2.0 ALTERNATIVES CONSIDERED

To implement new ferry service between the San Francisco Ferry Building and the Berkeley/ Albany waterfront, WETA would construct a ferry terminal and associated waterside and landside facilities for berthing ferry boats and to provide access for ferry patrons. Four potential ferry terminal site alternatives in Berkeley and Albany have been identified (Figure 2-1):

- **Alternative A:** located at the Berkeley Marina, adjacent to the Hornblower dock
- **Alternative B:** located between the landside end of the Berkeley Fishing Pier and Hs Lordships Restaurant
- **Alternative C:** located immediately north of the foot of Gilman Street adjacent to the Golden Gate Fields horse stables
- **Alternative D:** located on the old pier site at the foot of Buchanan Street adjacent to Golden Gate Fields

Sites A through C are located in the City of Berkeley, and Site D is located in the City of Albany.

Sites A through D represent the proposed project alternatives or "action" alternatives. A description of the physical characteristics, site plans, construction activities, and costs for the ferry terminal alternatives as well as the ferry operating plans are presented below. In addition, in accordance with NEPA and CEQA guidelines, the EIS/EIR describes the No-Action Alternative that would occur if the ferry terminal project were not implemented. The No-Action Alternative includes the existing transportation network within the study area and funded transportation improvements. It serves as a baseline of comparison for analyzing impacts generated with and without the project.

2.1 NO-ACTION ALTERNATIVE

The No-Action Alternative is a base scenario for comparison with the Action Alternatives. In the No-Action Alternative scenario, existing ferry services, land-based transit services, and roadways would remain in their present state with no new improvements other than those that have been programmed and funded through 2012. The elements of the No-Action Alternative are described below.

2.1.1 Existing Ferry Services on San Francisco Bay

Regional Network of Existing Ferry Transit Services and Operators

Existing ferry service (illustrated in Figure 1-2) is summarized in Table 2-1 and described below.

- The Alameda Harbor Bay Ferry provides ferry services to and from Alameda and San Francisco. The ferry operates on weekdays only, and the one-way trip is 25 minutes.

Table 2-1
Existing Regional Network of Ferry Transit Services and Operators

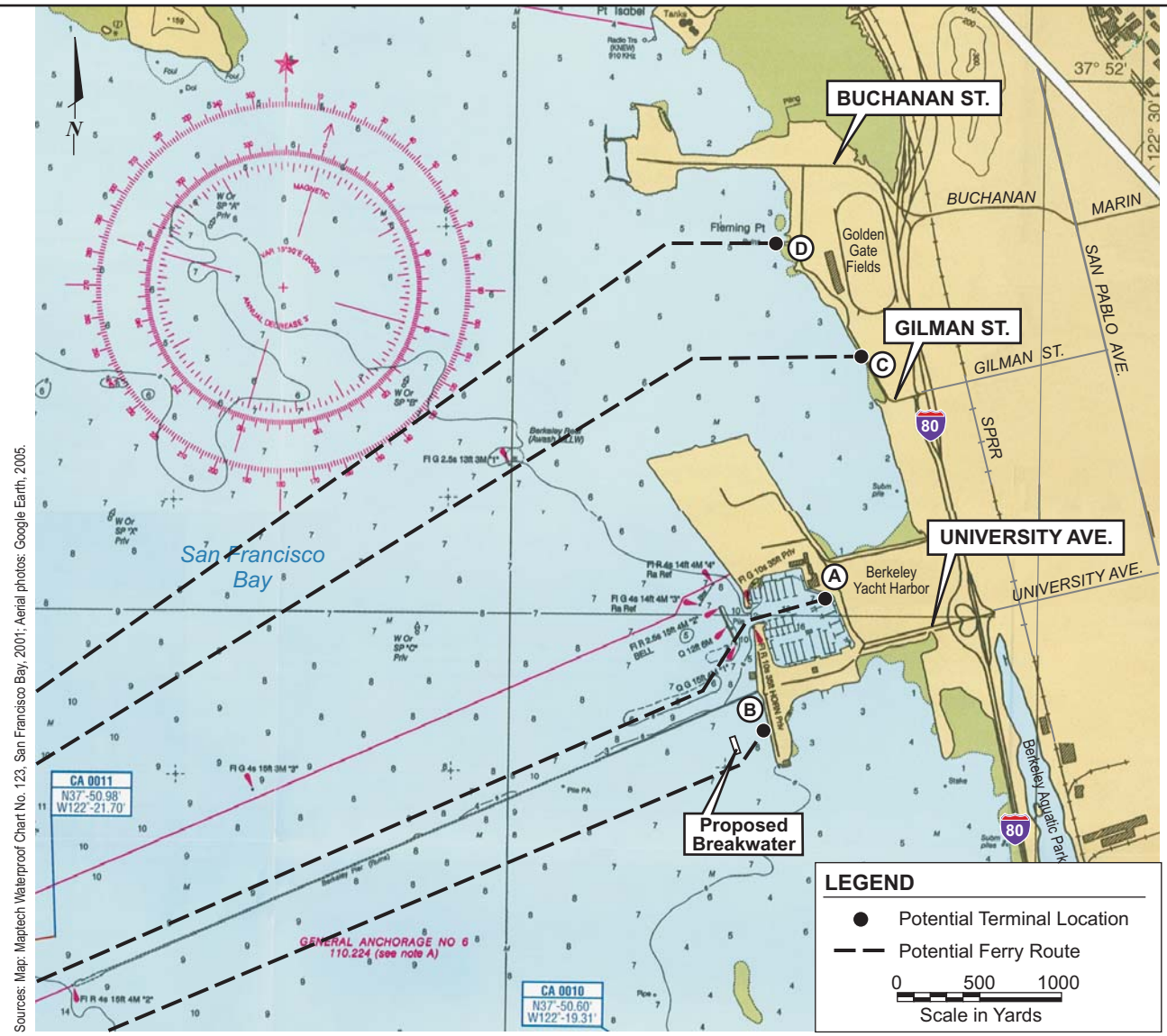
Corridor/Ferry Route	Operator(s)
San Francisco – Alameda (Harbor Bay Island)	Alameda Harbor Bay Ferry
San Francisco – Oakland – Alameda (Main Street)	Blue and Gold Fleet
San Francisco – Angel Island	Blue and Gold Fleet
San Francisco – Larkspur	Golden Gate Bridge, Highway and Transportation District
San Francisco – Sausalito	Blue and Gold Fleet Golden Gate Bridge, Highway and Transportation District
San Francisco – Tiburon	Angel Island-Tiburon Ferry Company Blue and Gold Fleet
San Francisco – Vallejo	Blue and Gold Fleet

Source: 511 Transit, 2007.

- The City of Alameda and the Port of Oakland administer ferry services to and from Alameda, Jack London Square in Oakland, and locations in San Francisco, including the Ferry Building, Pier 39 (Fisherman's Wharf), and Angel Island State Park. This service is available 7 days a week.

- The Angel Island-Tiburon Ferry Company operates ferry service between Tiburon and Angel Island State Park. This service is available 7 days a week, and the one-way trip is 10 minutes.

- The Blue and Gold Fleet offers ferry services for many destinations, including to and from Alameda, Oakland, and San Francisco (7 days a week, 10 to 35 minutes, depending on origin or destination); to and from San Francisco and Tiburon (7 days a week, 25 to 45 minutes, depending on type of boat); to and from San Francisco and Vallejo (7 days a week, 60 to 80 minutes, depending on origin or destination); to and from San Francisco and Sausalito (7 days a week, 25 to 45 minutes, depending on type of boat); to and from Angel Island and San Francisco (7 days a week, 20 to 60 minutes, depending on origin and destination); and to and from Angel Island, Alameda, and Oakland (weekends only, 50 to 60 minutes, depending on origin and destination).



Sources: Map: Maptech Waterproof Chart No. 123, San Francisco Bay, 2001; Aerial photos: Google Earth, 2005.

Ⓐ University Avenue – Berkeley Marina

Ⓑ University Avenue – Berkeley Fishing Pier

Ⓒ Gilman Street

Ⓓ Buchanan Street

BERKELEY/ALBANY FERRY TERMINAL SITE LOCATION ALTERNATIVES

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FIGURE 2-1

9/26/08 hk ..\WTA\EIS EIR 2008\F2-1_ terminal site loc alts.cdr

- The Golden Gate Bridge, Highway and Transportation District operates ferry service between Larkspur and San Francisco (7 days a week, 50 minutes) and between San Francisco and Sausalito (7 days a week, 25 to 30 minutes).

- Vallejo Transit operates the Vallejo Baylink Ferry service between San Francisco and Vallejo. This service is available 7 days a week, and the one-way trip is 65 to 70 minutes, depending on the type of boat.

WTA Implementation and Operations Plan

In 2002, the IOP was formulated to plan the development and operation of new ferry routes, including service between Berkeley/Albany and San Francisco (refer to Section 1.3.2). While the IOP does not pinpoint precise terminal locations and specific ferry transit routes, it outlines expanded ferry service and associated landside transit to be implemented in phases over an approximately 10-year period. All routes proposed in the IOP have a minimum forecast 2025 ridership of 900 trips per day, which meets minimum level of ridership criteria established in the IOP. Actual implementation of the IOP would require site-specific studies, environmental clearance, and design (URS, 2003).

Spare Passenger-Only Vessels Program

In 2004, WTA developed a program to acquire passenger-only ferries for its newly established Spare Passenger-only Vessels Program. The new vessels would meet the agency's Vessel Performance Specifications and operate as spare vessels in support of existing ferry operations in the San Francisco Bay Area to avoid or minimize reductions in service frequency or capacity (URS, 2004).

Two vessels are being procured under this program, one of which would eventually be the primary vessel for the planned South San Francisco–East Bay route, which is further described in the next section. The second ferry vessel would be used for the next ferry service route that becomes operational, which would then necessitate procurement of two more vessels for the Spare Passenger-only Vessels Program (Sindzinski, 2007).

Planned Ferry Transit Services

While several new and expanded routes are being planned as indicated in the IOP (see Table 1-1), only the South San Francisco–Alameda service would occur prior to implementing the Berkeley–Albany service, the subject of this environmental document. The South San Francisco–Alameda service is scheduled to commence in late 2009, connecting the existing Alameda terminal along the Oakland Estuary with a new terminal at Oyster Point (Figure 2-2). Travel time between the two terminals would be approximately 30 minutes. Approximately 1,000 weekday passenger trips are expected by 2025. Ferries would run approximate every 60 minutes during the morning and evening peak commute periods. Non-peak and weekend service has yet to be determined.

2.1.2 Existing Transit Services in the Berkeley–Albany Study Area

A transit service study area was created for the purposes of this analysis. This land-based transit service study area is bounded roughly by El Cerrito Plaza BART (Fairmount Avenue) to the north, the shoreline of the San Francisco Bay on the west, Ashby Avenue on the south and Sacramento Street on the east (with the east boundary zigzagging northward, moving from the intersection of Sacramento and Hopkins Streets to Santa Fe and Solano Avenues, then following Santa Fe Avenue north to Fairmount Avenue). Given these boundaries, existing transit services in the transit service study area include AC Transit, BART, Amtrak, and the West Berkeley Shuttle (WBS). These are described below and indicated on Figure 2-3. They are also discussed further in Chapter 3.

AC Transit

AC Transit operates in thirteen cities and adjacent unincorporated areas in Alameda and Contra Costa counties. Its 105 lines provide local and transbay services to 67 million people on an annual basis. Fifteen of AC Transit's bus lines serve the project's transit service study area. The closest AC Transit bus line to both the Berkeley waterfront area is Line 9. Other bus lines in the waterfront vicinity are Lines 19, 51, G, and Z. The AC Transit bus lines that travel closest to the foot of Gilman Street are Lines 9, H, and Z, and the AC Transit lines that travel closest to the Buchanan Street are Lines 43 and Z. Other bus lines that serve the vicinity of the western ends of Gilman and Buchanan Streets are Lines 52 and 52L (AC Transit, 2007).

Amtrak

Amtrak's Capitol Corridor route has a stop at the Berkeley Amtrak Station, which is located within the transit service study area at University Avenue and Third Street. The Berkeley Amtrak Station is one of several intermediate stations along the Capitol Corridor route, which offers daily round-trip services between Sacramento, Oakland, and San Jose. On weekdays, Amtrak operates sixteen trains in each direction. On weekends, it operates eleven trains in each direction. The location of the Amtrak station in Berkeley is shown on Figure 2-3.

BART

BART is a heavy rail transit system that serves three Bay Area counties. It comprises five lines, 104 miles of track, and 43 stations. The transit service study area is served by the El Cerrito Plaza and North Berkeley BART stations. Two other stations, Downtown Berkeley and Ashby, are connected to the transit service study area by transit or shuttle lines. The locations of these stations are shown on Figure 2-3. These four stations are served by two BART lines: the Richmond-Fremont and the Richmond-Daly City lines.

PLANNED FERRY ROUTE FOR SOUTH SAN FRANCISCO–ALAMEDA

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FIGURE 2-2

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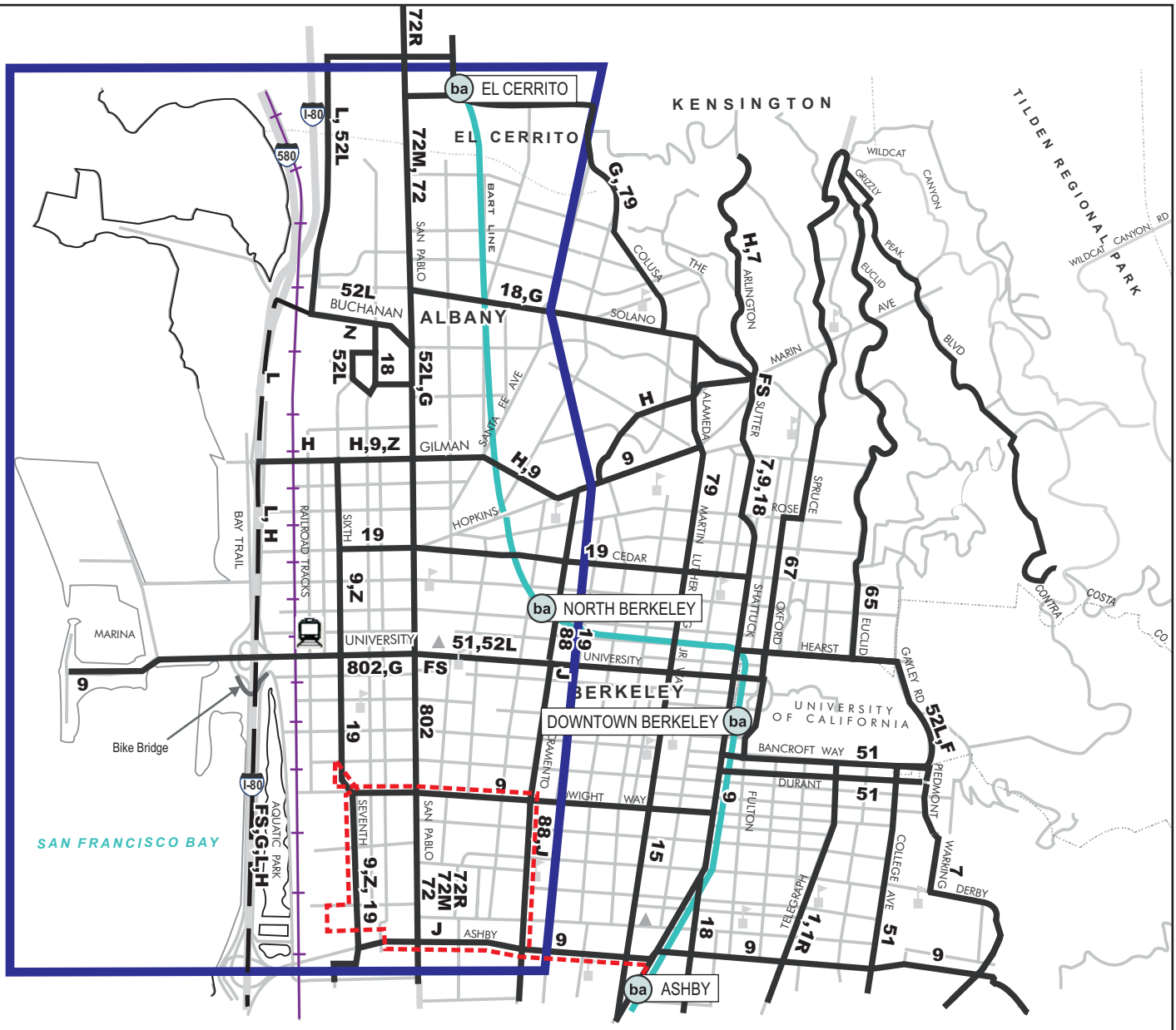

LEGEND

- AC Transit Bus Route
- AC Transit Route on Freeway (No Stops)
- West Berkeley Shuttle
- 9,Z — Letter or Number Denotes AC Transit Route
- Regional Rail
- ba — BART Station
- Amtrak Railroad Station
- Library
- Public School
- Transit Service Study Area

Source:
City of Berkeley, Geographic Information Systems.

LOCAL TRANSIT NETWORK AS OF JUNE 3, 2007

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FIGURE 2-3

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West Berkeley Shuttle

The WBS is the only transit service that operates in the transit service study area. The shuttle stop located closest to the transit service study area is at 6th Street and Dwight Way. The shuttle is a service of the Berkeley Gateway Transportation Management Association (TMA) and connects the West Berkeley employment centers with the Ashby BART station.

Planned Land-Side Transit Service Improvements

There are currently no land-based transit improvements that are both planned and funded that would affect the transit service study area (Atkinson, 2007; Wheeler, 2007; del Rosario, 2007; Allison, 2007).

2.1.3 Roadways in the Berkeley–Albany Study Area

Existing Roadways

The local and regional roadway network in the transit service study area ranges from two-lane collector streets to major regional highways and are further described in Chapter 3. This roadway network includes:

- I-80, a ten-lane freeway providing the primary regional access to the project traffic and originating just southwest of the transit service study area at the San Francisco end of the Bay Bridge;
- University Avenue, a four-lane major street running in the east-west direction and servings as a connector to I-80;
- Gilman Street, a two-lane major street in the east-west direction, just north of University Avenue, connecting I-80 with San Pablo Avenue and Northern Berkeley;
- Buchanan Street, a four-lane major street in the east-west direction located north of Gilman Street and west of I-80; and
- San Pablo Avenue (State Route 123), a four-lane major street in the north-south direction, east of I-80.

Planned Roadways

A double roundabout (one roundabout on each side of I-80) is being planned at the Gilman Street interchange at I-80 to improve circulation at this intersection. This project is being sponsored by the City of Berkeley, and a Project Study Report has been submitted to Caltrans for review, with approval projected for March 2008. Upon this approval, the City of Berkeley will apply for funds from the Statewide Transportation Improvement Program for the 2010 cycle. Should funds be approved for the 2010 Statewide Transportation Improvement Program cycle, the construction of the roundabout would begin in 2013 (Mostowfi, 2007).

2.2 ACTION ALTERNATIVES

As indicated in the introduction to this chapter and illustrated in Figure 2-1, four alternative ferry terminal sites in Berkeley and Albany are being considered for implementing ferry service to San Francisco. The characteristics of the terminal sites are described below. A summary of ferry vessel characteristics, the Berkeley/Albany ferry operating plan, preliminary capital cost estimates, and construction methods are provided at the end of this chapter. Refined site and operating plans will be presented in the Final EIS/EIR for the location selected by WETA Board as the LPA.

Fixed Pier and Terminal Facilities Common to All Action Alternatives: The four ferry terminal sites would each include:

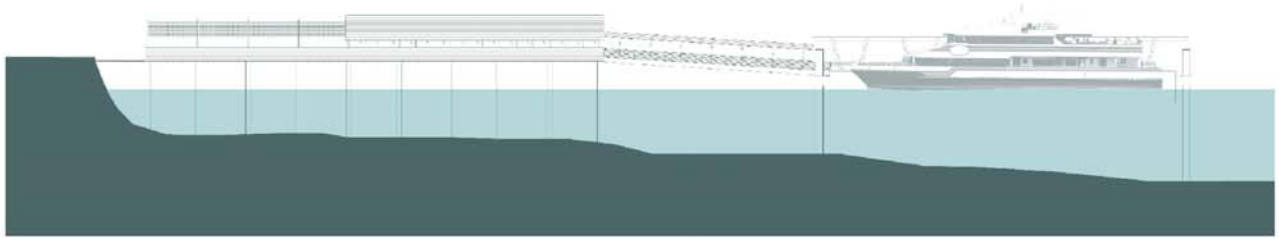
- A pier for berthing two vessels and for loading and unloading ferry patrons;
- A covered waiting area containing ticket vending machines and passenger amenities;
- Walkways and pedestrian access areas;
- Bus or shuttle boarding and car drop-off zones;
- A lighted parking area for approximately 400 cars; and
- Dredged channels.

Although the site plans for each ferry terminal alternative may vary, the design of the terminal facility would be the same for each as described below. All facility elements comply with the California Building Code (CBC), applicable local Building Codes, and Americans with Disabilities Act (ADA). For example, the gangway connecting the fixed pier with the float where ferries are docked would be 92 feet long and 10 feet wide to conform to ADA guidelines. Specific ADA design features for the terminal, pedestrian walkway, and parking areas are presented in Appendix G.

The pier deck would be constructed with cast-in-place reinforced concrete up to 12 inches thick or pre-cast hollow core deck panels at least 8 inches thick. Flooring would have low maintenance non-slip finishes. Piles supporting the fixed pier would be made from 24-inch octagonal precast, prestressed concrete. The adjoining landside terminal plaza area would be constructed with reinforced concrete slab.

The terminal passenger waiting area would have a canopy structure over the fixed pier. The canopy would be elevated approximately 15 feet above the top of the deck, covering the width of the pier (approximately 17 feet wide). The canopy would use a steel frame and exposed wood for the roof/wall sheathing and standing seam metal roof. Glass windows would provide protection from the elements. Renderings of the terminal design are presented on Figures 2-4 through 2-7.

Because of the short average anticipated passenger wait times, furnishings would be limited to benches, automated ticketing vending machines, lighting, and the provision for a closed-circuit television system. Change machines, automated teller machines, newspaper vending machines, and automatic passenger and bicycle turnstiles in the terminal design may also be included. All furnishings placed on the pier would be arranged to allow for unimpeded passenger flow.



① Overall Elevation

② Section

③ Longitudinal Section

Not to Scale

Source: Winzler & Kelly and Marcy Wong & Donn Logan Architects, 2007

RENDERINGS: ELEVATION AND SECTIONS

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FIGURE 2-4

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Source: Winzler & Kelly and Marcy Wong & Donn Logan Architects, 2007

FERRY TERMINAL
PERSPECTIVE RENDERING 1

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FIGURE 2-5

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Source: Winzler & Kelly and Marcy Wong & Donn Logan Architects, 2007

FERRY TERMINAL
PERSPECTIVE RENDERING 2

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FIGURE 2-6

9/29/08 hk ..\WTA\EIS EIR 2008\F2-6_pers_render_2.cdr

Source: Winzler & Kelly and Marcy Wong & Donn Logan Architects, 2007

FERRY TERMINAL
PERSPECTIVE RENDERING 3

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FIGURE 2-7

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Each site would require a 150-foot-wide dredged channel to a depth of 10 feet below mean lower low water (MLLW) that would extend to the existing MLLW depth in the Bay. The dredged volumes for each site would vary according to the length and depth of the dredging requirements, as indicated in Table 2-2. More information about the location and effect of the dredged channels is presented in Section 4.9, Biological Resources and Section 4.10, Water Resources.

Table 2-2
Dredging Information

Alternative	Dredging Volume (cubic yards)	Dredging Area (acres)	Perimeter (ft)
A	110,000	57.8	29,795
B*	150,000	59.2	29,273
C	240,000	48.0	25,424
D	280,000	42.8	22,037

* With breakwater.

Information specific to each site alternative, including site plan illustrations, is presented in the following sections. The site plans indicate pier and terminal siting, landside circulation, pedestrian access, and drop-off and parking areas. These facilities will be designed to meet federal ADA, state and local standards. The site plans are conceptual, reflecting a limited (10 percent design) level of engineering. Detailed dimensions for parking areas, bicycle and pedestrian circulation paths, and loading/drop-off zones are not stipulated, but will be incorporated into the preliminary engineering plans (30 percent design) after the preferred alternative is chosen and the next phase of project development commences. Designated parking areas, described for each alternative below, would be the subject of negotiation between WETA and the property owner for transferring control of and responsibility for the parking areas to WETA. The negotiations would occur after WETA selects the site to be the preferred alternative.

2.2.1 Alternative A: Berkeley Marina

The Berkeley Marina is located off of the west end of University Avenue. The Berkeley Marina was constructed on artificial fill approximately 40 years ago and currently occupies approximately 100 acres of land (52 acres of water). The Berkeley Marina has 1,000 wet berths, ranging in length from 20 to 84 feet, in fifteen sets of docks. Detached breakwaters protect the Berkeley Marina basin. Existing Berkeley Marina facilities include a fuel dock, bait and tackle shop, commercial sport fishing boats, sailing club concessions, the Berkeley Yacht Club. The Doubletree Hotel, Cesar Chavez Park, and the Shorebird Nature Center are nearby. The Berkeley Marina currently maintains a channel depth of -7 feet MLLW and a depth within the Berkeley Marina of approximately -15 feet (Hardinger, 2006). The offshore portion of the Berkeley Marina site has approximately 5 to 10 feet of Bay Mud (CDMG, 1969). The ferry route would require a water depth of -10 feet at MLLW.

As indicated on Figure 2-8, the pier would extend from the existing rock wall embankment near the dock for Hornblower vessels and the Doubletree Hotel. Because the ferry pier would be within 4 feet of the Hornblower dock, the Hornblower dock would be extended to the north by approximately 60 feet and the portion closest to the embankment would be removed, providing a lateral separation of 36 feet between the two piers. Docking would be reconfigured to accommodate the same number of Hornblower vessels along the pier. Existing gangway access to the dock would remain unchanged. To avoid boat circulation conflicts, the ferry pier would be extended into the Berkeley Marina basin 522 feet from the shoreline, approximately 150 feet longer than the piers in the other alternatives (Knauer, 2007). Approximately eight Marina boat slips would be displaced (see Figure 2-9). The pier would contain an enclosed terminal, the gangway connecting the terminal with the float, and docking space for two ferries. No other Berkeley Marina facilities would have to be relocated to implement this alternative.

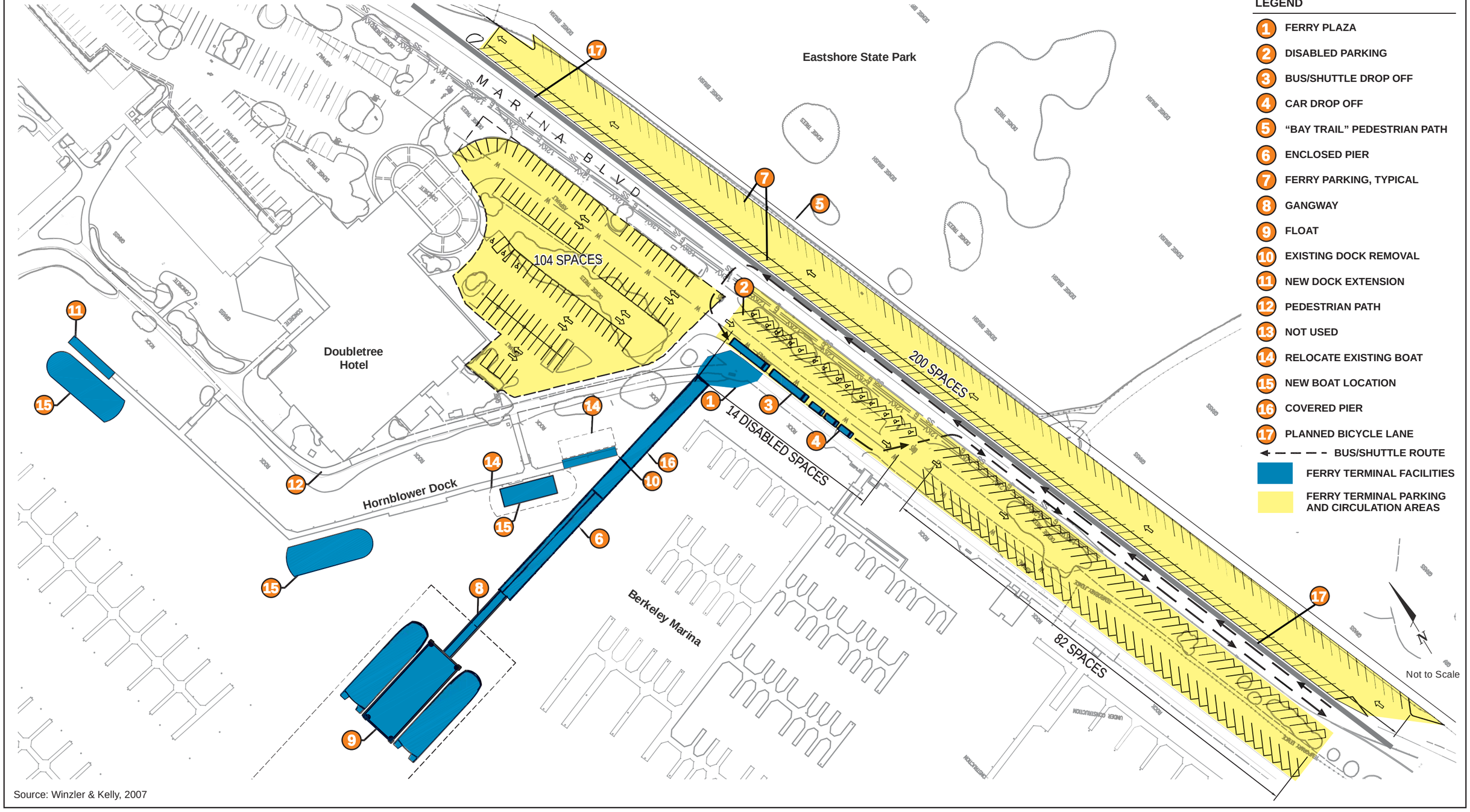
The pier would abut a landside plaza along Marina Boulevard at the southern edge of the current parking area for the Doubletree Hotel. Along the ferry plaza curb would be space for two buses or shuttles and three cars to drop off and pick up passengers. A one-way designated circulation system would allow cars, shuttles, and buses to enter and exit the drop-off area without interfering with through traffic on Marina Boulevard.

Immediately across the bus/shuttle and car curbside loading zone would be 14 parking spaces for disabled persons. An additional 282 parking spaces would be created on both sides of Marina Boulevard, in the existing gravel area adjacent to the Eastshore State Park fence and along the embankment. To provide a total of 400 project-related parking spaces, spaces to accommodate 104 cars would be established on the existing parking area adjacent to the Hornblower pier and the Doubletree Hotel. Lighting and pedestrian pathways would link the ferry plaza with the bus/ shuttle zone and parking areas to the east and north. Sufficient space along the boundary with the Eastshore State Park would be maintained to allow continuation of the Bay Trail in this area.

2.2.2 Alternative B: Berkeley Fishing Pier

The Berkeley Pier was built in 1929, and extended 3 miles into the Bay to allow for large transbay ferries. Ferry service was terminated in 1936 with the opening of the Bay Bridge; shortly after, the pier was given to the City of Berkeley. The first 200 feet of the pier were refinished in 1955, and the next 1,000 feet were refinished in 1962. Currently, 3,000 feet of the pier are maintained and open to the public for fishing and sightseeing (Jones, 2005). The remainder of the pier lies in various states of ruin.

The waterfront between the Berkeley Fishing Pier and Hs Lordships is protected by rock riprap. Approximately 10 to 15 feet of fill overlie approximately 5 to 10 feet of Bay Mud (CDM, 1969). As indicated on Figure 2-10, the ferry pier would be located south of the Berkeley Fishing Pier, midway between the Pier and Hs Lordships, extending 352 feet into the Bay from the embankment. Because of the ferry pier's exposure to the prevailing winds and waves, a breakwater would be constructed as a single, 300-foot-long structure parallel to and 725 feet from the shore and 370 feet from the end of the float. The breakwater is likely to be constructed of either rock or sheet pile (concrete or steel) at the approximate existing water depth of 7.5 feet.



Source: Winzler & Kelly, 2007

SITE PLAN – SITE A BERKELEY MARINA

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FIGURE 2-8

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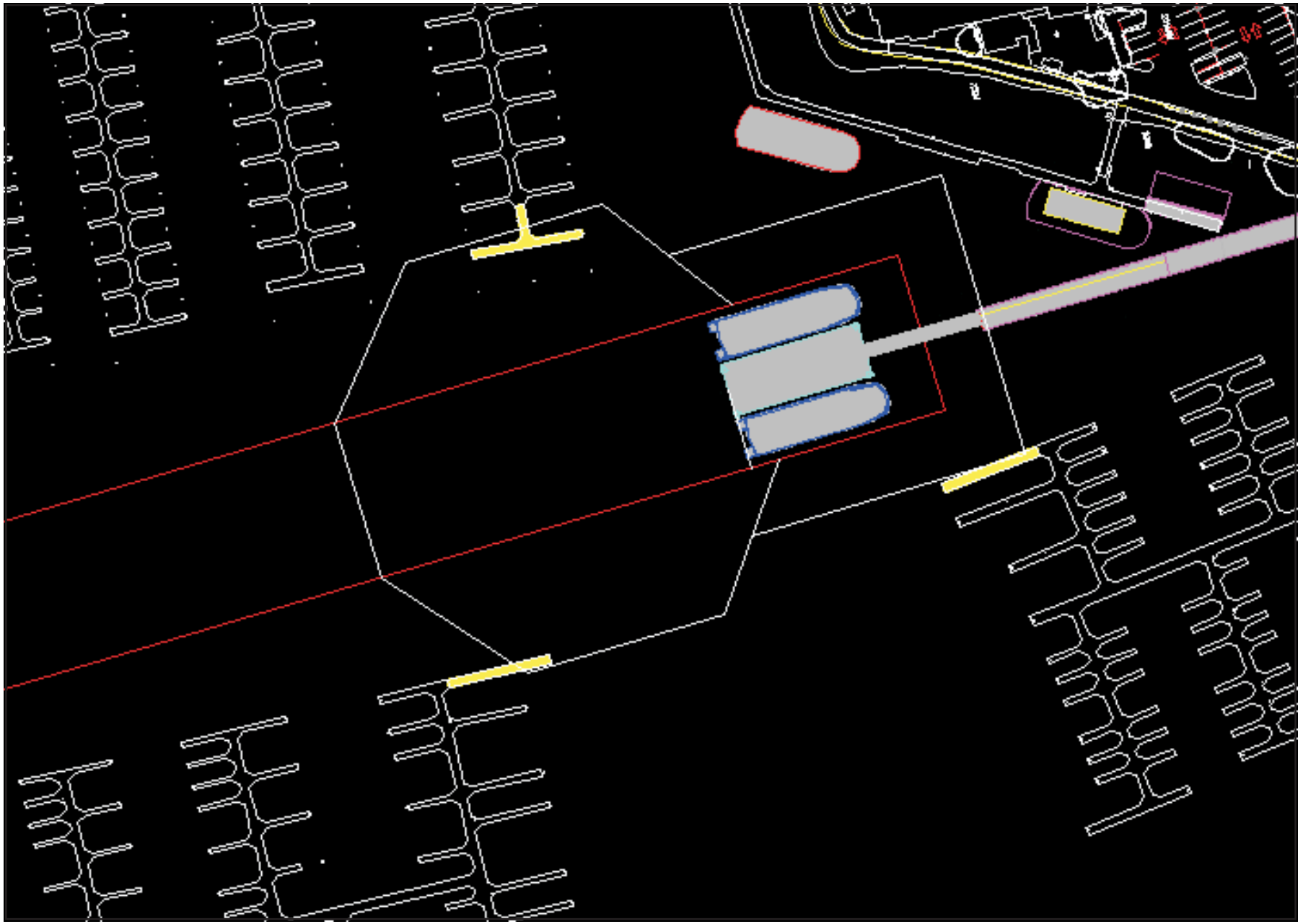

LEGEND

- Slip Removed
- Navigation Channel
- Boat Turnaround Area

DISPLACED MARINA BOAT SLIPS

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FIGURE 2-9

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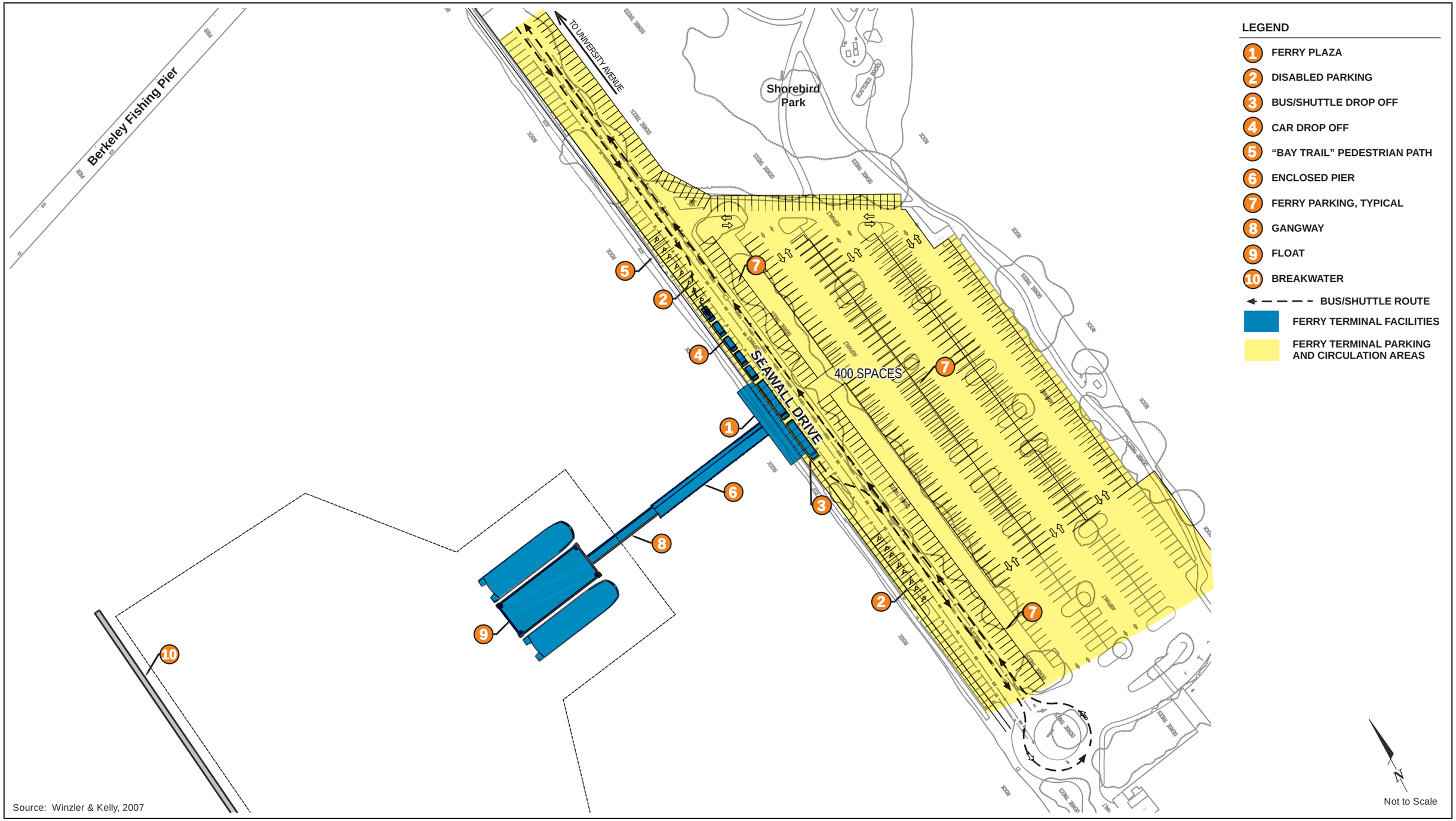

Source: Winzler & Kelly, 2007

SITE PLAN – SITE B BERKELEY PIER

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FIGURE 2-10

9/30/08 hk ..\WTA\EIS EIR 2008\F2-10_B_berkeley pier_2.ai

A channel dredged to a depth of 10 feet and extending 10,500 feet (Knauer, 2007) would be constructed for ferry operation at this site. The channel would be aligned south of the breakwater into the Bay.

A ferry pier entry plaza would be located on the embankment fronting the bus/shuttle loading zone, but allowing space for the Bay Trail to pass along the embankment. Passenger drop-offs would occur immediately to the north of the bus/shuttle zone, and fourteen disabled parking spaces would be provided along the embankment to the north and south of the drop-off area. Lighting and pedestrian pathways would link the ferry plaza with the bus/shuttle zone and parking areas to the east. Bus/shuttle and passenger drop-off circulation would be separated from vehicular access for the main parking area, which would provide 400 spaces in the existing parking area between Hs Lordships and Skates restaurants along Seawall Drive. Seventy spaces would be retained for Hs Lordships customers. Groves of trees that border the existing parking area may have to be removed to allow sufficient area to provide parking and circulation that would be shared with restaurant patrons. Buses, shuttles, and cars dropping off passengers will continue south to a traffic circle located at the end of Seawall Drive near Hs Lordships before reversing direction.

2.2.3 Alternative C: Gilman Street

The Gilman Street site is located at the southern end of the Golden Gate Fields property, north of the foot of Gilman Street. It is near the Gilman Street Playing Fields currently being constructed by the City of Berkeley on the south side of Gilman Street (Figure 2-11). While the shoreline in the area is largely armored by poured concrete, the Eastshore State Park General Plan (CDPR, 2002) indicates that the shoreline is to be restored. Offshore at the Gilman Street Site, there is approximately 5 feet of fill overlying approximately 25 feet of Bay Mud (CDM, 1969).

The ferry pier would extend from the embankment, curving west into the Bay for 359 feet. Because the depth in this portion of the Bay is shallow, a 10-foot-deep channel would have to be dredged to reach deeper water. This channel would be dredged for 14,300 feet through the Eastshore State Park aquatic park and recreation area into the open Bay. Along the plaza's curbside would be the shuttle loading zone, with a passenger drop-off area immediately to the north. Sufficient area would be provided along the embankment to allow installation and maintenance of the Bay Trail. Thirteen disabled parking spaces would be located across the one-way shuttle and drop-off loop. Lighting and pedestrian pathways would link the ferry plaza with the shuttle drop-off zone and parking areas to the east. An area containing the horse barns located immediately south of Golden Gate Fields would be converted to surface parking to accommodate a total of 401 cars. Designated areas that separate vehicular circulation from parking spaces would be indicated, and improvements would be made to the road connecting the ferry terminal site with Gilman Street (the access road to I-80 and west side Berkeley neighborhoods). None of the parking area associated with the Gilman Street Playing Fields would be used by ferry patrons.

2.2.4 Alternative D: Buchanan Street

The outer approach to the Buchanan Street site is south of the Albany Neck and Bulb, which were formed by filling the Bay with construction debris. The shoreline of the peninsula, and especially the southern shoreline, is armored with concrete debris. Albany Beach, consisting of a small beach and foredunes, is located to the north of the proposed Buchanan Street terminal location, at the old pier site between the Albany Neck to the north and Golden Gate Fields to the south. The shoreline near the potential terminal location is armored with concrete rubble. Offshore, there is approximately 10 feet of fill overlying approximately 20 feet of Bay Mud (CDM, 1969).

As indicated on Figure 2-12, the ferry pier would extend from the embankment, curving west into the Bay for 389 feet. Because the depth in this portion of the Bay is shallow, a 10-foot-deep channel would have to be dredged to reach deeper water. This channel would be dredged for 14,600 feet through the Eastshore State Park aquatic park and recreation area into the open Bay. The pier would extend 187 feet from a ferry plaza constructed on the embankment to the gangway and float. Along the plaza's curbside would be the shuttle loading zone, with a passenger drop-off area immediately to the north. Sufficient area would be provided along the embankment to allow installation and maintenance of the Bay Trail.

Approximately 400 parking spaces, including sixteen for disabled people, would be provided on the existing Golden Gate Fields parking area north of the racetrack. The disabled spaces would be closest to the ferry plaza. Lighting and pedestrian pathways would link the ferry plaza with the shuttle loading zone and parking areas to the east. The parking area would be encircled by a one-way shuttle and vehicular circulation road that would funnel back to Buchanan Street (the access road to I-80 and the Albany Civic Center).

2.3 VESSEL CHARACTERISTICS

The Spare Vessel Program uses RM-2 funds, approved by San Francisco Bay Area voters on March 2, 2004, to purchase new ferry vessels. The new vessels would be available to replace a ferry that has been removed from service due to repair or maintenance activities or for operating new service, such as the Berkeley/Albany–San Francisco and the Alameda–South San Francisco routes. The vessels are being designed to offer a minimum of 149 passenger seats contained within the enclosed area of the vessel, as well as an additional 70 passenger seats provided in weather locations behind windbreaks (see Figure 2-13). Vessel access and areas for wheelchair users are designed to meet ADA standards (United States Pub. L. 101-336, 104 Stat. 327, enacted 1990-07-26, codified at 42 U.S.C. § 12101 et seq., signed into law on July 26, 1990). Passenger would board from the starboard or port side as well as on the bow. It is anticipated that a minimum crew of three would be needed to operate the vessel, similar to many other ferries in the Bay Area.

The normal operating speed of the new vessels at full load condition would be approximately 25 knots, with a peak operating speed of 26.5 knots. The spare vessels would be approximately 140 feet long, 38 feet wide, and less than 65 feet tall above the light-loaded waterline, with a

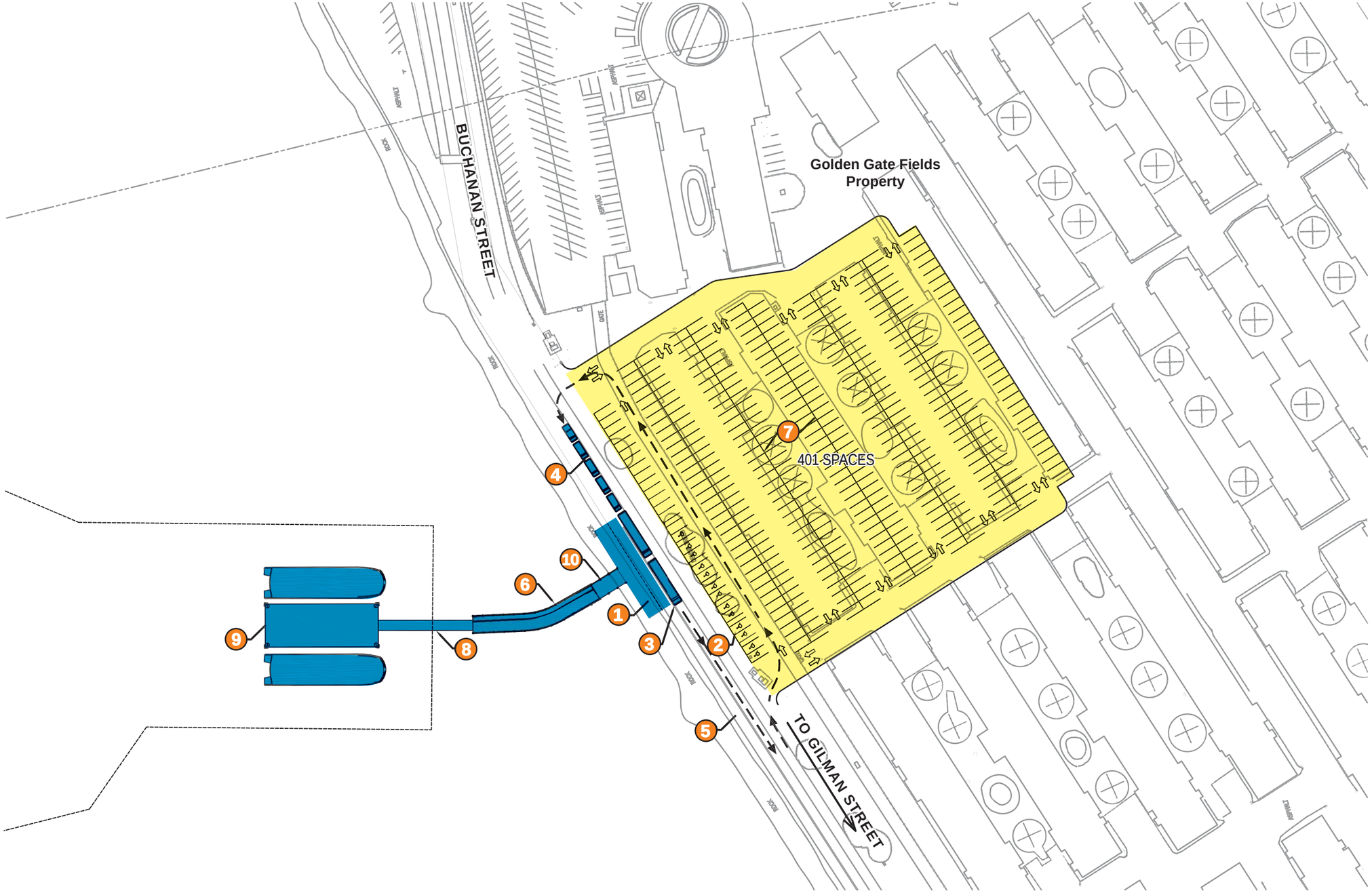
LEGEND

1. FERRY PLAZA
2. DISABLED PARKING
3. SHUTTLE DROP OFF
4. CAR DROP OFF
5. "BAY TRAIL" PEDESTRIAN PATH
6. ENCLOSED PIER
7. FERRY PARKING, TYPICAL
8. GANGWAY
9. FLOAT
10. NEW DOCK EXTENSION

SHUTTLE ROUTE

FERRY TERMINAL FACILITIES

FERRY TERMINAL PARKING AND CIRCULATION AREAS



Source: Winzler & Kelly, 2007

SITE PLAN – SITE C GILMAN STREET

Berkeley/Albany Ferry Terminal Study

October 2008
28067367

URS

FIGURE 2-11

9/30/08 hk ..\WTA\EIS EIR 2008\F2-11_C_gilman_2.ai

LEGEND

1. FERRY PLAZA
2. DISABLED PARKING
3. SHUTTLE DROP OFF
4. CAR DROP OFF
5. "BAY TRAIL" PEDESTRIAN PATH
6. ENCLOSED PIER
7. FERRY PARKING, TYPICAL
8. GANGWAY
9. FLOAT
10. NEW DOCK EXTENSION

SHUTTLE ROUTE

FERRY TERMINAL FACILITIES

FERRY TERMINAL PARKING AND CIRCULATION AREAS

Eastshore State Aquatic Park

400 SPACES

Golden Gate Fields Property

N

Not to Scale

Source: Winzler & Kelly, 2007

SITE PLAN – SITE D BUCHANAN STREET

Berkeley/Albany Ferry Terminal Study

October 2008
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FIGURE 2-12

9/30/08 hk ..\WTA\EIS EIR 2008\F2-12_D_Buchanan_2.ai

VESSEL FOR BERKELEY/ALBANY SERVICE

Berkeley/Albany
Ferry Terminal Study

October 2008
28067367

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FIGURE 2-13

9/26/08 hk..\WTA\EIS EIR 2008\F2-13_vessel.cdr

full-load navigation draft of a maximum of 5 feet. The vessels are expected to have a maximum output of 2,900 horsepower (HP) and use low-emission diesel fuel. Diesel air emissions would be controlled by installing Selective Catalytic Reduction technology on each boat. In addition, vessel hulls would have anti-fouling and anti-corrosive coatings placed below the water line that meet all applicable U.S. Environmental Protection Agency (U.S. EPA) requirements.

2.3.1 Vessel Navigation

The U.S. Coast Guard (USCG) Regulated Navigation Areas that enhance navigational safety by organizing traffic flow patterns on the Bay pertain to large cargo vessels, not ferries. USCG maintains the Office of Vessel Traffic Safety (VTS) that applies to all vessels 40 meters or greater in length, all vessels certified to carry 50 or more passengers, and all commercial vessels 8 meters or more that are towing another vessel. The VTS issues direction to enhance vessel safety during conditions of vessel congestion, restricted visibility, adverse weather, or other dangerous conditions. USCG is working with WETA to establish navigational channels for ferries plying into and out of the Berkeley/Albany terminal area.

2.4 OPERATING PLAN

2.4.1 Ferry Service and Ridership

Operating times and service frequencies for the Berkeley–Albany service would vary depending of the distance to the San Francisco Ferry Building from each terminal site and the distance traveled at reduced speed along the dredged channels. A comparison of operating frequencies and travel times for the alternatives is indicated in Table 2-3. Because of the shorter distance to the Ferry Building and the reduced dredged channel length, the service offered from the Berkeley Marina and Berkeley Fishing Pier sites would be shorter and more frequent than the service from Gilman or Buchanan Streets, providing a greater number of trips per day. Two vessels would be required to meet the peak period service frequencies listed in Table 2-3, regardless of the terminal location.

Table 2-3
Operating Plan for Berkeley–Albany Ferry Service

Alternatives	Headway (minutes)		One-Way Ferry Trips Per Day	Travel Time (minutes)
	Peak	Offpeak		
Alternatives A and B – Berkeley Marina and Berkeley Fishing Pier	35	70	16	Alt A: 29/ Alt B: 25
Alternative C – Gilman Street	45	90	13	35
Alternative D – Buchanan Street	45	90	13	34

As part of the Programmatic EIR process for the regional ferry system, ridership modeling that estimated riders at each terminal, as well as the mode split for landside access, was conducted. The ridership figures and descriptions of the ferry service scenario in this section are based on 2025

ridership forecasts described in the Programmatic EIR for the IOP as Alternative 17, the selected alternative for estimating regional ferry demand (refer to Section 2.1.1). The forecasts were initially established in the *Final Working Paper – Ridership Model Forecasts,* prepared by CSI (CSI, 2002). The working paper presented the ridership forecast results for three alternatives and compared the alternatives to the future No Project alternative for existing (1998) and future (2025) conditions. These alternatives were further refined in the CSI's *Draft Working Paper Ridership Model Summary of Alternatives and Sensitivity Analysis* (CSI, 2005), which presented the results of a sensitivity analysis for ridership forecasts for seven alternatives (Alternatives 4 through 10) and compared them to the results from the initial ridership forecasting (Alternatives 1 through 3). In addition, the 2005 report presented seven other alternatives (Alternatives 11 through 17), which were analyzed using updated land use forecasts to test the impact of service and route changes, and each represent slight modifications of various elements of the original alternatives. From this analysis, Alternative 17 was selected as the preferred alternative for estimating regional ferry demand. The summary spreadsheet for Alternative 17 is presented in Appendix H.

Table 2-4 provides information contained in the two CSI ridership reports mentioned earlier that pertain to the Berkeley/Albany Ferry Project. It should be noted that this alternative assumes future (2025) conditions that include feeder service to the ferry terminal sites. Ridership, mode split, and parking demand were disaggregated by area—not by alternative sites—because such precision was not warranted for the Programmatic EIR. Consequently, the travel demand forecasts were not provided for each alternative terminal site within a given area, such as the Berkeley/ Albany waterfront. Ridership forecasts, parking demand, and mode split were assumed to be the same for each alternative site along the Berkeley/Albany waterfront. The only difference among them was in ferry travel times, but travel times were not sufficiently different to produce variations in weekday ridership per site. More detailed information about the ridership modeling for the regional ferry system is presented in the Programmatic EIR (this document is available on WETA website: www.watertransit.org).

2.4.2 Related Transit Service Improvements

WETA will create and fund a landside shuttle system that will serve the selected ferry terminal site, consistent with RM-2. The specific shuttle routes, corridors and service levels will be developed based on the site selected, and link the selected ferry terminal site with nearby activity centers or intermodal facilities.

2.4.3 Parking Requirements

The regional ferry system travel demand forecast indicated that ferry service at the Berkeley/ Albany waterfront would have a weekday maximum demand of approximately 380 parking spaces. This number was derived from the Alternative 17 modeling output, as indicated in Section 2.4.1.

Table 2-4
Summary of Ridership Assumptions for the Project

No.	Comment	Response	Source
1	Proposed ferry headways	30 minutes peak, 60 minutes off peak	CSI, Table 4, Draft Working Paper, 2005, p. 18
2	Cost to Riders	$3.50 (in 2004 dollars)	CSI, Table 4, Draft Working Paper, 2005, p. 18
3	Average wait time	12 minutes peak, 16 minutes off peak	CSI, Table 4, Draft Working Paper, 2005, p. 18
4	Walking distance from parking	Assumed walking distance from parking is up to 1/3 of a mile.	Email from Peter Martin of Wilbur Smith Associates, June 9, 2008
5	Ferry speed	15 mph (based on 7 miles from the Berkeley Fishing Pier-San Francisco Ferry Terminal and a 28-minute run time.	Calculated from distance measured from Google Earth, accessed on June 5, 2008, and run time noted in CSI, Table 6, Draft Working Paper, 2005, p. 19
6	New riders	1,738 riders for Berkeley-San Francisco-Mission Bay (all riders are new riders for the ferry mode – this service does not exist at this time).	CSI, Table 11, Draft Working Paper, 2005, p. 34
7	Other factors that would affect patronage	Modal access with 22 percent (walking), 63 percent (driving) and 15 percent (transit)	CSI, Table 12, Draft Working Paper, 2005, p. 36
8	Number of express bus riders who would switch to ferry (AC Transit Transbay riders)	130 riders	CSI, Table 24, Final Working Paper, 2002, p. 39
9	Difference in the number of vehicle trips from no project	185 additional vehicles cross the Bay Bridge with the project	CSI, Table 24, Final Working Paper, 2002, p. 39
10	Implication of multiple transfers	The assumed target market is San Francisco Financial District commuters traveling from the East Bay to downtown San Francisco. The assumption is that the 63 percent drive access riders would park at the ferry terminal in the East Bay, take the ferry, and once they are in San Francisco, walk to their destination in the Financial District. These commuters would typically have only one transfer from car to ferry in the East Bay.	n/a
11	Single-seat drivers switching to a multiple transfer ferry assumptions	It is assumed that some drivers would switch to a ferry trip due to increased highway traffic congestion. A 10.4 percent increase in person trips by highway (Bay Bridge screenline) is anticipated from 1998 to Year 2025 (Alternative 3). Multiple transfers are not a factor – see #10 regarding assumptions about multiple transfers.	CSI, Table 24, Final Working Paper, 2002, p. 39
12	Average weekday ridership	1,738 riders	CSI, Table 11, Draft Working Paper, 2005, p. 34
13	Average weekday user benefits	For daily transit person trips (available on a system-level only) would yield the following average weekday user benefits: • Alternative #1: $11,261* • Alternative #2: $11,070* • Alternative #3: $12,138* *Year of estimate not cited, so useful for relative comparisons only.	CSI, Table 27, Final Report, 2002, p. 44

Note: For the Bay Bridge screenline, a 10.4 percent derived from 408,851 person trips in 1998 and 451,659 person trips in Alternative 3 (2025). From WTA, Table 24: Person Trips by Mode Across Screenlines, *Final Working Paper Ridership Model Forecasts* (CSI, 2002).

2.4.4 Bicycle and Pedestrian Improvements

Bicycle or pedestrian facilities are required to be integrated into the site plans as indicated in the alternative site plans (Figures 2-8, 2-10, 2-11, and 2-12). These facilities, including the roads directly serving the alternative sites that have shared bike and pedestrian pathways, are designed according to standard practices as outlined in the following documents:

- Caltrans Highway Design Manual, Chapter 1000 – Provides design standards for on-street and off-street bicycle facilities as well as for intersection treatments including intersections of bicycle lanes with freeway interchanges.

- Manual of Uniform Traffic Control Devices, Part 9 (Federal Highway Administration [FHWA] and California Supplement) – Provides standards for striping and signage of bicycle lanes, bicycle routes and shared-use paths.

- American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities – Reiterates many of the design guidelines specified above but also includes description of various mid-block crossing treatments.

In the case of on-street bicycle lanes, striping will be provided to delineate the bicycle travel area from the general travel lane. At intersections where right-turns are not allowed, the solid stripe may be continued to the intersection. At intersections with right-turns allowed, the line will be dashed starting 100 to 200 feet before the intersection to allow right turning vehicles or buses making a stop to merge to the right. For intersections with a right-turn only lane, the bicycle lane will be striped to the left of the right-turn only lane. Appropriate signage to enhance bicycle and pedestrian safety will be used in conformance with standard practices. Following selection of the LPA, refinements to the pedestrian and bicycle circulation plans will be made for this site and, if required, additional analysis will be conducted and included in the Final EIS/EIR.

2.5 CAPITAL AND OPERATING COSTS

Capital Cost Estimates were developed by Winzler & Kelly for each project alternative. The cost estimates reflect the conceptual nature of the engineering (10 percent level of design) and should not be construed as an accurate estimate of capital costs. Rather, the reader should use these preliminary estimates as a comparative tool to understand the relative value of constructing the project alternatives. Table 2-5 presents the conceptual cost estimate by project element. As indicated in Table 2-5, Alternative A has the lowest capital cost and Alternative D has the highest. The capital cost estimate does not include the utility requirements for the project, mitigation costs, or architectural elements of the design, which will be provided after the LPA is selected and more detailed engineering is conducted. Project operating and maintenance costs are funded through RM 2 appropriations. Vessel costs are funded through WETA Spare Vessel Program, which is funded independently of the Berkeley/Albany Ferry Project. As mentioned above, the cost estimates will be refined as more detailed engineering is conducted.

Table 2-5
Conceptual Cost Estimate by Project Element

Preconcept Opinion of Cost Summary: WETA Albany/Berkeley Ferry Terminal - Four Locations*									
Item No.	Description of Work	Site A - Berkeley Marina		Site B - Berkeley Pier		Site C - Gilman Street		Site D - Buchanan Street	
		Cost/Ft2	Total	Cost/Ft2	Total	Cost/Ft2	Total	Cost/Ft2	Total
1.10	Demolition & Dredging	$158.03	$2,170,000	$266.71	$2,625,000	$409.51	$4,444,000	$444.57	$4,900,000
1.25	Site, Service, Grading, General & Paving	$20.86	$286,400	$28.96	$285,000	$18.12	$196,650	$20.64	$227,450
1.26	Site Utilities	$99.51	$1,366,500	$138.18	$1,360,000	$86.99	$944,000	$98.62	$1,087,000
1.27	General Site	$63.25	$868,510	$16.71	$164,450	$12.01	$130,375	$6.65	$73,350
1.28	Breakwater	-	-	$106.69	$1,050,000	-	-	-	-
1.29	Site Miscellaneous	$3.61	$49,600	$5.04	$49,600	$4.57	$49,600	$4.50	$49,600
2.13	Foundations	$23.30	$320,000	$25.40	$250,000	$25.80	$280,000	$26.31	$290,000
2.17	Slab on Grade, Fill Slab, Level	$3.64	$50,000	$5.08	$50,000	$4.61	$50,000	$4.54	$50,000
3.01	Structure, Vertical	$33.59	$461,276	$40.02	$393,871	$39.46	$428,194	$40.96	$451,489
3.02	Structure, Horizontal	$11.20	$153,848	$9.59	$94,388	$10.39	$112,790	$10.65	$117,383
4.21	Roof, Insulation, Soundproofing, Expansion Joints	$6.13	$84,224	$8.69	$85,519	$9.27	$100,578	$9.47	$104,358
4.31	Misc. Iron, Sheet Metal, Gutters and Downspouts	$11.65	$160,000	$12.70	$125,000	$11.52	$125,000	$11.34	$125,000
4.32	Skylights	$6.83	$93,750	$15.88	$156,250	$16.13	$175,000	$16.44	$181,250
4.36	Painting	$2.75	$37,763	$2.75	$27,066	$2.75	$29,843	$2.75	$30,311
8.00	Special Construction	$7.28	$100,000	$20.32	$200,000	$9.21	$100,000	$9.07	$100,000
9.00	Offshore Facilities	$395.43	$5,430,000	$533.43	$5,250,000	$483.78	$5,250,000	$476.32	$5,250,000
10.17	Fire Protection	$3.85	$52,800	$4.62	$45,500	$5.12	$55,600	$4.13	$45,500
11.00	Electrical, General	$22.58	$310,000	$31.50	$310,000	$28.57	$310,000	$28.13	$310,000
SUBTOTAL		**$873.48**	**$11,994,671**	**$70.98**	**$12,521,643**	**$646.61**	**$12,781,630**	**$1,215.09**	**$13,392,690**
General Conditions 10%			$1,199,467		$1,252,164		$1,278,163		$1,339,269
Contingency 20%			$2,398,934		$2,504,329		$2,556,326		$2,678,538
SUBTOTAL		**$1,135.53**	**$15,593,072**	**$1,653.95**	**$16,278,136**	**$1,177.81**	**$16,616,118**	**$1,579.61**	**$17,410,496**
Bonds 2%			$311,861		$325,563		$332,322		$348,210
Overhead and Profit 8%			$1,247,446		$1,302,251		$1,329,289		$1,392,840
TOTAL			**$17,152,380**		**$17,905,949**		**$18,277,730**		**$19,151,546**

Source: "Preconcept Opinion of Cost Ferry Terminal - Four Locations Albany/Berkeley" prepared by Leland Saylor Associates dated January 14, 2008.

2.6 FINANCIAL PLAN FOR THE BERKELEY/ALBANY SERVICE

Proposed funding sources for this service include RM-2 ($12 million for capital costs and $3.4 million for operating costs annually), the Federal Ferryboat Discretionary Fund ($5.5 million), Transit Impact Fees, and fare box revenue (WTA, 2007). No additional federal funding, including New Starts or Small Starts grants, will be required to implement the project.

Table 2-6 summarizes the estimated capital cost for the project regardless of the alternative site selected as the LPA. Refinement of the capital cost estimate will occur after the LPA is selected and more detailed engineering is conducted. The refined capital cost estimate will be included in the Final EIS/EIR.

Table 2-6
Capital Cost Estimate ($2008)

Capital Costs	
$ 1,800,000	Environmental/Preliminary Design
$ 3,200,000	Terminal Design
$ 22,100,000	Vessels
$ 31,000,000	Terminal Construction/Mitigation/CM/Contingency
$58,100,000	Total
Sources of Funding	
$ 3,500,000 RM2	Environmental/Design Funds
$ 1,500,000	Proposition 1b Environ/Design
$12,000,000	RM2 Capital – Vessels
$ 3,143,500	Federal ($643,500 FY 2008 FBD, $2.5 m CIG funds)
$37,956,500	Future Prop 1b/Federal/Other Regional
58,100,000	**Total**

2.7 CONSTRUCTION METHODS

The piles supporting the fixed pier will be driven using an impact hammer. Two piles will be installed per bent, and bents will be installed at 20-foot centers (Appendix I). Pile penetration depth may be 30 feet, pending the analysis of site-specific geotechnical data. Precast as well as cast-in-place reinforced concrete structure components may be used. A retaining wall and wing walls are proposed at the pier intersection with shoreline. Construction is anticipated to span approximately 10 to 14 months from the completion of permitting and final design. A detailed construction schedule will be developed as a part of the project design phase.

Parking, circulation, and passenger drop off areas are shown on the site plans. Re-striping of parking areas and new or additional asphalt paving may be required. Re-grading at each site will be kept to a minimum and avoided where possible.

Estimated locations of existing utilities in the vicinity of each proposed site alternative are shown on the site plans. It is anticipated that each terminal site will require connections for water, electricity, telecommunications, and other utilities. Landscaping requirements will be developed for each site.

2.8 ALTERNATIVES CONSIDERED AND WITHDRAWN

2.8.1 Hs Lordships Site

- The location of this site is in the cove behind Hs Lordships Restaurant, where the water depth is approximately 3 feet near the shore. On July 27, 2006, WTA Board unanimously approved a motion that rejected carrying this site forward because:

- Approximately 40,000 cubic yards of Bay Mud would have to be dredged to allow ferry access to this site, substantially more than for the other sites in the vicinity of the Berkeley Marina.

- The route could require slower operating speeds in the approach to the terminal due to the nearby beach at Shorebird Park.

- Ferry service could also impact recreational boaters and windsurfers from the Cal Sailing Club and UC Berkeley Aquatic Center to the northeast of the site. Many of the recreational boaters and windsurfers are beginners, who may have difficulty staying out of the way of the ferry, also slowing ferry speed.

- San Francisco Bay Conservation and Development Commission (BCDC) Policy 5 states that new ferry terminals should be located near existing navigation channels. Locating the ferry terminal at this site would require amending the BCDC San Francisco Bay Plan (BCDC, 2002).

- Shorebird Park and Nature Center activities could be affected by dredging and wake wash and silt-over invertebrate habitat.

- This site received less support from the City of Berkeley than other Berkeley sites.