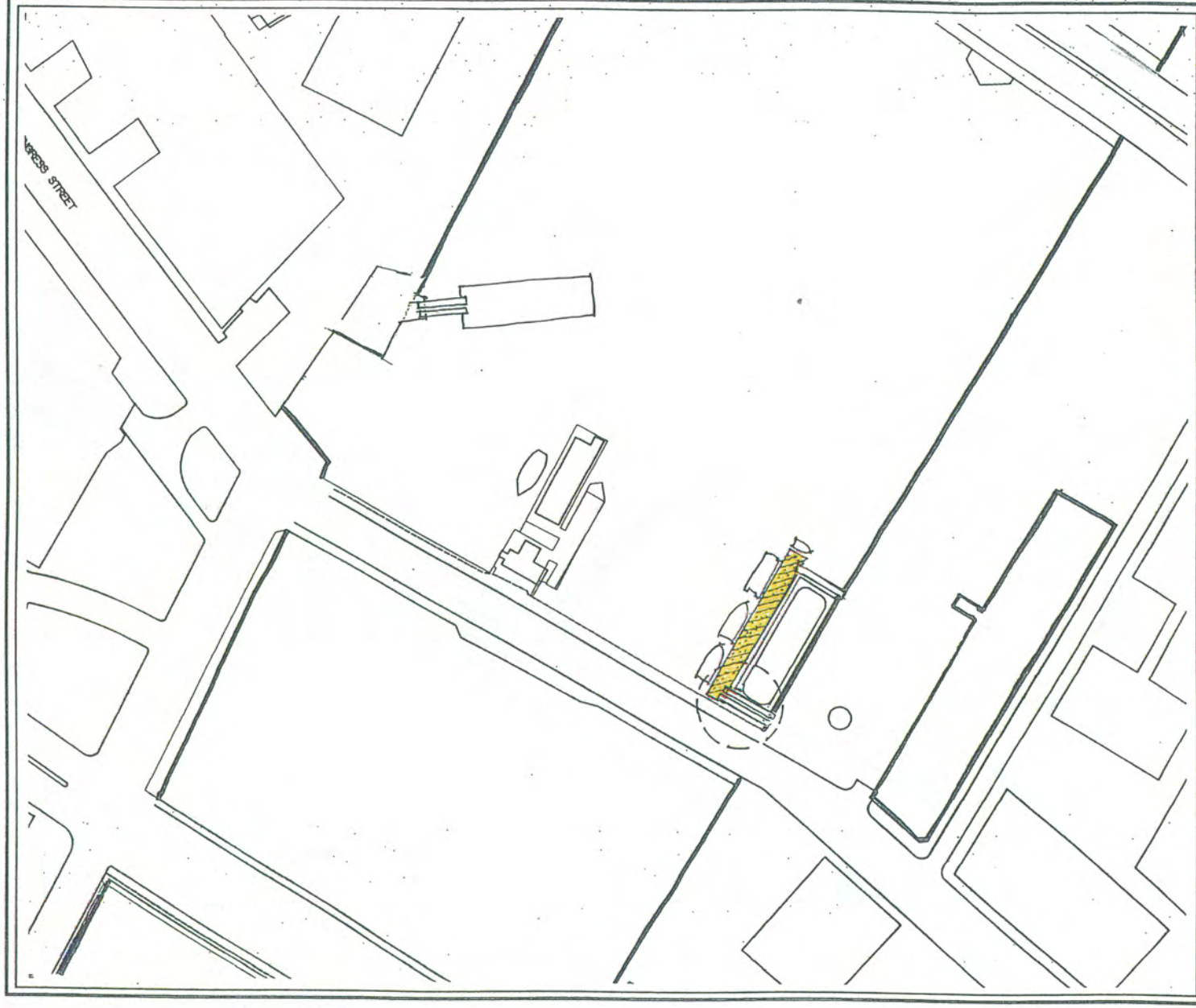


Figure 4.7-2
World Trade Center
Mid-Term

50' 0 100' 200'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock
  New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

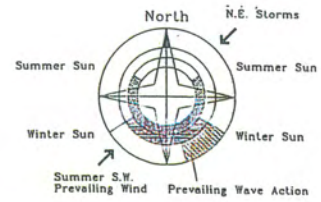
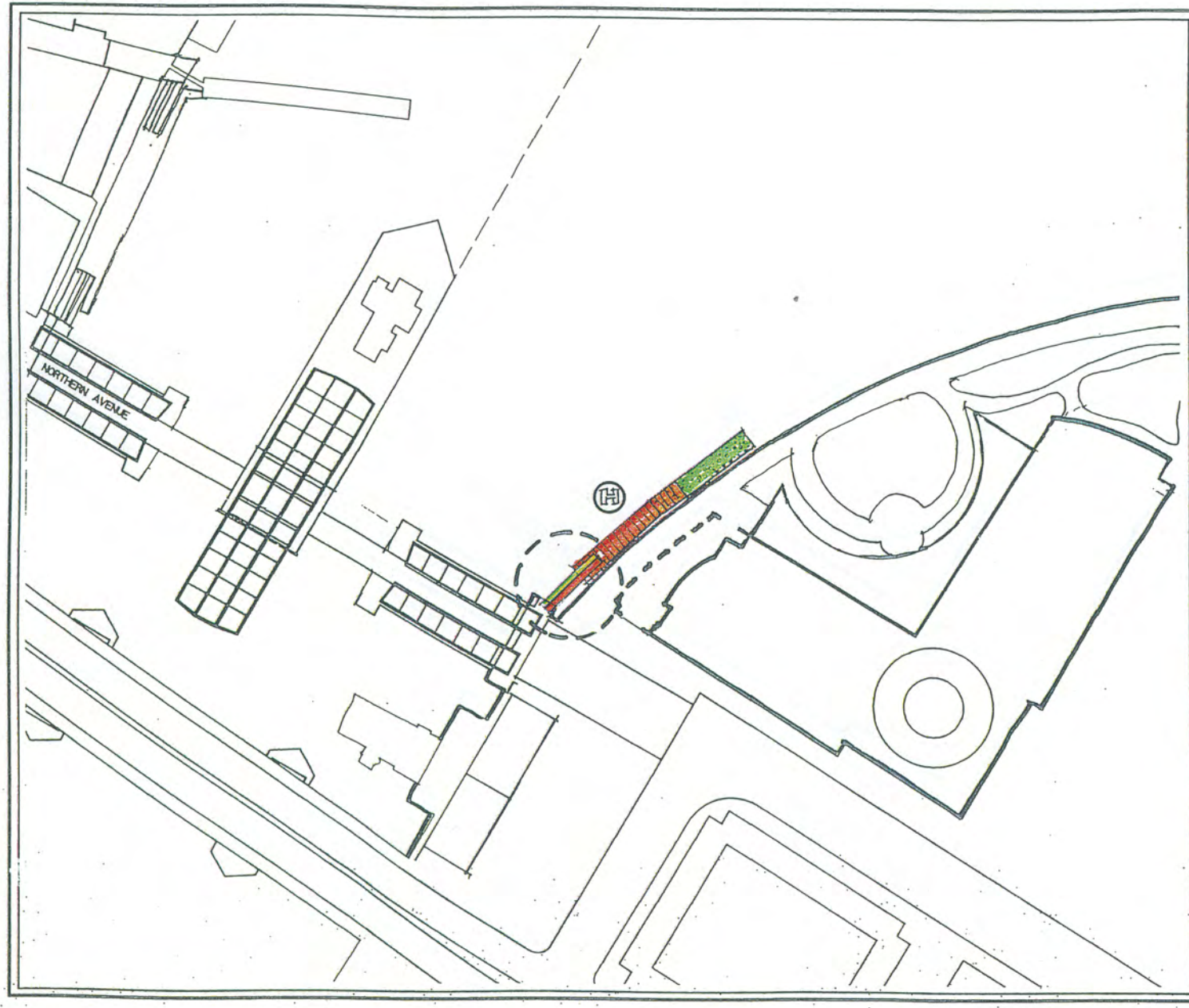


Figure 4.8-1
Museum Wharf
Mid-Term

50' 0 100' 200'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Cultural Loop (2 foot freeboard)
- Existing Float Dock
- New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

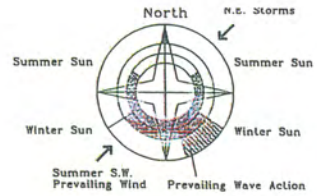
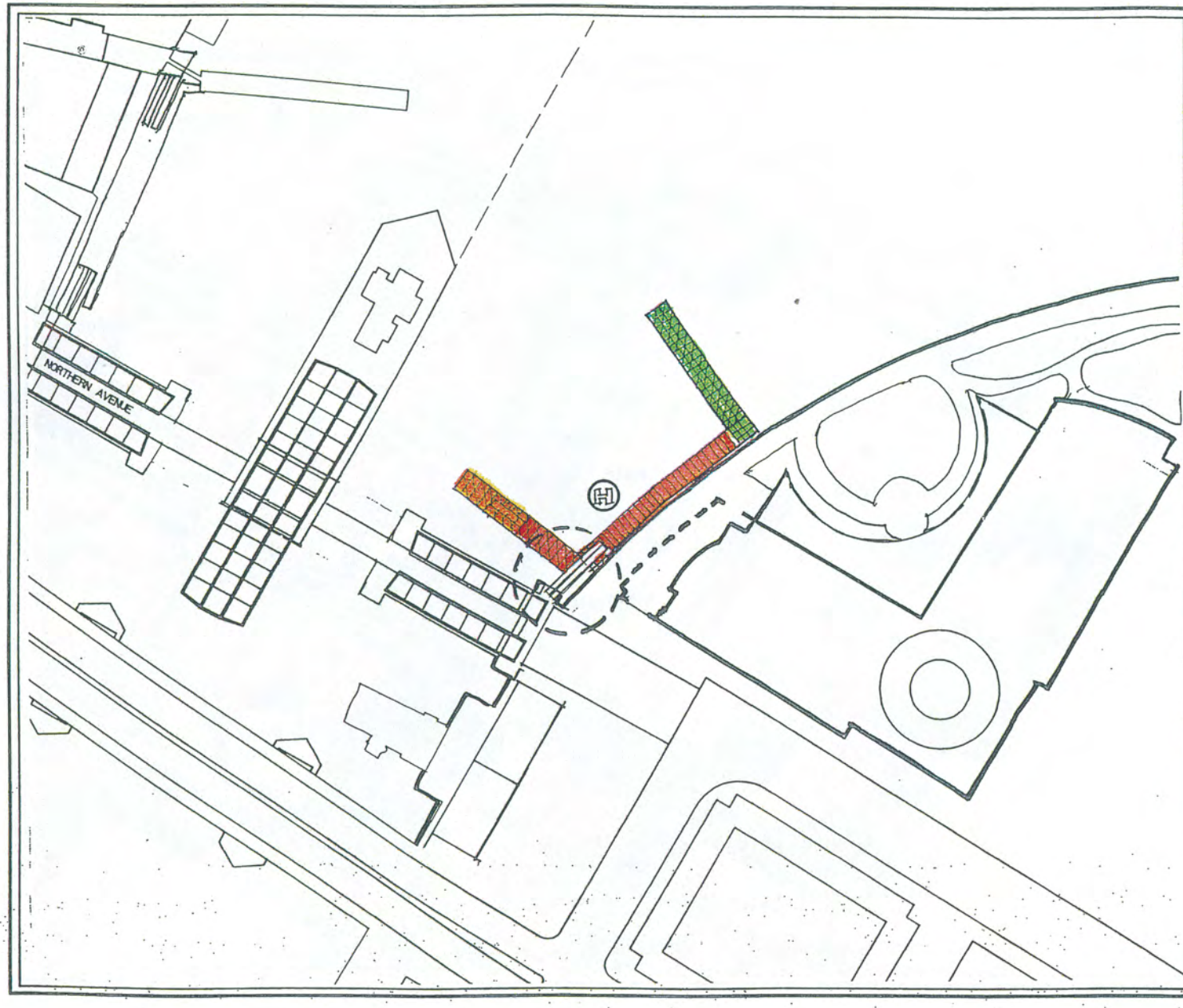


Figure 4.9-1
Federal Courthouse
Short-Term

50' 0 100' 200'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Cultural Loop (2 foot freeboard)
- Existing Float Dock
- New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

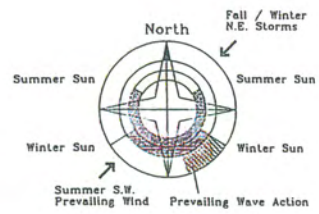
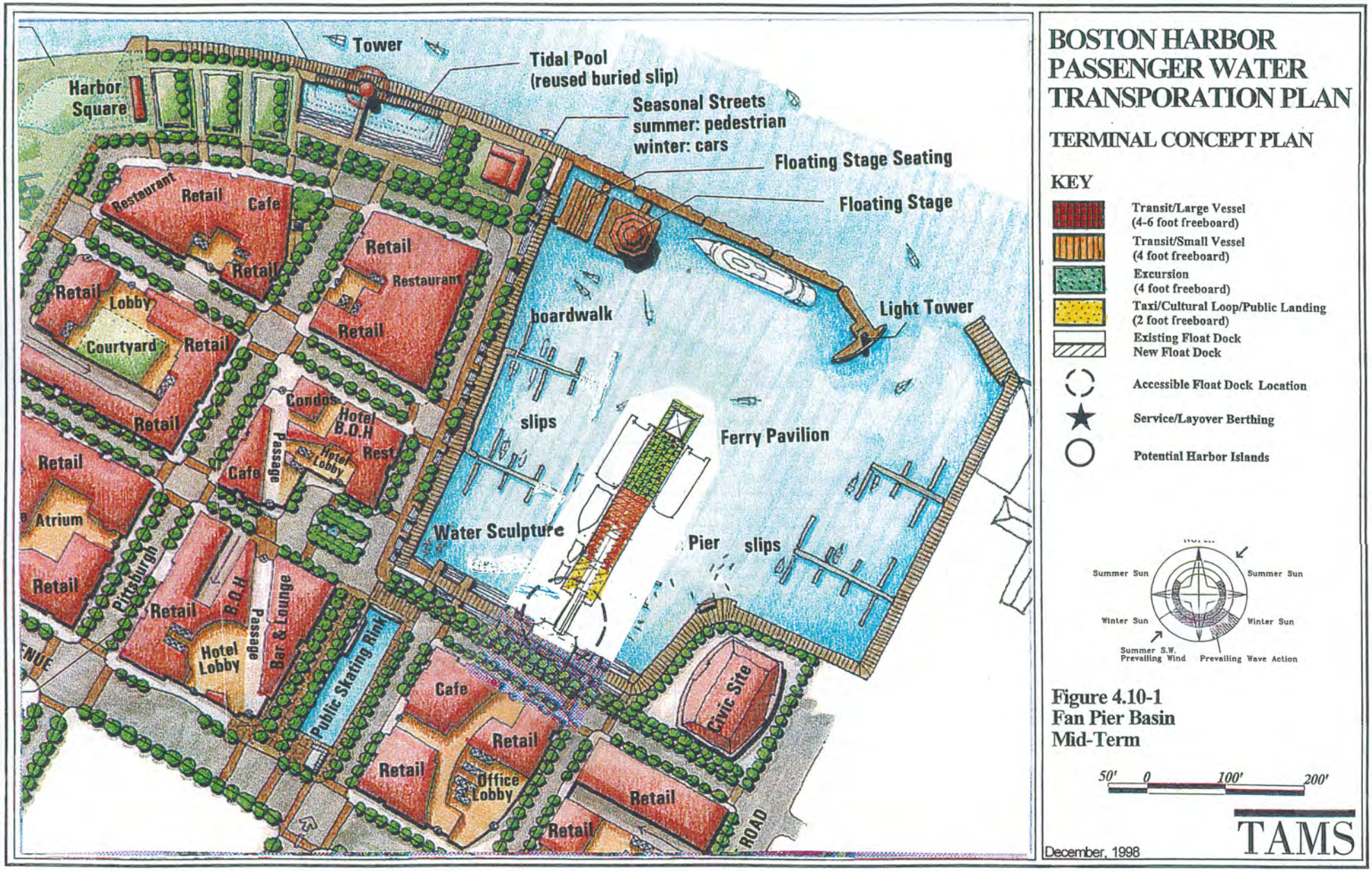


Figure 4.9-2
Federal Courthouse
Mid-Term

50' 0 100' 200'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock
  New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

Figure 4.10-1
Fan Pier Basin
Mid-Term

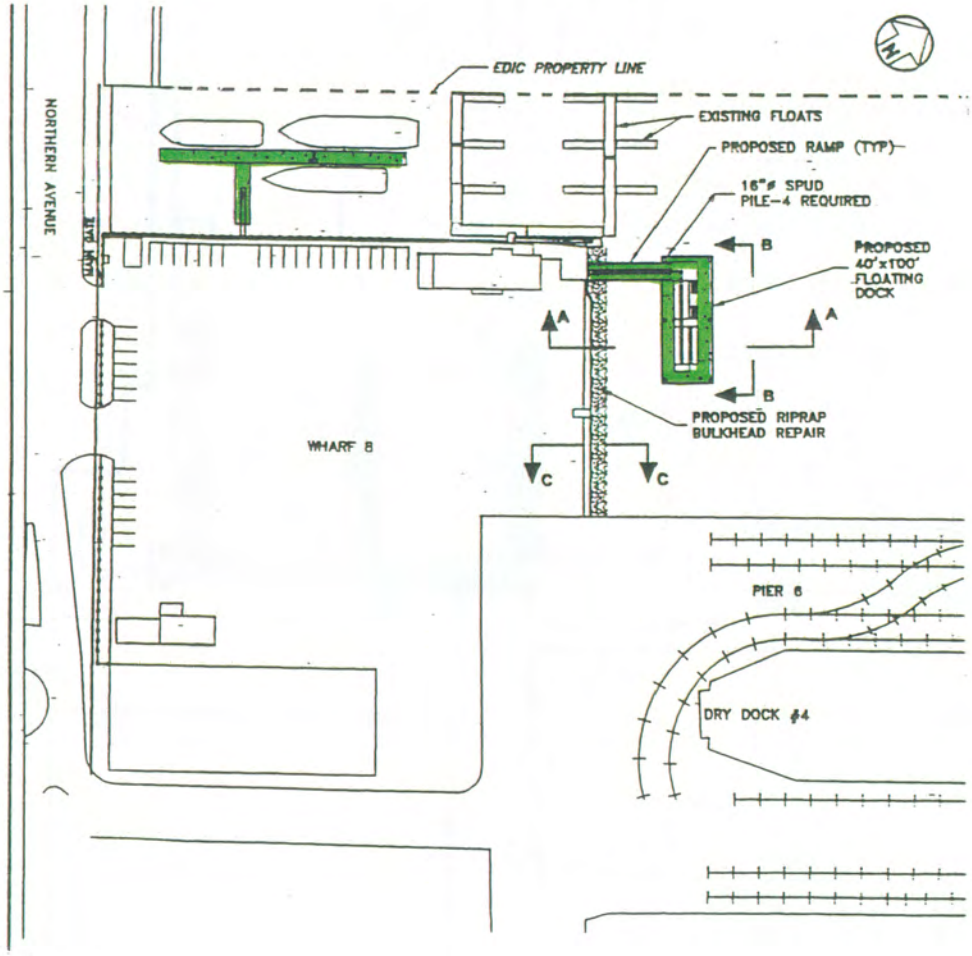
50' 0 100' 200'

December, 1998

TAMS

BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN



KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock / New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

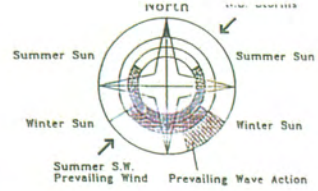
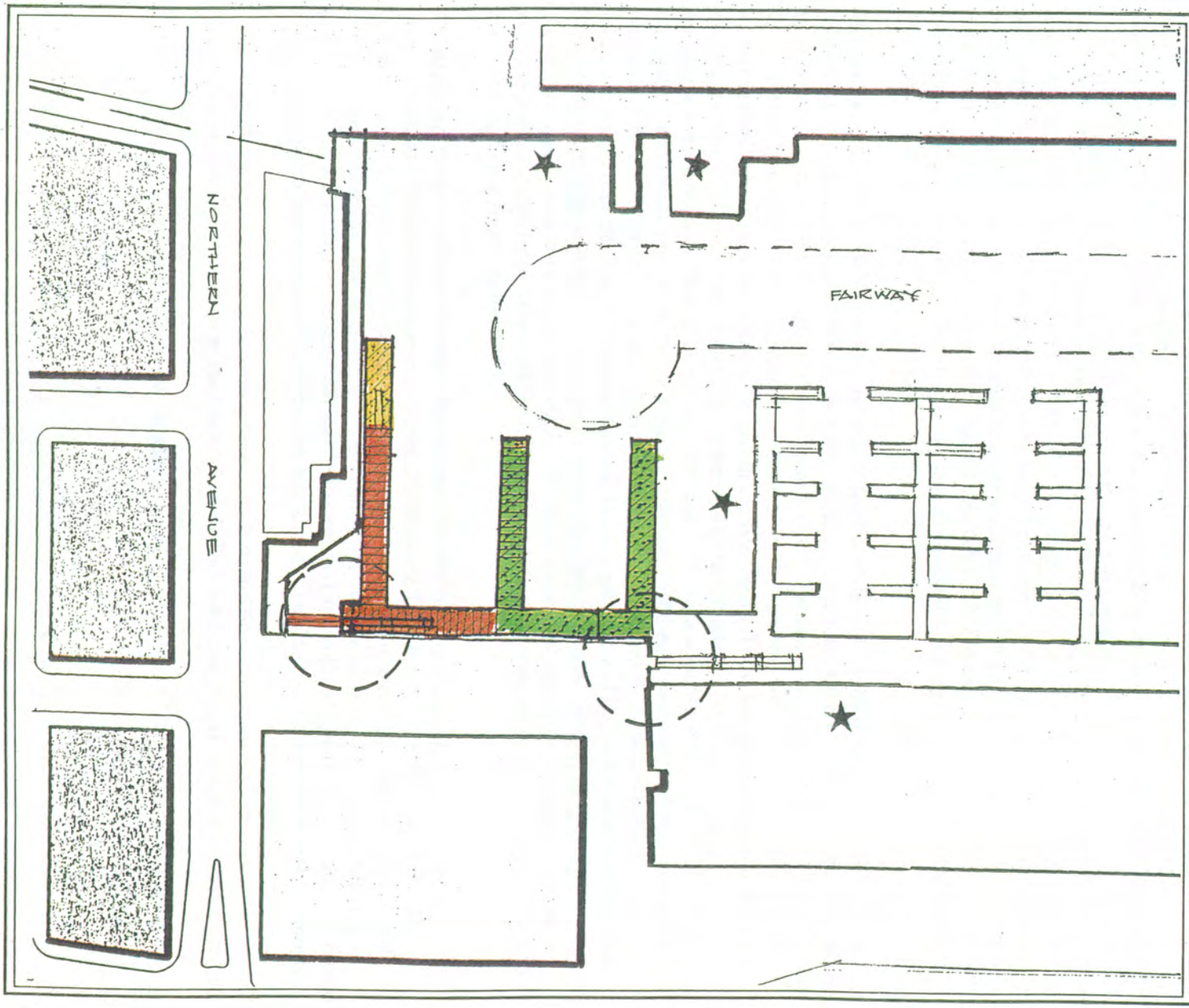


Figure 4.11-1
Wharf 8/Fish Pier
Short-Term

50' 0 100' 200'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock
- New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

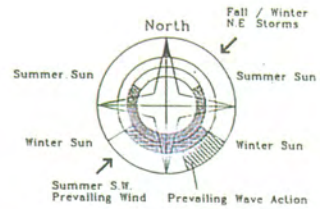


Figure 4.11-2
Wharf 8/Fish Pier
Mid-Term

50' 0 100' 200'

December, 1998

TAMS

4.4 East Boston Waterfront District

Historical Importance of East Boston Ferry Services: Historically, ferry services played an important role in transportation from East Boston to the downtown Boston waterfront through the middle of the 20th century, when the vehicle and transit tunnels were built. East Boston was built on several harbor islands, the primary of which was originally known as Noddle's Island, and grew rapidly from 8 residents in 1833 to over 30,000 at the peak of the maritime industry in the 1880's. As shown earlier in and Figure 2.2, Historic Ferry Routes, there were at least three regularly scheduled passenger and vehicle ferries in 1886, and the waterfront served as a major shipping and shipbuilding component of the Boston economy. In 1890, it is reported that the two city-run East Boston lines carried over 10,200,000 foot passengers and over 900,000 horse drawn vehicles. The residents of the thriving maritime industrial neighborhood complained of the one cent fare as being "discriminatory and oppressive.", and extensive debates were held in an effort to eliminate the toll. Figure 1.1-2, Photos of Historic Vessels, shows two of the East Boston ferries in service in their heyday, as depicted in Portrait of a Port by Bainbridge Bunting.

Recent Ferry Services: With the construction of the Callahan and Sumner Tunnels, along with the MBTA's Blue Line tunnel in the 1940's and 50's, the need for the daily ferries declined rapidly, although there was an overlap of the Peoples Ferry for several years. Passenger ferry services to the Logan South docks at Bird Island Flats have continued to expand since the terminal was completed, and the first airport shuttle was initiated from Rowes Wharf in the late 1980's. These services are open to the East Boston community, but are targeted at airport users. The recent attempt to revive community oriented passenger ferry service by the MBTA during 1995 and 1996, with a route stopping at the new terminal at the end of Lewis Mall, proved unable to attract and sustain sufficient commuter and non-commuter ridership during its brief run. The poor ridership on ferry connections to Downtown Boston and Charlestown has been attributed to several factors: 1) close proximity of the terminal to the Maverick Square Blue Line transit station, 2) absence of connecting bus or shuttle service, 3) limited marketing of the service, and 4) poor community patronage. The most successful resident response, according to ridership surveys, appears to have been the off-peak use during the summer months by the community for leisure and shopping trips to Boston.

Existing and Projected Ferry Routes: The routes presently serving East Boston are all focused on Logan South and the airport as shown in Figure 2.9, Existing Transit and Excursion Services. The potential routes for the next 10 years are shown in Figure 2.10. New scheduled shuttle routes could include Liberty Plaza to Charlestown Navy Yard and North Station, Lewis Mall to Long Wharf, and Logan South to World Trade Center, with multiple water taxi and cultural loop stops as well. Additional outer harbor, north and south shore services are also shown connecting to Logan South and downtown.

- New shuttle services to downtown hubs which would link East Boston to other recreational and transit ferry services such as the Harbor Islands Park via Long Wharf, and North Station via Pier 4 and Lovejoy Wharf.
- Commuter shuttle services may be added from Lewis Mall and Liberty Plaza at such time as

new residential development demands combine with existing neighborhood to work trips to substantially increase potential ridership over recently demonstrated volumes.

Success in implementing the recently completed master plan for revitalization of East Boston will depend on improved intermodal public transportation linkages including opportunities for the ferry service connections described above. Ferry terminals are proposed at key waterfront sites to serve existing neighborhoods, as well as future residents and workers anticipated for new waterfront residential, commercial and recreational (East Boston Greenway) development. For a community which was once totally dependent on ferry links to downtown Boston and other cross-harbor trips, East Boston can once again enjoy the use of ferry services by having expanded and new terminal locations at strategic points along the harbors edge. East Boston has also long served the Boston Harbor as the critical maritime support service area. The ferry plan includes continuation and expansion of such support facilities as shipyards providing vessel construction, repair and maintenance, as well as layover berthing for downtown based ferries, and potential supply services. The proposed water transportation components of the preferred plan, shown in Figure 4.13-2, East Boston Final Master Plan, Transportation and Land Use, may be summarized as follows:

- Multi-purpose terminals are proposed to be located at Logan Passenger Water Transportation Terminal (Logan Terminal) with expansion of existing facilities, a new dock at Liberty Plaza/Central Square, and restoration and expansion of the Lewis Mall terminal.
- Logan Terminal will continue to serve as the primary site in East Boston owing to the diversity of services, and volume of riders using the terminal. Indirect benefits to East Boston include reduction of through auto and taxi trips.
- Intermodal links are needed to the residential neighborhoods and the Blue Line, by an improved Harborwalk, sidewalk connections, drop-off areas, and shuttle bus loops.
- Layover berthing and servicing facilities are proposed at a variety of existing East Boston pier sites, particularly including those providing ship repair and maintenance services. These add incrementally to the East Boston economy by providing maritime employment and retaining established local business enterprises.

East Boston Ferry Terminal Concept Plans: The recommended ferry terminal plans are described in terms of existing conditions (1998), short term improvements (1999-2003), and mid-term improvements (2004-2008), as appropriate. The plans represent concept level designs, and will require full engineering and design services before construction. Where appropriate, land side improvements are also discussed, in terms of pedestrian and vehicular access, ticketing and waiting, and other support functions, on as needed basis. It should be noted that acquiring accurate mapping and survey information for the Lewis Mall and Liberty Plaza sites was difficult and the concept plans were developed with available base documents. It is recommended that surveys be conducted and proper base maps be prepared for these East Boston sites, as well as for any of the service and layover sites which may require public investment.

4.4.1 Logan Passenger Water Transportation Terminal (Figures 4.14-1 and Figure 4.14-2):

The Logan Terminal is owned and maintained by the Massachusetts Port Authority. Expansion plans

were being prepared by Massport in the spring/summer of 1999. The goals of the design were to substantially expand the dock capacity in terms of berthing area, to provide new dock configurations to accommodate a wider range of vessels and services to the airport, and to make the facilities fully accessible under Massachusetts Architectural Barriers Board (MAAB). regulations and consistent with the federal Americans with Disabilities Act (ADA) standards. A photo of the existing terminal is shown in Figure 3.11.

Existing Terminal Facilities (Figure 4.14-1): Current intermodal connections and landside facilities are ample and are expected to accommodate the proposed dock and service expansion. Shuttle bus connections to all airline terminals are currently in place, with a generous drop-off area and a heated enclosed waiting area. Exterior waiting areas are also available with seating, and dramatic views to downtown Boston. All ticket sales are conducted either on the vessels or off site and there is no requirement for a ticketing area.

The current terminal and float docks are shown in Figure 4.14-1, are not accessible at all tide conditions, with short ramps which are too steep, exceeding the MAAB allowable slopes during substantial tide periods. In addition to not meeting specific access requirements, the steep ramps pose safety and convenience challenges for travelers with luggage, parents with children, and elderly ferry patrons. It is the intention of the new expansion design to provide safe and comfortable access for all patrons.

Terminal Ferry Uses: The Harborwalk provides excellent pedestrian access to the terminal, connecting around Jeffries Cove to the Jeffries Point neighborhood, while also linking to the Harbor Point Hotel and Massport office complex. The current terminal berths are leased by Massport for use by three year round services including the Rowes Wharf-Airport Shuttle, Harbor Express park and fly service to Quincy/Fore River and Hull/Point Pemberton, and the Harbor Express shuttle to Long Wharf, and by one seasonal service, the Boston Water Taxi. These services are used primarily by airport travelers, hotel patrons, airline employees and Massport employees.

In addition to expansion of existing services, future services may also include new Inner Harbor shuttle links to North Station and South Boston, and expanded Logan Express perimeter park-and-ride ferry services to the south shore and north shore, as well as occasional use of the docks for charter and excursion services.

Short Term Expansion Plans (Figure 4.14-2): The proposed schematic plans as shown in Figure 4.14-2, would more than double the berthing capacity, and provide ADA/MAAB compliant access. The new float configuration will provide a variety of freeboard heights ranging from 2 feet for the water taxi to 7'-6" feet for the bow loading Harbor Express catamarans. Other factors which are of concern at this terminal location are wind and wave action at the exposed site, which periodically make berthing at the terminal challenging, particularly in stronger summer wind conditions, due to the southwest exposure. The existing wave fence located parallel to the docks may need to be expanded in the future to expedite the landing and boarding of smaller vessels.

The preliminary plans are intended to reuse, to the extent possible, the existing terminal structure as well as floats and ramps owned by Massport, in an effort to reduce project costs. New equipment will include

recreational facility. Potential initial ferry services are likely to be a water taxi/cultural loop landing and seasonal recreational shuttle links. Scheduled year round commuter and off-peak services could be added later when market demand increases with adjacent parks, residential and mixed use development. Harbor Islands ferry links can be provided via shuttle connections to the downtown gateways during the summer season, and charter services for school groups and others can also use this terminal. The proposed new parks, cultural facilities and commercial enterprises are expected to complement existing resources in attracting visitors to the new East Boston Waterfront, which would create a two way demand for ferry services to the Downtown and South Boston.

Proposed Mid-Term Terminal Plan (Figure 4.15): Based on the recent commitments to adjacent residential and recreational uses, it is recommended that the existing pier facility remain with the addition of a low freeboard water taxi stop. As shown in the concept plan in Figure 4.15-2, the floating dock would remain in its current location with the addition of water taxi floats at the inboard end of the dock. The added floats would be at a lower freeboard height of 2 feet, with ramp connections from the current float, and would be intended for the water taxi and public touch and go dropoff. In addition, future consideration should be given to removal of adjacent pile fields to east and west, to improve ferry and other vessel navigation in the basin between Clippership Wharf and Pier 1.

Landside access to the terminal will also need to be improved in conjunction with the final street and harborwalk plans, which are now only in very preliminary stages. The ferry terminal at this site is likely to become a neighborhood gathering spot and should be planned accordingly. The current "cul-de-sac" turnaround would be improved with the addition of a through loop road to accommodate a bus and auto drop, allowing for convenient vehicular access. Links to the future Harborwalk connecting east and west will also be important since much of the anticipated future ferry users will access the terminal by foot. An expanded sheltered waiting area is also recommended for the exposed site, as well as an ample outdoor waiting and recreational open space to take advantage of the spectacular views to the downtown. It is possible that the landside terminal could be combined with commercial public accommodations such as a small food concession or cafe, depending on the final plans for the adjacent development parcels.

The mid-term terminal facility recommendations include the following:

- The fully accessible 120' float and ramp system from the shuttle demonstration project is owned by Massport should be maintained for future ferry services to serve nearby residential areas as well as the proposed new waterfront development including the nearby parks, as well as the adjacent Clippership Wharf and Pier 1 residential development.
- Landside improvements are needed in terms of auto and bus dropoffs, a sheltered waiting area, and harborwalk links to east and west. Lewis Mall and the surrounding areas will benefit from maintaining the ferry terminal, and new development and a stronger pedestrian link to the new Greenway and Maverick Square. The terminal landside area can serve as a neighborhood gathering spot with public accommodations associated with the Harborwalk and new adjacent residential development.

Ownership, Management, and Funding Status: The landside terminal components are currently owned and maintained by the City of Boston, while the docks and ramps are owned by Massport. With

supplementary floats, ramps, gangways, canopies and hardware as needed. The landside infrastructure is capable of handling the proposed terminal expansion, including the intermodal curbside bus drop off, as well as indoor and out door waiting areas.

Ownership, Management, and Funding Status: The Logan Terminal is owned and managed by Massport. The completed plans for expansion were expected to go out to bid during the fall of 1999, with completion of the new expanded facilities for April of 2000. The capital improvements costs would be funded by Massport. The preliminary capital cost construction estimate for the new components of the expanded terminal was approximately $600,000.

4.4.2 Lewis Mall:

Existing Ferry Terminal and Area Plans: The existing terminal facility is well situated at the end of Lewis Mall and Lewis Street, a short distance from Maverick Square, and normally includes a 120 foot long floating dock which is fully compliant with MAAB and ADA access requirements. The dock facility was originally constructed by Massport for the recently terminated MBTA shuttle service. The landside facilities at the end of Lewis Mall were prepared by the City of Boston, and consist of a vehicle turn around and drop-off, and a waiting kiosk. Lewis Street and Lewis Mall provide the primary pedestrian link to Maverick Square, a walking distance of about 5 minutes, and the to adjoining residential areas. The Massport owned dock and ramps were temporarily relocated to Little Brewster Island for ferry access during the summer of 1999, as a demonstration project as part of the Harbor Islands National Recreation Area, with the expected return of the facility to its current location at the end of the summer season. A photo of the existing terminal is shown in Figure 5.3. in the final chapter.

The proposed new development adjacent to the Lewis Mall terminal site includes several major projects included in the Final East Boston Masterplan. To the east of Lewis Street proposed projects include; 1) the East Boston Greenway, 2) expansion of the existing Piers Park through redevelopment of adjacent Massport Pier 3 into park space, and 3) redevelopment of the immediately adjacent Pier 1 and backland, also owned by Massport, into market rate housing. The site to the west of Lewis Street, Clippership Wharf, is being proposed as a mixed use housing development. The combination of these uses is intended to redevelop and repopulate the long dormant maritime industrial property and bring the neighborhoods and activity to the harbors' edge.

The implementation of proposed redevelopment plans, along with improved Harborwalk and Greenway connections to other existing residential areas, should provide a stronger ferry rider market as the projects are completed. While the previous shuttle service to the Navy Yard and Long Wharf did not attract a sustained year round commuter ridership, it was well received by the community, and drew the most patrons as a seasonal, off-peak shuttle link to downtown. As the new proposed residential development fills in at Pier 1, Clippership Wharf, and other nearby sites, it is expected that demand will grow for restoring service.

Terminal Ferry Uses: The floating dock, which has not had any scheduled ferry service since 1996, has been used periodically as an informal neighborhood fishing dock, skate board ramp and general

recreational facility. Potential initial ferry services are likely to be a water taxi/cultural loop landing and seasonal recreational shuttle links. Scheduled year round commuter and off-peak services could be added later when market demand increases with adjacent parks, residential and mixed use development. Harbor Islands ferry links can be provided via shuttle connections to the downtown gateways during the summer season, and charter services for school groups and others can also use this terminal. The proposed new parks, cultural facilities and commercial enterprises are expected to complement existing resources in attracting visitors to the new East Boston Waterfront, which would create a two way demand for ferry services to the Downtown and South Boston.

Proposed Mid-Term Terminal Plan (Figure 4.15): Based on the recent commitments to adjacent residential and recreational uses, it is recommended that the existing pier facility remain with the addition of a low freeboard water taxi stop. As shown in the concept plan in Figure 4.15-2, the floating dock would remain in its current location with the addition of water taxi floats at the inboard end of the dock. The added floats would be at a lower freeboard height of 2 feet, with ramp connections from the current float, and would be intended for the water taxi and public touch and go dropoff. In addition, future consideration should be given to removal of adjacent pile fields to east and west, to improve ferry and other vessel navigation in the basin between Clippership Wharf and Pier 1.

Landside access to the terminal will also need to be improved in conjunction with the final street and harborwalk plans, which are now only in very preliminary stages. The ferry terminal at this site is likely to become a neighborhood gathering spot and should be planned accordingly. The current "cul-de-sac" turnaround would be improved with the addition of a through loop road to accommodate a bus and auto drop, allowing for convenient vehicular access. Links to the future Harborwalk connecting east and west will also be important since much of the anticipated future ferry users will access the terminal by foot. An expanded sheltered waiting area is also recommended for the exposed site, as well as an ample outdoor waiting and recreational open space to take advantage of the spectacular views to the downtown. It is possible that the landside terminal could be combined with commercial public accommodations such as a small food concession or cafe, depending on the final plans for the adjacent development parcels.

The mid-term terminal facility recommendations include the following:

- The fully accessible 120' float and ramp system from the shuttle demonstration project is owned by Massport should be maintained for future ferry services to serve nearby residential areas as well as the proposed new waterfront development including the nearby parks, as well as the adjacent Clippership Wharf and Pier 1 residential development.
- Landside improvements are needed in terms of auto and bus dropoffs, a sheltered waiting area, and harborwalk links to east and west. Lewis Mall and the surrounding areas will benefit from maintaining the ferry terminal, and new development and a stronger pedestrian link to the new Greenway and Maverick Square. The terminal landside area can serve as a neighborhood gathering spot with public accommodations associated with the Harborwalk and new adjacent residential development.

Ownership, Management, and Funding Status: The landside terminal components are currently owned and maintained by the City of Boston, while the docks and ramps are owned by Massport. With

the anticipated redevelopment of the two large sites adjoining the terminal and Lewis Street, there should be opportunities for a future public/private partnership to provide both capital improvements for the terminal complex, as well as to assist in the start-up of new ferry services. A Rowes Wharf type operations board could be established to manage the docks and promote ferry services. The MBTA may need to be included in such a public/private board depending on whether their future contracted shuttle routes stop at Lewis Mall. It is recommended that the terminal itself remain in public ownership. However, the active involvement of adjacent development interests in capital improvements and ongoing operations would be beneficial in terms of creating self-sufficient, unsubsidized ferry operations as well as meeting some of the project Chapter 91 maritime use and public benefits requirements.

4.4.3 Liberty Plaza at Central Square:

Existing Conditions: The Central Square area of East Boston is an active commercial and retail hub of the community with an active and interesting array of shops, restaurants and community facilities located within several hundred feet of the waterfront. The north end of Liberty Plaza shopping mall provides access to the harbor with a view corridor, sidewalks, and a parking area, along with a short segment of Harborwalk which is actively used by residents. The surrounding area is a dense residential area, with limited bus transit connections. When combined with nearby waterfront redevelopment opportunities adjacent to Liberty Plaza, the site was identified as having potential as a new terminal site for shuttle and water taxi uses, to serve residents and visitors to the Central Square area.

Presently there is no ferry terminal facility at Liberty Plaza. For the expansion of Liberty Plaza in the mid-1990's, the developer was required to provide the opportunity for a small boat landing/ferry dock at the site, as described in the original Chapter 91 permits for the redevelopment project. A modest float and ramp were installed at the time the required Harborwalk segment was built. The dock was located on the north side of the existing finger pier prior to the opening of the Shaw's Supermarket, but reportedly was removed one night some time after its construction, and has not subsequently been replaced. The Chapter 91 permit appears to allow for the owner and/or other interests to locate a ferry landing at the site. It should be noted that the original float location on the north side of the existing pier was out of view of potential ferry users from the parking area and small harborwalk segment, and was not felt to be secure.

It may be of interest to note that while there are currently no landing facilities for smaller ferry vessels at Liberty Plaza, the longer deteriorating finger pier is periodically used by ocean going tugs on barge deliveries, to take on food supplies from Shaw's Supermarket. The Liberty Plaza Shaw's is not only the only food market with deep water access in Boston harbor, but perhaps the only one along the Northeast coast. It is felt that the market as well as other shops and restaurants around Central Square could be attractive to residents of other inner harbor neighborhoods such as Charlestown and the North End, if there were shuttle service or water taxi connections to Liberty Plaza.

Terminal Ferry Uses: If a new ferry dock were constructed in the mid term, initial services could include a shuttle link to Pier 4 in the Navy Yard, possibly starting as a seasonal recreational service with linking service to the downtown and North Station, and later evolving into a year round commuter link to

other downtown sites. As heritage venues and other new visitor attractions add to the diverse retail and dining activities already in place, visitors would use the ferry as an enjoyable and convenient way to arrive in East Boston from Charlestown, North Station, or downtown Boston. Harbor Islands ferry links could also be provided via shuttle connections to the central downtown gateways during the summer season. Charter services for school groups and others could also use this terminal. A water taxi, cultural loop and public landing component is also recommended at such time as a terminal is installed at the site.

Proposed Mid-Term Terminal Plan (Figure 4.16-1): It is proposed that a more substantial terminal facility be built at the site on the south side of the existing pier to accommodate larger shuttle-type vessels, as well as smaller water taxi type vessels. The proposed siting for the terminal is shown in Figure 4.16-1, utilizing the Chapter 91 license plan as the only available site base reference. The float and accessible ramp system would be located on the south side of the existing pier behind Shaws, and would consist of a 4 foot freeboard dock for the shuttle ferries combined with a 2 foot freeboard float for the water taxi and public landing area. Ownership and management of the terminal will need to be addressed with the property owner, abutting businesses and ferry operators. The Liberty Plaza parking lot would provide adequate vehicular access and dropoff, although park and ride ferry use would need to be discouraged by parking time limits. A small sheltered waiting area would serve both the terminal and the Harborwalk area, which is a popular harbor viewing location in the community. Extension of the Harborwalk to the south would be encouraged but need to be coordinated with redevelopment plans for the waters edge.

The terminal would provide immediate access to the shops and market at Liberty Plaza, as well as to the numerous neighborhood restaurants around Central Square. The terminal would also serve the resident population within walking distance of Central Square, one of the most densely populated areas of East Boston, and one which has limited access to cross harbor transit. Future ferry services could include a combined shuttle connection to Pier 4 in the Navy Yard with continuing service to Lovejoy Wharf at North Station, seasonal excursion connections to the downtown gateway for the Harbor Islands, and water taxi and cultural loop connections to serve growing Central Square attractions.

Ownership, Management, and Funding Status: The proposed ferry terminal site is privately owned by the developers of Liberty Plaza. The Chapter 91 License for Liberty Plaza requires that the owner allow for the installation of a dock on the property with landside access. Thus, any water transportation dock improvements would need to be either initiated by the owners, or undertaken by other parties and coordinated with the owners. Based on interviews, Shaws Supermarket, the immediate abutter, has expressed an interest in participating in dock development and/or management but would probably not take a lead role. Public sector funding for dock construction might be available, at such time as demand increased to support a specific scheduled shuttle service, and a public dock management plan was put forward. However, an all private or public/private approach to funding and management would be a more likely approach.

4.24.4 Layover Berthing, Service, and Shipyard Sites:

Layover Berthing Sites: The East Boston waterfront affords many opportunities for maintaining and in

expanding existing layover berthing facilities for various vessel types and sizes including ferries. The East Boston piers have served for many years as a critical port support area for the Boston Harbor, including such short term layover berthing functions as barges, tugs, pilot vessels, and ferries. Layover berthing is proposed as a compatible use for Designated Port Areas (DPA's).

The layover ferry sites which have the most promise to provide relief for nearby downtown operations would include Massport Shipyard/Boston Marine Works and both sides of Pier 1, as shown in Figure 4.13-2, the Transportation and Land Use Plan for the Preferred Alternative. The two sites are in the lower left hand corner as part of the south facing East Boston Piers. The two sites have ample pier and dock space for berthing, which the ferries can share with other layover vessel uses. The criteria for selection of layover sites in East Boston included: 1) close proximity to downtown ferry terminal locations, 2) transit connections to the downtown waterfront via the Blue Line at Maverick Square, and 3) potential for water and electrical hookups at the layover berths.

The berthing facilities would consist of conventional wharf or pier side tie up, including fenders, cleats, and vehicular access at the edge of the existing piers without the need for floats or gangways. While tie-up to floats with lower freeboards is useful as may be the case at the Cashman/Boston Marine Works docks, it is not necessary. Layover berthing can be compatible with other pier uses such as the proposed residential on Pier 1, since the uses are passive and do not require active boarding or landside access.

Servicing, Maintenance and Provisioning: Servicing of ferry vessels may include a variety of activities and facilities such as fueling, watering, pumpout, shoreside electrical, waste removal or provisioning, While most ferry operators prefer to provide such services at their own secured docks, there will be an increasing need for availability of full service layover locations for those operators who don't have such capabilities in the inner harbor area. The Massport Shipyard/Boston Marine Works complex, formerly known as Cashmans Marine, would offer the best existing facilities for such activities, and under new management might be encouraged to consider marketing such services more aggressively. Depending on the future uses of the Liberty Plaza finger pier structures and adjacent uses, that site could also serve such functions in the future, but would depend on restoration of one or more piers. It should be noted that the vessel servicing facilities can be used by all ferries as well as other smaller vessels including tugs, small coastal cruise vessels, visiting yachts and charter vessels. The additional service of providing bulk supply storage and loading could also be added to the mix of support services at one or more of these locations.

Shipyards - Vessel Repair and Construction: Once renowned for its ship building industry, East Boston continues to provide such services for a wide range of smaller vessels including ferries. The East Boston waterfront also provides several opportunities for harborwide ferry repair and construction service facilities, once again in keeping with the tradition of providing a full range of portwide support services. The primary candidate for existing support services once again is the Massport Shipyard/Boston Marine Works complex which currently is used as such by various Boston Harbor operators. The services offered include routine maintenance, ship lifts, drydock overhaul and repair facilities, and are all well matched with vessel sizes used in current operations. As new ferries are beginning to use composite materials, Boston Marine Works may be able to assist in the construction and repair of such vessels.

Several other sites in East Boston DPA's are also well suited for the service/maintenance/repair facilities including the piers adjacent to and north of Liberty Plaza, and the shipyard at the McArdle Bridge. The development of ferry service facilities is encouraged in one or more DPA sites as part of the expansion of the port wide support facility industry.

BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TRANSPORTATION CONCEPT PLAN

KEY

- Primary Sites - Existing
- Primary Sites - Potential
- Secondary Sites - Existing
- Secondary Sites - Potential
- Service Sites - Existing
- Service Sites - Potential

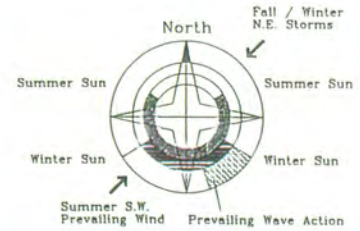


Figure 4.13
East Boston
Aerial

500' 0 1000' 2000'

December, 1998

TAMS

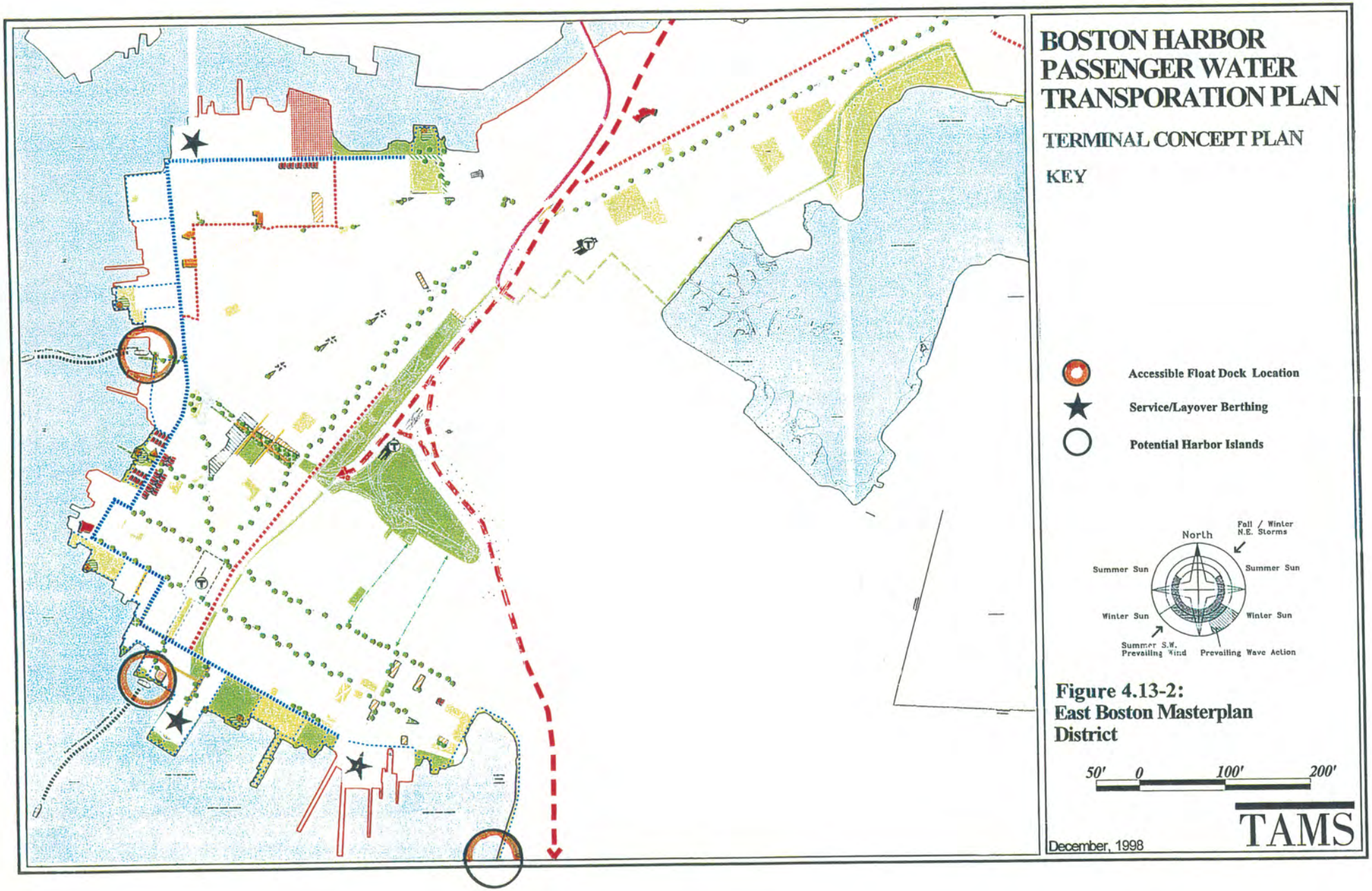
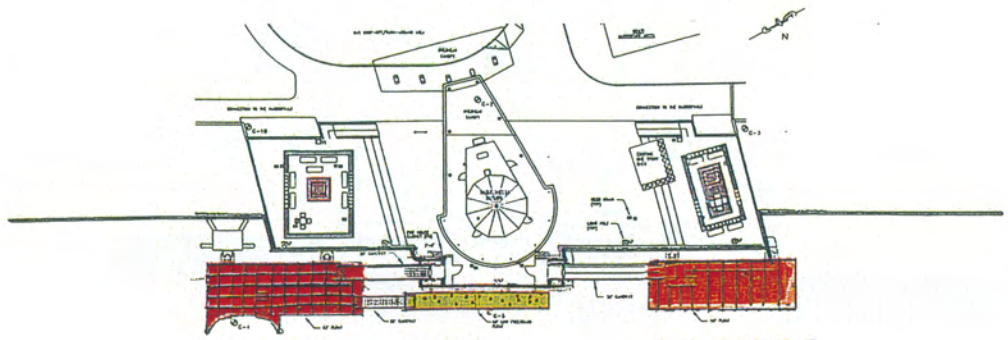


Figure 4.13-2:
East Boston Masterplan District

BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN



EXISTING CONDITION PLAN

KEY

- Transit/Larger Vessel (4 foot freeboard)
- Transit/Smaller Vessel (2 foot freeboard)
- Excursion/Larger Vessel (4 foot freeboard)
- Excursion/Smaller Vessel (2 foot freeboard)
- Existing Float Dock
  New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing

Potential Harbor Islands

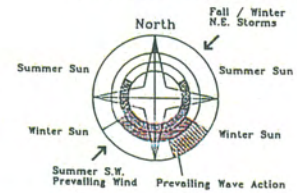


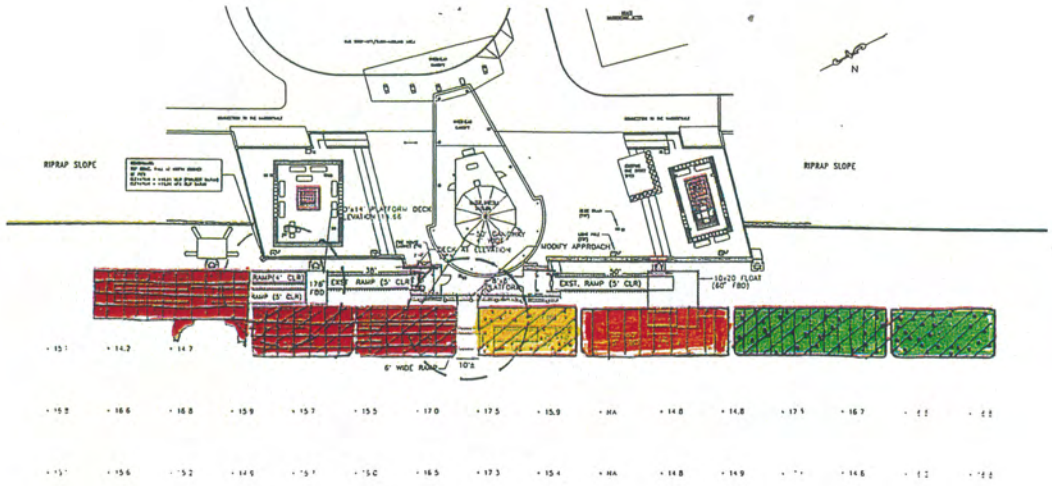
Figure 4.14-1
Logan South
Existing

December, 1998

TAMS

BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN



KEY

- Transit/Larger Vessel (4 foot freeboard)
- Transit/Smaller Vessel (2 foot freeboard)
- Excursion/Larger Vessel (4 foot freeboard)
- Excursion/Smaller Vessel (2 foot freeboard)
- Existing Float Dock / New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing

Potential Harbor Islands

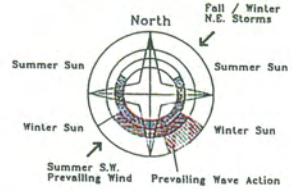
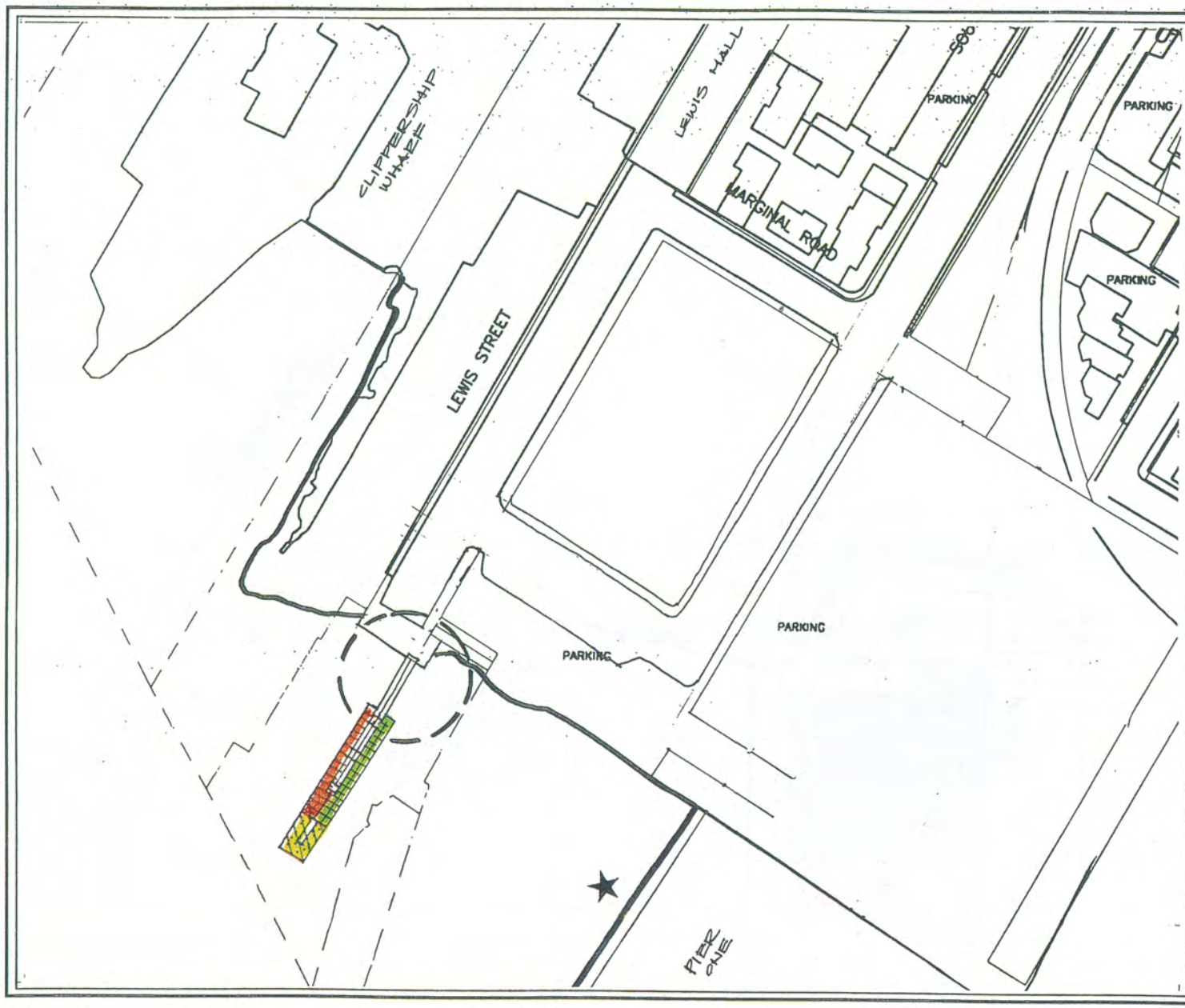


Figure 4.14-2
Logan South
Short-Term

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock
  New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

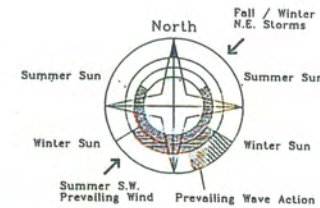
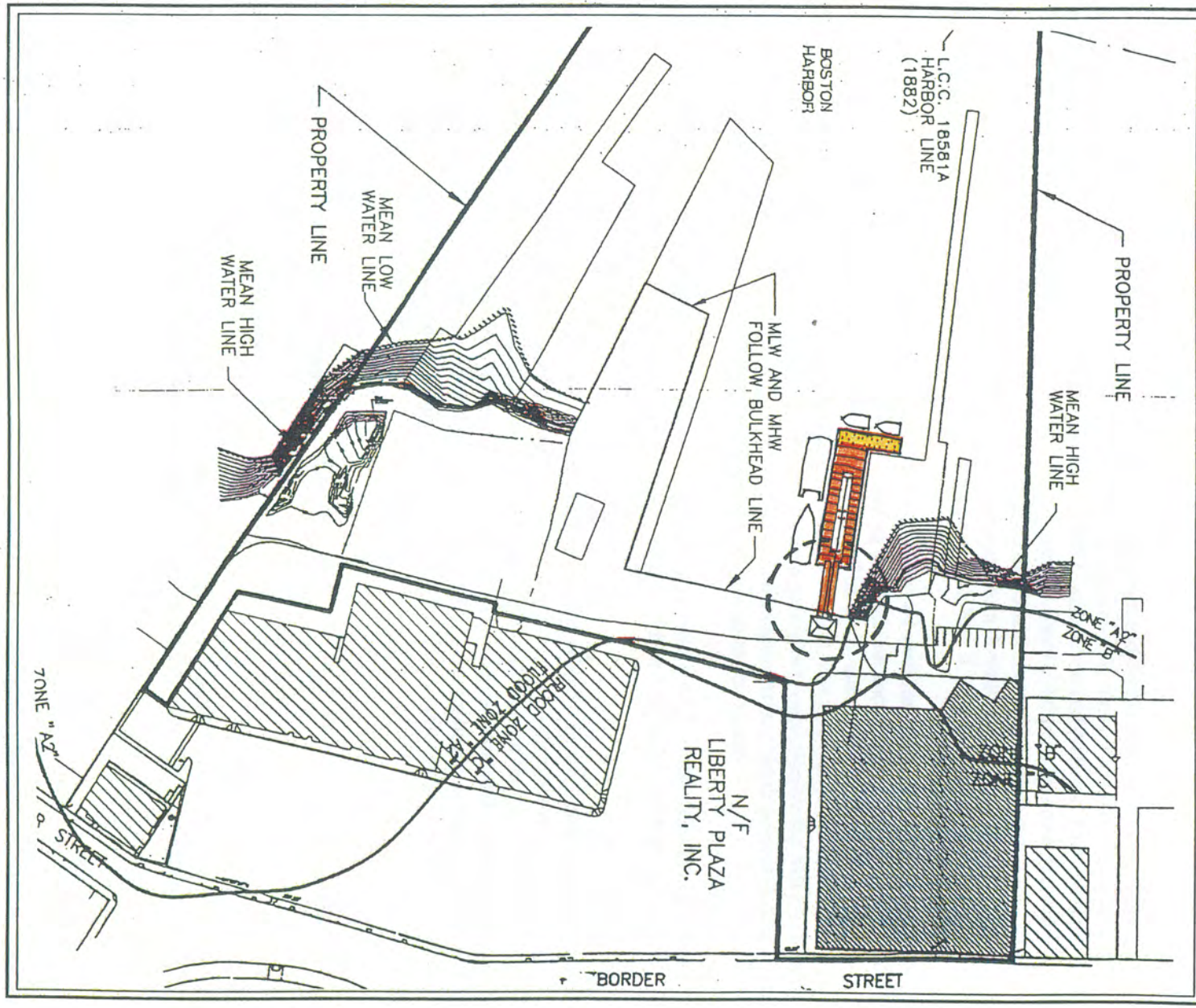


Figure 4.15-1
Lewis Mall
Mid-Term

50' 0 100' 200'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock
  New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

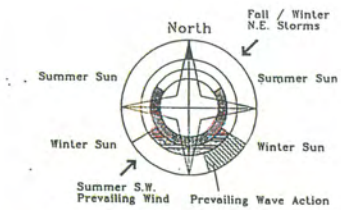


Figure 4.16-1
Liberty Plaza/Central Square
Mid-Term

50' 0 100' 200'

December, 1998

TAMS

4.5 Charlestown Waterfront District

The shuttle and excursion ferry services serving Charlestown are currently the second most heavily used in the inner harbor. The ferry links provide for year round commuter needs to and from Charlestown, for recreational visitors to the *USS Constitution* and National Park attractions, and for seasonal marina users. Improved and expanded terminal facilities are needed to meet growing commuter and recreational demands for the short and scenic trip to and from the Navy Yard, and for increased transit options for the nearby Charlestown neighborhoods.

The District: The year round shuttle services to the downtown and North Station provide for two way commuter needs, with Charlestown residents commuting out and with Navy Yard based business employees commuting in. Year round visitors to the *USS Constitution* and National Park attractions take advantage of the Pier 4 shuttle service, as do seasonal users of Navy Yard based marina, recreational boating and entertainment activities. Seasonal visitors to the *USS Constitution,* the Navy Yard National Park and the Freedom Trail may use the excursion services from downtown to Pier 1, also known as Constitution Wharf, a more convenient terminal location than Pier 4.

While the two existing terminals at Pier 1 and Pier 4 have served well for many years, improved and expanded terminal facilities are needed to meet growing demands for increased service including links to South Station, the Airport and the South Boston Seaport. The short shuttle trip to and from Pier 4, serving the Navy Yard and the Charlestown neighborhoods beyond, remains one of the best transportation bargains in the harbor owing to the long term subsidized operation by the MBTA, which dates back to the initiation of the service as mitigation for the Central Artery North project (CANA), and has continued by popular demand through the current CAT construction phases.

The four terminal sites proposed for Charlestown are shown in Figure 4.17 on the aerial of the district and include in order of their description: 1) Pier 4/Navy Yard, 2) Pier 1/ Pier 2 Constitution, 3) Pier 10/Yard's End, and 4) Pier 3/Service Center.

An expanded Pier 4 in the short term will continue to serve as the primary Charlestown terminal due to its central location, and high volume of commuter and non-commuter ridership. Other passenger terminals proposed for expansion include an improved Pier 1 in the short term, and a new terminal at Pier 10 as Yards End in the mid term as development fills in. The City is interested in establishing a layover berthing and servicing facility at Pier 3, also slated for short term implementation. While other opportunities exist for layover and servicing space at Pier 11, the site is remote from the downtown and has no landside transit connections.

Charlestown Terminal Concept Plans:

4.5.1 Pier 4/Navy Yard (Figure 4.18):

The current Pier 4 location continues to be the most central and convenient location for shuttle services for residents, Navy Yard business employees, and visitors for the Navy Yard and City Square areas. As

such it has served as the hub terminal in Charlestown since its inception. The original water shuttle route from the Navy Yard to Long Wharf has steadily increased ridership over the years and the more recent link to North Station has proven after a slow start-up period. With continuing build out of residential and office space in the Navy Yard, the two services are expected to continue to steadily increase ridership. Installed in 1989, the Pier 4 terminal dock was the first in the harbor designed to be fully accessible. While the design predated the MAAB standards and is not technically in compliance with longer ramp lengths than allowed, it continues to be one of the better examples in the harbor, and the model on which other accessible terminals were based. Anticipated growth in shuttle routes, as well as water taxi and cultural loop use will need to be accommodated by expanded berthing space in the next 5 years. Photos of the existing terminal are shown in Figures 2.1-2 and 3.11.

Site Conditions and Design Objectives: The existing 120 foot barge and ramps have served well during the past 10 years, both in terms of growth capacity to handle multiple shuttle vessel landings simultaneously, and its ability to accommodate vessels with either 2 or 4 foot freeboards. The terminal is owned by the BRA, and used by operators contracted by the MBTA for the shuttle routes. At present the lower freeboard (2 foot) portion of the float is midway along the berthing area and cannot simultaneously handle a water taxi and 2 shuttle vessels at the same time. A small bus-type shelter at the landside end of the gangways provides limited weather protection. There is no designated area for a public landing, although there are alternative locations on the north side of the pier. The double gangway and ramp configuration work well in terms of separating arriving and departing passengers. The fixed ramps appear to exceed current MAAB standards for 1:12 slopes, but nonetheless generally work well for persons with mobility limitations. Navigational conditions and pier conditions are more than adequate for existing and proposed vessel operations.

Terminal Ferry Uses: The current shuttle services to Long Wharf and to Lovejoy Wharf at North Station would continue to operate. An additional shuttle service is expected to be initiated from Pier 4 to the South Station area, once the Russia Wharf terminal is completed, creating more vessel traffic and dock demand needs at the Pier 4 site. Other market responsive shuttle routes, such as links to Liberty Plaza and Logan Airport in East Boston, may also require berthing space in the future. In addition, an expanded water taxi, cultural loop, and public landing float is needed so that multiple landings can be conducted as the number of routes and vessels increase.

Short Term Terminal Components (Figure 4.18): It is recommended that the shuttle dock be expanded by 60 feet for active berthing, and that a separate lower freeboard float of 60 feet be added at the outboard end for the water taxi, cultural loop, and public landing. With regard to the marginally non-compliant ramps, it may be appropriate to seek a formal variance from MAAB as the terminal expands. Addition of a canopy above the gangways and ramps is also recommended as a standard for hub terminals. A larger weather protected waiting shelter should also be considered for the increased volume of users anticipated with the increased services.

In the concept design shown in Figure 4.18, additional floats are shown to be added on at the southeastern end of the existing floats. Pile supports will need to take into account the racking of the floats which can occur as a result of the wave action from the long fetch to the southeast. The shelter location and appearance will need to be compatible with the surrounding National Park landscape and architecture.

Ownership, Management and Funding Status: The dock expansion actions are proposed for the short term. The design and construction is proposed as a joint effort of the BRA and the MBTA, in keeping with the current ownership and route contracting. As the district hub terminal it is recommended that dock management be by landing time slot (10 minutes for the shuttle vessels), and that layover berthing, if needed, be handled at the adjacent Pier 3 service facility proposed by the BRA for implementation during the same time frame. Funding for the improvements might come from one or more of several potential sources; a Transportation Bond Bill grant, Chapter 91 offsite improvements by other Charlestown waterfront development projects, and/or financing assistance from existing abutters who will benefit from expanded service. The preliminary cost estimate for mid term improvements including 120 feet of additional floats, shelter and ramp canopy is approximately $299,000.00.

4.5.2 Pier 3/Navy Yard Layover and Service Terminal (Figure 4. 18):

The BRA has expressed interest in developing a ferry servicing and layover berthing facility at the southeast end of the city owned Pier 3 in the Navy Yard. The concept calls for a floating spud barge pier, similar to the former working dock at Pier Seven in South Boston, which would allow vehicle access via a ramp. The new floating pier would replace the deteriorating wood pile pier on the west side of the drydock.

Existing Terminal and Site Conditions: The existing Pier 3 wharf is a combination structure consisting of a timber pile supported pier built around a steel cofferdam. The facility has been used by visiting yachts and other vessels, and has provided dock and shed space for a boat building school. The pier has deep water frontage, and good navigational characteristics with the exception of the dilapidated pile field at the end of the pier.

Proposed Terminal Ferry Uses: The new public service and maintenance facility would be available to all city operated vessels, and all harbor ferries including the current MBTA contracted shuttle services landing at the adjacent Pier 4, as well as Harbor Islands ferries in need of layover space. The layover berthing component of the facility would provide relief for the overcrowded downtown terminals at a location close to downtown and along a growing number of ferry routes.

Short Term Components (Figure 4.18): The floating service pier would replace approximately 1/2 to 2/3 of the existing pile field, requiring removal of the remaining piles and possible spot dredging. It would be desirable from a cost standpoint to leave as much of the cofferdam intact as conditions would allow for cost and environmental reasons. A small service building would be needed as part of the project for equipment storage and enclosed work area, and could possibly be located in portions of the adjacent buildings. More shed and storage space would be needed if the boat building center remains at the site. All Pier 3 plans would need to be coordinated with the National Park Service regarding their plans for improving Pier 2 on the west side of the site.

The location of the proposed facility is shown in Figure 4.18, just opposite the Pier 4 site. The program and location of elements will need to be further developed before a more detailed concept design can be prepared.

Ownership, Management and Funding Status: The service and layover center would be developed by the BRA as the lead agency. The project is slated for mid-term construction. It is possible that other commercial or institutional partners could be invited to assist in capital fund raising, through either direct contributions, or as a steering committee. The BRA estimates that the project as currently conceptualized is likely to cost approximately $3 million. In the absence of engineering studies, no new dock design was prepared for this report.

4.5.3 Pier 1-2/Constitution Wharf (Figure 4.19):

The National Park Service (NPS) maintains a floating terminal at the end of Pier 1 which provides a landing for several excursion routes connecting to Long Wharf, operated by Boston Harbor Cruises, and connecting to Rowes Wharf, operated by Mass Bay Lines. The barge is approximately 100' x 30', and utilizes a combination gangway and stair connection to the Pier 1 deck. The location is convenient to the *USS Constitution*, one of the most visited attractions in Boston with over a million visitors each year, as well as to other National Park sites in the Navy yard. However, the retrofitted barge is in poor condition, and the gangway/stair combination is clearly not accessible by MAAB standards. The NPS is in the process of planning to construct a new floating terminal, either replacing the existing Pier 1 facility, or alternatively located at the end of Pier 2 in conjunction with rehabilitation of the dilapidated pier along with its buildings, and new pedestrian connections to the park attractions.

Site Conditions: Pier 1 is well situated and in good condition, although the walk to the attractions may seem somewhat long across a barren stretch of pier. Navigation conditions are good at the trapezoid shaped end of the pier, with some exposure to the southeast fetch down the harbor. The barge space is somewhat limited by the permanent berthing of the *Cassin Young* on the east side and the long visiting ship berth on the west side. Pier 2 is equally well located with respect to the full range of park resources, although somewhat further from the *Constitution,* and, despite its current condition, has inherently good navigational characteristics. The southeast end is currently in disrepair, and would require major reconstruction prior to use as a ferry terminal.

Terminal Ferry Uses: It is expected that the current seasonal excursion operations would continue with a gradual extension of the season to match visitation increases. In addition, increased use is anticipated by water taxi, the proposed cultural loop, and limited touch and go public landing, at such time as an expanded lower freeboard dock is available.

Short Term Terminal Components (Figure 4.19): A new terminal facility at either Pier 1 or 2 would continue to be used predominantly by private excursion operations, over an increasingly long season, primarily serving visitors to the *USS Constitution* and the National Park. A 120 foot pier with a combination of freeboard heights of 4 feet and 2 feet would accommodate the standard larger harbor ferries as well as water taxi and cultural loop. This is one of the recommended terminal sites which may not be appropriate as a public landing, for which there are multiple alternative sites in the immediate area. Figure 4.19 shows a new terminal at the current Pier 1 site, as well as the proposed optional location at the Pier 2 site. In the short to mid term, the Pier 1 site may be more readily used for a replacement terminal, since it does not require the reconstruction and/or demolition which is needed at Pier 2. It would be possible to design a float and ramp system which could be used initially at Pier 1, and

then relocated to Pier 2 when the necessary reconstruction is complete. It is recommended that a full moveable and fixed ramp system be used for the replacement terminal in order to provide access to the full spectrum of individuals and tour groups which visit the park.

Figure 4.19 includes a basic barge with fixed ramps and moveable gangways at the Pier 1 site. Based on the reported condition of the existing barge, it is assumed that a replacement facility will be needed within the next few years, and can be more easily built at the existing site. The gangways may need to be angled if the Pier 1 location is selected, because of the adjacent large vessel berthing, and the odd pier shape. The Pier 2 alternative would be more costly and time consuming to build because of the challenges involved in reconstruction of the badly deteriorated pier. One possibility would be to design a floating terminal which could initially be located at Pier 1, and later moved to Pier 2, once the pier and building reconstruction is complete. In any event, further detailed design will be required for the Pier 2 site to fully explore the deck replacement and other redevelopment needs.

Ownership, Management and Funding Status: Terminal replacement design, funding and implementation would be the responsibility of the National Park Service. Dock management is also likely to remain the responsibility of the NPS. The NPS representatives indicated their intention to proceed with the project in the short to mid term time period, as they are not inclined to undertake the significant refit required for the existing barge. The timing depends at least on three factors; 1) how soon the existing WWII barge needs to be replaced, 2) what priority is placed on the Pier 2 relocation and reconstruction project, and 3) on how rapidly funding sources can be secured. Preliminary cost estimates might range from approximately $600,000 for a Pier 1 basic terminal replacement up to $2-3 million for the Pier 2 facility relocation including pier rehabilitation. Detailed cost estimates were not prepared for this terminal, owing to the uncertainty of project requirements and site at this time.

4.5.4 Pier 10/Yard's End (Figure 4.20):

The undeveloped site at Pier 11 at Yard's End includes one of the longest deepwater berths in Boston Harbor, which is periodically used for layover berthing and servicing. On the other side of the apron and abandoned drydock, Pier 10 is currently not used for any marine activity, in part because of the bulkhead is in need of repair, and there are presently no terminal facilities available. With limited residential or office uses nearby, there is currently only marginal demand for scheduled ferry service. As the adjacent parcels are eventually redeveloped, the demand is likely to grow for a new shuttle terminal to serve the north end of the yard.

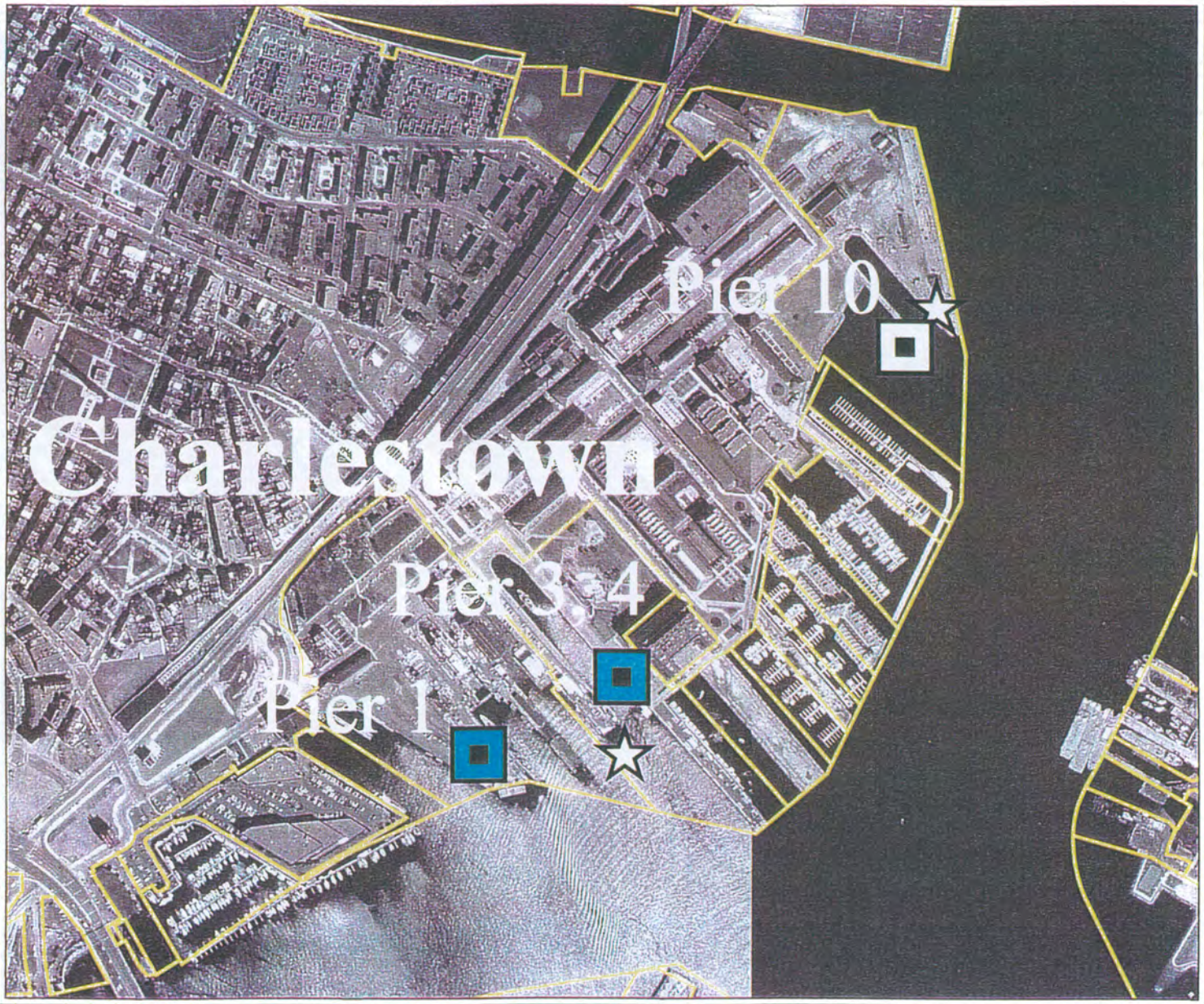
Site Conditions and Design Objectives: Pier 10 is currently in need of substantial rehabilitation, being at the edge of the former drydock #5. Portions of the existing pile field may need to be removed, and the bulkhead is in need of repair. The navigation conditions, aside from the piles and bulkhead, would seem to be generally good, but somewhat contingent on the future plans for expansion and configuration of marina activities.

Mid Term Terminal Components (Figure 4.20): No shuttle terminal needs are projected in the short or mid term, according to previous feasibility studies, based on the uncertainty of land use density, mix and timing. As such the timing of Pier 10 terminal implementation can not be predicted until the mix of

uses is clear, and commitments to development are made. For example, if such uses include a major visitor attraction or major institutional facility, substantial terminal berthing of up to 200 feet may be needed for peak loading demands. On the other hand, if the Yard's End mix of uses continues the current trends of combined moderate density office and residential use, a standard shuttle and water taxi terminal of 120 feet would be adequate.

Since the actual ferry terminal demand will not be known for some time, the concept design illustrated in Figure 4.20 represents the smaller terminal program. The terminal is located at the south end of 10th Street to maximize access. The concept plan shows a single loaded dock with the full access combination gangway and ramp. The terminal would include 2 foot and 4 foot freeboard heights to accommodate shuttle ferries, water taxis, cultural loop and public landing needs.

Ownership, Management and Funding : The implementation would most likely be a public/private partnership with coordination by BRA, in combination with the adjacent development interests. Since the terminal would be built primarily to serve the new abutters, it is likely that capital contributions from multiple development entities could be aggregated to meet Chapter 91 permit requirements for maritime uses and public benefits. Like other similar terminal layouts, the approximate cost estimate for the basic dock shown would be approximately $600,000 in $1999, exclusive of landside roadway and pedestrian connections.



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TRANSPORTATION CONCEPT PLAN

KEY

- Primary Sites - Existing
- Primary Sites - Potential
- Secondary Sites - Existing
- Secondary Sites - Potential
- Service Sites - Existing
- Service Sites - Potential

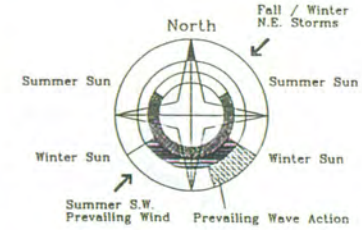
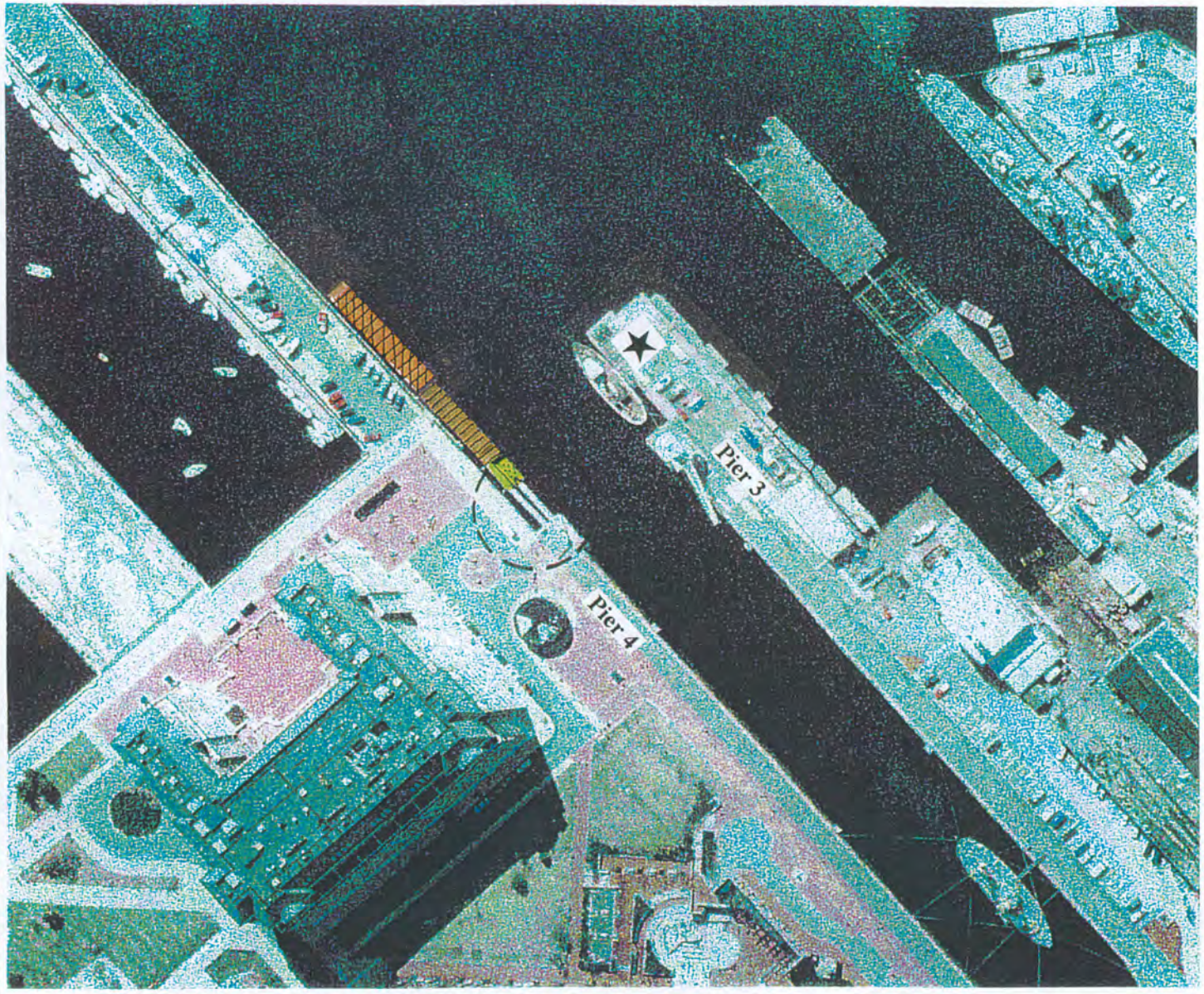


Figure 4.17
Charlestown
Aerial

250' 0 500' 1000'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock / New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

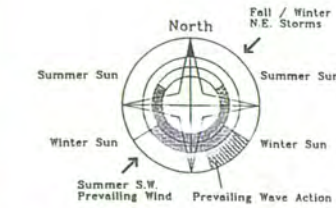


Figure 4.18
Pier 3 & Pier 4
Mid-Term

50' 0 100' 200'

December, 1998

TAMS

BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock / New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

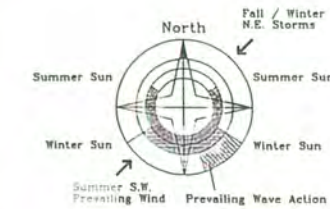
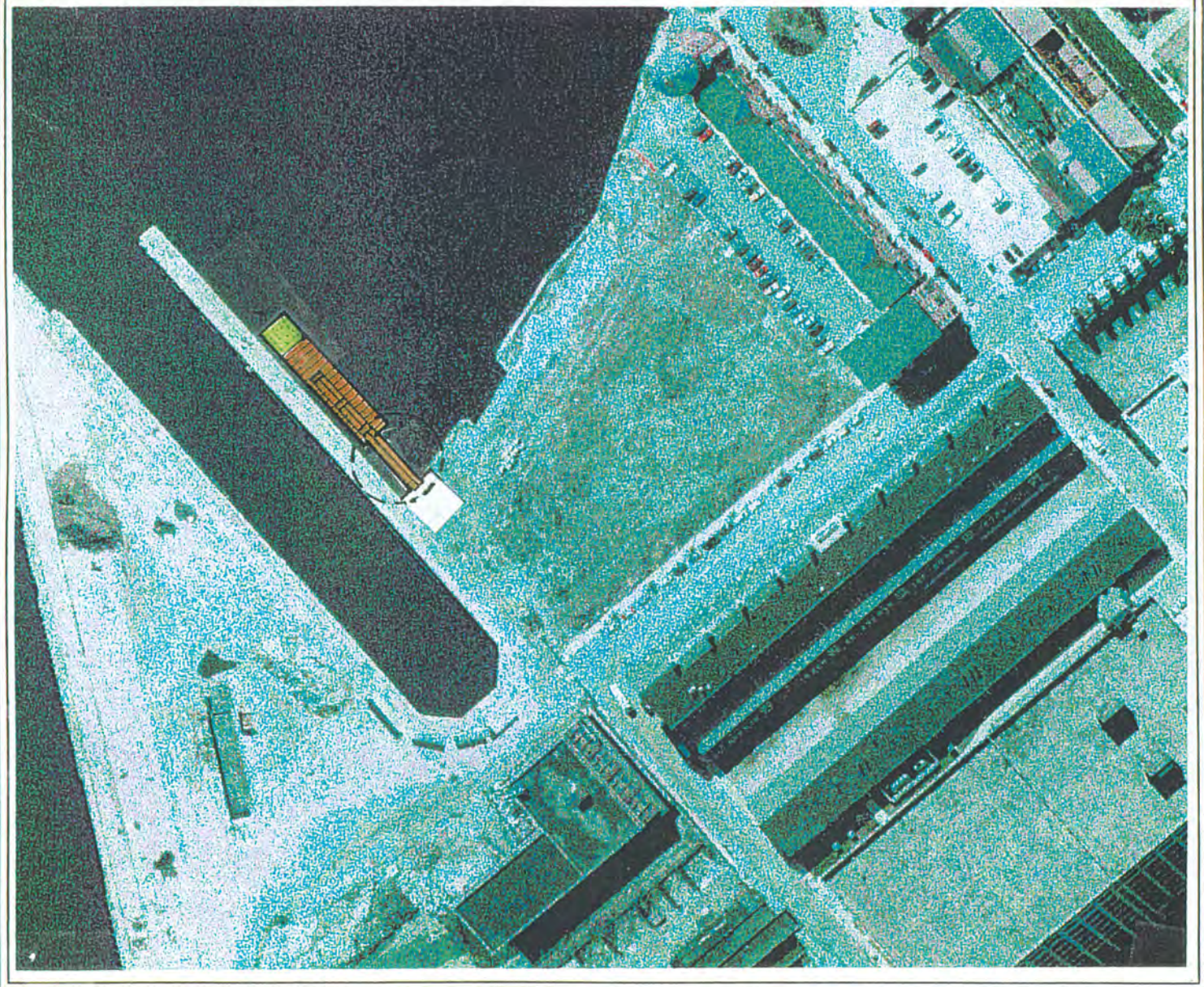


Figure 4.19
Pier 1/Constitution
Mid-Term

50' 0 100' 200'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

TERMINAL CONCEPT PLAN

KEY

- Transit/Large Vessel (4-6 foot freeboard)
- Transit/Small Vessel (4 foot freeboard)
- Excursion (4 foot freeboard)
- Taxi/Cultural Loop/Public Landing (2 foot freeboard)
- Existing Float Dock
  New Float Dock
- Accessible Float Dock Location
- Service/Layover Berthing
- Potential Harbor Islands

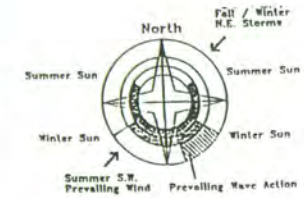


Figure 4.20:
Pier 10
Mid-Term

50' 0 100' 200'

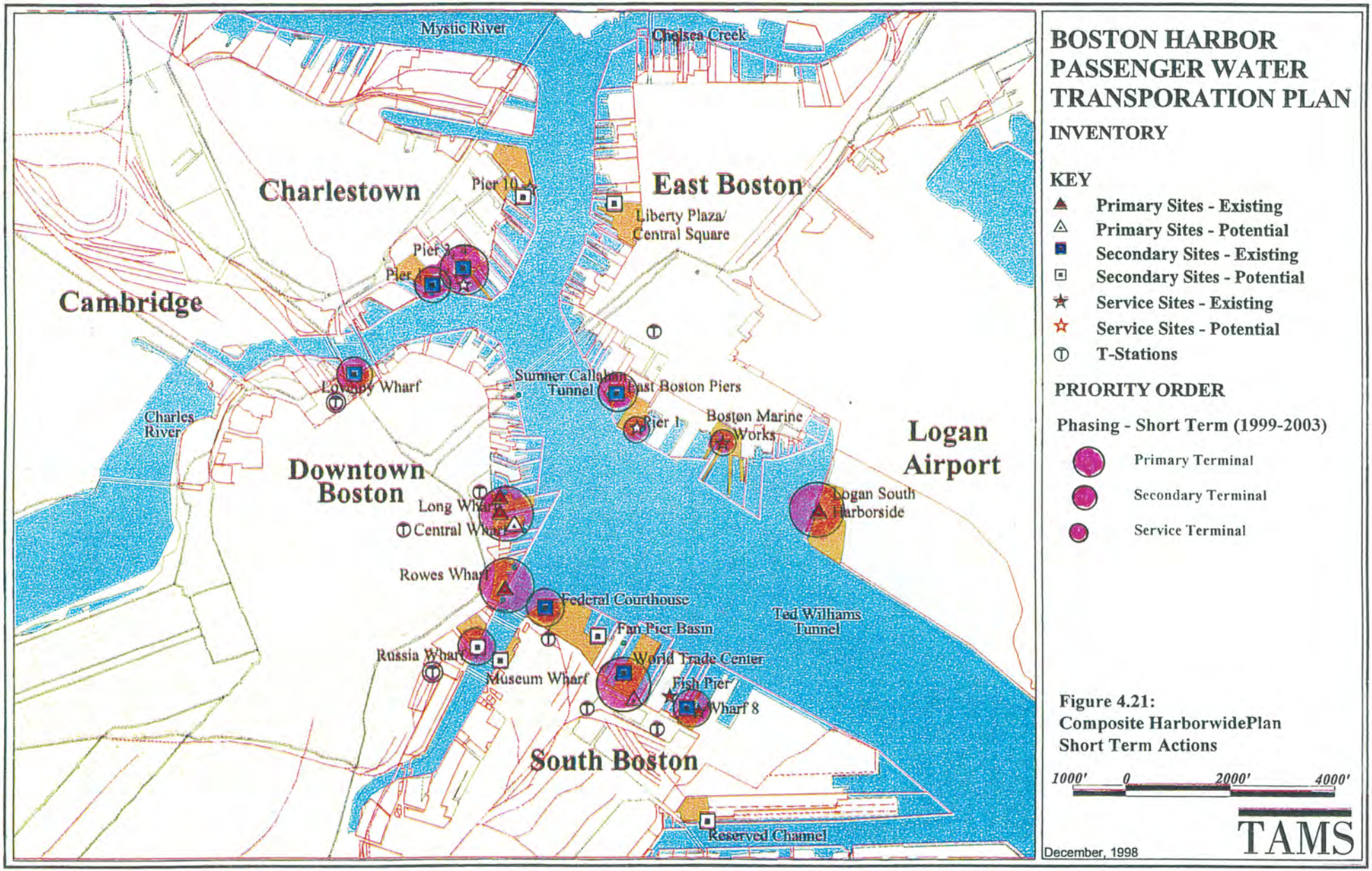
December, 1998

TAMS

4.6 Composite Ferry Facilities Phasing Plan:

The water transportation plan consists of phased expansion and new construction of ferry terminal and service sites, as well as appropriate landside infrastructure improvements and intermodal links. Through a set of terminal design guidelines, the resulting network of public water transit and excursion landings will provide new opportunities for expansion of ferry services to meet the increasing variety of demands within and beyond the Inner Harbor. While many of the future sites are ones currently used for ferry landings, they will need to be transformed in a variety of ways to serve expected growth, as outlined in the individual terminal descriptions.

Based on the individual site analyses combined with the projected ridership demand, each terminal was described in terms of short term (1999-2003) and mid term (2004-2008) implementation components. The recommendations for phasing of individual sites are summarized on an inner harbor map base for each of the two phases. The composite short term ferry facilities phasing plan is shown in Figure 4.21, with magenta colored circles highlighting those terminal sites designated for partial or full implementation in that time frame. The composite mid term ferry facilities phasing plan is shown in Figure 4.22, with green colored circles highlighting those additional terminal sites designated for partial or full implementation during that time frame, but retaining the short term site designations as well.



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

INVENTORY

KEY

- Primary Sites - Existing
- Primary Sites - Potential
- Secondary Sites - Existing
- Secondary Sites - Potential
- Service Sites - Existing
- Service Sites - Potential
- T-Stations

PRIORITY ORDER

Phasing - Short Term (1999-2003)

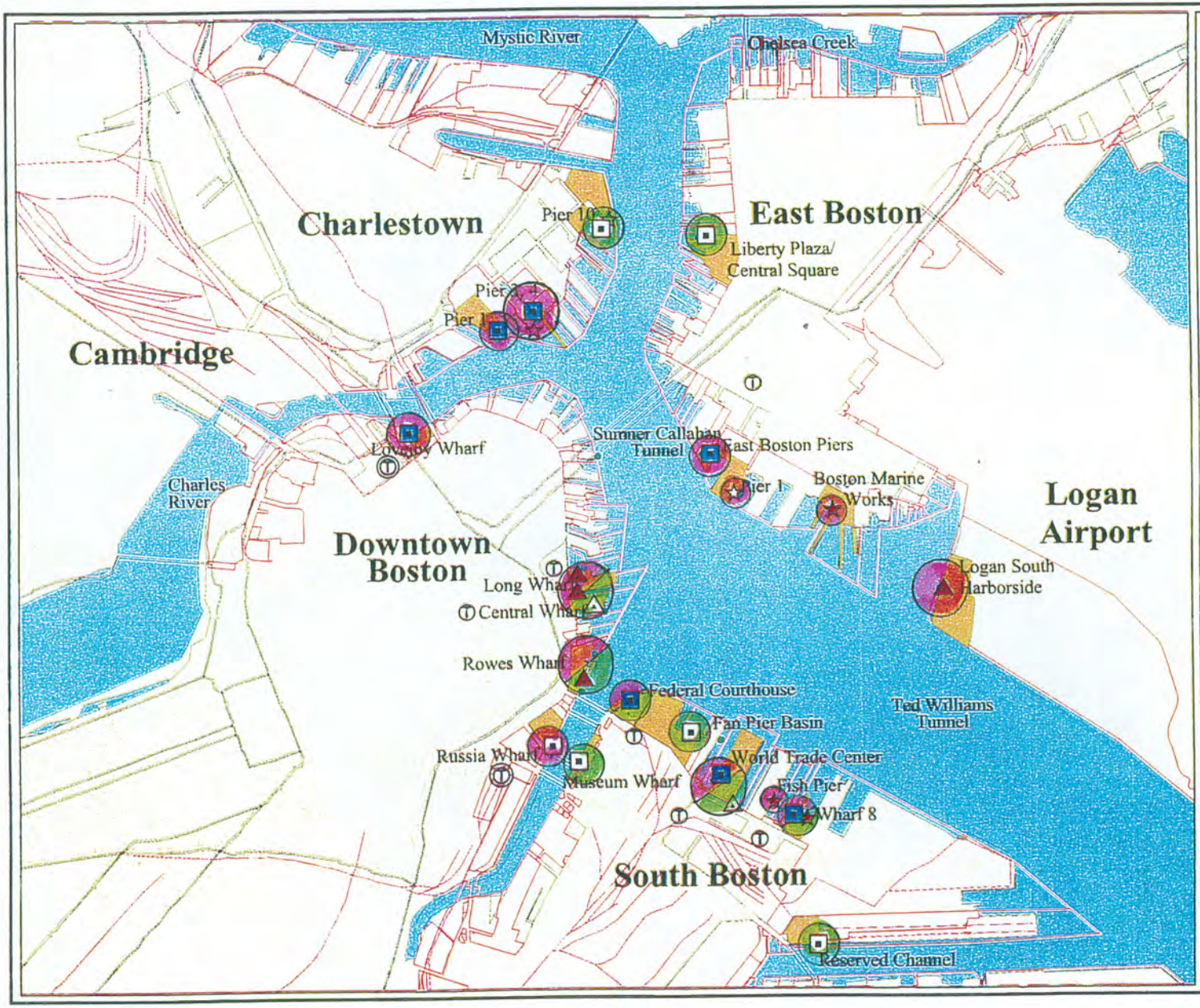
- Primary Terminal
- Secondary Terminal
- Service Terminal

Figure 4.21:
Composite HarborwidePlan
Short Term Actions

1000' 0 2000' 4000'

December, 1998

TAMS



BOSTON HARBOR PASSENGER WATER TRANSPORATION PLAN

INVENTORY

KEY

- Primary Sites - Existing
- Primary Sites - Potential
- Secondary Sites - Existing
- Secondary Sites - Potential
- Service Sites - Existing
- Service Sites - Potential
- T-Stations

Phasing - Short Term (1999-2003)

- Primary Terminal
- Secondary Terminal
- Service Terminal

Phasing - Mid Term (2004-2008)

- Primary Terminal
- Secondary Terminal
- Service Terminal

Figure 4.22:
Composite HarborwidePlan
Mid Term Actions

1000' 0 2000' 4000'

TAMS

December, 1998

5.

IMPLEMENTATION PLAN AND FUNDING OPTIONS

5.0 Implementation Strategy and Funding Options

5.1 Implementation Strategy

Implementation Principles: Increase Public Terminals for Private Operations. The recommended short and long term implementation strategy can best be described as encouraging the development of more public terminals to be used for private ferry operations, particularly for those transit focused ferry services addressed in this plan. Through the inventory and interview process, the current patterns of ownership, management and functional uses of the existing terminals were found to be a complex combination of public and private ownership, jurisdiction and ferry operations. Three alternative patterns of combined terminal ownership and ferry operation were considered: 1) maximum private terminal and dock control, 2) blended public dock ownership and private management, and 3) maximum public dock management and dock control.

An increase in publicly owned and managed docks appeared to have some advantages in terms of rapidly increasing the capacity for ferry docking, and optimizing operator access to the piers, particularly in the downtown core. In considering the alternative ownership and management patterns, it was recognized that the prevailing existing pattern is private dock management, regardless of ownership and lease patterns. After discussion with many public and private stakeholders it was recommended that continuation of the present patterns should be the preferred direction for the City to pursue, particularly for existing terminal sites, for several reasons; 1) changes to public ownership and management could be disruptive to existing operations, and 2) changeover to more public control would be time-consuming and/or costly and 3) public docks and management would require developing a new area of city government responsibility for dock ownership and management. On the other hand, there would be some new or improved terminals where public ownership and/or management might be more advantageous. These would include instances where public funding might be available for capital improvements to new or expanded terminal facilities, and for which the City or another public transportation agency would be obliged to serve as the public sector owner, based on current federal and state funding program requirements. Therefore, it is recommended that a balance of publicly controlled and privately controlled terminals be the preferred direction for the future.

5.2 Phasing Plan for Priority Projects

The following projects are listed in order of importance in meeting the growth needs of the expanding ferry operations in Boston Harbor. The highest priority projects for implementation are generally the primary or hub sites which serve each of the four Inner Harbor districts. The next level of priority projects are those secondary sites which serve the districts, including service and layover berthing. A third level of priority would be those projects for which there is limited market demand at present and which are more likely to be implemented later in the mid term time frame. Projects which are most likely to be initiated by the BRA are designated with an asterisk. In cases where a project has multiple phases, the priority designation is for the first phase.

High Priority:

- **Downtown Hub Terminal:** The highest priority includes those projects which are in the central waterfront from Long Wharf to Rowes Wharf and the old Northern Avenue Bridge. These components include expansion of docking capacity and access for all types of ferry uses in the primary downtown destination area. Specific projects would include Long North*, Long/Central Shuttle*, Long South, Central Wharf, and Rowes/400 Atlantic.
- **Logan Passenger Water Transportation Terminal/ East Boston Hub Expansion:** Access improvements and dock capacity expansion are a high priority for Massport and the increasing variety of operators serving Logan Airport.
- **World Trade Center/ South Boston Hub Terminal Expansion:** Expansion of dock capacity and higher visibility terminals for year round are a priority in providing multimodal transit options as the various South Boston Waterfront projects develop including the convention center, World Trade Center expansion, hotels and other development on Northern Avenue.
- **Piers 3 and 4 /Charlestown Navy Yard:** Expansion of the increasingly busy Pier 4* terminal combined with a new service and layover site at Pier 3* are important for the harbor related neighborhoods as well as for seasonal visitors to the many historic attractions.

Second Priority:

- **Russia Wharf/South Station:** Construction of the long awaited ferry terminal which will provide the connection to commuter rail and the Fort Point Channel is an important priority for the Downtown district.
- **Lovejoy Wharf/North Station:** While already in operation, Lovejoy Wharf needs a permanent location with expanded capacity as well as landside access improvements prior to the completion of the north section of the Central Artery.
- **South Boston Secondary Sites:** Fan Pier, Museum Wharf, Wharf 8* and Pier 1/ Reserved Channel* all need to be phased in as surrounding development creates new demand for ferry services. Excursion facilities will become increasingly important in South Boston as the Convention Center is completed.
- **East Boston Secondary Sites:** A new terminal at Liberty Plaza and the landside enhancement of Lewis Mall* are both important for future shuttle and excursion connections to and from East Boston.
- **Pier 1-2/Constitution:** The major visitor dock needs added capacity and improved access in Charlestown, to accommodate increasing volumes of seasonal and year round visitors.
- **Layover Berthing and Service Facilities:** Such support facilities are needed as downtown volumes grow and the traditional dockside layover is no longer feasible.

Third Priority:

- **Pier 10/Yards End*:** The third Navy Yard terminal will be needed as the Yards End area is built out over time. Excursion operators provide seasonal connections from downtown terminals. At present there is insufficient demand to support scheduled year round ferry transit services.

With regard to recommended phasing for the terminals, it should be noted that the priority levels do not

always correspond to the phasing sequence. For example, many of the primary sites have short term and mid term components which would be implemented in response to increasing market demand. On the other hand, many of the secondary sites are recommended for short term implementation.

5.3 Funding Options for Terminal Capital Costs

Based on the preliminary cost estimates for terminals described in Chapter 4, the capital costs for fully accessible ferry terminals can range from less than $100,000 for a small expansion or retrofit to a multi-million dollar new hub terminals, depending on the size and complexity of the project. The individual terminal projects were assessed in terms of potential public and private funding sources as shown in Table 5.1. Those terminals with funds which are identified or committed are marked with an asterisk*.

Public funding sources referenced in Table 5.1 with abbreviation keys include the following:

- CA/T - Central Artery EIS Commitment
- TBB - State EOTC Transportation Bond Bill
- TEA21 - Federal Transportation Program - Ferry Discretionary, Enhancement Funding, Intermodal, CMAQ (Air Quality), FHWA Intermodal Connectors
- Massport - Massachusetts Port Authority
- NPS - National Park Service
- GSA - General Services Administration

Private funding sources for terminal construction and improvements with abbreviation keys include the following:

- NEAq - New England Aquarium
- Children's Museum
- BHC - Boston Harbor Cruises
- WTC - World Trade Center
- Miscellaneous private developers as noted

Table 5.1: Project Phasing and Funding Sources

(City initiated or assisted projects in **Bold.** Other terminals are managed and funded either privately or by other state public agencies such as the MBTA)

Terminal:	Potential Funding Source(s):
1) Short Term - Phase I (1999-2003)	
- Long North/T Wharf Phase I	**TBB/TEA 21**
- Long Wharf North/T Wharf II	**TBB/TEA 21**
- Long South Phase I*	Private - BHC
- Long South Phase II	Private - BHC
- Long /Central MBTA Shuttle Phase I	**TBB/TEA21**
- Long /Central MBTA Shuttle Phase II	**TBB/TEA 21**
- Central South	**TBB**
- Rowes/400 Atlantic Phase I	**TBB/TEA21**
- Rowes Wharf/400 Atlantic Phase II	**TBB/TEA21**
- Russia Wharf	CA/T
- Lovejoy Wharf*	CA/T
- World Trade Center Phase I	Massport/WTC - Chap. 91
- Wharf 8 Phase I*	Private - Harborlights
- Logan Terminal*	Massport
- Lewis Mall Landside	**TBB/TEA21,** Clippership/Pier 1 - Chap. 91
- Pier 4/Navy Yard	**TBB/TEA21**
- Pier 3/Navy Yard	**TBB/TEA21**
2) Mid-term (2004-2008)	
- Long Wharf North/T Wharf Phase III	**TBB/TEA 21**
- Central/India Phase I	**TBB/TEA 21**
- Central/India Phase II	**TBB/TEA 21**
- World Trade Center Phase II	Massport/WTC/Chap. 91
- Wharf 8 Phase II	EDIC/Private/Chap. 91
- Lewis Mall/Clippership/Pier 1	Clippership+Pier 1/Chap. 91
- East Boston service and layover	Pier 1/Private/Chap. 91
- Museum Wharf	Childrens Museum
- Fan Pier	Private - Hyatt/Fan Pier - Chap. 91
- Pier 1/2 Charlestown	NPS
- Pier 4/NavyYard expansion	**City**
- Liberty Plaza/Central Square	Private - such as Liberty Plaza/Shaws/ other Chap. 91
- Federal Courthouse Expansion	GSA
- Pier 10/Navy Yard	Developer/Chap. 91

* Represents projects which had funding secured at the time of the report.

5.4 Action Plan for Terminals and Infrastructure Investments

Phased Terminal Implementation Action Plan: A phased Action Plan is recommended for design and construction of all proposed Inner Harbor Terminal facilities. Several of the high priority projects, such as the Downtown Hub and World Trade Center Terminals, are to be implemented over two or more of the action phases. The time frames for the action plans are based on best information available at the time of the report completion, and subject to ongoing adjustment and modification over time as a dynamic process. The action plan is intended, however, to provide an initial timeline and critical path for the priority projects identified in the plan.

The tables indicate the lead public or private entity for each of the identified projects. The City of Boston projects are designated for BRA lead or coordination. The coordination role may vary from significant involvement such as with the Rowes Wharf Operations Board, to design review for other public agency or private entity leads where issues such as Harborwalk, public realm design, zoning, Municipal Harbor Plan and/or other approvals may be needed.

The proposed action plan is described in three phases, each of which includes appropriate levels of planning, funding, and implementation. The phases are summarized in the respective tables:

- **Short Term Actions: 1999 - 2003 (Table 5.2):** The immediate short term actions include planning, permitting, funding, and early implementation actions on designated priority projects. The immediate actions are in response to increasing demands for downtown terminal space, new waterfront development initiatives around the inner harbor, and actively matching those projects with available state and federal funding programs as well as with private funding initiatives. The immediate action phase also recognizes the need to allow time for design coordination and permitting requirements. The City, the MBTA and Massport have already initiated a number of the early action short term projects through design and funding phases, as described in the terminal descriptions.

  This phase also includes the implementation phases of immediate action projects or second phases of high priority projects. In addition, they may include startup activities on some second priority projects, which may be dependent on emerging development to supply expanded ferry demand. In still other cases these may include planning and funding of mid term project candidates. The hub projects in each District remain a high priority, with a particular focus on the downtown primary terminal components at Long/Central and Rowes/400Atlantic.

- **Mid Term Actions - 2004 - 2008 (Table 5.3):** the mid term actions represent the later phases of high priority projects along with second and third priority projects. There are many factors which might alter the phasing of these projects including the actual fluctuations in market demand for ferry services, and the rates of waterfront development buildout in the various districts. Completion of the downtown hub projects and South Boston Waterfront projects will remain as high priorities in the two areas for which sustained development growth is expected. By the same token, if new development patterns emerge more rapidly than currently projected in areas such as East Boston or Charlestown, some of the mid-term projects may need to be

accelerated, or new ones added.

- **Long Term Actions - 2009 and Beyond (No Table):** Ferry services and terminal project needs are difficult to project beyond the designated mid-term time frame, and have not been identified in the report. New technologies in water transportation, such as longer range, highspeed passenger and vehicle ferries such as those successfully operating in Europe and the Pacific Rim, may need to be included in the Inner Harbor terminal facility plans at such time as markets are identified, and investor/operators become seriously interested.

Table 5.2: Phased Action Plan for Implementing Inner Harbor Terminal Facilities
SHORT TERM ACTIONS 1999 - 2003

Phased Actions	Responsibility			Planning/ Funding	Implementation
	City of Boston	Other Public*	Private		
1. ISSUE PLAN:	BRA Lead	Coordination Various	Coordination Various	Fall '99	NA
2. LONG/CENTRAL HUB					
2A Long/Central MBTA Shuttle - Phase 1	BRA Lead	MBTA, EOTC Trans. Bond	NEA, BHC	'99	May '00
2A Long/Central MBTA Shuttle - Phase II	BRA Lead	MBTA, EOTC Trans. Bond	NEA, BHC	'00	April '01
2B Long Wharf Harbor Islands Gateway	BRA Lead	DEM, MDC, NPS	NEA, BHC, HE	'99 Contract Award	April '00
2C Long Wharf North/'T' Wharf Phase I Improvements	BRA Lead	EOTC Trans. Bond TEA 21	HE	'99	April '00
2C Long Wharf North/'T' Wharf Phase II Improvements	BRA Lead	EOTC Trans. Bond TEA 21	HE	May - Dec. '01	April '02
2D. Long Wharf - South Face Restoration Phase I	BRA Lease Coordination	MBTA	BHC Lead	'99	April '00
2D. Long Wharf - South Face Restoration Phase II	BRA Lease Coordination	MBTA	BHC Lead	'01	April '02?
2E. Central Wharf North dock Expansion	BRA Coordination		NEAq Lead	'99	April '01
2F. Central Wharf - South Pier Expansion	BRA Coordination		NEAq Lead	'99	June '01
3. ROWES WHARF HUB					
3A. Rowes/400Atlantic Dock Extension and Access Phase I	BRA Oper'ns Board Coordination	MBTA, EOTC Trans. Bond	Rowes Lead	'99	April '00

Phased Actions	Responsibility			Planning/ Funding	Implementation
	City of Boston	Other Public*	Private		
3A. Rowes/400Atlantic Dock Extension Phase II	BRA Operations Board Coordination	MBTA, EOTC Trans. Bond	Rowes Lead	'01	Dec. '02
3B. Northern Avenue Bridge Replacement	PWD/BRA	Various		'00	'01 to '02
4. LOVEJOY WHARF: Expansion and/or Relocation	BRA Coordination	CAT/MDC Lead	Hoffman Prop.	'01	April '02 - '03
5. RUSSIA WHARF: Temp. Terminal at Museum Wharf	BRA Coordination	CAT Lead w/ MBTA	Children's Museum	Apr. - Sept. '99	May '00
6. FEDERAL COURTHOUSE: Access		GSA Lead w/ MBTA		Aug. '98	Aug. '99
7. WORLD TRADE CENTER: Expansion Phase I	BRA Coordination	Massport Lead	World Trade Center	'00	April '01
8. WHARF 8: New Shuttle Terminal Dock	BRA Lease Coordination	Various	Harborlights Lead	Apr.'99	July '99
9. LOGAN TERMINAL: Expansion	BRA Coordination	Massport Lead		Sept. '99	May '00
10. LEWIS MALL: Landside Access Improvements	BRA Coordination	Massport	Clippership/ Pier 1 Lead	'01	April '02
11. LIBERTY PLAZA: New Terminal Planning	BRA Coordination		Liberty Plaza/Shaw's	'01	April '02 to '05 ?
12. PIERS 3 & 4/CNY: New Service and Expansion	BRA Lead	EOTC Trans. Bond	CNY Abutters	'01	April '02
13. PIER 1-2/ CONSTITUTION: New	BRA Coordination	NPS Lead	Various Operators	'01	April '02

* All new terminals or major alterations are likely to require DEP Chapter 91 permits and coordination.
** Timing of actions depends on funding awards. Therefore, it is recommended that the Action Plan be updated every 6-12 months to reflect changes in time frames.

Table 5.3: Phased Action Plan for Implementing Inner Harbor Terminal Facilities MID-TERM ACTIONS 2004-2008

Phased Actions	Responsibility:			Planning/ Funding	Implementation
	City of Boston	Other Public*	Private		
1. LONG/CENTRAL HUB					
1A Long Wharf North/'T' Wharf Phase III Improvements	BRA Lead	EOTC Trans. Bond	HE, Cannon Marina	'04	'05
1B. Central Wharf Expansion Phase II	BRA Coordination		NEAq Lead	'03	'05
1C. Central Wharf /India Wharf Expansion Phase I	BRA Lead	EOTC Trans. Bond	Harbor Towers, NEAq	'03	'04
1D. Central Wharf /India Wharf Expansion Phase II	BRA Lead	EOTC Trans. Bond	Harbor Towers, NEAq	'04 -'05	'05 -'06
2. RUSSIA WHARF: New Permanent Terminal	BRA Coordination	CAT Lead w/ MBTA	Russia Wharf/Beco	'99	'04
3. WORLD TRADE CENTER: Expansion Phase II	BRA Coordination	Massport Lead	World Trade Center	'03	'04-'05
4. MUSEUM WHARF: New Terminal	BRA Coordination		Children's Museum	'03?	'04-'05?
5. FAN PIER: New Terminal	BRA Coordination		Hyatt Develop.	'00-'02 ?	'03-'05?
6. WHARF 8: Phase II Terminal and Service	EDIC Lead	Various	To be Determined	'03	'04-'05
7. PIER 1/BLACK FALCON: Expanded Terminal	BRA Lead	Various	To be Determined	'04	'05+
8. LEWIS MALL: Terminal Expansion	BRA Coordination	Massport	Clippership/ Pier 1 Lead	Jan- June '03-'04?	'04-'05
9. LIBERTY PLAZA: New Terminal Planning	BRA Coordination		Liberty Plaza/Shaws Lead	Jan- June '01-'02	'03-'05 ?

* All new terminals or major alterations are likely to require DEP Chapter 91 permits and coordination.

5.5 Next Steps: Public and Private Coordination Initiatives

Action Plan: Public and Private Coordination Initiatives

In addition to the actions needed to initiate, coordinate and promote infrastructure investments, there are a number of institutional actions by the City of Boston and others which are needed in terms of public and private sector coordination.

Facilitating Ferry System Growth: Levels of City Involvement. As new terminal projects are initiated, the city can play a variety of roles in facilitating development from planning to funding coordination to active project management and ownership.

- Level 1: City and BRA take an active lead role for initiating priority terminal projects through city property management, and direct terminal development and ownership.
- Level 2: City and BRA take a partnership or coordination role with other public agencies such as the MBTA or DEP, or the private sector such as a ferry or marina operator, or a private institution. Primarily for properties with some form of city ownership, such as the old Northern Avenue Bridge.
- Level 3: Regulatory review lead by BRA in terms of expediting specific required review and approval procedures for projects under BRA jurisdiction including projects such as the Fan Pier or Clippership Wharf. Coordination with state regulatory entities also required.
- Level 4: Design review role for projects initiated by other public or private entities, but have specific interfaces with the Harborwalk, public parks, or other city owned properties.

Institutional Coordination: Various levels of Interagency review and coordination with the private sector are recommended to keep projects moving smoothly through design and implementation. The two public forums and subsequent meetings with stakeholders during the project proved to be useful in terms of coordination and acceleration of decision making regarding specific terminal sites and ferry routes. These would include the following:

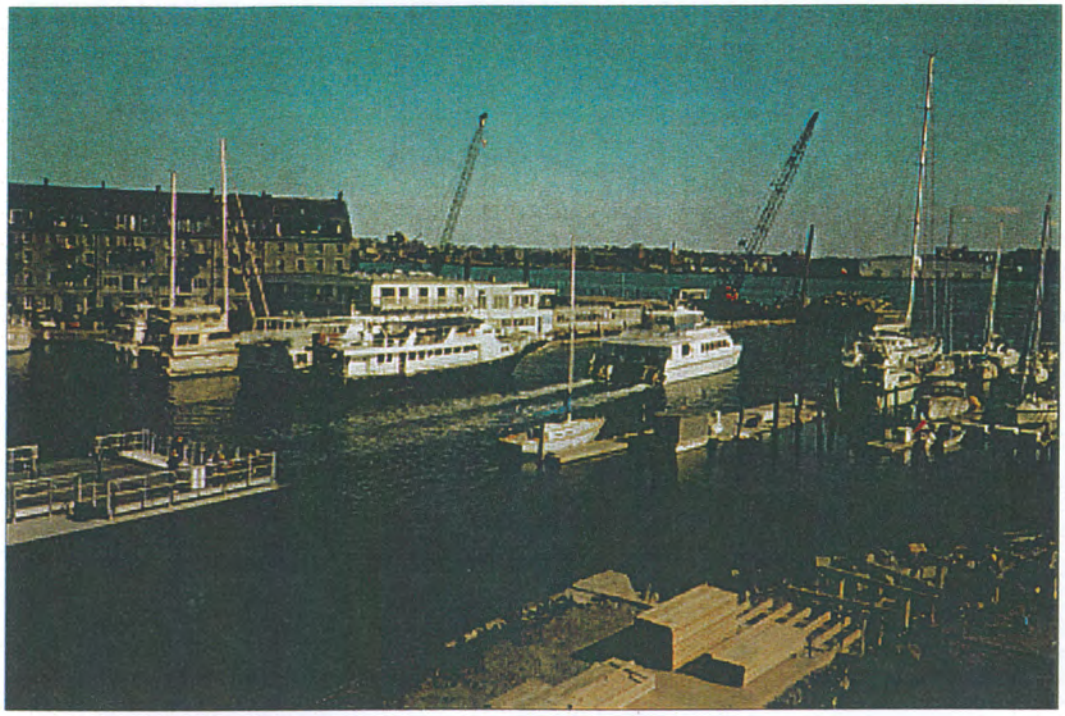
- **Public and Community Involvement:** Operators, users, abutters, TSM members, Harbor Alliance etc. It is recommended that there be a continuation of annual or semi-annual passenger ferry forums including coordination and participation by the BRA, Massport, the MBTA, and the National Park Service, the Seaport Advisory Council, and Massachusetts Passenger Vessel Operators (MAPVO). BRA, Massport and MBTA to serve as co-leads.
- **City of Boston Interagency Coordination:** Establish City interagency cooperation on dock management, watersheet management, and service upkeep with BRA or BTD as lead
- **City/State/Federal Interagency:** Coordinate with all state agencies involved with ferry services and facilities. Continuation of the interagency meetings on a regular schedule with sessions focussed on Intermodal transportation and the evolving role of ferries. EOTC as the lead.
- **New Public/Private Ferry Management Entities:** For specific primary or secondary terminal areas where a public/private partnership is involved, legal establishment of coordinating entities modeled after the Operations Board at Rowes Wharf may serve as useful device for ongoing dock and route management, as well as help in securing public funding.

Watersheet Management Programs and Related Ferry Planning Initiatives: The general vessel traffic activity continues to increase in Boston Harbor, with the growing volumes of commercial shipping, ferries and excursion operations all competing with recreational boating of all scales and sizes within a finite Inner Harbor navigational area. There appears to be an urgent need to complete the next prescriptive phases of the watersheet management plan started by the Urban Harbors Institute in 1998. It was apparent in discussing specific recommended sites, that more definition is needed from both the city and state regarding location of terminals on watersheet areas, fairway and turning basin requirements, regulatory jurisdictions and other key concerns. Specific ferry related interests include guidelines and where necessary regulations relating to such harborwide concerns as wake, wash, speed, and air quality for the various vessels currently operating and potentially in operation in the near future. Other recommended city initiatives include consolidation of a ferry operations and ridership data base, and coordination of a comprehensive ferry information system. In addition, further clarification may be needed regarding specific terminal planning and design review process as it relates to City and state licenses and approvals, for new or expanded terminals.

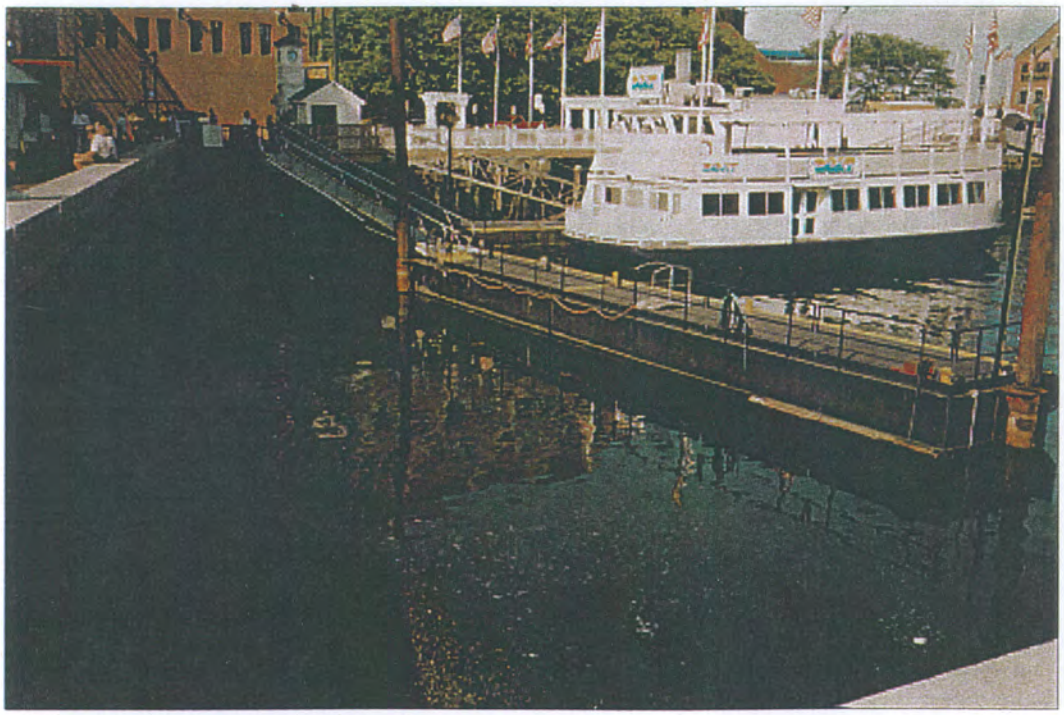
- **Watersheet Management Plan - Part II:** It is recommended that the next critical phase of a watersheet management program be undertaken with input from key stakeholders regarding scope of work and setting of priorities. The scope of work should build on the initial products prepared by the Urban Harbors Institute.

- **Ferry Operations and Ridership Data Base:** Expansion and consolidation of existing data collection efforts by Massport, the MBTA and private operators to accurately record annual ridership and survey information, for purposes of improving services and building awareness of the increasing importance of ferry services to the commuter needs and growing visitor economy of the harbor area. Of particular importance will be finding methods of documenting excursion and recreational ridership in ways which are acceptable to operators. It is recommended that the City, which has the broadest interest in all transit and non-transit ferries, take the lead in coordinating the data base.

- **Comprehensive Ferry Information System:** Many creative efforts to jointly market and inform public about all transit and excursion ferry services have been initiated during the past several years, such as the signage programs initiated by the BRA in conjunction with Harborwalk and CAT coordination, joint advertising and T-pass programs by the MBTA, and innovative marketing and franchising of airport intermodal ferry services by Massport have all contributed to increased awareness and ferry use. In ferry ports such as Seattle, there is an annual ferry information guide which includes all public and private routes, schedules, and fares, as well as maps and other useful visitor information. There are opportunities for the City to take the lead in expanding these marketing efforts over the coming years to create a more cohesive, user friendly, multi-faceted ferry network that places the Boston ferries on a par with the top international passenger water transportation systems.



Long Wharf North / "T" Wharf Replacement



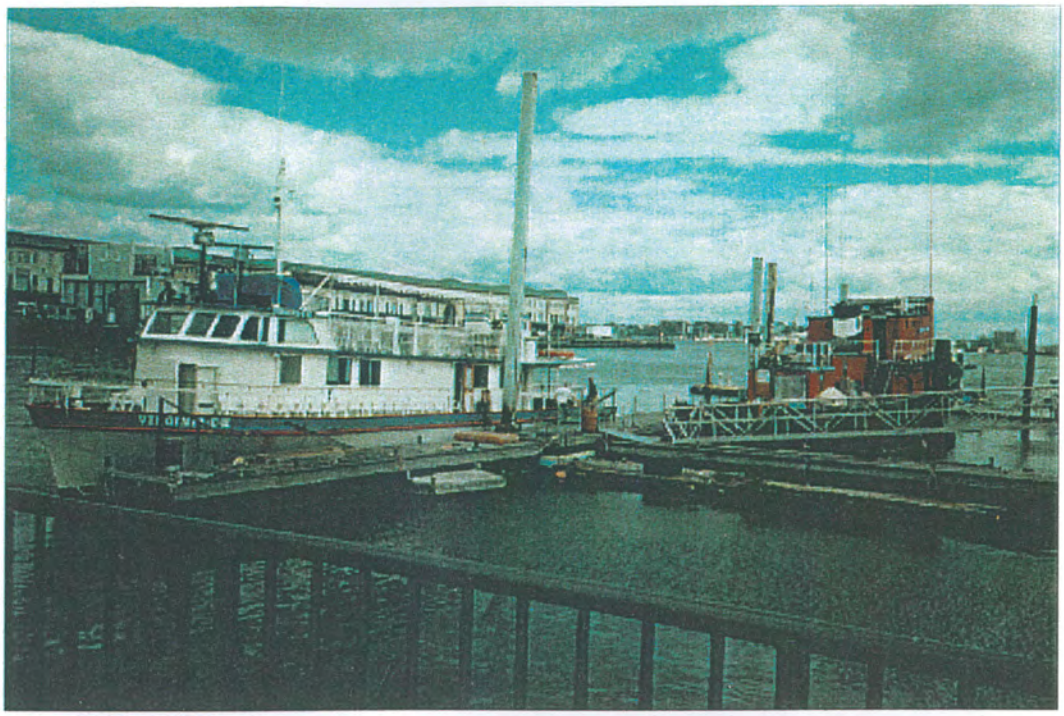
MBTA Shuttle Dock, Long/Central

Figure 5.1 - Photos of Existing Terminals Proposed for Expansion

Rowes Wharf / 400 Atlantic Avenue

World Trade Center, East Face

Figure 5.2 - Photos of Existing Terminals Proposed for Expansion



Wharf 8/South Boston: AC Cruises

Lewis Mall Terminal, East Boston

Figure 5.3 - Photos of Existing Terminals Proposed for Expansion