CHAPTER 2 ALTERNATIVES

The Downtown San Francisco Ferry Terminal Expansion Project (project) includes two alternatives: the No Action Alternative, and the Action Alternative under National Environmental Policy Act (NEPA) guidelines (No Project and Project under the California Environmental Quality Act [CEQA] guidelines). These alternatives are described in detail below.

Consistent with the San Francisco Bay Area Water Emergency Transportation Authority (WETA) Implementation and Operations Plan (IOP) and the Program Environmental Impact Report (EIR) prepared for the IOP (available at http://watertransit.org/newsInformation/eir.aspx), passenger use of the Downtown San Francisco Ferry Terminal (Ferry Terminal) would increase based on the future expansion of existing services and the implementation of new water transit services (WETA, 2003a; WETA, 2003b). Total ridership at the Ferry Terminal is projected to increase from approximately 11,200 to 32,150 average weekday passengers, and from 21 to approximately 60 to 68 AM peak-period vessel arrivals by 2035. Of this total, new and existing services provided by WETA are projected to account for 25,700 average weekday passengers and 52 to 57 AM peak-period vessel arrivals at the Ferry Terminal by 2035. As described in Chapter 1.0, the existing facilities at the Ferry Terminal are inadequate to accommodate this projected increase in water transit service.

This Environmental Impact Statement (EIS)/EIR addresses facility improvements to the Ferry Terminal that would accommodate the additional WETA ridership and vessel arrivals anticipated to occur at the Ferry Terminal by 2035. This document does not re-analyze the need for expanded routes and services, which was planned and analyzed in the IOP and Program EIR for the IOP, as well as in the RTP (refer to Section 1.4.3 and Section 1.4.4). Separate environmental analysis pursuant to NEPA and CEQA will be prepared for each new route, which will analyze potential impacts at the route origin. Both NEPA and CEQA encourage the incorporation of previous analysis by reference in environmental documents to reduce redundancy and reevaluation of project issues. For NEPA, the Council on Environmental Quality (CEQ) regulations (40 CFR Sections 1500.4, 1502.21) state that agencies shall incorporate material by reference when the effect will be to reduce bulk without impeding agency and public review of the project alternatives. The incorporated material shall be cited, and its content summarized. Under CEQA, incorporation by reference is authorized (California Public Resources Code, Sections 21093 and 21094; State CEQA Guidelines Section 15150). Portions of the Program EIR analysis that are relevant to the project are incorporated by reference and summarized in Appendix E. The relevant portions of the Program EIR incorporated by reference include the summary of alternatives considered and a summary of impacts and mitigation identified for the Program. The relationship of the Program impacts to this project is indicated in Appendix E.

Therefore, as described in this EIS/EIR, the No Action Alternative describes the WETA service that could be accommodated at the existing gates available to WETA at the Ferry Terminal (Gates B and E), without any changes or improvements. The Action Alternative describes the project alternative proposed by WETA and the Federal Transit Administration (FTA) for expanding the Ferry Terminal facilities to accommodate all new and existing WETA services projected by 2035.

2.1 LOCAL PLANNING PROCESS

In 2003, WETA adopted its IOP, which envisioned the future of water transit in the Bay Area. The IOP identified new water transit routes that would be developed, and existing services that would be expanded over a 25-year planning horizon. The Program EIR for the IOP analyzed the potential environmental consequences of adding new routes and expanding existing services. Since that time, WETA has progressed with implementing the vision of the IOP and developing new water transit routes. To date, WETA has completed construction of one new terminal, and is currently developing projects for six new

terminals and water transit routes. Most of the new routes will provide service from East and South Bay locations to the Ferry Terminal.

One of the new water transit routes would serve the new development proposed at Treasure Island. This development project, the Treasure Island and Yerba Buena Island Redevelopment Plan, which includes the new water transit service, has undergone a separate environmental review and public involvement process coordinated by the proposed developer and the City and County of San Francisco (CCSF). The Draft and Final EIR for the Redevelopment Plan are available via the website: http://www.sf-planning.org.

In conjunction with WETA's route expansion, the Port of San Francisco (Port) has been developing plans to improve the Ferry Terminal and the San Francisco Ferry Building (Ferry Building) area as both a transportation hub and an important public space for the City of San Francisco. After the 1989 Loma Prieta earthquake, the Port worked with stakeholders to develop this vision. As described in Section 1.4.6, the Port, with the support of its stakeholders, identified a series of near- and long-term improvements that should be implemented in the Ferry Building area. Some of the improvements were implemented beginning in 1998 as Phase I of the project.

In 2010, WETA and the Port began working together to implement the remaining improvements identified for the Ferry Terminal (Phase II). In February 2010, WETA and the Port entered into a Memorandum of Understanding detailing the goals of the project, and each agency's roles and responsibilities. WETA and the FTA are developing the project, as described in this EIS/EIR, in close cooperation with the Port.

WETA has met extensively with agencies, stakeholders, and community groups to get their input concerning the preliminary concept design for the project. The preliminary concept design developed by WETA considered the extensive community input received and was used as the basis for initiating the environmental review process for the project. Chapter 6.0 details the public and agency coordination undertaken as a part of the environmental review process for the project.

2.2 NO ACTION ALTERNATIVE

The No Action Alternative maintains the existing Ferry Terminal gate configuration and circulation areas, including the function, uses, and design of public spaces within the project area. No new gates or additional boarding capacity would be provided to accommodate new WETA services or the expansion of existing WETA services as part of the No Action Alternative. Similarly, there would be no implementation of circulation and boarding improvements to respond to emergency planning requirements. Increases in passenger and water transit vessel arrivals that could be accommodated with the existing facilities at the Ferry Terminal would occur as a part of the No Action Alternative.

In addition, as a part of the America's Cup Project, several of the existing facilities within the project area will be altered pursuant to the San Francisco Bay Conservation and Development Commission's (BCDC) Special Area Plan (SAP) amendments adopted in April 2012 (BCDC, 2012). The SAP amendments require that Pier ½ (and its associated piles) be removed by March 2013. In addition, the SAP amendments require that the shed on Pier 2—which currently houses a restaurant—be vacated and removed by March 2015.[1] As of October 2012, Pier ½ had been removed.

[1] Prior to the adoption of these Special Area Plan amendments in April 2012, the Special Area Plan required that Pier ½ and Pier 2 (including the shed) be removed as a part of the Phase II of the Downtown Ferry Terminal Project.

2.2.1 Existing Water Transit Service on San Francisco Bay

The Ferry Terminal currently serves approximately 11,200 average weekday passengers on six water transit routes, with approximately 21 AM peak-period vessel arrivals each weekday. Of this total, the three routes operated by WETA currently serve approximately 5,100 average weekday passengers and account for 14 AM peak-period vessel arrivals, carrying 1,400 AM peak-period passengers each weekday. Under the No Action Alternative, all Ferry Terminal water transit services would continue to operate as they currently do, with the AM peak-period travel occurring generally between 6:30 and 9:00 AM, and PM peak-period travel occurring between 4:00 and 6:30 PM. All existing routes would continue to operate from their respective gates, including WETA and Blue & Gold Fleet services at Gates B and E, and Golden Gate Ferry services at Gates C and D.

Table 1-1 in Chapter 1.0 lists the service providers, and passenger and trip data for each existing route.

2.2.2 Limited Expansion of Water Transit Service with Existing Ferry Terminal Facilities

As described in WETA's approved IOP and Program EIR for the IOP, water transit service is planned to expand on San Francisco Bay (WETA, 2003b). The expansion includes both increases in passengers and frequency of existing services (refer to Table 1-2), as well as the development of new water transit routes. As described in the IOP, the following routes are assumed to be in operation by 2020:

- Antioch to San Francisco
- Berkeley to San Francisco
- Hercules to San Francisco
- Martinez to San Francisco
- Redwood City to San Francisco
- Richmond to San Francisco
- Treasure Island to San Francisco

The Program EIR analyzed the cumulative impacts, at a program level, of the development of these additional routes. As stated in the Program EIR, project-specific environmental assessments will be conducted for each route to address site-specific issues related to the siting of the new terminals that would be required for each route at the route's origin. The destination of each of these new services would be the Ferry Terminal. Therefore, as a part of the No Project Alternative, these new routes could still be developed. However, because under the No Action Alternative no improvements would be made at the Ferry Terminal, the No Action Alternative includes a limited expansion of service (vessel arrivals and/or passengers) that could be reasonably accommodated by the existing facilities at the Ferry Terminal. The increase in passengers or vessel arrivals could be associated with expansion of existing services or the addition of new routes, as would be determined by WETA, based on operational need.

Currently, WETA has access to two gates at the Ferry Terminal: Gate B and Gate E. With the existing infrastructure, for the purposes of this EIS/EIR, it is assumed that each gate could reasonably and safely accommodate a maximum of four to five vessel arrivals per hour during peak operations. Based on this and historical patterns of vessel capacity and ridership fluctuations throughout the day, it is assumed that existing infrastructure available to WETA at the Ferry Terminal could accommodate up to 7,800 passengers per weekday, 2,500 passengers during the AM peak period, 20 vessel arrivals during the AM peak period, and a total of 65 vessel arrivals per weekday. This level of water transit service could occur under the No Action Alternative.

The No Action Alternative retains vehicle circulation and drop-off areas near the Ferry Building, as well as current circulation patterns for passenger access to the vessel boarding areas. Pedestrian pathways to boarding locations for San Francisco Municipal Railway (Muni) bus and streetcar lines and the Amtrak bus would remain unchanged.

In the event of an emergency, WETA vessels deployed for evacuation purposes would use the existing two gates at the Ferry Terminal available to WETA (Gates B and E). Existing Ferry Terminal and Ferry Building areas would be used for staging of evacuees (e.g., areas along The Embarcadero). Should areas of the Ferry Terminal not built to Essential Facilities standards[2] fail or otherwise cannot be safely accessed, passengers would need to be staged elsewhere and alternative access to vessels would need to be provided.

2.3 ACTION ALTERNATIVE

The Action Alternative is the expansion and improvement of the Ferry Terminal at the Ferry Building to accommodate the full expansion of water transit service that was described in the IOP, and presented in Table 1-2. Based on the existing and new water transit services that would be operated by WETA, ridership on WETA services is projected to increase from 5,100 to 25,700 passengers per weekday by 2035; total AM peak-period WETA vessel arrivals are anticipated to increase from 14 to approximately 52 to 57, with approximately 181 total vessel arrivals per weekday.

To accommodate the full expansion of water transit service, the Action Alternative includes construction of three new gates and overwater berthing facilities, in addition to supportive landside improvements, such as additional passenger waiting and queuing areas and circulation improvements. Figure 2-1 depicts the project area with the proposed improvements.

The proposed project improvements have been designed to not only meet the purpose and need of WETA's expansion plans, but also in keeping with the historical significance of the area and its role as an important public gathering place in the region. The project has also been designed in close coordination with the Port, and in consideration of the Port's objectives for continued improvement of the area, including expansion of water transit services and preservation of the historic character and three historic buildings in the project area (the Ferry Building, the Agriculture Building, and Pier 1). The project elements have been designed to be consistent with the existing character and facilities in the project area (e.g., the new gates would have the same design as the existing Gates B and E).

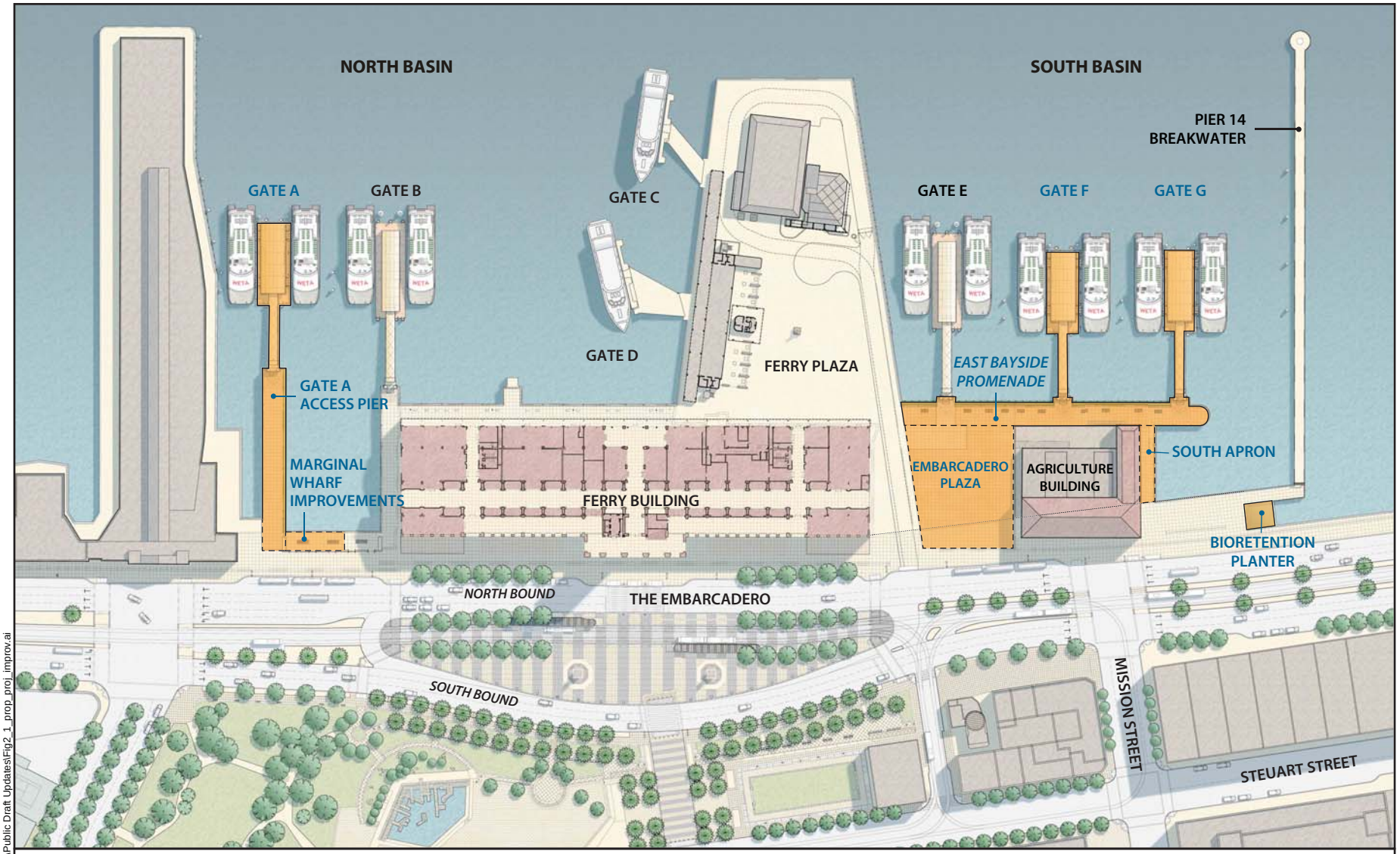
The project area encompasses property managed in the public trust by the Port from the south side of Pier 1 to the north side of Pier 14, and from the Embarcadero Promenade to San Francisco Bay. The project area includes the Ferry Building, the Ferry Plaza, the Agriculture Building, and Pier 2 (see Figure 1-1). The project area includes existing water transit facilities (Gates B, C, D, and E), a variety of commercial uses (retail, dining, and office), and public open spaces.

As described in Section 2.2, No Action Alternative, as a part of the America's Cup Project, several of the existing facilities within the project area will be altered. These alterations would be completed prior to implementation of WETA's proposed project; therefore, the project improvements described in this EIS/EIR are those improvements that would be required after demolition of these facilities as a part of the America's Cup Project.

The project includes demolition, removal, repair, and replacement of existing facilities, as well as construction of new facilities in the project area. The Ferry Terminal can generally be divided into the North Basin (areas north of the Ferry Plaza) and South Basin (areas south of the Ferry Plaza) (see Figure 2-1). The project includes the following elements:

- Removal of portions of existing deck and pile construction and fendering (portions would remain as open water, and other portions would be replaced);

[2] As defined by the California Building Code 2010 and the International Building Code 2009, Essential Facilities are buildings and other structures that are intended to remain operational in the event of extreme environmental loading from flood, wind, snow, or earthquakes.



Areas of Project Improvements

GATE A Project Element

0 50 100 150 FEET

PROPOSED PROJECT IMPROVEMENTS

Downtown San Francisco
Ferry Terminal Expansion Project
San Francisco, California

28067812

FIGURE 2-1

4/01/13 vsa...T:\WETA\Draft EIR-EIS\Public Draft Updates\Fig2_1_prop_proj_improv.ai

Source: Roma Design Group, et al., 2012

- Construction of one new gate and access pier (Gate A) in the North Basin and two new gates (Gates F and G) in the South Basin; and

- Improved passenger boarding areas, amenities, and circulation, including rebuilding a portion of the marginal wharf in the North Basin; extending the East Bayside Promenade along Gates E, F, and G; strengthening the South Apron of the Agriculture Building; creating the Embarcadero Plaza; and installing weather protection canopies for passenger queuing.

The project elements are described in detail in the following sections and summarized in Table 2-1.

Table 2-1
Summary of Demolition and New Construction

Project Element	Area	Type of Work
Pier 2 and additional deck structure in the South Basin	20,500 square feet	Demolition of deck and 350 piles.
North Basin Marginal Wharf	2,550 square feet	Strengthen piles and replace decking
South Apron of the Agriculture Building	2,400 square feet	Temporary repair of apron structure for use during construction
Gate A	Access Pier = 8,000 square feet Gangway = 1,300 square feet Float = 5,200 square feet Total = 14,500 square feet	New pier and berthing facilities for new gate; new furnishings and equipment on pier (guardrails, lights, ticket machines, etc.). Existing fendering along the edge of Pier 1 may be replaced.
Gate F	Gangway = 1,300 square feet Float = 5,200 square feet Total = 6,500 square feet	New berthing facilities for new gate, including new fendering along the East Bayside Promenade
Gate G	Gangway = 1,300 square feet Float = 5,200 square feet Total = 6,500 square feet	New berthing facilities for new gate, including new fendering along the East Bayside Promenade
Embarcadero Plaza	24,500 square feet total	Surface improvements as well as new deck and piles
East Bayside Promenade	13,850 square feet	New deck and piles; new furnishings and equipment (guardrails, lights, ticket machines, etc.)
Weather protection canopies	Gate A = 200 feet long by 20 feet wide South Basin = 420 feet long by 24 feet wide	Installation of steel, glass, and photovoltaic cell overhead canopy on the pier deck

The proposed project would be located at the existing Ferry Terminal, and would not require new or additional onsite safety and security measures beyond what is described in this section (e.g., locked gates, Americans with Disabilities Act (ADA)-accessible ramps, lighting of floats and circulation areas).

Implementation of the proposed project improvements would result in a change in the amount and type of fill in San Francisco Bay. Table 2-2 summarizes the changes in fill for both the North Basin and South Basin.

Table 2-2
Summary of Changes in San Francisco Bay Fill from the Action Alternative

Type of Fill/Project Element	Area of Fill Removed	Area of New Fill	Area of New Fill Considered Replacement Fill[1]	Net Change in Area of Fill[2]
North Basin				
Fill in the Bay[3]	**35 square feet**	**330 square feet**		**295 square feet**
Fender piles removed along Pier 1[4]	35 square feet			
Piles for Gate A Access Pier[5]		165 square feet	See Note 6.	
New Guide, Dolphin, and Fender Piles for Gate A		165 square feet		
Floating Fill[7]		**5,200 square feet**		**5,200 square feet**
Gate A Float		5,200 square feet		
Shadow Fill[8]		**10,000 square feet**		**10,000 square feet**
Pier Deck		8,000 square feet	7,700 square feet[9]	
Bioretention Planter along Gate A Pier		700 square feet		
Gate A Gangway		1,300 square feet		
Project Elements that would result in no change in fill				
North Basin Marginal Wharf Improvements (2,550 square feet)	n/a	n/a	n/a	n/a
Net Change in Fill in the North Basin				**15,495 square feet**
South Basin				
Fill in the Bay[3]	**1,100 square feet**	**1,150 square feet**		**50 square feet**
Piles Removed for Pier Deck[4]	1,100 square feet			
New Piles for Embarcadero Plaza and East Bayside Promenade[5]		900 square feet	See Note 6.	
New Guide, Dolphin, and Fender Piles for Gates F and G		250 square feet		
Floating Fill[7]		**10,400 square feet**		**10,400 square feet**
Gate F and G Floats		10,400 square feet		
Shadow Fill[8]	**20,500 square feet**	**34,490 square feet**	**9,760 square feet**	**13,990 square feet**
Pier Deck	20,500 square feet	29,600 square feet	9,760 square feet	
Bioretention Planters		2,290 square feet		
Gate F and G Gangways		2,600 square feet		
Project Elements that would result in no change in fill				
South Apron of the Agriculture Building Improvements (2,400 square feet)	n/a	n/a	n/a	n/a
Resurfacing of portions of pier deck[10]	n/a	n/a	n/a	n/a
Net Change in Fill in the South Basin				**24,440 square feet**

Notes:
1 Replacement fill refers to areas where fill was demolished and then rebuilt. Replacement fill is not considered in the calculation of the net change in fill, which equals the area of new fill less the area of fill demolished. Not all fill removed will be replaced.
2 Net fill is calculated as new fill less the area of fill demolished.
3 Fill in San Francisco Bay is defined as any structure placed in the water column of San Francisco Bay (e.g., piles).
4 For piles that would be removed, it was conservatively assumed all piles are only 24 inches in diameter.
5 For new piles that would support deck structures, a combination of 24-inch and 36-inch piles would be used. For the purposes of this Environmental Impact Statement/Environmental Impact Report, it was assumed that 75 percent of the piles would be 24 inches in diameter, and 25 percent would be 36 inches in diameter.
6 A portion of the new fill for piles that support pier deck would be considered replacement fill. However, for the purposes of this Environmental Impact Statement/Environmental Impact Report, the square footage for replacement fill for piles has not been calculated. This would be determined during final project design.
7 Floating Fill is defined as any structure that floats or is moored on the water surface (e.g., gate float)
8 Shadow Fill is defined as any structure placed over the water that casts shadow on the water (e.g., pier deck)
9 A portion of the Gate A Access Pier would replace portions of Pier ½ that were demolished as a part of the America's Cup Project.
10 In the South Basin, the existing access to Gate E (approximately 4,250 square feet) and an area west of the seawall (approximately 4,500 square feet) would be resurfaced (refer to Figure 2-4).

2.3.1 Removal of Existing Facilities

In the South Basin, Pier 2 is approximately 15,200 square feet in area, and consists of deck and pile structures.[3] Pier 2 is designated for removal in BCDC's Special Area Plan (BCDC, 2000), and the Port has determined that the substructure is also in need of repair. Accordingly, as part of the project, the following structures would be removed in the South Basin, as shown on Figure 2-2:

- Pier 2 would be demolished and removed (including approximately 15,200 square feet of existing deck structure); and
- Approximately 5,300 square feet of the existing deck and piles, west of Pier 2, would be removed so that the structures can be replaced with a new structure that meets Essential Facilities standards.

2.3.2 Gate Facilities

Three new gates would be constructed, comprising fixed access piers and berthing structures (floats, gangways, guide piles, dolphin piles [piles with donut-shaped impact resistant foam that rise and fall with the tides], and fendering). Each of the three gates (Gates A, F, and G) would be built similarly, in the locations shown on Figure 2-1. Each gate would be designed with an entrance portal—a prominent doorway providing passenger information and physically separating the berthing structures from the surrounding area. The entrance portal would also contain doors, which can be secured. The new gates would match the design of the existing Gates B and E, but with wider door openings and with floats constructed of concrete or steel.

Gate A Access Pier

Due to its location, Gate A would require the construction of a 30-foot-wide, 265-foot-long pier to provide access to the berthing facilities. The pier structure would be supported by approximately 40 piles, each 24 to 36 inches in diameter and spaced 12 to 16 feet apart.[4] The piles would be precast concrete or steel. The piles would be 135 to 140 feet long, would be driven approximately 125 to 130 feet below mean lower low water (MLLW) through the mud into the sand layer, and would extend 7.5 to 11 feet above MLLW. The pier structure would be designed to appropriate weight and loading requirements, and would be built to meet Essential Facilities standards. The Gate A Access Pier deck would be constructed on the piles, using a system of beam and flat slab concrete construction, similar to what has been built in the Ferry Building area. The beam and slab construction would be either precast or cast-in-place concrete (or a combination of the two), and approximately 2.5 feet thick.

As shown on Figure 2-1, similar access piers would not be required for Gates F and G, because the new berthing structures for Gates F and G would be connected directly to the East Bayside Promenade. The East Bayside Promenade is discussed in Section 2.3.3.

Berthing Structures: Float, Gangway, Guide and Dolphin Piles, and Fendering

Berthing structures—consisting of floats, gangways, guide and dolphin piles, and fendering—would be provided for each new gate. Figure 2-3 depicts a conceptual rendering of the berthing structures. The concrete or steel floats would be approximately 45 feet wide by 115 feet long. The steel truss gangways would be approximately 12 to 14 feet wide and 92 feet long. The gangway would be designed to rise and fall with tidal variations while meeting ADA requirements. The gangway and the float would be designed with canopies, consistent with the current design of Gates B and E.

[3] A restaurant (approximately 6,000 square feet) is currently located on the eastern side of Pier 2, and will be removed as a part of the America's Cup Project by March 2015.
[4] Pile spacing is measured from the center of each pile.

Each berthing structure would require guide piles and dolphin piles. As with the piles for the pier structure, the piles for the berthing structure would all be driven approximately 125 to 130 feet below MLLW through the mud into the underlying sand layer for support. Each guide pile would be steel, 42 inches in diameter and would extend 18 feet above MLLW. Six guide piles would be required to secure each concrete float in place. Dolphin piles would be used at each berthing structure to protect against the collision of vessels with other structures or vessels. The dolphin piles would also be steel, 36 inches in diameter, would extend 20 to 25 feet above MLLW. For Gate A, it is assumed that 10 dolphin piles may be required; for Gates F and G, a total of up to 14 dolphin piles may be installed.

In addition to the dolphin piles, chock block fendering would be added, where required, to adjacent structures to protect against collision. The chock block fendering would consist of square 12-inch-wide pressure-treated wood blocks that are connected along the side of the adjacent pier structure, and supported by round 14-inch-diameter wood piles that are 64 feet long and placed 10 feet apart. For Gate A, the existing fendering along the edge of Pier 1 could be removed and replaced with new fendering. During the final design of the project, the existing fendering along the edge of Pier 1 would be inspected to determine whether replacement is necessary. For Gates F and G, the existing fendering along the south edge of the Ferry Plaza and adjacent to Gate E would be maintained. New fendering would be constructed along the East Bayside Promenade.

2.3.3 Passenger Boarding, Circulation Areas, and Amenities

In addition to providing new water transit gates, the project would improve passenger boarding and circulation areas in the project area. Figure 2-4 depicts the structural improvements proposed within the project area. As described in Section 1.5.2, Purpose and Need, improvements are needed because there are currently circulation bottlenecks and use conflicts between water transit passengers, users of the Ferry Building, and delivery vehicles.

Table 2-3 summarizes the areas needed for passenger queuing at each gate.

Table 2-3
Boarding Areas

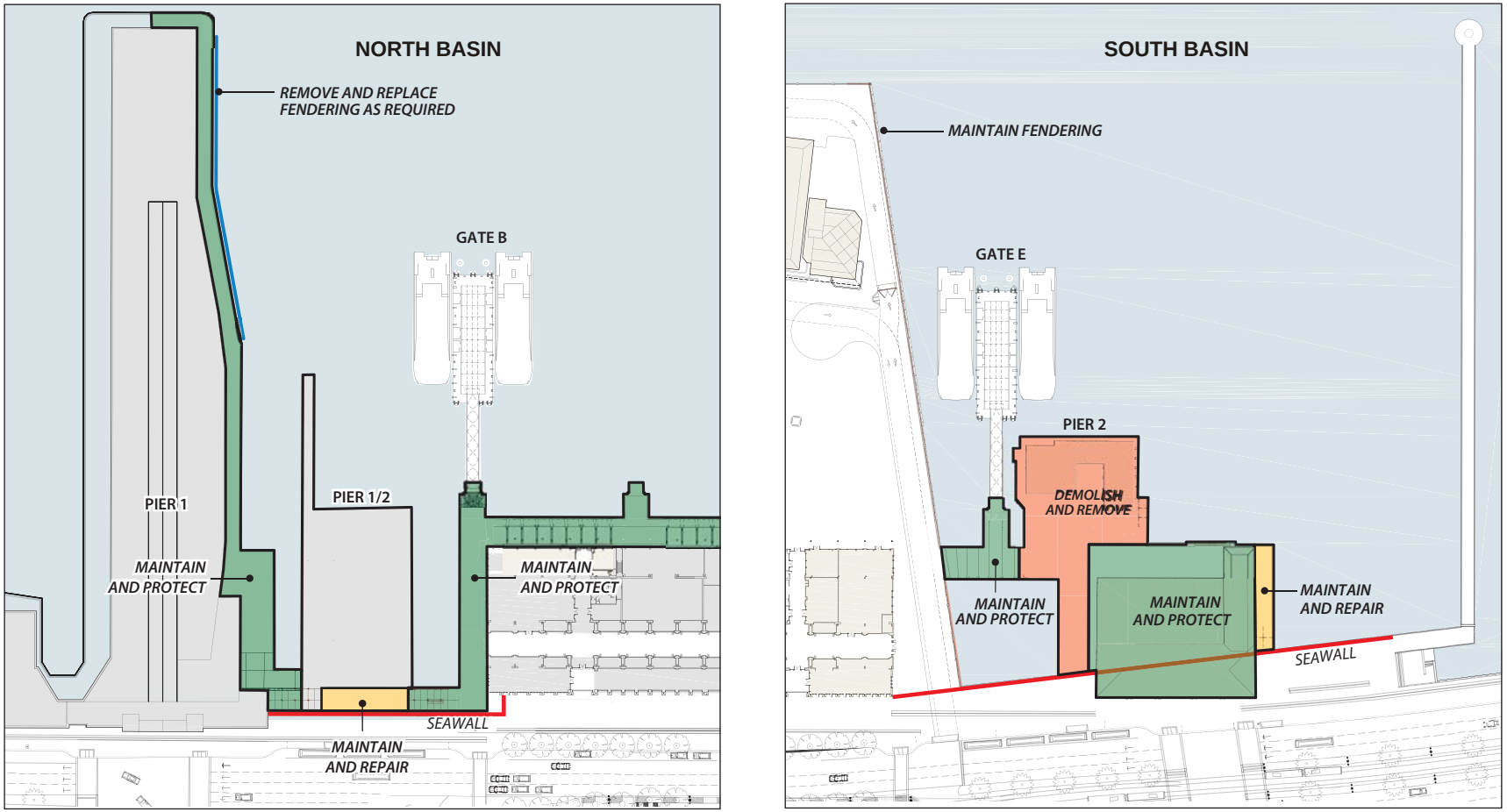
Gate	Proposed Queuing Area (approximate square feet)
A	3,500
B	3,500
E, F and G	10,500

Note: Queuing area assumes 7 to 10 square feet per passenger, and 15 to 20 square feet for passengers with bicycles (ROMA, 2012).

The improvements described in this section are intended to ensure that water transit passengers for WETA's existing and new gates have adequate areas to queue while waiting to board their vessel, without causing congestion and use conflicts with the other activities in the project area. Additional bike rack space would be provided in proximity to each of the new gates.

North Basin Marginal Wharf

At the western edge of Gate A, where the new fixed pier connects with the Embarcadero Promenade, an 85-foot-long segment of the marginal wharf would be repaired and strengthened to provide a contiguous edge between the new Gate A Access Pier and the Ferry Building Area (see Figure 2-4). The northern



Maintain and Repair

Demolish and Remove

Maintain and Protect

Notes:
1. The America's Cup project has removed all of Pier 1/2 and will remove the building located on Pier 2 prior to project construction.
2. Portions of Pier 2 will be replaced, refer to Figure 2-1.

N

0 50 100 FEET

AREAS PROPOSED FOR DEMOLITON AND REPAIR

Downtown San Francisco
Ferry Terminal Expansion Project
San Francisco, California

28067812

FIGURE 2-2

Source: Roma Design Group, et al, 2011

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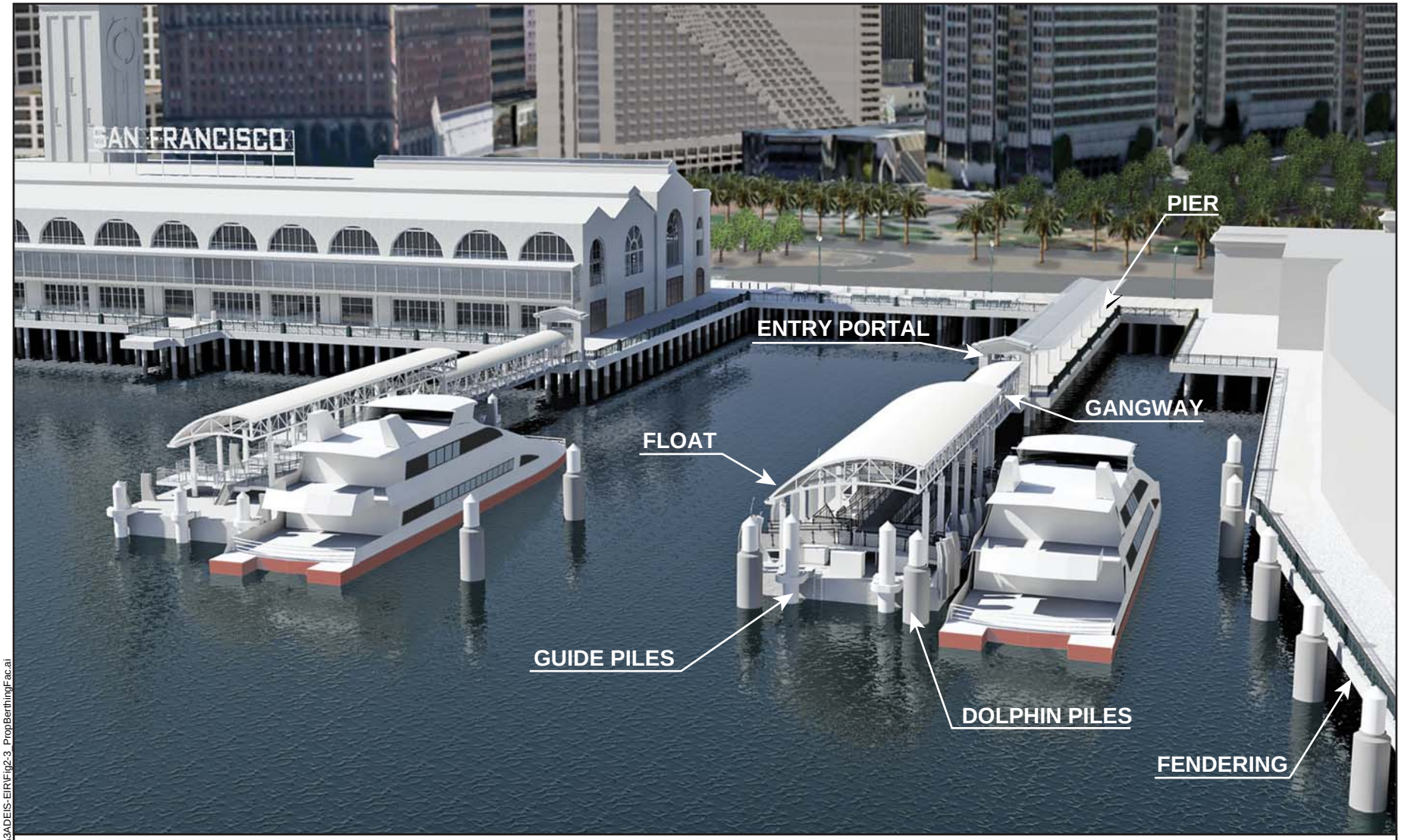

Note:
Gate A shown; berthing facility would the same for Gates F and G.

PROPOSED BERTHING FACILITIES

Downtown San Francisco
Ferry Terminal Expansion Project
San Francisco, California

28067812

REVISED FIGURE 2-3

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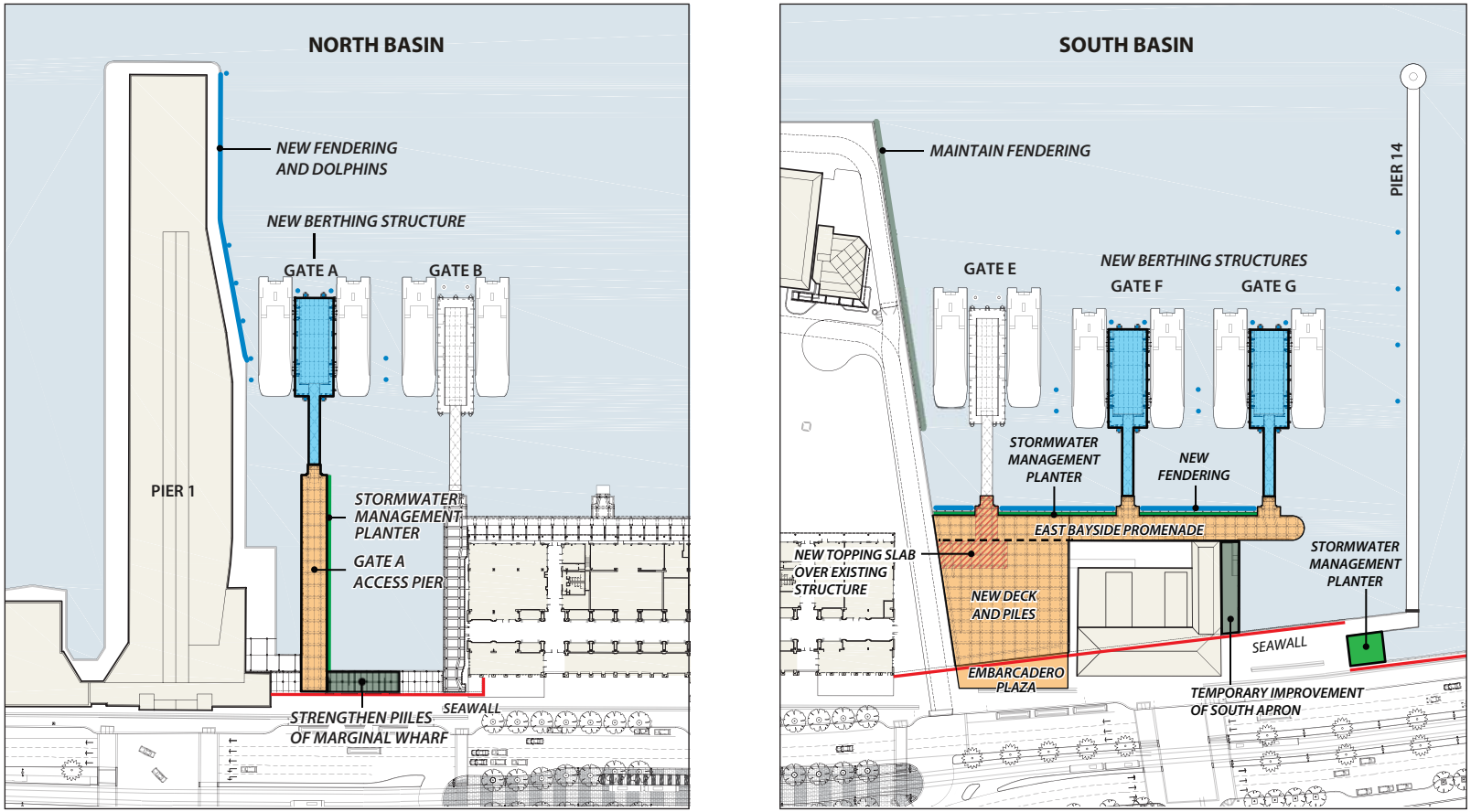
Source: Roma Design Group, et al, 2014



New Berthing Structure

Repair and Improvements

New Deck and Piles

Stormwater Management Planter

N

0 100 200 FEET

AREAS PROPOSED FOR IMPROVEMENT

Downtown San Francisco
Ferry Terminal Expansion Project
San Francisco, California

28067812

FIGURE 2-4

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Source: Roma Design Group, et al, 2012

portion of the marginal wharf (north of the new Gate A) and a portion of the marginal wharf closest the Ferry Building (north of the existing Gate B) were both previously improved by the Port. As a part of this project, the remaining marginal wharf would be repaired and strengthened. The repair work would involve strengthening the 12 existing piles supporting the deck structure, and the rebuilding of the deck structure. The rebuilt deck structure would be constructed using beams and slab. The new decking would be approximately 18 inches above grade to match the grade of the portion of the marginal wharf recently improved by the Port, and would also include new guardrails.

A conceptual rendering of the North Basin with the project improvements is shown on Figure 2-5.

Embarcadero Plaza, East Bayside Promenade, South Apron of the Agriculture Building

In the South Basin, the following improvements would be made to provide for improved passenger circulation, as shown on Figure 2-4:

- Creation of an Embarcadero Plaza;
- Extension of the East Bayside Promenade; and
- Improvement of the South Apron of the Agriculture Building.

A new Embarcadero Plaza would be created in the South Basin, forming a new continuous plaza area between the Agriculture Building and the Ferry Building where there is currently a small open water area. The new Embarcadero Plaza would be built to meet Essential Facilities standards, because it would be needed to support queuing and circulation needs for evacuation purposes in the event of an emergency. The Embarcadero Plaza would require new deck and pile construction to fill an open water area and replace subgrade structures. The Embarcadero Plaza would be designed to meet ADA-required slopes and stormwater drainage requirements, and to conform to existing elevations of the Embarcadero Promenade, Ferry Building, and Gate E. Features and design treatments such as seatwalls, steps, bicycle racks, planters, and other furnishings would be incorporated into the final design.

To the east and south of the Embarcadero Plaza, the project would expand the East Bayside Promenade approximately 460 feet in length to provide a 30-foot-wide connection along Gates E, F, and G. The eastern edge of the Promenade would include a guardrail. The extension of the Promenade would require installation of piles and new decking.

The construction of the Embarcadero Plaza and East Bayside Promenade would require installation of approximately 210 piles, each 24 to 36 inches in diameter and 135 to 145 feet in length. As with the pier structures, the piles would be precast concrete or steel. The new deck would be concrete, either precast or cast in place (or a combination of the two), and approximately 2.5 feet thick.

The South Apron of the Agriculture Building would be upgraded to temporarily support access for construction and improve passenger circulation. The improvements would include construction of steps and an ADA-accessible ramp to meet the grade of the improved East Bayside Promenade, as well as a guard rail along its edge. It is anticipated that the South Apron would be fully replaced and rebuilt when the Agriculture Building eventually undergoes rehabilitation and renovation as a separate project.

A conceptual rendering of the South Basin with the project improvements is shown on Figure 2-6.

Weather Protection Canopies

In the North Basin, a weather protection canopy structure would be constructed to span the length of the new Gate A Access Pier, as shown on Figure 2-5. The structure would provide weather protection and information for queuing and waiting passengers. The weather protection canopy structures would be approximately 20 feet wide, 200 feet long, 18 to 20 feet high, and constructed of steel, glass, and could

include photovoltaic cells. Features of the weather protection canopy structure would include lighting, passenger information, and benches.

In the South Basin, a similar water protection canopy structure would be constructed along the East Bayside Promenade, perpendicular to Gates E, F, and G, as shown on Figure 2-6. This canopy would be approximately 420 feet long and 24 feet wide.

2.3.4 Circulation Improvements

The project would also include improvements to circulation in the Ferry Building area.

In the South Basin, the East Bayside Promenade and associated canopy would organize passenger queuing and reduce use conflicts. The creation of the Embarcadero Plaza would greatly enhance passenger circulation to Gates E, F, and G, allowing free movement, and eliminating the current pedestrian bottlenecks and use conflicts at the southeastern corner of the Ferry Building. Figure 2-7 depicts the desired paths of pedestrian circulation with the project improvements. The actual circulation patterns in the project areas will be based on physical improvements and features, such as bull rails, seatwalls, and benches, which will guide pedestrian movements. The details of project elements placed to guide pedestrian flow and limit vehicular access would be determined during the project Final Design. The Final Design details will be developed in coordination with the Port, BCDC, and the San Francisco Historic Preservation Commission. Because BART has facilities in the project area, the design of circulation improvements would also be coordinated with BART. The project would improve pedestrian flow; therefore, pedestrian congestion in the fire lane would be reduced, ensuring that emergency access is maintained.

The project would change pedestrian circulation patterns in the project area; however, vehicular access would remain unchanged. Delivery trucks and emergency and maintenance vehicles would maintain their current access to the Ferry Plaza area, south of the Ferry Building. The project would not affect the Ferry Plaza function or access. All project improvements would occur within areas directly controlled by the Port, and would not affect, encroach upon, or modify any property or access to property under the control of other entities, including rights-of-way in the project area.

In addition to the physical changes relating to circulation around the Ferry Terminal, the project would include passenger wayfinding and information signage at various places throughout the project area, providing clear information for passengers arriving at and departing from Downtown San Francisco. The wayfinding signage program would also be designed to provide information for passengers arriving in San Francisco regarding the location of other transit links (i.e., Bay Area Rapid Transit, Muni, or Amtrak). Wayfinding signage would also include directions for cyclists to walk on the water side of The Embarcadero, to improve safety and reduce conflicts. The future water transit services would operate in accordance with the Transit Transfer Agreements in place between WETA and the other transit providers at the time of operation.

2.3.5 Design Considerations

The following elements would also be incorporated into the project design.

Sea Level Rise

The ground floor of the Ferry Building is built to an approximate elevation of 11.8 feet above MLLW. This elevation could accommodate approximately 2.5 feet of anticipated sea level rise above the still water level[5] of 9.2 feet resulting from a 100-year storm event, should that event occur in the near future (Moffatt & Nichol, 2012). The still water level for the 100-year storm, should it occur in 2050, is

[5] The still water level is the water level that includes tides and storm surge. The still water level does not include waves and wave run-up.

SIMULATED VIEW OF NORTH BASIN IMPROVEMENTS

Downtown San Francisco
Ferry Terminal Expansion Project
San Francisco, California

28067812

REVISED FIGURE 2-5

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Source: Roma Design Group, et al, 2014

SIMULATED VIEW OF SOUTH BASIN IMPROVEMENTS

Downtown San Francisco
Ferry Terminal Expansion Project
San Francisco, California

28067812

FIGURE 2-6

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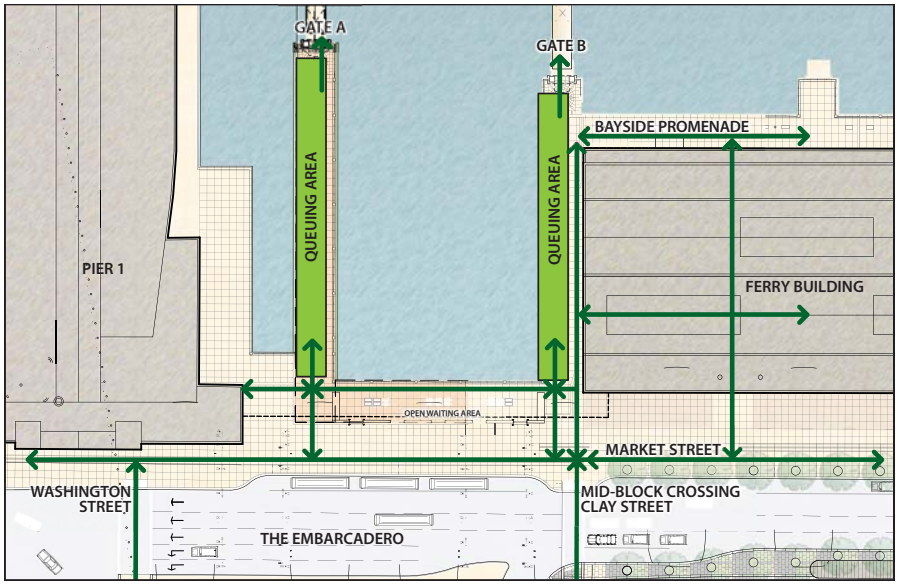
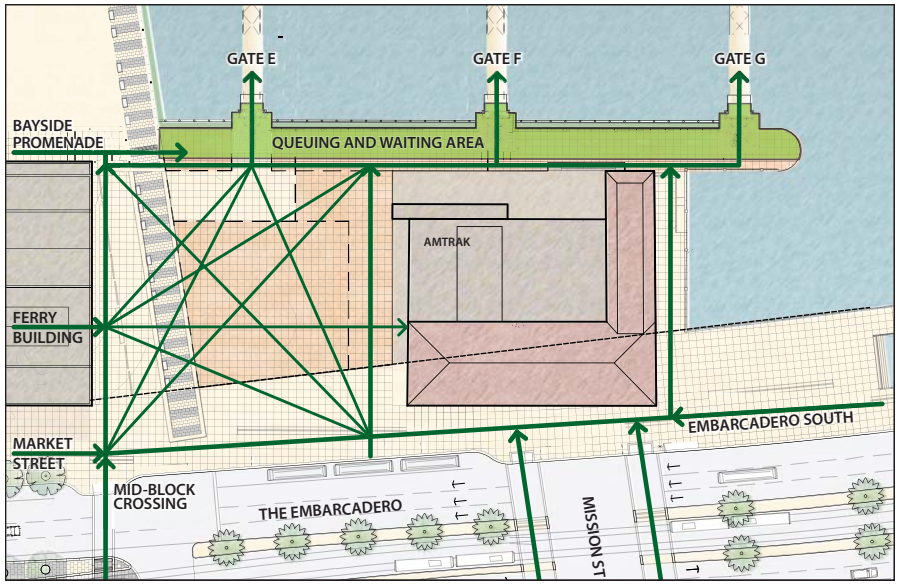
Source: Roma Design Group, et al, 2011



Gates A and B - Queuing, Waiting and Pedestrian Desire Lines



Gates E, F and G - Queuing, Waiting and Pedestrian Desire Lines

Note: Actual circulation patterns will be based on physical improvements and features like rails and benches which will guide pedestrian movements.

DESIRED PATHS OF PEDESTRIAN CIRCULATION

Downtown San Francisco
Ferry Terminal Expansion Project
San Francisco, California

28067812

REVISED FIGURE 2-7

Source: Roma Design Group, et al, 2011

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estimated to be 10.5 feet (MLLW), taking into account a predicted sea level rise of 16 inches by 2050. Gates B and E are built to 11.4 feet and 11.8 feet above MLLW, respectively. The new gates would be built at 13 to 13.5 feet above MLLW, which would accommodate approximately 3 to 4 feet of anticipated sea level rise above a 100-year storm event of 9.2 to 10.5 feet (MLLW), should such an event occur during the 50-year design life of the new gates, and would conform to the existing elevations of the project area to meet drainage and ADA accessibility requirements.

Stormwater Management

Stormwater runoff in the project area currently drains directly to San Francisco Bay. As a part of project final design, WETA would develop a stormwater management plan, in compliance with CCSF and the Port's stormwater management guidelines. The preliminary project design for new construction includes several bioretention planters that would filter stormwater before it enters San Francisco Bay. Bioretention planters or media filters could be used to filter stormwater. The decision on the specific type, design, and location of stormwater filters within the project area would be determined during final design in coordination with the Port and the permitting agencies.

For the purposes of this EIS/EIR, both types of treatment are described and will be considered in the analysis of the project. Bioretention planters—each approximately 3 feet in width and 3 feet in depth, and composed of 1½ feet of bioretention soil mix and 1 foot of drainage rock—would provide for ½ foot of ponding. Planters would be placed so that their bottoms are above the highest estimated tide. Planters could be located along the south side of the new Gate A Access Pier to capture stormwater from the new pier, and along the East Bayside Promenade to capture runoff from the new promenade.

The Embarcadero Plaza would be designed to drain predominantly to the west (to conform to the grade changes in the project area). Along the northern and western edges of the plaza area, a seismic joint would also be required. This joint would be designed to allow seismic movement and could also be designed to convey water for stormwater treatment to a media filter (sand filter). Alternatively, a landscaped stormwater bioretention and water quality treatment area adjacent to the promenade and the Pier 14 breakwater could be installed to treat stormwater from the Embarcadero Plaza before it enters San Francisco Bay.

Green Building

The project would incorporate green building approaches to the design of the new facilities in several key ways. It may be constructed as a zero net energy project, which would be achieved through the use of photovoltaic cells incorporated into the canopies at Gates A, E, F, and G (see the Lighting and Utilities subsection of Section 2.3.6, Operating Elements). In addition, the project is designed in response to state, regional, and local standards for stormwater management and water quality, and would also include sustainable construction materials and methods, as required by the San Francisco Green Building Ordinance, Chapter 13 of the San Francisco Building Code.

Architectural Considerations

The preliminary design of the project was developed in coordination with the Port, and in consideration of the input of various interested parties (community groups, businesses in the project area, and agencies with jurisdiction in the project area). As discussed previously, the project area serves as an important public space in San Francisco. The project's location between San Francisco Bay and the Downtown urban core and within an area with historic significance were all considered in the project design, to develop a design that not only met WETA's objectives but also blended into and complemented the context of the site. Details regarding the final design of the proposed project (e.g., colors, textures, and finishes) would be developed through the design review process (refer to Section 2.6).

2.3.6 Operating Elements

As described in Chapter 1.0 and Table 1-2, new WETA services are anticipated to begin operations between 2015 and 2020. This section describes elements of the proposed project's operation, including implementation phasing and vessel characteristics, and information on the navigation, dredging and lighting, and utility requirements for the new gates. Refer to Table 1-2 for service frequencies and future year ridership projections for the new and existing WETA services.

WETA Implementation Plan for San Francisco Ferry Terminal Service

WETA has developed an implementation plan for operating its new and existing services at the Ferry Terminal. The plan describes the services that would be operated at each gate and confirms that adequate berthing and circulation capacity would be provided. Anticipated gate locations were determined for each service based on projected ridership, service frequency, queuing and boarding needs, navigational concerns, and dredging requirements. Anticipated service start dates were also considered in determining gate location for each service, to accommodate a strategy for phased construction of the project. This EIS/EIR describes the full extent of facility improvements that would be required at the Ferry Terminal to meet WETA's project objectives for accommodating its existing and new services and providing emergency response capacity. However, all of the facility improvements would not be needed at the same time, and improvements would be constructed using a phased approach that would be driven by the actual increases in ridership, operation of new services, and funding availability for circulation improvements.

In the North Basin, WETA plans to operate the existing Vallejo service and new services to Berkeley and Richmond at the existing Gate B and new Gate A. It is also assumed that Blue & Gold Fleet would continue to operate its Tiburon service in the North Basin. Under this scenario, Gates A and B would support a projected total of 6,400 daily passengers, 2,500 AM peak-period passengers, and 19 to 20 AM peak-period vessel arrivals. The Berkeley and Richmond services could begin operations as early as 2015, at which point the proposed North Basin improvements would be required. In the long term, the North Basin can also accommodate other North Bay routes such as Hercules, Antioch, and Martinez, supporting a projected total of 8,000 daily passengers by 2035.

In the South Basin, WETA plans to operate the existing Alameda/Oakland and Alameda Harbor Bay services from the new Gate F, and new service to Treasure Island from the existing Gate E. In the long term, Gate F would accommodate a projected total of 6,700 daily passengers, 2,000 AM peak-period passengers, and 15 AM peak vessel arrivals for the Alameda/Oakland and Alameda Harbor services by 2035. Gate E would accommodate 10,750 daily passengers, 2,400 AM peak-period passengers, and 10 AM peak-period arrivals for the Treasure Island service at build-out. Gate G would accommodate the Redwood City services and provide spare berthing capacity to accommodate emergency evacuations, guest or visiting vessels, layover berthing, and the ability to maintain operations should an existing berth be taken out of service for maintenance or repair. In addition, Gate G could serve other Central or North Bay routes, as operational needs require. The services that would be accommodated in the South Basin are anticipated to begin operations between 2017 and 2020, at which point the South Basin improvements would be required.

As described, based on current planning and operating assumptions, WETA would not require all three new gates (Gates A, F, and G) to support existing and new services until 2020. As a result, WETA is planning that project construction would be phased. The first phase would involve construction of Gate A and all related improvements in the North Basin, as the initial expansion services developed by WETA (Berkeley and Richmond routes) would be operated in the North Basin. The second phase would include construction of Gates F and G, as well as other related improvements in the South Basin. This work could commence as early as 2017 to support operations of the Treasure Island service. If necessary,

WETA could begin construction of some North and South Basin improvements simultaneously. Refer to Section 2.4.6 for more information on the construction schedule.

While certain gate locations have been assumed for particular services, the project would be designed to ensure maximum operational and implementation flexibility. For instance, the project would include standardized berthing facilities at each new gate that would be capable of accommodating all WETA vessel types, thus allowing WETA to interchangeably operate any service from any gate, as conditions or phased construction of the project requires.

The project improvements would not require operational staff to be located at the Ferry Terminal. All current and future WETA vessels will be stocked and serviced at other terminal locations. Vessel crews would also board in the outlying terminal locations.

Vessel Characteristics

The vessels that would be used for the operation of the new routes are described in Table 2-4.

Table 2-4
Vessel Characteristics

Vessel Type	Dimensions	Operating Speed	Passengers	On-Board Amenities
High-speed aluminum catamaran (side loading); propeller propulsion	135 feet long by 39 feet wide	25-knot maximum speed	Passengers: 299	Snack bar, restrooms, bicycle facilities
High-speed aluminum catamaran (side loading); hydro jet propulsion	135 feet long by 39 feet wide	34 knots fully loaded, 38 knots maximum	Passengers: 299	Snack bar, restrooms, bicycle facilities

The vessels for WETA's services use U.S. Environmental Protection Agency (U.S. EPA) and California Air Resources Board Tier 2–compliant clean diesel engines, which emit approximately 25 to 30 percent less reactive organic gas, oxides of nitrogen (NO_X), and particulate matter less than 10 microns in diameter (PM_{10}) than current diesel engines. In addition, add-on control devices such as selective catalytic reduction and particulate traps would further reduce NO_X and PM_{10} emissions to 10 percent and 5 percent, respectively, of U.S. EPA Tier 2 levels. The development of electrically powered vessel technology has not reached the stage where it has been proven that such vessels can practically and cost-effectively provide service on commuter routes. WETA will continue to evaluate technologies that would further reduce emissions**.**

Vessel Navigation and Berthing

To ensure safe navigation in and around the Ferry Terminal for existing and new water transit services, vessel routes would be managed to avoid cross traffic. Generally, the North Basin (Gates A and B) would be used by WETA for routes to and from the northern portion of San Francisco Bay (Vallejo, Tiburon, Berkeley, Richmond, Hercules, Martinez, and Antioch). The South Basin would be used for WETA routes originating in the central and southern portion of San Francisco Bay (Alameda/Oakland, Alameda Harbor Bay, Treasure Island, and Redwood City). The proposed facilities would not impede the ability of other users in the project area (e.g., Golden Gate Transit [GGT], the Bay Area Rapid Transit [BART], or emergency responders) to access their facilities from the water side.

Vessel navigation would be planned and carried out in accordance with U.S. Coast Guard notification, regulations and guidance pertaining to safety. WETA would provide the U.S. Coast Guard with information pertaining to project construction and operations that could impact navigation. The U.S. Coast Guard issues "Notices to Mariners," relating information to the public on potential navigation issues (e.g., a construction project in the water).

Maintenance Dredging Requirements

Based on observed patterns of sediment accumulation in the Ferry Terminal area, significant sediment accumulation would not be expected, because regular maintenance dredging is not currently required to maintain operations at existing Gates B and E. However, some dredging would likely be required on a regular maintenance cycle beneath the floats at Gates F and G, due to their proximity to the Pier 14 breakwater. It is expected that this minor maintenance dredging would be required at Gates F and G every 3 to 4 years, and would require removal of approximately 5,000 to 10,000 cubic yards of material. It is not anticipated that a regular maintenance cycle of dredging would be required at Gate A.

Dredging and disposal of dredged materials would be conducted in cooperation with the San Francisco Dredged Material Management Office (DMMO), to comply with the requirements of the Dredging – Dredge Material Reuse/Disposal permit that would be issued by the U.S. Army Corps of Engineers. Requirements would include development of a sampling plan, sediment characterization, and a sediment removal plan; and disposal in accordance with the Long-Term Management Strategy for San Francisco Bay to ensure beneficial reuse, as appropriate. Based on the results of the sediment analysis, the alternatives for placement of dredged materials will be evaluated, including disposal at the San Francisco Deep Ocean Disposal Site, disposal at an upland facility, or beneficial reuse. Selection of the disposal site would be reviewed and approved by the DMMO.

Lighting and Utility Requirements

Each berthing facility would be designed with lighting similar to what is used on the floats and gangways at Gate B and Gate E—internal lighting fixtures that project light onto the roof of the existing canopies, creating a glow that produces enough light for pedestrian safety and security. Lighting integrated with the new canopy design would be installed along the public circulation and access areas. Some additional pedestrian-scale lighting would also be provided within the Embarcadero Plaza. The lighting would be similar in fixture size and light levels to what is currently used in the Ferry Building area, minimizing artificial lighting of San Francisco Bay waters by using shielded, low-mounted, and low light intensity fixtures and bulbs.

The total energy requirements for the additional lighting, communications, security, and hydraulic ramps would be approximately 140,000 kilowatt hours per year (ROMA, 2012). To offset this demand, the weather protection canopies constructed along the Gate A Access Pier, and perpendicular to Gates E, F, and G could be designed with photovoltaic cells. The energy generated from the photovoltaics would be expected to exceed the energy demand for the project lighting. Approximately 160,000 kilowatt hours could be generated on site. The preliminary design of the project improvements includes the photovoltaic cells. The decision on whether the photovoltaic cells would be constructed would be made during the project's final design phase, based partly on public and agency input received on the EIS/EIR.

Emergency power would be required onsite and would be provided by a centrally located generator serving the Port and WETA facilities. The exact size and location of the generator would be determined in consultation with the Port.

In addition, a small amount of potable water would be required at each gate and would be provided by CCSF.

Site Maintenance

WETA and the Port would develop a Site Maintenance Plan prior to project initiation. The Plan would designate responsibility and a schedule for regular maintenance and cleaning of the new facilities (e.g., canopies), as well as general site maintenance activities (e.g., wash-down; litter removal and trash receptacle management; lighting and landscape management).

2.3.7 Emergency Planning

Along with the project goal of expanding and improving water transit facilities to meet existing and projected ridership demand for commuter services, the project would also improve facilities that would support emergency operations when unexpected and long-term disruption renders other components of the regional transportation system inoperable.

WETA's emergency planning includes developing scenarios for evacuation. For a large evacuation, WETA could operate up to six 299-passenger vessels per hour from each of its gates. Therefore, the existing and new gates (Gates A, B, E, F, and G) would have a total emergency evacuation capacity of up to 9,000 passengers per hour.

The passengers would be queued at WETA's existing and new gates, as well as in the circulation areas that would be created in the North and South Basin as a part of the project. In the North Basin, approximately 12,000 square feet built to Essential Facilities standards would be available for passenger staging. In the South Basin, a total of approximately 38,100 square feet built to Essential Facilities standards would be available for emergency response and passenger staging (approximately 26,500 square feet in the Embarcadero Plaza, and 11,600 square feet in the East Bayside Promenade).

2.4 CONSTRUCTION METHODS

This section describes the methods that would be used for demolition, construction of piers and berthing structures, and circulation improvements. Construction activities would commence as early as 2014. In addition, this section describes the construction staging, equipment staffing, and schedule. The information provided is based on the Downtown San Francisco Ferry Terminal Design Concept Plan (ROMA, 2012). During final design, additional construction method detail would be developed related to all construction aspects.

General best management practices for pollution prevention and construction management would be employed during construction. For example, best management practices would include activities such as maintaining a clean and orderly construction site, and erecting wayfinding signage to assist water transit passengers and other users of the project area in navigating the project area. In addition, WETA would notify residents and businesses near the project area of planned construction, and would establish a point of contact for public questions or concerns.

2.4.1 Demolition Methods, Disposal, and Duration

Demolition of existing deck and pile structures, as described in Section 2.2, would be conducted from barges. Two barges would be required, one for materials storage and one outfitted with demolition equipment (crane, clamshell bucket for pulling of piles, and excavator for removal of the deck). Diesel power tug boats would bring the barges to the project area, where they would be anchored.

Piles would be removed by either cutting them off below the mud line or pulling the pile. The demolition waste from these activities would be disposed of at the nearest waste and recycling facility. Piles that have been treated with creosote, or that contain other potentially hazardous substances, would be handled properly and disposed of at a facility permitted to handle hazardous waste.

It is estimated that demolition activities would generate approximately 4,720 cubic yards of waste.

Demolition activities in the South Basin would take approximately 2 months. Demolition methods are summarized in Table 2-5.

Table 2-5
Summary of Demolition Methods

Demolition Element	Summary
South Basin Piles	350 piles
South Basin Deck	Approximately 20,500 square feet
Demolition Staging	One equipment barge with a crane, one material storage barge
Typical Equipment	Crane, clamshell bucket, excavator with jaws
Duration	2 months

2.4.2 Construction Techniques, Materials, and Duration

Gate A Access Pier

The Gate A Access Pier would require the installation of piles and structural deck. Construction methods for the Gate A Access Pier are summarized in Table 2-6. Piles for the new pier would be precast concrete or steel. They would be delivered by barge and vibrated or driven in place by an impact hammer from barges.

Table 2-6
Summary of Construction Methods for Gate A Access Pier

Construction Element	Summary
Piles	40 concrete or steel piles, 135 to 140 feet long
Decking Construction Method	Cast-in-place or precast
Construction Staging	On barges for structural pier construction; on Gate A Access Pier and marginal wharf once constructed for finishing elements (e.g., railings, portal, canopy)
Materials and Deliveries	Piles, precast decking, and canopy would be delivered by barge For cast-in-place decking method: 446 cubic yards (47 truckloads) Finishing concrete: 140 cubic yards (15 truckloads)
Typical Equipment	Major equipment would include a vibratory or impact hammer located on a barge, a diesel tugboat, gasoline utility boats, concrete trucks and pumpers, diesel/electric scissors lifts, diesel cherry pickers, electric/liquid gas/diesel forklifts, scaffolding, arc welders with diesel generators, and a variety of small tools such as table saws, welders, and drills
Duration	4 months for structural work; 5 months for surface improvements

The structural deck would be constructed on top of the piles. Rebar cages for the pile connections and concrete would be delivered by truck and installed on the piles at the site. The concrete deck would be precast, cast-in-place, or a combination of both methods. If a precast deck is used, the precast segments would be delivered on barges and placed on steel falsework. A cast-in-place deck would require formwork as well as falsework, and more extensive concrete delivery by truck during construction.

A topping slab would be installed on the structural deck. It would be composed of a concrete mix of an architectural quality similar to that in the area of the Ferry Building. The passenger facilities, amenities, and public space improvements—such as the entrance portal, weather protection canopy structures, lighting, guardrails, and furnishings—would be surface-mounted on the access pier after the new construction is complete. The weather protection canopy and entrance portal would be constructed off site, delivered to the site, craned into place by barge, and assembled on site. The glazing materials, cladding materials, unit pavers, guardrails, and furnishings would be delivered to the site via truck and assembled on site. Once completed, the structural pier for Gate A would be used for material storage and for construction staging, in addition to material and construction barges.

Berthing Structures

The berthing structures for Gates A, F, and G consist of concrete or steel floats, steel gangways, guide piles, and dolphin piles. The berthing structures would be fabricated off site and floated to the project area by barge. The guide and dolphin piles would be installed on site, would be steel, and would be installed with a vibratory or impact hammer.

Additionally, fendering may be constructed along the edge of Pier 1 and along the edge of the East Bayside Promenade adjacent to Gates E, F, and G. The fendering would also be constructed from a barge.

Construction methods are summarized in Table 2-7.

Table 2-7
Summary of Construction Methods for Berthing Structures

Construction Element	Summary
Piles	Six steel guide piles for each float (i.e., Gates A, F, and G) (42 inches in diameter; 140 to 150 feet long); 24 steel dolphin piles total for all three gates (36 inches in diameter; 145 to 155 feet long)
Fendering	"Chock Block" installed along Pier 1 (if needed) and the East Bayside Promenade; 330 linear feet in each basin, requiring 33 piles in each basin.
Construction Staging	On barges
Materials and Deliveries	Piles delivered by barge Berthing structure floated into the project area
Typical Equipment	Major equipment would include a vibratory or impact hammer located on a barge, a diesel tugboat, gasoline utility boats, and a variety of small tools for utility and electrical hook-ups
Duration	3 months for Gate A; 4 to 5 months for the South Basin gates

North Basin Marginal Wharf

In the North Basin, a portion of the marginal wharf south of Gate A would be repaired. Repair would involve strengthening existing piles with installation of steel jackets and concrete and construction of a new deck structure. The new deck structure would be cast-in-place concrete and constructed with a seat wall to be consistent with the adjacent marginal wharf. Construction methods for the repair of the marginal wharf are summarized in Table 2-8.

Table 2-8 Summary of Construction Methods for North Basin Marginal Wharf	
Construction Element	**Summary**
Piles	Strengthened
Decking Construction Method	Cast-in-place
Construction Staging	On barges
Materials and Deliveries	Concrete deliveries: 142 cubic yards (15 truckloads)
Typical Equipment	Major equipment would include an equipment and material barge, a diesel tugboat, concrete trucks and pumpers, and a variety of small tools for concrete and ironwork
Duration	4 months

Embarcadero Plaza, East Bayside Promenade, South Apron of the Agriculture Building

A new Embarcadero Plaza and East Bayside Promenade would be constructed in the South Basin. These new deck and pile areas would use the methods and materials described above for the Gate A pier structure. The piles would be either precast concrete or steel, and the decking would be either cast in place or precast.

In the South Basin, the South Apron of the Agriculture Building would also be repaired and strengthened. Work would include installation of elements such as new railing, ramps, and steps.

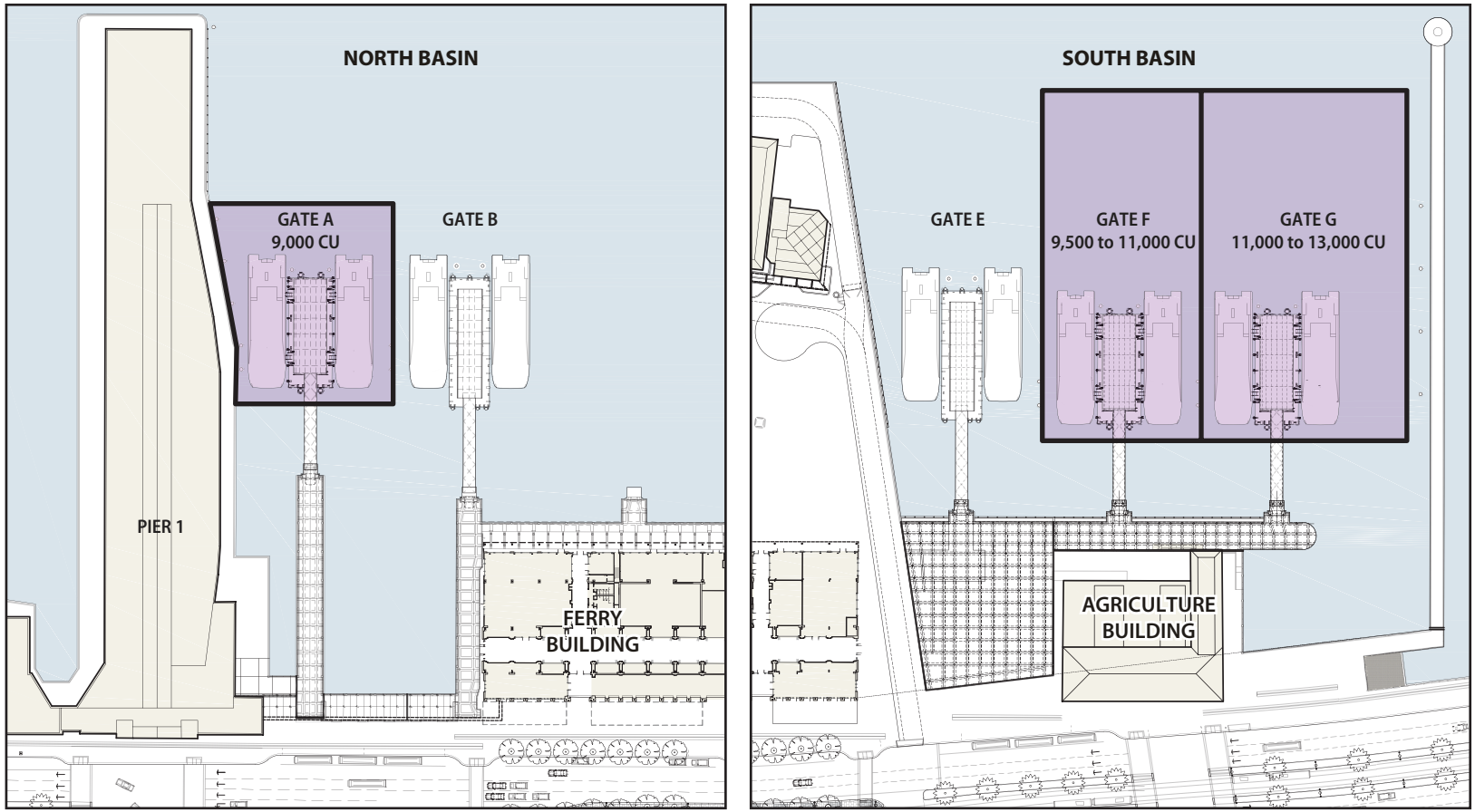
The passenger facilities, amenities, and public space improvements—such as the entrance portals, canopy structures, lighting, guardrails, and furnishings—would be surface-mounted on the pier structures after the new construction and repair is complete. The canopy and entrance portal would be constructed off site, delivered to the site, craned into place by barge, and assembled on site. The glazing materials, cladding materials, unit pavers, guardrails, and furnishings would be delivered to the site via truck and assembled on site. The structural pier for the deck of the Embarcadero Plaza, when completed, would be used for material storage and for construction staging, in addition to material and construction barges.

Construction methods for the South Basin circulation improvements are summarized in Table 2-9.

2.4.3 Dredging Requirements

The side-loading vessels that would be used at Gates A, F, and G (see Section 2.3.5 for more information on the vessel characteristics) would require a depth of 10 feet below MLLW on the approach and in the berthing area. The floats would require water depth of 12 feet below MLLW. The most recent available bathymetry survey data for the Ferry Terminal basin shows that existing depths in the berthing areas range from between 8 and 10 feet below MLLW at Gates F and G, and between 7 and 10 feet below MLLW at Gate A (Moffatt & Nichol, 2012).

The expected dredging volumes are presented in Table 2-10. These estimates are based on dredging the approach areas to 12 feet below MLLW for Gates A, F, and G, and over-dredging by 2 feet, which is the industry practice. Figure 2-8 depicts the area that would be dredged for each gate. The dredging for Gates A would take approximately 1 month, and the dredging for Gates F and G would take approximately 2 months.



Dredge Area for Gates A, F and G
Total Area = 29,500 to 33,000 cy

N

0 50 100 150 FEET

AREAS REQUIRING DREDGING DURING CONSTRUCTION

Downtown San Francisco
Ferry Terminal Expansion Project
San Francisco, California

28067812

FIGURE 2-8

Source: Roma Design Group, et al, 2012

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Table 2-9
Summary of Construction Methods for South Basin Circulation Improvements

Construction Element	Summary
Piles	210 steel or precast concrete piles
Decking Construction Method	Cast-in-place or precast
Construction Staging	Equipment and materials supply barges
Materials and Deliveries	Piles and precast decking would be delivered by barge. For cast-in-place decking method : 1,500 cubic yards (150 truckloads) Finishing concrete: 500 cubic yards (50 truckloads)
Typical Equipment	Major equipment would include a vibratory or impact hammer located on a barge, a diesel tugboat, gasoline utility boats, concrete trucks and pumpers, a lowboy truck for granite delivery, diesel/electric scissors lifts, diesel cherry pickers, electric/liquid gas/diesel forklifts, scaffolding, arc welders with diesel generators, and a variety of small electric tools such drills, routers, and table saws
Duration	10 months for the structural work; an additional 8 to 10 months for surface improvements

Note: South Basin Circulation Improvements include the Embarcadero Plaza, East Bayside Promenade, and South Apron of the Agriculture Building.

Table 2-10
Summary of Construction Methods for Dredging Activities

Dredging Element	Summary
Gate A	0.9 acre/9,000 cubic yards of dredging required
Gate F	1.29 acres/9,500 to 11,000 cubic yards of dredging required
Gate G	1.73 acres/11,000 to 13,000 cubic yards of dredging required
Total for Gates A, F, and G	3.92 acres/29,500 to 33,000 cubic yards
Staging	On barges
Typical Equipment	Clamshell dredge on barge; disposal barge; survey boat
Duration	1 month for Gate A; 2 months for Gates F and G

Dredging and disposal of dredged materials would be conducted in cooperation with the San Francisco DMMO, to comply with the requirements of the Dredging – Dredge Material Reuse/Disposal permit that would be issued by the U.S. Army Corps of Engineers. Requirements would include development of a sampling plan, sediment characterization, a sediment removal plan, and disposal in accordance with the Long-Term Management Strategy for San Francisco Bay to ensure beneficial reuse, as appropriate. Because the project area is in an area already permitted for dredging by the U.S. Army Corps of Engineers, San Francisco Bay Area Regional Water Quality Control Board, and Bay Conservation and Development Commission, dredging for the proposed project would be considered maintenance dredging for permitting purposes. Based on the results of the sediment analysis, the alternatives for placement of dredged materials will be evaluated, including disposal at the San Francisco Deep Ocean Disposal Site, disposal at an upland facility, or beneficial reuse. Selection of the disposal site would be reviewed and approved by the DMMO.

2.4.4 Construction Utility Requirements

Night work is not anticipated, so minimal lighting, if any, would be required. Onsite power would be provided by the Port during construction, and used to power construction equipment where feasible. Generators for equipment operation could also be required, and would be located on the construction barges and on the landside structural improvements when completed.

2.4.5 Construction Staging

Figure 2-9 depicts the areas within the project area that would be affected by construction activities, including demolition, construction of project elements, material and equipment storage, and staging. Construction staging would be located within areas managed by the Port that are not within other lease boundaries.

As discussed above, due to the lack of potential landside construction staging and access areas in the Ferry Building area, the majority of demolition and construction would be staged and conducted from barges. The barges would be approximately 60 feet by 130 feet, and the number of barges required would vary by the stage of construction, as described for each element below. Two types of barges would be used: equipment barges and material barges. The equipment barges are outfitted with large cranes and other types of equipment (e.g., clamshell dredge, excavator) that operate from the barge. The barges are towed into place by diesel powered tugboats and anchored where needed. Tugboats would also be required to move the barge as necessary during construction. Barges and construction equipment to be used in the water would be sourced from areas within San Francisco Bay.

Once completed, the Gate A access pier and the Embarcadero Plaza would be used for staging of equipment, materials, and supplies during construction of the following project elements:

- Extending utilities;
- Placement of gate and canopy structures, including cladding of gate and glazing of canopy;
- Topping slab; and
- Placement of ticket machines, railings, lighting, signage, and bioretention planters.

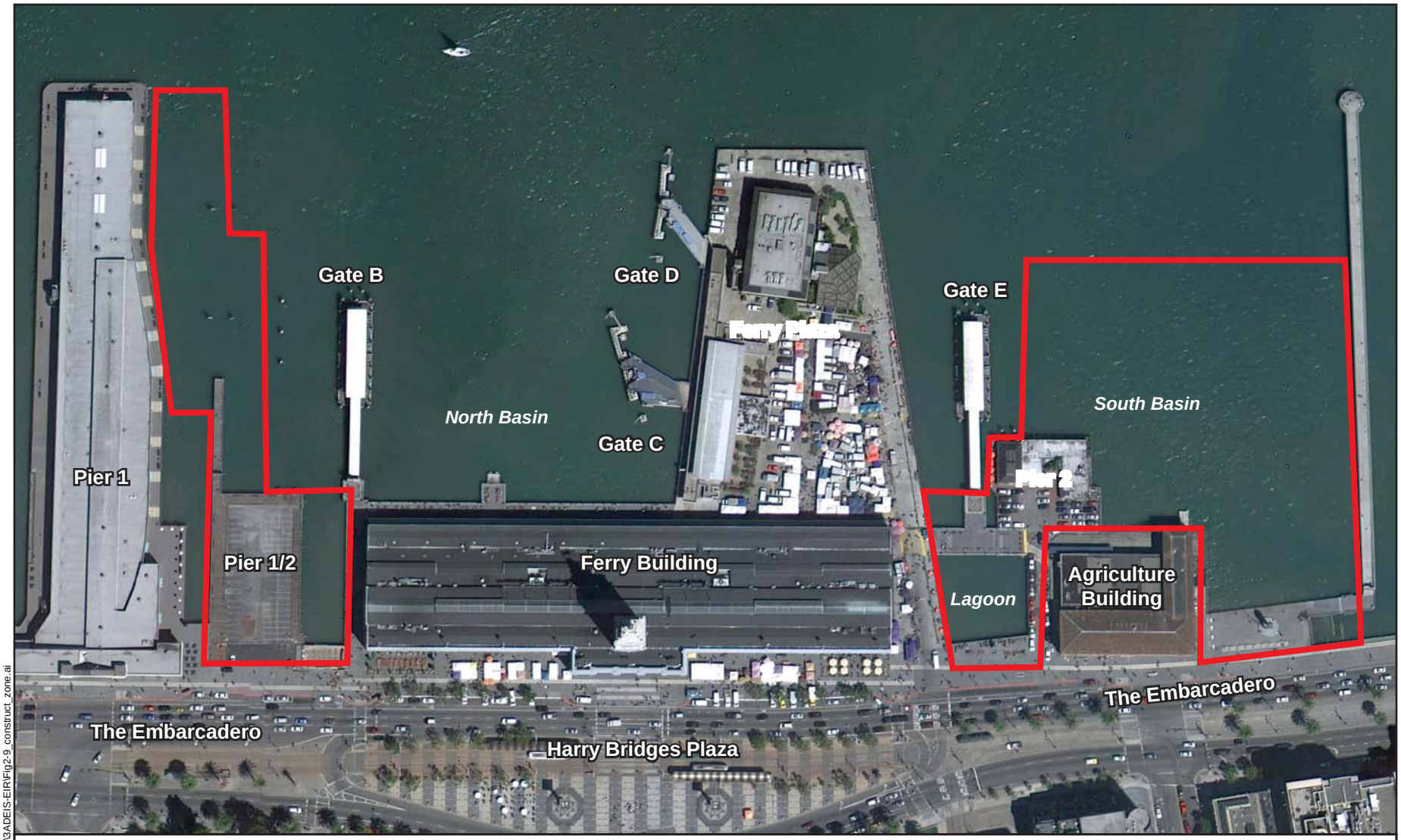
Two or three vehicle parking spaces could be provided on site during construction within the areas shown on Figure 2-9 as the construction zone. No other landside staging area would be required for project demolition or construction.

For concrete and other materials delivered by truck, the curbside areas between the Ferry Building and Pier 1 and between the Ferry Building and the Agriculture Building would be used.

The existing water transit and retail/commercial services at the Ferry Terminal would remain open and operational during construction. Ingress and egress to the existing gates and businesses would be maintained during construction, along with access to other facilities on the Ferry Plaza. Appropriate wayfinding signage would be posted as necessary. Existing vehicular access for the fire lane would be maintained. Additionally, BART's evacuation route on the Ferry Plaza would be maintained during construction. The construction zone would not block or prevent passage along The Embarcadero. A detailed construction staging plan would be developed during final design that would delineate clear routes for existing water transit passengers and users of the Ferry Building.

2.4.6 General Construction Schedule

Construction would be conducted in accordance with CCSF Construction Ordinance, 7:00 AM to 8:00 PM, 7 days a week. The construction schedule would be dependent on several variables: what type



Construction Zone

Note: The America's Cup project has removed all of Pier 1/2 and will remove the building located on Pier 2 prior to project construction.

0 90 180 FEET

CONSTRUCTION ZONE WITHIN THE PROJECT AREA

Downtown San Francisco
Ferry Terminal Expansion Project
San Francisco, California

28067812

FIGURE 2-9

Source: Roma Design Group, et al, 2010, Google Earth Pro 2010.

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of piles and construction methods would be used for the decking (i.e., cast in place or precast); and the schedule under which the new services become operational. For the purposes of this EIS/EIR, it is assumed that improvements in the North Basin could be constructed simultaneously with the improvements in the South Basin. Refer to Section 2.3.6 for more detail on project phasing considerations.

The improvements in the North Basin could be constructed within 14 months, as shown on Figure 2-10; many of the construction activities (dredging, Gate A Pier construction, Gate A berthing structure installation, Marginal Wharf Repair, Gate A canopy installation, and site finishing work) would overlap. In the South Basin, construction could be completed within 24 months. Several phases of the South Basin construction (demolition, dredging, construction of Embarcadero Plaza, South Apron of the Agriculture Building improvements, construction of the East Bayside Promenade, installation of the berthing structures, installation of the canopies, and site finishing work) would also overlap.

In-water construction activities (e.g., dredging and pile driving) would be scheduled to be completed during the authorized work window for construction in San Francisco Bay established by the Long-Term Management Strategy. In the project area, the authorized work window is June 1 through November 30.

2.4.7 Construction Deliveries and Staffing

Materials and equipment would be delivered both by barge and by truck. Piles, precast decking, steel frame access gates, steel canopies, steel beams, and temporary falsework would also be delivered to the site by barge. Trucks would be required for delivery of concrete, timber framing and falsework, granite paving, glazing for canopies, lighting, signage, ticket machines, benches, plumbing, and other supplies.

The majority of deliveries by truck would be for delivery of the concrete. In the North Basin, approximately 77 trucks would be required for concrete delivery, and 200 truckloads of concrete would be needed for South Basin construction activities.

The workforce required on site for demolition and construction activities would vary depending on the type of activity. In addition, supervisory staff may only visit the site periodically or briefly. The maximum workforce required for any phase of work would be approximately 25 people; some phases are likely to require far fewer people on site (e.g., dredging would require 4 to 6 people). It is assumed that the majority of the workforce would arrive by transit or car pool. Two or three parking spaces could be provided on site in areas within the construction zone depicted on Figure 2-9. Others arriving via vehicle would use nearby parking garages and lots.

2.5 CAPITAL AND OPERATING COSTS

Capital cost estimates for the proposed project were developed by ROMA Design Group. The cost estimates reflect the conceptual nature of the engineering and should not be construed as an accurate estimate of capital costs. Additional costs for anticipated project management, construction management, legal, and other miscellaneous costs were projected by WETA. Total capital costs for the proposed project are estimated to be approximately $120 million to design and construct both the North and South Basin improvements proposed under the Action Alternative. This estimate does not include costs for mitigation measures that may arise from the environmental review and permitting process.

The proposed project would be funded with a combination of local, regional, state, and federal sources. To date, WETA has secured $37,950,000 through Regional Measure 2, Proposition 1B, and federal fund sources to design and construct the proposed North Basin improvements. WETA plans to secure the $82,999,000 in additional funds required to complete the project, including design and construction of the

proposed South Basin improvements, from the following sources: through Proposition 1B California Transit Security Grant Program – Regional Public Waterborne Transit funds; Federal Section 5309 Bus and Bus Facilities Allocations – Ferry Boat, and other potential future federal sources. Table 2-11 presents the conceptual cost estimate and funding sources by project phase.

Operating and maintenance costs for facilities licensed by WETA are currently funded through docking fees transferred from WETA to the Port of San Francisco for use of the Ferry Terminal per a licensing agreement. Recent annual docking fees for the Alameda-Oakland service were under $50,000 annually. Allocation of future operations and maintenance costs, including capital rehabilitation, are subject to future agreement between WETA and the Port of San Francisco setting forth terms and conditions of lease/licensing agreement for new facilities. Current operating and maintenance costs for WETA facilities at the Ferry Terminal are funded with Regional Measure 2 appropriations, farebox revenue, and other local funding sources available to support existing WETA services. Any additional operating and maintenance costs required to support the WETA expansion project would be funded through similar funding sources available to future WETA services operating at the Ferry Terminal.

2.6 AGENCY APPROVALS REQUIRED

FTA, as the federal lead agency under NEPA, would issue the Record of Decision for the project as the final project approval in the NEPA process. Similarly, WETA, as the local lead agency subject to CEQA, would certify the EIR as the final project approval in the CEQA process. Additionally, other agencies have jurisdiction over the project area or resources that the project could potentially impact. The following major permits and approvals would also be required:

- Port/CCSF – Approval of WETA's long-term lease for modifications to existing and construction of new facilities within their jurisdiction. Final Design of the project would also go through the Port's design review process. The Waterfront Design Advisory Committee is responsible for design and architectural review of major Port projects. This design review process would also be coordinated with other agencies with jurisdiction over and expertise in areas along the waterfront, including BCDC and, given the historic resources within the project area, the San Francisco Historic Preservation Commission. The public is invited to participate in the design review process. The Port would also issue the building permit.

- BCDC – Major Permit and Federal Consistency Certification. BCDC also has a design review process that is conducted jointly with the Port.

- California State Lands Commission – Approval of required dredging; approval is coordinated with the Port.

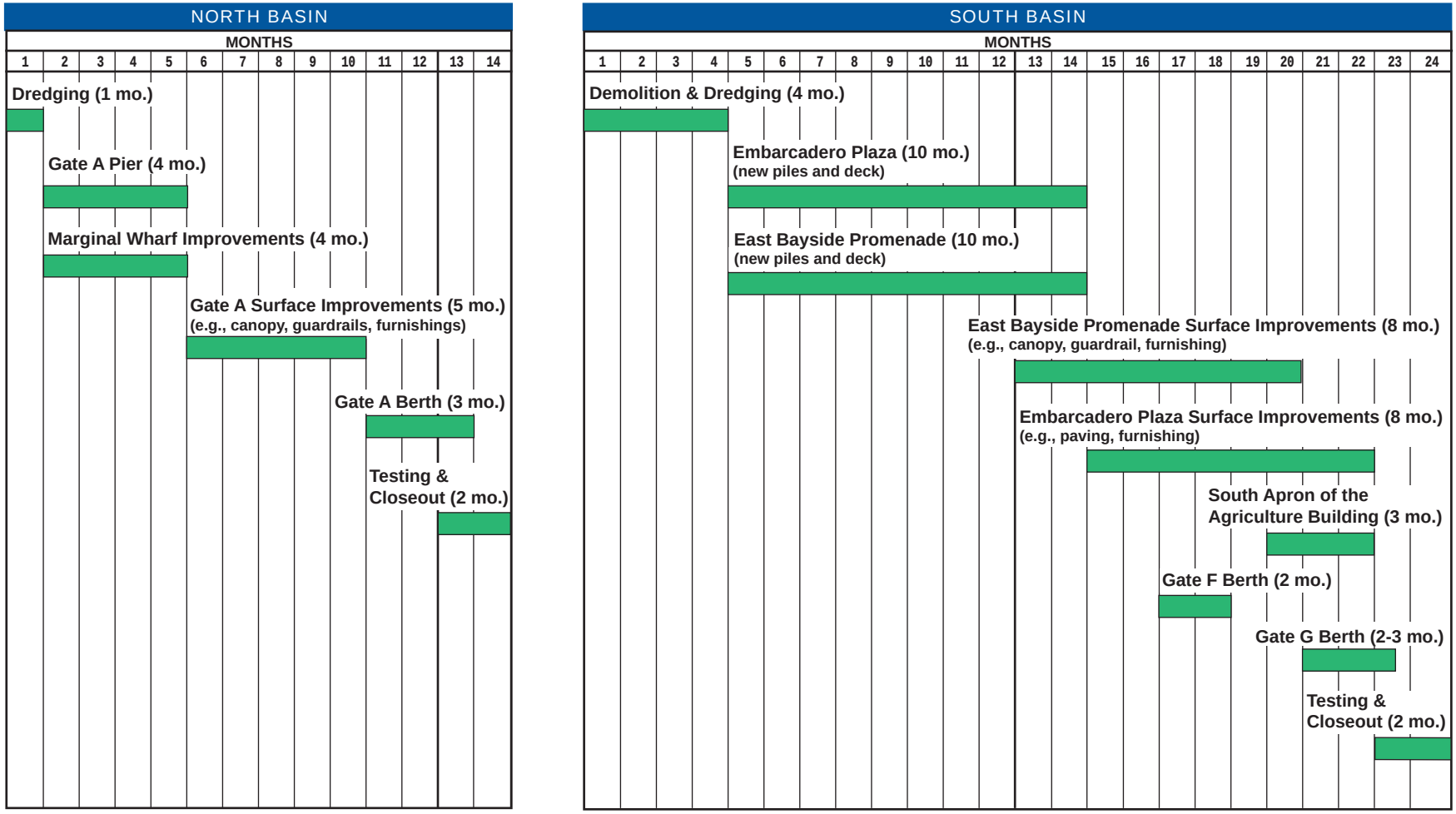
- San Francisco Regional Water Quality Control Board – Clean Water Act Section 401 water quality certification for placement of fill into waters of the United States and for approval of dredging.

- State Historic Preservation Office – National Historic Preservation Act Section 106 consultation related to potential impacts to historic resources.

- U.S. Army Corps of Engineers – Clean Water Act Section 404 and Rivers and Harbors Act Section 10 permit for placement of fill into waters of the United States and for approval of dredging.

- U.S. Fish and Wildlife Service and National Marine Fisheries Service – Endangered Species Act Section 7 consultation.

- U.S. Coast Guard – Anchor Waiver pursuant to 33 Code of Federal Regulations 110.224 for permission to anchor outside of designated anchorages.



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ESTIMATED CONSTRUCTION SCHEDULE

Downtown San Francisco
Ferry Terminal Expansion Project
San Francisco, California

28067812

REVISED FIGURE 2-10

Table 2-11
Capital Cost Estimates and Funding Sources

		Funding (Secured)			Funding (Planned)		
	Budget	**Regional Measure 2**	**Proposition 1B**	**Federal**	**Proposition 1B**	**Federal**	**Total**
Environmental/Conceptual Design	$3,037,000		537,000	2,500,000			$3,037,000
Terminal Design – North Basin	$3,274,000		3,274,000				$3,274,000
Construction – North Basin	$31,137,000	18,450,000	12,687,000				$31,137,000
Terminal Design – South Basin	$4,055,000		502,000		3,553,000		$4,055,000
Construction – South Basin	$79,446,00				39,446,000	40,000,000	$79,446,000
Total	**$120,949,000**	18,450,000	17,000,000	2,500,000	42,999,000	40,000,000	$120,949,000

Notes:
SFCTA = San Francisco County Transportation Authority

2.7 ALTERNATIVES CONSIDERED

The CEQA Guidelines (Section 15126.6) require that an EIR "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects." Every conceivable alternative does not need to be considered, but a reasonable range of potentially feasible alternatives should be considered to foster informed decision making and public participation. The lead agency is responsible for selecting the range of alternatives. CEQA Guidelines also state that if the lead agency deems that an alternative to the location of the project is not feasible, then the reasons for this determination must be clearly described in the EIR (CEQA Guidelines §15126.6[f]).

FTA's NEPA Guidelines also state that "the draft EIS shall evaluate all reasonable alternatives to the action and discuss the reasons why other alternatives, which may have been considered, were eliminated from detailed study" (§ 771.123[c]).

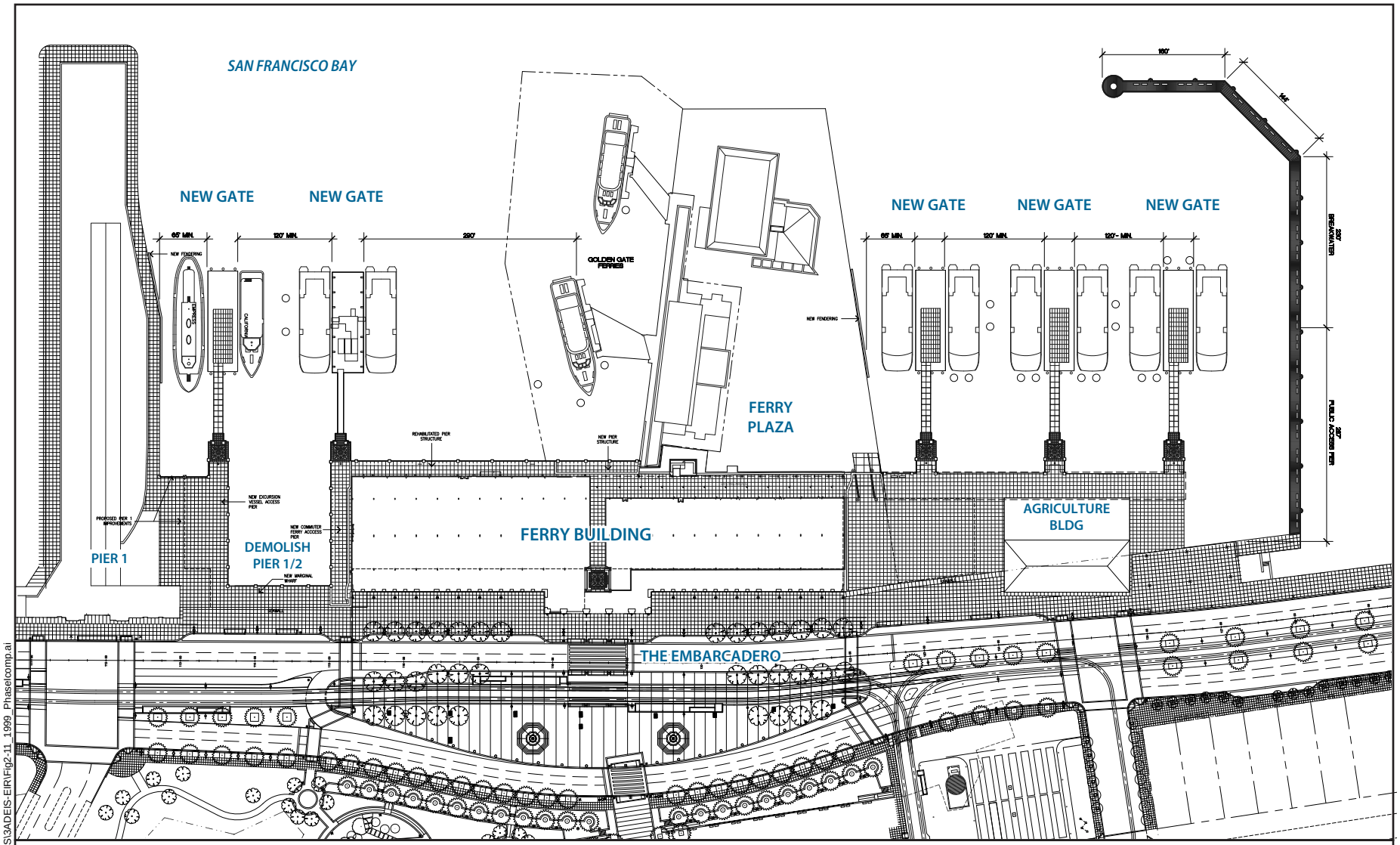
As described in Section 1.3, the Action Alternative supports regional transit mobility in the region and the Regional Transportation Plan. Section 1.4.3 and Appendix E describe the alternatives for regional water transit service that were considered during the development of the IOP and the Program EIR for the IOP. In addition, as described in Section 1.4.4, the proposed project is included in the Regional Transportation Plan, *Plan Bay Area*, and its EIR considered a variety of regional mobility alternatives.

The following sections summarize the other alternatives that were considered for a Ferry Terminal facility in San Francisco consistent with these regional plans.

Many alternatives to the Action Alternative were considered through the planning phases for the project. Some of the alternatives considered were evaluated during the planning of Phase I in 1999-2000. Figure 2-11 depicts the vision developed for the Ferry Terminal that was developed in Phase I as a result of substantial evaluation, agency, and public input. WETA considered additional alternatives while developing the preliminary design concept plan for the project. The following sections describe the alternatives that have been previously evaluated.

2.7.1 Alternative Locations

The Ferry Terminal is centrally located and adjacent to the City's Downtown hub of transit services (e.g., Bay Area Rapid Transit and Muni). This is the historic location of water transit service in San Francisco because of its proximity to both employment centers downtown and open water channels in San Francisco Bay. The Ferry Terminal is well served by public transit, with local and regional public transit in walking distance. The Ferry Terminal is also centrally located, near employment centers in San Francisco, allowing the majority of water transit passengers to walk to and from their destinations in San Francisco. Development of expanded water transit either farther north or south along San Francisco's waterfront would reduce transit options available to passengers, and would likely result in either further reliance on the F Market and Wharves (if north); or could result in potential overcrowding of other transit lines, like the T Third Street or N Judah (if south). The sidewalks, promenades, and crosswalks adjacent to the project area are designed for large numbers of pedestrians (e.g., Embarcadero Promenade, Harry Bridges Plaza, Justin Herman Plaza, and Market Street). There are five crosswalks crossing The Embarcadero directly in front of the project area. Should the Ferry Terminal be situated at another location along San Francisco's northeastern waterfront, pedestrians crossing The Embarcadero could result in overcrowding of other crosswalks. In addition, construction and operation of a Ferry Terminal at another location in San Francisco would likely result in new, significant environmental impacts associated with the additional landside and waterside improvements that would be required. Other locations would likely require significant demolition or repair of piers and pier sheds, additional dredging, and development of additional transportation and circulation infrastructure. This would potentially result in greater impacts



1999 PHASE I PROJECT COMPONENTS CONSIDERED

Downtown San Francisco
Ferry Terminal Expansion Project
San Francisco, California

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N

NO SCALE

FIGURE 2-11

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Source: ROMA, Phase 1 1999 DTFF Expansion; Preliminary Design Concept Plan, 2011

related to Air Quality, Cultural and Paleontological Resources, Biological Resources, Hazards and Hazardous Materials, Transportation and Circulation, and Land Use and Land Use Planning. In addition, locating the Ferry Terminal where it is not adjacent to a navigable channel would conflict with the San Francisco Bay Plan (Bay Plan). Transportation Policy 5 of the Bay Plan states that "Ferry terminals should be sited at locations near navigable channels…wherever possible, terminals should be located near higher density, mixed use development served by public transit" (BCDC, 2008).

Development and expansion of water transit service at the Ferry Terminal is consistent with CCSF's and BCDC's vision and plan for waterfront development, and is the culmination of decades of waterfront and transit planning, as described in Section 1.4. Therefore, consideration of alternative locations would not meet the purpose and need for the project.

2.7.2 Berthing Facility Design Options

In Phase I, the Port considered two different berthing facility designs: 1) fixed, currently used by Golden Gate Ferry and requiring hydraulic ramps to adjust for tidal variation, and 2) floating, requiring a gangway and float that can more readily accommodate the diversity of vessels and adjust for tidal variations. The Port selected the floating configuration to provide greater flexibility in accommodating tidal variation and seawall height, and interfacing with the diverse types of vessels in the Bay Area fleet. WETA is also using the floating configuration at its other facilities. The floating berthing structure better meets the project objectives and reduces the environmental impacts associated with hydraulic ramps (e.g., use of energy and hydraulic fluids).

During the initial planning phases of the project, WETA considered an additional phase, Phase III, of improvements at the Ferry Terminal. Phase III, referred to as the Bow Loading Design Option, was described in the materials presented to the public during the scoping process for the EIS/EIR. Phase III involved the replacement of Gate E with a berthing facility that could accommodate two bow loading vessels that would be used for the service to Treasure Island. Phase III would have been implemented in 2030, once the new development on Treasure Island was fully built-out and ridership demand required the use of larger vessels. The bow loading vessels were considered by the Treasure Island Development Authority as one option to serve riders at full build-out. Upon further consideration, and in coordination with the Treasure Island Development Authority, this option was removed from consideration at this time. Future ridership projections, as shown in Table 1-2, can be served with side-loading vessels, as described in Action Alternative. It is considered speculative at this time to include the potential future expansion of water transit service to Treasure Island using bow loading vessels.

2.7.3 Berthing Configuration Options

In Phase I, the Port considered a variety of berthing configurations. Options considered included expanding the gate configuration primarily in the North Basin, rebuilding Pier ½ to provide access to the new berths, and establishing new berths in both the North Basin and South Basin. The Port elected to develop new gates in both the North and South Basins, because it minimized crossover operations of vessels and provided greater flexibility for future water transit service expansion. The concept developed in Phase I included two new gates in the North Basin (Gates A and B) and three new gates in the South Basin (Gates E, F, and G). Gates B and E were constructed in Phase I.

During the initial planning of Phase II, WETA evaluated whether three new gates would be needed to support new and existing services, as was envisioned in Phase I. Based on the projected ridership and operations schedule, WETA confirmed, as described in Section 2.3, that three new gates would be required meet their objectives. The construction of three new gates also provides additional operational flexibility; a limited amount of potential spare berthing capacity to accommodate emergency evacuation, guest, or visiting vessels; layover berthing; and the ability to maintain operations should an existing berth be taken out of service for maintenance or repair.

Use of Gates C and D for WETA's expanded operations was not considered as a viable alternative, because these gates are used by GGT under an agreement with the Port of San Francisco; and Gates C and D do not have adequate capacity to accommodate both GGT's and WETA's services. Additionally, Gates C and D are fixed berthing structures and are not configured for use by WETA's vessels.

2.7.4 Bus/Taxi/Auto Drop-Off Options

To relieve traffic congestion, the Port has considered a variety of approaches to include additional drop-off areas at the Ferry Building. Options evaluated during Phase I included: 1) expanding the drop-off area in front of the Ferry Building; 2) creating a drop-off area to the north along Pier ½; 3) creating a drop-off area to the south of the Agriculture Building; 4) rebuilding Pier ½ for a drop-off area; 5) filling in the open water area south of the Ferry Building for a drop-off area; and 6) locating bus drop-offs on the Ferry Plaza behind the Ferry Building. None of these options were deemed consistent with the San Francisco Bay Plan. As a result, development of additional drop-off options were not pursued and only curbside drop-off was retained and implemented.

2.7.5 Passenger Amenities – Queuing, Waiting, and Weather Protection Options

The Port conducted passenger and operator surveys and determined that a specialized facility with centralized passenger waiting areas was not desirable, based on the behavior of commuter passengers (who tend queue in front of the gate just before departure), the decentralized on-board ticketing process, and the small size of vessels. Instead, several options were considered in Phase I for a covered arcade along San Francisco Bay, or canopy extensions from the Ferry Building. These options were not implemented in Phase I due to funding limitations at the time.

During planning of Phase II, WETA considered development of passenger boarding and circulation areas that did not include the new deck and pile construction that would cover the existing open water area in the South Basin. This option was removed from consideration because it would not meet several project objectives. Reconstruction of the proposed Embarcadero Plaza as an Essential Facility would provide a critical area for passenger staging and queuing in the event of an emergency evacuation. Additionally, filling the South Basin open water area would provide an area for construction staging, thereby minimizing disruption to the existing Ferry Building area businesses and users. Lastly, the creation of the Embarcadero Plaza would improve passenger circulation in the Ferry Building area, addressing existing circulation constraints that would become more significant as new water transit routes are implemented in the Ferry Building area.

2.7.6 Additional Circulation Areas

Preliminary concepts of Phase II included expansion of the Bayside Promenade from the northeast corner of the Ferry Building to Pier 1, creating a large continuous platform in the North Basin. This option is not necessary to serve passenger queuing and access to the new gates, and would have resulted in a greater amount of fill in San Francisco Bay. Therefore, this option was removed from consideration.

During planning of Phase II, WETA also considered concept design of a longer Gate A Access Pier. This option would have resulted in a greater amount of fill in San Francisco Bay and would not present any appreciable public access or operational benefit related to vessel berthing. Therefore, this option was removed from consideration.

The replacement of the South Apron of the Agriculture Building was also considered during the preliminary design of Phase II. Although replacement of the South Apron of the Agriculture Building will eventually be required due to its condition and low elevation, it was determined that the full replacement of this apron was not required to meet project circulation and emergency transportation needs. Temporary repair of the apron, as described in Section 2.3, allows this area to be used during construction and also to temporarily support passenger circulation. Additional repair work, at this time, is not necessary to support water transit operations in the Ferry Building area.