Berkeley/Albany Ferry Terminal Study

Draft EIS/EIR



Prepared by:

URS

October 2008

Prepared for:

WATER EMERGENCY TRANSPORTATION AUTHORITY

WETA

BERKELEY/ALBANY FERRY TERMINAL STUDY

Draft EIS/EIR

Prepared for
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October 2008

BERKELEY/ALBANY FERRY TERMINAL STUDY
BERKELEY/ALBANY, CALIFORNIA

DRAFT ENVIRONMENTAL IMPACT STATEMENT/
DRAFT ENVIRONMENTAL IMPACT REPORT
PREPARED PURSUANT TO:

National Environmental Policy Act of 1969, §102 (42 U.S.C. §4332); Federal Transit Law (49 U.S.C. §5301(e), §5323(b), and §5324(b)); 49 U.S.C. §303 (formerly Department of Transportation Act of 1966 §4(f)); National Historic Preservation At of 1966, §106 (16 U.S.C. §470f); Executive Order 11990 (Protection of Wetlands); Executive Order 11988 (Floodplain Management; Executive Order 12898 (Environmental Justice); and California Environmental Quality Act, PRC 21000 *et seq* ; and the State of California CEQA Guidelines, California Administrative Code, 15000 *et seq*

by the

FEDERAL TRANSIT ADMINISTRATION
U.S. DEPARTMENT OF TRANSPORTATION

and the

SAN FRANCISCO BAY
WATER EMERGENCY TRANSPORTATION AUTHORITY

Date: 10/22/08

For FTA: _____

Edward Carranza
Acting Region IX Administrator
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Date: 10/22/08

For San Francisco Bay Area Water Emergency Transportation Authority: _____

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ABSTRACT

The San Francisco Water Emergency Transportation Authority (WETA) is considering operating new ferry service between the San Francisco Ferry Building and the Berkeley/Albany waterfront. To implement this service, the WETA would construct a ferry terminal and associated waterside and landside facilities for berthing ferry boats and to provide access for ferry patrons. The WETA has identified four potential ferry terminal site alternatives in Berkeley and Albany:

- **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 in the City of Berkeley, and Site D is in the City of Albany. Sites A through D represent the proposed project alternatives or "action" alternatives. The No-Action Alternative – if the ferry terminal project were not implemented – 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.

Purpose of the Project

The purpose of studying a ferry terminal site along the Berkeley/Albany Waterfront is to expand ferry service on San Francisco Bay, as established in the WETA Implementation and Operations Plan, and to respond to the deficiencies in the transportation network.

Environmental Evaluation

The Draft EIS/EIR examined potential transportation, social, economic, and environmental impacts generated by the No-Action and Action Alternatives. With the exception of traffic impacts in the study area, the No-Action Alternative would not produce construction or operations impacts generated by the new ferry service. However, the transportation and environmental benefits of the Action Alternatives would not occur under this alternative nor would the project Purpose and Need be addressed. In contrast, all Action Alternatives provide beneficial impacts to the environment by establishing an additional modal alternative to driving into San Francisco from the Berkeley/Albany area, thereby removing cars from congested roadways. The Action Alternatives also provide a means to cross the Bay during a catastrophic event that disables the Bay Bridge or BART tube. The plans for the ferry terminal incorporate pathways for pedestrians and bicyclists that enhance the operation of the Bay Trail. Mitigation strategies to reduce anticipated impacts are presented in the Executive Summary and Chapter 5 of the Draft EIS/EIR. Several adverse impacts for Alternatives C and D are identified as unmitigable.

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A 45-day period has been established for comments on this document. Comments may be submitted in writing or may be made orally at the public hearing(s). Written comments should be submitted to John Sindzinski at the address above between October 31, 2008, and December 31, 2008. Information on the public hearing can be obtained from the Water Emergency Transportation Authority.

PREFACE

This Environmental Impact Statement/Environmental Impact Report (EIS/EIR) is prepared pursuant to the requirements of both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). There are a number of differences between the guidelines for CEQA and NEPA that affect reporting in this document. CEQA provides an Initial Study Checklist (Appendix G of the State CEQA guidelines) that describes thresholds for determining significance for environmental topics. These thresholds, along with other local requirements that were used throughout the analysis, are presented in Chapter 5, Table 5-1, CEQA Significance Criteria. CEQA requires identification of and mitigation for significant adverse impacts in an EIR, while under NEPA, measures to avoid, minimize or mitigate affects are considered for all of the adverse impacts of a project regardless of significance. Another important difference between CEQA and NEPA is that CEQA primarily considers impacts to the physical environmental, while NEPA includes impacts to the human environment, such as socioeconomic impacts and environmental justice.

The affected environment or existing conditions are described in Chapter 3, while in Chapter 4 of this combined NEPA/CEQA document, construction, operational and cumulative impacts are described for each of the alternatives, and mitigation measures are described wherever practicable to reduce identified adverse impacts. Specific discussion of the level of impact significance before and after mitigation and or improvement measures, as well as a summary of unavoidable significant impacts, growth-inducing impacts, and cumulative impacts in accordance with CEQA is provided in Chapter 5. The Evaluation of Alternatives Chapter (Chapter 6) summarizes the trade-offs among the four Action Alternatives to provide decision makers information to choose the preferred alternative.

Technical studies, which were prepared as part of the environmental analysis for the project, are available for review by appointment at the Water Emergency Transportation Authority, Pier 9, Suite 111, San Francisco, CA 94111, (415) 291-3377.

BERKELEY/ALBANY FERRY TERMINAL STUDY
DRAFT EIS/EIR

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LIST OF ACRONYMS AND ABBREVIATIONS

AASHTO	Association of State Highway and Transportation Officials
AB	Assembly Bill
ABAG	Association of Bay Area Governments
AC Transit	Alameda–Contra Costa County Transit District
ACCMA	Alameda County Congestion Management Agency
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
AFD	Albany Fire Department
ANSI	American National Standards Institute
APE	Area of Potential Effects
APD	Albany Police Department
ARA	Avocet Research Associates
ASC	ambient sediment concentrations
AUSD	Albany Unified School District
AWSC	all-way STOP-controlled
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BCDC	Bay Conservation and Development Commission
BFD	Berkeley Fire Department
BLA	Bicycle Lane Account
BMP	best management practice
BPD	Berkeley Police Department
BUSD	Berkeley Unified School District
CAAA	Clean Air Act Amendments
CAAQS	California Ambient Air Quality Standards
Cal-OSHA	California Department of Industrial Relations, Division of Occupational Safety and Health
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CDPR	California Department of Parks and Recreation
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	Methane
CHE	Coast & Harbor Engineering
CHRIS	California Historical Resources Information System
CNA	Community Noise Analyzer
CNDDB	California Natural Diversity Data Base
CNEL	Community Noise Equivalent Level

CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COBTMD	City of Berkeley Toxics Material Division
CORRACTS	RCRA Corrective Action Plan
CRHR	California Register of Historic Resources
CSI	Cambridge Systematics, Inc.
CWA	Clean Water Act
DARP	Damage Assessment and Restoration Program
dB	decibel
dBA	A-weighted decibel
DDT	dichloro-diphenyl-trichloroethane
DMMO	Dredged Material Management Office
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EB	eastbound
EBMUD	East Bay Municipal Utility District
EBRPD	East Bay Regional Parks District
EDR	Environmental Data Registry
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
EMT	Emergency Medical Technician
EO	Executive Order
EPC	Engineering, Procurement, and Construction
ERL	effects range-low
ERM	effects range-median
ESU	evolutionarily significant unit
°F	degrees Fahrenheit
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FMDS	Field Measurement Data Sheet
FTA	Federal Transit Administration
GHG	greenhouse gases
HCM	Highway Capacity Manual
HMBP	Hazardous Materials Business Plan
HMMA	Hazardous Materials Management Act
HP	horsepower
I-80	Interstate 80
I-580	Interstate 580
IOP	Implementation and Operations Plan
km	kilometers
kV	kilovolt
kwh	kilowatt hour
$L_{\#}$	x percentile distribution of sound level

L_{dn}	day-night average sound level
L_{eq}	equivalent sound level
L_{max}	Maximum sound level
L_{min}	Minimum sound level
LOS	Level of Service
LPA	Locally Preferred Alternative
LT	long-term
LTMS	Long-Term Management Strategy
LUST	Leaking Underground Storage Tank
LWCFA	Department of Interior Land and Water Conservation Fund Act
MEI	maximally exposed individual
MGD	million gallons per day
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
µg/L	micrograms per Liter
mg/L	milligrams per Liter
$\mu g/m^3$	micrograms per cubic meter
mg/m^3	milligrams per cubic meter
MHHW	mean higher high water
MHW	mean high water
µm	micrometers
mm	millimeter
mm/yr	millimeters per year
M_L	Local Magnitude
MLLW	mean lower low water
MMI	Modified Mercalli Intensity
µPa	microPascal
mph	miles per hour
MPRSA	Marine Protection, Research, and Sanctuaries Act of 1972
MTC	Metropolitan Transportation Commission
M_W	Moment Magnitude
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NMSA	National Marine Sanctuaries Act
NO_2	nitrogen dioxide
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NOP	Notice of Preparation
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places

NVIC	Navigation and Vessel Inspection Circular
O_3	Ozone
OPA	Oil Pollution Act
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PAHs	Polyaromatic Hydrocarbons
PCB	polychlorinated biphenyl
PG&E	Pacific Gas & Electric Company
pg/L	picograms per Liter
PM_{10}	particulate matter less than 10 µm in diameter
$PM_{2.5}$	particulate matter less than 2.5 µm in diameter
ppm	parts per million
PRC	Public Resources Code
psu	practical salinity units
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RM	Regional Measure
RMP	Regional Monitoring Program
ROG	reactive organic gas
RWQCB	Regional Water Quality Control Board
SAP	Sampling and Analysis Plan
SARA	Superfund Amendment and Reauthorization Act
SCR	selective catalytic reduction
SF-DODS	San Francisco Deep Ocean Disposal Site
SFEI	San Francisco Estuary Institute
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SLIC	Spills, Leaks, Investigation and Cleanup
SO_2	sulfur dioxide
SO_x	oxides of sulfur
SPL	sound pressure level
ST	short-term
SW/LF	Solid Waste Facilities/Landfill Sites
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TIP	Transportation Improvement Plan
TMA	Transportation Management Association
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers
USC	United States Code
USCG	U.S. Coast Guard
U.S. DOT	U.S. Department of Transportation
U.S. EPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
v/c ratio	volume to capacity ratio

VTS	Vessel Traffic Safety
WB	westbound
WBS	West Berkeley Shuttle
WETA	Water Emergency Transit Authority
WGNCEP	Working Group on Northern California Earthquake Potential
WTA	Water Transit Authority
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

INTRODUCTION

In January 2008, the San Francisco Water Transit Authority (WTA) was superseded by the newly created San Francisco Water Emergency Transit Authority (WETA). WETA is considering operating new ferry service between the San Francisco Ferry Building and the Berkeley/Albany waterfront. To implement this service, the 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 ES-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. The No-Action Alternative – if the ferry terminal project were not implemented – 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.

PURPOSE AND NEED

PURPOSE OF THE PROJECT

The purpose of studying a ferry terminal site along the Berkeley/Albany Waterfront is to enhance mobility and transportation choices of East Bay residents and to respond to the deficiencies in the Transbay transportation network as described below. The Metropolitan Transportation Commission (MTC) is seeking ways to augment Transbay capacity, which is limited by the throughput constraints of the Bay Bridge and Transbay Tube, and vulnerable to emergency situations that obstruct or close the use of these facilities. In addition, the provision of alternative transportation modes is a regional goal to reduce the use of private automobiles for Transbay trips, thereby diminishing emissions and decreasing congestion on the regional roadway system. Similarly, providing San Francisco residents with alternative modes of travel to access state and regional parklands and other destinations in the East Bay would help meet these regional goals.

NEED FOR THE PROPOSED PROJECT

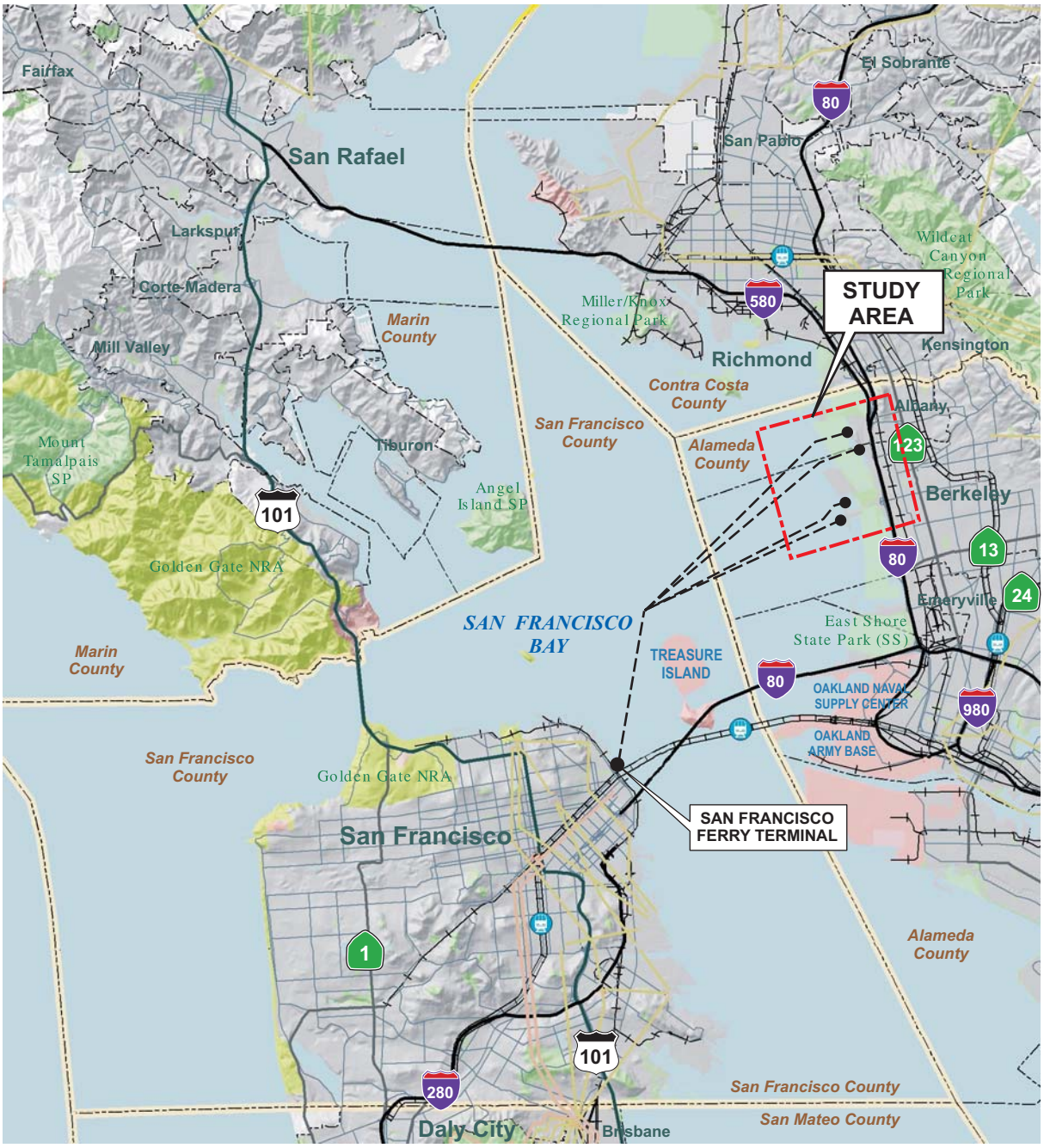
Current and Future Transbay Roadway Congestion

Between now and 2025, the Bay Area is expected to gain 1.4 million residents and 1.2 million jobs. During this time, downtown San Francisco employment will increase to 346,000 jobs, and remain one of the primary employment centers of the region (San Francisco Planning Department, 2001). The MTC estimates that the Bay Bridge corridor will have substantial growth in the number of daily person trips, increasing from 590,000 to 772,000 in 2025, and in vehicular traffic (from 300,000 vehicles to 425,000 vehicles per day), (MTC, 2002). This increase will aggravate travel delay along Interstate 80 (I-80) in the project area. California Department of Transportation's (Caltrans') 2002 Bay Area Freeway Congestion Data indicate that the Eastshore Freeway currently has a daily delay of 24,550 vehicle hours and 49.0 directional miles of congestion, and was ranked number one for vehicle delay in the regional roadway network. By 2025, the Bay Bridge is expected to have 73,400 peak-period vehicle hours of delay, extending morning congestion at the Bay Bridge Toll Plaza from 4 to nearly 5 hours, (MTC, 2002). The delays on the Bay Bridge and I-80 affect goods movement, particularly traveling from the Port of Oakland, and automobile travel.

Current and Future Transbay Transit Capacity

The overall mode split for journeys to work into downtown San Francisco was 54 percent transit, 30 percent drive-alone, and 16 percent ride-share (Badiner, 1995). East Bay residents, comprising one-fourth of downtown San Francisco workers, were second only to San Francisco residents in using transit for their downtown commute trips. Fifty-five percent of commute trips to downtown San Francisco were made via transit, which indicates the availability of transit and the willingness of East Bay residents to forego automobiles in favor of transit.

Transit carries approximately 160,700 Bay Area Rapid Transit (BART) patrons, 15,200 Alameda County (AC) Transit bus passengers, and 4,000 ferry patrons between the East Bay and San Francisco. Ferry patrons use two operating ferry services—Alameda/Oakland and Vallejo—to travel between the East Bay and San Francisco. By 2025, BART will carry 254,000 daily riders, AC Transit's Express Bus service will carry 19,800 passengers, and Ferry services will carry 7,060, or 36 percent of Bay Bridge corridor trips. Carpools, carrying 105,000 people, will capture 14 percent of these trips (MTC, 2002). BART serves crossbay destinations very effectively, carrying substantial numbers of passengers. The BART transbay tube currently has capacity for 30 trains per hour—only eight more than BART currently operates during the peak hour. The BART system is forecast to be able to handle demand between now and 2025 (URS, 2003); however, San Francisco station loading times and slow travel times through the Market Street subway affect the capacity of the transbay tube, and will increasingly do so as BART service increases to meet demand. AC Transit and carpools, the other major alternative means of travel across the Bay into San Francisco, are subject to the traffic delays mentioned in the previous section. Installation of high-occupancy vehicle or bus lanes on the Bay Bridge is not currently planned; therefore, crossbay ferry service can supplement existing transbay transit service with a modal alternative that offers less constrained operations.



N

0 1 2 3 4 5 Miles

0 1 2 3 4 5 Kilometers

NAD 1983 UTM Zone 11N

LEGEND

- ● Alternative Berkeley/Albany Terminal Locations
- – – – Potential Berkeley/Albany - San Francisco Ferry Route

GENERAL LOCATION MAP

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FIGURE ES-1

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Disaster Response

Water transit provides a viable alternative for transporting people around the region when unexpected and long-term disruption renders other components of the regional transportation system inoperable. Disastrous events that have disrupted the transportation system have occurred several times during the past 25 years. After the Loma Prieta earthquake damaged the Bay Bridge, water transit service using excursion vessels was established to supplement BART service between the East Bay and San Francisco, including temporary routes from Berkeley and Richmond. The WETA is currently updating the 1996 *MTC Regional Ferry Contingency Plan* (now called the *Regional Maritime Contingency Plan*) to reflect emergency measures for maritime traffic in addition to ferries. The Plan will also assess current emergency-response assets, develop viable contingencies for a variety of possible emergencies and disasters, and create a workable business resumption plan for the local maritime community.

Regional Air Quality Issues

The San Francisco Bay Area's air quality has improved in recent years, largely in response to technological improvements in motor vehicles and less polluting fuels. The project study area is within the Bay Area Air Basin (BAAB), which is monitored by the Bay Area Air Quality Management District (BAAQMD). According to the BAAQMD, the BAAB is designated nonattainment for ozone (O_3) with respect to federal and California standards, and non-attainment for particulate matter 10 microns in diameter or smaller (PM_{10}) under California standards. The WTA Programmatic Environmental Impact Report (EIR) found that a regional ferry system would result in a net decrease in nitrous oxide (an ozone precursor), carbon monoxide, and PM_{10}. In addition, new ferryboats are planned to have low-emission engines, reducing carbon dioxide emissions.

Public Access to Eastshore State Park and the Bay Trail

Shoreline parks and trails are being developed along the Berkeley/Albany Waterfront. Two major efforts are under way: the implementation of the Eastshore State Park, and the completion of the Bay Trail along the Eastshore. The Eastshore State Park will ultimately include 1,817 acres of land and water along the shoreline between Emeryville and Richmond, securing more than 5 miles of public access with spectacular views of San Francisco Bay. Additions to the San Francisco Bay Trail within the Eastshore State Park area are now under construction. The Park and Trail are regional resources that are accessed primarily via the existing roadway network. Ferry service from San Francisco could provide expanded access to Eastshore State Park and the Bay Trail without adding to regional vehicle trips.

PROJECT OBJECTIVES

The objectives for the Berkeley/Albany Ferry Project include:

- Providing an alternative transbay public transportation mode between the East Bay and San Francisco that is convenient and reliable for commuters, midday riders, recreation users, and tourists;

- Carrying out the plans established in the regional ferry system Implementation and Operations Plan (IOP) and the provisions of RM-2;

- Providing ferry terminal facilities in the East Bay that conform with local and regional plans and policies;

- Minimizing ferry implementation and operation impacts on the Bay shoreline, water quality, water life, and recreational activities;

- Providing convenient access to the terminal site while minimizing traffic and circulation impacts; and

- Developing community and agency support.

ALTERNATIVES

This document analyzes four Action Alternatives (Alternatives A-D) and a No-Action Alternative for the potential ferry terminal site. These alternatives are described below.

No-Action Alternative

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.

Action Alternatives

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.

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.

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 ES-1.

Table ES-1
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. More detailed information about each site alternative is presented in the sections below.

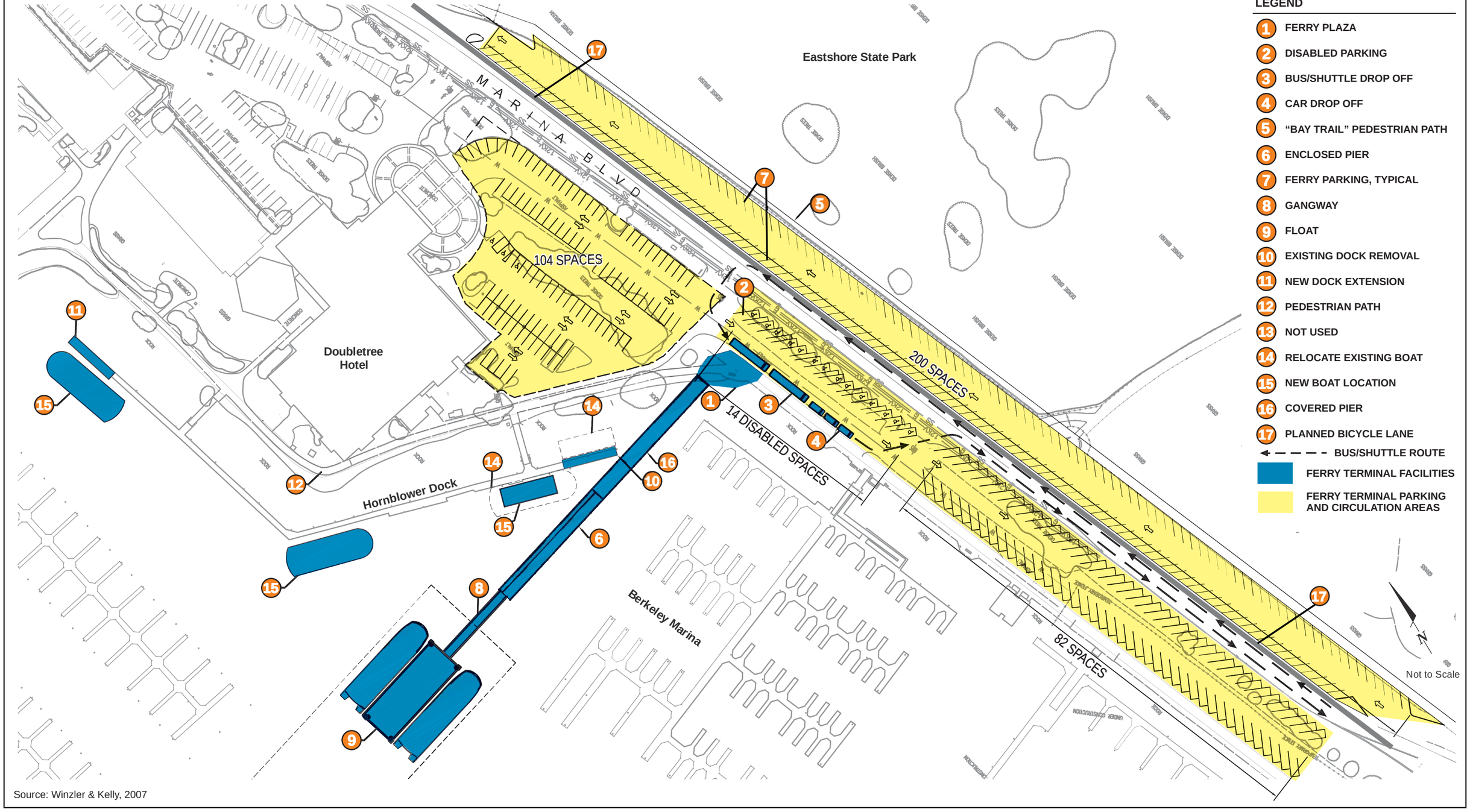
Alternative A: Berkeley Marina

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). Existing Berkeley Marina facilities include a fuel dock, bait and tackle shop, commercial sport fishing boats, sailing club concessions, and 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 mean lower low water (MLLW) and a depth within the Berkeley Marina of approximately -15 feet (City of Berkeley, 2006). The offshore portion of the Berkeley Marina site has approximately 5 to 10 feet of Bay Mud (CDM, 1969). The ferry route would require a water depth of -10 feet at MLLW.

The pier would extend from the existing rock wall embankment near the dock for Hornblower vessels and the Doubletree Hotel (Figure ES-2). 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 relocated 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 (Winzler & Kelly, 2007). 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.



Source: Winzler & Kelly, 2007

SITE PLAN – SITE A BERKELEY MARINA

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FIGURE ES-2

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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). 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 (Figure ES-3). 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. A channel dredged to a depth of 10 feet and extending 10,500 feet (Winzler & Kelly, 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.

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. 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).

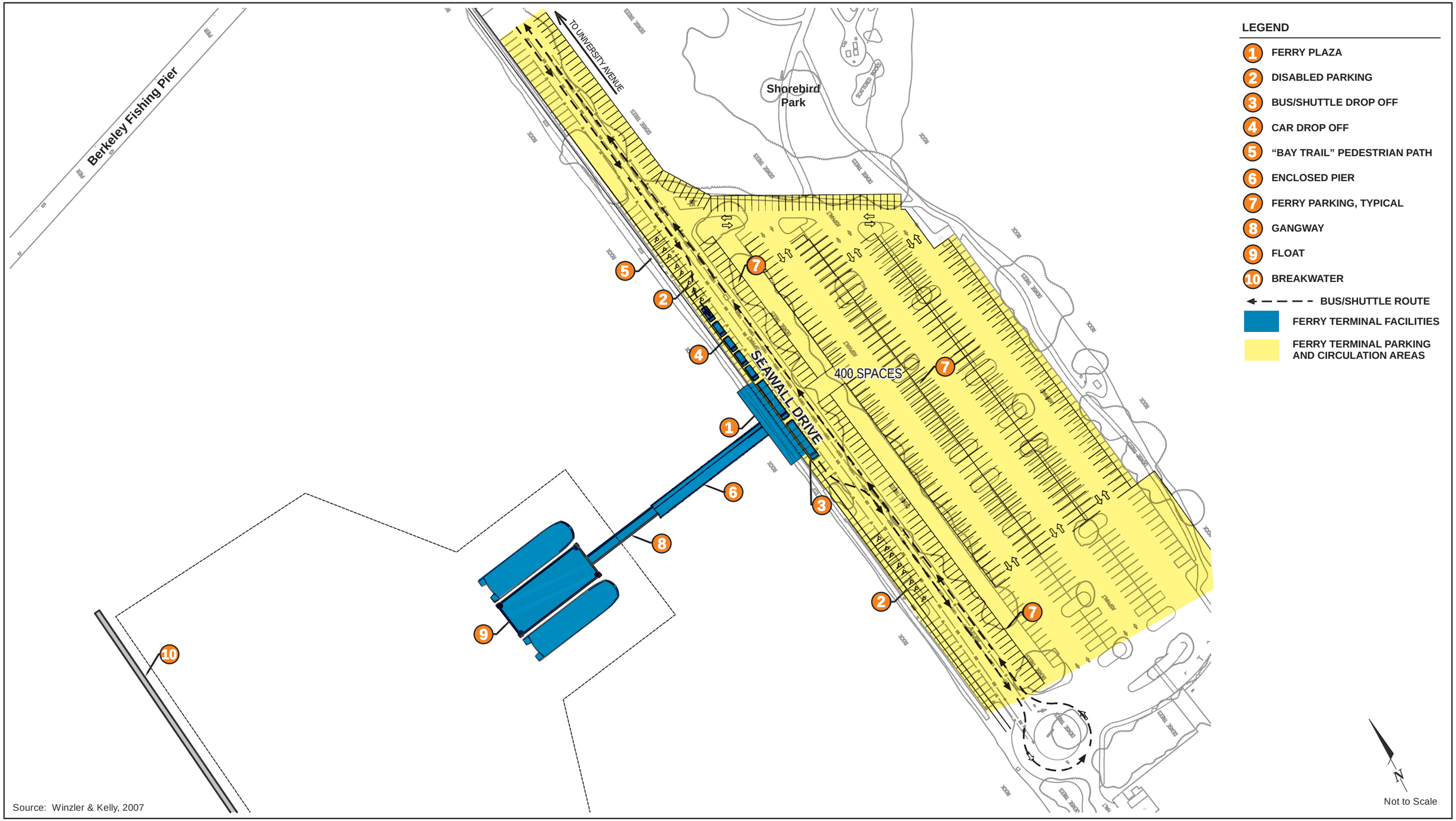
The ferry pier would extend from the embankment, curving west into the Bay for 359 feet (Figure ES-4). Because the depth in this portion of the Bay is shallow, a 10-foot-deep channel would have to be dredged to reach deeper water. This channel would be dredged for 14,300 feet through the Eastshore State 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.

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).

The ferry pier would extend from the embankment, curving west into the Bay for 389 feet (Figure ES-5). 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).



Source: Winzler & Kelly, 2007

SITE PLAN – SITE B BERKELEY PIER

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FIGURE ES-3

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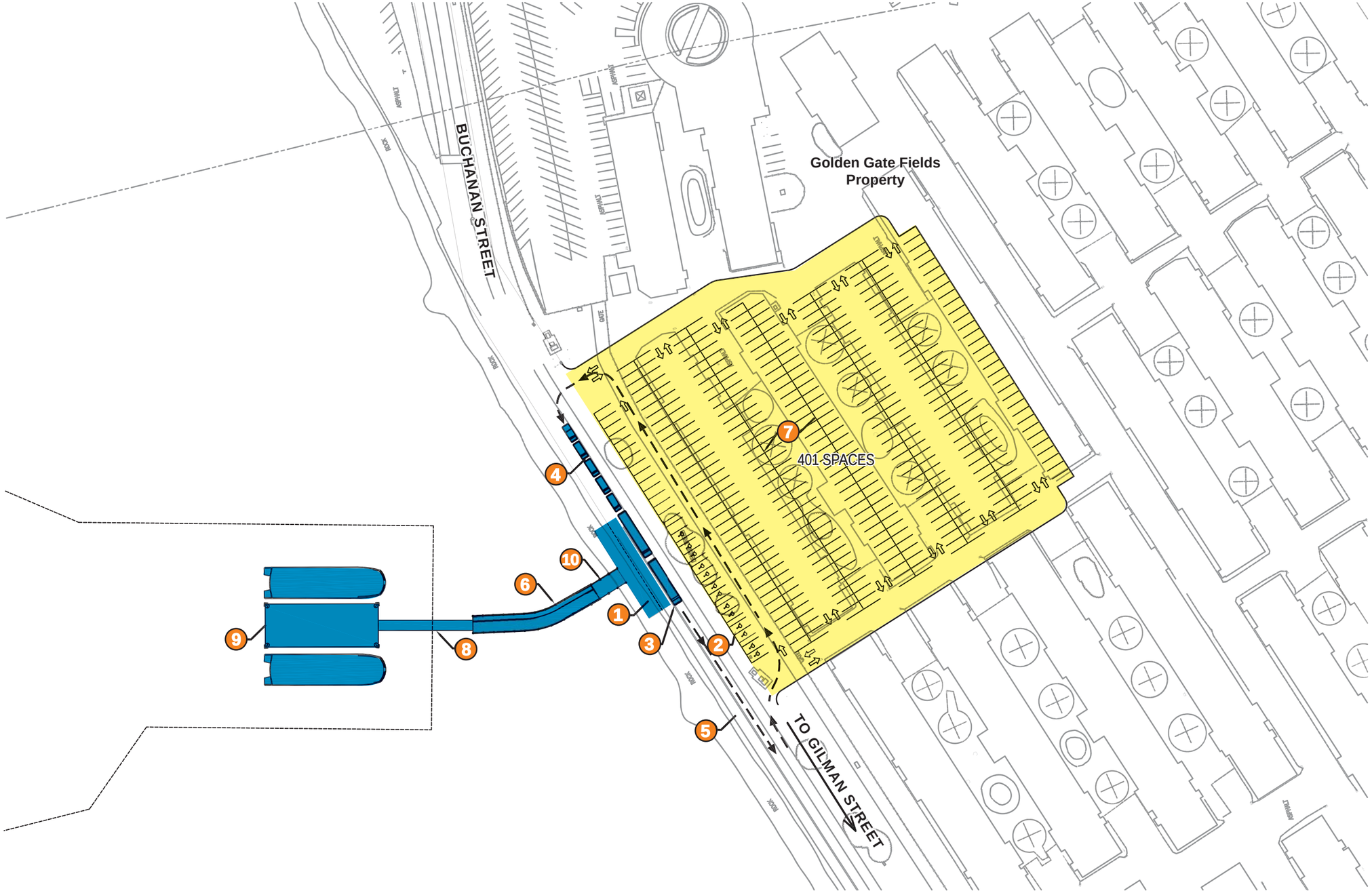
LEGEND

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

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FIGURE ES-4

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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

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FIGURE ES-5

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ENVIRONMENTAL CONSEQUENCES

Table ES-2 presents a summary of significant and potentially significant impacts for each project alternative, the corresponding mitigation measures for each impact, and the significance level after mitigation, as indicated in Chapter 5. A detailed discussion of these impacts and mitigation measures is included in Chapter 4, Environmental Consequences.

EVALUATION OF ALTERNATIVES

Supporting the Project Purpose and Need

The No-Action Alternative would partially respond to the deficiencies in the transportation network and goals established in the project Purpose and Need by implementing infrastructure improvements that have been identified and funded in the Regional Transportation Plan. The Action Alternatives would more fully support the Purpose and Need by adding an alternative mode of travel for transbay commuters and midday travelers destined for San Francisco or to destinations in the Berkeley/Albany area. The ferry service would provide additional capacity to the already congested transbay transportation network, including the Bay Bridge and the BART transbay tube, and provide emergency access between San Francisco and the East Bay in the event of a catastrophic situation that cripples or shuts down the Bay Bridge or the BART tube.

Inclusion in the Regional Transportation Plan

The MTC "Transportation 2030 Plan for the San Francisco Bay Area," adopted in February 2005, is the financially constrained Regional Transportation Plan that includes the Berkeley/ Albany Ferry Project (#22511). The Plan allots $22.0 million from the Resolution 3434 Regional Transit Expansion Program and from the Regional Measure 2 Toll Bridge Program for implementation and operation of the new ferry service and terminal facilities.

Environmental Evaluation

With the exception of traffic impacts in the study area, the No-Action Alternative would not produce construction and operations impacts generated by the new ferry service. However, the transportation and environmental benefits of the Action Alternatives would not occur under this alternative nor would the project Purpose and Need be addressed.

In contrast, all Action Alternatives provide beneficial impacts to the environment by establishing an additional modal alternative to driving into San Francisco from the Berkeley/Albany area, thereby removing cars from congested roadways. The Action Alternatives also provide a means to cross the Bay during a catastrophic event that disables the Bay Bridge or BART tube. The plans for the ferry terminal incorporate pathways for pedestrians and bicyclists that enhance the operation of the Bay Trail. Environmental trade-offs among the Action Alternatives are summarized below.

Table ES-2
Summary of Significant and Potentially Significant Impacts

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.1	**Transportation and Circulation**				
	Traffic	No-Action	**Impact:** Existing – 8 of 17 key intersections have substandard operation without project; Future (2030) – 9 of 17 intersections have substandard operation without project.		
		Alternative A	**Impact:** Existing – 3 of 17 key intersections have substandard operations with project; Future (2030) – 0 of 17 intersections have substandard operation with project.	**Mitigation:** Existing – signal timing and intersection design modifications; Future (2030) – none required.	**Existing:** Less than significant, except at University/Frontage Road, which may not be mitigated completely.
		Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	**Existing:** Refer to Alternative A.
		Alternative C	**Impact:** Existing – 0 of 17 key intersections have substandard operation with project; Future (2030) – 2 of 17 intersections have substandard operation with project.	**Mitigation:** Existing – None required; Future (2030) – None identified.	**Future (2030):** Unavoidable Significant Impact.
		Alternative D	**Impact:** Existing – 1 of 17 key intersections have substandard operation with project; Future (2030) – 2 of 17 intersections have substandard operation with project.	**Mitigation:** Existing – Signal timing and intersection design modifications.	**Future (2030):** Unavoidable Significant Impact.
	Parking	Alternative A	**Impact:** Potential to displace existing parking for nearby businesses or residents during construction. This would be an adverse impact.	**Mitigation:** Alternative parking would be provided, including signage.	Less than Significant
			Impact: Potential to displace existing parking for nearby businesses or residents during operations. This would be an adverse impact.	**Mitigation:** Parking supply measures, such as provision of additional parking spaces, enforcement of free parking, and a parking availability information system would minimize impacts to a less-than-significant level. WETA would negotiate agreement with property owners for control and responsibility of the designated parking areas. After selection of an LPA, WETA will develop and implement a Parking Mitigation Plan to address potential parking impacts on nearby uses.	Less than Significant

Table ES-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.1 (cont'd)	Parking (cont'd)	Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	None identified		
		Alternative D	None identified		
	Transit	Alternative A	**Impact:** AC Transit service standards would not be affected.	**Mitigation:** None required.	
		Alternative B	**Impact:** Potential to adversely affect transit operations during construction.	**Mitigation:** Flagmen at the construction and staging areas.	Less than Significant
			Impact: AC Transit service standards would not be affected.	**Mitigation:** None required.	
		Alternative C	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	
		Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	
	Bicyclists and Pedestrians	Alternative A	**Impact:** Potential to adversely affect bicycle and pedestrian circulation during construction. Construction could cause temporary closure of sidewalks and pathways, narrowing of adjacent roadways, and/or degradation of paving surfaces, thereby disrupting bicycle and pedestrian access. This would be an adverse impact.	**Mitigation:** Access to sidewalks and pathways would be maintained by minimizing closings and providing suitable alternatives during closures. Pavement surfaces would be maintained in the construction zone and appropriate temporary detour signage would be used.	Less than Significant
		Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
4.2	**Land Use**	Alternative A	None identified		
		Alternative B	None identified		
		Alternative C	**Impact:** The potential to conflict with existing plans, policies and regulations that govern the areas at and near the ferry terminal alternatives.	**Mitigation:** Implementation of eelgrass mitigations included in Section 4.9, Biological Resources, would result in compliance with Transportation Policy 5 in the San Francisco Bay Plan.	Less than Significant

Table ES-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.2 (cont'd)	**Land Use (cont'd)**	Alternative C	**Impact:** The potential to conflict with existing plans, policies and regulations that govern the areas at and near the ferry terminal alternatives, in particular compatibility with Eastshore State Park General Plan.	**Mitigation:** Construction of a ferry terminal on lands under the jurisdiction of the Eastshore State Park General Plan is not permitted, and the Park District has stated that such a project would be difficult to implement. Therefore, this impact cannot be mitigated to a less-than-significant level.	Significant and Unavoidable
		Alternative D	**Impact:** Refer to second impact for Alternative C.	**Mitigation:** Refer to second impact for Alternative C.	Significant and Unavoidable
4.3	**Socioeconomics**	All Alternatives	All impacts less than significant		
4.4	**Parklands and Recreational Facilities**	Alternative A	None identified		
		Alternative B	None identified		
		Alternative C	**Impact:** Construction activities at the site would impact "Aquatic Parklands" of Eastshore State Park. According to the Eastshore State Park General Plan, "the park resource must be fully restored to its original condition at the completion of construction and the temporary use of the parkland must terminate before the end of the construction period." Construction of a ferry terminal would not conform to these regulations. This is an adverse impact.	**Mitigation:** No mitigation for this impact has been identified.	Unavoidable Significant Impact

Table ES-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.4 (cont'd)	**Parklands and Recreational Facilities (cont'd)**	Alternative C (cont'd)	**Impact:** Daily use of the ferry terminal at this site, as well as periodic maintenance dredging for continued ferry operation, would not conform to the regulations of the Eastshore State Park General Plan, and according to Section 4(f) requirements must determine that no feasible and prudent alternatives exist. Also, it is unlikely that a documented agreement to permit this use of the aquatic parkland will be authorized by state officials. This is considered an adverse impact.	**Mitigation:** No mitigation for this impact has been identified.	Unavoidable Significant Impact
		Alternative D	**Impact:** Refer to Alternative C.	**Mitigation:** Refer to Alternative C.	Unavoidable Significant Impact
4.5	**Aesthetics and Visual Resources**	All Alternatives	All impacts less than significant		
4.6	**Cultural Resources**	Alternative A	**Impact:** The potential to adversely affect unknown archaeological resources during construction.	**Mitigation:** If, during the course of construction within the project area any prehistoric or historic cultural resources (e.g., large amounts of shell, dark soil residues, lithic material, or historic refuse) are discovered, all work in the vicinity must halt, and a qualified archaeologist shall be notified to assess the significance of the find according to CEQA Guidelines Section 5064.5. If any find is determined to be significant, the project proponent and the archaeologist will meet to determine the appropriate avoidance measures or other appropriate mitigation.	Less than Significant

Table ES-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.6 (cont'd)	**Cultural Resources (cont'd)**	Alternative A (cont'd)		If human skeletal remains are uncovered during project construction, the project proponent (depending on the project component) will immediately halt work, contact the Alameda County coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines. If the County coroner determines that the remains are Native American, the project proponent will contact the NAHC, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and PRC 5097.98 (as amended by AB 2641). In accordance with PRC 5097.98, the landowner shall ensure that, according to generally accepted cultural or archaeological standards or practices, the immediate vicinity of the Native American human remains is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section (PRC 5097.98), with the most likely descendents regarding their recommendations, if applicable, taking into account the possibility of multiple human remains.	
		Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant

Table ES-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.6 (cont'd)	**Cultural Resources (cont'd)**	Alternative A	**Impact:** The project could adversely affect unidentified paleontological resources	**Mitigation:** In the event that paleontological resources are discovered, the project proponent (depending on the project component) will notify a qualified paleontologist. The paleontologist will document the discovery as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in CEQA Guidelines Section 15064.5. If fossil or fossil bearing deposits are discovered during construction, excavations within 50 feet of the find will be temporarily halted or diverted until the discovery is examined by a qualified paleontologist (in accordance with Society of Vertebrate Paleontology standards [Society of Vertebrate Paleontology, 1995]). The paleontologist will notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the project proponent determines that avoidance is not feasible, the paleontologist will prepare an excavation plan for mitigating the effect of the project on the qualities that make the resource important. The plan will be submitted to the project proponent for review and approval prior to implementation.	Less than Significant
		Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant

Table ES-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.7	**Air Quality**	Alternative A	**Impact:** Construction of the terminal will result in short-term impacts to the existing air quality in the area. These impacts include temporary increases in emissions of CO, CO_2, NO_x, PM_{10}, $PM_{2.5}$, ROG, and SO_x. Impacts of construction to air quality are considered to be adverse.	**Mitigation:** When and where feasible, BAAQMD-recommended mitigation measures will be implemented to reduce the emissions generated from construction equipment exhaust.	Less than Significant
		Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
4.8	**Noise and Vibration**	Alternative A	**Impact:** Noise due to pile driving could impact fish. Pile driving for the terminal facility would include small-diameter concrete piles, such as those used for the San Mateo Bridge. It is therefore not expected that significant fish mortalities would result from pile driving. Harmful sound pressures may still occur, which could produce adverse temporary effects on fish.	**Mitigation:** Underwater sound monitoring would be conducted if estimated sound pressure levels could approach those that may harm fish (e.g., 180 dB). Measures to reduce sound pressure levels in surrounding waters, such as bubble jackets surrounding the piles, may have to be deployed if sound pressure levels exceed those that could harm fish.	Less than Significant
			Impact: Transiting ferries could disturb marine mammal resting and foraging.	**Mitigation:** Disturbance by ferries to foraging marine mammals is expected to be similar to existing boat traffic. NMFS guidelines would be followed to minimize acoustic disturbance on nearby mammals, and no adverse impact would be created.	Less than Significant
			Impact: Construction noise could impact existing noise-sensitive users adjacent to the ferry terminal site.	**Mitigation:** Steps outlined in the Construction Noise Ordinance for the City of Berkeley must be followed.	Less than Significant

Table ES-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.8 (cont'd)	**Noise and Vibration (cont'd)**	Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	**Impact:** Refer to the first two impacts noted for Alternative A. No noise-sensitive receptors are located adjacent to the site.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative D	**Impact:** Refer to Alternative C.	**Mitigation:** Refer to Alternative A.	Less than Significant
4.9	**Biological Resources**	Eelgrass – Alternative A	None identified		
		Eelgrass – Alternative B	None identified		
		Eelgrass – Alternative C	**Impact:** Project construction would result in the disturbance of the Eelgrass Mitigation pilot project for the East Span Bay Bridge construction south of Gilman Street, with the potential to expand northward, eventually encompassing 15 acres.	**Mitigation:** Because the eelgrass disturbance would be within an existing mitigation plot, suitable compensatory mitigation (mitigation ratio up to 1:10) would be designed in consultation with appropriate state and federal agencies such as the USACE, U.S. EPA, CDFG, BCDC, and the San Francisco Bay RWQCB. A mitigation plan would include monitoring and evaluating the success of the mitigation effort, and an approved contingency plan negotiated with appropriate state and federal agencies if the mitigation fails. It is important to note that there is little data available on replacement of eelgrass in the Bay.	Less than Significant, if mitigation is successful
		Eelgrass – Alternative D	**Impact:** Refer to Alternative C.	**Mitigation:** Refer to Alternative C.	Less than Significant

Table ES-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.9 (cont'd)	**Biological Resources (cont'd)**	Dredging – Alternative A	**Impact:** Dredging could adversely impact the California least tern, a listed species.	**Mitigation:** The LTMS contains a dredging work window for California least terns that applies to the area from the Berkeley Marina south to San Lorenzo Creek. The work window is between August 1 and November 30. Dredging during this time period would reduce impacts to this listed species and no consultation with USFWS would be required. If this work window cannot be adhered to, WTA would enter into consultation with USFWS to obtain an incidental take permit as necessary. This permit may include specifications for monitoring and other mitigation measures to reduce impacts during dredging activities. The DMMO agencies have indicated that minimizing dredging is preferable.	Less than Significant
			Impact: Dredging could affect Pacific herring spawning.	**Mitigation:** Dredging would not occur between December 1 and March 1 unless a CDFG waiver were obtained.	Less than Significant
			Impact: Construction activities may remove native oysters.	**Mitigation:** WETA would work with interested resource agencies to determine whether native oysters would be adversely affected by dredging. WETA may agree to conduct pre-construction surveys for native oysters at the Marina site. WETA would consult with the resource agencies to determine whether mitigation measures are required to re-establish the affected beds.	Less than Significant
		Dredging – Alternative B	**Impact:** Refer to the dredging impacts listed for Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Dredging – Alternative C	**Impact:** Refer to the dredging impacts listed for Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
			Impact: Dredging can spread invasive nonnative species, such as smooth cordgrass.	**Mitigation:** Identified strands of cordgrass would be removed prior to dredging and construction of pier.	Less than Significant

Table ES-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.9 (cont'd)	**Biological Resources (cont'd)**	Dredging – Alternative D	**Impact:** Refer to the dredging impacts listed for Alternative C.	**Mitigation:** Refer to Alternative C.	Less than Significant
		Fish – Alternative A	**Impact:** Special-status fish species with the potential to be affected by project construction include central California steelhead, winter run chinook salmon, and green sturgeon. These species may be adversely affected by dredging activity.	**Mitigation:** NMFS would be informally consulted as to any seasonal restrictions on pile driving or other measures to avoid take of listed species. If mitigation that avoids take cannot be implemented, then WTA would enter into formal consultation with NMFS to obtain an incidental take permit.	Less than Significant
		Fish – Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Fish – Alternative C	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Fish – Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Birds – Alternative A	No impacts identified		
		Birds – Alternative B	No impacts identified		
		Birds – Alternative C	**Impact:** Ongoing ferry traffic could disturb roosting and foraging water waterfowl in the vicinity and may decrease use of project areas by sensitive bird species. Ferry operations within the North Basin may disturb foraging or resting for special-status bird species, such as the burrowing owl, white-tailed kite, American peregrine falcon, osprey, and long-billed curlew. The repeated disturbance may cause these species to reduce their use of these locations for foraging and resting, constituting an unavoidable adverse impact.	**Mitigation:** No mitigation for this impact has been identified.	Unavoidable Significant impact

Table ES-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.9 (cont'd)	**Biological Resources (cont'd)**	Birds – Alternative D	**Impact:** Refer to Alternative C.	**Mitigation:** Refer to Alternative C.	Unavoidable Significant impact
		Bird Habitat – Alternative A	No impacts identified		
		Bird Habitat – Alternative B	No impacts identified		
		Bird Habitat – Alternative C	**Impact:** Sensitive shorelines and ecosystems within the North Basin could be eroded by ferry wakes, resulting in adverse impacts to habitat used for avian resting, foraging, or nesting.	**Mitigation:** A no-wake policy within the North Basin would reduce erosion of tidal wetlands, bayflats, and sandy beaches.	Less than Significant
		Bird Habitat – Alternative D	**Impact:** Refer to Alternative C.	**Mitigation:** Refer to Alternative C.	Less than Significant
4.10	**Water Resources**	Alternative A	**Impact:** Dredging could impact water quality through mobilization of contaminated sediment. Approximately 110,000 cubic yards of dredging would be required in the channel approaching the Berkeley Marina and in the Berkeley Marina.	**Mitigation:** As required by the DMMO, a SAP would be submitted prior to dredging. DMMO agencies have indicated that minimizing dredging is preferable.	Less than significant
			Impact: Onshore construction could cause stormwater contamination.	**Mitigation:** Construction would be done in accordance with NPDES General Permits, which require implementation of Best Management Practices.	
			Impact: Dredging could affect the capacity of the San Francisco Deep Ocean disposal site.	**Mitigation:** Evaluate potential disposal within the Bay at an upland facility, or beneficial reuse.	
			Impact: Inadvertent fuel spills from construction or operation would affect water quality.	**Mitigation:** Hazardous waste management plan and solid waste management plan will govern the storage and disposal of hazardous materials. All vehicles and construction equipment will be inspected to ensure no leaking fluids occur.	

Table ES-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.10 (cont'd)	**Water Resources (cont'd)**	Alternative A (cont'd)	**Impact:** Stormwater runoff at the terminal site and parking area could degrade water quality.	**Mitigation:** Gravel or permeable pavement would be used so rainwater could permeate into underlying soil.	
		Alternative B	**Impact:** Dredging could impact water quality through mobilization of contaminated sediment. Approximately 150,000 cubic yards of dredging would be required along the channel to the Berkeley Fishing Pier.	**Mitigation:** Refer to Alternative A.	Less than Significant
			Impact: Refer to the second, third, fourth, and fifth impacts for Alternative A.	**Mitigation:** Refer to Alternative A.	
		Alternative C	**Impact:** Dredging could impact water quality through mobilization of contaminated sediment. A ferry route to the Gilman Street site would require approximately 240,000 cubic yards of dredging along the channel and terminal turning basin. The EBRPD and California State Parks Department of Parks and Recreation indicated that even with mitigation measures, dredging within aquatic parklands of Eastshore State Park would still be considered an adverse impact.	**Mitigation:** No mitigation for this impact has been identified.	Unavoidable Significant impact
			Impact: Refer to the second, third, fourth, and fifth impacts for Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant

Table ES-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.10 (cont'd)	**Water Resources (cont'd)**	Alternative D	**Impact:** Dredging could impact water quality through mobilization of contaminated sediment. A ferry route to the Buchanan site would require approximately 280,000 cubic yards of dredging along the channel and terminal turning basin. The EBRPD and California State Parks Department of Parks and Recreation indicated that even with mitigation measures, dredging within aquatic parklands of Eastshore State Park would still be considered an adverse impact.	**Mitigation:** No mitigation for this impact has been identified.	Unavoidable Significant impact
			Impact: Refer to the second, third, fourth, and fifth impacts for Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
4.11	**Geology and Soils**	Alternative A	**Impact:** Seismic shaking could damage facilities and/or injure people.	**Mitigation:** Terminal facilities shall be designed and constructed at a minimum to "Essential Structure" standards as well as the seismic design requirements for ground shaking specified in the Uniform Building Code for Seismic Zone 4. Additionally, to satisfy the provisions of the 1998 CBC, these facilities shall be designed to withstand ground motions equating to approximately a 500-year return period (10 percent probability of exceedence in 50 years). For design purposes, site-specific ground motions shall be calculated for the project.	Less than Significant

Table ES-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.11 (cont'd)	**Geology and Soils (cont'd)**	Alternative A (cont'd)	**Impact:** Liquefaction or lateral spreading could damage facilities and/or injure people. Liquefaction of soils occurs when loose, cohesionless soils become saturated, temporarily losing shear strength during strong ground shaking. Significant factors that affect soil liquefaction potential are grain-size distribution, relative density, degree of saturation, the initial stresses acting on the soils, and the characteristics of the earthquake, such as the intensity and duration of the ground shaking. All of the study area along the shoreline in the region of the alternatives is potentially prone to liquefaction an adverse impact. In addition to liquefaction, other potential hazards in the study area include compaction consolidation (settlement) and seismically-induced settlement. Dissipation of excess pore pressure generated by ground shaking will produce volume changes within the liquefied soil layers, which would be manifested at the ground surface as settlement.	**Mitigation:** A program of site-specific exploratory borings and accompanying laboratory testing will be required to delineate any potentially liquefiable materials underneath potential terminal sites. These geotechnical investigations will also be required for consideration prior to foundation design. Potentially liquefiable deposits will either have to be removed or engineered (dewatered or densified) to reduce their liquefaction potential.	Less than Significant
			Impact: Subsidence could damage facilities**.**	**Mitigation:** Previous Mitigation applies.	Less than Significant
		Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant

Table ES-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.12	**Hazardous Materials**	Alternative A	**Impact:** Accidental spills or releases of hazardous materials (e.g., fuels and oils) during construction of the proposed terminal (offshore) and associated parking area (onshore) could potentially create a hazard to the public or the environment. This is considered an adverse impact.	**Mitigation:** Mitigation measures to address potential releases are presented in Section 4.10, Water Resources.	Less than Significant
			Impact: Contaminated water from fill material exposed during grading could migrate offsite.	**Mitigation:** If it is determined that contaminated fill would be exposed during construction, a Soil Management Plan would be prepared, identifying engineering controls to be used to mitigate migration of potentially contaminated material offsite via fugitive dust emissions or erosion.	Less than Significant
		Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
			Impact: Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	**Impact:** Demolition of structures containing lead-based paints and asbestos could expose the public and the environment to these contaminants, an adverse impact.	**Mitigation:** Prior to any demolition activities of the horse stables/barns a lead-based paint and asbestos survey would be conducted. Required abatement would be conducted by properly licensed abatement contractors.	Less than Significant
		Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant

Table ES-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.13	**Utilities and Public Services**				
	Fire Protection	Alternative A	**Impact:** Implementation of the project alternative would require enhanced fire protection facilities. Currently, the Berkeley Marina has limited fire protection infrastructure onsite, consisting of fire hydrants, standpipes, and fire extinguishers. The ferry terminal itself would have to adhere to the California Building and Fire Codes with respect to fire sprinklers and emergency access. Implementation of the Berkeley Marina or Berkeley Fishing Pier project alternatives would result in the need for upgraded fire protection facilities at the Berkeley Marina. Therefore, a potentially adverse impact is anticipated.	**Mitigation:** The project proponent shall consult with the BFD on acceptable mitigation measures to provide an adequate standard of fire protection at the site.	Less than Significant
		Alternative B	**Impact:** Implementation of the project alternative would require fire protection facilities.	**Mitigation:** The ferry terminal itself would have to adhere to the California Building and Fire Codes with respect to fire sprinklers and emergency access. The project proponent shall consult with the BFD on acceptable mitigation measures to provide an adequate standard of fire protection at the site.	Less than Significant

Table ES-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.13 (cont'd)	Fire Protection (cont'd)	Alternative C	**Impact:** Implementation of the project alternative would require fire protection facilities.	**Mitigation:** The ferry terminal itself would have to adhere to the California Building and Fire Codes with respect to fire sprinklers and emergency access. The project proponent shall consult with the Berkeley Fire Department on acceptable mitigation measures to provide an adequate standard of fire protection at the site.	Less than Significant
		Alternative D	**Impact:** Implementation of the project alternative would require fire protection facilities.	**Mitigation:** The ferry terminal itself would have to adhere to the California Building and Fire Codes with respect to fire sprinklers and emergency access the project proponent shall consult with the AFD on acceptable mitigation measures to provide an adequate standard of fire protection at the site.	Less than Significant
	Gas, Electricity, Sanitary Sewer	Alternative A	I**mpact:** Construction activities could come into contact with utility lines, and an adverse impact could occur.	**Mitigation:** Prior to the start of construction activities, the project proponent shall consult with public utility providers who have infrastructure in the immediate vicinity of the site to determine the exact location and depth of utility lines.	Less than Significant
		Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
4.14	**Energy**	All Alternatives	All impacts less than significant		

Note:
Impacts determined to be less than significant without mitigation are not included in this table.

Alternatives C and D produce multiple environmental issues that would be difficult or impossible to mitigate. For Alternative C, the project would substantially contribute to cumulative traffic impacts at Gilman Street/San Pablo Avenue, which is expected to operate at Level of Service (LOS) F in 2030. This cumulative impact could not be mitigated. In addition, ferry operation would traverse the aquatic parklands of Eastshore State Park and require periodic dredging. The operation would be in conflict with the Park's General Plan and dredging could affect water quality through mobilization of contaminated sediment, an unavoidable impact on the aquatic park. Ferry operation through aquatic parklands may not be permitted by the State or meet U.S. Department of Transportation Section 4(f) requirements. Ferry operation may also disturb foraging or resting for special-status bird species, such as the burrowing owl, white-tailed kite, American peregrine falcon, osprey, and long-billed curlew. The repeated disturbance may cause these species to reduce their use of these locations for foraging and resting. Alternative C also would disturb existing eelgrass beds, including an eelgrass mitigation area that Caltrans has established for the Bay Bridge project. Although it is possible to re-establish eelgrass beds and reduce this impact to less than significant, the mitigation is difficult to implement and may not succeed.

For Alternative D, unavoidable impacts on Eastshore State Park described for Alternative C would also occur. In addition, Alternative D would have multiple unavoidable traffic impacts resulting from the project. This alternative is expected to adversely affect the San Pablo Avenue/ Marin Avenue intersection by increasing average vehicle delay during the p.m. peak traffic hour by 3.1 seconds, which exceeds the significance threshold for intersections that operate at LOS E. Also, cumulative traffic impacts would occur at San Pablo Avenue/Solano Avenue and at San Pablo Avenue/Marin Avenue. Ferry operation would substantially increase traffic at San Pablo Avenue/Solano Avenue, reducing LOS from E to F during the p.m. peak traffic hour.

In contrast, Alternatives A and B do not produce unavoidable impacts except for the potential traffic impacts at University/West Frontage Road, which may be difficult to mitigate. Alternatives A and B may produce parking impacts on existing businesses by converting and controlling existing parking areas that are currently used by patrons of the nearby businesses and recreational opportunities. These impacts, which can be mitigated, are less likely to occur at Alternatives C and D. Overall, Alternatives A and B produce similar long-term impacts that can be mitigated. However, differences in waterside impacts occur. For example, Alternative B requires a breakwater to be constructed to protect the terminal pier from wave action, whereas Alternative A uses an existing sheltered harbor,. Potential impacts from breakwater construction can be mitigated. Alternative A requires that eight docks in the Berkeley Marina be moved, including the location of the existing Hornblower dock, and that the harbor channel used by recreational and commercial vessels is shared. Alternative B would also require more extensive dredging than Alternative A, but the disruption to existing marine-related uses would not occur under Alternative B.

Other Considerations

The ferry travel time between the East Bay and San Francisco would be less for Alternatives A and B than the other alternatives, allowing more frequent ferry service during the peak. In addition, the amount of dredging would be less for Alternative A, and the disruption to the existing waterfront land uses would be less for Alternative B than for the other alternatives. The preliminary capital cost estimate, which does not include utility requirements, mitigation costs, or architectural elements of design, is the lowest for Alternative A. A comparison of these trade-offs is provided in Table ES-3.

Table ES-3
Comparison of Other Considerations for Alternatives

Consideration	Alternative A – Berkeley Marina	Alternative B – Berkeley Fishing Pier	Alternative C – Gilman Street	Alternative D – Buchanan Street
Travel Time	29 minutes	25 minutes	35 minutes	34 minutes
Peak Period Frequency of Service	35 minutes	35 minutes	45 minutes	45 minutes
Dredging Volumes	110,000 cubic yards	150,000 cubic yards	240,000 cubic yards	280,000 cubic yards
Preliminary Capital Cost Estimate (2007 dollars)	$17,152,380	$17,905,949	$18,277,730	$19,151,546

COORDINATION, CONSULTATION, AND COMMENTS

A new environmental review process has been established for highways, transit, and multimodal projects. Section 6002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, establishes an enhanced environmental review process for certain projects, increasing the transparency of the process, as well as opportunities for participation. Consistent with Section 6002, and as part of the environmental review process for this project, the lead agency must identify, as early as practicable, any other federal and non-federal agencies that may have an interest in the project, and invite such agencies to become participating agencies in the environmental review process. Agencies that have been identified preliminarily as potentially having an interest in this project must be extended an invitation to become actively involved as a participating agency in the project's environmental review process. The new environmental review process allows more state, local, and tribal agencies a formal role and rights in the environmental process. Consultation with agencies that have had continuing interest in the project are listed below. These agencies have been consulted throughout Phase 1 and Phase 2 of the project. Additional agencies have been contacted during Phase 1 and during Phase 2 scoping, as

indicated in Chapter 7, Appendix B, and Appendix C. More information about the consultation process, including issues discussed and permitting and approvals involving local, state, and federal agencies, is presented in Chapter 7, Appendix B, and Appendix C. Information about the public review of the Draft EIS/EIR and submitting comments on the draft document is provided on the WETA website (http://www.watertransit.org).

Agency
City of Berkeley
City of Albany
U.S. Army Corps of Engineers Dredge Material Management Office
San Francisco Bay Conservation and Development Commission (BCDC)
National Oceanic and Atmospheric Administrating National Marine Fisheries Service
U.S. Army Corps of Engineers Dredge Material Management Office
BCDC
East Bay Regional Parks District
Eastshore State Park District and California State Parks Department of Parks and Recreation
Regional Water Quality Control Board
Bay Area Air Quality Management District

ISSUES TO BE RESOLVED

Outstanding issues yet to be resolved that will be addressed in the Final EIS/EIR after the WETA Board selects the Locally Preferred Alternative are:

- **Parking:** For Alternatives A and B, the location of project parking that is controlled by WETA and also accommodates the nearby businesses that rely on the existing parking in the area needs to be determined and an agreement negotiated with the City of Berkeley, the landowner. For Alternative C, WETA-designated parking requires the displacement and relocation of horse stables associated with Golden Gate Field operation, and the agreement of Golden Gate Field owners to allow WETA to lease the designated parking area. Agreement with Golden Gate Field owners would also be required to secure ferry parking for Alternative D. After selection of an LPA, WETA will develop and implement a Parking Mitigation Plan to address potential parking impacts on nearby uses.

- **Transit Access:** Transit currently only directly serves Alternative B. WETA is committed to provide non-auto modes to access the ferry service. The type and frequency of this service has yet to be determined.

- **Land Use:** For Alternative A, the terminal would reconfigure the existing Hornblower dock and would also require the removal of eight Marina boat slips. The relocation of these docks would need to be clarified and negotiated. For Alternative C, WETA-designated parking requires the displacement and relocation of horse stables associated with Golden Gate Field operation and the agreement of Golden Gate Field owners to allow WETA to lease the designated parking area. Agreement with Golden Gate Field owners would also be required to secure ferry parking for Alternative D.

- **Parklands:** Alternatives C and D would require the use of Eastshore State Park aquatic parklands for ferry construction and operation. In conformance with U.S. DOT Section 4(f) requirements, parkland use for a federally-funded transportation project must demonstrate that no feasible and prudent alternatives exist and also must be approved by the California Parks Department, which owns this parkland. The effect of ferry operation on existing Marina activities and the effect of construction on water habitat would also need to be clarified.

- **Biological Resources:** Construction of Alternative A may disturb native oyster beds. Alternative C would require the removal of eelgrass that has been established as a mitigation for Bay Bridge reconstruction by Caltrans, and could potentially adversely affect rafting bird habitat. Alternative D may also disturb eelgrass beds and rafting bird habitat. The ferry pier constructed for the alternatives may create shaded water areas that could enhance predation and affect benthos and other Bay habitat, particularly for Alternative A, which would have the longest pier. Resolution of these issues would need to be negotiated with state and federal agencies having jurisdiction over biological resource impacts.

1.0 PURPOSE AND NEED

In January 2008, the San Francisco Water Transit Authority (WTA) was superseded by the newly created Water Emergency Transit Authority (WETA) as described in Section 1.3.4. As a result, this document differentiates between project-related actions taken by WTA (those taken prior to 2008) and those present and future actions for which WETA has responsibility.

WETA is proposing to implement new ferry service between Berkeley/Albany and the San Francisco Ferry Building (see Figure 1-1 for project location and study area). The ferry service would operate seven days a week, daytime and evenings. The project would include construction of a new ferry terminal, including transit and pedestrian access as well as patron drop-off and parking areas, along the Berkeley/Albany waterfront. Four sites, indicated on Figure 1-1, have been identified for study in the Environmental Impact Statement/Environmental Impact Report (EIS/EIR). They are listed below:

- Berkeley Marina, located at the Berkeley Marina, adjacent to the Hornblower dock;
- Berkeley Fishing Pier, located between the landside end of the Berkeley Fishing Pier and Hs Lordships Restaurant;
- Gilman Street, located immediately north of the foot of Gilman Street, adjacent to the Golden Gate Field stables; and
- Buchanan Street, located on the old pier site at the foot of Buchanan Street adjacent to Golden Gate Fields.

1.1 PURPOSE OF THE PROPOSED PROJECT

The purpose of studying a ferry terminal site along the Berkeley/Albany Waterfront is to enhance mobility and transportation choices of East Bay residents and to respond to the deficiencies in the Transbay transportation network as described below. The Metropolitan Transportation Commission (MTC) is seeking ways to augment Transbay capacity, which is limited by the throughput constraints of the Bay Bridge and Transbay Tube, and vulnerable to emergency situations that obstruct or close the use of these facilities. In addition, the provision of alternative transportation modes is a regional goal to reduce the use of the private automobile for Transbay trips, thereby diminishing emissions and decreasing congestion on the regional roadway system. Similarly, providing San Francisco residents with alternative modes of travel to access state and regional parklands and other destinations in the East Bay would help meet these regional goals.

1.2 NEED FOR THE PROPOSED PROJECT

1.2.1 Current and Future Transbay Roadway Congestion

Between now and 2025, the Bay Area is expected to gain 1.4 million residents and 1.2 million jobs. During this time, downtown San Francisco employment will increase to 346,000 jobs, and remain one of the primary employment centers of the region (San Francisco Planning Department, 2001). The MTC estimates that the Bay Bridge corridor will have substantial growth in the number of daily person trips, increasing from 590,000 to 772,000 in 2025, and in

vehicular traffic (from 300,000 vehicles to 425,000 vehicles per day), (MTC, 2002). This increase will aggravate travel delay along Interstate 80 (I-80) in the project area. The California Department of Transportation's (Caltrans') 2002 Bay Area Freeway Congestion Data indicate that the Eastshore Freeway currently has a daily delay of 24,550 vehicle hours and 49.0 directional miles of congestion, and was ranked number one for vehicle delay in the regional roadway network. By 2025, the Bay Bridge is expected to have 73,400 peak-period vehicle hours of delay, extending morning congestion at the Bay Bridge Toll Plaza from 4 to nearly 5 hours (MTC, 2002). The delays on the Bay Bridge and I-80 affect goods movement, particularly traveling from the Port of Oakland, as well as auto travel.

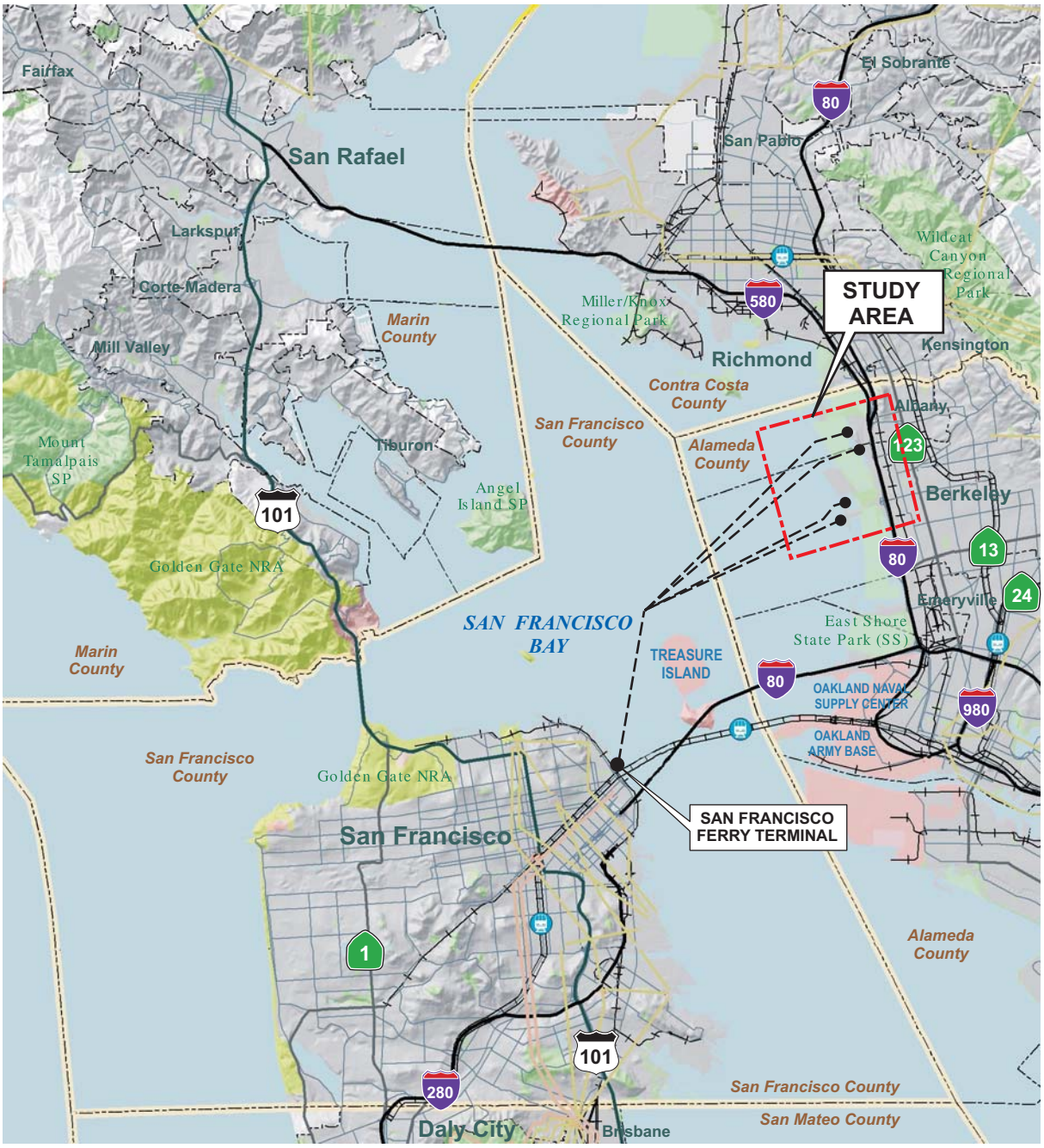
1.2.2 Current and Future Transbay Transit Capacity

The overall mode split for journeys to work into downtown San Francisco was 54 percent transit, 30 percent drive-alone, and 16 percent ride-share (Badiner, 1995). East Bay residents, comprising one-fourth of downtown San Francisco workers, were second only to San Francisco residents in using transit for their downtown commute trips. Fifty-five percent of commute trips to downtown San Francisco were made via transit, which indicates the availability of transit and the willingness of East Bay residents to forego automobiles in favor of transit.

Transit carries approximately 160,700 Bay Area Rapid Transit (BART) patrons, 15,200 Alameda–Contra Costa County Transit District (AC Transit) bus passengers, and 4,000 ferry patrons between the East Bay and San Francisco. Ferry patrons use two operating ferry services—Alameda/ Oakland and Vallejo—to travel between the East Bay and San Francisco. By 2025, BART will carry 254,000 daily riders, AC Transit's Express Bus service will carry 19,800 passengers, and Ferry services will carry 7,060, or 36 percent of Bay Bridge corridor trips. Carpools, carrying 105,000 people, will capture 14 percent of these trips (MTC, 2002). BART serves crossbay destinations very effectively, carrying substantial numbers of passengers. The BART transbay tube currently has capacity for 30 trains per hour—only eight more than BART currently operates during the peak hour. The BART system is forecast to be able to handle demand between now and 2025 (URS, 2003); however, San Francisco station loading times and slow travel times through the Market Street subway affect the capacity of the transbay tube, and will increasingly do so as BART service increases to meet demand. AC Transit and carpools, the other major alternative means of travel across the Bay into San Francisco, are subject to the traffic delays mentioned in the previous section. Installation of high-occupancy vehicle or bus lanes on the Bay Bridge is not currently planned; therefore, crossbay ferry service can supplement existing transbay transit service with a modal alternative that offers less constrained operations.

1.2.3 Disaster Response

Water transit provides a viable alternative for transporting people around the region when unexpected and long-term disruption renders other components of the regional transportation system inoperable. Disastrous events that have disrupted the transportation system have occurred several times during the past 25 years. After the Loma Prieta earthquake damaged the Bay Bridge, water transit service using excursion vessels was established to supplement BART



N

0 1 2 3 4 5 Miles

0 1 2 3 4 5 Kilometers

NAD 1983 UTM Zone 11N

LEGEND

- ● Alternative Berkeley/Albany Terminal Locations
- – – – Potential Berkeley/Albany - San Francisco Ferry Route

GENERAL LOCATION MAP

Berkeley/Albany Ferry Terminal Study

October 2008
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URS

FIGURE 1-1

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service between the East Bay and San Francisco, including temporary routes from Berkeley and Richmond. WETA is currently updating the 1996 *MTC Regional Ferry Contingency Plan* (now called the *Regional Maritime Contingency Plan*) to reflect emergency measures for maritime traffic in addition to ferries. The Plan will also assess current emergency-response assets, develop viable contingencies for a variety of possible emergencies and disasters, and create a workable business resumption plan for the local maritime community (EIP Associates, 2005).

1.2.4 Regional Air Quality Issues

The San Francisco Bay Area's air quality has improved in recent years, largely because of technological improvements in motor vehicles and the development of less polluting fuels. The project study area is within the Bay Area Air Basin (BAAB), which is monitored by the Bay Area Air Quality Management District (BAAQMD). According to the BAAQMD, the BAAB is designated nonattainment for ozone (O_3) with respect to federal and California standards, and non-attainment for particulate matter 10 microns in diameter or smaller (PM_{10}) under California standards. The Programmatic Environmental Impact Report (EIR) found that a regional ferry system would result in a net decrease in nitrous oxide (an ozone precursor), carbon monoxide (CO), and PM_{10}. In addition, new ferryboats are planned to have low-emission engines, reducing carbon dioxide emissions.

1.2.5 Public Access to Eastshore State Park and the Bay Trail

Shoreline parks and trails are being developed along the Berkeley/Albany Waterfront. Two major efforts are under way: the implementation of the Eastshore State Park, and the completion of the Bay Trail along the Eastshore. The Eastshore State Park will ultimately include 1,817 acres of land and water along the shoreline between Emeryville and Richmond, securing more than 5 miles of public access with spectacular views of San Francisco Bay. Additions to the San Francisco Bay Trail within the Eastshore State Park area are now under construction. The Park and Trail are regional resources that are accessed primarily via the existing roadway network. Ferry service from San Francisco could provide expanded access to Eastshore State Park and the Bay Trail without adding to regional vehicle trips.

1.3 PROJECT BACKGROUND

1.3.1 WTA Mission Statement

Senate Bill 428, enacted in October 1999, formed and empowered WTA to plan and operate new and expanded water transit services and related ground transportation access services for the San Francisco Bay Area. WTA's mission was "to build and operate a cost-effective, convenient, and environmentally responsible ferry system that will enhance commuter choices and the Bay Area's public transit system" (URS, 2003). Key service provisions that reinforce the agency's mission include:

- Providing convenient access to and enhanced shuttle/transit connections with the ferry;

- Providing service frequencies and hours of operation that meet demand, focusing on those periods of peak demand, to maximize use of the service in the most cost-effective manner;

- Providing transbay travel times that compete with automobile travel and encourage single occupant drivers to use alternative modes of transportation, including ferries; and

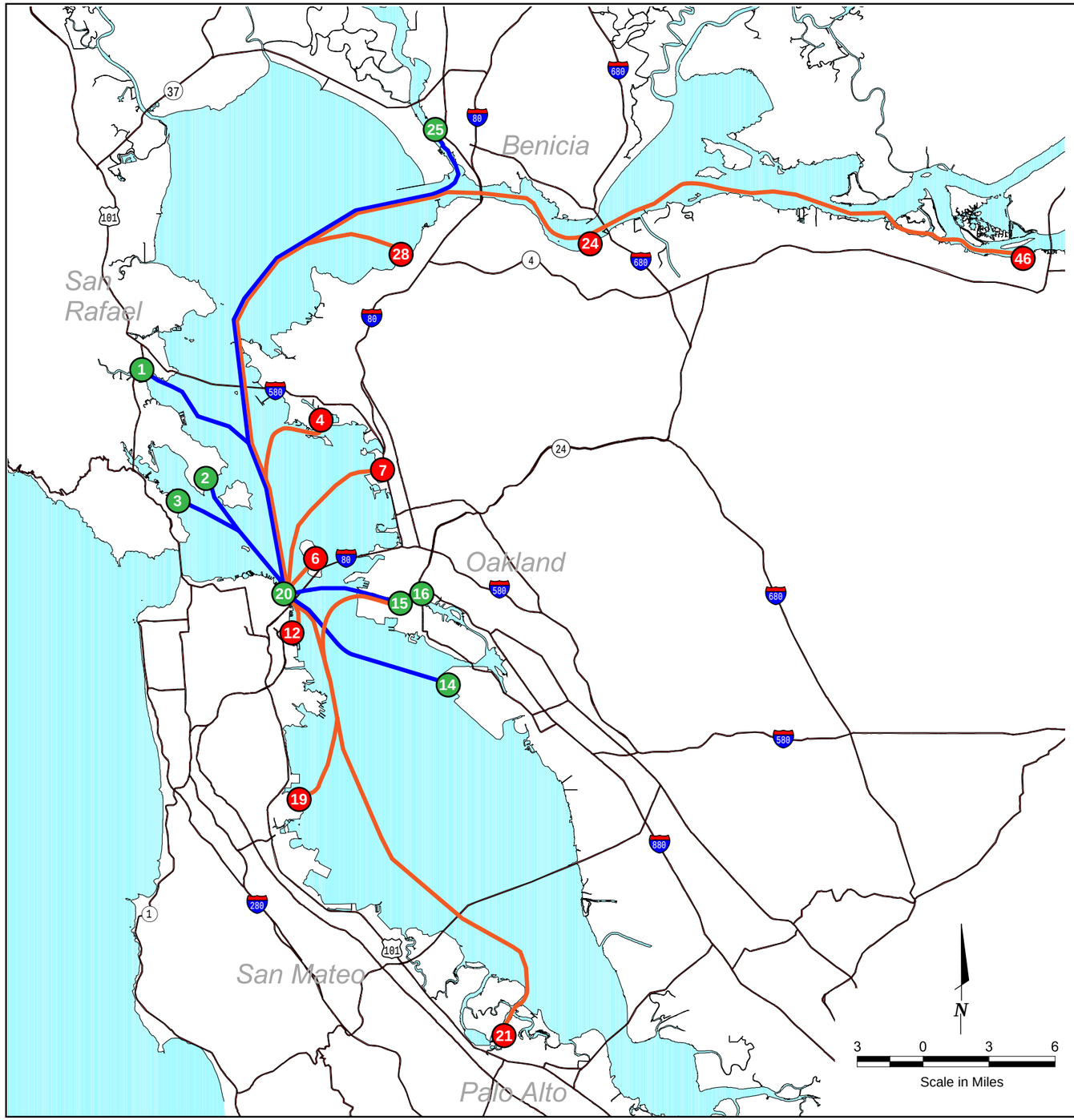
- Using vessels designed to reduce emissions and that can accommodate bicycle riders.

1.3.2 WTA Implementation and Operations Plan

In July 2003, WTA submitted the Implementation and Operations Plan (IOP) to the State's Governor and Legislature, in accordance with WTA's legislative mandate. The IOP presented a strategy to improve Bay Area transit service with an environmentally friendly ferry system. The IOP proposed nine new regional ferry terminals to supplement existing ferry service, as indicated on Figure 1-2. Existing and proposed ferry service frequencies are presented in Table 1-1. The IOP set priorities for service implementation starting with the South San Francisco to Alameda route, followed by the Berkeley/Albany to San Francisco route. The South San Francisco Ferry Terminal is expected to be operational in late 2009. A Programmatic EIR was prepared for the regional ferry service expansion defined in the IOP (this document is available on the WETA website: www.watertransit.org). The EIR addressed the potential environmental impacts and associated mitigation measures resulting from the expansion of ferry service.

The EIR incorporated results from the regional travel demand modeling conducted by Cambridge Systematics (CSI) for WTA in 2002. The forecasts were updated in 2005. Of multiple scenarios considered, Alternative 17 was selected as the basis for determining ferry rider patronage systemwide. The model output included the mode of access to reach the ferry terminal and the maximum parking demand expected at the new ferry terminal sites. Based on the modeling results, the EIR concluded that the new regional ferries would serve approximately 9.6 million riders annually and reduce regional vehicle miles traveled by 142,000 per day. The model results as applied to the Berkeley/Albany ferry service are described in Section 2.4.1.

The IOP was given regional political and financial support through the approval of Regional Measure (RM)-2 by voters on March 2, 2004. RM-2 provided earmarked funds generated by a $1 increase, effective July 1, 2004, in tolls on the region's seven state-owned toll bridges to implement the Regional Traffic Relief Plan, a comprehensive strategy for addressing congestion in the transbay bridge corridors and enhancing the convenience and reliability of the Bay Area's public transit system. To initiate the new regional ferry service, RM-2 allocated $12 million for the purchase of two vessels, and $3.2 million per year in operating funds to implement the Berkeley/Albany to San Francisco ferry service. The capital funds could be used for terminal improvements if WTA found alternative funding sources for vessel acquisition. RM-2 stipulated



LEGEND

- Primary Roads
- Proposed Ferry Terminal
- Existing Ferry Terminal
- Existing Ferry Routes
- Potential Ferry Routes

1 Larkspur
Larkspur - SF Ferry Building

2 Tiburon
Tiburon - SF Ferry Building

3 Sausalito
Sausalito - SF Ferry Building

4 Richmond
Richmond - SF Ferry Building

6 Treasure Island
Treasure Island - SF Ferry Building

7 Berkeley/Albany
Berkeley/Albany
- SF Ferry Building

12 Mission Bay
Mission Bay - SF Ferry Building

14 Alameda/Harbor Bay Isle
Harbor Bay Isle - SF Ferry Building

15 Alameda Main St.
Alameda Main St.
- Jack London Square
Alameda Main St.
- SF Ferry Building

16 Jack London Square
Jack London Sq. - SF
- SF Ferry Building
Jack London Sq.
- Alameda Main St.

19 Oyster Point (SSF)
Oyster Point - SF Ferry Building

20 San Francisco Ferry Building

21 Redwood City
Redwood City - SF Ferry Building

24 Martinez
Martinez - SF Ferry Building

25 Vallejo/Mare Island
Vallejo - SF Ferry Building

28 Hercules/Rodeo
Hercules/Rodeo - SF Ferry Building

46 Pittsburg/Antioch
Pittsburg/Antioch - SF Ferry Building

EXISTING FERRY SERVICE AND PROPOSED IOP ROUTE STRUCTURE

Berkeley/Albany
Ferry Terminal Study

October 2008
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URS

FIGURE 1-2

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Table 1-1
IOP Routes and Frequencies

Corridor/Ferry Route		Peak/ Off-Peak Headway (min)
Existing System	Oakland to San Francisco	30/60
	Alameda Point to San Francisco	30/60
	Harbor Bay to San Francisco	60/0
	Vallejo to San Francisco	30/60
	Sausalito to San Francisco	30/60
	Larkspur to San Francisco	20/60
	Tiburon to San Francisco	30/60
IOP Proposed Routes	Berkeley/Albany to San Francisco	30/60
	Richmond to San Francisco	30/60
	San Francisco to Treasure Island	30/30
	Antioch/Pittsburg to Martinez to San Francisco	60/200
	Hercules/Rodeo to San Francisco	60/240
	South San Francisco (Oyster Pt.) to Alameda to San Francisco	30/60
	Redwood City to San Francisco	60/60

for that Measure 2 capital and operating allocations would be transferred to another site in the East Bay if WTA did not have an entitled terminal site within the Berkeley/Albany catchment area by 2010.

1.3.3 Berkeley/Albany Ferry Project Phase 1 Alternatives Analysis

The IOP established the Berkeley/Albany ferry terminal and new service as the second ferry expansion project. The feasibility of operating ferry service between the Berkeley/Albany waterfront and San Francisco was studied in July 2006. WTA prepared an Alternatives Analysis (URS, 2006), which analyzed technical information related to the waterside and landside characteristics surrounding each of five potential ferry terminal sites. In addition, potential issues associated with each site were identified, including existing facilities and new construction, potential impacts to biology and habitat, shoreline erosion, site accessibility and parking, and community and political support. The emphasis for the analysis was placed on

evaluating differences between sites to allow decision makers to determine the feasibility of the sites and to select a preferred alternative or multiple alternatives that will be carried forward for environmental analysis. The participation of public agencies and community stakeholders in the process is described in Chapter 7 and further documented in Appendices B, C, and D.

Based on the results of the analysis, WTA eliminated one site located in the sheltered area immediately to the east of Hs Lordships from further evaluation for the following reasons:

- Waterfowl tend to congregate in the sheltered area;
- Shorebird Park and Nature Center is located near the site and dredging and wake wash could disturb class activities;
- The area is used by beginner windsurfers and sailing classes; and
- The location is located near a patch of eelgrass and the basin has high potential as eelgrass habitat.

On July 27, 2006, WTA approved a motion to carry forward the remaining four sites (see Figure 1-1) for further examination and analysis in the EIS/EIR. The Federal Transit Administration (FTA) was designated the federal lead agency and WTA was designated the local lead agency for the joint National Environmental Policy Act (NEPA)/California Environmental Quality Act (CEQA) document.

1.3.4 Reorganization of WTA

In November 2007, the State Legislature reconstituted WTA and modified its mission. The new organization, called WETA, became responsible for planning the mobilization of ferry service to respond to emergency circumstances that prevent or reduce use of the Bay Bridge or Transbay Tube, and for expansion of regional ferry service as described in the IOP.

1.3.5 Project Objectives

The objectives for the Berkeley/Albany Ferry Project include:

- Providing an alternative transbay public transportation mode between the East Bay and San Francisco that is convenient and reliable for commuters, midday riders, recreation users, and tourists;

- Carrying out the plans established in the regional ferry system IOP and the provisions of RM-2;

- Providing ferry terminal facilities in the East Bay that conform with local and regional plans and policies;

- Minimizing ferry implementation and operation impacts on the Bay shoreline, water quality, water life, and recreational activities;

- Providing convenient access to the terminal site while minimizing traffic and circulation impacts; and

- Developing community and agency support.

1.4 PURPOSE OF EIS/EIR DOCUMENT

The EIS/EIR describes, analyzes, and compares the potential environmental impacts of implementing the alternatives, and provides additional information on the methodologies and assumptions used for the analyses. It also proposes mitigation measures that can minimize the effect of adverse impacts. The information is used by WETA Board to select the Locally Preferred Alternative (LPA).

1.4.1 Agency Participation and Public Outreach for the EIS/EIR

WTA held several stakeholder meetings in 2006 to gather local, state, and federal agency input as well as feedback from local organization and groups that have an interest in the project. The input was used to eliminate one of the five terminal sites under consideration by WTA during the Phase 1 Feasibility Study. The Phase 2 Environmental Process began with the initiation of Scoping, a 45-day public comment period that is used to identify issues to be examined in the EIS/EIR. The Scoping period and public meetings accompanying Scoping were announced by publishing a Notice of Intent (NOI) in the Federal Register on February 12, 2007 (Appendix B). To meet CEQA requirements, a Notice of Preparation (NOP) containing the Scoping information was submitted to the State Clearinghouse and distributed to appropriate state and local agencies. In addition, WTA sent out Letters of Participation to state and federal agencies to encourage their participation in the Environmental Process. (The list of invited agencies is presented in Appendix C.) The agencies were also notified of a special daytime Scoping meeting to receive their input regarding issues that need to be addressed in the EIS/EIR. Ongoing consultation with interested agencies has occurred. More information about agency participation and consultation is provided in Chapter 7.

WTA hired Davis & Associates to conduct a public information program that included the following activities:

- Draft a press release announcing project details;
- Produce informational materials for public and agency understanding of the purpose, need, and description of the project;
- Produce boards and slides that convey project location, schedule, and integration with regional ferry service;
- Develop targeted media list and support WTA with the distribution of the press materials;
- Distribute list to non-media outlets, including neighborhood association newsletters, Chamber publications, and other community-based outlets; and
- Arrange and facilitate public meetings as directed by WTA.

A second series of public meetings occurs after the Draft Environmental Impact Statement (EIS) is published. Agencies and the general public have the opportunity to review and comment on the Draft EIS during a formal comment period, which is required for a minimum of 45 days. The public comment period begins upon publication of a Notice of Availability (NOA) for the Draft EIS in the Federal Register. During this period, public hearings are held and the Draft EIS/EIR is distributed. Summary information of the technical analysis presented in the Draft EIS/EIR is produced to facilitate public understanding of the environmental impacts addressed and the mitigation measures proposed. At the end of the comment period, the WETA Board reviews the information presented in the Draft EIS/EIR, as well as the comments received on the Draft EIS/EIR, to select the LPA.

Public comments are recorded and categorized to prepare responses to the comments, which are then incorporated into the Final EIS/EIR. In addition to revisions in the text that correspond to the comments received, the Final EIS/EIR identifies the lead agency's preferred alternative and the reasons for selecting this alternative. The release of the Final EIS/EIR is announced by publishing a NOA in the Federal Register. Once the Final EIS is published, a minimum 30-day waiting period is required before a Record of Decision can be issued. A Record of Decision notifies the public of the alternative that the agency has selected to be carried forward for more detailed engineering and design and the rationale for that decision. The EIS/EIR analysis is considered as part of the decision-making process, which may also include consideration of other decision factors such as costs, technical feasibility, agency statutory mission, project purpose and need, and study goals and objectives.

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

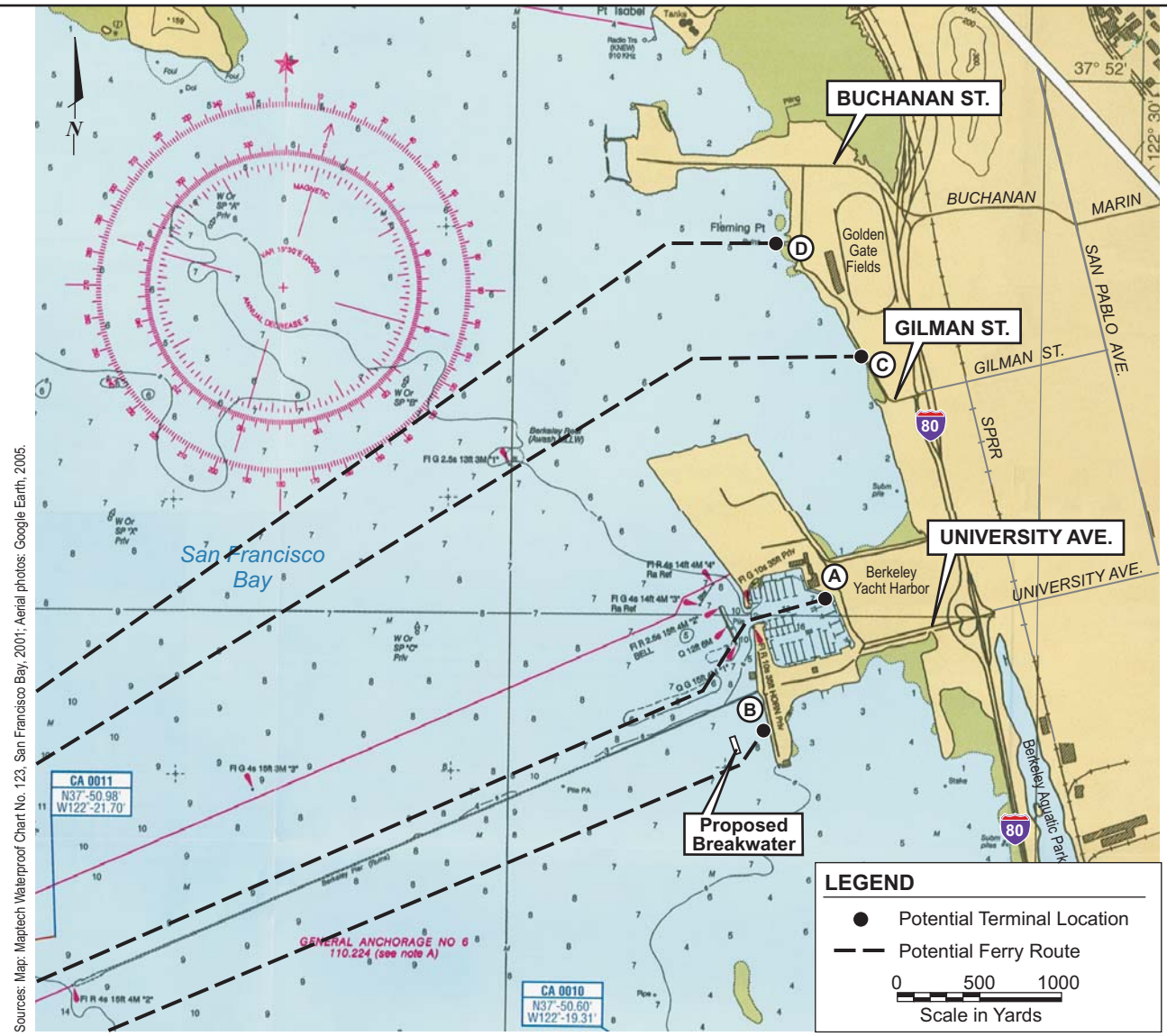
Corridor/Ferry Route	Operator(s)
San Francisco – Alameda (Harbor Bay Island)	Alameda Harbor Bay Ferry
San Francisco – Oakland – Alameda (Main Street)	Blue and Gold Fleet
San Francisco – Angel Island	Blue and Gold Fleet
San Francisco – Larkspur	Golden Gate Bridge, Highway and Transportation District
San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

Berkeley/Albany Ferry Terminal Study

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FIGURE 2-1

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- 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

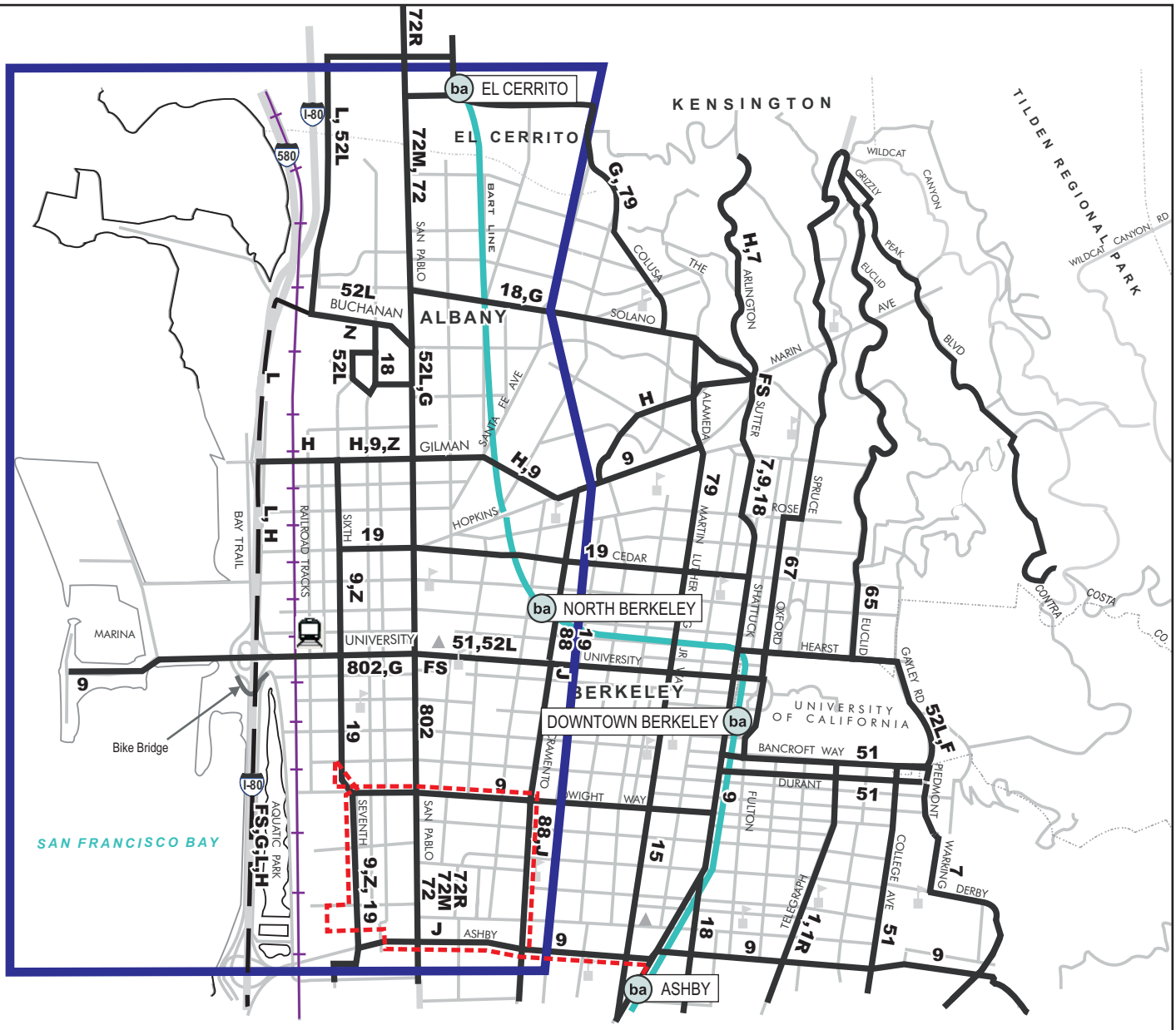
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FIGURE 2-2

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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

9/26/08 hk ..\WTA\EIS EIR 2008\F2-3_local transit.cdr

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:

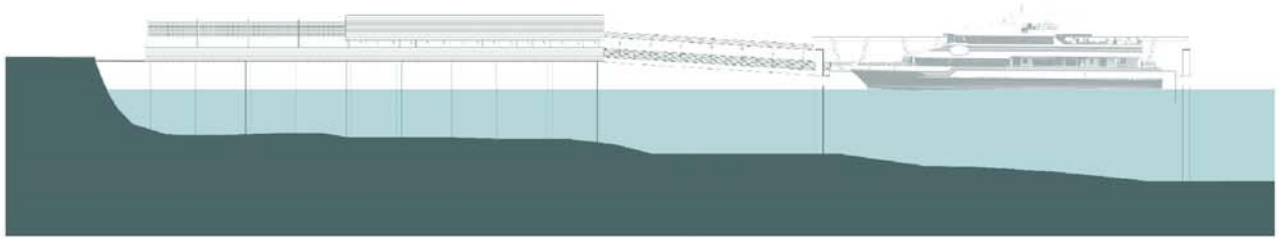
- A pier for berthing two vessels and for loading and unloading ferry patrons;
- A covered waiting area containing ticket vending machines and passenger amenities;
- Walkways and pedestrian access areas;
- Bus or shuttle boarding and car drop-off zones;
- A lighted parking area for approximately 400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

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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.

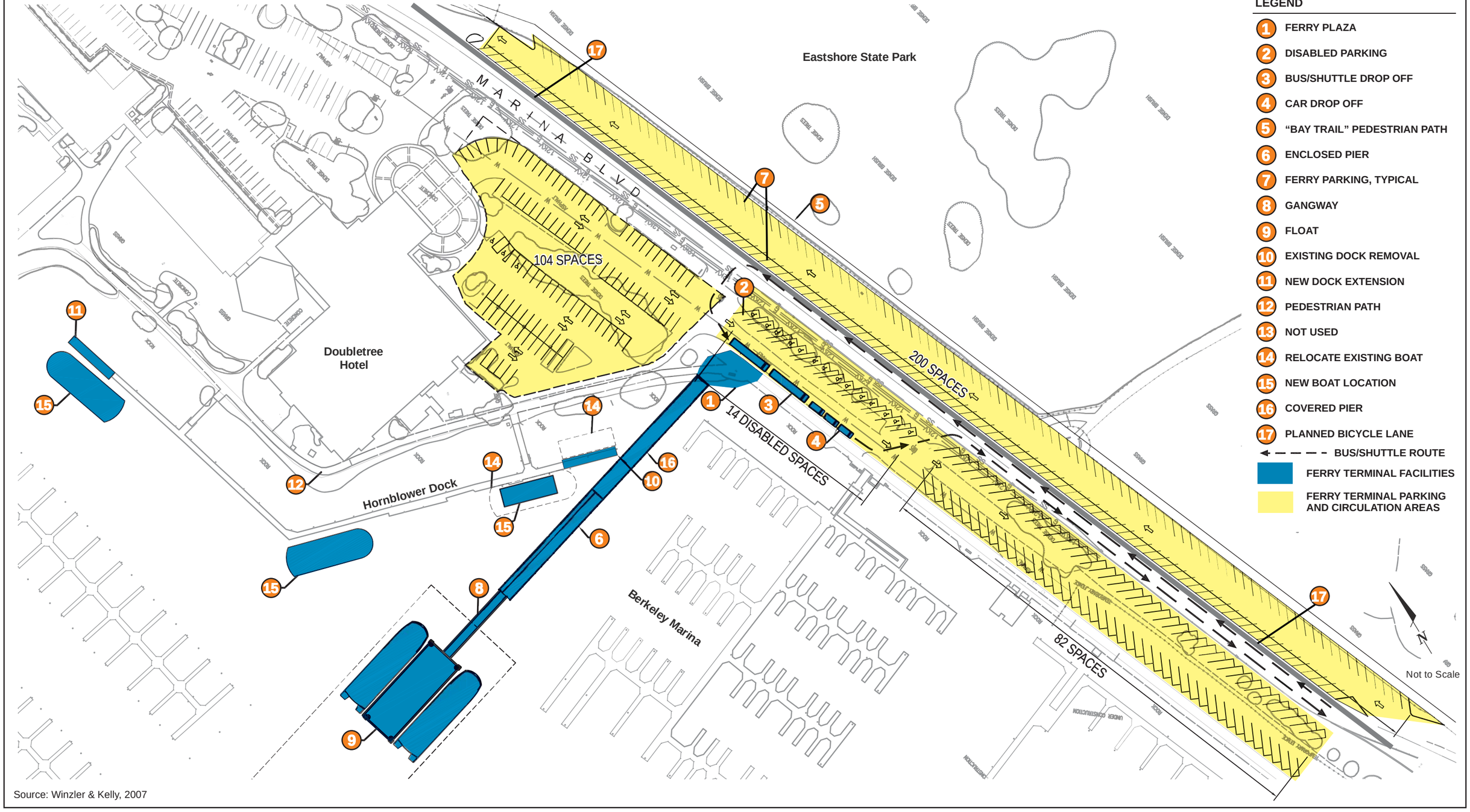
The pier would abut a landside plaza along Marina Boulevard at the southern edge of the current parking area for the Doubletree Hotel. Along the ferry plaza curb would be space for two buses or shuttles and three cars to drop off and pick up passengers. A one-way designated circulation system would allow 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

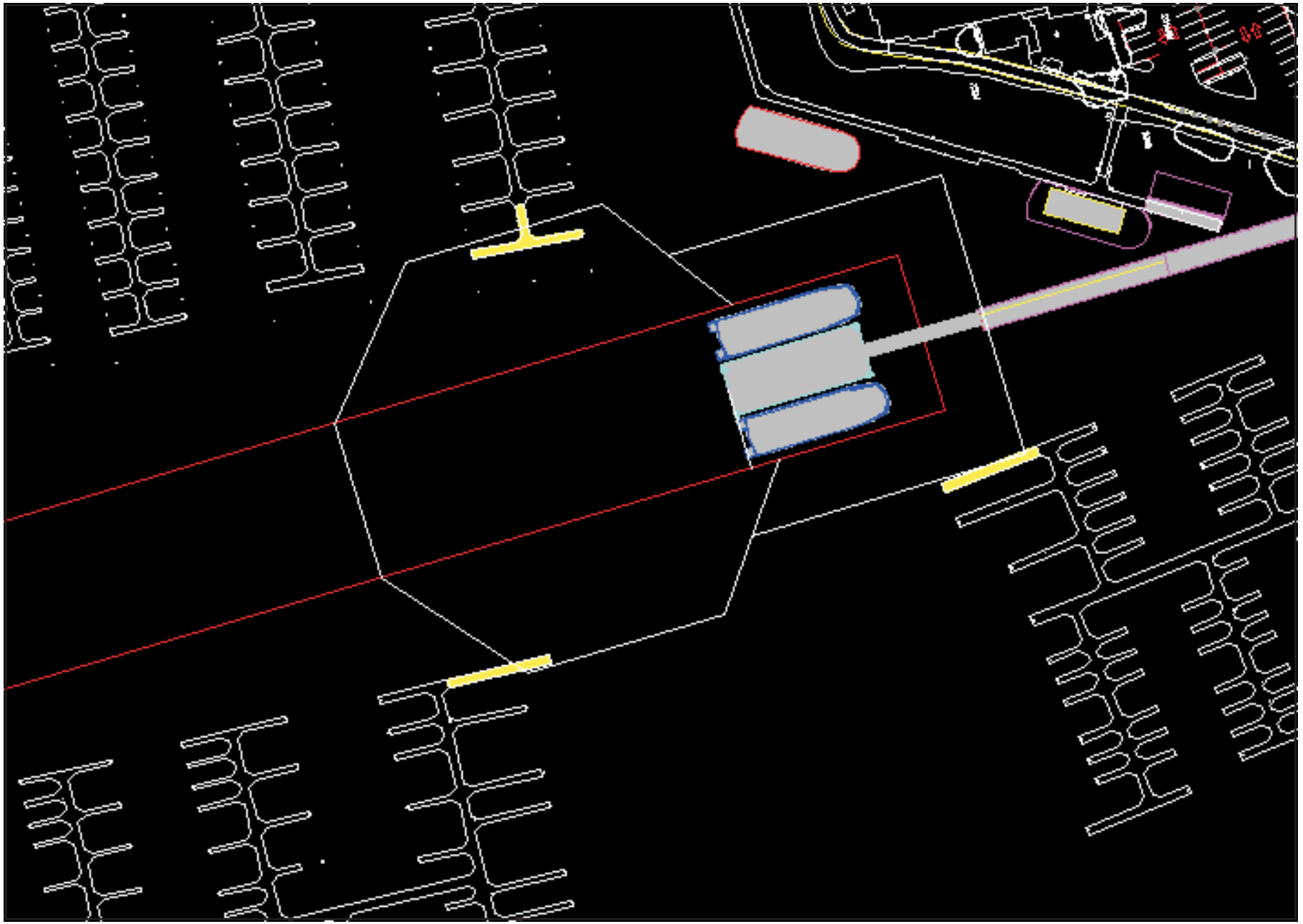
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FIGURE 2-8

9/29/08 hk ..\WTA\EIS EIR 2008\F2-8_A_berkeley marina_2.ai



LEGEND

- Slip Removed
- Navigation Channel
- Boat Turnaround Area

DISPLACED MARINA BOAT SLIPS

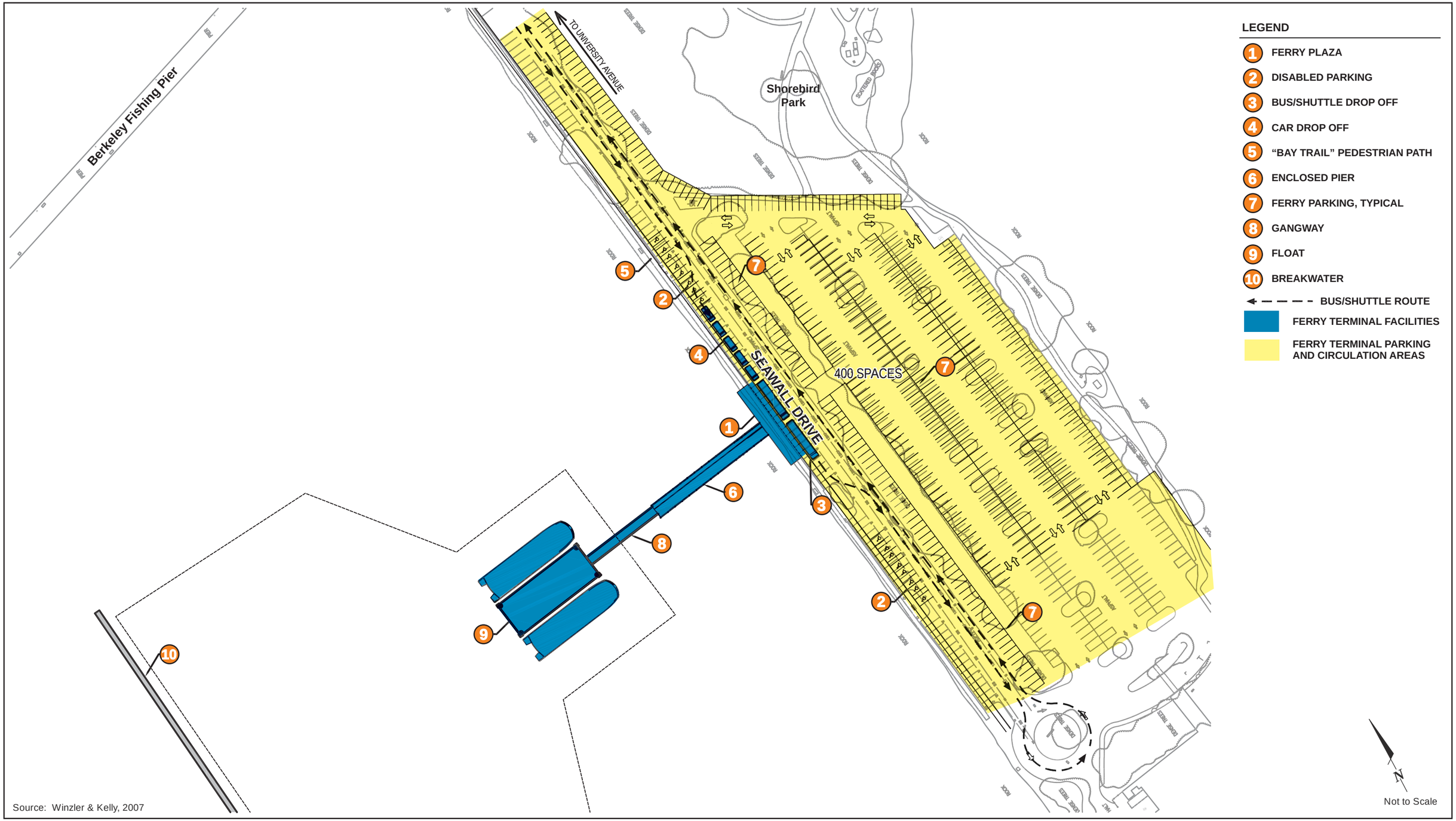
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FIGURE 2-9

9/30/08 hk..\WTA\EIS EIR 2008\F2-9_boat slips.cdr



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

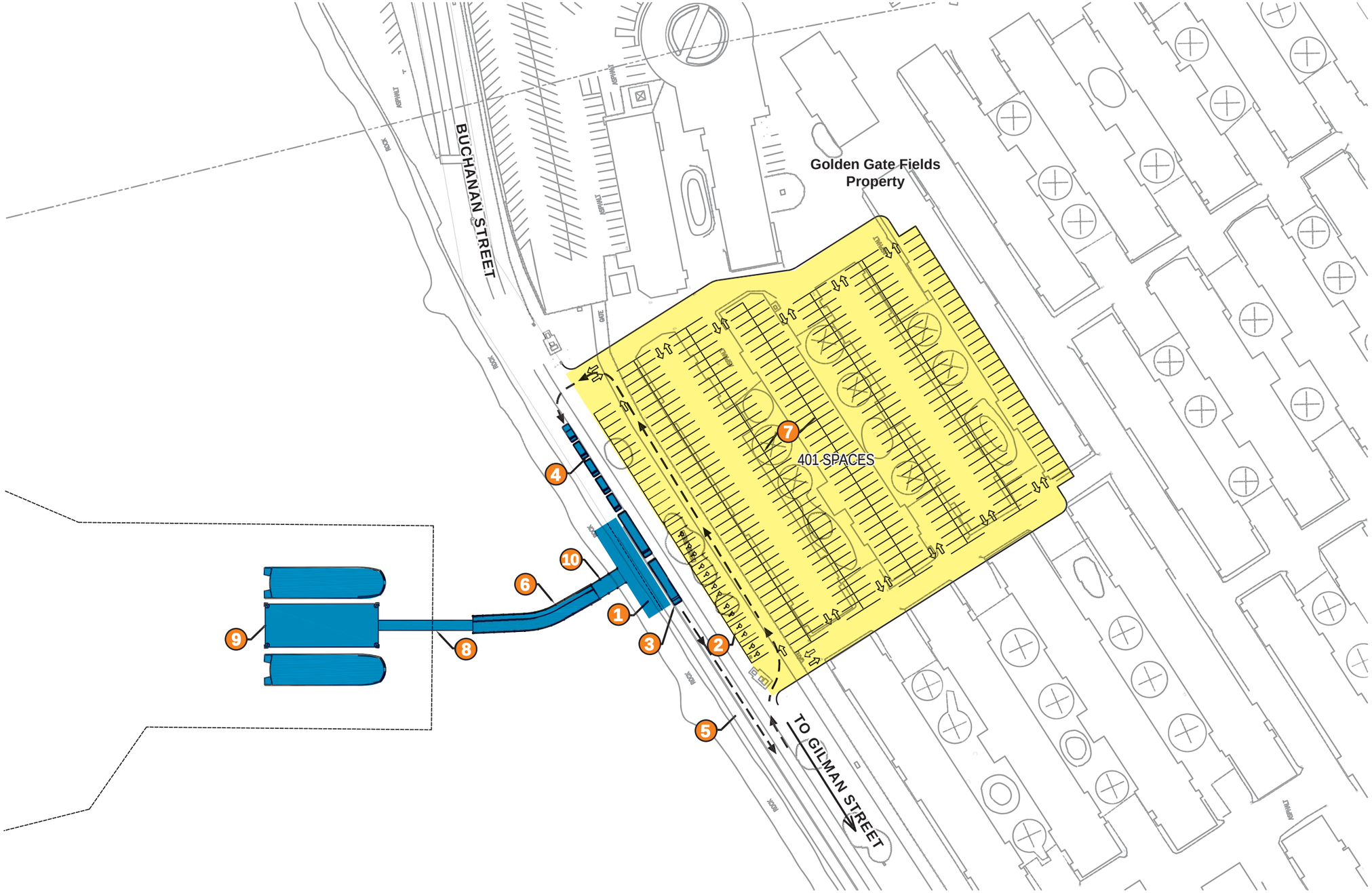
LEGEND

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

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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

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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

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FIGURE 2-13

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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.

3.0 AFFECTED ENVIRONMENT

This chapter presents the existing environmental conditions within the project study area and, if appropriate, beyond the study area boundaries, identified in Figure 1-1. The information relates to both landside and waterside conditions along the Berkeley/Albany waterfront that could be affected by project implementation. The information presented is based on technical memoranda prepared for each of the environmental topics identified below. Information included in this chapter is excerpted from the technical memoranda, which are kept on file at the WETA office at Pier 9 in San Francisco.

3.1 TRANSPORTATION AND CIRCULATION

This section describes existing transit service within an expanded study area ("transit service study area") bounded by El Cerrito Plaza BART station (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, extending northward generally from the intersection of Sacramento and Hopkins Streets to Santa Fe and Solano Avenues, then following Santa Fe Avenue north to Fairmount Avenue. Local and regional transit providers serve the transit service study area. AC Transit provides local and transbay bus service while BART and Amtrak provide regional rail transit service to this study area. In addition, the WBS provides shuttle service between the Ashby BART station and the West Berkeley employment centers.

Existing traffic and parking conditions within the study area, particularly access roads and potential parking areas adjacent to the alternative ferry terminal sites, are also described. Existing traffic volumes and Level of Service (LOS) at key intersections within the study area are provided.

3.1.1 Transit Service

Direct transit service or the stop location nearest to each ferry terminal location is identified in Table 3-1. None of the proposed sites are currently directly served by transit (service within 200 feet).

A map illustrating existing local transit service within the transit service area is shown in Figure 3-1.

3.1.2 AC Transit Services

AC Transit Routes in the Transit Service Study Area. AC Transit is the main provider of local and transbay bus services within the project study area and the transit service study area. AC Transit provides service to 13 cities and adjacent unincorporated areas in Alameda and Contra Costa counties. The transit service study area includes 15 confirmed bus routes. Local bus lines that serve the transit service study area include: 9, 18, 19, 51, 52, 52L, 72, 72M, 72R, and 88. The 802 Owl also provides all-night service, including service to the Berkeley Amtrak

Table 3-1
Transit Service Stop Locations Nearest to Proposed Ferry Terminal Site Alternatives

Ferry Terminal Site Alternatives	Stop Locations Nearest to the Project Site				
	AC Transit			BART	West Berkeley Shuttle
	Direct Service	Nearest Bus Lines	Other Bus Lines in Vicinity		
A – Berkeley Marina	none	9	19, 51, G, Z	North Berkeley	6th and Dwight
B – Berkeley Fishing Pier	none	9	19, 51, G, Z	North Berkeley	6th and Dwight
C – Gilman Street	none	9, H, Z	52, 52L	El Cerrito Plaza	--
D – Buchanan Street	none	18, Z	52, 52L	El Cerrito Plaza	--

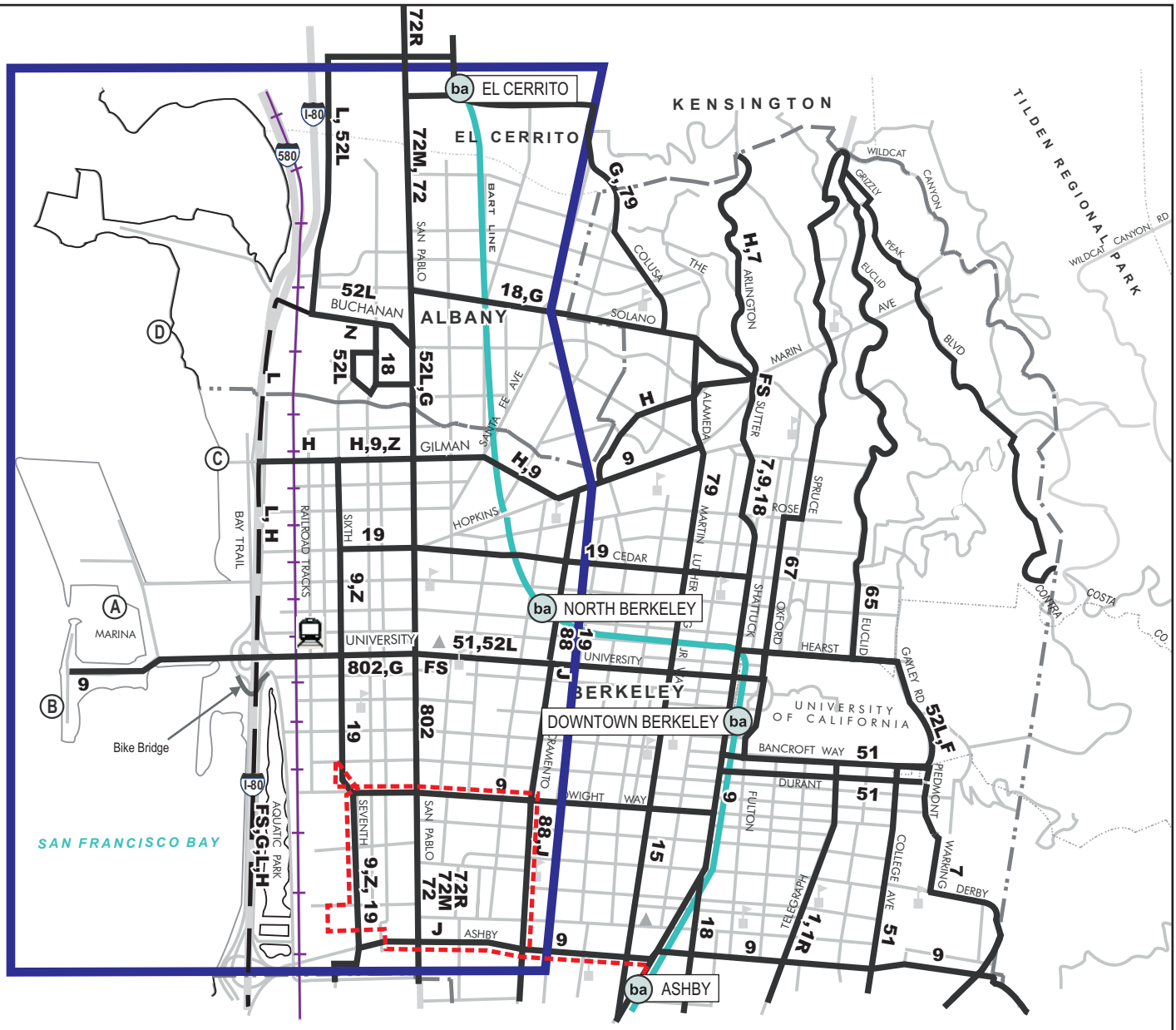
Note:
Based on existing route information obtained from AC Transit from March – June 2007.

Station, located at University Avenue and 3rd Street from 1 a.m. to 5 a.m. During the weekday commute hours, AC Transit offers regional transbay bus service between the San Francisco Transbay Terminal and the transit service study area. Four transbay lines that serve the area include the G, H, J, and Z. AC Transit changed several bus routes within the study area on June 3, 2007.

Provision and Usage of Transit Service. Table 3-2 presents the route structure, span of service, headways, schedule adherence, and vehicle type and capacity for the 15 AC Transit lines in the transit service study area.

AC Transit Service Standards. AC Transit maintains a set of service standards known as "Policy 550" to establish guidelines for route and service design. The standards establish district policy for headways, travel times, load factors, service span (hours of service), and network design. AC Transit's routes are assessed based on these measures, which are then used for decision making as to schedule adjustments, route changes, equipment assignments, and running time adjustments.

For this project, the load factor standards will be important in assessing any future impact from transferring ferry riders. AC Transit establishes maximum acceptable load factors for different types of routes, usually 25 percent over seated capacity. None of the transit routes within the transit service study area currently carry loads on a daily basis that exceed, or even approach AC Transit's maximum standard.



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
- (A) Berkeley Marina Alternative
- (B) Berkeley Fishing Pier Alternative
- (C) Gilman Street Alternative
- (D) Buchanan Street Alternative

Source:
City of Berkeley, Geographic Information Systems.

LOCAL TRANSIT NETWORK AS OF JUNE 3, 2007

Berkeley/Albany Ferry Terminal Study

October 2008
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FIGURE 3-1

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Table 3-2
AC Transit Service by Route

			Span of Service			Headways			Schedule Adherence* (%) Weekday			Saturday			Sunday			Vehicle		
Line	Direction	Endpoint	Weekday	Weekend	Weekday Peak	Midday	Evening	Saturday	Sunday	Early**	On-time	Late	Early**	On-time	Late	Early**	On-time	Late	Type	Capacity
9	EB	Ashby Avenue (Ashby Ave and Claremont Ave)	6:27 a.m. – 9:20 p.m.	7:00 a.m. – 8:51 p.m.	20-30	20-30	30	30	30	11.5	69.4	19.1	3.2	67.7	29	11	60.3	28.6	30 foot	39
9	WB	Berkeley Marina (Seawall Dr and University Ave)	6:20 p.m. – 9:05 p.m.	7:00 a.m. – 8:51 p.m.	20-30	20-30	30	30	30	11.5	69.4	19.1	3.2	67.7	29	11	60.3	28.6	30 foot	39
19	EB	Fruitvale BART	6:06 a.m. – 10:21 p.m.	6:06 a.m. – 10:21 p.m.	30	30	30	30	30	3.5	72.6	23.9	8.5	65.5	26	5.7	78.6	15.6	30 foot	39
19	WB	North Berkeley BART	6:38 a.m. – 10:15 p.m.	6:38 a.m. – 10:15 p.m.	30	30	30	30	30	3.5	72.6	23.9	8.5	65.5	26	5.7	78.6	15.6	30 foot	39
43	NB	El Cerrito (San Pablo Ave and Marin Ave)	5:17 a.m. – 12:24 a.m.	5:40 a.m. – 12:20 a.m.	15	15	20-30	20-30	20-30	7.3	71.2	21.6	2.7	72.2	25.2	5.9	84.1	9.9	40 foot – urban coach	48
43	SB	Eastmont Transit Center (Foothill Blvd and Eastmont)	5:01 a.m. – 11:56 p.m.	5:43 p.m. – 11:57 p.m.	15	15	20-30	20-30	20-30	7.3	71.2	21.6	2.7	72.2	25.2	5.9	84.1	9.9	40 foot – urban coach	48
51	NB	Berkeley (University Ave and 3rd St)	4:54 a.m. – 12:41 a.m.	4:58 a.m. – 12:41 a.m.	8	10	15-20	15-60	20-60	5	67.3	27.7	4.5	60.8	34.6	8.4	74	17.6	40 foot – urban coach	48
51	SB	Alameda (Blanding Ave and Broadway)	4:59 a.m. – 12:28 a.m.	4:59 a.m. – 12:28 a.m.	8	10	15-20	15-60	20-60	5	67.3	27.7	4.5	60.8	34.6	8.4	74	17.6	40 foot – urban coach	48
52	NB	UC Village (956 Ohlone Drive)	8:57 a.m. – 6:22 p.m.	—	30	—	—	—	—	14.5	66	19.6	—	—	—	—	—	—	Discontinued, 40 foot?	48
52	SB	UC Campus (Bancroft Way and Telegraph Ave)	8:24 a.m. – 5:49 p.m.	—	30	—	—	—	—	14.5	66	19.6	—	—	—	—	—	—	Discontinued, 40 foot?	48
52L	NB	UC Village (956 Ohlone Drive)	7:49 a.m. – 12:17 a.m.	8:34 a.m. – 12:02 a.m.	15	30	30	30	30	14.5	66	19.6	9.6	74.7	15.6	13.5	71.3	15.2	40 foot	48
52L	SB	UC Campus (Bancroft Way and Telegraph Ave)	7:02 a.m. – 11:48 p.m.	8:02 a.m. – 12:03 a.m.	15	30	30	30	30	14.5	66	19.6	9.6	74.7	15.6	13.5	71.3	15.2	40 foot	48
72	NB	Richmond (Hilltop Mall and Hilltop Dr)	4:59 a.m. – 12:57 a.m.	5:00 a.m. – 12:50 a.m.	30	30	36	30-36	30-36	37.8	43.4	18.8	33.4	38	28.5	30.2	51.7	18.1	60 foot – articulated	60
72	SB	Oakland Amtrak (2nd St and Alice St)	3:40 a.m. – 12:39 a.m.	3:40 a.m. – 12:55 a.m.	30	30	36	30-36	30-36	37.8	43.4	18.8	33.4	38	28.5	30.2	51.7	18.1	60 foot – articulated	60
72M	NB	Richmond (Tewksbury Ave and Castro St)	6:03 a.m. – 12:28 a.m.	6:20 a.m. – 12:16 a.m.	30	30	30-60	30-60	30-60	37.8	43.4	18.8	33.4	38	28.5	30.2	51.7	18.1	60 foot – articulated	60
72M	SB	Oakland Amtrak (2nd St and Alice St)	4:45 a.m. – 12:19 a.m.	5:01 a.m. – 12:30 a.m.	30	30	30-60	30-60	30-60	37.8	43.4	18.8	33.4	38	28.5	30.2	51.7	18.1	60 foot – articulated	60
72R	NB	Contra Costa College	6:00 a.m. – 8:12 p.m.	—	12	12	—	—	—	25.5	45.1	29.3	—	—	—	—	—	—	40 foot – urban coach	48

AC Transit Fleet Information		
Vehicle Type	**Capacity**	**Capacity Breakdown**
30 foot	39	29 seated, 10 standees
40 foot – Local Service /urban coach	48	32 seated, 16 standees
40 foot – Transbay Service /urban coach	32	32 seated, no standees
45 foot – MCI	57	57 seated, no standees
60 foot – articulated	60	40 seated, 20 standees

Source: Bruzzone, 2007. AC Transit; AC Transit website (www.actransit.org)

Table 3-2 (Continued)
AC Transit Service by Route

									Schedule Adherence* (%)											
			Span of Service			Headways			Weekday			Saturday			Sunday			Vehicle		
Line	Direction	Endpoint	Weekday	Weekend	Weekday Peak	Midday	Evening	Saturday	Sunday	Early**	On-time	Late	Early**	On-time	Late	Early**	On-time	Late	Type	Capacity
72R	SB	Jack London Square (2nd St and Clay St)	6:00 a.m. – 8:12 p.m.	—	12	12	—	—	—	25.5	45.1	29.3	—	—	—	—	—	—	40 foot – urban coach	48
88	NB	North Berkeley BART	5:29 a.m. – 12:24 a.m.	5:29 a.m. – 12:22 a.m.	20	20	20	20	20	5.4	72.1	22.5	3.6	84	12.3	5.7	80.9	13.5	30 foot	39
88	SB	Lake Merritt BART (Oak St and 8th St)	5:30 a.m. – 12:08 a.m.	5:30 a.m. – 12:23 a.m.	20	20	20	20	20	5.4	72.1	22.5	3.6	84	12.3	5.7	80.9	13.5	30 foot	39
802	NB	Berkeley (University Ave and 3rd St)	12:35 a.m. – 4:58 a.m.	12:35 a.m. – 4:58 a.m.	—	—	60	60	60	12.2	75.8	12	6.6	73.7	19.7	11	77.7	11.3	40 foot	48
802	SB	12th Street BART (Broadway and 14th St)	12:07 a.m. – 5:28 a.m.	12:07 a.m. – 5:28 a.m.	—	—	60	60	60	12.2	75.8	12	6.6	73.7	19.7	11	77.7	11.3	40 foot	48
G **	EB	El Cerrito (Potrero Ave and Richmond St)	3:40 p.m. – 8:00 p.m.	—	30-60	—	—	—	—	41.2	39.9	18.9	—	—	—	—	—	—	45 foot – MCI	57
G **	WB	San Francisco Transbay Terminal	5:31 a.m. – 8:55 a.m.	—	30-60	—	—	—	—	41.2	39.9	18.9	—	—	—	—	—	—	45 foot – MCI	57
H **	EB	El Cerrito (Barrett Ave and San Pablo Ave)	4:10 p.m. – 9:00 p.m.	—	20-30	—	—	—	—	50.3	37.3	12.4	—	—	—	—	—	—	45 foot – MCI	57
H **	WB	San Francisco Transbay Terminal	5:55 a.m. – 9:00 a.m.	—	20-30	—	—	—	—	50.3	37.3	12.4	—	—	—	—	—	—	45 foot – MCI	57
J **	EB	North Berkeley BART (Sacramento St and University Ave)	4:00 p.m. – 8:41 p.m.	—	20-30	—	—	—	—	48.4	44.6	7	—	—	—	—	—	—	40 foot	32
J **	WB	San Francisco Transbay Terminal	6:02 a.m. – 9:15 a.m.	—	20-30	—	—	—	—	48.4	44.6	7	—	—	—	—	—	—	40 foot	32
Z **	EB	Albany (Buchanan St and Pierce St)	6:55 a.m. – 9:08 a.m.	—	20	—	—	—	—	45	36.4	18.6	—	—	—	—	—	—	45 foot – MCI	57
Z **	WB	San Francisco Transbay Terminal	4:30 p.m. – 6:52 p.m.	—	20	—	—	—	—	45	36.4	18.6	—	—	—	—	—	—	45 foot – MCI	57

Based on existing route information obtained from March – April 2007.

* Schedule adherence data was collected by AC Transit from June 2006 to March 2007. The data presented may not represent a 100% sample of all scheduled trips.

Instead, the information presented reflects only information that was available for collection during the collection period.

** AC Transit policy for transbay services permits peak direction trips to arrive early at peak direction timepoints.

Future Service Changes

AC Transit is scheduled to undergo a service change on June 3, 2007. Proposed service changes include:

– A variant of Line 19 to Downtown Berkeley (which will replace Line 52)

– The elimination of Line 52

– The extension of Line 52L to El Cerrito Del Norte BART

– The elimination of Line 43 (with replacement by Line 18)

3.1.3 West Berkeley Shuttle

The WBS is the only shuttle service that operates in close proximity to the proposed ferry terminal sites. The WBS is a service of the Berkeley TMA and connects the West Berkeley employment centers with the Ashby BART station. The shuttle runs from 5:40 to 9:06 a.m. and 3:00 to 6:17 p.m. The nearest shuttle stop is located at 6th Street and Dwight Way, at the southeastern border of the transit service study area, approximately one and one-quarter or one and one-half miles from the ferry terminal site alternatives (Berkeley Gateway TMA, 2007a). The WBS is free to employees and affiliates of the shuttle sponsors and costs $0.50 per ride for non-affiliates (Berkeley Gateway TMA, 2007b). Approximately 99.9 percent of riders are employees or affiliates of the shuttle sponsors, which include Wareham Properties, Bayer, and the City of Berkeley. The shuttle serves approximately 100 riders a day and adheres to its schedule 99 percent of the time (Atkinson, 2007).

Many shuttle riders have expressed the need for expanded hours of operation. The Berkeley TMA is looking into the possibility of expanding service in the next few years and may consider the option of running the shuttle service all day. In addition, several new construction projects are underway in the West Berkeley neighborhood, including the development of new condominiums and also a new West Berkeley Bowl Marketplace at 9th Street and Heinz Avenue. The Berkeley TMA anticipates these projects will likely increase the demand for the shuttle (Atkinson, 2007).

3.1.4 Emery Go Round

The Emery Go Round is a free shuttle service that connects Emeryville's corporate centers, retail, schools, residential, and hotels to the MacArthur BART and Emeryville Amtrak stations. The shuttle operates outside of the transit service study area, with the closest weekday stop located on 67th Street between Hollis Street and San Pablo Avenue and the closest weekend stop located along 65th Street at Shellmound St, both located in Emeryville. The shuttle operates daily, with service every 10 to 12 minutes during the weekday commute hours, every 15 to 20 minutes during off-peak hours and synchronizes to BART every 40 minutes after 8 p.m. (Emeryville TMA, 2007).

3.1.5 BART

Two BART stations are located within the transit service study area, the El Cerrito Plaza and North Berkeley stations. Two additional stations, Downtown Berkeley and Ashby, are connected to the transit service study area by transit lines or shuttle lines serving the study area. These four stations are served by the Richmond-Fremont and the Richmond-Daly City lines. BART operates 4 a.m. to midnight, Monday through Friday; 6 a.m. to midnight on Saturdays; and 8 a.m. to midnight on Sundays and Holidays.

3.1.6 Traffic

This section discusses the existing transportation system in the vicinity of the proposed Berkeley Ferry Terminal Project, including the local and regional access in the study area. Service level calculations were also performed for the study intersections, and the project team also assessed pedestrian, bicycle, and parking facilities.

Defining Existing Conditions

Intersection Level of Service. LOS is a measure used to rate roadway facilities, based on their traffic conditions. It is a qualitative description of traffic flow based on factors including speed, travel time, delay, and freedom to maneuver. Six levels of service are defined for each facility type, varying from LOS A, which indicates that traffic flows freely, with little or no delay, to LOS F, which indicates that traffic demand exceeds the capacity, generally resulting in long queues and delays. The criteria for signalized and unsignalized intersections are presented in Tables 3-3 and 3-4, respectively. The intersection LOS descriptions are based on vehicular delay in seconds per vehicle, which generally dictate traffic conditions on arterial and collector streets. Signalized intersections LOS and delay analyses were performed using methodologies approved by Caltrans, based on the *2000 Highway Capacity Manual* (HCM), Chapter 16.

Table 3-3
Signalized Intersection LOS Definitions

Level of Service	Descriptions of Operations	Average Control Delay (sec/veh)
A	Insignificant Delays: No approach phase is fully utilized and no vehicle waits longer than one red indication.	< 10
B	Minimal Delays: An occasional approach phase is fully utilized. Drivers begin to feel restricted.	> 10 to 20
C	Acceptable Delays: Major approach phase may become fully utilized. Most drivers feel somewhat restricted.	>20 to 35
D	Tolerate Delays: Drivers may wait through no more than one red indication. Queues may develop but dissipate rapidly, without excessive Delays.	>35 to 55
E	Significant Delays: Volumes approaching capacity. Vehicles may wait through several signal cycles and long queues from upstream.	>55 to 80
F	Excessive Delays: Represents conditions at capacity with extremely long delays. Queues may block upstream intersections.	>80

Source: *HCM*, Transportation Research Board, 2000.

Table 3-4
Unsignalized Intersection LOS Definitions

Level of Service	Descriptions of Operations	Average Control Delay (sec/veh)
A	No delay for stop-controlled approaches.	0 to 10
B	Operations with minor delays.	> 10 to 15
C	Operations with moderate delays.	> 15 to 25
D	Operations with some delays.	> 25 to 35
E	Operations with high delays, and long queues.	> 35 to 50
F	Operations with extreme congestion, with very high delays and long queues unacceptable to most drivers.	>50

Source: *HCM*, Transportation Research Board, 2000.

Data collection and intersection analysis under the existing traffic and geometric conditions has been performed for the study intersections for the weekday a.m. peak period (7:00 to 9:00 a.m.) and for the weekday p.m. peak period (4:00 to 6:00 p.m.). The selected intersections were identified in consultation with staff from the Cities of Berkeley and Albany. All traffic counts have been collected by Wilbur Smith Associates field personnel in April 2007. A total of 17 study intersections were evaluated within and surrounding the project study area, including:

1. Solano Avenue at Pierce Street;
2. San Pablo Avenue at Solano Avenue;
3. Buchanan Street at I-80 westbound (WB) Ramps;
4. Buchanan Street at I-80 eastbound (EB) Ramps;
5. Buchanan Street at Cleveland Avenue/Pierce Street;
6. San Pablo Avenue at Marin Avenue;
7. Gilman Street at W. Frontage Road;
8. Gilman Street at I-80 WB Ramps;
9. Gilman Street at I-80 EB Ramps;
10. Gilman Street at Eastshore Highway;
11. Gilman Street at 6th Street;
12. Gilman Street at San Pablo Avenue;
13. University Avenue at Marina Boulevard;
14. University Avenue at W. Frontage Road;
15. University Avenue at I-80 WB Ramps;
16. University Avenue at 6th Street; and
17. University Avenue at San Pablo Avenue.

Eight of the study intersections are currently signalized (intersections 2, 3, 4, 6, 11, 12, 16, and 17). Five of these signalized intersections (intersections 2, 3, 4, 6, and 11) are under Caltrans jurisdictions, while the rest of the signalized intersections are maintained by the City of Berkeley.

Streets and Roadways in the Study Area

University Avenue. University Avenue is a four-lane major street running in the east-west direction. Serving as a connector to I-80, this roadway may be the primary source of local access for the project traffic (for Berkeley Fishing Pier and Berkeley Marina Sites). East of I-80, this arterial provides primary access to downtown Berkeley and the University of California at Berkeley campus. East University Avenue is a busy roadway with on-street parking on both sides. The roadway is divided and has left turn pockets at major intersections. Left turns from University Avenue onto cross-streets generally are not served by a separate left turn signal phase. West University Avenue, which is less busy than East University Avenue, provides motorist access to the Berkeley Marina area, primarily for recreational purposes. Additionally, many vehicles turn on to University Avenue to travel slightly west and then take West Frontage Road to Powell Avenue, avoiding traffic south on I-80.

Gilman Street. Gilman Street is a two-lane major street in the east-west direction, just north of University Avenue. Gilman Street connects I-80 with San Pablo Avenue and Northern Berkeley, which is mostly used for light industrial/commercial purposes. Both lanes on Gilman Street are wider, to better accommodate truck traffic, and on-street parking is allowed on both sides of the street. Most of the intersections along Gilman are unsignalized. The Southern Pacific railroad track crosses Gilman Street at Third Street, where flashing lights and safety gates on both sides of the at-grade railroad crossing are provided. Gilman Street west of the interchange provides access to the existing Golden Gate Fields and would also be the connection to ferry terminal at the Gilman Site, if selected.

Buchanan Street. Buchanan Street is a four-lane major street in the east-west direction, north of Gilman Street. West of I-80, this street currently provides local street access to the Golden Gate Fields, and may also provide local access to the proposed ferry terminal (Buchanan Site), if selected. East of the interchange, Buchanan Street provides one of the main accesses to the City of Albany and the residential neighborhoods along this street. The intersections are mostly unsignalized with left turn pockets into the cross streets. Near San Pablo Avenue to the east, Buchanan Street becomes Marin Avenue.

San Pablo Avenue (State Route 123). San Pablo Avenue is a four-lane major street in the north-south direction, east of I-80. This arterial connects the Cities of Oakland, Emeryville, Berkeley, Albany, and beyond to the Richmond/Pinole area. San Pablo Avenue's significance to the western Alameda and Contra Costa Counties cannot be underestimated. Within the vicinity of the study area, San Pablo Avenue intersects with University Avenue, Gilman Street, and Buchanan Street, and some of the project trips will likely use San Pablo Avenue to access any of the ferry terminal sites. San Pablo Avenue is a state highway with left-turn pockets at major intersections.

Sixth Street. Sixth Street is a two-lane collector running north-south, located between I-80 and San Pablo Avenue. It traverses between residential and light industrial/commercial neighborhoods in Berkeley, and intersects with both University Avenue and Gilman Street.

Solano Avenue and Pierce Street. Solano Avenue and Pierce Street are two-lane collector streets located east of I-80 and north of Buchanan Avenue. Solano Avenue runs parallel of Buchanan Street, running east-west, while Pierce Street runs north-south, with the southern terminus of Pierce Street intersecting with Buchanan Street. The neighborhoods served by the two streets are mostly residential with some commercial uses.

Regional Access

Interstate 580. Interstate 580 (I-580) is another major corridor running east-west in the San Francisco Bay Area. As a commercial corridor, I-580 is designated a priority truck route and connects Marin County, the East Bay, and the Tri-Valley area, with the rest of California. Within the vicinity of the ferry terminal sites, I-580 combines with I-80 between the I-80/Interstate 880/I-580 interchange (often referred to as "The Maze") in Oakland and the I-80/Buchanan Street interchange, before splitting off westward to Richmond and the Marin County.

Interstate 80. I-80 is a ten-lane freeway providing the primary regional access to the project traffic. I-80 originates just southwest of the study area, at the San Francisco end of the Bay Bridge, and extends to Oakland, Berkeley, Sacramento, and beyond. I-80 is a major east-west corridor connecting the Bay Area and California with the rest of the country, serving dense residential and commercial neighborhoods in the East Bay region. In the vicinity of the ferry terminal sites, I-80 runs north-south, although the designation remains east-west, respectively.

I-80 has both EB and WB ramps from **University Avenue**. Access to I-80 EB from University Avenue is provided via an on-ramp, accessible only by University WB traffic. University EB traffic would have to continue along University Avenue and turn back, or use local streets to travel north. Likewise, the I-80 EB offramp at University Avenue only permits University EB travel; motorists intending to travel WB on University must first exit the freeway and perform a U-turn at the first opportunity (University Avenue at San Pablo Avenue). The I- 80 WB off/on-ramps use a half-cloverleaf design, with the WB on-ramp looping on the northwest quadrant of the interchange, and the WB off-ramp looping at the southwest quadrant. Unlike the EB ramps, WB ramps allow vehicle access from both the EB and WB directions. All ramps have only one lane, and none are signalized. West Frontage Road, which parallels I-80 on the west, crosses University Avenue at the intersection of University Avenue and the WB ramps.

The interchange at I-80 and **Gilman Street** uses a standard diamond pattern. The I-80 EB offramp terminates at the STOP-controlled Gilman Street, allowing motorists to travel both EB and WB on Gilman Street. The I-80 EB on-ramp is located directly opposite from the off-ramp. Both ramps have two lanes. Similarly, the I-80 WB off-ramp and I-80 WB on-ramp have two lanes, directly opposite from each other. The I-80 WB off-ramp terminates at Gilman Street, and is STOP-controlled. Due to its proximity to the Gilman Street/West Frontage Road intersection,

a 50-foot turning bay is provided at the terminus of the I-80 WB off-ramp, allowing direct access to West Frontage Road from the off-ramp.

The **Buchanan Street** interchange also employs a standard diamond pattern, although two different Interstates are connected to this roadway, depending on the ramp. On the eastern quadrant of the interchange, the off- and on-ramps are connected to I-80 EB. On the western quadrant of the interchange, however, the off-ramp is an exit of I-580 WB, while the on-ramp connects to I-80 WB. All of the ramps have two lanes, with the exception of I-80 EB off-ramp (three lanes). The intersections at this interchange are signalized.

Roadway Access to the Ferry Terminal Site Alternatives

The following roads provide access to each site:

- **Berkeley Marina Site:** University Avenue and Marina Boulevard.
- **Berkeley Fishing Pier Site:** University Avenue and Seawall Drive.
- **Gilman Site:** Gilman Street.
- **Buchanan Site: Gilman Street and** Buchanan Street.

The current condition and operation of these access roads is described below by site alternative.

Alternative A (Berkeley Marina Site) and Alternative B (Berkeley Fishing Pier Site). The primary means of access to these ferry terminal locations would be University Avenue. University Avenue is heavily used and sometimes congested. The I-80/University Avenue interchange does not provide direct access for EB I-80 traffic. Eastbound traffic must use the Gilman Street interchange. It takes about 2 to 3 minutes to reach the ferry terminal sites from the I-80 interchange. The roadway conditions between I-80 and Marina Boulevard are very poor along University Avenue.

The City has identified the Sixth Street intersection with University Avenue as a congestion point. It is reported to operate at LOS F during peak traffic hours. Improvement plans have been developed that might improve operations to LOS C during the morning peak and LOS D during the afternoon peak traffic period. Current traffic on University Avenue east of Sixth Street is relatively balanced during the a.m. peak hour (about 1,000 vehicles per hour per direction). In the p.m. traffic peak hour volumes are comparable. The peak ferry traffic could be in the WB direction in the morning and EB direction in the evening. Thus, the most substantial ferry traffic would not increase the critical WB afternoon traffic flow. Some ferry patrons would use West Frontage Road to access I-80 at Gilman Street and undoubtedly some of the ferry patrons would be existing I-80 freeway commuters and would not add to University Avenue traffic volumes. On the other hand, the ferry traffic might increase traffic conflicts and delays at the University Avenue/West Frontage Road intersection, which is currently unsignalized.

Alternative C (Gilman Site). The I-80/Gilman Street interchange (including the intersection of Gilman Street/Eastshore Highway) is congested during peak periods. The I-80 WB at Gilman Street intersection operates at unacceptable levels of service during both peak periods. Both EB and WB ramps end at STOP-controlled intersections with two more STOP-controlled intersections

located within 400 feet along Gilman Street (at Eastshore Highway and W. Frontage Road).There are plans to convert the interchange into a twin roundabout design. This change is intended to increase capacity and safety. With the twin roundabout design, the interchange is projected to operate satisfactorily in 2025, with the exception of some movements. In summary, the Gilman Street interchange currently operates poorly, but with planned improvements will operate better although not totally satisfactory. Insatiable demand for I-80 access and congestion on I-80 will disrupt access to the proposed Gilman Street ferry terminal. The Gilman Street ferry terminal site is the closest to I-80 of all the alternative locations (700 feet). This proximity is good for visibility and patron attraction, but its proximity also means that the ferry arrival traffic pulse will likely be more concentrated when it arrives at critical I-80 interchange intersections. With the location and amount of ferry parking for this site undefined, the traffic access needs and impacts are impossible to accurately describe. Future development of Golden Gate Fields could also substantially change traffic patterns at the Gilman Street interchange.

Alternative D (Buchanan Site). The Buchanan Street access will likely change if development of Golden Gate Fields proceeds. The current I-80 interchange at Buchanan Street provides all access turning movements to and from the south on I-80. The interchange also provides EB access to both I-80 and I-580, as well as WB access from I-580. Traffic arriving WB on I-80 must exit onto Cleveland Avenue and travel on local streets to reach Buchanan Street. The proposed ferry terminal would be located about 4,000 feet from the I-80 interchange. While this distance would help disperse the ferry arrival/exit traffic pulse, its weak visibility and distance from the alluring I-80 freeway would not benefit ferry patronage. From a patronage capture perspective, the ferry terminal should be as close to I-80 as possible and also be visible. Commuters bound for work will see the proximity of the terminal and be reminded by seeing the boat at the dock of the ferry option. If the terminal is not visible and is distant from the I-80 commute decision point, the capture of commuters by ferry service will be lower. The downside of being close to I-80 is that the pulse of traffic leaving the parking area after arrival of boats will be more pronounced and therefore will more impact the I-80 critical intersections.

Existing Traffic Circulation in the Study Area

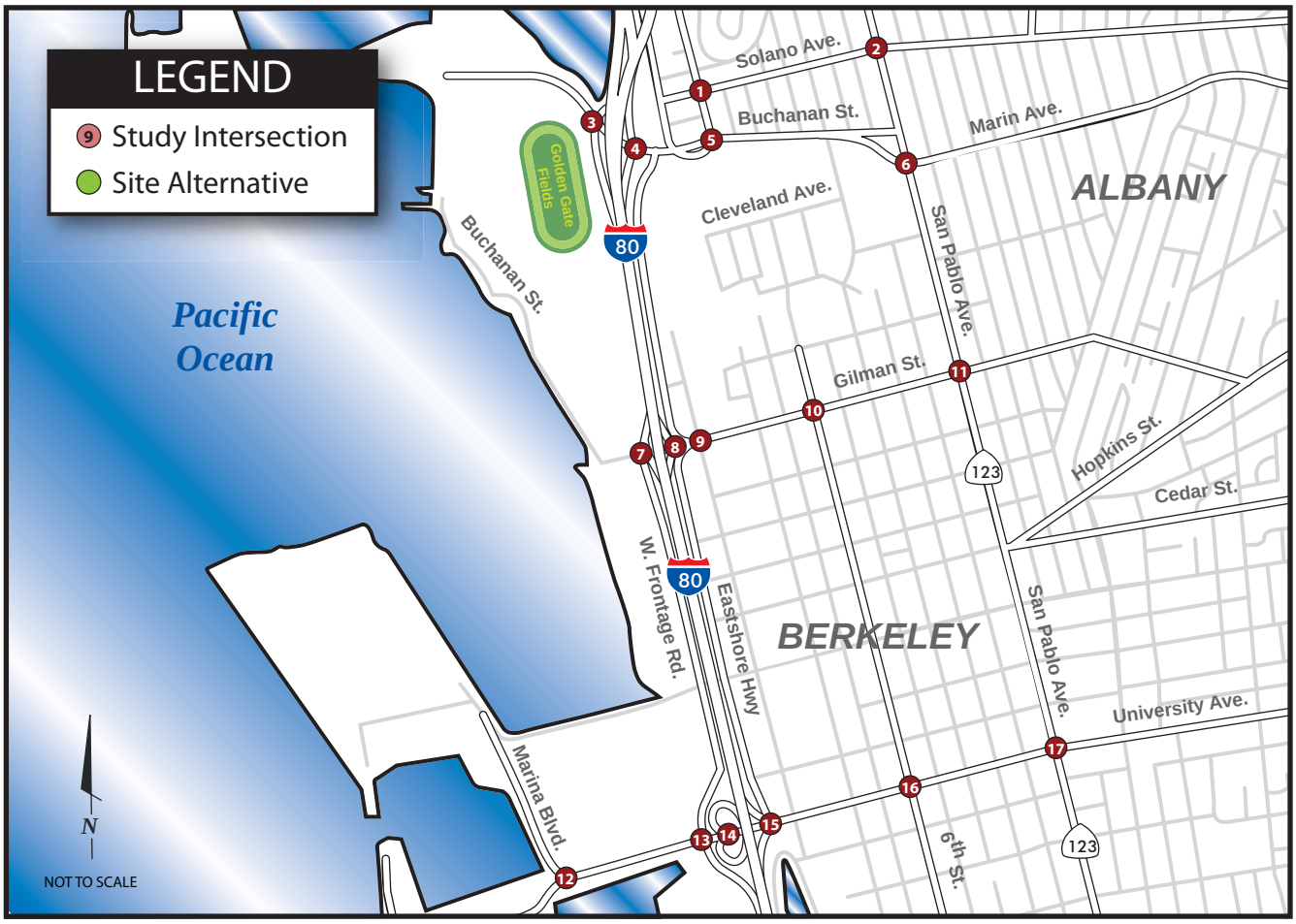
Figures 3-2 and 3-3 exhibit the existing weekday a.m. and p.m. peak hour traffic volumes at the study intersections.

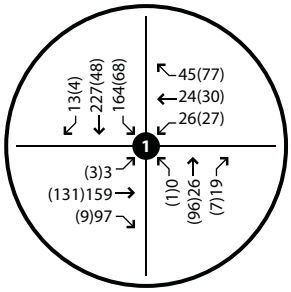
Table 3-5 presents the a.m. and p.m. peak hour service levels for the study intersections, while the detailed calculations can be found in the Transportation Technical Report. As shown, only seven out of 17 study intersections currently operate at acceptable levels during the a.m. and p.m. peak hours (1, 3, 4, 7, 11, 12, and 13). Intersections 2, 9, 14, 15, and 17 are operating at acceptable service levels during the a.m. peak hour, but not the p.m. peak hour. The San Pablo Avenue/Solano Avenue intersection (#2) is controlled by Caltrans, and operates at LOS D (average delay of 42 seconds per vehicle) during the p.m. peak hour. This falls below the Caltrans LOS acceptable standard between LOS C and D (average delays between 30 and 40 seconds per vehicle). The Gilman Street/I-80 EB study intersection (#9) and University

Table 3-5
A.M. and P.M. Peak Hour Intersection LOS – Existing Conditions

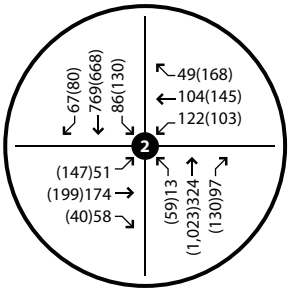
Study Intersection	Intersection Control	A.M. Peak		P.M. Peak	
		LOS	Delay (sec.)	LOS	Delay (sec.)
1. Solano Avenue at Pierce Street	AWSC	C	20.1	A	9.3
2. San Pablo Avenue at Solano Avenue*	S	C	30.7	D	41.8
3. Buchanan Street at I-80 WB Ramps *	S	B	19.4	B	16.6
4. Buchanan Street at I-80 EB Ramps*	S	B	10.2	B	10.5
5. Buchanan St at Cleveland Ave/Pierce St**	TWSC	F	>50 (SB)	C	20.3 (SB)
6. San Pablo Avenue at Marin Avenue*	S	E	64.3	E	73.0
7. Gilman St at W. Frontage Rd	TWSC	B	14.5 (NB)	C	15.3 (NB)
8. Gilman St at I-80 WB Ramps	TWSC	F	>50 (SB)	F	>50 (SB)
9. Gilman Street at I-80 EB Ramps	TWSC	C	23.5 (NB)	F	>50 (NB)
10. Gilman Street at Eastshore Highway	TWSC	F	>50 (SB)	F	>50 (SB)
11. Gilman Street at 6th Street*	S	B	15.0	C	31.3
12. Gilman Street at San Pablo Avenue	S	C	31.0	D	51.3
13. University Avenue at Marina Boulevard	TWSC	A	9.8 (WB)	C	15.0 (WB)
14. University Avenue at W. Frontage Road**	AWSC	C	23.7	F	>50
15. University Avenue at I-80 WB Ramps	TWSC	D	28.5 (NB)	F	>50 (NB)
16. University Avenue at 6th Street	S	F	>80	F	>80
17. University Avenue at San Pablo Avenue	S	D	40.2	E	79.1

Source: Wilbur Smith Associates, 2006.
Notes:
* Indicates signalized intersections under Caltrans jurisdictions.
** Indicates that changes were made to intersection geometry so as to enable analysis using the *HCM 2000* methodology.
S – Signalized, TWSC – Two-Way STOP-Controlled, AWSC – All-Way STOP-Controlled.
LOS – Level of Service.
Delay indicates Average Vehicle Delay in seconds per vehicle.
Values in **RED** indicate LOS exceeds acceptable threshold.

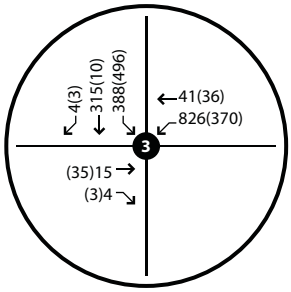




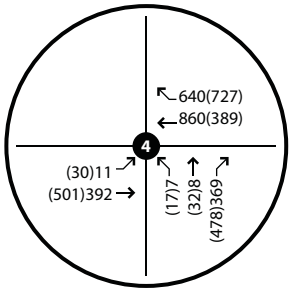
Solano Ave./
Pierce St.



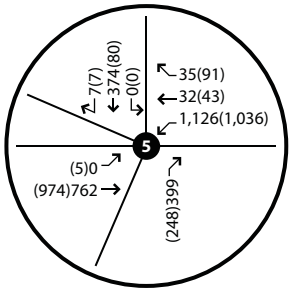
San Pablo Ave./
Solano Ave.



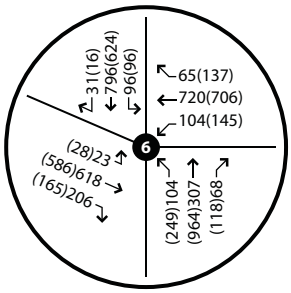
Buchanan St./
I-80 WB Ramps



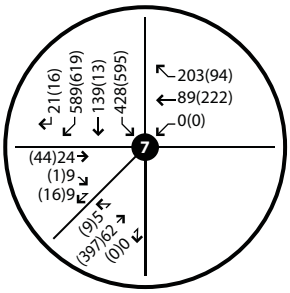
Buchanan St./
I-80 EB Ramps



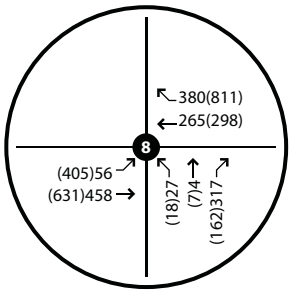
Buchanan St./
Cleveland Ave./Pierce St.



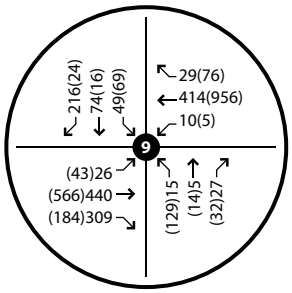
San Pablo Ave./
Marin Ave.



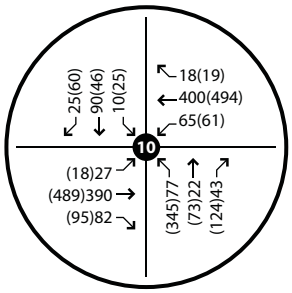
Gilman St./
I-80 WB Ramps/ W. Frontage Rd.



Gilman St./
I-80 EB Ramps



Gilman St./
Eastshore Highway



Gilman St./
6th St.

BERKELEY/ALBANY FERRY TERMINAL STUDY INTERSECTIONS (1 THROUGH 10)

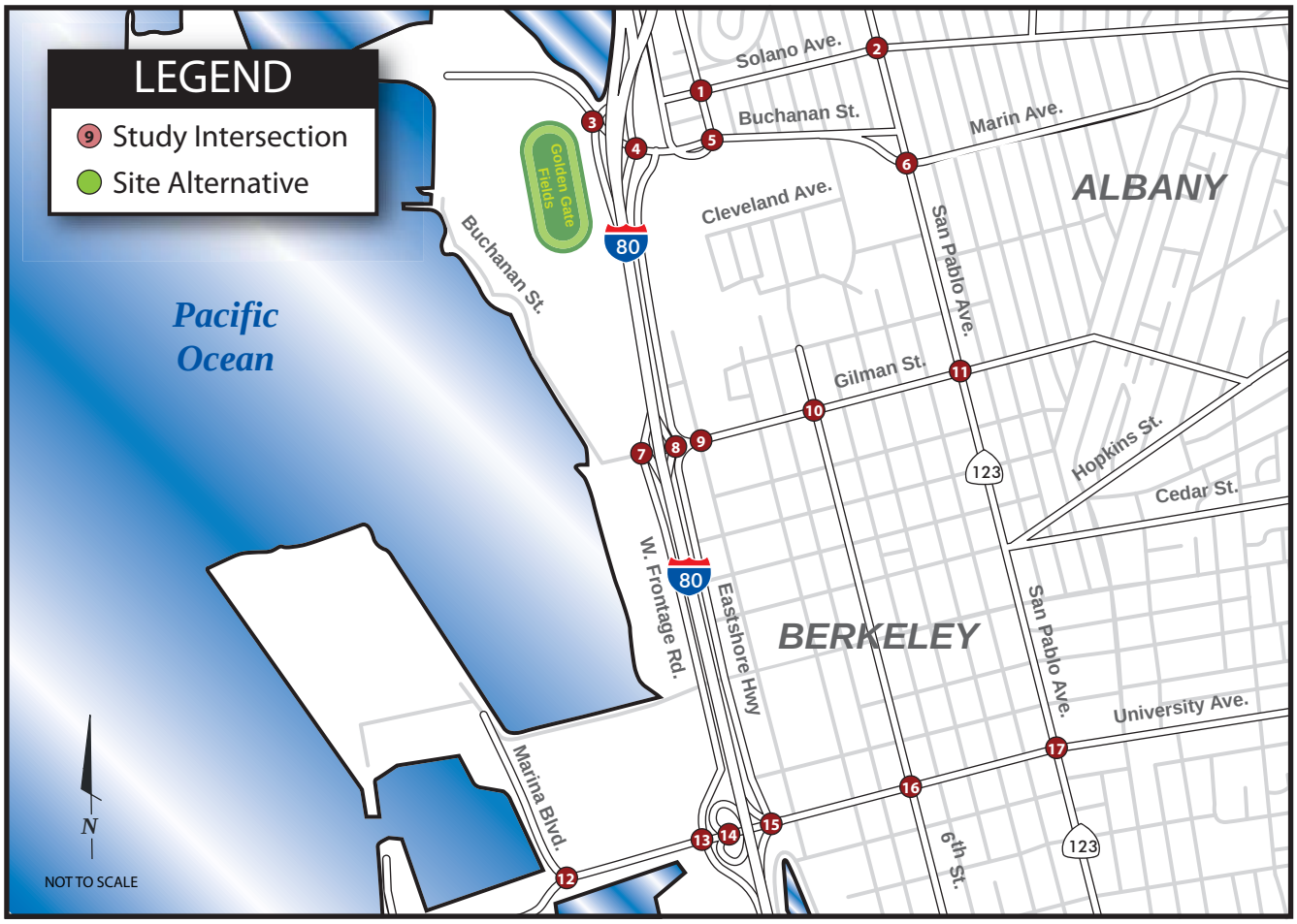
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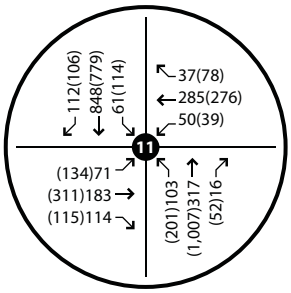
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Source:
Wilbur Smith Associates, 2007

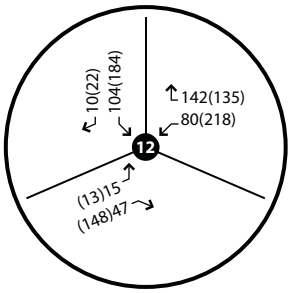
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FIGURE 3-2

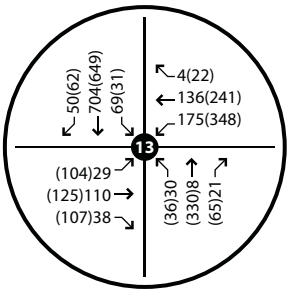




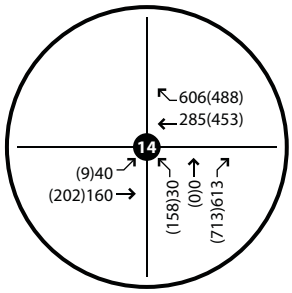
Gilman St./
Gilman St./San Pablo Ave.



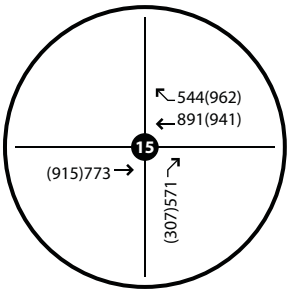
University Ave./
Marina Blvd.



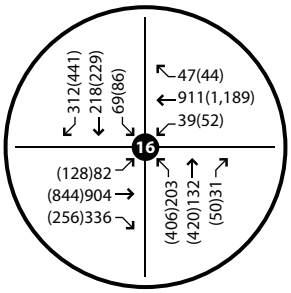
University Ave./
W. Frontage Rd.



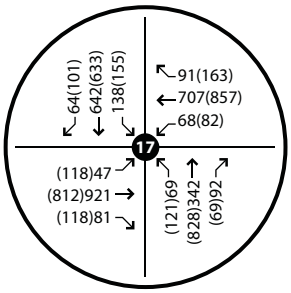
University Ave./
I-80 WB Ramps



University Ave./
I-80 EB Ramps



University Ave./
6th St.



University Ave./
San Pablo Ave.

BERKELEY/ALBANY FERRY TERMINAL
STUDY INTERSECTIONS (11 THROUGH 17)

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FIGURE 3-3

Source:
Wilbur Smith Associates, 2007

Avenue/I-80 WB intersection (#15) operate at LOS F during the p.m. peak hour. In both cases, the northbound STOP-controlled direction failed, causing average delays of more than 150 seconds per vehicle. The University Avenue/San Pablo Avenue study intersection (#17) is one of the busiest intersections in Berkeley, and operates at LOS E in the p.m. peak hour, with a volume to capacity ratio (v/c ratio) of 0.97 (very close to full capacity).

Intersections 6, 8, 10, and 16 currently operate at unacceptable service levels during both the a.m. and p.m. peak hours. Marin Avenue/San Pablo Avenue (#6) and University Avenue/6th Street (#16) are busy signalized intersections that operate near or over their capacities during the peak hours. Gilman Street/Eastshore Highway (#10) operates at LOS F, with heavy demand at the STOP-controlled northbound and southbound movements. Lastly, the Gilman Street/I-80 WB (#8) study intersection that consists of a stop-controlled I-80 WB off-ramp operates at unacceptable service levels during both peak periods along this approach. Finally, two unsignalized study intersections (#5 and 14) were analyzed with a few changes to the lane geometry. This was necessitated to analyze these intersections using the *2000 HCM* methodology which does not allow for the analysis of stop controlled intersections with more than two lanes per leg or intersections with more than four legs: Buchanan Street/Cleveland Avenue/Pierce Street (#5): This unsignalized study intersections consists of more than four legs and hence the leg leading to Cleveland Avenue has been incorporated as a third receiving lane for vehicles traveling WB. University Avenue/West Frontage Road (#14): This is an all-way STOP-controlled intersection with more than two lanes per leg and hence the shared right turn and through lane along the WB approach has been eliminated under the premise that the volume of traffic traveling through and making right turns would not be critical contributing factors to the delay at this intersection.

3.1.7 Parking

The proposed Berkeley/Albany Ferry Terminal needs to provide 388 parking spaces to accommodate ferry patrons (Programmatic EIR Alternative 17). Additional area for passenger pick up/drop off is also required. For weekends, the patronage numbers are expected to be substantially lower, and the proportion of East Bay residents using the service is balanced with San Francisco residents heading to the East Bay. Only about 100 parking spaces would be needed on weekends. The following discussion indicates the current parking availability at each alternative site.

Alternative A (Berkeley Marina Site)

A parking occupancy survey was performed in March 2006 for parking resources near the Berkeley Marina and Doubletree Hotel complex. Surveys were conducted on two typical weekdays and also on a weekend. The parking resources near the Alternative A ferry dock site were defined into sub-areas, as indicated in Figure 3-4. It should be noted that Berkeley Marina parking often has use restrictions that allow only boaters to park in the spaces.

The maximum potential for ferry patron parking for this ferry site appears to be about 520 spaces in Lots 1A through 8A. Table 3-6 indicates the number of spaces available in each surrounding lot and percent occupancy observed during field surveys in 2006.

Table 3-6
Berkeley Marina/Doubletree Hotel Area Parking Usage – Existing Conditions

Lot	Dist.	Spaces	Wednesday*			Thursday			Sunday		
			Occ.	Avail.	%Occ.	Occ.	Avail.	%Occ.	Occ	Avail.	%Occ.
1A	N/A	180	2	178	1%	2	178	1%	7	173	4%
2A	N/A	125	40	85	32%	125	43	82%	48	77	38%
3A	N/A	118	66	52	56%	116	2	98%	63	55	53%
4A	N/A	155	62	93	40%	146	9	94%	45	110	29%
5A	N/A	245	24	221	10%	91	154	37%	14	231	6%
6A	N/A	180	36	144	20%	29	151	16%	53	127	29%
7A	N/A	68	2	66	3%	2	66	3%	27	41	40%
8A	N/A	25	1	24	4%	3	22	12%	8	17	32%
Total	**N/A**	**1096**	**233**	**863**	**21%**	**432**	**625**	**39%**	**265**	**831**	**24%**

Source: Wilbur Smith Associates independent surveys conducted in March of 2006
Note:
*The observed Wednesday was during a Rotary Club lunch event when parking demands were increased in certain lots.

Alternative B (Berkeley Fishing Pier Site)

Alternative B would incorporate nearby parking that is currently used by Hs Lordships restaurant, Skates restaurant, recreation and Berkeley Marina users. The parking areas will be redesigned to accommodate the Bay Trail Plan, which will involve relocation of Seawall Drive.

Figure 3-4 indicates the locations of the parking areas in the vicinity of the Berkeley Fishing Pier site. Table 3-7 presents the number of spaces occupied, space open and the percent occupancy. Occupancy was observed during the lunch hour on all 3 days. Thursday conditions represent normal demand conditions. Wednesdays were Rotary Club lunch days, to represent special event parking conditions, and Sunday observations were taken during spring weekend conditions. Not all the parking resources were found to be fully used. As expected, parking lots near the restaurants (3B and 5B) tended to be most used at lunch times.

Alternative C (Gilman Street Site)

Development plans for the Eastshore Park and for Golden Gate Fields indicated that assessment of current parking demands near the Gilman Street ferry terminal site would not provide useful information. The Gilman Street Playing Fields Plan proposes 82 parking spaces at its south end (about 2,000 feet from the proposed terminal site) and another 83 spaces at the north end near the proposed terminal site. It is unlikely that these recreation spaces could be shared for ferry use. Shared use of the Golden Gate Fields parking area is unknown at this time.



PARKING RESOURCES
BERKELEY MARINA SITES

Berkeley/Albany
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FIGURE 3-4

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Table 3-7
Berkeley Pier Area Parking Usage – Existing Conditions

Lot	Spaces	Wednesday*			Thursday			Sunday		
		Occ.	Avail.	%Occ.	Occ.	Avail.	%Occ.	Occ.	Avail.	%Occ.
2B**	140	65	75	46%	37	103	26%	58	82	41%
3B	156	74	82	47%	47	109	30%	119	37	76%
4B	92	26	66	28%	24	68	26%	67	25	73%
5B	318	141	177	44%	195	123	61%	236	82	74%
Total	**706**	**306**	**400**	**43%**	**303**	**403**	**43%**	**480**	**226**	**68%**

Source: Wilbur Smith Associates independent surveys conducted in March of 2006
Notes:
*The observed Wednesday was during a Rotary Club lunch event when parking demands were increased in certain lots.
**Lot 1B is more remote and is used by boaters in Berths J-K. It contains 102 spaces; more than 75 percent are typically available.

Alternative D (Buchanan Street Site)

An area approximately 180 feet by 730 feet of paved surface is located near the proposed Buchanan Street ferry dock location. It is separated from Golden Gate Fields parking by wooden bollards. More than 400 surface parking spaces could be accommodated on this paved surface. On the three days that were surveyed, fewer than six vehicles were observed to be parked in this large area. Usage during Golden Gate Fields events was not observed. Shared use of the Golden Gate Fields parking area is unknown at this time.

3.1.8 Bicycle Circulation and Pedestrian Access

The Bicycle Master Plans for the City of Berkeley and City of Albany are described below.

Berkeley Bicycle Plan (1998, updated 2005)

The goal of the City of Berkeley's Bicycle Plan is to make bicycling safer and more convenient for bicyclists of all ages and skill levels. Furthermore, the Bicycle Plan would allow the City to access a significant grant funding source, The Bicycle Lane Account (BLA) which is a source of State funds created to support development of bicycle transportation systems. Competitive grants are distributed to local agencies by Caltrans on an annual basis. BLA funded $360,000 toward projects throughout the state in 1996; by 2004 that amount grew to $5 million per year (City of Berkeley, 2005). BLA funds are only available to jurisdictions with an adopted Bicycle Plan, which contains the following required elements:

- Estimated current and future bicycle commuters, including increase resulting from plan implementation

- Description of safety/education conducted within the area and effort by law enforcement to enforce vehicle code relating to bike operations and resulting impacts on collisions

- Description of citizen involvement and letters of support

- Coordination and consistency with other plans, air quality, and energy conservation plans

- Prioritized list of projects

- Financial: description of previous expenditures and future financial need

The City of Albany Bicycle Master Plan (2006)

The goal of the City of Albany's Master Bicycle Plan is to make bicycling safer and more convenient for bicyclists of all ages and skill levels within the City of Albany. What follows is a list of specific goals from the Master Bicycle Plan (City of Albany, 2006):

- Goal 1: Support bicycling and the development of a comprehensive bicycle transportation system as a viable alternative to the automobile.

- Goal 2: Use available state and federal funding for bicycle improvements in Albany.

- Goal 3: Improve upon existing bikeway facilities and programs in Albany.

- Goal 4: Develop a bicycle system that meets the needs of commuter and recreation users, helps reduce vehicle trips, and links residential neighborhoods with regional destinations.

- Goal 5: Maximize multi-modal connections to the bicycle system.

- Goal 6: Improve bicycle safety in Albany.

- Goal 7: Develop detailed bicycle facility improvement proposals.

- Goal 8: Encourage public participation and creation of an ongoing Advisory Committee.

- Goal 9: Develop a coordinated strategy to encourage bicycling in Albany.

Furthermore, the Bicycle Plan would allow the City to access a significant grant funding source, The BLA which is a source of State funds created to support development of bicycle transportation systems. Competitive grants are distributed to local agencies by Caltrans on an annual basis. BLA funded $360,000 toward projects throughout the state in 1996; by 2004 that

amount grew to $5 million per year (City of Berkeley, 2005). BLA funds are only available to jurisdictions with an adopted Bicycle Plan, which contains the following required elements:

- Estimated current and future bicycle commuters, including increase resulting from plan
- Implementation
- Description of safety/education conducted within the area and effort by law enforcement to enforce vehicle code relating to bike operations and resulting impacts on collisions
- Description of citizen involvement and letters of support
- Coordination and consistency with other plans, air quality, and energy conservation plans
- Prioritized list of projects
- Financial: description of previous expenditures and future financial need

The study area is directly accessible for bicyclists and pedestrians from existing and future segments of the Bay Trail (Figure 3-5); this proximity to the Bay Trail offers a good connection not only from Berkeley and Albany but also from more distant communities such as Richmond, El Cerrito and Emeryville. The Berkeley and Albany network of bicycle and pedestrian facilities is shown on Figure 3-6.

Current Bicycle and Pedestrian Circulation at Each Alternative Terminal Site

For all the alternative terminal sites, access for bicycles and pedestrians is limited by the barriers of I-80/I-580 and the railroad tracks. Gilman and Buchanan have facilities to accommodate bicyclists and pedestrians. To cross the freeway at University, bicyclists and pedestrians must use a separate pathway accessible by stairs from the east approach or via the sidewalk on the overpass from the west approach. Bicyclists are not allowed on the roadway. To improve bicycle and pedestrian access to Berkeley Marina, a bicycle/pedestrian bridge was opened in 2002. The bridge is located just south of University Avenue and can be reached from Aquatic Park, 2nd Street or Addison St. This section describes the existing bicycle and pedestrian access to each terminal site in greater detail.

Alternative A and Alternative B (Berkeley Marina and Berkeley Fishing Pier Sites). The western section of University Avenue is designated for future bicycle lanes. Bicyclists can now share the road although the pavement is in very poor condition suffering from extensive settlement over the years. Pavement conditions improve west of Marina Boulevard. Pedestrian facilities on University Avenue between the Bay Trail and Marina Boulevard are limited. There are some sections of paved pathway on the north side of University but this pathway does not

extend along the whole length of this segment. Pedestrians must, at times, walk along the unpaved shoulder. This pathway is also too narrow to be recommended for shared use by pedestrians and bicyclists. The intersection of University Avenue and Marina Boulevard is atypical; the combination of medians, free right turns and traffic controls make it confusing and difficult to traverse both for pedestrians and bicyclists. There are no marked crosswalks or other indications of the best place for pedestrians to cross.

Alternative C (Gilman Street Site). This site is readily accessible to pedestrians and bicyclists from either the Berkeley Marina via the Bay Trail or from Gilman Street. Gilman Street is a signed bike route and has sidewalks on both sides of the street. The I-80/Gilman intersection is difficult to traverse because of the necessity to cross the many on/off-ramps and frontage roads. The hazardous condition of this intersection has been somewhat mitigated by multi-use paths on either side of Gilman under the freeway

Alternative D (Buchanan Site). This site can be reached from the north via the Bay Trail from Richmond. A connection to/from Albany is also available via Buchanan Street. Although bicycles are allowed on the roadway, there is a multi-use pathway on the north side of overpass for bicycle and pedestrian use. An additional pathway on the south side of the overpass is planned for the future. At the west end of the overpass, there are two multi-use path connections for access to the Bay Trail at the base of the Albany Bulb. There is an existing gap in the Bay Trail from the Albany Bulb south to Berkeley Marina. A future Bay Trail connection is planned to fill the existing gap. However, it is currently possible to make this connection by using the Golden Gate Fields access road and parking lot.

3.2 LAND USE, PLANS, AND POLICIES

3.2.1 Regulatory Framework

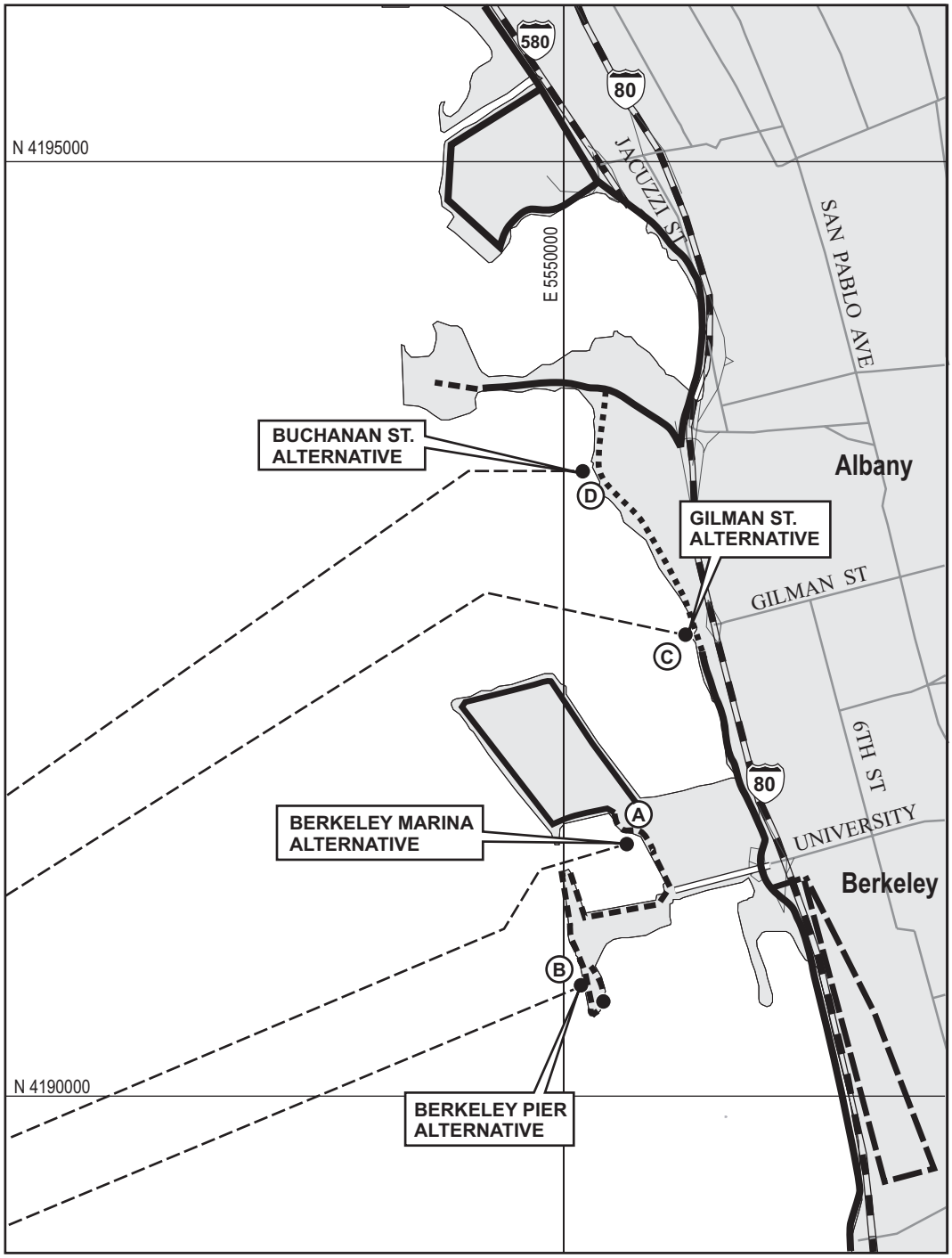
The following local regulations govern the review and analysis of land use in the study area.

City of Berkeley General Plan (2001) – Land Use Element

The Land Use Element provides general direction and guidance for the physical development of Berkeley. The following policies apply to the proposed sites located within the City of Berkeley.

- Policy LU-44 **–** Prepare and adopt a plan for the maintenance and improvement of the Berkeley Marina.

- Policy LU-43 – Implement the Waterfront Master Plan and take actions to achieve the five goals of the Plan:



LEGEND

- Bay Trail (off street)
- Unimproved Bay Trail (off street)
- Unimproved Bay trail (on street)
- Planned Bay Trail
- Other Trail
- Potential Terminal Location
- Potential Ferry Route

N

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BAY TRAIL

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FIGURE 3-5

Source:
San Francisco Bay Trail - East Bay; ABAG 2003

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EXISTING AND PROPOSED BICYCLE AND PEDESTRIAN FACILITIES

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FIGURE 3-6

Source:
Wilbur Smith Associates, 2007

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Bay Trail Plan

The Bay Trail Plan proposes development of a regional hiking and bicycling trail around the perimeter of San Francisco and San Pablo Bays. The Plan was adopted by the Association of Bay Area Governments (ABAG) in July 1989 and includes a proposed alignment for a multi-use trail; a set of policies to guide the future selection, design, and implementation of routes; and strategies for implementation and financing. The Plan was prepared by ABAG pursuant to Senate Bill 100 that was passed into law in 1987 and mandated that the Bay Trail: provide connections to existing park and recreation facilities; create links to existing and proposed transportation facilities; and be planned in such a way as to avoid adverse effects on environmentally sensitive areas. Since the Bay Trail Plan was adopted, the majority of the jurisdictions along the Bay Trail alignment have passed resolutions in support of the Bay Trail and have incorporated it into their general plans.

The Bay Trail Plan is envisioned to be a continuous 500-mile public corridor along the Bay Area's shoreline containing recreational, environmental education, and non-motorized transportation opportunities, 290 miles of which are complete. When complete, it would cross all the counties in the Bay Area and all the major toll bridges in the Bay Area.

The Bay Trail Plan contains five categories of policies to guide selections of the trail route and implementation of the trail system: trail alignment, trail design, environmental protection, transportation access, and implementation policies. Bay Trail policies and design guidelines are intended to complement, rather than supplant the adopted regulations and guidelines of local management agencies. Policies relevant to the proposed project include:

Trail Alignment Policies

1. Ensure a feasible, continuous trail around the Bay.

3. Locate trail, where feasible, close to the shoreline.

6. In selecting a route for the trail, incorporate local agency alignments where shoreline trail routes have been approved. Incorporate San Francisco Bay Conservation and Development Commission public access trails where they have been required.

10. To minimize the use of existing staging areas along the shoreline and reduce the need for additional staging areas, the choice of trail alignment should take full advantage of available transit, including rail service (e.g., Caltrain, BART), ferries, and bus service.

Trail Design Policies

12. Provide access wherever feasible to the greatest range of trail users on each segment.

13. Wherever possible, new trails should be physically separated from streets and roadways to ensure the safety of trail users.

14. Create a trail that is as wide as necessary to accommodate safely the intended use, with separate alignments, where feasible, to provide alternative experiences.

16. Incorporate necessary support facilities, using existing parks, parking lots, and other staging areas wherever possible.

17. Design new segments of trail to meet the highest practical standards and regulations, depending on the nature and intensity of anticipate use, terrain, existing regulations, and standards on existing portions of the trail.

19. Design and route the trail to discourage use of undesignated trails.

20. A consistent signing program should be established throughout the trail system, using a Bay Trail logo which will identify trails within the Bay Trail system as distinct from other connecting trails. The choice of materials used should be the concern of the individual implementing jurisdictions and agencies.

21. The Bay Trail signing program may include necessary cautionary and regulatory signing, including warnings of seasonal trail closings and other restrictions on trail use. Interpretive signing may be provided to help educate trail users about the surrounding environment and the importance of observing trail use restrictions and staying on designated trails.

Environmental Protection Policies

25. The Bay Trail should not be defined as a continuous asphalt loop at the Bay's edge, but as a system of interconnecting trails, the nature of which will vary according to the locale and the nature of the terrain and resources in the vicinity of each particular trail segment.

26. The path will not always follow the Bay shoreline; inland reaches may be more appropriate, especially for bicycle travel, in some parts of the San Francisco Bay region.

27. The path should be designed to accommodate different modes of travel (such as bicycling and hiking) and differing intensities of use, possibly requiring different trail alignments for each mode of travel, in order to avoid overly intensive use of sensitive areas.

Transportation Access Policies

30. Bridges and roads will be important connections in the Bay Trail system, providing not only commute routes, but enhancing the recreational use of the

Trail by creating trail loops which will allow a greater number of people to enjoy the Trail.

34. Access to the trail by all forms of public transit should be strongly encouraged. Opportunities for reaching the trail by public transit should be highlighted on trail maps and promotional materials.

City of Berkeley Waterfront Master Plan (1986) – Waterfront Land Use Policies

The purpose of the Waterfront Master Plan is to establish the waterfront as an area primarily for recreational, open space, and environmental uses, with preservation and enhancement of beaches, marshes, and other natural habitats. The following polices, which are integrated into the City's General Plan are geared toward the preservation and enhancement of the Berkeley Waterfront:

- Policy W-1: Preserve and protect the open space, views, wetlands, mudflats, seasonal ponds, creeks, meadows, and beaches of the Berkeley waterfront.

- Policy W-2: Restore and improve the features of the natural environment so that the waterfront approximates the character of the original shoreline wherever feasible.

- Policy W-3: Create a social environment where Berkeley, East Bay residents, and visitors can mingle in harmony and mutually enjoy their natural heritage.

- Policy W-4: Express the primary recreational, open space and environmentally significant character of the waterfront.

- Policy W-5: Create an environment, which enhances the unique qualities of Berkeley's waterfront and its special meaning to the city and region.

- Policy W-6: Enhance the strength and diversity of the Berkeley economy.

- Policy W-7: Generate jobs, which meet the needs of Berkeley's unemployed and underemployed population and provide opportunities for job mobility.

- Policy W-8: Generate revenues, which exceed cover municipal service costs over the long term, to make possible other city objectives.

- Policy W-9: Create water-related job and business opportunities, which relate to the sites unique location, which cannot be easily, create elsewhere in the city or region.

- Policy W-10: Create business and employment opportunities for Berkeley residents, which are compatible with and will not adversely affect those found in other economic centers within Berkeley.

- Policy W-11: Create conditions which will help offset pressures for housing gentrification in West Berkeley and elsewhere in the city through requirements for developer exactions to assist housing programs.

- Policy W-12: Create opportunities for advancement of Berkeley's affirmative action policies.

- Policy W-13: Provide for goods and services that complement or reinforce other land uses in the waterfront area.

- Policy W-14: Do not compete with development elsewhere in the city (such as downtown) that is desirable in those locations but incompatible with the character of the waterfront.

- Policy W-15: Provide opportunities for small businesses that are locally owned and controlled.

- Policy W-16: Provide transition of Berkeley's waterfront to the waterfront development in Albany and Emeryville.

- Policy W-17: Cluster development where it is most accessible, least subject to seismic hazards, where utilities and services are most readily available, and where environmental impacts are minimal.

- Policy W-18: Phase development in accordance with the timing of traffic improvements that will make necessary additions to capacity.

- Policy W-19: These are priority uses for the Waterfront. They should encompass a range of recreational and environmental uses

City of Albany General Plan (1990-2010)

The following goals and polices are intended to preserve and enhance the waterfront area of Albany. Albany's General Plan does not include any provisions related to ferry service (Bond, 2007).

- Work with all appropriate landowners, agencies, and citizen groups to implement the Bay Trail Plan along the Albany Shoreline.

- Ensure adequate protection of wildlife and vegetation resources when developing the Bay Trail alignment.

- Require that public access to the shoreline and Albany Point (Bulb) be part of any future waterfront development plans, and that multi-modal access be coordinated with state and Regional Park and open space plans.

- Continue to work with the state, cities, and other appropriate agencies to develop the former Albany landfill site into a state waterfront park.

- Work closely with the state, cities, and other appropriate agencies to complete the acquisition, planning and development of the project site.

- Assure that the planning for the project site is consistent with the City's conceptual plan for that portion in the city of Albany.

3.2.2 Existing Conditions

All four proposed sites are located within Alameda County along the waterfront of the San Francisco Bay. The proposed sites are all located within the jurisdictional city boundaries of Berkeley and Albany. The Berkeley Marina, Berkeley Fishing Pier, and Gilman Street sites are subject to the City of Berkeley land use plans and policies and zoning controls. Similarly, the Buchanan Street site, within the City of Albany, is governed by that city's land use and zoning policies. A description of the land use and zoning at each of the four sites is provided below. Land use maps are presented for Berkeley and Albany in Figures 3-7 and 3-8.

Alternative A (Berkeley Marina Site)

The Berkeley Marina site's current zoning is "Unclassified," which is the overall zoning for the waterfront district. This zoning designation acts a placeholder designation until the area is classified into another type of land use. A use permit is required for development in this district, which is subject to review and approval by the Planning Commission and the City Council (City of Berkeley, Zoning Code, Chapter 23E.92). Current land uses are the Berkeley Marina, with the adjacent Hornblower restaurant and the nearby Doubletree Hotel.

Alternative B (Berkeley Fishing Pier Site)

This site is governed by the City of Berkeley's Waterfront Master Plan. The City's General Plan designates this site as Open Space and Waterfront/Marina, and it is zoned as "Unclassified." Current land uses are primarily recreational and include fishing at the nearby municipal pier.

Alternative C (Gilman Street Site)

Most of this site is currently underused. The area near the water consists of primarily of embankment against the water and riprap. An empty lot sits very close to the site and serves as storage for horse trailers and overflow parking for patrons of the nearby Golden Gate Fields racetrack.

This site is zoned as a "Specific Plan" district, which allows an adopted Specific Plan to govern its development. The City of Berkeley developed a Waterfront Specific Plan in 1986, which envisions the waterfront as an area primarily for recreational, open space, and environmental uses, with preservation and enhancement of beaches, marshes, and other natural habitats.

Alternative D (Buchanan Street Site)

This site straddles land that currently is used as parklands to the north and a racetrack to the south. The City of Albany has zoned this site as "Waterfront," which allows for the following uses: Berkeley Marina and boat launching ramp; parking for non-residential uses; commercial, recreation, restaurants; and waterfront-related commercial sales and service. The site's land use designation is "park and recreation." The City does not have a Master or Specific Plan for its waterfront area. Golden Gate Fields, east of the site, has been operating at its current location since 1941. Currently, there are no plans for future development in this area by Magna Entertainment, who is the owner of Golden Gate Fields and some of its adjacent properties.

3.3 SOCIOECONOMICS

Socioeconomic issues relevant to the evaluation of environmental impacts include employment, population, housing, environmental justice, ethnicity of population, and poverty status. This section describes existing economic and demographic conditions at varying geographic levels. Alternative D (Buchanan Site) is located within Census Tract 4204 and Alternatives C (Gilman Street Site), B (Berkeley Fishing Pier Site), and A (Berkeley Marina Site) are all located within Census Tract 4220. These Census Tracts are depicted in Figure 3-9.

3.3.1 Regulatory Framework

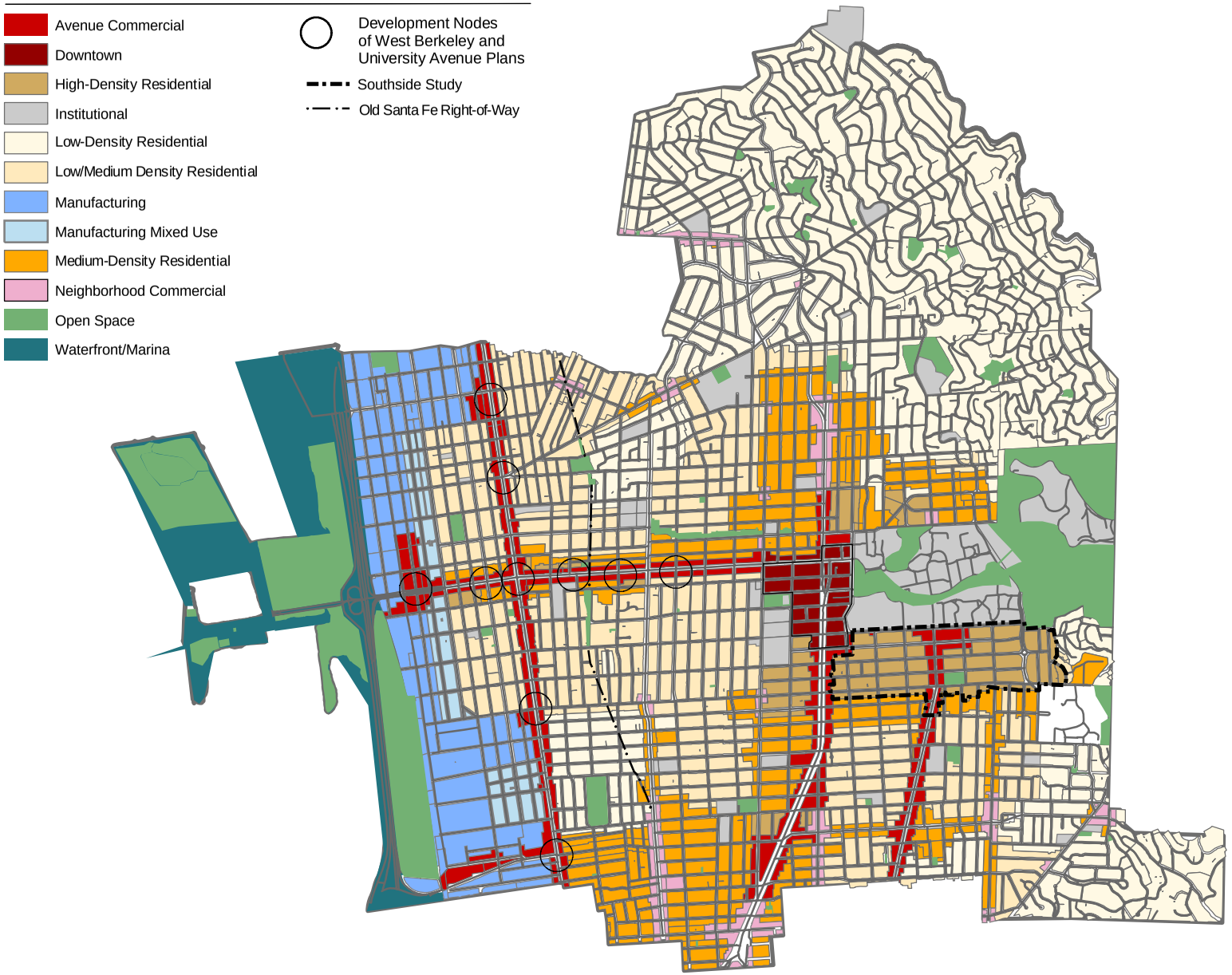
Cities of Berkeley and Albany

The *City of Berkeley's General Plan* (adopted April 23, 2003) includes citywide objectives, policies, and actions that relate to the city's population, housing, and employment. The following *Housing Element* policy specifically deals with socioeconomics issues (City of Berkeley, 2003):

- **Policy H-16 – Transit-Oriented New Construction.** Encourage construction of new medium and high density housing on major transit corridors and in the Downtown consistent with zoning and compatible with the scale and character of these areas.

The *City of Albany's General Plan* (adopted December 7, 1992) includes citywide goals, policies, and programs to enhance the city's population, housing, and employment. The following *Circulation Element* policy specifically deals with socioeconomics issues (City of Albany, 1992):

- **Policy CIRC 4.1.** Monitor existing and proposed transit service for responsiveness to residents' and employers' needs.



CITY OF BERKELEY
LAND USE PLAN

Berkeley/Albany
Ferry Terminal Study

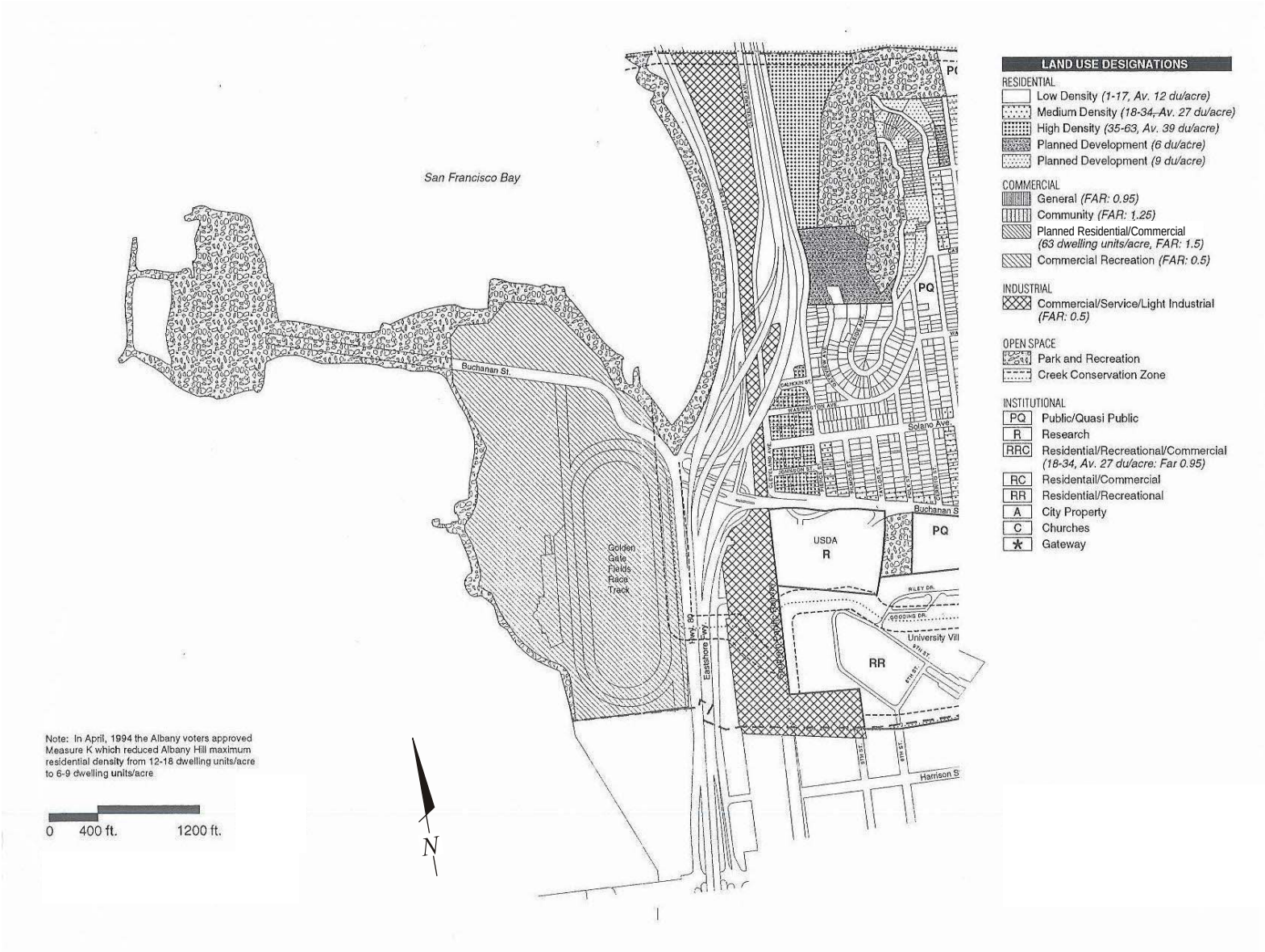
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FIGURE 3-7

Source: City of Berkeley General Plan, 2001

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CITY OF ALBANY LAND USE PLAN

Berkeley/Albany Ferry Terminal Study

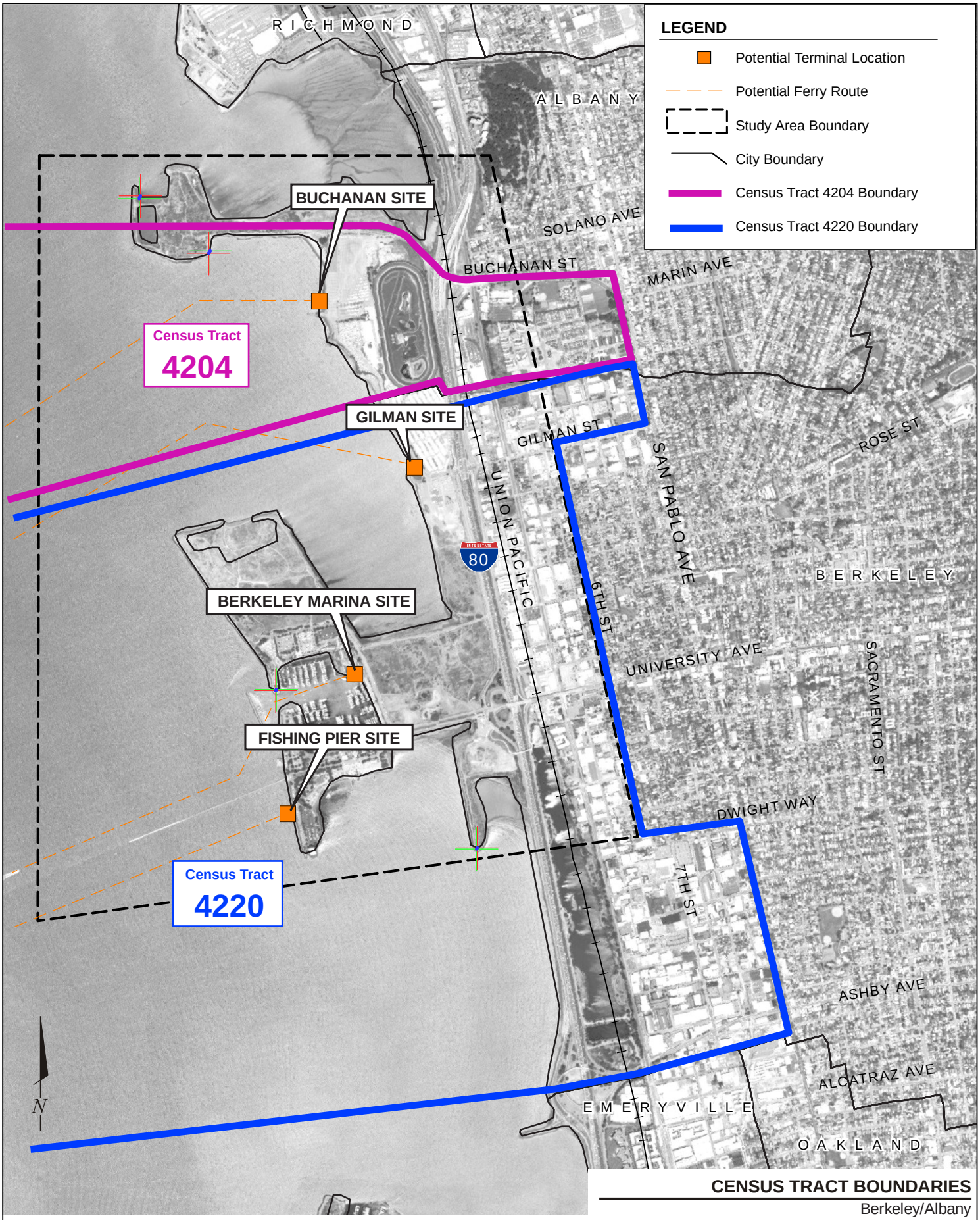
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FIGURE 3-8

Source: City of Albany General Plan 1990-2010

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Source:
Aerial Imagery, USDA FSA Aerial Photography Field Office, 2005.

0 2000 4000
Scale in Feet
1:24,000

CENSUS TRACT BOUNDARIES

Berkeley/Albany Ferry Terminal Study

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FIGURE 3-9

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Federal Environmental Justice Executive Order

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires Federal agencies like the FTA to consider environmental justice issues in their policies, activities, and procedures. A Presidential Memorandum directed to the heads of all departments and agencies accompanied EO 12898. The memorandum states "each Federal agency shall analyze the environmental effects, including human health, economic, and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required" by NEPA. The memorandum particularly emphasizes the importance of NEPA's public participation process, directing that "each Federal agency shall provide opportunities for community input in the NEPA process." Agencies are further directed to "identify potential effects and mitigation measures in consultation with affected communities, and improve the accessibility of meetings, crucial documents, and notices." Potential environmental justice areas are identified in the alternatives screening process to ensure that these communities have access to concise and clear information sufficient to effectively participate in the public involvement process. This helps to ensure that these communities are not disproportionately affected by a project. Environmental justice in transportation projects is about striving to ensure that minority and low-income populations get an equal share of the transportation benefits without carrying the brunt of the burden.

EO 12898 was designed to supplement Title VI of the Civil Rights Act of 1964, and the resulting regulations for the U.S. Department of Transportation (U.S. DOT) implementing this Act. Title VI prohibits discriminatory practices in programs receiving federal funding (U.S. DOT, 1994). In addition, EO 12898 is supplemented by more than 30 federal statutes, regulations, executive orders, and directives regarding nondiscrimination.

3.3.2 Employment, Housing, and Population

Employment

Historic labor force and unemployment rates are illustrated in Table 3-8. The civilian labor force remained relatively stable in the City of Berkeley, while the Alameda County a small growth of 6 percent and the City of Albany experienced a large growth of 97 percent in the civilian labor force between 1990 and 2000. Census Tracts 4204 and 4220 both experienced a large decline in the civilian labor force of approximately 43 and 32 percent respectively between 1990 and 2000. In Alameda County, City of Berkeley, City of Albany, and Census Tract 4204 unemployment rates have remained stable from 1990 to 2000. Between 1990 and 2000 the unemployment rate in Census Tract 4220 dropped by 8.4 percent.

The existing and projected jobs for the Study Area are illustrated in Table 3-9. Jobs are projected to grow in the City of Albany, City of Berkeley, and Alameda County by 21 percent, 16 percent, and 51 percent, respectively, from 2005 to 2035.

Table 3-8
Historic Labor Force and Employment

Area	Year	Civilian Labor Force	Civilian Employment	Civilian Unemployment Rate
Alameda County	1990	689,517	635,840	7.8%
	2000	733,194	692,833	5.5%
City of Berkeley	1990	59,323	55,990	5.6%
	2000	59,097	55,832	5.5%
City of Albany	1990	4,479	4,401	1.7%
	2000	8,859	8,674	2.1%
Census Tract 4204 (Alternative 2)	1990	1,105	1,071	3.1%
	2000	625	600	4.0%
Census Tract 4220 (Alternatives 3, 4, and 5)	1990	1,103	917	16.9%
	2000	749	693	7.5%

Source: U.S. Census 2000 and 1990.

Table 3-9
Existing and Projected Jobs

	2005	2015	2025	2035	Projected Growth 2005-2035
City of Albany	4,840	5,540	5,740	5,880	21%
City of Berkeley	75,430	80,740	83,660	87,150	16%
Alameda County	730,270	840,660	968,590	1,099,550	51%

Source: Association of Bay Area Governments, 2006.

The City of Berkeley Parks Recreation and Waterfront Department operates the Berkeley Marina. Approximately 21 workers support the operation of Berkeley Marina. These employees include: 1 Marina Director, 3 Clerical Support Assistants, 1 Landscape Supervisor, 3 Landscape Gardeners, 1 Maintenance Supervisor, 3 Mechanics, 1 Electrician, 1 Groundskeeper Supervisor, 1 Groundskeeper, 1 Recreation Director, 1 Harbor Master and 4 Operations Assistants (Shelley, 2007). Additional employment is generated by a variety of nearby businesses, including Seabreeze Market, Marina Deli, Berkeley Marina Sports Fishing Center, Hana Japan Restaurant, Cal Adventures, Cal Sailing Club, Adventure Park, a 378 room Doubletree Hotel and conference center, Hornblower Cruises, Hs Lordships Restaurant, Skates on the Bay Restaurant, and the Berkeley Yacht Club.

Golden Gate Fields Racetrack is located at 1100 Eastshore Highway in Berkeley. Golden Gate Fields, which is owned and operated by Magna Entertainment Corporation on 225 acres, includes a racetrack, stable areas, first aid station, food services, and a gift shop. Golden Gate Fields employs approximately 400 employees that are disbursed among the following groups: operations, catering, marketing, sales department, parimutuels, laborers, janitors, and administrative (Lagreve, 2007).

Housing

The historical housing distribution for the study area is shown in Table 3-10. Between 1990 and 2000 the housing units in the City of Berkeley, City of Albany, and Census Tract 4220 remained relatively stable. Between 1990 and 2000, Alameda County experienced a growth of approximately 36,000 housing units, while Census Tract 4204 experienced a decrease in housing units by 250. The percentage of vacant homes has remained relatively constant in Alameda County, the City of Berkeley, and the City of Albany between 1990 and 2000. The percentage of vacant housing grew in Census Tracts 4204 and 4220 by approximately 10 and 3.5 percent between 1990 and 2000.

Table 3-10
Historical Housing Distribution

Area	Year	Housing Distribution			
		Housing Units	Occupied Housing	Vacant Housing	% Vacant
Alameda County	1990	504,109	479,518	24,591	4.90%
	2000	540,183	523,366	16,817	3.10%
City of Berkeley	1990	45,735	43,453	2,282	5.00%
	2000	46,875	44,955	1,920	4.10%
City of Albany	1990	7,468	7,192	276	3.70%
	2000	7,248	7,011	237	3.30%
Census Tract 4204 (Alternative 2)	1990	929	924	5	0.50%
	2000	679	608	71	10.50%
Census Tract 4220 (Alternatives 3, 4, and 5)	1990	655	622	33	5.00%
	2000	634	580	54	8.50%

Source: U.S. Census 2000 and 1990.

Existing and projected households within the Study Area are shown in Table 3-11. Housing is projected to grow in the City of Albany, City of Berkeley, and Alameda County by 14 percent, 12 percent and 29 percent respectively from 2005 to 2035. The percentage of vacant housing units remained relatively stable in Alameda County, the City of Berkeley, and the City of Albany between 1990 and 2000. However, Census Tract 4204 and 4220 experienced a growth of 9.5 percent and 3.5 percent respectively, in vacant housing units.

Table 3-11
Existing and Projected Households

Area	2005	2015	2025	2035	Projected Growth 2005-2035
City of Albany	7,130	7,490	7,790	8,110	14%
City of Berkeley	45,530	47,050	48,960	50,980	12%
Alameda County	543,790	589,780	643,030	700,090	29%

Source: Association of Bay Area Governments, 2006.

Population

The historical population of the study area is located in Table 3-12. Between 1990 and 2000, the Cities of Berkeley and Albany grew by less than 1 percent, while Alameda County grew by over 12 percent. Census Tracts 4204 and 4220 decreased in population by approximately 34 and 29 percent respectively from 1990 to 2000.

Table 3-12
Historical Population

Year	Alameda County	City of Berkeley	City of Albany	Census Tract 4204 (Alternative D)	Census Tract 4220 (Alternatives A, B, and C)
1990	1,279,182	102,724	16,327	2,598	1,872
2000	1,443,741	102,743	16,444	1,721	1,333
Growth from 1990 to 2000	12.86%	0.02%	0.72%	-33.76%	-28.79%

Source: U.S. Census 2000 and 1990.

Table 3-13 illustrates the existing and projected population of the study area. The populations of the City of Albany, City of Berkeley, and Alameda County are each projected to grow by 14 percent, 14 percent, and 29 percent respectively from 2005 to 2035.

Table 3-13
Existing and Projected Population

Area	2005	2015	2025	2035	Projected Growth 2005-2035
City of Albany	16,800	17,600	18,300	19,200	14%
City of Berkeley	104,400	109,000	113,900	119,400	14%
Alameda County	1,505,300	1,635,700	1,776,900	1,938,600	29%

Source: Association of Bay Area Governments, 2006

The Berkeley Marina currently has 100 live aboard vessels, with an average of two residents per vessel. Therefore, the Berkeley Marina population is estimated at 200 people. Currently, the Berkeley Marina is allowed to have 10 percent of the total berths as liveaboards. The Berkeley Marina has a total of 1,100 berths; therefore the Berkeley Marina liveaboard population may expand to a maximum of 220 people (Shelley, 2007).

3.3.3 Ethnicity

According to U.S. Census Bureau data, the Latino populations are not an official ethnic category due to reporting inaccuracies. Often, Latinos self-report themselves as being a part of another ethnic category, mostly white. While the census data cannot provide an exact number of Latinos in a census year, those that marked Latino were separated into their own category for analysis purposes. As shown in Table 3-14, the majority of the population of Census Tracts 4204 and 4220 are considered White or Asian.

The racial and ethnic population is more than 50 percent of the population of Census Tracts 4204 and 4220, which typically constitutes an environmental justice community. However, the racial and ethnic population distribution can be attributed to the University Village, which is a University of California at Berkeley family student housing facility located at 1125 Jackson Street in Albany, and the proximity of the census tracts to the University of California at Berkeley. Approximately 65 percent of the students at UC Berkeley in the fall of 2006 were considered to be racial minorities (UC Berkeley, 2007). The proposed project will increase mobility by providing an additional mode of public transportation for the residents and increase the area's economic prosperity.

3.3.4 Low-Income and Poverty Status

Table 3-15 illustrates the poverty status for the study area. Residents of Census Tract 4220 are not considered a low income environmental justice community since the total tract population has less the 50 percent of persons living in poverty and is less than 2 percentage points higher than the percentage of population below the poverty level in Alameda County and the City of Berkeley.

Census Tract 4204 consists of University Village, which is a University of California at Berkeley owned family student housing facility located in Albany. This housing is available to students who are married, single-parent, and domestic partner student families. University Village encompasses 58 acres and has 760 one, two, and three bedroom apartments and two bedroom townhouses (UC Housing, 2007). Residents of Census Tract 4220 have a percentage of the population below the poverty level that is more than 2 percentage points higher than the percentage of population below the poverty level in Alameda County and the City of Albany, attributable to predominance of student population within the Census Tract.

Table 3-14
Ethnicity Data for 2000

Ethnicity	Alameda County		City of Berkeley		City of Albany		Census Tract 4204 (Alternative D)		Census Tract 4220 (Alternatives A, B, and C)	
	Population	%	Population	%	Population	%	Population	%	Population	%
White	704,334	48.8	60,797	59.2	10,078	61.3	470	27.3	624	46.8
Black or African American	215,598	14.9	14,007	13.6	675	4.1	119	6.9	358	26.9
American Indian and Alaska Native	9,146	0.6	467	0.5	64	0.4	16	0.9	19	1.4
Asian	295,218	20.4	16,837	16.4	4,126	25.1	823	47.8	163	12.2
Native Hawaiian and Other Pacific Islander	9,142	0.6	146	0.1	22	0.1	7	0.4	3	0.2
Some Other Race	129,079	8.9	4,764	4.6	521	3.2	129	7.5	85	6.4
Two or More Races	81,224	5.6	5,725	5.6	958	5.8	157	9.1	81	6.1
Total	1,443,741	100	102,743	100	16,444	100	1,721	100	1333	100
Hispanic or Latino (of Any Race)	273,910	19	10,001	9.7	1,312	8	239	13.9	180	13.5

Source: U.S. Census, 2000.

Table 3-15
Poverty Level Status in 2000

	Alameda County	City of Berkeley	City of Albany	Census Tract 4204 (Alternative D)	Census Tract 4220 (Alternatives A, B, and C)
Population	1,433,741	102,743	16,444	1,721	1,333
Persons Below Poverty Level	156,804	19,495	1,304	358	164
Percentage of Population Below Poverty Level	10.9	19.0	7.9	20.8	12.3

Source: U.S. Census 2000.

3.4 PARKLANDS AND RECREATIONAL FACILITIES

3.4.1 Regulatory Framework

United States Department of Transportation Act of 1966- Section 4(f)

Section 4(f) provides protection to certain publicly used lands and historic sites. Under Section 4(f), the FTA shall not approve a program or project which requires the use of any publicly owned public park, recreation area or wildlife or waterfowl refuge, or land from an historic site officially designated by a federal, state, or local agency and the officials of these governmental entities, having jurisdiction over the land, as a major purpose or function of the land unless there is no feasible and prudent alternative to the use, and all possible planning to minimize harm resulting from such use is included. Incidental, secondary occasional or dispersed park, recreational, or refuge activities do not constitute a major purpose. Officials having jurisdiction are the officials of the agency owning or administering the land. If the authority has been delegated or relinquished to another agency, that agency must be contacted to determine the major purpose(s) of the land. Management plans that address or officially designate the major purpose of the property are reviewed as part of this determination. After consultation, and in the absence of an official designation of purpose and function by the officials having jurisdiction, FTA bases its decision on its own examination of the actual functions that exist. The final decision on applicability of Section 4(f) to a particular property of type of land is made by FTA. In reaching this decision, FTA relies on the official having jurisdiction over the resource to determine that the kinds of activities and functions that take place constitute a major purpose. Documentation of the determination of non-applicability is included in the environmental document or project record.

United States Department of Interior Section 6(f) Lands

The Department of Interior Land and Water Conservation Fund Act (LWCFA) of 1965 as amended, U.S. Code: 16 U.S.C Sections 4601-4 et seq., commonly known as Section 6(f), allows the Secretary of Interior, acting through the Director of the National Park Service, to establish a land and water conservation fund. The fund provides money to federal agencies, states, or state's designee for purchasing land and developing outdoor recreational facilities for the public. The Act requires that all lands acquired or developed with Land and Water Conservation Fund Act assistance be maintained in public outdoor recreation use, or suitably replaced. If the selected alternative (LPA) directly or indirectly affects parklands, consultation with the Department of Interior, the LWCFA liaison, and the state and regional park departments will occur in conjunction with the preparation of the chapter describing Section 4(f) and Section 6(f) evaluation and mitigation, as required.

San Francisco Bay Plan (2003)

BCDC is a state agency with the authority to issue or deny permit applications for placing fill, extracting minerals, or changing the use of any land, water, or structure within the San Francisco Bay. The San Francisco Bay Plan, adopted in 1968 by BCDC and last amended in 2006, includes policies to guide future uses of the Bay and shoreline and includes a set of maps which

show where the policies should apply to the present Bay and shoreline. Transportation Policy 5 in the Plan states that ferry terminals should be sited at locations that are near navigable channels, would not rapidly fill with sediment, and would not significantly impact tidal marshes, tidal flats or other valuable wildlife habitat (BCDC, 2002).

Eastshore State Park General Plan (2002)

A General Plan, prepared in partnership with East Bay Regional Parks District (EBRPD) was completed for Eastshore State Park and approved by the State Park and Recreation Commission in December 2002. The General Plan provides for the conservation of unique natural resources while providing outstanding recreational opportunities and protecting spectacular views of San Francisco Bay (CDPR, 2002).

City of Berkeley General Plan (2001) – Open Space Element

The Open Space and Recreation Element establishes a policy framework and action program for the maintenance, improvement, and expansion of Berkeley's open space and recreational facilities. The Element addresses open spaces, including parks, playgrounds, recreation centers, swim centers, public gardens, the Berkeley Marina, public paths and stairways, landscaped medians, and sidewalks. The following policy applies to the proposed sites located within the City of Berkeley:

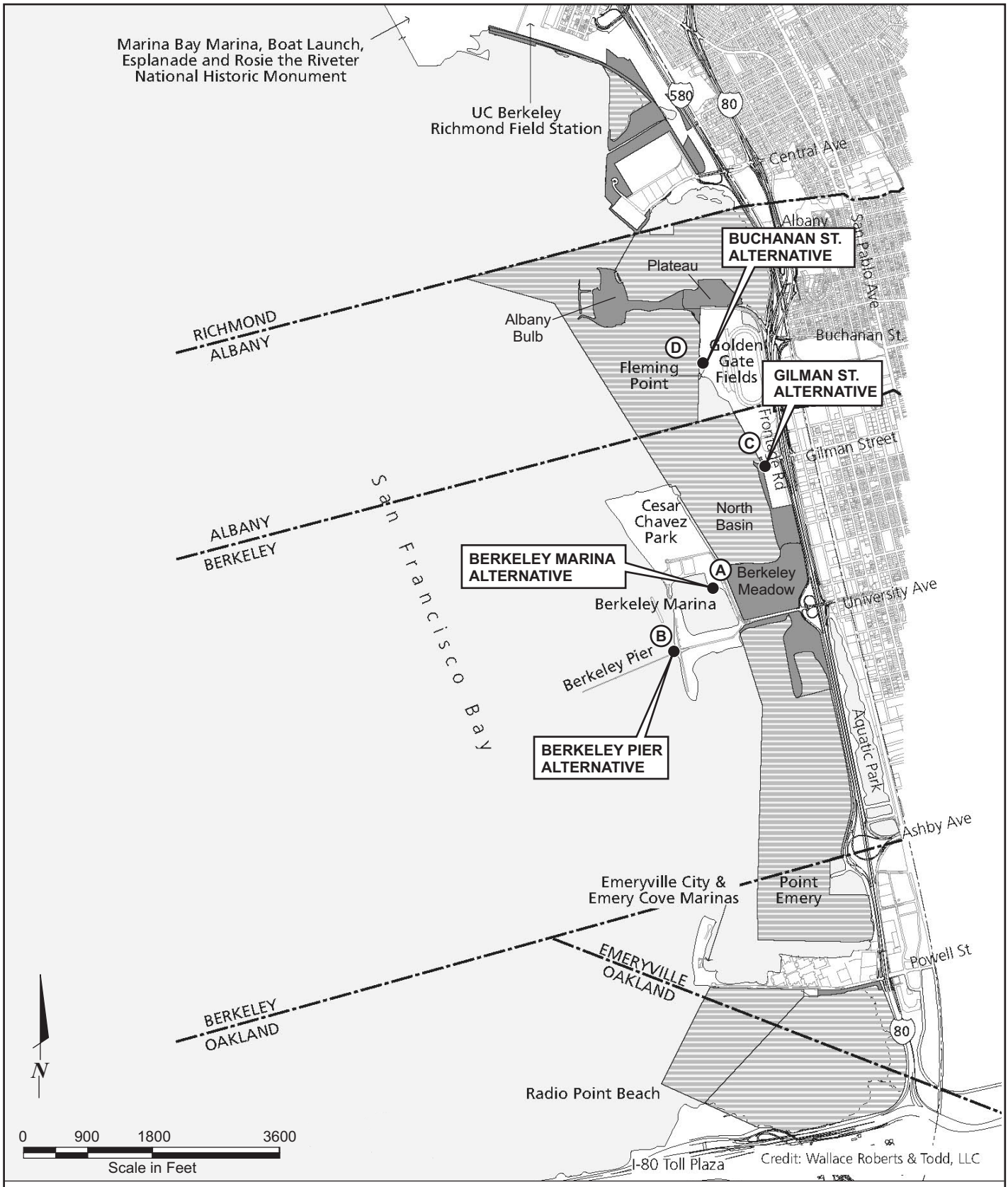
- **Policy OS-13.** Implement the 1986 Waterfront Plan policies to establish the waterfront as an area primarily for recreational, open space, and environmental uses, with preservation and enhancement of beaches, marshes, and other natural habitats. (Also see Land Use Policies LU-43 and LU-44.)

3.4.2 Existing Parklands and Recreational Areas

The parklands and recreational areas located within the study area are described below. The Eastshore State Park boundaries are illustrated in Figure 3-10 and the parks owned and operated by the Cities of Berkeley and Albany are indicated in Figure 3-11.

Eastshore State Park

The Eastshore State Park extends approximately 8.5 miles along the eastern shoreline of San Francisco Bay from the Oakland Bay Bridge north to the Marina Bay neighborhood in the City of Richmond. The park project includes approximately 2,262 acres of uplands and tidelands along the waterfronts of the cities of Oakland, Emeryville, Berkeley, Albany, and Richmond (CDPR, 2002). Current plans for the Eastshore State Park indicate that the "Meadow" area of the Berkeley waterfront will be part of the park's uplands. The Meadow abuts the Berkeley Marina and is an area of the waterfront that resulted from the placement of fill over mudflats and open water. In addition, an open-space area north and west of the Buchanan Street site serves as a passive recreational area, with few facilities. This land provides access for users to Albany Beach and other parkland areas. Albany and Berkley Meadow are conservation areas. The North Basin and Plateau are recreational areas as well which will eventually be connected to the Bay Trail.



LEGEND

- Upland Parklands
- City Boundaries
- Aquatic Parklands
- Potential Terminal Location

Source:
Modified from CDPR, 2002.

EASTSHORE STATE PARK

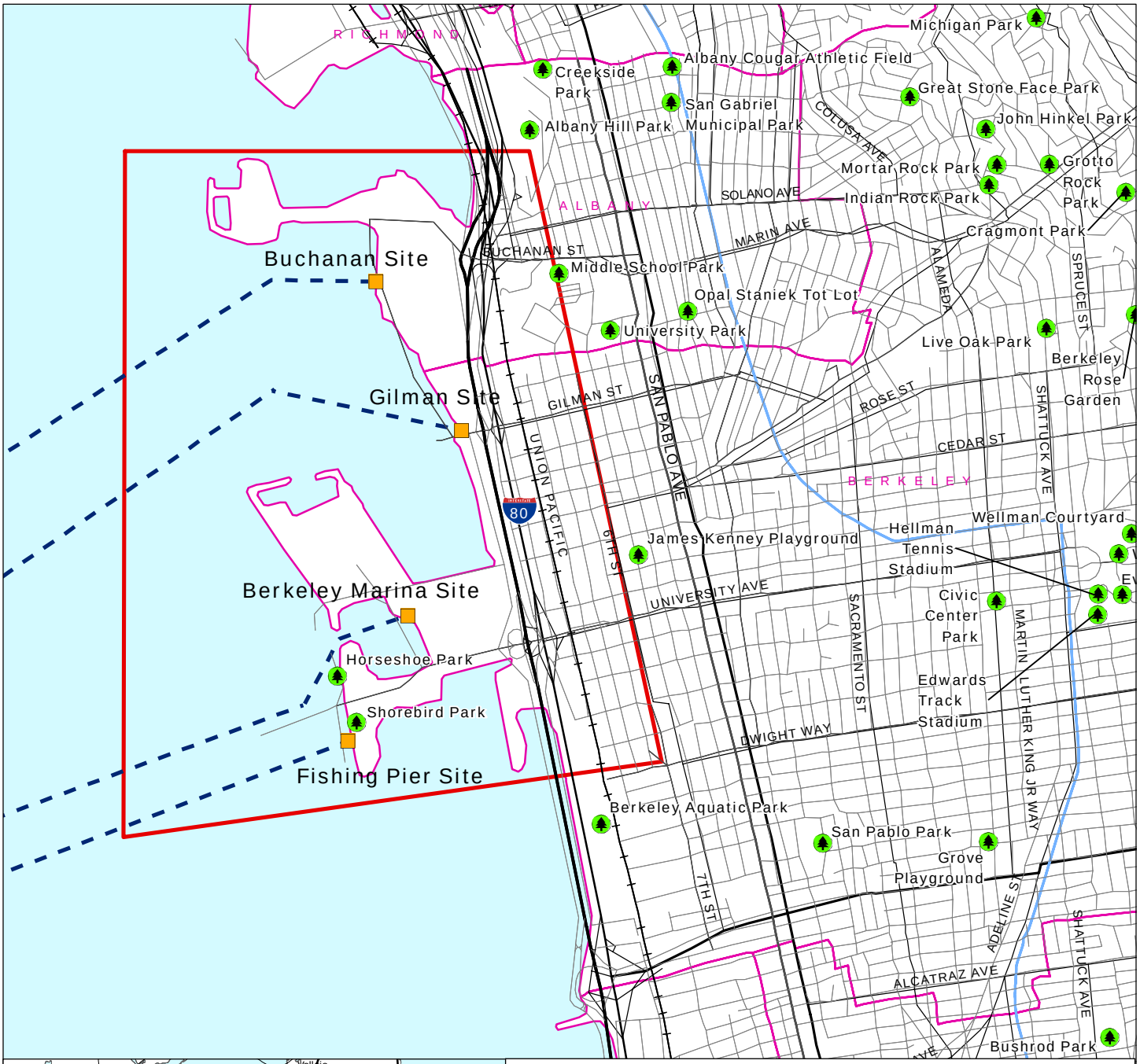
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FIGURE 3-10

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PARKS IN VICINITY OF BERKELEY/ ALBANY FERRY TERMINAL SITE LOCATION ALTERNATIVES

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FIGURE 3-11

Source: Cities, Counties and Hydrology, California Spatial Information Library, 1997; Potential Ferry Terminals and Routes, URS, 2007; Rail Lines and Roads, US Census Bureau Tiger Data, 2000; BART Line, MTC, 2004; Aerial Imagery, USDA FSA Aerial Photography Field Office, 2005; Parks, Geographic Names Information System, USGS, January 2007.

Map Document: (C:\GIS\WTA_BerkeleyAlbanyFerry\Projects\potential_ferryterminals_parks.mxd) 7/27/2007 -- 9:00:32 AM KLawrence

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The Bay Trail

The Bay Trail is a collaborative project by Bay Area cities, park agencies (California Department of Parks and Recreation [CDPR] and EBRPD), Bay agencies (ABAG and BCDC), and transportation agencies (Caltrans and MTC) to create a multi-use trail around the Bay. When complete, the Bay Trail will be a continuous 400-mile recreational corridor that will encircle the entire Bay Area, connecting communities to each other and to the Bay. It will link the shorelines of all nine counties in the Bay Area and 47 of its cities. The Bay Trail represents an important element in linking the noncontiguous parts of the Eastshore Park Project to each other and to adjacent municipal recreational facilities (CDPR, 2002). To date, 240 miles of the Bay Trail, or more than half its ultimate length, have been developed (ABAG, 2007).

Aquatic Park

Aquatic Park is a City of Berkeley Park located east of I-80 between Ashby and University Avenues. The park is a remnant of the Bay's historic east shore. When the Bay was filled to create the freeway, a section of it was isolated east of the roadway, creating what is now Aquatic Park. The recent completion of the pedestrian/bicycle bridge over I-80 links Aquatic Park with the Brickyard area of the Eastshore Park Project (CDPR, 2002).

Berkeley Marina

The Berkeley Marina contains 52 acres of water and 975 berths. A breakwater protects the Berkeley Marina against surge and rough waters of the Bay. Berths have storage lockers, water, electrical outlets, night lighting, parking, restrooms and showers, and locked gates. Approximately 90 percent of berthed vessels are sailboats; the remainder are motorized watercraft (Hardinger, 2006).

Berkeley Fishing Pier

Recreational fishermen use the pier to cast their fishing lines and pedestrians use the pier for strolling or observation.

Cesar Chavez Park

Cesar Chavez Park is a 90-acre municipal park located north of the Berkeley Marina. Built on a former municipal landfill, Cesar Chavez Park consists of rolling turf, an off-leash dog area, and 1.5 miles of paved trails. The park hosts several large seasonal events and festivals (CDPR, 2002). There are no improvements planned for this park.

Gilman Street Playing Fields

The area at the foot of Gilman Street south of the Gilman site is being developed by the City of Berkeley for recreational playing fields and a future Bay Trail route. On March 27, 2007, the Berkeley City Council decided to proceed with the construction of the playing fields, which also requires a lease agreement with the EBRPD. The site, which is approximately 15.76 acres in size, will include one baseball diamond, two softball fields, two full size soccer fields and a parking lot for approximately 50 automobiles.

Horseshoe Park

Horseshoe Park is located at 101 Seawall Drive, at the Berkeley Marina. The park is 3.39 acres in size (147,670 square feet) and features a multi-purpose turf with landscaping, vista with marina view and a shoreline access area. Horseshoe Park offers protection from the west winds and a wonderful view across the harbor to the East Bay Hills (City of Berkeley, 2007a).

Shorebird Park

Shorebird Park is located on the southern edge of the Berkeley Marina area along the shores of the South Sailing Basin. The park includes the Shorebird Nature Center (an educational and interpretive center dedicated to teaching children about the Bay ecology), a boat launch area, and an adventure playground for young children (CDPR, 2002). Shorebird Park is less than 300 feet from the site. Park facilities here include the Shorebird Nature Center, picnic sites, children's play areas, a multi-purpose turf, and other facilities.

3.5 AESTHETICS AND VISUAL RESOURCES

This section describes the visual quality of the area around each proposed terminal site, including views and viewpoints, depth of perspective, and color and texture of the visual setting. It also denotes if there are controlling local or regional regulations that restrict or guide the design of new infrastructure, in terms of height and bulk, materials, or visual setbacks. This information is used to compare the existing environment with potential modifications resulting from project implementation.

3.5.1 Regulatory Framework

Cities of Berkeley and Albany

The City of Berkeley has no specific height and bulk restrictions for land uses designated as Unclassified or a Specific Plan review of projects in these areas such as along the waterfront is on a case by case basis (City Berkeley Planning Department, August 3, 2007). In the City of Albany, areas such as the Buchannan site located in waterfront and public facilities districts, where site regulations not otherwise specified are determined by the Planning and Zoning Commission on a use permit basis (City of Albany Zoning Code, Table 2.B).

Bay Area Conservation and Development Commission

BCDC maintains public access design guidelines for the San Francisco Bay called "Shoreline Spaces," that provides direction for the design of gathering and seating areas site furnishings and signage along the Bay shorelines projects are examined on a case by case basis (McCrae, 2007.)

3.5.2 Visual Setting

Alternative A (Berkeley Marina Site)

As indicated in Figures 3-12 and 3-13, the foreground and middle ground setting at the Berkeley Marina site is punctuated by the masts of the sailboats that are docked in close quarters at the Berkeley Marina. The white hulls of the sailboats are contrasted by the colorful sail coves and the dark tones of the water and access planks. The view to the distant horizon is interspersed with a multitude of masts and the vertical presence of the Hornblower vessel, also docked in the Berkeley Marina. The boats hug the shoreline allowing an unobstructed view across the middle of the Berkeley Marina to the breakwater, whose linear presence articulates the horizon line at the mouth of the Berkeley Marina. Except for a scattering of evergreens and low lying vegetation as well as cars parked across the nearby parking areas, the foreground and middle ground views looking inland are unobstructed as well, looking out over the shoreline toward the low-lying industrial buildings and the distant hills. The roofline of structures associated with the Berkeley Marina and Doubletree are barely visible through the evergreens, which appear to have been planted to obstruct the view of the hotel from the Berkeley Marina.

Alternative B (Berkeley Fishing Pier Site)

The shoreline at the Berkeley Fishing Pier is demarcated by a straight line of dark boulders accentuated by the parallel line that separates the roadway from the pedestrian path (Figure 3-14). The light grey tones of the water contrast with browns of the riprap and strengthen the linear perspective of the view along the shoreline. This perspective is broken by the intrusion of evergreens, slender utility poles, and a low structure that obscure the distant horizon. Extending out from this billowing mass of vegetation is the Berkeley Fishing Pier, which articulates the horizon from this vantage point. The pier adds another linear dimension to the perspective, this time perpendicular to the shoreline. It frames on the north the unobstructed view across the Bay to the City and the Golden Gate Bridge. The perspective looking inland is interrupted in the foreground by trees and utility poles that punctuate the parking area. The hills are visible between these foreground elements.

Alternative C (Gilman Street Site)

The flat area in the foreground is interrupted in the middle ground by a rise in elevation which partially obstructs the view to Albany Bulb, which extends into the Bay along the horizon (Figures 3-15 and 3-16). The rise in elevation is mirrored by vegetation that climbs the slopes from the shoreline. At the crest of the rise are a line of palm trees that demarcate the sleek line of the racetrack grandstand from the undeveloped slope. A roadway leading to the grandstand mimics the linearity of the shoreline before leading the viewer's perspective to the top of the rise in a sweeping curve. The view of the road is highlighted by a green fence bordering the road interspersed with the slender verticality of light standards and the contrasting white rooflines of horse trailers located off to the right. The horse trailers partially obstruct the inland view to the hills in contrast to the view across the Bay, which is an open expanse to the hills of Marin.

Alternative D (Buchanan Street Site)

The Buchanan Street site has unobstructed views in all directions with the exception of the southerly view which is interrupted by the protruding lines of the racetrack grandstand. Because the area is surrounded by a vast parking area and low-lying shoreline defined by riprap, the foreground views blend with the expansive sight lines across the Bay and draw the viewer's attention to the more dramatic long views west to Marin. The long view is punctuated by slender points of land extending into the Bay on the north and the west that frame the views to the western horizon (Figures 3-17 and 3-18). Also leading the view across the Bay are the remnants of broken down piers that angle into the water from the shoreline. Inland views are also unobstructed, with the linear features of the freeway overpass underlining the textured relief of scattered houses climbing Albany Hill in the background.

3.6 CULTURAL RESOURCES

3.6.1 Regulatory Framework

Federal Mandates

Federal laws, procedures, and policies affecting the treatment of cultural resources include the Antiquities Act of 1906, Public Law 59-209, EO 11593, Section 106 of the National Historic Preservation Act (NHPA) of 1966 (Public Law 89-665), as amended, Public Law 93-291, the NEPA of 1969 (Public Law 91-190), the Federal Land Policy Management Act (Public Law 94-94-579), regulations 36 Code of Federal Regulations (CFR) 60 and 36 CFR 800.

For management purposes, a cultural resource must be recommended as either eligible or not eligible to the National Register of Historic Places (NRHP) to determine effect and the need for mitigation of effect. If the property (cultural resource) is determined eligible, then a determination of effect, as per 36 CFR 800, must be provided. If the property is identified as not eligible, then no determination of effect or mitigation measures is necessary. Recommendations are reviewed and approved by the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP).

The NHPA requires all federal agencies to assess the effects of any agency-sponsored undertaking on cultural resources. The federal agency is responsible for project compliance with Section 106 of the NHPA and its implementing regulations, set forth by the ACHP at 36 CFR 800.

Four evaluation criteria to determine a resource's eligibility to the NRHP, in accordance with the regulations outlined in 36 CFR 800, are identified at 36 CFR 60.4. To determine site significance through application of National Register criteria, several levels of potential significance that reflect different (although not necessarily mutually exclusive) values must be considered. As provided in 36 CFR 60.4:



VIEW OF BERKELEY MARINA
LOOKING WEST

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FIGURE 3-12

9/26/08 rk/hk.. \WTA\EIS EIR 2008\F3-12_photo1.ai



VIEW OF BERKELEY MARINA LOOKING NORTH TO THE DOUBLETREE HOTEL

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FIGURE 3-13

9/26/08 rk/hk.. \WTA\EIS EIR 2008\F3-13_photo1.ai



VIEW OF BERKELEY FISHING PIER LOOKING NORTH

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FIGURE 3-14

9/26/08 rk/hk.. \WTA\EIS EIR 2008\F3-14_photo1.ai



VIEW OF GOLDEN GATE FIELDS GRANDSTAND LOOKING NORTH

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FIGURE 3-15

9/30/08 rk/hk.. \WTA\EIS EIR 2008\F3-15_photo1.ai



VIEW OF STRUCTURES AT SOUTH END OF GOLDEN GATE FIELDS

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FIGURE 3-16

9/26/08 rk/hk.. \WTA\EIS EIR 2008\F3-16_photo1.ai



VIEW OF SHORELINE LOOKING SOUTH FROM GOLDEN GATE FIELDS

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FIGURE 3-17

9/26/08 rk/hk.. \WTA\EIS EIR 2008\F3-17_photo1.ai



VIEW OF SHORELINE LOOKING WEST FROM GOLDEN GATE FIELDS PARKING AREA

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FIGURE 3-18

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The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

1. That are associated with events that have made a significant contribution to the broad patterns of our history,

2. That are associated with the lives of persons significant in our past,

3. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or

4. That have yielded, or may be likely to yield, information important in prehistory or history.

These evaluation criteria are used to help determine what properties should be considered for protection from destruction or impairment resulting from project-related activities (36 CFR 60.2).

The American Indian Religious Freedom Act, 42 United States Code (USC) 1996, has been established to protect religious practices, ethnic heritage sites, and land uses of federally recognized Native Americans. The Native American Graves Protection and Repatriation Act applies to human remains found on federal lands.

In addition, the historic resources inventory comply with applicable sections of the NHPA and the implementing regulations of the ACHP, as well as the Section 106 PA, as these pertain to federally funded undertakings and their impacts on historic properties. The properties have also been evaluated in accordance with Section 15064.5(a)(1)-(4) of the CEQA Guidelines using the criteria outlined in Section 5024.1 of the California Public Resources Code (PRC). The Secretary of the Interior guidelines for evaluation of National Register eligibility is for buildings, structures, or features 50 years of age or older. This technical report includes resources 45 years or older (constructed in 1962 or earlier) to account for lead time between preparation of environmental documentation and actual project construction.

In initiating the Section 106 process, FTA determines whether it has an undertaking that is a type of activity that could affect historic properties, which are included in the NRHP or that meet the criteria for the National Register. If so, FTA initiates consultation with the SHPO and the Tribal Historic Preservation Officer (refer to FTA letter to SHPO in Appendix C). In this case, FTA provides SHPO and Tribal Historic Preservation Officer with documentation and, barring any objection in 30 days, proceeds with the undertaking. If FTA finds that historic properties are present, it proceeds to assess possible adverse effects. If FTA determines that the undertaking is a type of activity that has no potential to affect historic properties, the agency has no further Section 106 obligations.

State Mandates

The basic goal of CEQA is to develop and maintain a high-quality environment now and in the future. The CEQA Guidelines provide a framework for the analysis of impacts to archaeological resources.

In considering impact significance under CEQA, the significance of the resource itself must first be determined. At the state level, consideration of significance as an "important archaeological resource" is measured by cultural resource provisions considered under CEQA Sections 15064.5 and 15126.4, and the criteria regarding resource eligibility to the California Register of Historic Resources (CRHR).

The criteria for eligibility to the CRHR are very similar to those that qualify a property for the NRHP, which is the significance assessment tool used under the NHPA. Essentially, a property that is eligible for the NRHP is also eligible to the CRHR.

Generally under CEQA, a historical resource (these include built-environment, historic, and prehistoric archaeological resources) is considered significant if it meets the criteria for listing on the CRHR. These criteria are set forth in CEQA Section 15064.5 and defined as any resource that:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage,

2. Is associated with lives of persons important in our past,

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic value, or

4. Has yielded, or may be likely to yield, information important in prehistory or history.

Section 15064.5 of CEQA also assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. These procedures are detailed under PRC 21083.2. A "unique archaeological resource" implies an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is high probability that it meets one of the following criteria:

1. The archaeological artifact, object, or site contains information needed to answer important scientific questions, and there is a demonstrable public interest in that information,

2. The archaeological artifact, object, or site has a special and particular quality, such as being the oldest of its type or the best available example of its type, or

3. The archaeological artifact, object, or site is directly associated with a scientifically recognized important prehistoric or historic event or person.

A non-unique archaeological resource indicates an archaeological artifact, object, or site that does not meet the above criteria. Impacts to non-unique archaeological resources and resources which do not qualify for listing on the CRHR receive no further consideration under CEQA.

Under CEQA Section 15064.5, a project would potentially have significant impacts if it would cause substantial adverse change in the significance of one of the following:

1. A historical resource (i.e., a cultural resource eligible for the CRHR)

2. An archaeological resource (defined as a unique archaeological resource which does not meet CRHR criteria),

3. A unique paleontological resource or unique geologic feature (i.e., where the project would directly or indirectly destroy a site or resources), or

4. Human remains (i.e., where the project would disturb or destroy human burials).

A non-unique archaeological or paleontological resource is given no further consideration other than the simple recording of its existence by the CEQA lead agency.

Potential impacts to identified cultural resources need only be considered if the resource is an "important" or "unique archaeological resource" under the provisions of CEQA Sections 15064.5 and 15126.4 and the eligibility criteria. If a resource cannot be avoided, then the resource must be examined vis-à-vis the provisions of CEQA Sections 15064.5 and 15126.4 and of the eligibility criteria as an "important" or "unique archaeological resource." In many cases, determination of a resource's eligibility can only be made through extensive research and archaeological testing. No mitigation measures are required unless previously undiscovered cultural resources are detected. Mitigation under CEQA must address impacts to values for which a cultural resource is considered important. To mitigate adequately, it must therefore be determined what elements make a site eligible for the CRHR. The first line of mitigation is complete avoidance, when feasible, of all cultural resources.

3.6.2 Area of Potential Effects

Archaeological APE

The FTA has determined that the undertaking's horizontal (on the surface) Area of Potential Effects (APE) would consist of the proposed ferry terminal locations, areas that would be used for parking lots and portions of navigation channels where dredging will occur. The approximate total area for each site, including dredge channel, is as follows: Berkeley Pier, 103 acres, Berkeley Marina Site, 118 acres, Gilman site, 128 acres, and Buchanan site, 124 acres. The portions of the navigational channels that fall within the APE are 150 feet wide and range in length from 10,000 to 12,000 feet. The APE for the proposed navigation channels includes a 50-foot buffer to allow for temporary

anchorages and other potential disturbances related to dredging activities. Elements of this undertaking include, but are not limited to, dredging of navigation channels, grading and paving of parking lots, installation of utility distribution systems, and construction of fixed piers, gangways and floats. Figure 3-19 depicts the horizontal APE for this undertaking.

The (below the surface) vertical APE has been determined to range in depth, due to various types of construction activities. Some of the construction activity associated with this undertaking will have negligible vertical disturbance, e.g., re-striping of existing surface parking lots. Activities associated with this undertaking that have been determined to have vertical disturbance include dredging, construction of fixed piers and trenching of utility corridors. It is estimated that the maximum vertical disturbance of these activities will be up to 8 feet within the navigation channels and up to 5 feet for utility trenches.

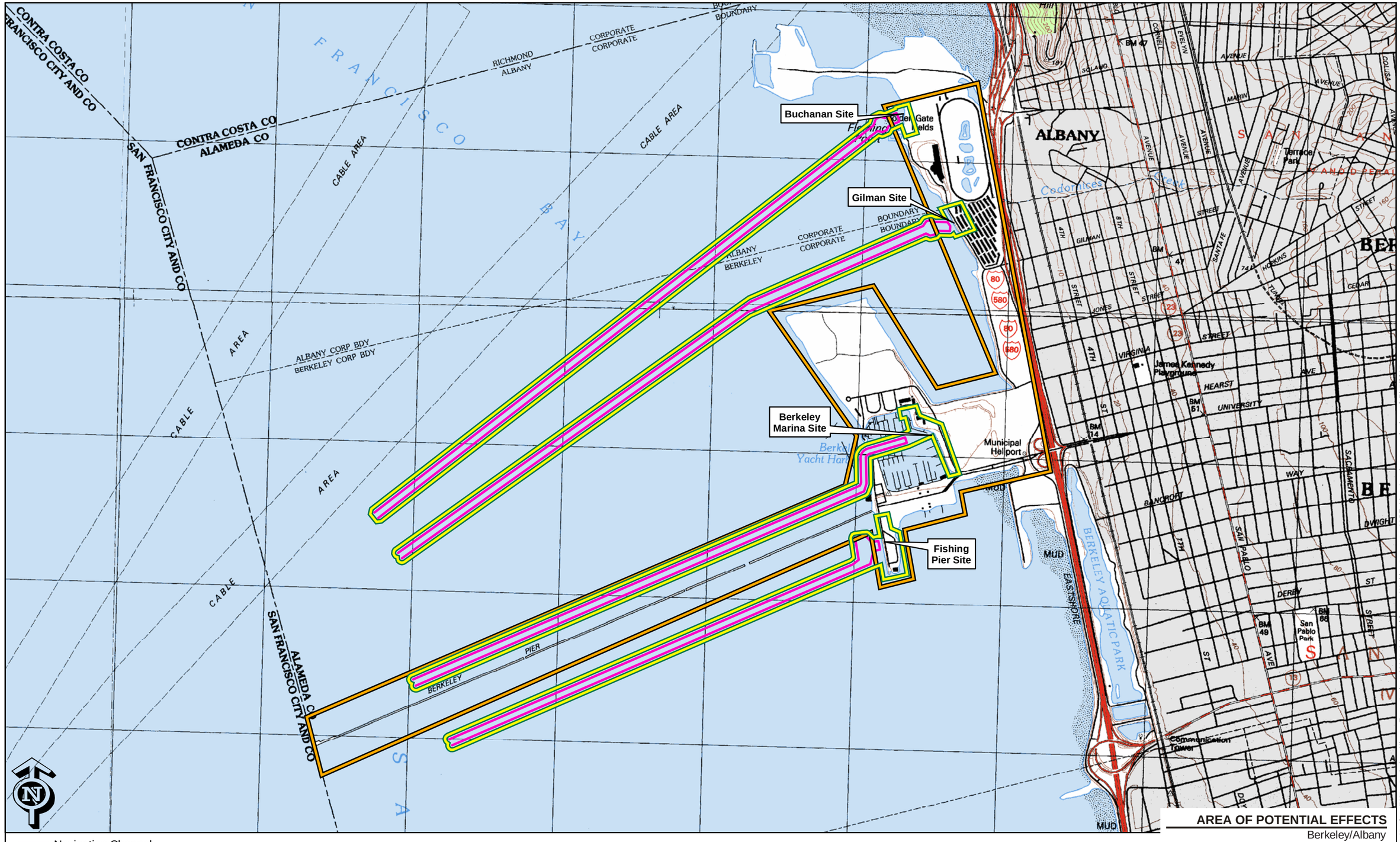
Architectural APE

The historic architectural APE for this project covers an area along the eastern shoreline of San Francisco Bay in northern Alameda County, from the City of Albany south to University Avenue and the Berkeley Marina. This area encompasses municipal land and privately-owned legal parcels. The properties surveyed are related to general historical patterns of waterfront and recreational development in this area, and influenced by changes to and expansion of those facilities. The waterfront landscape changed dramatically during the post World War II period, as landfill activities and freeway improvements changed and expanded the shoreline. The resource complexes largely date to the mid twentieth century, from 1940 and later, but also include a few components that were built as early as the 1920s.

3.6.3 Results of Records Search

California Historical Resources Information System (CHRIS) records search (# 06-1344) was conducted by Ms. Lisa Hagel at the Northwest Information Center, at California State University, Sonoma on March 26, 2007. The CHRIS records search included a review of all recorded archaeological sites, historic structures, and other known cultural resources within the Archaeological APE and a half-mile radius around it, as well as a review of reports for all known cultural resources studies conducted within a half-mile search radius. The records search was initially conducted based upon a larger project study area, and was later refined to capture only those studies and resources within the project areas and ½ mile radius. A copy of the complete records search is included in the Cultural Resources Technical Report.

There were 38 additional archaeological studies and surveys conducted within a ½-mile radius of the Archaeological APE. No previously recorded sites fall within the archaeological APE for this project. Three previously recorded sites lie within a ½-mile of the APE. Additionally, a search of the California State Lands Commission Shipwrecks Database was conducted on May 31, 2007. No known shipwrecks are listed within the archaeological APE or within ½ mile radius of the APE.



AREA OF POTENTIAL EFFECTS

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FIGURE 3-19

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For the historic property survey inventory, pre-field research included review of the previous survey work in the area and project mapping, as well as the current NRHP listings, CRHR, California Historical Landmarks, Points of Historic Interest publications and updates, and the Office of Historic Preservation "Directory of Properties in the Historic Property Data File for Alameda County," as of December 2004. This search effort established that none of the properties in the supplemental survey population had been previously listed or determined eligible for the NRHP or CRHR.

Reconnaissance surveys of the area were conducted in June and July 2007, to account in the field for all the buildings, structures, and objects found within the APE. This field reconnaissance helped to determine which buildings appeared to have been built in 1962 or earlier and would therefore be studied for this project. While the Secretary of Interior sets a guideline for review of potential National Register eligible buildings, structures, or features at 50 years of age or older, this age limit was extended to include resources constructed in 1962 or before to account for lead time between preparation of environmental documentation and actual project construction. Buildings, structures and features built after 1962 are not included in the survey.

Additional pre-field background research was done through First American Real Estate Solutions commercial database, Alameda County records online, review of historic and current U.S. Geological Survey (USGS) topographic maps, nautical charts, historic aerial photography, and other documents to confirm dates of construction. The property-specific and historical context research included review of archival and published records, and of government records. Research for the project was conducted at the following locations: California State Library; the map collection and special collections of the University of California, Berkeley; and Shields Library at University of California Davis. A complete listing of materials consulted is provided in the Cultural Resources Technical Report.

3.6.4 Natural Setting

Paleoenvironment

Because the early Native Americans were dependent entirely on natural resources, their lifeways can be understood fully only with reference to the land and climate (Moratto, 1984). During the prehistoric period, the Bay Area featured a mosaic of plant communities ranging from salt marsh to redwood forest to grassland to mixed-evergreen woodland (Moratto, 1984). The East Bay plain was predominately grass covered, with patches of brush and coast live oak groves (Wallace and Lathrap, 1975; Chavez, 1989). Vegetation was most dense along the freshwater drainages, which supported yellow willow, California laurel, California buckeye and coast live oaks (Wallace and Lathrap, 1975; Chavez, 1989).

San Francisco Bay, as we now know it, was formed during a period of relatively rapid sea-level rise (average rate of 2 centimeters per year) between 9,000 and 6,000 B.C. (Stright, 1990). After 4,000 B.C., when the sea-level rise slowed to a rate of 0.1 to 0.2 centimeters/year, marshes began to develop around the bay. During this post 4,000 B.C. period, numerous shell middens were

created as a result of human activity within the Bay Area (Stright, 1990). Because of rising sea levels, many early sites may have been destroyed or may currently be submerged. The changing environment would have also played a role in shifts in subsistence through time (Bickel, 1978; Moratto, 1984).

A marked slow down in the rate of sea level rise occurred approximately 6,000 B.C. (Bickel, 1978; Josselyn, 1983). Eventually, sedimentation rates exceeded the sea level rise and extensive intertidal mudflats developed (Bickel, 1978; Josselyn, 1983). Many of the marshlands surrounding the Bay were established no more than 3,000 years ago (Moratto, 1984).

The growth of the marshes is of archaeological interest, because most of the San Francisco Bay shell middens were located in close proximity to marshes (Nelson, 1909; Bickel, 1978). Marshes are particularly productive ecosystems. The area's prehistoric populations took advantage of this productivity by harvesting fish, shellfish, birds, and land mammals which live or feed in or near the marsh, as well as the marsh plants themselves (Bickel, 1978).

The present day tidal wetlands have been greatly impacted by anthropogenic influences and we can now only infer how prehistoric marshes may have appeared (Josselyn, 1983). The most dramatic changes occurred during the period of hydraulic mining for gold in the Sierra Nevada (1855-1884). Sediments resulting from the removal of overburden flowed into streams and fine sediments reached Suisun and San Pablo bays causing widespread shoaling (Josselyn, 1983). The urbanization of the Bay Area in the post World War II era has also encroached substantially on the remaining tidal wetlands.

Ethnohistory

Based on linguistic and archaeological evidence, it is believe that Penutian-speaking peoples entered the Bay Area from the Sacramento River Delta region, displacing or replacing speakers of Hokan stock languages of the Bay Area, such as Esselen (Kroeber, 1925; Moratto, 1984). The proto-Costanoan homeland was probably located in the East Bay area, possibly in the Carquinez Straits vicinity (Moratto, 1984).

By around 1500 B.C., Costanoans occupied most of the east shore of the San Francisco Bay, presumably displacing or assimilating older Esselen language speakers as they advanced (Moratto, 1984); Moratto, 1984 indicates that the Berkeley Pattern, including the components previously assigned to the Middle Horizon, is attributable to the emergence of the Costanoan peoples.

The project area is situated within the *Chochenyo* territory of the Costanoan Indians. Costanoan is not a native term, but rather is derived from the Spanish word *Costanos* meaning coast people (Kroeber, 1925). The term Ohlone is preferred by modern Native Americans in the area.

The basic unit of the Ohlone political organization was the tribelet, consisting of one or more socially linked villages and smaller settlements within a recognized territory (Moratto, 1984). Principal villages were established at ecotones, that is, junctures of two or more biotic communities (e.g., oak woodland and bayshore marsh) (Moratto, 1984).

Subsistence activities emphasized: gathering berries, greens, and bulbs; harvesting seeds and nuts, of which acorn was the most important; hunting for elk, deer, pronghorn, and smaller animals; collecting shellfish; and taking varied fishes in stream, bay, lagoon, and open coastal waters (Moratto, 1984).

The population and traditional lifeways of the Ohlone were severely affected by the influences of the Spanish colonists and the Mission system. As the result of enforced missionization, disease and direct assault, by 1800, few if any Ohlone remained on the land or subsisted in native lifeways; in fact, native population had declined in some area by as much as ninety percent.

Prehistory

The first regional chronology for the Bay Area was established by R.K. Beardsley in 1948 (Beardsley, 1948, 1954a, 1954b). This scheme was originally devised for chronologically organizing sites from Central California, the Sacramento Delta, and the northern San Joaquin Valley (Lillard, Heizer, and Fenenga, 1939). Beardsley (1954a) refined this scheme, which became known as the Central California Taxonomic System (Moratto, 1984). The system relies on identifying certain characteristics such as burial patterns (whether the body is flexed or extended), shell bead types, stone tools, and even where the sites tend to occur. These traits and characteristics are used to place a site in a specific time period. The system is still widely used by archaeologists. It organizes the archaeology of the region as follows:

- Paleoindian: earlier than 8,000 year ago
- Early Horizon: 8,000 to 2,500 years ago
- Middle Horizon: 2,500 to 1,100 years ago
- Late Horizon: 1,100 to 200 years ago
- Historic: 200 years ago to modern times

Scholars have debated whether the Early Horizon inhabitants of the Central Valley were culturally related to inhabitants of the San Francisco Bay, or if they developed independently (Bickel, 1981; Gerow and Force, 1968). The exact dynamics of cultural change and interchange between these two groups is still unclear.

It has been suggested that the Early Middle Horizon (4,500 to 2,500 years ago), now referred to as the Windmiller Pattern, is associated with an influx of peoples from outside of California who brought with them an adaptation to river-wetland environments (Moratto, 1984). Typical Windmiller sites are often situated in riverine, marshland, and valley floors, settings that offer a variety of plant and animal resources. These sites often contain burials that are extended ventrally and oriented to the west. Burial artifacts include a variety of fishing paraphernalia (net weights, spear points, and bone hooks) and large projectile points, as well as large and small mammal remains.

The subsequent Middle Horizon or Berkeley Pattern covers a period from 2,500 to 1,500 years ago in Northern California. This pattern overlaps somewhat with the Windmiller attributes at the beginning and with the late Prehistoric artifacts at the end. Berkeley Pattern sites are much more

common and well documented; therefore, they are better understood than the Windmiller sites. The sites are distributed in more diverse environmental settings, although a riverine focus is common. As described by Allan et al. (1997:9), sites from this period include deeply stratified midden deposits containing large assemblages of milling and grinding stones for the processing of vegetal resources as well as smaller, lighter projectile points. Further distinguishing traits from earlier patterns include artifacts such as slate pendants, steatite beads, stone tubes, and ear ornaments. A shift in burial patterning is also evident with variable directional orientation, flexed body positioning, and a general reduction in mortuary goods (Fredrickson, 1973; Moratto, 1984).

Fredrickson (1973) has defined the later prehistoric period, which ranges from 1,500 to 150 years ago, as the Augustine Pattern. The pattern is characterized by intensive hunting, fishing, and gathering, a focus on acorn processing, large population increases, intensified trade and exchange networks, more complex ceremonial and social attributes, and the practice of cremation in addition to flexed burials. As pointed out by Allan et al. (1997), certain artifacts also typify the pattern: bone awls for use in basketry manufacture, small notched and serrated projectile points, the introduction of the bow and arrow, occasional pottery, clay effigies, bone whistles, and stone pipes.

History

Pursuant to the revised implementing regulations of the NHPA, found at Title 36 CFR Part 800.4(a) (4), URS Corporation, on behalf of FTA, contacted the California Native American Heritage Commission (NAHC) on May 30, 2007, to request a review of its Sacred Lands File and to receive a list of the individuals and groups that the NAHC believes should be contacted regarding information or concerns related to the project areas. The NAHC responded on May 31, 2007, with negative results for its search of the Sacred Lands File. On June 8, 2007, URS transmitted an informational letter to the eight potentially interested parties identified by the NAHC. Follow-up calls were made on July 19, 2007 and again on July 24, 2007. Two requests for additional information were received from Jakki Kehl, Ohlone/Costanoan, and Ann Marie Sayers, Chairperson, Indian Canyon Mutsun Band of Costanoan. Additional information was provided to these individuals. No other responses were received.

Information concerning consultation with Native American groups and individuals, including copies of the informational letter sent on behalf of the FTA on June 8, 2007, is included in Appendix D of this report.

Based upon the results of the Class I record search data and a review of the location of proposed alternatives sites, no archaeological pedestrian survey was conducted as a part of this baseline study. The proposed project areas are located primarily on imported fill, and preliminary project engineering information indicates construction would not penetrate below the fill zone. Two of the proposed project areas, the Buchanan site and the Gilman site, are located on what may be a natural land surface or earlier fill. Both of these areas were previously surveyed in 2006 with negative results. However, upon selection of a preferred alternative, more detailed studies including an archeological survey would be conducted if warranted.

Historic Property Survey

A detailed historic context for the project, along with historic themes appropriate for the project area, has been developed in the architectural analysis for this project (JRP, 2007). The reader is referred to the historic technical report for a detailed discussion of the project area history. A summary of information from the technical report for these two historic resources is provided below. The DPR 523 forms documenting these buildings and structures are presented in the Cultural Resources Technical Report.

The survey population consists of two large, multi-component complexes comprised of both buildings and structures: the Golden Gate Fields horse racing track, and the Berkeley Marina and adjacent Cesar Chavez Park. Components of these two facilities date to the historic era, or 1962 and before, and were therefore subject to survey.

Berkeley Marina Description. The Berkeley Marina is on of the largest small craft harbors on the West Coast, with 52 acres of water and about 1,000 berths that can accommodate crafts from 16 feet to 110 feet (Photo 1). The harbor entrance is protected from surge and rough water by an entrance breakwater. Berth rentals include the use of storage lockers, water and electrical hookup, parking, restrooms, and showers. The north side of the harbor includes a paved launching ramp, vehicle and boat parking, fuel dock, and a small boat repair and hoist facility. The Berkeley Marina administrative offices and several sailing/boating organizations and charter operators (such as the Berkeley Yacht Club) have offices in buildings on either side of the harbor. Two full service restaurants and a boat chandlery are located at the west end of the Berkeley Marina, and a large hotel conference is located at the east side of the harbor. The Berkeley Marina jetties and the breakwater are earth, rock riprap, and poured concrete construction. Ramps and parking areas are paved asphalt. The Berkeley Fishing Pier is a combination of concrete and timber construction, while the berths, docks, and wharf areas are generally timber construction. Buildings are largely wood frame, one to two stories in height, in the Contemporary Style with exposed framing and round timber posts. Siding is either wood panel or wood shingles set with metal frame fixed or sliding windows.

Cesar Chavez Park Description. Cesar Chavez Park is a 90-acre former landfill that extends northward from the north side of the Berkeley Marina. The park does not include permanent buildings. Park structures include a paved perimeter walking trail, interior hiking trails, multi-purpose turf areas, off-leash dog park, and picnic areas.

Golden Gate Fields Description. Golden Gate Fields is located on multiple legal parcels comprising about 225 acres straddling the corporate boundaries of the City of Albany and the City of Berkeley in northern Alameda County. The complex of buildings and structures includes a racetrack, grandstand, parking areas, shops, stables, and other miscellaneous facilities. The site is west of I-80 and bounded on the north by Buchanan Street, on the south by Gilman Street, and on the west by San Francisco Bay. The grandstand building is built into a hillside, with two stories facing west toward the bay and three tiers of open-air grandstand seating facing the track to the east. The steel frame building has a shallow gable roof with a parapet at the roof-wall

junction and flat, metal panel siding. The main grandstand portion of the building was originally about 800 feet long and 130 feet wide, and although largely rectangular in plan, the building curved slightly at the south end to angle the viewing from that part of the stands toward the starting gates and finish line. Grandstand capacity is 14,750, with both escalators and elevators serving the various tiers. The offices, betting windows, and "Turf & Paddock Club" were located in a 400-foot by 50-foot bay attached south of center on the west side of the main grandstand. A semi-circular main entrance foyer or lobby area was centered on this bay. Original windows were combinations of awning-style steel frame sashes and tall, narrow fixed frame windows to capture the views of the shoreline and San Francisco Bay.

The grandstand portion of the plant houses various functions and facilities, including restaurants, bars, customer service and administration offices, gift shop, and a first aid station. Several additions have expanded the plant since its completion in 1940. The entrance area and west side have undergone the most change, although the owners have made alterations throughout the plant. Modern construction that appears to date to the 1980s and 1990s, with stucco walls and modern metal frame glass doors, surrounds the original semi-circular foyer on the west side of the grandstand. Additions also extend north and south from the original foyer: a two-story wedge-shaped stairwell and restaurant addition at the north, and a single story, flat-roofed addition to the south. Another new element—a single story, concrete masonry unit bay—was added to the west side of the grand stand, extending from the foyer area north to the end of the building. Fenestration in the modern construction is anodized aluminum fixed frame windows. The seating in the grandstands has been replaced and a new section of seating added in the former "standing room" terrace, and transparent plastic panels have been added to the north and south ends of the originally open-sided second and third tier stands. Most of the original awning style steel sashes have been replaced throughout the west side of the building with aluminum frame sliding windows. The main track is a 1-mile oval that is 78 feet wide in the stretch, 75 feet wide in the backstretch, and has a minimum width of 50 feet with moveable rail. The track surface was dirt from its time of construction until July 2007, when the field began a project to install a synthetic "tapeta" racing surface in response to California Horse Racing Board requirements. The track includes a three-sixteenths mile chute and 14-stall Puett Automatic Starting Gate.

Within the main track is the Lakeside Turf Course, which is a nine-tenths mile oval, 65 feet wide throughout. The tote board is located near the west side of the infield, facing the grandstand. The paddock and oval walking ring are located in front of the grandstand near the finish line. Saddling stalls for fourteen thoroughbreds in the paddock are covered in transparent plastic panels. Golden Gate Fields uses Automatic Totalisator pari-mutuel equipment, including screen activated machines and more than 300 monitors located throughout the plant to display race odds, probable payoffs, results, and the previous day's races. The track uses O'Brien Photographic Company photo finish equipment and modern race timing equipment. The stables are located in more than thirty buildings south of the track, with a capacity of 1,420 horses. The circular Receiving Barn, located near the southwest curve of the track, was originally a stand-alone building that has since been attached to the stable building to its south. The wood frame stables are arranged in rows, with exercise yards between. The buildings have shallow side gable roofs and are basically rectangular in plan. The stables have undergone several changes over the years, including filling in the clipped corners that

each building had as originally constructed, and installation of modern vertical groove wood panel siding. Two-story living quarters have been added to the north or south ends of at least thirteen of the stables, and these additions feature similar wood frame construction, shallow pitch gable roofs, wood panel siding, and aluminum frame sliding windows. The covered pedestrian walkways that once lined the west side of the stables area have been removed.

The technical report concludes that neither of the surveyed properties is listed in the NRHP or CRHR, and neither resource appears to meet the criteria for listing in either register. Neither of the surveyed resources is considered a historical resource for the purposes of CEQA. The Berkeley Marina and adjacent Cesar Chavez Park do not appear to meet the significance criteria for listing in the NRHP or the CRHR. These resources do not embody direct significant associations with important trends, individuals, or developments in our history at the local, state, or national level, nor are they important for their type, period, or method of construction. Neither resource has the potential to provide important information about history (Criteria 1, 2, 3, and 4 of the California Register, and Criteria A, B, C, and D of the National Register).

3.7 AIR QUALITY

This section gives an overview of the local environmental setting as well as the regulatory setting and attainment status of the region. Meteorological data, including temperature and precipitation are discussed, and ambient concentrations for the appropriate criteria pollutants are summarized. Pollutants considered are oxides of nitrogen (NO_x), CO, sulfur dioxide (SO_2), precursor organic compounds, PM_{10}, particulate matter less than 2.5 micrometers (μm) in diameter ($PM_{2.5}$), and diesel particulate matter (DPM), a toxic air contaminant (TAC).

3.7.1 Regulatory Framework

Applicable federal, state, and local air quality regulations are described below:

Air Quality Regulations

The U.S. EPA established National Ambient Air Quality Standards (NAAQS) in 40 CFR 50 in response to the federal Clean Air Act of 1970. The federal NAAQS include both primary and secondary standards for six "criteria" pollutants. These criteria pollutants are O_3, CO, nitrogen dioxide (NO_2), SO_2, PM_{10}, and lead. Primary standards were established to protect human health, and secondary standards were designed to protect property and natural ecosystems from the effects of air pollution.

The 1990 Clean Air Act Amendments (CAAA) established attainment deadlines for all designated areas that were not in attainment with the NAAQS. In addition to the NAAQS described above, a new federal standard for $PM_{2.5}$ and a revised O_3 standard were promulgated in July 1997. Under an interim policy, the PM_{10} and 1-hour O_3 standards will continue to be implemented for the next several years while the new standards are being phased in. In 1988, as part of the California Clean Air Act (CCAA), the State of California adopted the California

Ambient Air Quality Standards (CAAQS), which are in some cases more stringent than the NAAQS. The state and federal ambient air quality standards are summarized in Table 3-16.

Table 3-16
Relevant Federal and California Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS [1,3]	NAAQS [2,3]	
			Primary	Secondary
Ozone (O_3)	8-hour [4]	0.07 ppm (137 μg/m^3)	0.08 ppm (157 μg/m^3)	Same as primary standard
	1-hour	0.09 ppm (180 μg/m^3)	See footnote [4]	
Carbon Monoxide (CO)	8-hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	-
	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	-
Nitrogen Dioxide (NO_2) [5]	Annual (Arithmetic Mean)	-	0.053 ppm (100 μg/m^3)	Same as primary standard
	1-hour	0.25 ppm (470 μg/m^3)	-	
Sulfur Dioxide (SO_2)	Annual (Arithmetic Mean)	-	0.03 ppm (80 μg/m^3)	-
	24-hour	0.04 ppm (105 μg/m^3)	0.14 ppm (365 μg/m^3)	-
	3-hour	-	-	0.05 ppm (1,300 μg/m^3)
	1-hour	0.25 ppm (655 μg/m^3)	-	-
Respirable Particulate Matter (PM_{10}) [6]	Annual (Arithmetic Mean)	20 μg/m^3	50 μg/m^3	Same as primary standard
	24-hour	50 μg/m^3	150 μg/m^3	
Fine Particulate Matter ($PM_{2.5}$) [6, 7]	Annual (Arithmetic Mean)	12 μg/m^3	15 μg/m^3	Same as primary standard
	24-hour	-	35 μg/m^3	
Sulfates	24-hour	25 μg/m^3	-	-
Visibility Reducing Particles	1 observation	See footnote [8]	No federal standard	No federal standard

Notes:
1 Title 17, California Code of Regulations, CAAQS for ozone (as volatile organic compounds), carbon monoxide, sulfur dioxide (1-hour), nitrogen dioxide, and particulate matter (PM_{10}), are values that are not to be exceeded. The visibility standard is not to be equaled or exceeded.
2 40 CFR 50. NAAQS, other than those for ozone and based on annual averages, are not to be exceeded more than once a year. The 80-hr ozone standard is based on a three-year average of the fourth-highest daily maximum.
3 Concentrations are expressed first in units in which they were promulgated. Equivalent units are given in parentheses and based on a reference temperature of 25°C and a reference pressure of 760 millimeters (mm) of mercury. All measurements of air quality area to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4 New federal 8-hour ozone and fine particulate matter ($PM_{2.5}$) standards were promulgated by U.S. EPA on July 18, 1997. The federal 1-hour ozone standard was revoked by U.S. EPA on June 15, 2005.
5 Nitrogen dioxide (NO_2) is the compound regulated as a criteria pollutant; however, emissions are usually based on the sum of all oxides of nitrogen (NO_x).
6 California Air Resources Board established new standards for PM_{10} and $PM_{2.5}$ in June 2002.
7 Annual federal standard is 3-year average. The 24-hour federal standard is 3-year average of 98th percentile.
8 In sufficient amount to reduce the prevailing visibility to less than 10 miles when the relative humidity is less than 70 percent. "Prevailing visibility" is defined as the greatest visibility which is attained or surpassed around at least half of the horizon circle, but not necessarily in continuous sectors.

CAAQS = California Ambient Air Quality Standard
mg/m^3 = milligrams per cubic meter
μg/m^3 = micrograms per cubic meter
NAAQS = National Ambient Air Quality Standard
ppm = parts per million

The U.S. EPA, the California Air Resources Board (CARB), and the local air pollution control districts determine the air quality attainment status of designated areas by comparing local ambient air quality measurements from the state or local ambient air monitoring stations with the federal and CAAQS. Those areas that meet ambient air quality standards are classified as "attainment" areas; areas that do not meet the standards are classified as "nonattainment" areas. Areas that have insufficient air quality data may be identified as unclassifiable areas. These attainment designations are determined on a pollutant-by-pollutant basis. The Bay Area has been designated as a federal nonattainment area for O_3 and as a state nonattainment area for O_3 and PM_{10}. The attainment status for all other criteria pollutants is considered attainment. Table 3-17 presents the attainment status (both federal and state) for the Bay Area.

Table 3-17
Federal and State Attainment Status for the Bay Area

Pollutant	Federal Attainment Status	State Attainment Status
Ozone	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Attainment	Unclassified
Lead	Attainment	Attainment

Agency Responsibilities

The U.S. EPA has ultimate responsibility for ensuring, pursuant to the CAAA, that all areas of the United States meet, or are making progress toward meeting, the NAAQS. U.S. EPA requires that all states submit State Implementation Plans (SIPs) for nonattainment areas that describe how the NAAQS will be achieved and maintained. The U.S. EPA has delegated this attainment responsibility to CARB, which, in turn, has delegated attainment responsibility to regional or local air quality management districts (or air districts), such as the BAAQMD. CARB is responsible for attainment of the CAAQS, implementation of nearly all phases of California's motor vehicle emissions program, and oversight of the operations and programs of the regional air districts.

Each air district is responsible for establishing and implementing rules and control measures to achieve air quality attainment within its district boundaries. The air district prepares an air quality management plan that is submitted to CARB, which then compiles air quality management plans from all air districts within the state into the SIP. The responsibility of the air districts is to maintain an effective permitting system for existing, new, and modified stationary sources, to monitor local air

quality trends, and to adopt and enforce such rules and regulations as may be necessary to achieve the ambient air quality standards.

The applicable regulations related to the potential air quality impacts from the alternatives are primarily administered (either independently or cooperatively) by the BAAQMD. The BAAQMD has been delegated responsibility for implementing the federal, state, and local regulations on air quality in the nine-county region that includes the study area. The alternatives are subject to BAAQMD regulations that apply to new sources of emissions, to the prohibitory regulations that specify emissions standards, and to the requirements for evaluation of air pollutant impacts for both criteria and toxic air pollutants.

3.7.2 Climatology

The climate of the San Francisco Bay region, along with much of coastal California, is controlled by a semi-permanent high-pressure system that is centered over the northeastern Pacific Ocean. In the summer, the relatively northern location of this strong high-pressure system results in clear skies inland and frequent coastal fog. Very little precipitation occurs during the summer months because storm systems are blocked by the high-pressure system. Beginning in the fall and continuing through the winter, the high-pressure system weakens and moves south, allowing storm systems originating from the Alaska Gulf and the Pacific Ocean into the area. Temperature, winds, and rainfall are more variable during these months.

The predominant regional surface winds during the winter are northerly and southerly. During the spring, summer, and fall, the winds are stronger and westerly. These strong westerly winds are caused by the combination of high pressure offshore and a thermal low pressure resulting from higher temperatures inland.

Atmospheric stability and mixing heights are important parameters in the determination of pollutant dispersion. Atmospheric stability reflects the amount of atmospheric turbulence and mixing. In general, the less stable an atmosphere, the greater the turbulence, resulting in more mixing and better dispersion. The mixing height, measured from the ground upward, is the height of the atmospheric layer in which convection and mechanical turbulence promote mixing. Good ventilation results from a high mixing height and at least moderate wind speeds within the mixing layer. In general, the frequent occurrence of temperature inversions over the San Francisco Bay Area limits this mixing height and consequently limits the availability of air for dilution.

3.7.3 Existing Air Quality Conditions

The entire study area is within the BAAQMD jurisdiction. The majority of the potential impacts to air quality would be on a local level within or adjacent to the study area. Existing air quality at all four ferry terminal sites is similar, and representative measurements are presented below. It is reasonable to assume that the existing air quality on the Bay within the study area is similar to the existing air quality at the four terminal sites.

Air quality measurements for O_3, CO, SO_2, and NO_2 from the air monitoring station on Rumrill Boulevard in San Pablo are presented in Tables 3-18 through 3-21. Measurements for PM_{10} and $PM_{2.5}$ are not available at this site, so the BAAQMD-maintained Arkansas Street, San Francisco monitoring station is substituted and data presented in Tables 3-22 and 3-23. The Rumrill Boulevard monitoring station is located about 5 miles from the Buchanan site and 6.5 miles from the Berkeley Fishing Pier site. This location was chosen as the primary monitoring site due to its proximity to the study area. The Arkansas Street station is roughly 9 miles from the four ferry terminal sites and was chosen as the nearest site with PM_{10} and $PM_{2.5}$ measurements. For the analysis, the maximum criteria pollutant concentration from the three most recent years of reported air quality data (2001 to 2004) was used. This value is highlighted in bold.

Table 3-18
Ambient Nitrogen Dioxide Levels at Rumrill Boulevard Station, San Pablo, California (2002–2006 [ppm])

Measurement	2002	2003	2004	2005	2006
Maximum 1-Hour Average [1]	0.054	0.070	0.055	0.054	**0.055**
Annual Average [2]	*	0.013	0.013	0.012	**0.013**

Source: CARB, 2007.
Notes:
Maximum average values occurring during the most recent three years are indicated in bold.
ppm = parts per million.
[1] All 1-hr concentrations are below the California NO_2 ambient air quality standard of 0.25 ppm.
[2] All annual average concentrations are below the federal NO_2 ambient air quality standard of 0.053 ppm.
* Insufficient data available to determine the value.

Table 3-19
Ambient Ozone Levels at Rumrill Boulevard Station, San Pablo, California (1995–2004 [ppm])[1]

Measurement	2002	2003	2004	2005	2006
Maximum 1-Hour Average [1]	0.069	0.091	**0.105**	0.066	0.061
Maximum 8-Hour Average [2]	0.047	0.068	**0.069**	0.057	0.050

Source: CARB, 2007.
Notes:
Maximum average values occurring during the most recent three years are indicated in bold.
ppm + parts per million.
[1] The 1-hr concentrations for 2003 and 2004 were above the California O_3 ambient air quality standard of 0.09 ppm. All other 1-hr concentrations were below the California O_3 ambient air quality standard.
[2] All 8-hr concentrations are below the federal O_3 air quality standard of 0.08 ppm, 8-hour average. Regulatory standard is to maintain 0.08 ppm as a 3-year average of the 4th-highest daily maximum. Therefore, number of days exceeding standard concentration is not necessarily the number of violations of the standard for the year.

Table 3-20
Ambient Sulfur Dioxide Levels at Rumrill Boulevard Station, San Pablo, California (2002–2006 [ppm])

Measurement	2002	2003	2004	2005	2006
Maximum 1-Hour Average [1]	0.012	0.019	0.019	**0.025**	0.017
Maximum 3-Hour Average [2]	0.009	0.013	0.010	**0.013**	0.012
Maximum 24-Hour Average [3]	0.005	0.006	0.005	**0.006**	0.006
Annual Average [4]	0.002	0.002	0.002	**0.002**	0.002

Source: CARB, 2007; U.S. EPA AirData, 2007.
Notes:
Maximum average values occurring during the most recent three years are indicated in bold.
ppm = parts per million.
$\mu g/m^3$ = micrograms per cubic meter.
[1] The 1-hr concentration for 2005 was equal to the California SO_2 ambient air quality standard of 0.25 ppm. All other 1-hour average concentrations are below the California SO_2 ambient air quality standard.
[2] All 3-hour average concentrations are below the federal SO_2 ambient air quality standard of 0.5 ppm (1,300 $\mu g/m^3$).
[3] All 24-hr concentrations are below the California SO_2 ambient air quality standard of 0.04 ppm (105 $\mu g/m^3$) and the federal ambient air quality standard of 0.14 ppm (365 $\mu g/m^3$).
[4] All annual average concentrations are below the federal SO_2 ambient air quality standard of 0.03 ppm (80 $\mu g/m^3$).

Table 3-21
Ambient Carbon Monoxide Levels at Rumrill Boulevard Station, San Pablo, California (2002–2006 [ppm])

Measurement	2002	2003	2004	2005	2006
Maximum 1-Hour Average [1]	3.7	3.1	**3.2**	2.8	2.5
Maximum 8-Hour Average [2]	2.00	1.78	**1.83**	1.33	1.40

Source: CARB, 2007; U.S. EPA AirData, 2007.

Notes:
Maximum average values occurring during the most recent three years are indicated in bold.
ppm = parts per million.
[1] All 1-hr concentrations are below the California CO ambient air quality standard of 20 ppm and the federal CO ambient air quality standard of 35 ppm.
[2] All 8-hr concentrations are below the California and federal CO ambient air quality standards of 9.0 ppm.

Table 3-22
Ambient Particulate Levels (<10 µm) at Arkansas Street Station, San Francisco, California (2002–2006 [µg/m^3])

Measurement	2002	2003	2004	2005	2006
Maximum 24-Hour Average	74	51	49	45	**58**
Estimated Number of Days Exceeding California Standard [1] (50 µg/m^3; 24-hour avg.)	24	6	6	0	**17**
Annual Arithmetic Mean [2] Federal	25	22	22	19	**22**
Annual Geometric Mean [3] State	26.0	22.7	22.5	20.1	**22.9**

Source: CARB, 2007; U.S. EPA AirData, 2007.

Maximum average values occurring during the most recent three years are indicated in bold.

[1] Measurements are typically collected about every 6 days. Values reported are estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year. All daily average concentrations are below the federal PM_{10} ambient air quality standard of 150 µg/m^3.

[2] All annual arithmetic mean concentrations are below the federal PM_{10} ambient air quality standard of 50 µg/m^3.

[3] The state PM_{10} ambient air quality standard was lowered from 30 µg/m^3 to 20 µg/m^3. State and federal arithmetic means may differ due to being based on different statistical criteria.

µg/m^3 = micrograms per cubic meter.

µm = micrometer.

Table 3-23
Ambient Particulate Levels (<2.5 µm) at Arkansas Street Station, San Francisco, California (2002–2006 [µg/m^3])

	2002	2003	2004	2005	2006
Maximum 24-Hour Average	70	42	46	44	**54**
Number of Days Exceeding Federal Standard (65 µg/m^3; 24-hour avg.)	0	0	0	0	0
98th Percentile	58	33	32	**33**	28
3-year average, 98th Percentile [1]	--	47	**41**	33	--
Annual Arithmetic Mean	13.1	10.2	**10.0**	9.5	9.7
3-year average, Annual Arithmetic Mean [2]	12	12	**11**	10	10

Source: CARB, 2007; U.S. EPA AirData, 2007.

Maximum average values occurring during the most recent three years are indicated in bold.

[1] The number of days above the standard is not necessarily the number of violations of the standard for the year. The federal standard is 65 µg/m^3 based on the 3-year average of the 98th percentiles.

[2] The federal annual $PM_{2.5}$ ambient air quality standard is 15 µg/m^3 based on the 3-year average. The state annual $PM_{2.5}$ ambient air quality standard is 12 µg/m^3.

-- = Data not available.

µg/m^3 = micrograms per cubic meter.

µm = micrometer.

3.8 NOISE AND VIBRATION

3.8.1 Regulatory Framework

Federal, state, and local settings are discussed in the following subsections.

Federal

The Noise Control Act of 1972. The Noise Control Act (42 USC Chapter 4901, et seq.) directs the U.S. EPA to develop noise level guidelines, which would protect the population from the adverse effects of environmental noise. The U.S. EPA published a guideline (U.S. EPA, 1974) recommending a 55 A-weighted decibel (dBA) Day-Night Average Sound Level (L_{dn}) for outdoors and 45 dBA L_{dn} for indoors for acceptable noise level limits affecting residential land use. The agency is careful to stress that these recommendations contain a factor of safety and do not consider technical or economic feasibility issues, and therefore should not be construed as standards or regulations.

Noise Emission Standards for Transportation Equipment. Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 CFR Part 205, Subpart B. The federal truck pass-by noise standard is 80 dBA at 15 meters (approximately 50 feet) from the vehicle pathway centerline (Crocker, 1997). Vehicle noise limits are implemented through regulatory controls on vehicle manufacturers. The federal regulations for railroad noise are contained in 40 CFR, Part 201, and 49 CFR, Part 210. Noise limits for locomotives manufactured during or after 1980 are as follows: stationary (idle throttle setting)—70 dBA at 15 meters from the track pathway centerline; stationary (all other throttle settings)—87 dBA at 15 meters; and moving—90 dBA at 15 meters (Crocker, 1997). These noise limits are implemented through regulatory controls on vehicle manufacturers.

Department of Housing and Urban Development Standards. Department of Housing and Urban Development standards define L_{dn} below 65 dBA as acceptable for residential use. Levels up to 75 dBA L_{dn} can be made acceptable through the use of insulation in buildings.

FTA Guidelines. The FTA has no specific guidelines for ferries. However, it has published a guidance manual for assessment of rail and bus mass transit projects. As ferries are another mode of mass transit, and in lieu of any specific guidance, it would be expected that the FTA would apply its "transit project" impact criteria described below.

The three "sensitive" land use categories used by the FTA to evaluate the compatibility of predicted noise levels are:

- Category 1 includes land where quiet is an essential element such as outdoor amphitheaters;
- Category 2 includes residences where people sleep; and
- Category 3 includes institutional buildings where quiet is important such as schools, libraries and churches.

Note that Categories 1 and 3 use the Hourly Equivalent Sound Level, whereas Category 2 uses L_{dn}. Such criteria recognize the heightened community annoyance caused by late-night or early-morning train operations, and respond to the varying sensitivities of communities to projects under

different ambient noise conditions. The noise criteria are to be applied *outside of building locations* for residential land use and at the *property line* for parks and other significant outdoor use (FTA, 1995).

U.S. Fish and Wildlife Service. Regarding impacts to birds, the U.S. Fish and Wildlife Service (USFWS) has determined a significance criterion of 60 dBA Community Noise Equivalent Level (CNEL) at the line of habitat as an impact.

Marine Mammal Protection Act. See Section 3.5, Biological Resources, for a brief description. With regard to noise, the National Marine Fisheries Service (NMFS) currently considers, as a guideline, received underwater sound pressure levels at or above 160 decibel (dB) (referenced to 1 micro-Pascal [μPa]) as constituting harassment of marine mammals. NMFS has suggested that underwater sound pressure levels above 180 dB (referenced to 1 μPa) could cause Temporary Threshold Shift in marine mammals.

Shipboard Noise. The regulation of shipboard noise is not very clear. The USCG regulates all affairs regarding licensed commercial vessels. The applicable USCG document is Navigation and Vessel Inspection Circular (NVIC) No. 12-82, dated June 2, 1982. However, NVIC No. 12-82 only provides guidelines and recommendations for vessel noise, not shipboard noise. Away from seaways, California Department of Industrial Relations, Division of Occupational Safety and Health (Cal-OSHA) actively regulates noise in industrial environments under the Department of Labor (Bahtiarian, 2002). The Cal-OSHA regulations are similar to the USCG requirements. The governing regulations for "Occupational Noise Exposure" are found in 29 CFR 1910.15. Cal-OSHA (8 California Code of Regulations [CCR], General Industry Safety Orders, Article 105, Control of Noise Exposure, Section 5095) requires that the time-averaged noise level of any work environment during an 8-hour period be limited to 90 dBA. In many cases, shipboard and exterior noise limits for all types of ships including ferries are specified prior to ship construction. For example, Table 3.11.3 contains the noise limits imposed by Alaska for their Fast Vehicle Ferry. For this vessel, shipboard levels are limited to 55 dBA due to heating, ventilation, and air conditioning noise up to 120 dBA in the engine room. Fast Vehicle Ferry exterior noise is limited to 60 dBA at 1,000 feet with engines developing their maximum fast ferry power rating (Springer, 2002).

State

Noise Insulation Standards. Relevant state regulations are contained in CCR. Part 2 of Title 24 establishes the limit for interior community noise level for multifamily dwellings, hotels, motels, dormitories and long-term care facilities of 45 dBA L_{dn}. The state's regulation may be extended by local legislative action to include single-family dwellings.

California Governor's Office of Planning and Research (OPR) Guidelines. Section 65302(f) of the CCR establishes the requirement that local land use planning jurisdictions prepare a General Plan. In 1998, the OPR published its most recent edition of their *General Plan Guidelines*. The *General Plan Guidelines* advise local jurisdictions in preparing their comprehensive long-term general plans. The Noise Element is a mandatory component of the General Plan and includes general community noise guidelines and specific planning guidelines for noise/land use compatibility developed by the local jurisdiction. Selected relevant levels are:

- CNEL below 60 dBA—acceptable for low-density residential use.
- CNEL below 65 dBA—normally acceptable for high-density residential use.
- CNEL of 60 to 70 dBA—conditionally acceptable for churches, educational and medical facilities.
- CNEL below 70 dBA—normally acceptable for playgrounds and neighborhood parks.

Other. The State of California also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the state pass-by noise standard is consistent with the federal limit of 80 dBA. The state pass-by noise standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle weight rating) is also 80 dBA at 15 meters from the centerline (California Vehicle Code, Sections 23130, 23130.5, 27150 et seq., 27204, and 27206). Vehicle noise limits are implemented through regulatory controls on vehicle manufacturers and by legal sanction of vehicle operators enforced by state and local peace officers. Other state standards exist, such as Caltrans and FHWA's criteria for noise assessment and abatement, but these are focused on situations unique to their authority, such as control of freeway noise, and are not necessarily applicable to WETA's actions.

Local

Regulatory noise standards employed by local jurisdictions generally fall into two categories: noise control ordinances and noise/land use compatibility planning guidelines. Noise produced by non–transportation-related noise sources may be regulated by some jurisdictions by using ordinances that limit the amount of noise such sources may produce, as measured at the nearest sensitive receptor or at property lines. Standards in local noise ordinances may be in the form of quantitative noise performance levels, or they may simply be in the form of a qualitative prohibition against creating a nuisance. Many ordinances employ both approaches.

Because local jurisdictions are preempted from regulating noise emissions from transportation noise sources such as cars, trucks, trains, airplanes and ferries, such jurisdictions typically implement noise controls through adoption and implementation of noise/land use compatibility guidelines. Noise/land use compatibility guidelines identify the range of noise levels with which various land uses are deemed compatible. This permits local jurisdictions to achieve noise/land use compatibility for the land uses exposed to noise, even if the noise sources themselves cannot be regulated.

Berkeley and Albany have published Noise Elements of their General Plans. These Noise Elements are mandatory components of General Plans and typically contain general guidelines for noise and land use planning, although some Noise Elements do also contain more detailed objective noise control standards. Specific objective requirements are usually provided in the local noise ordinances.

Tables 3-24 and 3-25 present and identify exterior operational noise standards according to adopted noise ordinances in the two cities affected by the project: Berkeley (Chapter 13.40 of the Municipal Code) and Albany (Ordinance #91-08-1.4). As evidenced by these tables, ordinances in Berkeley and Albany specify daytime and nighttime limits of statistical noise levels[1] for various land use or zoning. Nighttime standards are lower than daytime standards accounting for the sometimes lower ambient noise levels and typically more favorable propagation of sound at night, and people's increased sensitivity to or annoyance with nighttime noise events.

[1] Please refer to the noise terms glossary for a definition of statistical noise level descriptors

Table 3-24
City of Berkeley
Operational Noise Standards at Receiving Property Line

Receiving Land Use	Cumulative Number of Minutes in a 1-Hour Period[1]	Maximum Allowable Noise Level (dBA)[2]	
		Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
R-1, R-2 Single Family Residential, Restricted two-family residential	30 (L_{50})	55	45
	15 (L_{25})	60	50
	5 ($L_{8.3}$)	65	55
	1 ($L_{1.7}$)	70	60
	0 (L_{max})	75	65
R-3 and above Multiple-family residential, Multi-family residential, high density residential	30 (L_{50})	60	55
	15 (L_{25})	65	60
	5 ($L_{8.3}$)	70	65
	1 ($L_{1.7}$)	75	70
	0 (L_{max})	80	75
Commercial	30 (L_{50})	65	60
	15 (L_{25})	70	65
	5 ($L_{8.3}$)	75	70
	1 ($L_{1.7}$)	80	75
	0 (L_{max})	85	80
Industrial	30 (L_{50})	70	70
	15 (L_{25})	75	75
	5 ($L_{8.3}$)	80	80
	1 ($L_{1.7}$)	85	85
	0 (L_{max})	90	90

Notes:
[1] Lx is the noise level exceeded x percent of a given period. Lmax is the maximum instantaneous noise level.
[2] These standards are reduced 5 dBA for simple tone noise, noise consisting primarily of speech or music, or recurring impact noise. If the ambient level exceeds these standards, the standard shall be adjusted to equal the ambient noise level.

Table 3-25
City of Albany
Operational Noise Standards at Receiving Property Line

Receiving Land Use	Cumulative Number of Minutes in a 1-Hour Period[1]	Maximum Allowable Noise Level (dBA)[2]	
		Daytime 8 a.m. to 10 p.m.	Nighttime 10 p.m. to 8 a.m.
R-1, R-2, R-3, R-4, HD [3]	30 (L_{50})	55	50
	15 (L_{25})	60	55
	5 ($L_{8.3}$)	65	60
	1 ($L_{1.7}$)	70	65
	0 (L_{max})	75	70
C-1, C-2, C/S/L1 [4]	30 (L_{50})	65	60
	15 (L_{25})	70	65
	5 ($L_{8.3}$)	75	70
	1 ($L_{1.7}$)	80	75
	0 (L_{max})	85	80
WF [5]	30 (L_{50})	65	50
	15 (L_{25})	70	55
	5 ($L_{8.3}$)	75	60
	1 ($L_{1.7}$)	80	65
	0 (L_{max})	85	70

Notes:

1 Lx is the noise level exceeded x percent of a given period. Lmax is the maximum instantaneous noise level.

2 In the event the measured ambient noise level exceeds the applicable standards, the thirty (30) minute noise standards shown above shall be adjusted so as to equal said ambient noise level plus 10 dBA, with the fifteen (15), five (5),one (1) and zero (0) minute standards adjusted upwards in 5 dBA increments, based on the ambient noise level. In no case shall the ambient level standard exceed 100 dBA for the zero (0) minute standard.

3 R-1 (Residential Low Density Single Family), R-2 (Residential Moderate Density), R-3 (Residential High Density), R-4 (Residential Towers), and HD (Hillside District). Includes Public Facilities Zones.

4 C-1 (General Commercial), C-2 (Highway Commercial), and C/S/L (Commercial, Service, Light Industry)

5 WF (Waterfront Zoned)

Note that there are differences in defining the daytime and nighttime periods between the two cities. Berkeley defines daytime as the period from 7 a.m. to 10 p.m. and nighttime as the period from 10 p.m. to 7 a.m. This is in keeping with the daytime and nighttime definitions used in federal guidelines. Albany defines daytime as the period from 8 a.m. to 10 p.m. and nighttime as the period from 10 p.m. to 8 a.m.

3.8.2 Noise Measurement Survey Methods

On-site noise measurements were conducted to assess the existing noise environment at the four proposed ferry terminal site locations. The purpose of these measurements was to quantify the ambient noise environment, evaluate current environmental noise sources, and to assess the potential for project noise impacts in the surrounding environs. These measurements were conducted May 23 and 24, 2007.

The measurements consisted of automated long-term (LT) (24 hours duration with contiguous 15 minute intervals) and a series of attended short-term (ST) (10-minute) measurements. The long-term measurements provide a 24-hour time history of the ambient noise environment and are valuable for assessing hourly changes. The short-term measurements are conducted to document noise levels associated with noise sources common to specific locations. The LT and ST measurements were co-located at each proposed ferry terminal site.

LT-1/ST-1 was located at the Buchanan Site at the far western side of the Golden State Park parking lot. LT-2/ST-2 was located at the Gilman Site on the eastern side of Gilman Street. adjacent to Golden State Park in the vicinity of the horse stables. LT-3/ST-3 was located at the Berkeley Marina Site located on the northeasterly side of Berkeley Marina in the vicinity of the existing tour boat dock, adjacent to the Doubletree Hotel. LT-4/ST-4 was located at the Berkeley Fishing Pier Site on the western side of Seawall Drive, adjacent to the public parking area provided for the Berkeley Fishing Pier. Each of these measurement locations is in the immediate vicinity of the respective proposed ferry terminal sites. Two of the proposed sites are located adjacent to noise-sensitive receptor locations. LT-1/ST-1 is located approximately 700 feet southerly of Eastshore State Park and LT-3/ST-3 is located adjacent to the Doubletree Berkeley Marina Inn. The noise measurement locations are shown in Figure 3-20.

The LT measurements were obtained with three Larson David Model 820 Type 1 “Precision” grade Community Noise Analyzer (CNA) and one Larson Davis Model 720 Type 2 “Engineering” grade CNA. LT data is stored within the instrument for subsequent download and analysis. The ST measurements were made with a Brüel and Kjær 2231 Type 1 “Precision” grade Sound Level Meter. The ST data was noted on a preprinted Field Measurement Data Sheet (FMDS) at the time of the measurement. A minimum of two and a maximum of four ST measurements were conducted at each location.

Each of the sound measurement instruments satisfies the requirements of the American National Standards Institute (ANSI) Standard S1.4-1983 and the International Electrotechnical Commission Publications 804 and 651. The sound measuring instruments used for the survey were set on Slow

time response using the dBA scale. A-weighting is used so that the instrument's response is similar to human hearing which is less sensitive to low and very high-pitched sounds. In all cases, the microphone height was 5 feet above the ground and the microphone was equipped with a windscreen. The Sound Level Meter used for the short-term measurements was tripod mounted. Each sound measuring instrument was programmed to record Equivalent sound levels (L_{eq}), Maximum and Minimum sound levels (L_{max}, L_{min}), and percentile distributions of sound level (L_{10}, L_{50}, and L_{90}) for each measurement period.

To ensure accuracy and to verify laboratory calibration, each instrument's calibration was verified in the field before and after each measurement period with a Larson Davis Model CAL200 acoustic calibrator or a Brüel and Kjær acoustic calibrator as appropriate. The accuracy of the acoustical calibrators is maintained through a program established by the manufacturers and is traceable to the National Institute of Standards and Technology. All field procedures were consistent with professional practice and ANSI Standards for measuring environmental noise.

Meteorological conditions were noted on the FMDS using visual observations, a digital thermo-hygrometer, and an anemometer. Weather conditions were favorable for conducting accurate noise measurements during the entire 24-hour measurement period. Air temperatures ranged from the low 60s degrees Fahrenheit (°F) during nighttime hours to the low 80s °F during the daytime. Relative humidity ranged from 15 percent to 62 percent. Winds were predominantly from a southwesterly direction at 7 miles per hour (mph) with occasional gusts to 11 mph. FMDS documenting the LT and ST measurements including precise measurement locations, start and stop times, field calibration checks, and meteorological conditions were maintained for each measurement site. Copies of the FMDS are provided in the Noise and Vibration Technical Report, along with the sound measurement instrument's laboratory calibration records and other relevant technical data.

3.8.3 Noise Measurement Results

The L_{eq}, L_{max}, L_{min}, L_{90}, L_{50}, and L_{10} were digitally recorded. The stored hourly data from the CNA located at the LT sites was downloaded to a personal computer for subsequent analysis. The overall noise environment in L_{dn} was calculated for the LT locations from the hourly L_{eq} dBA values. The 10-dB nighttime penalty integral to the L_{dn} noise descriptor was added to the hourly data for the hours between 10 p.m. and 7 a.m.

Alternative A (Berkeley Marina Site)

Alternative A is located at the Berkeley Marina adjacent to the Doubletree Berkeley Marina Inn. The Berkeley Marina Inn plus any "live-aboard" use on the boats docked at the Berkeley Marina are considered noise-sensitive land use (residential). Noise sources at this site are associated with boating activity, hotel operations, and other commercial activities. These include boat horns, boat maintenance and supply, parking lot traffic associated with hotel and hotel and restaurant/concession activities.



NOISE MEASUREMENT SITE LOCATIONS

Berkeley/Albany Ferry Terminal Study

October 2008
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Source:
GlobeXplorer, WTA

URS

FIGURE 3-20

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The L_{dn} at this site (LT-3) is 62 dBA. This environmental noise level is compatible with existing land uses in the area. The maximum acceptable noise level at locations where people normally sleep is an L_{dn} of 65 dBA. The hourly noise levels at this site ranged from a minimum of 58 dBA in the evening to a maximum of 66 dBA in the afternoon.

Alternative B (Berkeley Fishing Pier Site)

Alternative B is located south of the Berkeley Fishing Pier. Primary noise sources in the vicinity of this site include vehicular traffic and noise associated with public parking and pedestrian activity (vehicle audio systems, conversation, car door slams). Secondary noise sources are distant aircraft.

The L_{dn} at this site (LT-4) is 66 dBA. This environmental noise level is compatible with existing land uses in the area. The hourly noise levels at this site ranged from a minimum of 50 dBA in the late morning to a maximum of 59 dBA in the afternoon.

Alternative C (Gilman Street Site)

Alternative C is located along Gilman Street adjacent to Golden Gate Fields in the vicinity of the horse stables. No noise-sensitive areas are currently located in the vicinity of this site. Primary noise sources at this site include vehicular noise along Gilman Street, bicycle and pedestrian pass-bys, and the public address system associated with Golden Gate Fields horse stable operations. Additional noise sources are rustling leaves, birds, distant aircraft, distant industrial noise and vehicular traffic on I-80.

The L_{dn} at this site is 65 dBA. This environmental noise level is compatible with existing land uses in the area. The hourly noise levels at this site (LT-2) ranged from a minimum of 55 dBA in the early morning to a maximum of 67 dBA in the late morning and early afternoon with variation resulting from traffic activity of patrons arriving and departing Golden Gate Fields.

Alternative D (Buchanan Street Site)

Alternative D is located in the City of Albany at the western side of the parking lot for Golden Gate Fields which is a private facility used for horse racing. This alternative site is approximately 700 feet southerly of Eastshore State Park which is considered a noise-sensitive area. Noise sources in the vicinity of the Buchanan Site consist of Golden Gate Fields operations noise including that from patrons and maintenance activities, Additional noise sources include shoreline bicycle and pedestrian traffic, ocean waves, and activity at Eastshore State Park. Distant vehicular traffic along I-80 can also be heard.

The L_{dn} at this site is 61 dBA. This environmental noise level is compatible with existing land uses in the area. The hourly noise levels at this site (LT-1) ranged from a minimum of 54 dBA in the evening to a maximum of 61 dBA during the afternoon.

3.9 BIOLOGICAL RESOURCES

This section provides an overview description of the biological resources that may be affected by implementation of the Berkeley/Albany ferry terminal alternatives. The project could potentially affect a variety of habitat types, supporting a diverse assemblage of species. This section describes the general nearshore and tidal habitat types found within the study area, and provides general locations of these habitat types and the species commonly found in them.

3.9.1 Regulatory Framework

Federal

Federal Endangered Species Act (16 USC 1531-1544). The Federal Endangered Species Act (FESA) provides protection for endangered and threatened species and requires conservation of such species' critical habitats in the ecosystem. An "endangered" species is a species in danger of extinction throughout all or a significant portion of its range. A "threatened" species is one that is likely to become "endangered" in the foreseeable future without further protection. Other special-status species include "proposed" and "candidate" species, and "species of concern." Proposed species are those that have been officially proposed (in the Federal Register) for listing as threatened or endangered. Candidate species are those for which enough information is on file to propose listing as endangered or threatened. "Species of concern" are species for which not enough information is on file to support a listing proposal, but still may be appropriate for listing in the future after further study. A "delisted" species is one whose population has reached its recovery goal and is no longer in jeopardy.

FESA is administered by the USFWS and the NMFS. In general, NMFS is responsible for protection of FESA-listed marine species and anadromous fishes, while other species are under USFWS jurisdiction.

FESA Section 9 prohibits the "take" of listed species, while Section 7 of this act provides a means of authorizing the "take" of listed species. Taking is defined by FESA [Section 3(19)] to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Section 7 requires formal consultation with USFWS or NMFS for projects that may affect those species that are either listed as or proposed for listing as endangered or threatened, to ensure that the proposed action will not jeopardize listed species or destroy or adversely modify designated critical habitat.

A proposed project may address federally listed species in one of two ways: (1) a nonfederal government entity may resolve potential adverse impacts to protected species; or (2) a federal lead agency may regulate a proposed project and develop mitigation for any significant impacts to federally listed species. Both cases require consultation with the USFWS and/or NMFS, which ultimately issues a final opinion determining whether the federally listed species will be adversely impacted by a proposed project.

Fish and Wildlife Coordination Act (16 USC 661-667e). The original act of March 10, 1934, authorized the Secretaries of Agriculture and Commerce to assist and cooperate with federal and state agencies to protect, rear, stock, and increase the supply of game and fur-bearing animals, as well as to study the effects of domestic sewage, trade wastes, and other polluting substances on wildlife.

The amendments to this act, enacted in 1946, require consultation with the USFWS, NMFS, and state agencies responsible for fish and wildlife resources for all proposed federal undertakings and nonfederal actions needing a federal permit or license that would impound, divert, deepen, or otherwise control or modify a stream or waterbody, and to make mitigation and enhancement recommendations to the involved federal agency.

Additionally, the act requires that wildlife conservation be coordinated with other features of water resource development programs. Determination under this authority for specific projects located in estuarine areas constitute compliance with the provisions of the Estuary Protection Act, as discussed below.

Estuary Protection Act (16 USC 1221–1226). This act highlights the value of estuaries and the need for conservation of their valuable natural resources. It authorizes the Secretary of the Interior, in cooperation with other federal agencies and the states, to study and inventory estuaries of the United States and to determine whether any areas should be acquired by the federal government for future protection.

Under this act, the Secretary of the Interior is required to review all project plans and reports for land and water resource development affecting estuaries and make an assessment of likely impacts and related recommendations for conservation, protection, and enhancement of estuaries.

Magnuson-Stevens Fisheries Act (16 USC 1801-1882). The original act was passed in 1976, and its primary purposes were conservation and management of U.S. fishery resources, development of U.S. domestic fisheries, and phasing out foreign fishing activities within federal waters, the 200-mile limit extending from the edge of state waters. This area become known as the Exclusive Economic Zone and the Magnuson Act achieved its goal of eliminating foreign fisheries and enhancing domestic fisheries in the Exclusive Economic Zone.

The Amended Magnuson-Stevens Fishery Conservation and Management Act of 1996, also known as the Sustainable Fisheries Act (Public Law 104-297), requires all federal agencies to consult with the Secretary of Commerce on proposed projects authorized, funded, or undertaken by that agency that may adversely affect Essential Fish Habitat. The main purpose of the Essential Fish Habitat provisions of the Sustainable Fisheries Act is to avoid loss of fisheries due to disturbance and degradation of the fisheries habitat.

Migratory Bird Treaty Act (16 USC 703-712). This act established special protection for migratory birds by regulating hunting or trade in migratory birds. Furthermore, this act prohibits anyone to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR 10,

including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Definition of "take" includes any disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young), and such activity is potentially punishable by fines and/or imprisonment.

Marine Mammal Protection Act (16 USC 1361-1421h). The Marine Mammal Protection Act, adopted in 1972, makes it unlawful to take or import any marine mammals and/or their products. Under Section 101(a)(5)(D) of this act, an incidental harassment permit may be issued for activities other than commercial fishing that may impact small numbers of marine mammals. An incidental harassment permit covers activities that extend for periods of not more than 1 year and that will have a negligible impact on the impacted species. Amendments to this act in 1994 statutorily defined two levels of harassment. Level A harassment is defined as any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal in the wild. Level B harassment is defined as harassment having potential to disturb marine mammals by causing disruption of behavioral patterns including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

Executive Order 13112: Invasive Species. The purpose of this order is to prevent the introduction of invasive species and to provide control for the spread of any invasive species that have already been introduced. This law prohibits the federal government to "authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions."

Additionally, this order requires federal agencies to consult with the Invasive Species Council, consistent with the Invasive Species Management Plan.

Section 404/10 Jurisdiction (33 USC 1251-1376). Under Section 404 of the Clean Water Act (CWA), the U.S. Army Corps of Engineers (USACE) regulates the disposal of dredged and fill materials into "waters of the United States," which include intrastate lakes, rivers, streams (including intermittent streams), bayflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, and wetlands adjacent to any water of the U.S. [33 CFR 328]. In areas subject to tidal influence, Section 404 jurisdiction extends to the high tide line or boundary of any adjacent wetlands.

The USACE also regulates navigable waters under Section 10 of the Rivers and Harbors Act. Navigable waters are defined as "those waters of the United States that are subject to the ebb and flow of the tide shoreward to the mean high water (MHW) mark and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce" [33 CFR 322.2].

In San Francisco Bay, waters of the U.S. include open waters of the Bay, seasonal and tidal wetlands, and intertidal habitats. Any dredge or fill activities required as a part of ferry implementation and/or operation require a permit from the USACE.

State

California Endangered Species Act (California Fish and Game Code 2050-2116). Similar to FESA, the California Endangered Species Act (CESA), along with the Native Plant Protection Act, authorizes the California Fish and Game Commission to designate, protect, and regulate the taking of special-status species in the state of California. CESA defines "endangered" species as those whose continued existence in California is jeopardized. State-listed "threatened" species are those not presently threatened with extinction, but which may become endangered if their environments change or deteriorate. Any proposed projects that may adversely impact state-listed threatened or endangered species must formally consult with the California Department of Fish and Game (CDFG).

Section 2080 of the California Fish and Game Code prohibits the taking of state-listed plants and animals. The CDFG also designates "fully protected" or "protected" species as those which may not be taken or possessed without a permit from the Fish and Game Commission and/or the CDFG. Species designated as fully protected or protected may or may not be listed as endangered or threatened.

In addition to listed species, the CDFG also maintains a list of "Species of Special Concern," most of which are species whose breeding populations in California may face extirpation. To avoid the future need to list these species as endangered or threatened, the CDFG recommends consideration of these species, which do not as yet have any legal status, during analysis of the impacts of proposed projects.

3.9.2 Habitat Restoration in the Study Area

Several ecosystems enhancement and restoration efforts are ongoing within or near the study area. These include restoration of native oyster beds (Latta, 2007), restoration of native eelgrass, and the Berkeley Meadows Habitat Restoration.

Native Oyster Bed Restoration

The native Olympia oyster, *Ostrea conchaphila*, once a dominant fishery resource in San Francisco Bay, and abundant along the west coast of America, had been reduced to a few scattered populations. The loss of oyster beds has removed a major filter feeder from the bay, resulting in serious implications for Bay food webs, nutrient transfer and water clarity. The National Oceanic and Atmospheric Administration (NOAA), Save the Bay, and other groups are collaborating on native oyster monitoring and restoration in several sites throughout the bay. Although detailed maps of oyster beds are not available, large populations of oysters are known to exist at the Albany bulb, along Albany Beach south of the racetrack, and oysters have been observed for many years within the Berkeley Marina (Latta, 2007; Grosholz, 2007).

Eelgrass Restoration

Eelgrass beds have been afforded special management considerations by CDFG, USFWS, NMFS, and the Golden Gate Audubon Society. Once abundant in the Bay, native beds have dwindled significantly due to dredging and activities. Two eelgrass bed restoration projects are ongoing or planned in and adjacent to the study area. The first, conducted by Merkel & Associates for Caltrans as a mitigation project for construction of the East Span of the Bay Bridge, is located in the North Basin (Boyer, 2007). The second, by Dr. Katharyn Boyer of San Francisco State University, will begin in the summer of 2007 north of the Albany bulb (Boyer, 2007).

Seasonal Wetland Restoration

Habitat in the 72-acre Berkeley Meadow consisted of non-native weeds, small patches of native vegetation, and several seasonal wetlands that had developed atop subsiding landfill. A three-phase restoration plan is now being implemented. During Phase I, approximately 16.5 acres was cleared of non native vegetation, leaving intact will and a diverse assemblage of native vegetation was planted, with enhancement to existing wetlands and construction of new wetlands, coastal scrub, and upland habitat. Phases II and III will similarly restore 15.2 and 35.6 acres, respectively. Habitat and nesting areas for white-tailed kite, northern harriers, and burrowing owls are encompassed within the restoration project (Gandesbery, 2007).

3.9.3 Habitat Types

Habitats within the study area include nearshore upland habitats such as seasonal wetlands and coastal scrub, intertidal areas such as sandy beach, rocky shoreline, piers and pilings, tidal marsh, and intertidal bayflats; subtidal bayflats and open Bay. The habitats types within the study area may blend with one another in transition zones called ecotones. Species found in these areas often overlap habitat types.

The descriptions of habitats provided below combine similar habitat types, such as muted tidal marsh and tidal marsh, because the majority of species occur in both habitats. The habitats and common species associated with those habitat types discussed below have the potential to occur within the project boundaries. Habitat types as used in this report include the broad categories described below.

Upland

Seasonal Wetland. Seasonal wetland vegetation occurs in areas where soils remain ponded and/or saturated for a prolonged period of time during the winter season. Two types of non-tidal wetlands are located in the study area: seasonal wetlands and seeps. Seasonal wetlands are present in several areas in the Berkeley Meadow, the North Basin Strip, and the Brickyard. Species previously described in the Berkeley Meadow include rabbit's-foot grass (*Polypogon monspeliensis*), Italian wildrye (*Lolium multiflorum*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), native nutsedge (*Cyperus eragrostis*), native fathen (*Atriplex triangularis*), cut-leaf plantain (*Plantago coronopus*), and bristly oxtongue (*Picris echioides*) (CDPR, 2001). Most of these plants are non-native species that have invaded wetlands in disturbed areas in

California. As described above, removal of non native plants and restoration of seasonal wetlands using native plants is ongoing within Berkeley Meadows.

A small wetland present near the upland edge of the Albany Beach includes plants such as nutsedge, curly dock (*Rumex crispus*), and cocklebur (*Xanthium strumarium*).

Northern Foredune. Northern foredune vegetation is typically dominated by salt tolerant plants adapted to moving sands, including perennial grasses and low, perennial herbs and succulents. Typical northern foredune vegetation is absent from the study area. However Albany Beach shows some dune formation and supports two foredune indicator species: a relatively dense cover of bursage (*Ambrosia chmissonis*) interspersed with non-native sea-rocket (*Cakile maritime*). Invasive, non-native species including ripgut brome (*Bromus diandrus*), iceplant (*Carpobrotus edulis*), Kikuyu grass (*Pennisetum clandestinum*), and a European daisy (*Argyranthemum foeniculaceum*) are present on the dunes (CDPR, 2001).

Coastal and Ruderal Scrub. True Coastal Scrub, with a characteristic native plant community, has been typically absent from the site but is currently being restored in the Berkeley Meadows. Ruderal scrub consists of vegetation which colonizes disturbed areas, and includes shrubs, broadleaved species, and grasses, is present scattered through the upland portions of the site. Coyote-brush (*Baccharis pilularis*) dominates large portions of the scrub area, including the Berkeley Meadow and Albany Bulb. Coyote-brush forms covers from 25 percent to 75 percent of the scrub areas; non-native French broom (*Genista monspessulana*) and cotoneaster (*Cotoneaster* spp.) intersperse with the coyote-brush in some areas.

Australian tea tree (*Leptospermum laevigatum*), is a dominant species at Fleming Point along with French broom and the native poison oak (*Toxicodendron diversilobum*) on the steep bluffs. The native subshrub seaside woolly sunflower (*Eriophyllum staechadifolium*) is also present in small stands on the bluffs (CDPR, 2001).

Trees. Stands of willow (*Salix lasiolepis*) are present, and are being preserved, within Berkeley Meadow. Other native willows and some native glue elderberry trees (*Sambucus Mexicana*) also occur on steep slopes within the site. Non native eucalyptus, acacia, pine, cypress and fruit trees occur throughout the site, especially at the Brickyard and along trails and roads (CDPR, 2001).

Developed Areas

Developed areas are areas that are paved and have landscaped or ruderal vegetation. They typically support wildlife species associated with disturbed or urban areas, such as red-winged blackbird (*Agelaius phoeniceus*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), European starling (*Sturnus vulgaris*), rock dove (*Columba livia*), house cat (*Cattus domesticus*), and black rat (*Rattus rattus*). However, development within this study area includes shoreline armoring and Berkeley Marina facilities. These types of development provide intertidal habitat for pier and piling communities, including algae, invertebrate fauna such as barnacles, mussels, tunicates, and crab, and, where riprap, cobbles, and other hard debris occur, a manmade rocky shoreline which provides foraging and resting areas for shorebirds.

Developed areas within the study site include the Berkeley Marina, constructed on artificial fill approximately 40 years ago. The Berkeley Marina currently occupies approximately 100 acres of land and 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 and is protected by detached and enclosing breakwaters. Existing Berkeley Marina facilities include a fuel dock, bait and tackle shop, commercial sport fishing boats, sailing club concessions, the Berkeley Yacht Club, two restaurants (Skates on the Bay and Hs Lordships), the Doubletree Hotel, the Radisson Hotel, Cesar Chavez Park, and the Shorebird Nature Center.

Also present is the Berkeley Pier, built in 1929, and extended 3 miles into the Bay to allow for large transbay ferries. Ferry service stopped 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.

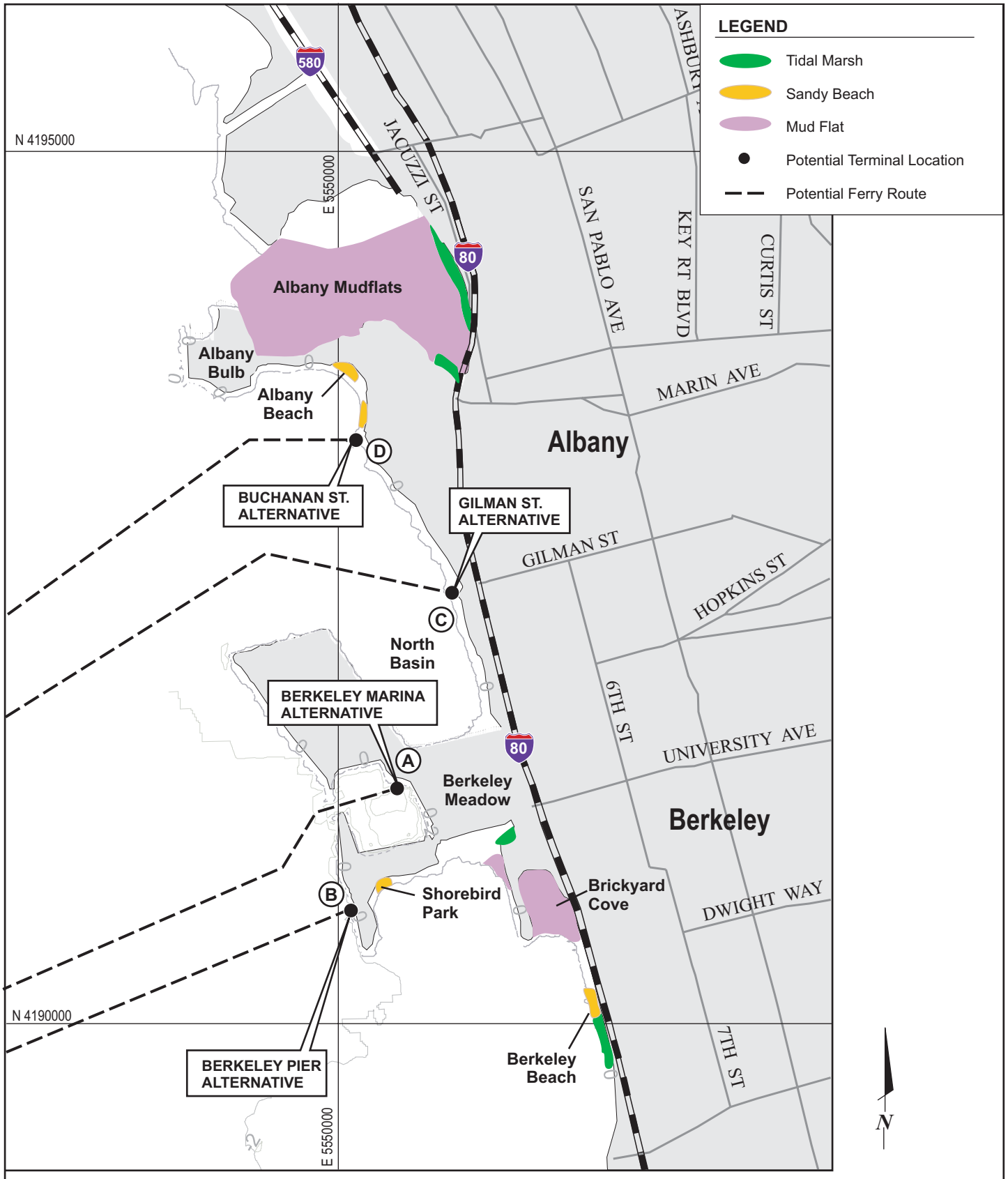
Large sections of shoreline in the study site are protected by rock or brick riprap, poured concrete armoring, and other debris.

Intertidal

Tidal Marsh. Two classifications of tidal marsh occur within the study area: salt marsh and brackish marsh. In areas with a predominantly marine influence, tidal salt marsh is present. In areas with significant freshwater influence, the water is less saline and the marshes are more brackish (Goals Project, 1999). The vegetation in these marsh types differs due to the variation in salinity, and is described in more detail below. Vegetation zones and the distance from the shore characterize the gradations in tidal salt marsh and tidal brackish marsh. Low tidal marsh occurs between the lowest margin of marsh and MHW. Middle tidal marsh occurs between MHW and mean higher high water (MHHW).

High tidal marsh occurs between MHHW and the highest margin of the marsh. Tidal marshes can be referred to as young or old. Younger marshes are more recently established, often due to shoreline fill development, which can cause sediments to accumulate in surrounding areas where marsh vegetation eventually grows. These marshes tend to be dominated by low-diversity plant composition, whereas older marshes tend to have a more complex plant composition (Goals Project, 2000). As the marsh and upland areas of this study area are predominantly manmade fill material, marshes in the project area are predominantly young marsh (CDPR, 2001).

Salt Marsh. Salt marsh occurs throughout the entire San Francisco Bay, primarily in the North and South bays. Within the study area, smaller salt marshes exist along the entire shoreline of the Albany mudflat, the east shore of the Albany Bulb, and at the mouth of Cordornices Creek (Figure 3-21). Typically, salt marshes grade into meadow or scrub communities; these marshes tend to end at riprapped shorelines or other manmade structures. Pacific cordgrass (*Spartina*



SENSITIVE SHORELINES

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Ferry Terminal Study

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FIGURE 3-21

Source:
Modified from Merkel & Associates, 2004a

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foliosa) and pickleweed (*Salicornia virginica*) dominate salt marshes in the Bay and in the study site marshes. The low salt marsh zone consists mainly of these species, although it is rapidly being colonized by the invasive smooth cordgrass (*Spartina alterniflora*), which has invaded the study area in the last decade (CDPR, 2001). Pacific cordgrass and smooth cordgrass frequently hybridize and are slowly outcompeting the native Pacific cordgrass. The middle salt marsh zone, or the salt marsh plains in the Bay, tend to be dominated by pickleweed, but are also characterized to a lesser extent by saltgrass (*Distichilis spicata*), dodder (*Cuscuta salina*), fleshy jaumea (*Jaumea carnosa*), and alkali heath *(Frankenia salina*). Species such as marsh gumplant (*Grindelia stricta* var. *angustifolia*), saltgrass, pickleweed, dodder, and alkali heath characterize the high salt marsh zone (Goals Project, 2000). Special-status plant species include soft bird's beak (*Cordylanthus mollis* ssp. *mollis*), Point Reyes bird's beak (*Cordylanthus maritimus* ssp. *palustris*), California seablite (*Suaeda californica*), and Suisun thistle (*Cirsium hydrophilum* var. *hydrophilum*). These species are discussed in more detail in Protected Species and Habitats.

Common fish and insects in salt marshes include: California killifish (*Lucania parva),* bay goby (*Lepidogobius lepidus*), striped bass (*Morone saxatilis*), topsmelt (*Atherinops affinis*), starry flounder (*Platichthys stellatus),* water boatman (*Trichocorixa reticulata*), and wandering skipper (*Panoquina errans*). Common wildlife species in salt marshes include Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), white-crowned sparrow (*Zonotrichia leucophrys*), sora (*Porzana carolina*), marsh wren (*Cistothorus palustris*), northern harrier (*Circus cyaneus*), and deer mouse (*Peromyscus maniculatus*).

Special-status animal species found in salt marsh habitat include salt marsh harvest mouse (*Reithrodontomys raviventris*), clapper rail (*Rallus longirostris obsoletus*), black rail (*Laterallus jamaicensis*), salt marsh wandering shrew (*Sorex vagrans halicoetes*), and salt marsh common yellowthroat (*Geothlypis trichas sinuosa*).

Brackish Marsh. Typical brackish marsh species in San Francisco Bay include alkali-bulrush, tules (*Scirpus californicus* and *S. acutus*), and cattails (*Typha angustifolia* and *T. latifolia*) in areas that have more freshwater. The middle brackish zone is frequently dominated by saltgrass, although pickleweed, fleshy jaumea, and fathen are also present. The high brackish marsh zone is characterized by perennial peppergrass (*Lepidium latifolium*), fennel (*Foeniculum vulgare*), and exotic grasses (Goals Project, 2000). Brackish marsh has formed in a roadside ditch or basin between the eastern portion of the Brickyard and the frontage road to the east and is dominated by cattail and bulrush, with Arroyo willow at the edge. Curly dock and prickly ox-tongue are also reported (CDPR, 2001). A small brackish marsh also exists at the northwestern corner of the Albany Bulb (Figure 3-21).

American bittern (*Botaurus lentiginosus*) and wildlife species commonly found in salt marshes also often occur in brackish marshes.

Special-status species in freshwater marshes include all of the species found in salt marshes listed above except Suisun thistle, San Pablo vole, and salt marsh wandering shrew. These species are discussed in more detail in Protected Species and Habitats.

Bayflats. Bay tidal flats are usually sparsely vegetated intertidal areas which occur from approximately MLLW to mean tide level. Vegetation within study area flats includes scattered green macro-algae (*Ulva* spp. and *Enteromorpha intestinalis*), and microscopic algae including diatoms, golden brown and blue-green phytoplankton. Bayflats provide habitat for many species of invertebrates, including polychaetes, oligochaetes, amphipods, isopods, and crustaceans. They provide protection to banks and upland shoreline from wave energy and sediment.

During low tide, bayflats provide crucial foraging and roosting areas for almost one million shorebirds that use the Bay during the spring migration. Shorebirds frequently found on bayflats in the Bay include western sandpiper (*Calidris mauri*), least sandpiper (*Calidris minutilla*), dunlin (*Calidris alpina*), long- and short-billed dowitcher (*Limnodromus griseus,* and *L. scolopaceus,* respectively), long-billed curlew (*Numenius americanus*), whimbrel (*Numenius phaeopus*), and American avocet (*Recurvirostra americana*).

During high tide, bayflats provide foraging habitat for fish, including longfin smelt (*Spirinchus thaleichthys)*, staghorn sculpin (*Leptocottus armatus*), starry flounder, and leopard shark *(Triakis semifasciata).* One of the few mammals that are occasionally present on bayflats is the Pacific harbor seal (*Phoca vitulina*).

Sandy Beaches. Sandy beaches in and near the study area are critical for the recovery of California seablite (*Suaeda californica*), a federally endangered species. A large sandy beach with some dune formation is located at Albany Beach, and a large sandy beach without dunes is located at the south shore of the Brickyard, and supports both upland and wetland vegetation (CDPR, 2001). Sandy beaches which do not support much, if any, dune or beach vegetation include those along the Berkeley shoreline, at the outfalls of Strawberry Creek and Schoolhouse Creek (Figure 3-21).

Beach fauna include crustaceans such as sand crabs, amphipods and isopods (beach hoppers and sow bugs), polychaete worms, and flying insects. Sandy beaches are important foraging areas for shorebirds.

Rocky Intertidal

Rocky intertidal habitat within the study area is primarily composed of riprap along the shoreline. Seaweeds or macroalgae form the predominant plant communities here: green algae (Division Chlorophyta), red algae (Division Rhodophyta), and brown algae (Division Phaeophyta) are all present. Species include the green *Ulva lactuca* and *Enteromorpha intestinalis*, red *Endocladia muricata*, *Mastocarpus* spp., and *Bangia fusco-purpurea* and brown Rockweed (*Fucus Distichus)* (CDPR, 2001).

The riprap and miscellaneous debris along these shorelines provides habitat for both sessile and mobile invertebrates species. Sessile organisms, including mussels (*Mytilus edulis-galloprovincialis*) and barnacles (*Chthamalus dalli* and *Balanus glandula*), have been observed throughout the rocky zone. Mobile organisms, mainly amphipods, isopods, and shorecrabs (*Hemigrapsis oregonsis*) are also present. These invertebrates are preyed upon by birds at low

tide and nearshore fishes at high tide. Black oystercatchers (*Haematopus bachmani*), ruddy turnstones (*Arenaria interpres*), and black turnstones (*Arenaria melanocephala*), are known to forage in the rocky intertidal habitat at the site.

Fleming point provides an exceptional rocky intertidal habitat, as naturally occurring rocky shoreline is present. This stretch of shoreline is one of the few remaining natural features along the East Bay (CDPR, 2001). Because of its age, this stretch of shoreline supports a diversity of rocky intertidal organisms described as among the highest in the region. Both macro algae, such as *Rhodoglossum affine, Ceramium* sp., *Ralfsia* sp., and *Gracilaria* spp and marine invertebrates such as littorine snails (*Littorina* spp.), bryozoans, polychaete worms, encrusting sponges, and splash zone isopods (*Ligia occidentalis*) were observed at Fleming Point and nowhere else within the study area.

Subtidal

Subtidal Flats. The subtidal flats within the study area are permanently submerged shallow soft bottomed areas seaward of the intertidal bayflats, primarily composed of sand or mud. Macroflora on subtidal flats tends to be limited to red algae (*Gracilaria* spp.) and eelgrass. No kelp beds are present in the Bay. However, these areas are rich in fauna: benthic invertebrates include a diverse array of tube-worms, clams, oysters, snails, and crustaceans such as crab, shrimp, and marine isopods. A variety of bony fish, sharks and rays have been reported or have the potential to occur, and the habitat provides critical foraging and resting areas for diving ducks, gulls, terns, California Brown Pelican (*Pelecanus occidentalis),* loons, grebes, and others described in more detail in Protected Species and Habitats. Flocks of diving ducks wintering within the area often number in the thousands: particularly in the South Sailing Basin just south of Brickyard Cove, the North Basin, and directly adjacent to the study area to both the north and south, north of the Albany bulb and south in the Emeryville Crescent. Rafting areas for water birds are shown in Figure 3-22.

Open Bay. The Goals Report (Goals Project, 1999) subdivides the open Bay into two habitat sub-units: deep bay/channel and shallow bay. Deep bay/channel habitat is defined as those portions of the Bay deeper than 18 feet below MLLW, including the deepest portions of the Bay and the largest tidal channels. Shallow bay is defined as that portion of the Bay between 18 feet below MLLW and MLLW. The shallow bay habitat accounts for two-thirds of the Bay's area (Goals Project, 1999). This study site includes only shallow bay, with maximum depths of approximately 6 feet.

The shallow bay habitat is a feeding area for Pacific herring (*Clupea harengus*), northern anchovy (*Engraulis mordax*), bat ray (*Myliobatis californica*), and jacksmelt (*Catherinops californiensis*), as well as at least 40 other species of fish, crabs, and shrimp. The shallow bay is also a nursery area for juvenile halibut and sanddab (*Citharichthys stigmaeus*), leopard shark, shiner perch (*Cymatogaster aggregata*), herring, and other fishes. Anadromous fish use the shallow bay area as migratory pathways to and from upstream spawning areas. This habitat is within the depth range of many diving birds and, therefore, provides important avian foraging habitat. Marine mammals such as harbor seals also forage in this habitat type.

Eelgrass Beds. Eelgrass (*Zostera marina*), San Francisco Bay's only rooted seagrass beds, forms beds common in healthy, shallow bays and estuaries, which serve as an indicator community for the overall health of an estuary. Eelgrass beds perform multiple functions within an estuarine ecosystem. The eelgrass stabilizes shorelines by dampening wave energy, collecting sediments transported to the shore, and preventing erosion. Beds improve water quality by collecting and filtering organic matter and sediments, and are easily affected by changes in water quality and turbidity, as the depth at which this species grows is a function of light penetration.

Eelgrass beds provide habitat for epiphytic algae, invertebrates, and crustaceans, a nursery area for many species of fish, including Pacific halibut (*Hippoglossus stenolepis*), and English sole (*Parophrys vetulus*). Eelgrass is particularly important to fish such as Pacific herring, which spawn in the blades of this plant, and wintering birds such as the endangered least tern (*Sterna antillarum browni*), which forages on small, or the American widgeon (*Anas americana*) that feed on fish roe and invertebrates within the beds. As substrate for the epiphytic algae, invertebrates, and crustaceans on which these species feed, eelgrass beds also contribute to the ecosystem at multiple trophic levels.

Eelgrass beds and potential habitat within the study area are shown on Figure 3-23. In addition to the ongoing eelgrass bed restoration taking place within the study area, as discussed in Section 3.9.2, eelgrass naturally occurs along the shoreline at Albany Beach, north of Gilman Street, in the vicinity of Shorebird Park, and south of Brickyard Cove extending to Ashby. Off-shore eelgrass lie 1,000 meters south of Hs Lordships.

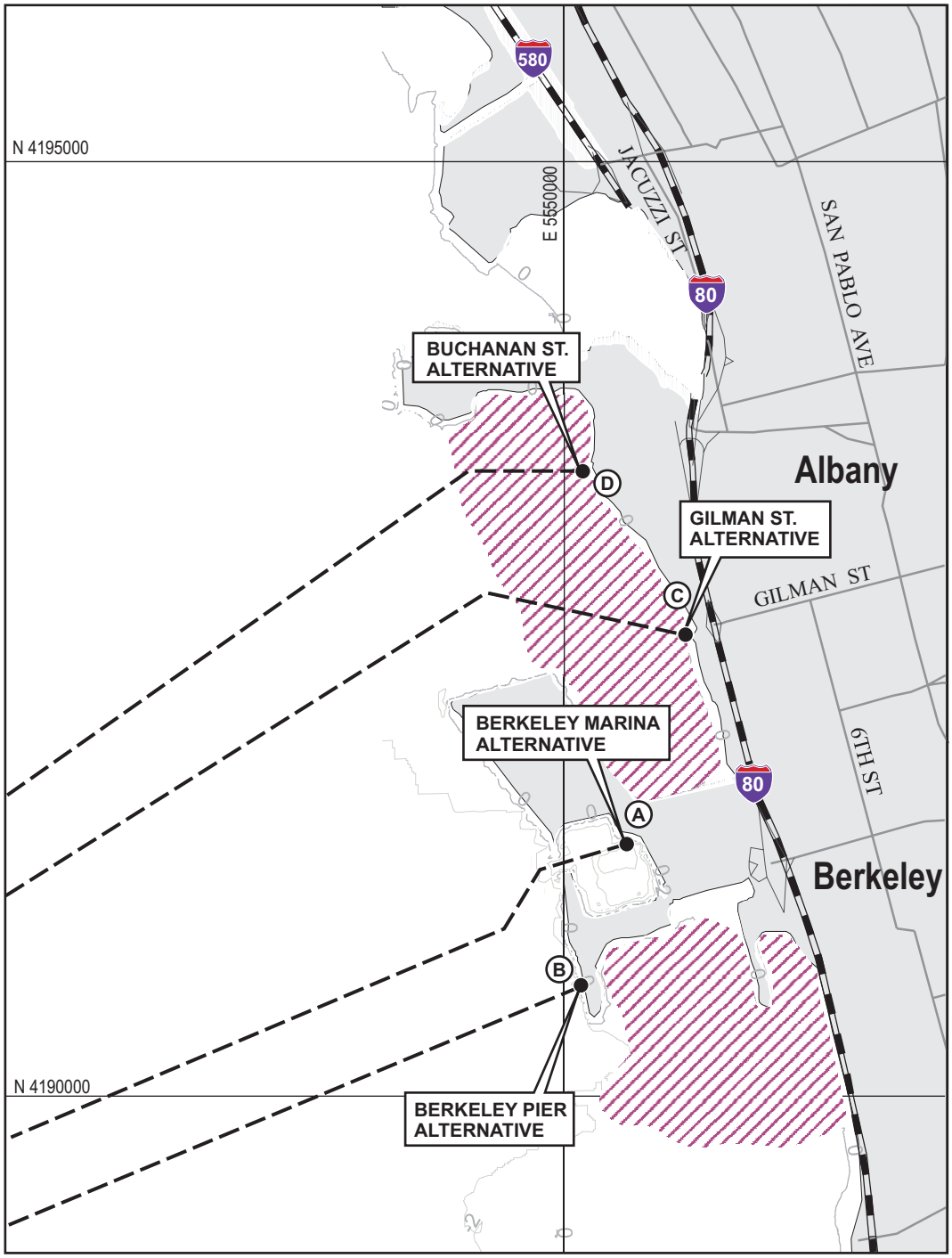
3.9.4 Site Fauna

Plankton

Plankton are found in all waters within study area. The three major components of plankton are phytoplankton, zooplankton, and ichthyoplankton (fish larvae and eggs), all of which free-float in open water. Representing the lower levels of the food chain, plankton are important to many marine community members, including benthic organisms, fish, and mammals.

Phytoplankton are small, floating, simple plants that represent the base of the marine food web. Consisting of single cells or chains of cells, phytoplankton are usually microscopic in size and reproduce asexually through cellular division. Much of San Francisco Bay's productivity of other organisms, including clams, worms, mussels, and zooplankton, depends on the growth of phytoplankton (SFEP, 1992). Major phytoplankton groups in the Bay include diatoms, dinoflagellates, and cryptomonads (Herbold et al., 1992).

In the Central Bay where habitats are mostly open and deep water, the high degree of tidal water exchange and mixing generally keep phytoplankton levels very low (SFEP, 1992). Therefore, the shallow subtidal flats within this study area may be important for phytoplankton growth and primary productivity within the Central Bay.



AREAS USED BY RAFTING BIRDS

Berkeley/Albany
Ferry Terminal Study

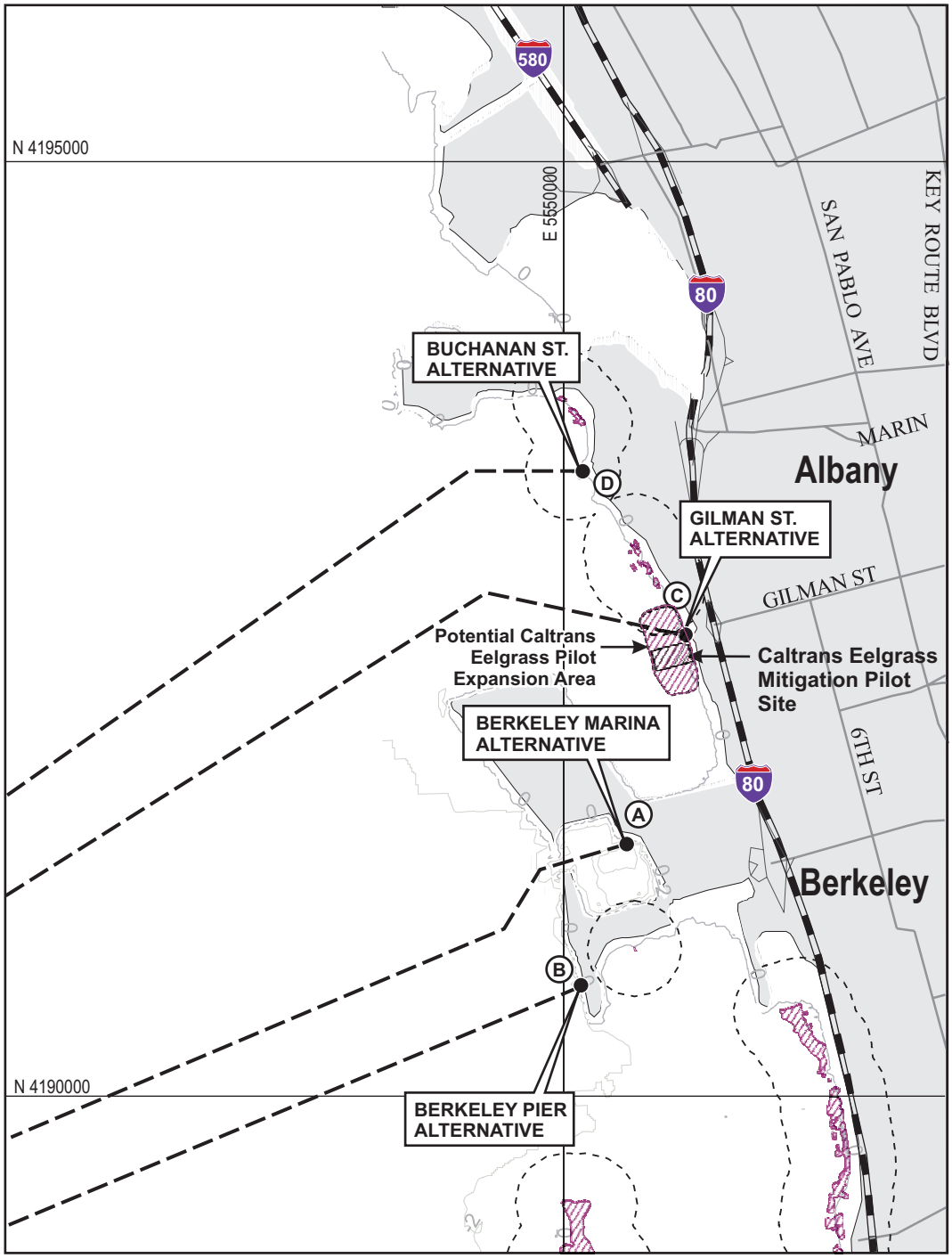
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FIGURE 3-22

Source:
GGAS, 2005; 2006b.

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LEGEND

- Eelgrass
- 250m Buffer of Maximum Documented Eelgrass Extents
- Potential Terminal Location
- Potential Ferry Route

N

500 0 500

Scale in Meters

EELGRASS LOCATIONS

Berkeley/Albany
Ferry Terminal Study

October 2008
28067367

URS

FIGURE 3-23

Source:
Modified from Merkel & Associates, 2004a

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Zooplankton consist of microscopic and macroscopic animals that either free-float or feebly swim in open water. Zooplankton provide an ecologically important food source for many types of fish such as anchovies, smelt, and striped bass. Common zooplankton found in the Bay include species of copepods, tintinnids, larval forms of gastropods, bivalves, barnacles, polychaetes, and crustaceans such as the Dungeness crab (*Cancer magister*) (Ambler et al., 1985).

Ichthyoplankton are the eggs and larval forms of marine fishes, such as Pacific herring, northern anchovy, goby (family *Gobiidae*), white seabass (*Cynoscion nobilis*), staghorn sculpin, and diamond turbot (*Hypsopsetta guttulata*). Seasonal abundance and distribution of individual ichthyoplankton species are dependent on the reproductive cycles of the adult fish species and their circulation within the Bay. In return, the dynamics of the adult fish populations are closely related to annual recruitment success rates of individuals from the larval stage. Generally, fish larvae are in the plankton community coinciding with peaks of phytoplankton and zooplankton abundance in the winter and spring (Ambler et al., 1985).

Benthos

Benthos are bottom-dwelling organisms that generally live nonmobile lifestyles, though some mobile species such as crabs do exist. Epibenthos is the collection of benthic organisms that live on the substrate surfaces, such as crabs, while infauna are those that live within the sediment, such as native oysters and tube-dwelling worms. Because many infauna species live a year or more in the same bottom area, they serve as one of the best biological indicators of impacts from human disturbances, as well as general indicators of ecosystem health in aquatic environments. The benthos also provide an important food source for many species of fish, birds, and mammals in the marine environment.

In the Bay Area, many benthic invertebrates live within sedimentary or soft-bottom habitats, usually within the top 2 to 3 centimeters of the soft sediment. Some benthic invertebrates also live on hard substrates, which are much less common in the Bay compared to sedimentary habitats.

The Central bay and study area harbor predominantly marine benthos, although brackish communities may be present in brackish marsh and at the mouths of creeks within the area. Community characteristics such as species composition and abundance are affected by many physical factors, including salinity and sediment grain size, or by biological factors such as competition and predation (Thompson et al., 2000). Changes in these factors can influence individual benthic species differently.

Many of the more common benthic species in San Francisco Bay today are accidentally or intentionally introduced species (SFEP, 1992). Most of these nonnative species were transported here in ballast water of ships or on the oyster shells brought from the east coast for commercial farming purposes in the late 19th century (Carlton, 1979). Some of these nonindigenous species serve ecological functions similar to those of the native species that they have displaced. Examples of these include the eastern oyster (*Crassostrea virginica*), the Japanese littleneck

clam (*Tapes philippinarum)*, and the soft-shelled clam (*Mya arenaria*), all of which have supported commercial or sport fisheries. However, other species, such as *Potamocorbula amurensis*, have a negative effect on phytoplankton and zooplankton populations and organisms that depend on them. Though *Potamocorbula* may serve as a food source for diving ducks and sturgeon, their high feeding rates can remove much of the phytoplankton from the water column and may have an adverse effect on zooplankton and other organisms in the food chain that feed on them (SFEP, 1992).

Benthic species common to the Central Bay consist of clams (including *Potamocorbula*), amphipods such as *Monocorophium* and *Ampelisca*, polychaete worms, and Bay mussels (SFEP, 1992). The native oyster (*Ostrea conchaphila*), a cornerstone species critical to benthic and pelagic foodwebs, is found in sediments within the study site (Grosholz, 2007). No systematic sampling of the benthos has been conducted within the study area (CDPR, 2001).The non-native Atlantic soft-shelled clam (*Mya arenaria*) and Japanese littleneck clam (*Tresus japonicus*); both commonly occur in the East Bay (CDPR, 2001) and may also be present.

Shrimp and Crabs

The Bay is home to many species of shrimp and crab that are important for their recreational fishery and ecological values. The Bay shrimp (*Crangon* spp.) is the most common shrimp reported by the CDFG in the Bay (Baxter et al., 1999). Shrimp species are an important food source for virtually all species of fish, marine mammals, and water birds.

While distributed widely throughout the Bay, the various species of shrimp found in the Bay do have differing centers of distribution. For example, *C. franciscorum* are more commonly collected in the northern reach of the Bay (San Pablo to the west Delta) than in the Central or South bays, while *C. nigromaculata* are usually found in the Central and South bays (Baxter et al., 1999).

Crabs are both recreationally and ecologically important in the Bay. The most common species in the Bay is the Dungeness crab, which supports an important commercial fishery. Other commonly found species in the Bay include *C. productus*, *C. antennarius*, and *C. gracilis*. These species are typically abundant in the more marine waters of the Central Bay but are also found in the South Bay and San Pablo Bay (Baxter et al., 1999).

Fish

Habitats used by fish within the study area include bay flat open waters, eelgrass beds, piers and pilings, and in tidal marshlands and rocky intertidal zones during high tide.

More than 100 species of fish inhabit the San Francisco Bay system. The majority of species are native, but there are also many introduced species. Many complete all stages of life within the Bay; a smaller portion, anadromous fish, migrate from ocean waters, through the Bay-Delta Estuary (the Estuary), and into a series of freshwater streams where they spawn. As adults or young-of-the-year, they migrate through the Estuary back to the ocean. A small portion of these

remain in the Bay year-round. Whether spawned offshore and carried into the Bay by currents or spawned directly in the Bay, most of the anadromous species spend 4 to 8 months in the Bay before entering the ocean. Common fish species found in the Bay include northern anchovy (*Engraulis mordax*), topsmelt (*Atherinops affinis)*, jacksmelt (*Atherinopsis californiensis)*, striped bass (*Morone saxatilis)*, white croaker (*Genyonemus lineatus*), Pacific herring, and English sole.

Fish reported to be, or to have potential to be in the study area include American shad (*Alosa sapidissima*), bat ray, brown rockfish (*Sebastes auriculatus)*, Chinook salmon (*Oncorhynchus tshawytscha*)(see Rare, Endangered species section below), leopard shark, striped bass, and white croaker Smelt, northern anchovy, shiner perch, starry flounder, and speckled sanddab have also been reported in the nearshore environment in the central Bay (CDPR, 2001) as have green sturgeon (*Acipencer medirostris*) and Pacific herring (SFEP, 1992); these species are likely present within the study area. The tidewater goby (*Eucyclogobius newberryi*), a federally endangered species, historically existed within the study area, but has not been reported since 1950.

Because of the large number of fish species that could be present, not all are discussed in detail here. The more ecologically, commercially, and/or recreationally important species are discussed below. A discussion of fish species with either federal or state protection status is included in Protected Species and Habitats.

Birds

Bay waters and shorelines provide diverse habitat for many species of waterfowl, shorebirds, and tidal marsh birds. In fact, birds use all of the habitats reported within the study area.

The Bay serves as an important staging and wintering ground on the Pacific Flyway for numerous species of waterbirds, both common and uncommon. The Pacific Flyway is a bird migration corridor along the Pacific Coast that stretches as far north as northern Canada and Alaska, and as far south as the southern tip of South America (SFEP, 1992). In the Bay, the greatest waterbird abundance and species diversity is seen in winter, as birds migrate along the flyway. Each year, nearly one million waterfowl and more than one million shorebirds pass through this area. San Francisco Bay supports the largest population of canvasback along the Pacific coast, 46 percent of the midwinter population in the Pacific Flyway (Goals Project, 2000). Additionally, San Francisco Bay provides crucial wintering habitat for surf scoter (Goals Project, 2000). It is the most important inshore habitat in the eastern Pacific, south of the Straits of Georgia and Puget Sound (Small, 1994), for this species. Scoters (primarily surf scoters [*Melanitta perspicillata*], but also white-winged scoters [*Melanitta fusca*]) are the second most abundant waterfowl in the Bay, and between 1998 and 2000 accounted for 25 percent (South Bay) to 29 percent (Central Bay) of total wintering waterfowl numbers counted during annual surveys (USFWS, unpublished data).

Roughly 120 waterbird species from 16 avian families occur in the Bay. Of these birds, approximately two-thirds are represented by three families: *Anatidae* (waterfowl), *Laridae* (gulls and terns), and *Scolopacidae* (sandpipers and phalaropes). Individual waterbird species may reach their peak abundance during different periods throughout the fall and spring migration.

San Francisco Bay is also recognized as a site of hemispheric importance for shorebirds by the Western Hemisphere Shorebird Reserve Network. A site has been designated of hemispheric importance if it is used by at least 500,000 shorebirds annually. Between 1988 and 1995, the Bay supported 41.4 to 96.5 percent of the key species of shorebirds surveyed along the Pacific Flyway in the fall, 37.8 to 90.1 percent in the winter, and 24 to 85.6 percent in the spring. No other site within the Pacific Flyway supported more than 16.1 percent of these species in the fall, 32.9 percent in the winter, and 27.5 percent in the spring (Page et al., 1999). Tidal bayflats in particular offer important habitat and a migratory staging area for shorebirds.

Tidal marshes in the Bay also provide foraging, nesting, and roosting habitat for many tidal marsh species endemic to the area. Many of these species are listed as threatened or endangered by the state or federal governments or are recognized as species of special concern. A discussion of the distribution of these species is included in the species accounts in Protected Species and Habitats, along with a discussion of all of the bird species with either federal or state protection status.

A recently concluded 3-year bird survey of the North Basin, just north of Berkeley Meadows, was undertaken by Avocet Research Associates (ARA) for the CDPR. Although the results are not yet published, at least 122 species of birds were observed.

Waterbirds

Each year, typically in January, the USFWS conducts a mid-winter survey of the distribution and number of waterfowl present in the San Francisco Bay. Accurso (1992) analyzed the species and distribution of waterfowl in the Bay from 1988 to 1990. These data, while 10 years old, still provide the most detailed information available concerning the distribution of waterfowl species in the Bay as a whole. When available, the ARA 3-year survey should provide up to date and similarly detailed information for the study area. All of the birds discussed below in relation to their bay abundance were observed within the study area by the ARA study.

Forty-eight and 68 percent of all waterfowl in San Francisco Bay used the open Bay in 1988-1989 and 1989-1990, respectively (not including Suisun Bay) (Accurso, 1992).

The most predominant birds in the open Bay are diving ducks. Dabbling ducks such as mallard (*Anas platyrhynchos*), northern pintail (*Anas acuta*), and American widgeon (*Anas americana*) are also present in the open Bay, but in smaller numbers, as they tend to prefer seasonal wetlands, salt ponds, and managed marshes surrounding the Bay. Ruddy ducks (*Oxyura jamaicensis*) and bufflehead (*Bucephala albeola*), also diving ducks, are found predominately in the North and South Bay salt ponds (Goals Project, 2000).

Tidal Marsh Birds

Tidal flats are a primary foraging habitat for shorebirds within the Bay. As the amount of wetlands in other parts of the state declines, Tidal marsh and coastal wetlands in the Bay become increasingly more valuable to many waterfowl species. The shorebird species abundance and diversity is greatest in the spring, when these birds stop en route to northern breeding grounds in Canada and Alaska, and in the fall upon their return to South America. Wading birds such as great blue heron (*Ardea Herodias*), great egret (*Ardea alba*), and snowy egret (*Egretta thula*) forage on fish, invertebrates, and small mammals within the marshes. At low tide, shorebirds such as include western sandpiper, dunlin, marbled godwit (*Limosa fedoa)*, willet (*Catoptrophorus semipalmatus*), American avocet, and snowy plover (*Charadrius alexandrinus nivosus*) forage in exposed banks channels. At high tides, Caspian tern (*Sterna caspia*), eared grebe (*Podiceps nigricollis*) and Forster's tern (*Sterna forsteri*), American widgeon, mallard, American coot ((*Fulica americana*), bufflehead, and pied-billed grebe (*Podilymbus podiceps*) make use of the submerged channels. Secretive bird species hiding within marsh vegetation include California clapper rail, and probably sora and Virginia rail (*Rallus limicola*). Alameda song sparrows (*Melospiza melodia pusillula)*, saltmarsh common yellowthroats (*Geothylpis trichas sinuosa)*, and marsh wrens (*Cistothorus palustris*) may nest in the marsh vegetation at higher tidal elevations. Black phoebes (*Sayornis nigricans*) and swallows feed on the aerial insects above the marsh vegetation.

Rocky Shoreline Birds

Some of the few remaining rocky shore habitats in the Bay occur in the Central Bay, and species that use natural rocky shorelines also use the riprap within the study area, either for foraging, or as vital pullout areas for shorebirds species including brown pelicans, cormorants, and gulls (SFEP, 1992) at high tide. Rocky intertidal invertebrates are preyed upon by various birds at low tide. Black oystercatchers, ruddy turnstones, and black turnstones, American crow and western gull (*Larus occidentalis*) have all been observed in the study area foraging amongst the cobbles and pebbles, feeding on mussels and crabs (CDPR, 2001).

Birds of Prey

The study area is also vital habitat for birds of prey. The bare ground and shorter vegetation of beaches and meadow provides good habitat for predatory birds, including American kestrel (*Falco sparverius*), red-tailed hawk *(Buteo jamaicensis*), northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), and burrowing owl (*Athene cunicularia*). Scrub and grassland habitat, particularly within Berkeley Meadow, provides suitable habitat for nesting burrowing owls (CDPR, 2001). White-tailed kite and northern harrier are also known to nest within the study area (Olson, 2007). Piscivorous or fish-eating birds including osprey (*Pandion haliaetus)* and belted kingfisher (*Megaceryle alcyon*) are known to forage in the North Basin.

Terrestrial Birds

The upland habitats within the study area, including grasslands and Coastal scrub, include white-crowned sparrow (*Zonotrichia leucophrys*), song sparrow (*Melospiza melodia)*, California towhee (*Pipilo crissalis)*, and mourning dove (*Zenaida macroura*). Savannah sparrow (*Passerculus sandwichensis*) and western meadowlark (*Sturnella neglecta*), Northern mockingbird (*Mimus polyglottos)*, Brewer's blackbird (*Euphagus cyanocephalus*), red-winged blackbird (*Agelaius phoeniceus)*, Anna's hummingbird (*Calypte anna*), loggerhead shrike (*Lanius ludovicianus*) and lesser goldfinch (*Carduelis psaltria*) all of which may nest in such habitats.

Terrestrial and Marine Mammals

Terrestrial mammals occupy all but the open water habitats of the study area. In tidal marshes, house mouse and Norway rats are present, and bats forage on flying insects. Several species of mice, black-tailed hare (*Lepus californicus*), and raccoon (*Procyon lotor*) may use the sandy beaches and foredunes. Ruderal grasslands and shrub areas host small rodents which include or likely include Meadow vole (*Microtus pennsylvanicus*), house mouse, western harvest mouse (*Reithrodontomys megalotis*), California ground squirrel (*Spermophilus beecheyi)*, and Botta's pocket gopher (*Thomomys bottae*). Black tailed hare and Virginia opossum (*Didelphis virginiana*) also use these areas (CDPR, 2001). Rats and raccoons may also use rocky (and riprap) shorelines and mudflats for foraging activities during low tide. Salt harvest mouse (*Reithrodontomys raviventris*), a state and federally listed endangered species, was found in or near the study area as recently as 1982.

San Francisco Bay supports several common marine mammal species that include the Pacific harbor seal, California sea lion, and occasionally, the gray whale (*Eschrichtius robustus*). No seal or sea lion haul outs or pupping areas occur in the study area (Goals Project, 2000), although both use shallow subtidal areas for foraging. Harbor seals have been observed in the waters of the study area.

The federally listed southern sea otter has been reported at least once within the study area: it was seen swimming and diving offshore of the southwestern end of the Albany bulb in January of 2002 (CDPR, 2001).

All marine mammals are protected by the Marine Mammal Protection Act of 1972, with additional laws protecting species with very low population levels (e.g., sea otter). Other marine mammal species that have been seen occasionally in the Bay include the humpback whale (*Megaptera noveangliae*), harbor porpoise (*Phocoena phocoena*), northern elephant seal (*Mirounga angustirostris*), Steller sea lion (*Eumetopius jubatus*), northern fur seal (*Callorhinus ursinus*), and less frequently, the southern sea otter (*Enhydra lutris*). Due to their protected status, individual marine mammal species are discussed in greater detail in Protected Species and Habitats.

3.9.5 Protected Species and Habitats

Special-status species that occur, or have the potential to occur, in the project vicinity were identified from several sources, including the following: the California Natural Diversity Data Base (CNDDB) (CDFG, 2007), the California Native Plant Society's (CNPS) online Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2007), the USFWS Sacramento Office's Endangered and Threatened Species list (2007), and the CDFG Habitat Conservation Planning Branch (CDFG and Game Habitat Conservation Planning Branch, 2005). CNDDB records from the Oakland West, Richmond, San Quentin, San Leandro, and Mare Island USGS 7.5-minute quadrangle maps were reviewed. The USFWS online species database, which is a predictive database for special-status species, was queried using the Oakland West 7.5 minute quadrangle.

The resulting species list gathered from these sources has been formatted into a table showing the common and scientific names, federal and state status, and a general description of suitable habitat for each species (Appendix F). Species with a strong potential to occur in the study area are discussed in more detail in the text.

3.9.6 Threatened and Endangered Species

Plants

California Sea Blite (*Suaeda californica*). This FESA listed endangered species occupies coastal saltwater marshes and the upper margins of salt flats. Today, this species is known primarily to inhabit the relatively well-drained marshy beach ridges along Morro Bay. The last known specimen collected in San Francisco Bay was in 1943 (Goals Project, 2000). Sand and shell beaches are the principal recovery habitat for California seablite. The only beaches in San Francisco Bay that are considered suitable for restoring this species are located between the Emeryville Crescent (near the Bay Bridge toll plaza) and Albany, at Crissy Field (San Francisco), and at Point Pinole (CDPR, 2001). California seablite is not likely to occur in the study area at present.

Soft Bird's Beak (*Cordylanthus mollis* ssp. *mollis*). Soft bird's beak is an annual herb listed as endangered under FESA and state-listed as rare. This plant occurs in the high brackish marsh zone, typically in the lower end of a well-drained high marsh gradient, on slight topographic relief above the marsh plain. It is often found in association with high marsh vegetation such as pickleweed (*Salicornia virginica*), saltgrass (*Distichlis spicata*), fleshy jaumea (*Jaumea carnosa*), and alkali seaheath (*Frankenia salina*). Soft bird's beak is hemiparasitic, and its numbers fluctuate from year to year. The plant may disappear for a year or more and then regenerate from dormant seed banks. Threats to the species include erosion and marsh drainage. Soft bird's beak is currently found in tidal brackish marshes around the Napa River, Carquinez Strait tidal marsh, and Suisun Marsh area (Goals Project, 2000). The species is recorded as having been observed by M. Roberts at "the tip of the peninsula" at the Brickyard (Robinson, *in* Sloan, 1982). No record of the observation is included in the CNDDB. This species is unlikely to occur in the study area but could be present in relatively undisturbed salt marsh.

Fish

Central California Steelhead (*Oncorhynchus mykiss*). Central California steelhead is federally listed as threatened and is a CDFG species of concern. Steelhead historically ranged throughout the north Pacific Ocean from Baja California to Kamchatka Peninsula. Currently, their range extends from Malibu Creek in southern California to Kamchatka Peninsula (Busby et al., 1996). The Bay and its tributary streams support migrating steelhead populations. Trout can be either anadromous (migrating from freshwater to the ocean and returning to spawn in freshwater) or can complete their entire life cycle in freshwater. Those fish that remain in fresh water are referred to as rainbow trout. Steelhead, the anadromous form of *O. mykiss*, can spend several years in freshwater prior to smoltification and can spawn more than once before dying, unlike most other salmonids (Busby et al., 1996). Spawning runs in the Bay occur from December through May.

Chinook Salmon (*Oncorhynchus tshawytscha*). The species historically ranged from the Ventura River in California to Point Hope, Alaska, on the eastern edge of the Pacific and in the western portion of the Pacific Ocean from Hokkaido, Japan, to the Anadyr River in Russia (Healey, 1991). Chinook salmon consists of four distinct breeding populations or evolutionarily significant units (ESUs) that are endemic to the Sacramento-San Joaquin River system. Factors used in determining ESUs include spatial, temporal, and genetic isolation, maturation rates, and other life history traits. Chinook salmon have been categorized into fall/late fall, winter, and spring ESUs. Each ESU is considered a distinct race and has been given its own management status. Winter-run Chinook salmon has been state and federally listed as endangered, the fall/late fall-run salmon has been state and federally listed as threatened and is federally proposed as endangered, and spring-run salmon is federally proposed as threatened and is a CDFG species of concern.

Three Chinook salmon ESUs migrate through the Bay: Sacramento River winter-run, Central Valley spring-run, and Central Valley fall/late fall-run. The winter-run, a state and federally listed endangered species, spawns in the upper Sacramento River below Keswick Dam. The fall/late fall-run, a state and federally listed threatened species and federally proposed endangered species, spawns in the Sacramento and San Joaquin River basins (Myers et al., 1998). Spring-run Chinook salmon, federally proposed as threatened and a CDFG species of concern, spawn in the Sacramento River Basin. All three runs are most commonly found migrating through the northern and central portions of the Bay (CDFG, 1987).

Coho Salmon (*Oncorhynchus kisutch*). Coho salmon are listed as threatened under FESA and endangered under CESA. This species ranges from Baja California, Mexico, north to Alaska, and southwest to Japan (McGinnis, 1994). This species exhibits a simple 3-year anadromous life cycle (Federal Register, 1999), rearing in freshwater for up to 15 months before migrating to the ocean. Coho salmon typically spend two growing seasons in the ocean before returning to their natal streams to spawn (Federal Register, 1996). The Central California Coast Coho Salmon ESU occurs from Punta Gorda in Northern California south to, and including, the San Lorenzo River in central California, including tributaries to the Bay, but excluding the Sacramento-San

Joaquin River system (Weitkamp et al., 1995). Coho generally return to their natal streams between November and December. Coho no longer spawn in Bay tributaries and are not expected to occur within the Bay.

Birds

California Black Rail (*Latterallus jamaicensis coturniculus*). State listed as threatened, the California black rails reside in larger tidally influenced marshes of the Bay region. They require high-elevation emergent tidal marsh for nesting and breeding. Most, if not all, nesting occurs in the northern portions of the Estuary; however, they have been recorded in the South Bay during the breeding season (Evens et al., 1991). Black rails occur in the Central and South bays in the nonbreeding season, with known populations at Dumbarton Marsh and Palo Alto Baylands (Evens et al., 1991). They were reported in 1999 at the Emeryville Crescent, just south of the study area. Suitable habitat is present in tidal marsh within the study area.

California Brown Pelican (*Pelecanus occidentalis californicus*). The California brown pelican is a state and federally listed endangered species. This species breeds on the California Channel Islands between March and August (Zeiner et al., 1990) and is present in Northern California from June to November. In the Bay, pelicans forage over deep-water habitats and roost on structures such as breakwaters, pilings, and to a lesser extent, salt-pond dikes (USFWS, 1992). Brown pelicans feed almost exclusively on fish in either shallow or deep waters. Brown pelicans are fairly common throughout waters of the Central Bay and San Pablo Bay, and are known to forage subtidally within the study area. They may roost but does not nest on piers and breakwaters within the study area (CDPR, 2001).

California Clapper Rail (*Rallus longistostris obsoletus*). The California clapper rail is a listed as endangered under FESA and CESA and is a state fully protected species. Clapper rails are yearlong residents of emergent salt and tidal marshlands of the Bay (Goals Project, 2000; Zeiner et al., 1990). Loss and degradation of wetland habitat, predation by nonnative red foxes (*Vulpes vulpes*), and sewage effluent in the South Bay have contributed to the population decline of this species (Steinhart, 1990). In the Bay, clapper rails are most abundant in marshes south of San Mateo Bridge and in San Pablo Bay. They probably nested in tidal marshes just north of the study area in 2000, and are known to occur at Emeryville Crescent (CDPR, 2001).

California Least Tern (*Sterna antillarum browni*). The California least tern is a state and federally listed endangered species. It is migratory, breeds in California from April to August, and ranges from southern Baja California and Mexico north to San Francisco Bay. Breeding colonies are generally located in abandoned salt ponds and along estuarine shorelines that are free of predators. California least terns are ground-nesters and nest in colonies on sandy beaches and fine gravel with sparse vegetation (Goals Project, 2000). Due to degradation of more natural nesting habitat, they occasionally nest on dredge-spoil islands, open areas adjacent to airport runways, and industrial ports. Known San Francisco Bay nesting locations of this species include areas in the city of Alameda, Pittsburg Power Plant, and Oakland Airport (Goals Project,

2000). In 2000, Least terns nested on a new shell-covered island just south of Central Avenue. They forage in mudflats and marshes within the study area.

Western Snowy Plover (*Charadrius alexandrinus nivosus*). The western snowy plover is listed by the federal government as a threatened species and by the State of California as a species of special concern. This small shorebird typically occupies sandy beaches and intertidal areas of marine and estuarine habitats, but is known to occur in some inland areas. In San Francisco Bay, it is commonly found on salt pond levees. Western snowy plovers are known to winter in the San Francisco Bay Area. Approximately 250 individuals have been recorded in the Bay during the breeding season (Port of Oakland, 1998). They have been found nesting primarily in the salt ponds south of San Mateo Bridge in the South Bay, although they have also been observed in San Pablo Bay at the Napa-Sonoma salt ponds, and in the Central Bay at Alameda Naval Air Station. It may occur within the study area but was not seen during the most recent survey (Shafer, 2007).

Double-Crested Cormorant (*Phalacrocorax auritus*). The double crested cormorant is a state species of special concern. It is the only cormorant to exist in large numbers both coastally and inland across the continent of North America It is a piscivorous diver which nests in colonies of up to 3,000 birds, either in trees or on the ground. Numbers have been increasing since the 1970s (Hatch and Weseloh, 1999). It is often present in the shallow nearshore and offshore portions of the study area, and no nesting colony is present.

Northern Harrier (*Circus cyaneus*). The northern harrier is a state species of special concern. It is a raptor which feed primarily on small mammals and birds. Populations declined throughout the 20th century, primarily due to the loss in wetland habitat (MacWhirter and Bildstein, 1996). It occurs throughout the state except for the Sierra Nevada and the Cascade Ranges. Breeding usually occurs in shrubby vegetation within marshes, although nesting may also occur in grasslands or other dry habitats away from water. Harriers forage primarily on small mammals that inhabit a variety of wet and dry habitats. It is known to nest near the northwest corner of the Berkeley Meadow, and suitable foraging and nesting habitat is present throughout the site particularly at Albany Bulb, Neck, and Plateau; Berkeley Meadow and North Basin; and the Brickyard.

White-Tailed Kite (*Elanus leucurus*). The white-tailed kite, a California Fully Protected Species, was considered nearly extinct in California in the 1930s. Little is known about this species, but its habitat preference includes marsh and grasslands, and its numbers are increasing within California. Suitable foraging and nesting habitat is present within plant communities in the study area and it is known to forage in the North Basin.

American Peregrine Falcon (*Falco peregrinus anatum*). A state endangered and fully protected species, the peregrine falcon is known to feed in the Albany mudflat with the study area and in the Emeryville Crescent south of the study area. Famous for its amazing speed, this falcon can stoop at up to 200 mph when chasing the small birds which are its prey. Peregrine numbers crashed to near extinction between 1950 and 1970 due to dichloro-diphenyl-

trichloroethane (DDT) poisoning, and populations are now recovering (White et al., 2002.). The historic range of the American peregrine falcon extends throughout North America from the boreal forests south into Mexico (USFWS, 1992). Peregrines generally nest on protected ledges of high cliffs in woodland, forest, and coastal habitats; however, pairs are also known to nest on human-made structures such as bridges and buildings. Although no nest sites are known within the study area, it does nest nearby on the Bay Bridge.

Osprey *(Pandion haliaetus)*. Like the peregrine falcon, osprey numbers declined rapidly with the advent of DDT in the 1950s. Now listed as a state species of special concern, the exclusively fish eating raptor is making a strong comeback (Poole et al., 2002). It has been seen foraging in the North Basin.

Burrowing Owl *(Athene cunicularia hypugea)*. The burrowing owl, a state species of special concern, typically inhabits open, dry grassland habitat but can also be found in areas with low-growing vegetation such as along levees and berms, and in urban settings such as golf courses, airports, and undeveloped lots. Burrowing owls use burrows for botshelter, and nests, and often use the burrows of California ground squirrels and other burrowing mammals. They will also make use of manmade structures such as pipes, and culverts.

Many individuals are year-round residents in California, while others are seasonal visitors. They feed primarily on insects but will also catch and eat small mammals, reptiles, and birds. They will often collect dung to their burrows, to attract insect prey. A major source of mortality for the owls is collision with cars (Haug et al., 1993; Levy et al., 2004). Burrowing owls have been reported in the study area in ruderal grassland and ruderal scrub habitats, although it is unknown whether the owls use these areas year-round or if breeding occurs. Individuals have been observed in recent years at the Albany Bulb (around piles of concrete), the North Basin Strip, the south shoreline of the North Basin (in riprap), and south of University Avenue (west of the Strawberry Creek outfall). Suitable habitat and nesting sites are a component of the Berkeley Meadows restoration.

Saltmarsh Common Yellowthroat *(Geothlypis trichas sinuosa)*. Destruction of wetlands was a major factor for the population decreases in this small warbler, a California species of special concern, which experienced an 80 percent decline from the early 20th Century to 1976 due to loss of suitable habitat, with this diminution most exacerbated in the South Bay (Goals Project, 2000). It is mostly a resident in the fresh and brackish marsh habitat surrounding the Bay, moving into saline tidal marshes in winter. An insectivore, it usually picks insect prey from surfaces, though it will also chase prey on the wing. It occurs at Emeryville Crescent and along the Albany shoreline. Suitable nesting habitat is present within tidal marsh and scrub habitats in the study area.

Alameda Song Sparrow *(Melospiza melodia pusillula)*. Endemic to the San Francisco Bay, the Alameda song sparrow is one of three song sparrow subspecies endemic to saltwater marshes. It is also the most genetically distinct of the three, which also include Samuels and Suisan song sparrows, also endemic to this region. It is a year round resident that faces intense pressure from

habitat fragmentation and loss. It is found in only 10 percent of the remaining tidal marsh habitat within the South and Central Bay, including the Emeryville Crescent, just south of the study area. Suitable nesting habitat is present within tidal marsh, non-tidal salt marsh, and adjacent upland habitats within the study area, (Elliott, 2002).

Mammals

Salt Marsh Harvest Mouse (*Reithrodonyomys raviventris*). The salt marsh harvest mouse is listed as endangered under both FESA and CESA and is a state fully protected species. Salt marsh harvest mice are endemic to tidal and brackish marsh habitats of the Bay, where they occur in areas of dense cover, preferably where pickleweed constitutes 60 percent or more of the vegetation (Shellhammer, 1984). These mice are most commonly associated with large tidal marshes of the both the North and South bays that have extensive high marsh zones. Smaller marshes do not usually provide adequate cover for mice during periods of high tide. Vegetated levees and other grassy upland habitats adjacent to pickleweed marshes are also critical as they provide shelter from predators during high tides and flooding. Salt marsh harvest mice build nests on the ground amongst the marsh vegetation or use old nests from groundnesting birds. They breed from May to November with peak activity occurring in summer and fall. Salt-marsh harvest mice were found in the Emeryville Crescent in 1982. However, there are no other records of occurrence in the tidal marshes within the study area.

Southern Sea Otter (*Enhydra lutris*). The southern sea otter is considered a threatened population under FESA and is protected by the Marine Mammal Protection Act of 1972. Approximately 16,000 to 18,000 sea otters were formerly distributed along the California coastline. After extensive harvesting in the 18th and 19th centuries, fewer than a hundred sea otters remained off the isolated coastline of Big Sur, California. After years of protection, the population increased to 500 to 600 individuals by 1950 and, thereafter, increased by approximately 5 percent annually until 1976, when the increase slowed (Estes, 1990). Currently, about 2,200 individuals exist in the southern sea otter range, and they have expanded their range to north of Santa Cruz (about Half Moon Bay), and are only occasionally seen in the Bay.

Within the study area, a sea otter was seen swimming and diving offshore of the southwestern end of the Albany bulb in January of 2002 (RI). This and other recent observations of sea otters within the Bay confirm that sea otters may be taking up residence in the Bay.

3.9.7 Other Special-Status Species

Plants

Point Reyes Bird's-Beak (*Cordylanthus maritimus* ssp. *palustris*). Point Reyes bird's-beak is listed as a CNPS 1B species. It is a hemiparasitic annual herb that occurs in high sandy salt marshes (Goals Project, 2000). Associated plants include marsh gumplant (Grindelia stricta var. *stricta),* seaside lavender *(Limonium californicum),* and sandspurry *(Spergularia sp.).* The known range of Point Reyes bird's-beak extends from northern Oregon to Marin and Sonoma counties in the North Bay with small remnant populations known both from Petaluma Marsh and

near Gallinas Creek in Marin County. Historically, this species was also known to occur as far south as Santa Clara and San Mateo counties (Skinner and Pavlik, 1994). Threats to the species include development, competition from invasive species, and cattle grazing. It is not thought to be currently present within the study area, but is considered extirpated as of 1996 (RI).

Fish

Green Sturgeon (*Acipencer medirostris*). Green sturgeon are a federally threatened species. Green sturgeon are not abundant in any estuaries along the Pacific Coast but are known to exist in the Estuary (Pycha, 1956; Skinner, 1962; Moyle, 1976). Green sturgeon are anadromous fish that spend most of their lives in saltwater and return to spawn in freshwater. Green sturgeon rely on streams, rivers, and estuarine habitat as well as marine waters during their lifecycle. They spawn in the lower reaches of large rivers with swift currents and large cobble. Juveniles remain in the estuaries for a short time and migrate to the ocean as they grow larger. Green sturgeon are found throughout the Bay and are native to the Sacramento-San Joaquin River system. Spawning occurs in the lower reaches of the Sacramento-San Joaquin River system; however, feeding occurs throughout the Bay. Sturgeon often feed on invertebrates and small fish and are common in areas where herring spawn.

Birds

Caspian Tern (*Sterna caspia*). Nesting colonies of Caspian tern are of concern; however, this species is listed as "demonstrably secure; commonly found throughout its historic range" (CDFG, 2008). Active South Bay and Central Bay colonies are located at Coyote Hills (west levee), Alviso Pond A7, Hayward Shoreline, Ravenswood Slough, Brooks Island, and Naval Air Station Alameda (Goals Project, 1999). It is known to forage within the study area in the North Basin (Shafer, 2007).

Common Loon (*Gavia immer*). The common loon is listed by the CDFG as a California Special Concern species with a "demonstrably secure" population. The common loon is observed in the Bay, but their nesting sites, which do not occur in the Bay region, are of primary concern (Zeiner et al., 1990). It is known to forage within the study area in the North Basin (Shafer, 2007).

Elegant Tern (*Sterna elegans*). The elegant tern is a CDFG species of special concern, and its nesting colonies are protected. Elegant terns are post-nesting visitors to coastal California north of San Diego, generally between June and October (Zeiner et al., 1990). In the Bay, this species is most often observed foraging or roosting near breakwaters and marinas in the Central Bay. It is known to forage within the study area in the North Basin (Shafer, 2007).

Long-Billed Curlew (*Numenius americanus*). Long-billed curlew is a federal and CDFG species of special concern. Long-billed curlews commonly winter in the Central Valley, where they occupy seasonal wetland habitats. Smaller numbers of curlews also winter in San Francisco Bay. This species breeds within the northeastern portion of the state in grassland or wet meadow habitats that are usually adjacent to lakes or marshes. Conversion of these breeding grounds to

agricultural areas is believed to be the primary cause for the decline of this species in the state (Zeiner et al., 1990). It is known to forage within the study area in the North Basin (Shafer, 2007).

Song Sparrow (*Melospiza melodia*). Three subspecies of song sparrow reside year-round in marshlands of San Francisco Bay: Alameda song sparrow (*Melospiza melodia pusillula*), discussed above, San Pablo song sparrow (*M. m. samuelis*), and Suisun song sparrow (*M. m. maxillaris*). All three subspecies are federal species of concern and CDFG species of special concern. The Alameda and San Pablo song sparrows are found predominantly in tidal salt marsh, which provides optimum habitat for all life needs as long as the marsh contains numerous small channels and complex vegetation structure. Tidal brackish marsh dominated by tall hardstem bulrush (*Scirpus acutus)*, salt marsh bulrush (*S. robustus)*, and concentrated areas of pickleweed and gumplant provides habitat for the Suisun song sparrow. The birds generally forage along the banks of sinuous tidal channels and use gumplant bushes for nest sites and song perches. The San Pablo song sparrow ranges from San Pablo Bay and northern San Francisco Bay (south to Sausalito and north Richmond), with the most suitable habitat in Petaluma Marsh. The Alameda song sparrow is found in the San Francisco Bay shores, breeding from San Francisco and southeast Richmond south to Alviso. Their highest-quality habitat is located in Dumbarton Marsh, Greco Island, and Outer Bair Island. The Suisun song sparrow is found within the Suisun Bay marsh complex and west to include Southhampton Bay (Goals Project, 2000).

Densities of all of the song sparrow species (Alameda song sparrow, San Pablo song sparrow, and Suisun song sparrow) are lower in the Central/South Bay, with a median of 3.7 birds/hectare for the tidal marshes surveyed, than in San Pablo Bay (18 birds/hectare) and Suisun Bay (26 birds/hectare) (Nur et al., 1997). Densities in San Pablo Bay range from 3.7 to 94 birds/hectare. They range from 7.6 to 46 birds/hectare in Suisun Bay. Highly channeled marshes were directly correlated to higher song sparrow density for this species.

Mammals

California Sea Lion (*Zalophus californianus*). The California sea lion is protected under the Marine Mammal Protection Act. California sea lions breed in Southern California and along the Channel Islands. After the breeding season, males migrate up the Pacific Coast and enter the Bay. In the Bay, sea lions are known to haul out at Pier 39 in the Fisherman's Wharf area of the San Francisco Marina. An estimated 600 animals were observed in January and February 1991 at that haul-out site (USFWS, 1992). In addition to that site, California sea lions have the potential to haul out on buoys and similar structures throughout the Bay. No other repeatedly used haul-out site for California sea lions, other than Pier 39, has been observed in the Bay (Allen, 1999). During anchovy and herring runs, approximately 400 to 500 sea lions (mostly immature males) feed almost exclusively in the North and Central bays (USFWS, 1992). California sea lions are occasionally observed in the offshore portions of the study area (RI).

Gray Whale (*Eschrichtius robustus*). Gray whales are protected by the Marine Mammal Protection Act of 1972 (as are all marine mammals including seals and sea lions), and were recently delisted as an endangered species. Gray whales migrate each year along the west coast of North America, typically passing off the coast of San Francisco heading south from December through February and heading north from mid-February through July. The population has recently reached a level thought to be near carrying capacity (approximately 26,000 animals), which may explain why more gray whales have been observed feeding of the coasts of British Columbia, Washington, Oregon, and California rather than migrating the entire way to Alaska.

Gray whales consume benthic prey (primarily amphipods) in North America (e.g., Bering, Beaufort, and Chuckhi Seas) during summer and migrate south along the west coast of North America to calve and breed off the coast of Mexico. During the migration, gray whales will occasionally enter rivers and bays (such as San Francisco Bay) along the coast either because they are disoriented or to forage. Recently, small numbers of gray whales (presumably juveniles and post-weaning females) have been observed foraging along the nearshore coastline of California, Oregon, Washington, and British Columbia during summer and are remaining there instead of migrating northward as do the bulk of the population (Sumich, 1985).

In the past, gray whales have been seen irregularly in the Bay. These whales are probably individuals that meandered off during the migration. Most of these individuals eventually make their way out of the Bay, although occasionally an individual has died. The number of gray whales sighted in the Bay has increased recently. The Sea Training Institute reported two gray whales in the Bay during 1999 and six in 2000, although some of these may be repeat sightings. The Oceanic Society has observed and recorded reported gray whales in the Bay during Spring 2000.

Pacific Harbor Seal (*Phoca vitulina*). The harbor seal is protected by the Marine Mammal Protection Act. Harbor seals are nonmigratory and can be found along shorelines and in estuaries throughout North America. Pacific harbor seals use the Bay year-round where they engage in limited seasonal movements associated with foraging and breeding activities (Kopec and Harvey, 1995). Harbor seals haul out in groups ranging in size from a few individuals to several hundred seals. Habitats used as haul-out sites include tidal rocks, bayflats, sandbars, and sandy beaches (Zeiner et al., 1990). Haul-out sites are relatively consistent from year to year and are important habitats for harbor seals (Kopec and Harvey, 1995). In the Bay, pupping occurs from March to May, and molting in June and July (Kopec and Harvey, 1995). These activities correspond to the greatest number of harbor seals counted at major haul-out sites in the Bay (Kopec and Harvey, 1995). Haul-out sites that support some of the largest concentrations of seals include Corte Madera Marsh and Castro Rocks in the Central Bay, Mowry Slough south of Dumbarton Bridge, and Yerba Buena Island.

Harbor seals forage in shallow, intertidal waters on a variety of fish, crustaceans, and a few cephalopods (e.g., octopus). They also consume benthic organisms as well as schooling fishes. The most numerous prey items identified in harbor seal fecal samples from haul-out sites in the

Bay include yellowfin goby, northern anchovy, Pacific herring, staghorn sculpin, plainfin midshipman, and white croaker) (Harvey and Torok, 1994).

Harbor seals have been observed in the waters of the study area, in the North Basin, on Brooks Island, and in the surrounding waters, in recent years (CDPR, 2001).

Special Aquatic Sites

Under Section 404 of the CWA, USACE regulates the disposal of dredged and fill materials into "waters of the United States." Waters of the U.S. include intrastate lakes, rivers, streams (including intermittent streams), bayflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, and wetlands adjacent to any water of the U.S. (33 CFR Part 328). In areas subject to tidal influence, Section 404 jurisdiction extends to the high tide line or to the boundary of any adjacent wetlands. Certain waters of the U.S. are considered "special aquatic sites" because they are generally recognized as having unique ecological value. Such sites include sanctuaries and refuges, mudflats, wetlands, vegetated shallows, eelgrass bed, coral reefs, and riffle and pool complexes. Special aquatic sites are defined by the U.S. EPA, and may be afforded additional consideration in the permit process for a project. The following describes eelgrass, wetlands, and tidal marshes.

Eelgrass (*Zostera marina*) is a native marine vascular plant indigenous to the soft-bottom bays and estuaries of the Northern Hemisphere. It has been afforded special management considerations by CDFG, USFWS, NMFS, and the Golden Gate Audubon Society. The species is found from middle Baja California and the Sea of Cortez to northern Alaska along the west coast of North America, and is common in healthy, shallow bays and estuaries. The habitat provided by eelgrass beds is described in Section 3.9.3, Habitat Types. Eelgrass is easily affected by changes in water quality and turbidity. Eelgrass beds are extremely dynamic, expanding and contracting by as much as several hectares per season depending on the quality of the site. Consequently, they serve as an indicator community for the overall health of an estuary. Figure 3-23 shows potential eelgrass habitat within the study area.

3.10 WATER RESOURCES

This section presents a description of the existing water and sediment quality in the Bay waters offshore of the four alternative ferry terminal sites. Sediment quality can influence water quality due to the movement and suspension of sediments under tide and current action.

All alternative ferry terminal sites and approach channels are located in the eastern portion of Central San Francisco Bay. Alternative A is located within the confines of the Berkeley Marina and Alternative B is adjacent to shallow water of the eastern Bay. The proposed terminal site for Alternative C is adjacent to the offshore portion of Eastshore State Park known as the North Basin and the approach channel would pass through the North Basin. Similarly, the proposed terminal site for Alternative D is adjacent to the offshore Fleming Point portion of Eastshore State Park and the approach channel would pass through this portion of the Park.

3.10.1 Regulatory Framework

Water resources are regulated under a variety of federal and state laws. The regulations apply to both preservation of water quality standards and to prevention of water quality degradation from oils spills and other sources including the underlying sediments.

Federal Regulations

Federal Water Pollution Control Act, as Amended by the Clean Water Act of 1977 (33 USC 1251 et seq.)

The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Specific sections of the CWA control the discharge of pollutants and wastes into the marine and aquatic environments. The major sections of the CWA that apply to activities potentially occurring as parts of the proposed project include dredging and disposal activities (Sections 401 and 404) and the National Pollutant Discharge Elimination System (NPDES) (Section 402).

Oil Spill Regulations

At the federal level, two agencies hold key regulatory authority regarding oil spills. The USCG is focused on prevention and response, while NOAA is focused on restoration of oil-damaged resources. The CWA, Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), and Oil Pollution Act (OPA) mandate that parties releasing hazardous materials and oil into the environment are responsible not only for the cost of cleaning up the release, but also for restoring any injury to natural resources that resulted. The National Marine Sanctuaries Act (NMSA) mandates that parties who destroy, cause the loss of, or injure sanctuary resources are responsible for their restoration.

Oil Pollution Act of 1990 (33 USC 2701-2761). This is the principal statute governing oil spills into the nation's waterways. The OPA was passed in the wake of the Exxon Valdez oil spill in March of 1989. The statute establishes liability and limitations on liability for damages resulting from oil pollution, and establishes a fund for the payment of compensation for such damages. In conjunction with CERCLA, OPA mandates a "National Oil and Hazardous Substances Pollution Contingency Plan (NCP)" to provide the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, and contaminants. OPA requires preparation of spill prevention and response plans by coastal facilities, vessels, and certain geographic regions. OPA amended the CWA and includes the Oil Terminal and Oil Tanker Environmental Oversight and Monitoring Act of 1990.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund) (42 USC 9601 et seq.). This is the principal statute governing the cleanup of sites contaminated with hazardous substances, and responses to spills of those substances. The statute establishes liability for site cleanup, prescribes a procedure for identifying and ranking contaminated sites, provides funding for site cleanups, reduces

uncontrolled releases of hazardous substances, establishes cleanup procedures that provide protection for humans and the environment, and restores injured natural resources through provisions administered by the natural resource trustees. In conjunction with OPA, it also mandates an NCP to provide the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, and contaminants. The statute was amended by the Superfund Amendment and Reauthorization Act (SARA) in 1986, which adds extensive public "right-to-know" and emergency planning requirements, establishes a fund for leaking underground storage tanks (USTs), and imposes worker safety requirements for hazardous materials.

National Marine Sanctuaries Act (16 USC 1431 et seq.). This statute governs the designation and management of protected marine areas of special significance. The statute requires NOAA to designate National Marine Sanctuaries in accordance with specific guidelines and to develop and review management plans for these sites. It provides for the continuation of existing leases, licenses, and other established rights in sanctuary areas, and for the development of research and education programs. The statute also prohibits destruction, injury, or loss of sanctuary resources, and establishes liability for response costs and natural resource damages for injury to these resources.

The Ports and Waterways Safety Act of 1972 (33 USC 1221 et seq.)

The Ports and Waterways Safety Act of 1972 as amended by the Port and Tanker Safety Act of 1978, provides the strongest authority for the USCG's program to increase vessel safety and protect the marine environment in ports, harbors, waterfront areas, and navigable waters. It authorizes VTS, controls vessel movement, establishes requirements for vessel operation, and other related port safety controls.

In addition, a number of other laws call for USCG enforcement. These include the Federal Water Pollution Control Act, which delegates enforcement authority and responsibility to the USCG in cases where oil and hazardous substances are discharged into U.S. waters in harmful quantities. The Act to Prevent Pollution from Ships (33 USC 1901 et seq.) limits the operational discharges of oil from ships and requires reception facilities to receive waste that cannot be discharged at sea. The Marine Protection, Research and Sanctuaries Act of 1972 (33 USC 1401 et seq.) requires USCG surveillance of ocean dumping activities. The OPA of 1990 (33 USC 2701 et seq.) requires increased USCG involvement with vessel traffic service systems, vessel and facility monitoring, and oil spill prevention and cleanup, in addition to amending the Federal Water Pollution Control Act.

NOAA established the Damage Assessment and Restoration Program (DARP) in 1990 to fulfill natural resource trustee responsibilities assigned in the CWA, CERCLA, OPA, and the NMSA and other federal laws. DARP has the mission to restore coastal and marine resources that have been injured by releases of oil or hazardous substances and to obtain compensation for the public's lost use and enjoyment of these resources.

State

Water Quality Control Act (Porter-Cologne Act) (California Water Code Section 13000 et seq.; CCR Title 23, Chapter 3, Subchapter 15)

The Porter-Cologne Water Quality Control Act is the primary state regulation that addresses water quality. The requirements of the Act are implemented by the State Water Resources Control Board (SWRCB) at the state level, and the Regional Water Quality Control Board (RWQCB) at the regional level. The SWRCB, as authorized by the Act, has promulgated regulations in Subchapter 15 of Title 23 of CCR designed to protect water quality from the effects of waste discharges to land. Under Subchapter 15, wastes that cannot be discharged directly or indirectly to waters of the state (and therefore must be discharged to land for treatment, storage, or disposal) are classified to determine specifically where such wastes may be discharged. This classification requirement would apply to dredged material or fill that would be disposed of in an upland environment.

In addition to the provisions contained in the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act, the California Fish and Game Code provides general law regarding water pollution prohibitions and both criminal and civil penalties on discharges of petroleum and other hazardous materials entering California waters (Sections 5650 et seq.). State Fish and Game wardens enforce these sections.

Further, California Water Code Section 13272 requires any person who knows of any oil or petroleum product discharge into California waters to notify the Office of Emergency Services. Failure to comply is a misdemeanor.

All Oil Spill Prevention and Response regulations are found in Title 14, CCR. Regulations promulgated by the State Lands Commission are found in Title 2, CCR.

California State Lands Commission Marine Facilities Division derive legislative authority from the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act of 1990 Division 7.8 of the Public Resources Code. The Act expanded the California State Lands Commission's pollution prevention responsibilities.

Local

Water Quality Control Plan for San Francisco Bay Basin

The Basin Plan identifies surface waters in the region as consisting of inland surface water (freshwater lakes, rivers, and streams), estuaries, enclosed bays, and ocean waters. Historical and ongoing wasteloads contributed to the surface water bodies in the region come from upstream discharges carried into the region via Delta outflow, direct input in the forms of point and nonpoint sources, and indirect input via groundwater seepage (RWQCB, 2006). The Basin Plan describes the water quality control measures that contribute to the protection of the beneficial uses of the Bay watershed. The Basin Plan identifies beneficial uses for each segment

of the Bay and its tributaries, water quality objectives for the reasonable protection of the uses, and an implementation plan for achieving these objectives.

McAteer-Petris Act (Public Resources Code Section 66600 et seq.)

The BCDC is responsible for implementing the McAteer-Petris Act. The Act directs BCDC to exercise its authority to issue or deny permit applications for placing fill, extracting minerals, or changing the use of any land, water, or structure within the area of its jurisdiction (the Bay waters and a 100-foot-wide shoreline band inland from the high tide line). The BCDC also carries out determinations of consistency with the Federal Coastal Zone Protection Act for federally sponsored projects.

3.10.2 Study Area

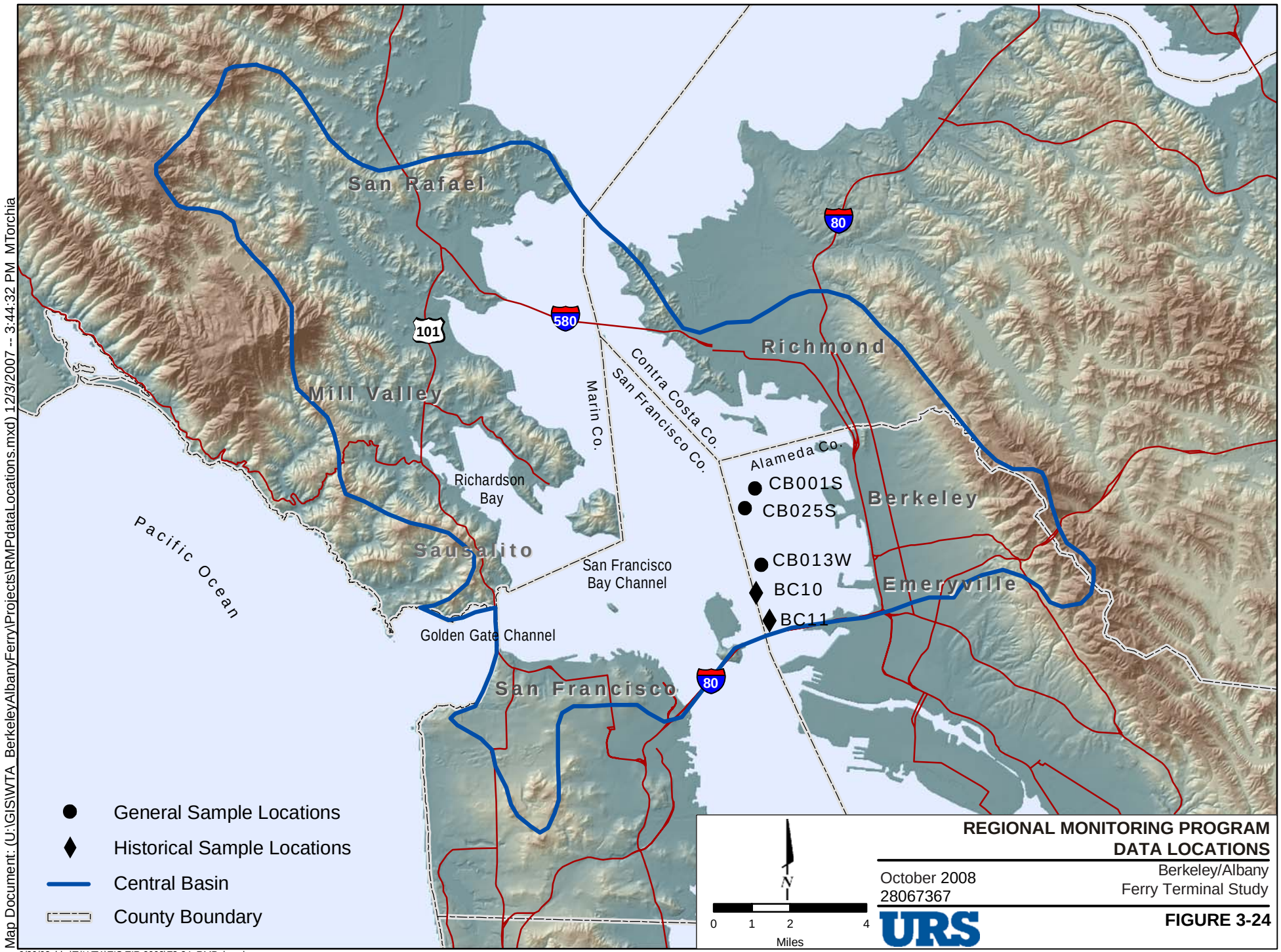
The four alternative terminal sites are located in the eastern portion of Central San Francisco Bay. San Francisco Bay and the San Joaquin-Sacramento River Delta form the West Coast's largest estuary, combining fresh water from the rivers and numerous smaller tributaries flows with the influence of the Pacific Ocean. The San Francisco Bay Estuary (Estuary) currently encompasses roughly 1,600 square miles, drains more than 40 percent of the state, and provides drinking water to approximately two-thirds of California (SFEP, 1999). The Estuary is composed of distinct hydrographic regimes: the South Bay, which extends from the Bay Bridge to the southern terminus of the Bay in San Jose, and the Central Bay which extends from the Bay Bridge north to the Richmond-San Rafael Bridge, and North Bays that connect the Delta and the Pacific Ocean.

Central Bay has a complex bathymetry and contains several islands (Figure 3-24). Water depth is highly variable ranging from approximately 300 feet near the Golden Gate Bridge to a shallow area of extensive intertidal mudflats at the eastern edge of the Central Bay. The project sites are adjacent to the eastern intertidal mudflat area.

Freshwater inflows, tidal flows, and their interactions largely determine variations in the hydrology of the Estuary. Hydrology has profound effects on all species that live in the Estuary because it determines the salinity in different portions of the Estuary, and controls the circulation of water through the channels and bays.

Approximately ninety percent of the freshwater inflow to the Bay comes from the Delta (Cheng et al., 1993) and flows through the northern portion of the Bay, resulting in a partially to well-mixed Estuary (Walters et al., 1985; Uncles and Peterson, 1995). The degree of mixing depends on seasonally varying river inflow. The timing and magnitude of the highly seasonal river inflow modulates permanent estuarine circulation, which is largely maintained by salinity-controlled density differences between river and ocean waters.

Beneficial uses of the Bay include commercial and sport fishing, estuarine habitat, industrial water supply, fish migration, navigation, industrial process water supply, preservation of rare and endangered species, contact and non-contact water recreation, shellfish harvesting, fish spawning, and wildlife habitat (RWQCB, 2006).



Map Document: (U:\GIS\WTA_BerkeleyAlbanyFerry\Projects\RMPdataLocations.mxd) 12/3/2007 -- 3:44:32 PM MTorchia

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3.10.3 Water Quality

The water quality goals of the Water Quality Control Plan for San Francisco Bay Basin (Basin Plan) (RWQCB, 2006) are to protect and maintain thriving aquatic ecosystems and the resources those systems provide to society, and to accomplish these goals in an economically and socially sound manner.

The San Francisco Estuary Institute (SFEI) has administered the Regional Monitoring Program (RMP) for the RWQCB since 1993. SFEI conducts water quality and sediment monitoring three times a year at designated sampling location along the central line of the Bay including water quality sampling locations CB13W and BC10, and sediment sampling locations CB001S, CB025S, and BC11 (Figure 3-24). The stations designated "BC" are historical sampling locations at which data was collected before the RMP program was formalized.

The goal of the RMP is to characterize contaminant concentrations in San Francisco Estuary water, sediment, fish, and shellfish to determine how contaminant concentrations in the estuary are changing in response to pollution prevention and reduction measures. The program's key objectives are to; describe patterns and trends in contaminant concentration and distribution, to describe contamination sources and loads, to measure contaminant effects, and to compare monitoring information to water quality objectives; and to present the most complete picture possible of the sources, distribution, fates, and effects of contaminants in the estuary ecosystem. To achieve this objective, the RMP routinely monitors water quality salinity and chemistry, water toxicity, sediment characteristics and chemistry, sediment toxicity, and contaminant bioaccumulation in transplanted shellfish.

The most recent annual RMP data are presented in Annual Report 2004-2005 (SFEI, 2006a) and the *Pulse of the Estuary* 2006 (SFEI, 2006b) which summarize trends and issues. The *Pulse of the Estuary* summarized the status of chemical contamination in the Estuary using RMP results and indicated top known contamination issues being faced in the Bay include:

- High levels of mercury and polychlorinated biphenyls (PCBs) in fish and water;
- Water quality objectives for cyanide, copper and nickel;
- Pyrethroid insecticides from the Delta which are highly toxic to fish; and
- Brominated flame retardants (PBDEs) and fluorinated stain repellants (PFCs) that are appearing in water and sediment.

Regional Monitoring Program Findings

Data from monitoring stations CB13W and BC10 are shown in Table 3-26.

Table 3-26
RMP 2004-2005 Water and Sediment Quality Data

Compound	Water Data		Sediment Data		
	BC10	CB13W	BC11	CB001S	CB025S
Dissolved Organic Carbon	>1,500 µg/L	1,500 µg/L	1.3% total	1.4% total	1% total
Suspended Solids Concentration	>20 mg/L	20 mg/L	NA**	NA**	NA**
Dissolved Arsenic	1.5 µg/L	1.5 µg/L	NA**	NA**	NA**
Dissolved Cadmium	0.05 µg/L	0.05 µg/L	NA**	NA**	NA**
Dissolved Copper	0.5 µg/L	0.5 µg/L	NA**	NA**	NA**
Dissolved Lead	0.05 µg/L	0.05 µg/L	NA**	NA**	NA**
Dissolved Mercury	ND*	ND*	NA**	NA**	NA**
Dissolved Nickel	0.5 µg/L	0.5 µg/L	NA**	NA**	NA**
Dissolved Selenium	0.1 µg/L	0.1 µg/L	NA**	NA**	NA**
Dissolved Silver	0.002 µg/L	0.002 µg/L	NA**	NA**	NA**
Salinity	30 psu	30 psu	NA**	NA**	NA**
Dissolved Zinc	0.4 µg/L	0.4 µg/L	NA**	NA**	NA**
Total Arsenic	1.5 µg/L	1.5 µg/L	6 mg/kg	10 mg/kg	10 mg/kg
Total Cadmium	0.08 µg/L	0.06 µg/L	.2 mg/kg	0.2 mg/kg	0.2 mg/kg
Total Copper	1 µg/L	1 µg/L	40 mg/kg	40 mg/kg	20 mg/kg
Total Lead	0.5 µg/L	0.5 µg/L	10 mg/kg	10 mg/kg	10 mg/kg
Total Mercury	0.005 µg/L	0.005 µg/L	0.3 mg/kg	0.3 mg/kg	0.15 mg/kg
Total Nickel	2 µg/L	2 µg/L	90 mg/kg	90 mg/kg	90 mg/kg
Total Selenium	0.05 µg/L	0.05 µg/L	0.2 mg/kg	0.2 mg/kg	0.2 mg/kg
Total silver	0.05 µg/L	0.01 µg/L	ND*	0.1 mg/kg	0.1 mg/kg
Total Zinc	2 µg/L	2 µg/L	80 mg/kg	80 mg/kg	60 mg/kg
Dissolved Dieldrin	<20 pg/L	20 pg/L	.08 µg/kg	0.08 µg/kg	0.08 µg/kg
Dissolved sum of Chlordanes	<10 pg/L	10 pg/L	.1 µg/kg	0.1 µg/kg	0.1 µg/kg
Dissolved Sum of DDTs	40 pg/L	20 pg/L	2 µg/kg	2 µg/kg	2 µg/kg
Dissolved sum of HCHs	350 pg/L	300 pg/L	NA**	NA**	NA**
Dissolved sum of PAHs	20,000 pg/L	20,000 pg/L	1000 µg/kg	3000 µg/kg	5000 µg/kg
Dissolved Sum of PCBs	100 pg/L	100 pg/L	<5 µg/kg	5 µg/kg	5 µg/kg
Total BDE-47	50 pg/L	50 pg/L	0.8 µg/kg	0.4 µg/kg	0.4 µg/kg
Percent Fines <63 um	NA**	NA**	90%	70%	70%
Methyl Mercury	NA**	NA**	0.8 mg/kg	0.3 mg/kg	0.3 mg/kg

Notes:

***** Compounds that were not detected in the sampling area.

****** Values were not included in compound sampling results.

µg/kg = micrograms per kilogram; mg/kg = milligrams per kilogram; µg/L = micrograms per Liter; mg/L = milligrams per Liter; psu = practical salinity units; pg/L = picograms per Liter; NA = Not Applicable; ND = Not Detected; PAHs = Polyaromatic hydrocarbons; PCBs = polychlorinated biphenyls

3.10.4 Sediment Quality

Sediment quality is closely monitored by the RMP because of the influence of sediment quality on the quality of overlying waters. Sediment can be both a source of and sink for pollutants and trace compounds. Historic waste disposal practices have resulted in the introduction of pollutants into the Bay, some of which have degraded Bay sediments.

Natural resuspension processes, biological processes, other mechanical disturbances, dredging, and sediment disposal can remobilize particulate-bound pollutants. While pollutant loading to the Estuary from point sources has declined dramatically over the past two decades, and surface sediment contamination may be declining from historical highs, Bay sediments are still an according to grain size, organic carbon content, and seasonal changes associated with riverine flow, flushing, sediment dynamics, and anthropogenic inputs. Anthropogenic inputs appear to have the greatest effect on sediment levels of copper, silver, cadmium, and zinc, but may also have elevated concentrations of chromium, nickel, and cobalt above background (RWQCB, 1999).

The condition of sediment quality is assesses using two types of guidelines; biological effects-based concentrations, and, ambient sediment concentrations (ASCs). Using a wide compilation of biological data, Long (Long et al., 1995) developed two screening-level contaminant concentrations below which adverse were *rarely* and *occasionally* seen (effects range-low [ERL] and effects range-median [ERM], respectively). The RWQCB is also developing ASCs using data from the cleanest areas of the Bay to distinguish between ambient or background conditions and contaminated conditions.

The most recent annual RMP data are presented in Annual Report 2004-2005 (SFEI, 2006a). Data from sediment sampling stations CB001S and CB025S nearest the project area (see Figure 3-24), and historical station BC11 east of Yerba Buena Island are shown in Table 3-26.

California 303(d) List and Total Maximum Daily Loads

Section 303(d) of the CWA requires each state to identify waters that are not achieving water quality standards and to establish TMDLs for water bodies that are impaired. The TMDL is a loading-based approach to attaining water quality rather than reliance on sediment concentrations.

The 2006 California 303(d) list was approved by the State Board in October 2006. The project site falls within the San Francisco Bay, Central watershed. The 303(d) list pollutant, source of pollutant, and proposed completion date for the pollutant TMDL for Central San Francisco Bay are as follows:

Pollutant	Source	TMDL Date
Chlordane	Nonpoint source	2008
DDT	Nonpoint source	2008
Dieldrin	Nonpoint source	2008
Dioxin compounds	Atmospheric Deposition	2019
Exotic species	Ballast water	2019
Furan compounds	Atmospheric Deposition	2019
Mercury	Nonpoint source	2006
PCBs	Nonpoint source	2006
Dioxin-like PCBs	Nonpoint source	2019
Selenium	Nonpoint source	2019

Bay Protection and Toxic Cleanup Program

Sediment "toxic hot spots" in San Francisco Bay where sediment is severely and poses a risk to ecological receptors were identified by the Bay Protection and Toxic Cleanup Program. The Bay Protection and Toxic Cleanup section of the California Water Code (Division 7, Sections 13390-13396.5) established a program (no longer funded) to identify and plan remediation of toxic hot spots in bays and estuaries. Under this law, the RWQCB implemented a program to identify potential toxic hot spots, sample and assess biological impacts in areas of unknown condition, confirm the biological impacts in areas that have been previously sampled, and assess the relationship between toxic pollutants and biological effects. In the Bay region, the RWQCB has reviewed existing data and reports; collected and analyzed new water, sediment, and tissue samples; and prepared reports. The *Final Regional Toxic Hot Spot Cleanup Plan* (RWQCB, 1999) summarizes the situation in the Bay, and identifies Sites of Concern and Candidate Toxic Hot Spots.

The Toxic Hotspot closest to the project area is the Sedge Marsh wetland area located in Contra Costa in the northeast corner of Central Bay. This marsh is approximately one mile north of the Albany Bulb.

3.10.5 Floodplain Risk

Some areas of the Bay along the shoreline and drainages leading to the Bay are potential floodplains. Risks associated with building in a floodplain include threats to life and property. The level of risk is determined by the nature of the facility (i.e., parking lots, ticket purchase stations, access roads, or docks), its location, and appropriate mitigation measures specific to each alternative ferry terminal site. Local city or county government agencies regulate floodplain construction, management, and mitigation through land use controls, based on determinations of flood elevations. The Federal Emergency Management Agency (FEMA) maintains maps of 100-year flood areas in the Bay counties. A "100-year flood" refers to a flood level with a 1 percent or greater chance of being equaled or exceeded in any given year.

3.10.6 Groundwater

Groundwater is subsurface water that occurs beneath the water table in soils and geologic formations that are fully saturated. Where groundwater occurs in a saturated geologic unit that contains sufficient permeable thickness to yield significant quantities of water to wells and springs, it can be defined as an aquifer. A groundwater basin is defined as a hydrogeologic unit containing one large aquifer or several connected and interrelated aquifers. Some water-bearing geologic units occur within groundwater basins in the San Francisco Bay region do not meet the definition of an aquifer. For instance, there are shallow, low-permeability zones throughout the region that have extremely low water yields. Groundwater may also occur outside of currently identified basins. Therefore, for basin planning purposes, the term "groundwater" includes all subsurface waters, whether or not these waters meet the classic definition of an aquifer or occur within identified groundwater basins.

The areal extent of groundwater basins in the Bay region has been evaluated by the Department of Water Resources (DWR) (DWR, 1980). The DWR has classified 31 groundwater basins that produce, or potentially could produce, significant amounts of groundwater. The four proposed site alternatives are all located within the East Bay Plain sub-basin of the Santa Clara Valley groundwater basin which extends from Hayward in the south to Richmond and is bounded on the east by the Berkeley Hills (RWQCB, 2006).

The East Bay Plain basins which include the project area have been studied in further detail by the RWQCB and have been divided into proposed groundwater management zones including: (1) significant drinking water resource; (2) limited drinking water resource; and (3) nonpotable water resource. Existing and potential beneficial uses applicable to groundwater in the region include municipal and domestic water supply, industrial water supply, industrial process water supply, agricultural water supply, and freshwater replenishment to surface waters. More detailed information that lists the 31 identified groundwater basins located in the region and their existing and potential beneficial uses can be obtained from the RWQCB Basin Plan. Unless otherwise designated by the RWQCB, all groundwater is considered suitable, or potentially suitable, for municipal or domestic water supply.

3.11 GEOLOGY AND SOILS

The baseline data presented in this section were developed based on the review of USGS and California Division of Mines and Geology (now Geological Survey of California) maps and reports; published and peer-reviewed scientific literature; seismicity catalogs; and other available, non-proprietary geologic and seismologic data.

Most of the Central Bay shoreline in the Berkeley/Albany area is composed of manmade fill covering Bay Mud. Bedrock in the study area is composed of Holocene alluvium.

3.11.1 Regulatory Framework

Regulatory requirements potentially applicable to geology and geologic hazards are summarized below:

2001 California Building Code

The CBC contains the minimum standards for design and construction in California. Local standards other than the CBC may be adopted if those standards are stricter. Some design considerations associated with seismic hazards will have to address the appropriate building codes for each ferry expansion facility location. The CBC involves the standards associated with seismic engineering detailed in the Uniform Building Code of 1997.

California Public Resources Code Section 25523(a); 20 CCR 1752(b) and (c); 1972 Alquist-Priolo Earthquake Fault Zoning Act (amended 1994)

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The Alquist-Priolo Earthquake Fault Zoning Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults.

Before a project can be permitted, cities and counties must require a geologic investigation to demonstrate that potential buildings will not be constructed across active faults. An evaluation and written report of a specific site must be prepared by a licensed geologist. If an active fault is found, a structure for human occupancy cannot be placed over the trace of the fault and must be set back from the fault (generally 50 feet).

California Public Resources Code Chapter 7.8, 1990 Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 allows the lead agency to withhold permits until geologic investigations are conducted and mitigation measures are incorporated into plans. The Seismic Hazards Mapping Act addresses not only seismically induced hazards but also expansive soils, settlement, and slope stability. The Seismic Hazards Mapping Act will be relevant to soil conditions at some future facility sites.

3.11.2 Regional Geologic Setting

The Berkeley/Albany site alternatives are located within the northern Coast Ranges physiographic province. This province is characterized by a north-northwest–trending series of mountains and intervening valleys that extend from the Oregon border south to the Transverse Ranges of Southern California. The ridge and valley character of the Coast Ranges province is predominantly controlled by the structural grain of the underlying geological units and subsequent erosion.

The San Francisco Bay Area has a structurally controlled topography that consists primarily of north to northwest trending mountain ranges and intervening valleys that are characteristic of the

Coast Range geomorphic province (Figure 3-25). This fabric is subparallel to the San Andreas Fault. The Coast Ranges consist of the Mendocino Range to the north of the San Francisco Bay, the Santa Cruz Mountains west of the Bay, and the Diablo Range to the east of the Bay. The Coast Ranges are composed of a thick sequence of late Mesozoic (200 to 70 million years old) and Cenozoic (less than 70 million years old) sedimentary strata. The northern part of the Coast Range is dominated by the landslide-prone Franciscan Formation.

San Francisco Bay is a topographic trough formed by combination of warping and faulting and is underlain by a down-dropped or tilted block (the Bay Block) (Olson et al., 1994). This gap in the Coast Ranges to allow the San Joaquin and Sacramento Rivers to drain to the ocean. The Bay is about 90 kilometers (km) long and from 5 to 8 km wide. Constrictions divide the Bay into Suisun, San Pablo, and the North and South San Francisco Bays. The Bay is relatively shallow with depths of less than 3 meters except in locations of drowned drainage channels. The deepest point is within the main channel through the Golden Gate, at a depth of approximately 105 meters below sea level.

To the east, the Coast Ranges are bounded by the Great Valley geomorphic province. The Great Valley comprises two elongate northwest to southeast-trending basins, the Sacramento basin to the northwest and the San Joaquin basin to the southeast located between the Coast Ranges to the west and the Sierra Nevada to the east. The province is approximately 700 km long and 70 to 90 km wide. It is characterized by a thick, relatively undeformed sequence of alluvium and volcanic deposits overlying older sediments. The western margin of the Great Valley, the Coast Ranges-Great Valley geomorphic boundary, is underlain by a system of folds and seismically active thrust faults (Wakabayashi and Smith, 1994). This separates the relatively undeformed strata of the Great Valley from the highly deformed rocks of the Coast Ranges.

The geology of the Bay Area is made up primarily of three different geologic provinces: the Salinian block, the Franciscan complex, and the Great Valley sequence. The Salinian block is located west of the San Andreas Fault. It is composed primarily of granitic plutonic rocks, which are similar to those found in the Sierra Nevada and are believed to be rocks of the Sierra Nevada Batholith that have been displaced along the San Andreas Fault. To the east of the San Andreas Fault and bounded on the west by the Hayward Fault is the Mesozoic Franciscan complex. The Franciscan rocks represent pieces of former oceanic crust that have accreted to North America by subduction and collision. These rocks are primarily deep marine sandstone and shale. However, chert and limestone are also found within the assemblage. The rocks of the Franciscan complex are prone to landslides. To the east of the Hayward Fault is the Great Valley sequence. This is composed primarily of Cretaceous and Tertiary marine sedimentary rocks in the Bay Area. These rocks are also prone to landsliding.

Recent Geologic History

San Francisco Bay is California's largest estuarine environment, and its configuration and the surrounding landscape has been shaped by a combination of tectonic activity, recent sea level changes, and human activities since 1850.

Since the formation of the Sacramento-San Joaquin drainage outlet through the Bay approximately 400,000 years ago, the environment of deposition has fluctuated between estuarine (periods of high sea level resulting from a warm global climate) and alluvial (periods of low sea level during periods of cold global climate) (Sloan, 1992).

The present Bay estuary formed less than 10,000 years ago as the global climate warmed and sea levels rose. Marine water re-entered the Bay approximately 10,000 years ago and by about 4,000 years ago had reached its present level. With the establishment of estuarine conditions, sedimentation in the Bay changed from alluvial sands and silts to dark-colored estuarine clays and silts, commonly called Bay Mud. Deposition of sandier sediment was confined to channels.

Since about 1850, human activities have made enormous modifications to the Bay, causing changes in the patterns of circulation and sedimentation. Between 1856 and about 1900, hydraulic mining in the Sierra foothills deposited several feet of sediment throughout the Bay. Starting in the 1800s, the construction of levees and dykes altered the patterns of drainage and annual flooding in the Sacramento River Delta. Also, the placement of fill at numerous localities around the Bay margins has dramatically altered the shoreline profile during historic time (URS, 2003).

3.11.3 Area Geology and Soils

The geologic conditions specific to each alternative ferry terminal site are discussed below. All of the alternative sites are located on Holocene (recent) fill (Figure 3-26).

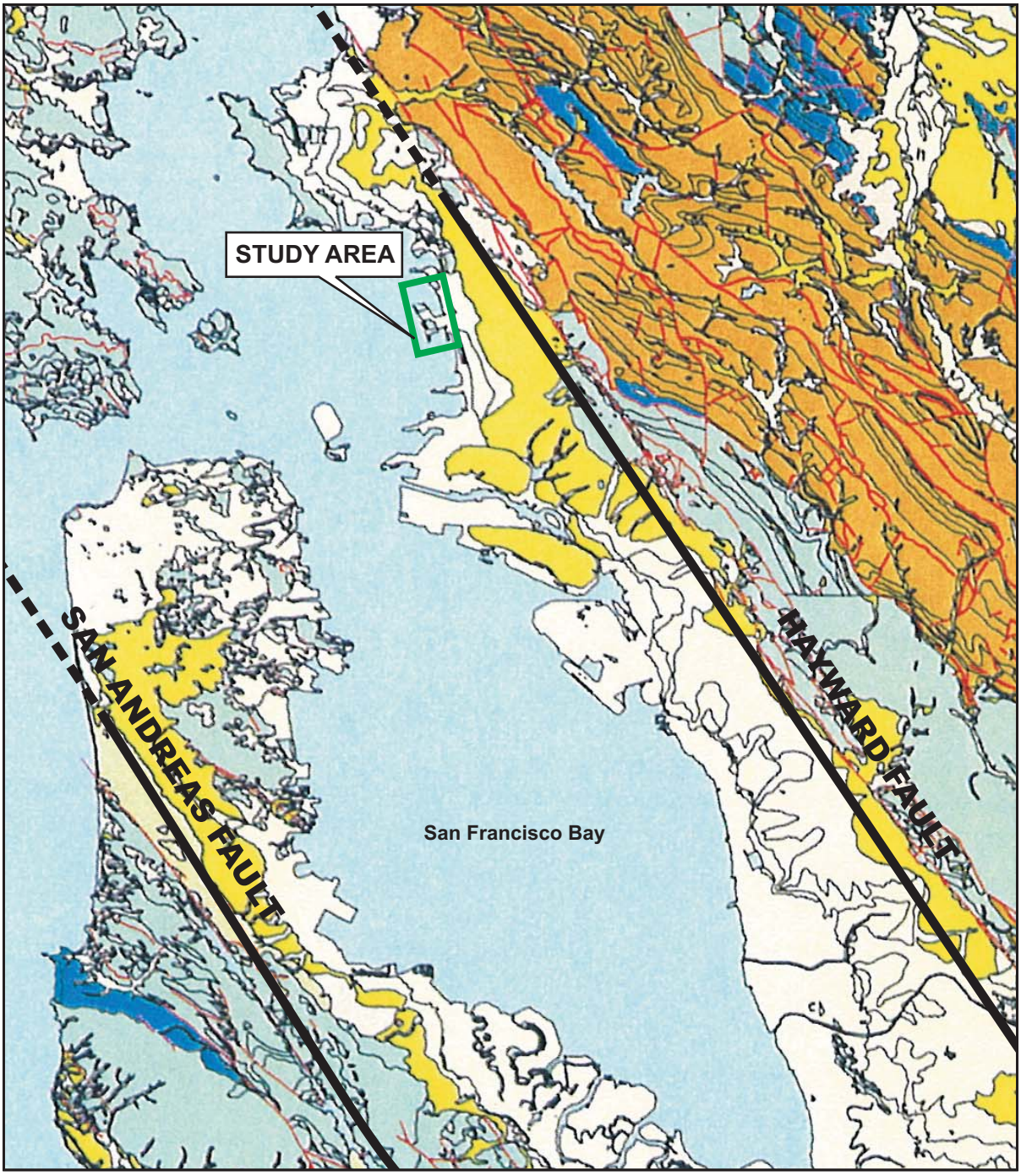
3.11.4 Seismicity

The study area lies within the right-lateral San Andreas Fault system that accommodates the majority of the plate motion between the Pacific and North American plates. Compressional tectonics reflected in the Coast Ranges also result in folds and thrusts sub-parallel to the San Andreas Fault system, and local bends in the fault may also produce secondary zones of deformation. Faults of the San Andreas system form the major structural features in the vicinity of the study area.

Active faults within 20 miles of the study area are shown on Figure 3-26. The San Andreas Fault is located approximately 16 miles to the southwest of the sites and is the major tectonic boundary between the Pacific and North American plates. The Hayward Fault, located approximately 3 miles east of the Berkeley/Albany shoreline and oriented parallel to the shoreline, is another major active tectonic feature in the Bay Area. Both the San Andreas and Hayward Faults have generated major historical earthquakes and are considered to have a moderate probability of producing another major earthquake within the next 30 years.

Significant Faults

The most significant Quaternary faults in the vicinity of the study area, as well as estimates of the maximum earthquake for each fault, shown on Figure 3-26. Maximum earthquake magnitude estimates are based on those reported by the Working Group on Northern California Earthquake Potential (WGNCEP) (WGNCEP, 1996).



LEGEND

- Holocene
- Pleistocene
- Quaternary Undivided
- Pliocene and/or Quaternary
- Study Site
- Upper Tertiary
- Lower Tertiary
- Mesozoic
- Water
- Geologic Contact
- Fault

0 5 10 Miles

0 5 10 Kilometers

Approximate Scale

N

REGIONAL GEOLOGY

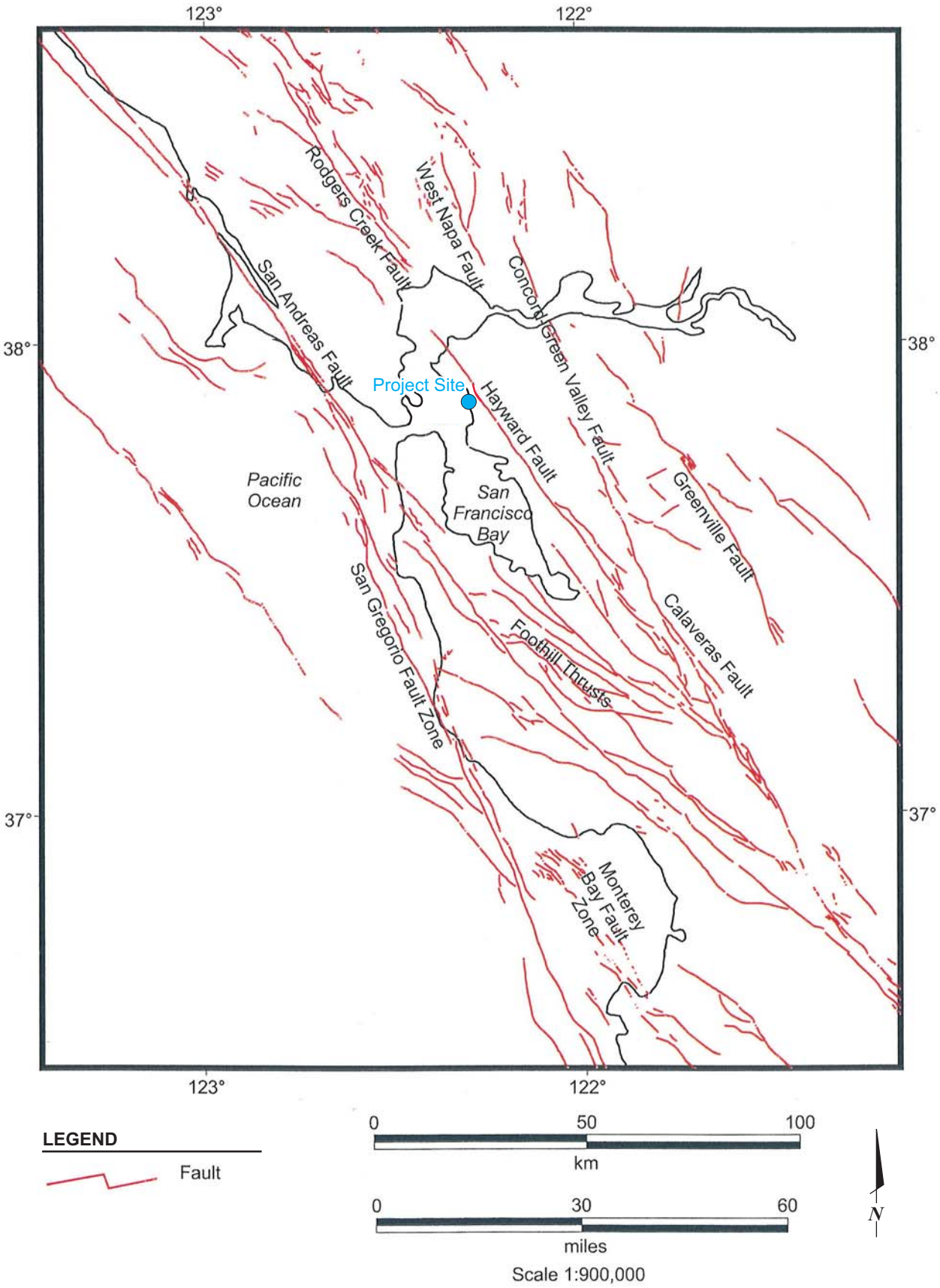
Berkeley/Albany
Ferry Terminal Study

October 2008
28067367

URS

FIGURE 3-25

9/30/08 hk...T:WTA\EIS EIR 2008\F3-25_geo map_CA_2.cdr



MAJOR ACTIVE FAULTS

Berkeley/Albany Ferry Terminal Study

October 2008
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URS

FIGURE 3-26

9/26/08 hk...\T:WTA\EIS EIR 2008\F3-26_major active faults.cdr

Fault data were obtained from Bortugno et al. (1991), and the WGNCEP (1996). The following paragraphs briefly describe each of the major faults, from west to east (Figure 3-26).

San Gregorio Fault

The San Gregorio Fault is a major Holocene active fault that lies west of the San Andreas Fault. The fault is approximately 78 miles long, extending from the Big Sur area northward to the area offshore of Bolinas Bay. Most of the fault lies offshore; however, in several areas the fault lies onshore and has been actively investigated (Simpson et al., 1992). The fault has an estimated Quaternary slip rate of 5 millimeters per year (mm/yr). Paleoseismic estimates of earthquake recurrence intervals on the fault range from 350 to 680 years based on offset archeological remains at Seal Cove (Simpson et al., 1992). The San Gregorio Fault is located approximately 35 miles from the site area, and the maximum earthquake magnitude for the fault is estimated to be approximately Moment Magnitude (M_W) 7.3. (M_W is based on the amount of energy released by the earthquake.)

San Andreas Fault

The San Andreas Fault is the largest active fault in California, and extends from the Gulf of California on the south approximately 750 miles to Cape Mendocino on the north. It was the source of the 1906 M_W 7.9 San Francisco earthquake (Wallace, 1990), which ruptured approximately 280 miles of the fault from San Juan Batista to Shelter Cove. The fault is about 16 miles southwest of the site area at its closest approach.

The San Andreas Fault can be divided into a number of segments, based on differences in geomorphology, geometry, paleoseismic chronology, seismicity, and historic displacements. In the Bay Area, these segments include the southern Santa Cruz Mountains, possible source of the 1989 M_W 7.0 Loma Prieta earthquake; the Peninsula segment; and the North Coast segment. These segments have been assigned maximum earthquakes of M_W 7, M_W 7.1, and M_W 7.9, respectively, by the WGNCEP (1996).

Hayward Fault

The Hayward Fault is about 62 miles long and has been divided into two fault segments: a longer southern segment, and a shorter northern segment. The fault demonstrates systematic right-lateral creep offset of cultural features along its entire length (Lienkaemper et al., 1991). This structure is considered to be the most likely source of the next major earthquake in the San Francisco Bay area (WGNCEP, 1996), and is located approximately 3 miles east of the study area.

The Local Magnitude (M_L) 6.8 event in October 1868 was the last major earthquake on the Hayward Fault, and occurred along the southern segment near Fremont. (M_L is based on the measurement of the earthquake from a distance of 100 km from the epicenter.) The WGNCEP (1996) has assigned maximum earthquakes of M_W 6.9 for both the northern and southern segments of the Hayward Fault.

Rodgers Creek Fault

The Rodgers Creek Fault is a 38-mile-long northwest-striking, right-lateral strike-slip fault that extends northward from the projection of the Hayward Fault on the south side of San Pablo Bay. The Rodgers Creek Fault has a long-term geological slip rate similar to the Hayward Fault, and produced a large-magnitude historical earthquake in the late 1800s. Paleoseismic investigations by Schwartz et al. (1992) identified evidence for three earthquakes in the last 925 to 1,000 years, yielding a preferred earthquake recurrence interval of 230 years for an earthquake of M_W 7.0. The fault is about 5 miles to the north of the study area at its closest approach.

Concord-Green Valley Fault Zone

The Concord-Green Valley Fault is a northwest-striking, right-lateral strike-slip fault zone that extends from the Walnut Creek area across Suisun Bay and continues to the north. The Concord Fault extends for approximately 12 miles, from the northern slopes of Mount Diablo to Suisun Bay. North of Suisun Bay, the Green Valley Fault continues to the north for about 28 miles. The Concord Fault is an actively creeping structure that has a long-term creep rate of approximately 5 mm/yr.

It is estimated that rupture of both faults would produce a maximum earthquake of about M_W 6.9, with a recurrence interval of approximately 180 years (WGNCEP, 1996). At its closest point, the Concord Fault is approximately 22 miles from the site.

Greenville-Marsh Creek Fault

The Greenville-Marsh Creek Fault is a northwest-striking strike-slip fault of the San Andreas system in the northern Diablo Range, extending from Bear Valley to the east side of Mt. Diablo. This fault has a lower slip rate than other structures within the San Andreas system, with a long-term rate of approximately 1 to 3 mm/yr. This fault produced a moderate-magnitude earthquake in 1980.

Research is currently being conducted on the fault zone to better constrain its slip rate and its history of past earthquakes. The WGNCEP (1996) assigned a maximum earthquake of M_W 6.9 to the Greenville Fault; the recurrence interval is estimated to be about 550 years. The fault is located approximately 36 miles east of the site.

3.11.5 Fault Rupture

No active or potentially active faults are mapped within the study area. The closest fault zone to the site zoned under the Alquist-Priolo Special Studies Zone Act is the San Andreas Fault. The Act requires the California Division of Mines and Geology to designate faults considered active or potentially active and to establish zones within which studies are required for structures involving human occupancy. Based on the absence of zoned faults, the hazard from ground rupture is considered very low to negligible.

3.11.6 Seismic Shaking

Seismically-induced strong ground shaking is potentially a significant geologic hazard expected in the study area. The study area has experienced strong ground motions in the past and will do so in the future. The highest peak acceleration is expected to occur from a M_W 7.9 maximum credible earthquake event on the San Andreas Fault located at a distance of approximately 16 miles from the study area. Strong ground shaking could either be amplified or dampened depending on the engineering properties of the soils.

As described in Section 3.11.3, the San Andreas Fault is located approximately 16 miles to the southwest of the sites and is the major tectonic boundary between the Pacific and North American plates. The Hayward Fault, located approximately 4 miles to the northeast, is another major active tectonic feature in the Bay Area. Both the San Andreas and Hayward Faults have generated major historical earthquakes and are considered to have a moderate probability of producing another major earthquake within the next 30 years.

3.11.7 Liquefaction and Lateral Spreading

Liquefaction of soils occurs when loose, cohesionless soils become saturated, temporarily losing shear strength during strong ground shaking. Significant factors affect that soil liquefaction potential are grain-size distribution, relative density, degree of saturation, the initial stresses acting on the soils, and the characteristics of the earthquake, such as the intensity and duration of the ground shaking. As indicated on Figure 3-27, all of the study area along the shoreline in the region of the proposed alternatives is potentially prone to liquefaction (State of California, 2003).

In addition to liquefaction, other potential hazards in the study area include compaction consolidation (settlement) and seismically-induced settlement. Dissipation of excess pore pressure generated by ground shaking will produce volume changes within the liquefied soil layers, which would be manifested at the ground surface as settlement.

3.11.8 Subsidence

Subsidence of the land surface can occur from tectonic deformation, consolidation, hydrocompaction, collapse of underground cavities, oxidation of organic-rich soils, rapid sedimentation, and activities of man, such as the withdrawal of groundwater. Around the margins of San Francisco Bay, settlement commonly occurs in areas of manmade fill underlain by young Bay Mud through consolidation of the Bay Mud, and consequent subsidence of the overlying materials.

Areas of the underlain by bedrock and dense fill have a low susceptibility to subsidence. Areas underlain by Bay Mud, estuarine sediments, organic rubbish, or thick organic deposits may be moderately to highly susceptible to subsidence. Settlement is discussed under liquefaction, above.

3.11.9 Expansive Soils

Artificial fill underlies the study area. Therefore, the hazard from expansive soil is considered low.

3.11.10 Geologic Resources

The following section discusses geologic resources in the vicinity of the study area.

Sand and Gravel Aggregate Resources

In 1987, the California Division of Mines and Geology published a comprehensive mineral land classification for aggregate materials in the San Francisco-Monterey Bay Area (Stinson et al., 1987). Lands were classified in the following categories:

- **MRZ-1:** Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- **MRZ-2:** Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.
- **MRZ-3:** Areas containing mineral deposits the significance of which cannot be evaluated from available data.

According to these definitions, the study area is classified as MRZ-1.

Oil and Gas Resources

No oil and gas reserves have been identified or are under production in the study area.

3.11.11 Tsunami and Seiche

A tsunami (Japanese word meaning "harbor wave") is a water wave or a series of waves generated by an impulsive displacement of the surface of the ocean or other body of water Tsunamis can travel across oceanic basins and cause damage several thousand miles from their sources. Most tsunamis are caused by a rapid vertical movement along a break in the Earth's crust, i.e., a tectonic fault rupture on the bottom of the ocean resulting in displacement of the column of water directly above it. The majority of tsunamis are triggered by earthquake rupture along subduction zones. The 1964 Alaska earthquake generated a tsunami that caused widespread damage along the coastline of northern California. Paleoseismic investigations have also shown that tsunamis resulting from earthquakes on the subduction zone beneath Japan and the Cascadia subduction zone in the Pacific northwest have also inundated the Pacific coast states (Atwater et al., 1999).



Source:
State of California 2003

SCALE 1:24,000

1 .5 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

LEGEND

Liquefaction

Areas where historical occurrence of liquefaction, or local geological, geotechnical and ground-water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

Earthquake-Induced Landslides

Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

SEISMIC HAZARD MAP

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Ferry Terminal Study

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FIGURE 3-27

A seiche is a periodic oscillation or "sloshing" of water in an enclosed basin such as the San Francisco Bay. The period of oscillation can range from minutes to hours. The 1898 "Mare Island" earthquake is reported to have caused a seiche in the northern part of the Bay (Toppozada et al., 1992). There are no reports of damage associated with this event.

Ritter and Dupre (1972) calculated that for a tsunami originating outside San Francisco Bay, the amount of inundation based on tsunami run-up decreases to 50 percent of its maximum at the Golden Gate by the time it passes the Bay Bridge to the south and the Richmond-San Rafael Bridge to the north. Tsunami run-up results in inundation and flooding of low-lying areas, and in locations where the waves have sufficient energy cause significant erosion. The inundation model of Ritter and Dupre (1972) was used to assess hazards related to tsunamis and seiche in the study area (URS, 2003). The ranking of tsunami hazard is based on the exposure of the locality to the open ocean. The study area is sheltered from potential tsunami waves, and therefore tsunami hazard is low.

3.12 HAZARDOUS MATERIALS

3.12.1 Regulatory Framework

The management of hazardous materials and hazardous wastes, including chemicals, radioactive materials, and bio-hazardous materials, is subject to numerous laws and regulations at all levels of government. Summaries of federal and state laws and regulations related to hazardous materials management are presented below. California state law allows for certain hazardous materials regulatory programs, including those pertaining to USTs, hazardous materials storage, and hazardous materials management, to be delegated to local agencies.

Federal Regulations

Primary federal agencies with responsibility for hazardous materials management include the U.S. EPA, Occupational Safety and Health Administration (OSHA), U.S. DOT, and Nuclear Regulatory Commission. Major federal laws and issue areas include the following statutes (and regulations promulgated there under):

- **Resource Conservation and Recovery Act (RCRA):** Hazardous waste management
- **Hazardous and Solid Waste Amendments Act:** Hazardous waste management
- **CERCLA:** Cleanup of contamination
- **SARA:** Cleanup of contamination
- **Emergency Planning and Community Right-to-Know (SARA Title III):** Business inventories and emergency response planning.

State Regulations

Primary state agencies with jurisdiction over hazardous chemical materials management are the Department of Toxic Substances Control (DTSC) and the RWQCB. Other state agencies involved in

hazardous materials management are the Department of Industrial Relations (Cal-OSHA implementation), state Office of Emergency Services (California Accidental Release Prevention implementation), CDFG, CARB, Caltrans, California State Office of Environmental Health Hazard Assessment (Proposition 65 implementation), and the California Integrated Waste Management Board.

Hazardous chemical and bio hazardous materials management laws in California include the following statutes (and regulations promulgated there under):

- **Hazardous Materials Management Act:** Hazardous Materials Business Plan (HMBP) reporting
- **Hazardous Waste Control Act:** Hazardous waste management
- **Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):** Releases of and exposure to carcinogenic chemicals
- **Hazardous Substances Act:** Cleanup of contamination
- **Hazardous Waste Management Planning and Facility Siting (Tanner Act)**
- **Hazardous Materials Storage and Emergency Response**
- **California Medical Waste Management Act:** Medical and bio-hazardous wastes

State regulations and agencies that are specifically applicable to the project site include the Hazardous Materials Management Act (HMMA) and Cal-OSHA, which are further described below.

Hazardous Materials Management Act. A hazardous material is any substance that possesses qualities or characteristics that could produce physical damage to the environment and/or cause deleterious effects upon human health (Title 22, CCR). The HMMA requires that businesses handling or storing certain amounts of hazardous materials prepare a HMBP, which includes an inventory of hazardous materials stored on site (above specified quantities), an emergency response plan, and an employee training program. Businesses that use, store, or handle 55 gallons of liquid, 500 pounds of a solid, or 200 cubic feet of a compressed gas at standard temperature and pressure require a HMBP. Plans must be prepared prior to facility operation and are reviewed/updated biennially (or within 30 days of a change in storage conditions at the site).

Occupational Health and Safety Administration. Site safety requirements are generally based on the specifications of OSHA. Applicable specifications prepared by OSHA related to earth resources consist of Section 29 CFR Part 1926 (Department of Labor, 1989), which focuses on worker safety during excavation, shoring, and trenching.

Regional Regulations

City of Berkeley Toxics Material Division (COBTMD). The COBTMD is responsible for regulating the operations of businesses and institutions that handle hazardous materials or generate hazardous wastes in the City of Berkeley. As part of the state-mandated Certified Unified Participating Agency program, administered by California EPA, the COBTMD coordinates regulatory and enforcement for the following programs related to hazardous materials and wastes: HMBP/Emergency Response Plan, Hazardous Waste, USTs, Aboveground Storage Tank Spill Prevention Countermeasures and Control only, and the California Accidental Release Program.

3.12.2 Database Searches

The federal, state, and local records review was accomplished through a computer database search of facilities, which appear on a series of government lists. The database search for the Site and surrounding properties was performed by the Environmental Data Registry (EDR). A copy of the regulatory agency databases is included in the Biological Resources Technical Report.

Through the database review, facilities can be identified and located based on information submitted to government environmental agencies. In this way, the potential risk posed to the site by surrounding properties can be assessed. Facilities located beyond the specified search radii are not discussed in this analysis, as they are not considered potential environmental concerns due to their distances.

Multiple "orphan" facilities were identified in the regulatory databases, within a mile of the study area; however, these sites lacked complete or accurate geographical data, and, therefore were left out of this section. A summary of the orphan facilities is contained in the EDR database reports.

The following tables and associated descriptions summarize the information reviewed in the federal, state, and local databases. For purposes of this review, sites A and B (located near each other) have been grouped together and Site C and Site D have individual EDR reports and tables.

Alternatives A and B (Berkeley Marina and Berkeley Fishing Pier Sites)

Table 3-27
University Avenue Alternatives A and B

Federal or State List	Does Site Appear on List?	Surrounding Area Search Radius *	Number of Sites Within Search Radius
Resource Conservation and Recovery Act (RCRA) Corrective Action Plan (CORRACTS)	No	1.0 mile	1
Cal-Sites	No	1.0 mile	2
Hazardous Wastes and Substances Sites List (Cortese)	No	0.5 mile	4
Solid Waste Facilities/Landfill Sites (SW/LF)	No	0.5 mile	1
Leaking Underground Storage Tank (LUST)	No	0.5 mile	4
Registered Aboveground Storage Tanks	No	Site and adjacent properties	1
EnviroStor	No	0.5 mile	10
Response	No	1.0 mile	1

Note:
* indicates the distance measured from the Site that was included in the database record search

The Site was not listed on any of the databases searched. The following subsections provide a discussion of the surrounding facilities that have been identified within the search radius in the various categories listed in the preceding table. However, only sites where there is evidence of a release to the subsurface or known potential subsurface contamination (e.g., a landfill) are discussed in any detail.

Solid Waste Facilities/Landfill Sites. The Solid Waste Facilities/Landfill (SW/LF) sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System database. The database identified one property, the Berkeley Landfill, located at the foot of Virginia Street. This is the property located to the immediate east of the Berkeley Marina. The owner of the landfill is listed as the City of Berkeley Public Works and the facility activity is listed as solid waste disposal site. No other detailed information regarding this site was available in the database report. Given the proximity of the landfill to the Berkeley Marina, this facility is considered a potential concern for Alternative B.

Leaking Underground Storage Tank. The Leaking Underground Storage Tank (LUST) database contains an inventory of reported leaking underground storage tank incidents. The database identified four (4) properties within a 0.5-mile radius of the site. The first property is the Berkeley Marine Center located at 1 Spinnaker Way, to the north/northwest of the Berkeley Marina. A leaking diesel UST was discovered in May 1998 during a tank closure. The site is listed as groundwater affected. Contaminated soil was excavated and treated. The case was closed by the regulatory agencies in April 1996. Based on the location and regulatory status, this facility is not considered a concern to this assessment. The other three sites are all located on the eastern side of I-80. Based on the distance from the site and the regulatory status, these facilities are not considered a concern to this assessment.

EnviroStor. The DTSC's Site Mitigation and Brownfields Reuse Program's EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites. The database identified ten (10) facilities on the EnviroStor database, however all of these sites are located east of I-80. Based on the distance from the site, these facilities are not considered a concern to this assessment.

Alternative C (Gilman Street Site)

The Site was not listed on any of the databases searched. The following subsections provide a discussion of the surrounding facilities that have been identified within the search radius in the various categories listed in the preceding table. However, only sites where there is evidence of a

release to the subsurface or known potential subsurface contamination (e.g., a landfill) are discussed in any detail.

Table 3-28
Gilman Street Alternative – Site C

Federal or State List	Does Site Appear on List?	Surrounding Area Search Radius *	Number of Sites Within Search Radius
CERCLIS No Further Remedial Action Planned (CERC-NFRAP)	No	Site and adjacent properties	1
Resource Conservation and Recovery Act (RCRA) Corrective Action Plan (CORRACTS)	No	1.0 mile	2
Resource Conservation and Recovery Information System – Treatment, Storage or Disposal Facilities (RCRIS-TSD)	No	0.5 mile	1
RCRA Registered Large and Small Quantity Generators of Hazardous Waste (LQG/SQG)	No	Site and adjacent properties	6
Cal-Sites	No	1.0 mile	1
State Recycling Facilities (SWRCY)	No	0.5 mile	1
Statewide Environmental Evaluation and Planning System (SWEEPS UST)	No	Site only	4
Hazardous Wastes and Substances Sites List (Cortese)	No	0.5 mile	27
Proposition 65 Records (Notify 65)	No	1.0 mile	5
Solid Waste Facilities/Landfill Sites (SW/LF)	No	0.5 mile	2
A listing of contaminated sites overseen by the Toxic Release Program of Alameda County (CS)	No	0.5 mile	6
Leaking Storage Tanks (LUST)	No	0.5 mile	25
Registered Underground Storage Tanks (USTs)	No	Site and adjacent properties	2
Facility Inventory Database (CA FID UST)	No	Site and adjacent properties	3
Hazardous Substance Storage Container Database (HIST UST)	No	Site and adjacent properties	3
California Spills, Leaks, Investigation and Cleanup Cost Recovery Listing (CA SLIC)	No	0.5 mile	9
EnviroStor	No	0.5 mile	5
Response	No	1.0 mile	1

Note:
* indicates the distance measured from the Site that was included in the database record search

Solid Waste Facilities/Landfill Sites. The database identified the Santa Fe Berkeley Landfill located between I-80/Marina near the racetrack and the Berkeley Solid Waste Transfer Station located at 1201 Second Street. The owner of the Santa Fe Berkeley Landfill is listed as the EBRPD and the facility activity is listed as solid waste disposal site and the status is closed. No other detailed information regarding this site was available in the database report. It is likely that the Gilman Street Alternative (Site C) is located on or near the edge of the landfill. Given the proximity of the landfill to the Gilman Street Alternative site, this is considered a potential concern to this assessment. The Berkeley Solid Waste Transfer Station is a large volume transfer and processing station located on the eat side of I-80. Based on the nature of the operation, as well as the distance from the site, this facility is not considered a concern to this assessment.

Leaking Underground Storage Tank. The database identified twenty five (25) properties within a 0.5-mile radius of the site. However, all of the sites are located on the east side of I-80. Based on the distance from the site these facilities are not considered a concern to this assessment.

Spills, Leaks, Investigation and Cleanup. The Spills, Leaks, Investigation and Cleanup (SLIC) program is designed to protect and restore water quality from spills, leaks, and similar discharges. The database identified nine (9) facilities within a 0.5-mile radius of the site. However, all of the sites are located on the east side of I-80. Based on the distance from the site these facilities are not considered a concern to this assessment.

Alameda CS. This database contains a listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the LUST Program (soil and ground water contamination from leaking petroleum USTs). The database identified six (6) facilities within a 0.5-mile radius of the site. With the exception of one facility, Pacific Racing Association located at 1100 Eastshore Highway, all of the other facilities are located on the east side of I-80. Based on the distance from the site these facilities are not considered a concern to this assessment. The Pacific Racing Association facility is located approximately 2,500 feet north of the Gilman Street Alternative (Site D) location and given the distance from the site, this facility is not considered a concern to this assessment.

EnviroStor. The database identified five (5) facilities on the EnviroStor database, however all of these sites are located east of I-80. Based on the distance from the site, these facilities are not considered a concern to this assessment.

Alternative D (Buchanan Street Site)

The Site was not listed on any of the databases searched. The following subsections provide a discussion of the surrounding facilities that have been identified within the search radius in the various categories listed in the preceding table. However, only sites where there is evidence of a release to the subsurface or known potential subsurface contamination (e.g., a landfill) are discussed in any detail.

Solid Waste Facilities/Landfill Sites. The database identified the Albany Landfill located at the west end of Buchanan Street, approximately 2,100 feet northeast of the site. The owner of the landfill is listed as the City of Albany and the facility activity is listed as disposal and the status is closed. No other detailed information regarding this site was available in the database report. It is not likely that the Buchanan Street Alternative (Site D) is located in close proximity to the landfill. Given the proximity of the landfill to the Buchanan Street Alternative site, this is not considered a concern to this assessment.

Leaking Underground Storage Tanks. The database identified six (6) properties within a 0.5-mile radius of the site. With the exception of one facility, Pacific Racing Association located at 1100 Eastshore Highway, approximately 1,500 feet east/southeast of the site, all of the other facilities are located on the east side of I-80. Based on the distance from the site these facilities are not considered a concern to this assessment. The LUST cases at Pacific Racing Association are closed. Based on the distance and location of the facility and the status of the LUST cases, this facility is not considered a concern to this assessment.

Table 3-29
Buchanan Street Alternative – Site D

Federal or State List	Does Site Appear on List?	Surrounding Area Search Radius *	Number of Sites Within Search Radius
Resource Conservation and Recovery Act (RCRA) Corrective Action Plan (CORRACTS)	No	1.0 mile	1
Cal-Sites	No	1.0 mile	2
Hazardous Wastes and Substances Sites List (Cortese)	No	0.5 mile	6
Proposition 65 Records (Notify 65)	No	1.0 mile	4
Solid Waste Facilities/Landfill Sites (SW/LF)	No	0.5 mile	1
A listing of contaminated sites overseen by the Toxic Release Program of Alameda County (CS)	No	0.5 mile	5
Leaking Storage Tanks (LUST)	No	0.5 mile	6
California Spills, Leaks, Investigation and Cleanup Cost Recovery Listing (CA SLIC)	No	0.5 mile	1
EnviroStor	No	0.5 mile	5
Response	No	1.0 mile	1

Note:
* indicates the distance measured from the Site that was included in the database record search

Spills, Leaks, Investigation and Cleanup. The database identified one (1) facility within a 0.5-mile radius of the site. Fleming Point Property, located at 1100 Eastshore Highway (also the listed address for Pacific Racing Association), approximately 1,500 feet east/southeast of the site, was listed as an open SLIC case. No additional information was available in the EDR report regarding the status of the case. Based on the distance and direction from the site this facility is not considered a concern to this assessment.

Alameda CS. The database identified five (5) facilities within a 0.5-mile radius of the site. With the exception of one facility, Pacific Racing Association located at 1100 Eastshore Highway, all of the other facilities are located on the east side of I-80. Based on the distance from the site these facilities are not considered a concern to this assessment. The Pacific Racing Association facility is located approximately 1,500 feet east/southeast of the Buchanan Street Alternative (Site E) location and given the distance from the site and the facility's closed status, it is not considered a concern to this assessment.

EnviroStor. The database identified five (5) facilities on the EnviroStor database, however all of these sites are located east of I-80. Based on the distance from the site, these facilities are not considered a concern to this assessment.

3.12.3 Other Potential Hazards/Hazardous Materials

Contaminated Fill: All of the proposed site alternatives are located in areas where the existing land was created from land filling operations. The source of the material(s) used for land filling is unknown. As such, there is the potential that contaminated materials (e.g., soil or rock) may have been used for land filling operations. Fill materials may be contaminated with metals, pesticides, hydrocarbons and asbestos, which may be present in naturally occurring forms as serpentinite rock, if these materials were was used as fill material at any of the alternative sites.

3.13 UTILITIES AND PUBLIC SERVICES

3.13.1 Introduction

The following utilities are provided in the vicinity of the four-alternative ferry terminal sites:

- Domestic Water – East Bay Municipal Utility District (EBMUD)
- Sanitary Sewer – Cities of Berkeley and Albany
- Storm Drainage – Cities of Berkeley and Albany
- Electric – Pacific Gas & Electric (PG&E)
- Gas – PG&E
- Telecommunication – AT&T telephone

The infrastructure for each of these utilities is described below by utility for each terminal site alternative. It should be noted that Alternatives C and D (Gilman and Buchanan) do not have all of the utilities identified above in the immediate vicinity.

3.13.2 Water System

Alternative A (Berkeley Marina Site)

Similar to the Berkeley Fishing Pier Site, the Berkeley Marina Site has an 8-inch-diameter steel, mortar lined, mortar coated domestic water line. This line runs north-south Marina Boulevard, services the Doubletree Inn north of the proposed terminal site, then turns west to serve domestic connections and fire hydrants along the north shore of the Berkeley Yacht Harbor and in Spinnaker Way.

Alternative B (Berkeley Fishing Pier Site)

According to EBMUD records, there is an 8-inch-diameter steel, mortar lined, mortar coated water line in Seawall Drive. This provides domestic and fire water service to Hs Lordships restaurant at the south end of Seawall Drive and also serves as the water source for fire hydrants spaced at approximately 700-foot intervals along Seawall Drive. This line connects to a 12-inch-diameter line along the south shore of the Berkeley Yacht Harbor.

The waterlines were installed between 1965 and 1967, and are assumed to be in good working condition. Fire hydrants are indicated along Seawall Drive and Marina Boulevard. Near buildings, these are shown spaced at approximately 250 feet between hydrants. Between buildings, the typical spacing is in the range of 700 feet between hydrants. Blow-off valves are shown at the end of each main, but are not in the immediate vicinity of the project sites. No air valves are shown on the plans. The locations of appurtenances from curb edge and relative depths are unknown.

3.13.3 Sanitary Sewer

Alternative A (Berkeley Marina Site)

The Berkeley Marina Site is very near City of Berkeley Pumping Station No. 2. The pumping station, which includes an underground vault until Marina Boulevard and an above ground generator and control panel on the west side of Marina Boulevard, is located directly east of the proposed terminal site. There is a 15-inch-diameter polyvinyl chloride (PVC) line in Marina Boulevard adjacent to the project site, flowing from north to south. The line was installed in 1984.

Alternative B (Berkeley Fishing Pier Site)

There is an existing 10-inch-diameter PVC sanitary sewer line Seawall Drive adjacent to the project site. This line serves Hs Lordships restaurant. The line was installed in 1990. The flow in the line runs from south to north, and leads to City of Berkeley Pumping Station No. 4.

Alternative D (Buchanan Site)

There is no sanitary sewer pipe in place to serve the Buchanan site; however, a 24-inch pipe labeled on City of Berkeley Block Map No. 42A as “1928 Bond Sewers Unit No. 6” has an

outfall into San Francisco Bay at point just south of the proposed Buchanan Site. It is not known whether this line is in service at this time.

3.13.4 Storm Drainage

According to record documents obtained from the City of Berkeley and Baird Barton with the City of Albany, there is no storm drainage network in the vicinity of the proposed terminal site locations. A review of the sites found no storm drain system in place near the sites. In most areas, rainwater sheet flows across paved and unpaved areas directly into the Bay or is collected in shallow catch basins that are piped to an outfall into the Bay.

3.13.5 Electrical System

Alternative A (Berkeley Marina Site)

The Berkeley Marina Site also has a nearby electrical line. There is an existing 12-kilovolt (kV) underground line in Marina Boulevard that serves the adjacent Doubletree Hotel. The closest existing transformer is located approximately 400 feet to the south and provides power to Berkeley Marina Piers F and G.

Alternative B (Berkeley Fishing Pier Site)

PG&E supplies electric services in the study area. Service to the Berkeley Fishing Pier Site would be provided by the existing underground line in Seawall Drive. The existing electrical line is a 12-kV line, which would require a new transformer to step down the power to standard building voltage. The closest existing transformer is located at the south end of Seawall Drive and currently serves Hs Lordships restaurant. The electrical services are underground from 24 to 48 inches below street grade. There are existing site/roadway lighting standards and electrical conduits along the east side of Seawall Drive.

3.13.6 Gas System

Alternative A (Berkeley Marina Site)

There is an existing gas main in Marina Boulevard, the size of which is not indicated on record drawings obtained from PG&E. The main appears to terminate north of the Doubletree Hotel.

Alternative B (Berkeley Fishing Pier Site)

PG&E supplies gas services in the project area. There is an existing 2-inch gas main in the Seawall Drive right-of-way, parallel to the existing electric service that provides gas to Hs Lordships Restaurant.

3.13.7 Telecommunications

Alternative A (Berkeley Marina Site)

There is no information currently available regarding telecommunication services in Marina Boulevard. A survey of the area revealed no surface evident telephone features in Marina Boulevard. There is an existing AT&T telephone service pedestal at the entrance to Berkeley Marina Piers F and G, south of the project site. There is also an overhead communications line in the former Virginia Street right-of-way, north of the Berkeley Meadow Park. This appears to be the line providing service to the Doubletree Hotel.

Alternative B (Berkeley Fishing Pier Site)

AT&T provides telecommunication services in the project area. No information is available at this time regarding specific telephone facilities in the area and a review of the site revealed no surface-evident telephone system features south of the Berkeley Fishing Pier; however an underground service line is assumed to be in place in the Seawall Drive right-of-way providing service to Hs Lordships Restaurant.

3.13.8 Public Facilities and Services

This section presents the public services and facilities provided by the Cities of Berkeley and Albany that serve the study area.

City of Berkeley Police Department

The Berkeley Police Department (BPD), which has 185 sworn officers, operates out of its main station at 2100 Martin Luther King Jr. Way, approximately 2.15 miles east of the study area. The department does not have mandated response times, nor do they collect development fees (Chief Hambleton, 2007).

City of Berkeley Fire Department

The Berkeley Fire Department (BFD) serves a densely populated eleven square miles that encompass the City of Berkeley. The 137.5 members (125 sworn) of the department staff 7 fire stations, 7 engines, 2 fire trucks, 3 ambulances, and an assortment of specialized equipment including a hazardous materials vehicle (BFD, 2007). The closest fire station to the proposed Berkeley sites is Station 6, located approximately one mile to the northeast at 999 Cedar Street.

Emergency Transport

The BFD Paramedic Service Plan was developed in 1985; since that time the provision of emergency medical services to citizens has become a key aspect in the Department's services. When an initial call is received, a fire company is dispatched from the closest fire station. The firefighters are trained Emergency Medical Technicians (EMTs) and are able to begin the

evaluation and initial treatment and call for an ambulance. Each ambulance is staffed with 2 paramedics (BFD, 2007).

Berkeley Unified School District

The Berkeley Unified School District (BUSD) provides educational services to Berkeley's residents. There are sixteen schools within the school district. The only BUSD school located in the study area is Rosa Parks Environmental Science Magnet School at 920 Alston Way.

Berkeley Libraries

The Berkeley Public Library is one of the busiest libraries of its size nationwide. Its central branch, located in the heart of downtown, reopened in 2002 after an extensive renovation, nearly doubling in size and quadrupling usage to over 2,500 people daily. The four branches, North, South, West, and Claremont, are situated in the four corners of the city (The Berkeley Public Library, 2007). The West Branch is the library closest to the study area at 1125 University Avenue.

City of Albany Police Department

The Albany Police Department (APD) currently has 26 full time sworn officers, no part time officers, 5 reserve officers, and 11 civilian staff. The APD operates a single main police station located at 1000 San Pablo Avenue, at the corner of San Pablo Avenue and Buchanan Street. Response times for calls to the proposed project site area is generally 2 to 4 minutes for emergency calls, however there is no department-wide mandated response time. The APD does not currently collect fees or benefit from fees collected as a result of new construction projects within their jurisdiction (Adams, 2007).

City of Albany Fire Department

The Albany Fire Department (AFD) currently has 18 full-time fire fighters, which make up two engine companies. Both companies operate out of Albany's only fire station at 1000 San Pablo Avenue, approximately 1 mile east of the proposed Buchanan Street project site. According to the AFD, response time to this area is less than 3 minutes. The AFD also has one standby engine in case the other two engines are in need of assistance (AFD, 2007).

The AFD will collect mitigation fees from developers in the event that construction of a particular project would impact AFD's quality of service. Mitigation fees for the AFD, if any, are decided upon on a project-to-project basis (AFD, 2007).

Emergency Transport

The AFD also provides emergency medical transport to its residents with its single Advanced Life Support ambulance. The ambulance is staffed with two paramedics, twenty-four hours a day. Furthermore, each engine company is staffed with one paramedic at all times. The AFD also has one standby ambulance (AFD, 2007).

Albany Unified School District

The Albany Unified School District (AUSD) provides educational services to Albany's residents. There are six schools, which make up the school district. The only AUSD school located in the study area is Albany Middle School at 1250 Brighton Avenue.

Albany Libraries

Albany operates one library, The Albany Library, which is a branch of the Alameda County Library System. The Albany Library serves the 18,000 residents of Albany, as well as the nearby communities of Berkeley, Oakland and El Cerrito. It is 15,000 square feet with over 50,000 volumes (City of Albany, 2007). The Albany Library is located at 1247 Marin Avenue, approximately 1.25 miles west of the proposed Buchanan Street site.

3.14 ENERGY

This section discusses energy consumption as it pertains to the transportation sector and addresses the issue of potential for wasteful, inefficient, or unnecessary use of energy from implementation of the proposed alternatives.

3.14.1 Regulatory Framework

The following federal, state, and local regulations govern the review and analysis of energy consumption.

Federal Guidelines

Regulations for transportation energy consumption are generally directed toward fuel efficiency of motor vehicles. The federal Energy Policy and Conservation Act of 1992 established fuel economy standards for on-road vehicles in the United States. This law places responsibility to the National Highway Traffic and Safety Administration (a part of the U.S. DOT) for establishing vehicle standards and for revising existing standards. The U.S. EPA administers the Corporate Average Fuel Economy program, which determines vehicle manufacturers' compliance with existing fuel economy standards.

The Energy Policy Act of 2005, signed by President Bush on August 8, 2005, offers consumers and businesses federal tax credits beginning in January 2006 for purchasing fuel-efficient hybrid-electric vehicles and energy-efficient appliances and products. Most of these tax credits remain in effect through 2007 (U.S. Department of Energy, 2007).

There are no federal regulations pertaining to energy efficiency of vessels.

State Guidelines

The "California Greenhouse Bill" (Assembly Bill [AB] 1493) was signed into law in July 2002 by then-governor Gray Davis. This bill requires CARB to adopt regulations, no later than

January 1, 2005, to reduce greenhouse gases (GHGs) from noncommercial passenger motor vehicles and light-duty trucks manufactured no earlier than 2009. Further, it places additional duties on the California Climate Action Registry (the Registry) related to emissions reductions (California Energy Commission, 2007). Appendix F of CEQA requires that a discussion of the potential energy impacts of a proposed project be addressed, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

There are no State regulations pertaining to energy efficiency of vessels.

Local Guidelines

There are no local regulations pertaining to the energy efficiency of vessels. The study area for the proposed alternatives includes three different sites within the City of Berkeley and one site within the City of Albany.

3.14.2 Current Energy Consumption by Bay Area Transportation Providers

Energy is a major operational component for transit providers in the Bay Area. In 2004, the Golden Gate Bridge, Highway and Transportation District consumed 3.1 million gallons of diesel fuel; the San Francisco Municipal Railway consumed approximately 6 million gallons of diesel fuel and 94,766.9 kilowatt hours (kwh) of electricity; BART consumed 302,399.1 kwh of electricity; AC Transit consumed 6.5 million gallons of diesel fuel and 132,500 gallons of gasoline; the Central Contra Costa Transit Authority consumed 990,700,000 gallons of diesel; and the San Mateo County Transit District consumed 2.1 million gallons of diesel fuel (APTA, 2004).

San Francisco Bay Ferry Energy Consumption

The operating characteristics and energy consumption for ferries that currently provide service between the East Bay and San Francisco is indicated below (Culnane, 2008).[2]

- *Peralta* (Alameda/Oakland Ferry) – 3,200 HP, 26 knots, 330 passengers, using 0.11 gallon of fuel/passenger-trip[3]
- *Encinal* (Alameda/Oakland Ferry) – 3,600 HP, 24 knots, 400 passengers, using 0.10 gallon of fuel/passenger-trip
- *Bay Breeze* (Alameda Harbor Bay Ferry) – 2,570 HP, 20 knots, 250 passengers, using 0.12 gallon of fuel/passenger-trip

For the proposed Berkeley/Albany ferry service, WETA will use the 2008 model MTU 16V 2000 Catamarans. These new vessels, called Spare Vessels, have a capacity for 149 passengers and travel at a speed of 25 knots (see Section 2.3). Spare Vessels are powered by a 2,820 horse

[2] Assumptions for calculations: 11 minutes at 25 knots, 10 minutes at 10 knots and 6 minutes at 5 knots; power is proportional to the cube of speed; and 6.9 nautical miles for Berkeley route distance.
[3] For the purposes of this analysis, Passenger Trip refers to the distance (6.9 nautical miles) the ferry must travel from the terminal in the East Bay to the terminal in San Francisco

power engine that consumes 721.20 gallons of diesel fuel per day, based on 10 hours of daily operation

Existing Fuel and Electricity Consumption at the Berkeley Marina

In 2006, the Berkeley Marina sold 12,489 gallons of diesel fuel and 13,944 gallons of gasoline. In 2005, the Berkeley Marina sold 9,647 gallons of diesel fuel and 18,786 gallons of gasoline. The Berkeley Marina purchases its fuel on an as-needed basis from All Points Petroleum of Benicia, California (Partridge, 2007).

Each berth at the Berkeley Marina provides access to electricity for both recreational boat users and users with live-aboard situations. According to the Berkeley Marina, a portion of the berths have electrical usage included in their berthing fees while others receive a separate bill from PG&E (Fee Schedule 2006-2007, Berkeley Marina).

4.0 ENVIRONMENTAL CONSEQUENCES

This chapter describes the potential adverse impacts of the No-Action and Action Alternatives for each impact topic. More detailed information for each topic area is presented in technical reports filed with WETA. For the Action Alternative, impacts are described for short-term construction activities, long-term operations, and potential cumulative impacts resulting from growth in travel demand (1 percent annually) over the planning horizon (Caltrans, 2005; Fehr & Peers, 2004). In conformance with CEQA guidelines, and to tie the cumulative analysis to the combined effects of multiple development projects occurring within proximity of the ferry terminal sites, a list-based approach, described in Chapter 5, was also used. In addition, other CEQA requirements, including a summary of growth-inducing impacts, the significance criteria used in determining significant and potentially significant impacts, and a summary of impacts and associated mitigation measures are presented in Chapter 5.

4.1 TRANSPORTATION AND CIRCULATION

Transportation and circulation impacts of the ferry terminal alternatives and ferry service on vehicular circulation, transit operation, and bicycle and pedestrian circulation are presented below. A description of the assessment methodology, including significance criteria, adverse impacts that could occur from the construction or operation of the ferry terminal facilities and service, and proposed mitigation strategies is provided for each mode. More detailed background information regarding the travel demand forecasting modeling and results for the project, on which much of the transportation analysis is based, is provided in Section 2.4.1

4.1.1 Traffic

METHODOLOGY

The study area roadways are overseen by several jurisdictions: the cities of Berkeley and Albany, Alameda County Congestion Management Agency (ACCMA), and Caltrans. For this analysis, 17 study area intersections were analyzed to determine whether impacts would occur at these intersections with and without project for existing and future (2030) conditions. All 17 intersections are subject to Berkeley or Albany impact thresholds, whereas Caltrans criteria only apply to San Pablo Avenue and I-80 interchange intersections, and ACCMA criteria apply to the Caltrans intersections and to University Avenue intersections east of I-80.

In general, if traffic circulation at key intersections deteriorates to critical levels because of the ferry terminal alternatives, mitigation strategies are recommended to minimize potential adverse impacts. The determination of adverse effects is primarily through LOS and vehicle delay calculations (described in the Transportation section of Chapter 3). In general, adverse impacts are created when the project—or the project in combination with future growth—reduces intersection LOS to E or F. If the intersection is operating or forecast to operate at LOS F and the project causes an increase in the v/c ratio of 0.01 or greater, the added delay is also considered an adverse impact. Specific analysis thresholds that pertain to each of the jurisdictions that govern roadways in the study area are described below.

Alameda County Congestion Management Agency Roadways

Significance Criteria. The LOS standard set by the ACCMA is LOS E, except where an intersection or roadway is already operating at LOS F, which becomes the threshold.

Mitigation Approach. Mitigation measures are to be developed so that the LOS standards are maintained on the ACCMA designated roadway system, which are San Pablo Avenue and University Avenue in the study area.

Caltrans Intersections

Significance Criteria. Caltrans recommends a target LOS C for the I-80 interchange intersections and for San Pablo Avenue intersections. If the intersection at LOS D, E, or F, then the existing level of service needs to be maintained.

Mitigation Approach. All mitigations must follow Caltrans standards and specifications, and if mitigation measures require work in the state right-of-way, an encroachment permit from Caltrans is required.

Berkeley and Albany Intersections

Significance Criteria. For this study, the City of Albany agreed to abide by the City of Berkeley's criteria, which are generally more difficult to meet. LOS D is the level of service standard for City-controlled intersections. For those intersections that are currently operating at or are forecast to operate at LOS E or F without the project, significance criteria are defined depending on the type of traffic control involved.

- **Signalized Intersections.** The cities have established average delay thresholds as follows: LOS D to E = 2 seconds; LOS E and LOS E to F = 3 seconds. Delay can increase dramatically with small increases of traffic after LOS F has been reached. In this case, an increase of 0.01 in the v/c ratio is used as the impact threshold.

- **Unsignalized Intersections.** Unlike signalized intersections, it is difficult to establish fixed significance thresholds for unsignalized intersections, particularly those with only side-street stop control. In general, mitigations are required if a movement is at LOS F, the peak hour signal warrant is met, and a minimum of 10 vehicles is added to the critical movement. Nevertheless, as delays increase dramatically once LOS F is reached, consideration is given to the number of new trips added by a project and other factors, such as the feasibility of alternative routes and the proximity of adjacent traffic signals.

- **Roundabouts Intersections.** The new roundabout planned by Caltrans for the Gilman Street/I-80 interchange intersections was included in the analysis using the Gilman Interchange Project Study Report methodology.

Mitigation Approach. Mitigations may include low-cost improvements (such as revised striping, signing, modified signal timing) and capital improvements. Appropriate mitigation measures would be developed in consultation with and approval of the local jurisdiction.

NO-ACTION ALTERNATIVE

As described in the Transportation section of Chapter 3, eight of 17 critical intersections have existing substandard operation during peak periods under the No-Action Alternative. They are:

- Buchanan at Cleveland – LOS F during the a.m. peak
- San Pablo at Marin – LOS E during a.m. and p.m. peak
- Gilman at I-80 WB ramps – LOS F during a.m. and p.m. peak
- Gilman at I-80 EB ramps – LOS F during p.m. peak
- Gilman at Eastshore – LOS F during a.m. and p.m. peak
- University at Frontage Road – LOS F during p.m. peak
- University at Sixth – LOS F during a.m. and p.m. peak
- University at San Pablo – LOS E during p.m. peak

Traffic volumes for 2030 were estimated to increase from current volumes by 1 percent annually. This increase is consistent with the Gilman Interchange Project Study Report methodology (Caltrans, 2005). The 2030 analysis also assumes that the roundabout improvements to the Gilman Interchange are in place. According to the Gilman Interchange Project Study Report, the roundabouts would operate satisfactorily. However, nine of 17 study intersections are expected to have unsatisfactory traffic operations in 2030 under the No-Action Alternative. They are:

- San Pablo at Solano – LOS E during p.m. peak
- Buchanan at Cleveland – LOS F during the a.m. peak
- San Pablo at Marin – LOS E during a.m. and LOS F during p.m. peak
- Gilman at San Pablo – LOS E during a.m. and LOS F during p.m. peak
- University at Frontage Road – LOS F during a.m. and p.m. peak
- University at I-80 WB ramps – LOS F during a.m. and p.m. peak
- University at I-80 EB ramps – LOS F during a.m. and p.m. peak
- University at Sixth – LOS F during a.m. and p.m. peak
- University at San Pablo – LOS E during a.m. and LOS F during p.m. peak

ACTION ALTERNATIVES

A comparison of existing and future (2030) traffic conditions with and without the Action Alternatives is included in Tables 4-1 through 4-8 and discussed under “Operations” impacts below.

Table 4-1
A.M. and P.M. Peak Hour Intersection LOS – Comparison of Existing Conditions with and without Project Alternative A

Study Intersection	Intersection Control	Without Project Scenario				With Project Alternative A				Impacted (Yes/No)
		A.M.		P.M.		A.M.		P.M.		
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	
1. Solano Avenue at Pierce Street	AWSC	C	20.1	A	9.3	C	20.1	A	9.3	
2. San Pablo Avenue at Solano Avenue*	S	C	30.7	D	41.8	C	30.7	D	41.8	No
3. Buchanan Street at I-80 WB Ramps *	S	B	19.4	B	16.6	B	19.4	B	16.6	
4. Buchanan Street at I-80 EB Ramps*	S	B	10.2	B	10.5	B	10.2	B	10.5	
5. Buchanan Street at Cleveland Avenue/Pierce Street**	TWSC	F	>50 (SB)	C	20.3 (SB)	F	>50 (SB)	C	20.3 (SB)	No
6. San Pablo Avenue at Marin Avenue*	S	E	64.3	E	73.0	E	65.1	E	73.2	No
7. Gilman Street at W. Frontage Road	TWSC	B	14.5 (NB)	C	15.3 (NB)	B	14.7 (NB)	C	15.3 (NB)	
8. Gilman Street at I-80 WB Ramps	TWSC	F	>50 (SB)	F	>50 (SB)	F	>50 (SB)	F	>50 (SB)	No
9. Gilman Street at I-80 EB Ramps	TWSC	C	23.5 (NB)	F	>50 (NB)	C	23.6 (NB)	F	>50 (NB)	No
10. Gilman Street at Eastshore Highway	TWSC	F	>50 (SB)	F	>50 (SB)	F	>50 (SB)	F	>50 (SB)	No
11. Gilman Street at 6th Street*	S	B	16.7	C	24.6	B	16.7	C	26.2	
12. Gilman Street at San Pablo Avenue	S	C	30.9	D	50.0	C	31.2	D	50.4	No
13. University Avenue at Marina Boulevard	TWSC	B	10.3 (WB)	B	13.1 (WB)	B	11.4 (WB)	C	16.3 (WB)	
14. University Avenue at W. Frontage Road**	AWSC	C	23.7	F	>50	D	29.7	F	>50	No
15. University Avenue at I-80 WB Ramps	TWSC	C	21.1 (NB)	D	28.6 (NB)	C	22.7 (NB)	E	43.5 (NB)	Yes (Change in LOS for P.M. peak to LOS E)
16. University Avenue at 6th Street	S	F	>80	F	>80	F	>80	F	>80	Yes (Increase in v/c for A.M. peak by 0.01)
17. University Avenue at San Pablo Avenue	S	D	40.1	E	78.9	D	40.3	F	>80	Yes (Change in LOS for P.M. peak to LOS F)

Source: Wilbur Smith Associates, 2008.

Notes:

* Indicates signalized intersections under Caltrans jurisdictions.
** Indicates that changes were made to intersection geometry so as to enable analysis using the *HCM 2000* methodology.
S – Signalized, TWSC – Two-Way STOP-Controlled, AWSC – All-Way STOP-Controlled.
LOS – Level of Service.
v/c – volume to capacity ratio.
Delay indicates Average Vehicle Delay in seconds per vehicle.
Values in **RED** indicate LOS exceeds acceptable threshold.

Table 4-2
A.M. and P.M. Peak Hour Intersection LOS – Comparison of Year 2030 Conditions with and without Project Alternative A

Study Intersection	Intersection Control	Without Project Scenario				With Project Alternative A				Impacted (Yes/No)
		A.M.		P.M.		A.M.		P.M.		
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	
1. Solano Avenue at Pierce Street	AWSC	F	>50	B	12.1	F	>50	B	12.1	No
2. San Pablo Avenue at Solano Avenue*	S	D	40.7	E	72.1	D	40.6	E	72.4	No
3. Buchanan Street at I-80 WB Ramps *	S	C	31.2	C	22.5	C	28.2	C	22.5	No
4. Buchanan Street at I-80 EB Ramps*	S	B	12.0	B	13.4	B	12.0	B	13.4	No
5. Buchanan Street at Cleveland Avenue/Pierce Street**	TWSC	F	>50 (SB)	D	27.3 (SB)	F	>50 (SB)	D	27.3 (SB)	No
6. San Pablo Avenue at Marin Avenue*	S	E	73.4	F	>80	E	73.7	F	>80	No
8. Gilman Street at W. Frontage Road at I-80 WB Ramps	Roundabout	A	2.9	A	7.3	A	2.9	A	7.3	No
10. Gilman Street at I-80 EB Ramps at Eastshore Highway	Roundabout	A	3.3	B	13.5	A	3.3	B	13.5	No
11. Gilman Street at 6th Street*	S	B	14.2	D	47.0	B	14.2	D	47.1	No
12. Gilman Street at San Pablo Avenue	S	E	65.7	F	>80	E	65.7	F	>80	No
13. University Avenue at Marina Boulevard	TWSC	B	10.9 (WB)	C	18.2 (WB)	B	12.2 (WB)	D	34.6 (WB)	No
14. University Avenue at W. Frontage Road**	AWSC	F	>50	F	>50	F	>50	F	>50	No
15. University Avenue at I-80 WB Ramps	TWSC	F	>50 (NB)	F	>50 (NB)	F	>50 (NB)	F	>50 (NB)	No
16. University Avenue at 6th Street	S	F	>80	F	>80	F	>80	F	>80	No
17. University Avenue at San Pablo Avenue	S	E	63.8	F	>80	E	64.2	F	>80	No

Source: Wilbur Smith Associates, 2008.

Notes:

* Indicates signalized intersections under Caltrans jurisdictions.
** Indicates that changes were made to intersection geometry so as to enable analysis using the *HCM 2000* methodology.
S – Signalized, TWSC – Two-Way STOP-Controlled, AWSC – All-Way STOP-Controlled.
LOS – Level of Service.
Delay indicates Average Vehicle Delay in seconds per vehicle.
Values in **RED** indicate LOS exceeds acceptable threshold.

Table 4-3
A.M. and P.M. Peak Hour Intersection LOS – Comparison of Existing Conditions with and without Project Alternative B

Study Intersection	Intersection Control	Without Project Scenario				With Project Alternative B				Impacted (Yes/No)
		A.M.		P.M.		A.M.		P.M.		
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	
1. Solano Avenue at Pierce Street	AWSC	C	20.1	A	9.3	C	20.1	A	9.3	
2. San Pablo Avenue at Solano Avenue*	S	C	30.7	D	41.8	C	30.7	D	41.8	No
3. Buchanan Street at I-80 WB Ramps *	S	B	19.4	B	16.6	B	19.4	B	16.6	
4. Buchanan Street at I-80 EB Ramps*	S	B	10.2	B	10.5	B	10.2	B	10.5	
5. Buchanan Street at Cleveland Avenue/ Pierce Street**	TWSC	F	>50 (SB)	C	20.3 (SB)	F	>50 (SB)	C	20.3 (SB)	No
6. San Pablo Avenue at Marin Avenue*	S	E	64.3	E	73.0	E	65.1	E	73.2	No
7. Gilman Street at W. Frontage Road	TWSC	B	14.5 (NB)	C	15.3 (NB)	B	14.7 (NB)	C	15.3 (NB)	
8. Gilman Street at I-80 WB Ramps	TWSC	F	>50 (SB)	F	>50 (SB)	F	>50 (SB)	F	>50 (SB)	No
9. Gilman Street at I-80 EB Ramps	TWSC	C	23.5 (NB)	F	>50 (NB)	C	23.6 (NB)	F	>50 (NB)	No
10. Gilman Street at Eastshore Highway	TWSC	F	>50 (SB)	F	>50 (SB)	F	>50 (SB)	F	>50 (SB)	No
11. Gilman Street at 6th Street*	S	B	16.7	C	24.6	B	16.7	C	26.2	
12. Gilman Street at San Pablo Avenue	S	C	30.9	D	50.0	C	31.2	D	50.4	No
13. University Avenue at Marina Boulevard	TWSC	B	10.3 (WB)	B	13.1 (WB)	B	11.2 (WB)	C	15.1 (WB)	
14. University Avenue at W. Frontage Road**	AWSC	C	23.7	F	>50	D	29.7	F	>50	No
15. University Avenue at I-80 WB Ramps	TWSC	C	21.1 (NB)	D	28.6 (NB)	C	22.7 (NB)	E	43.5 (NB)	Yes (Change in LOS for P.M. peak to LOS E)
16. University Avenue at 6th Street	S	F	>80	F	>80	F	>80	F	>80	Yes (Increase in v/c for A.M. peak by 0.01)
17. University Avenue at San Pablo Avenue	S	D	40.1	E	78.9	D	40.3	F	>80	Yes (Change in LOS for P.M. peak to LOS F)

Source: Wilbur Smith Associates, 2008.

Notes:

* Indicates signalized intersections under Caltrans jurisdictions.
** Indicates that changes were made to intersection geometry so as to enable analysis using the *HCM 2000* methodology.
S – Signalized, TWSC – Two-Way STOP-Controlled, AWSC – All-Way STOP-Controlled.
LOS – Level of Service.
v/c – volume to capacity ratio.
Delay indicates Average Vehicle Delay in seconds per vehicle.
Values in **RED** indicate LOS exceeds acceptable threshold.

Table 4-4
A.M. and P.M. Peak Hour Intersection LOS – Comparison of Year 2030 Conditions with and without Project Alternative B

Study Intersection	Intersection Control	Without Project Scenario				With Project Alternative B				Impacted (Yes/No)
		A.M.		P.M.		A.M.		P.M.		
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	
1. Solano Avenue at Pierce Street	AWSC	F	>50	B	12.1	F	>50	B	12.1	No
2. San Pablo Avenue at Solano Avenue*	S	D	40.7	E	72.1	D	40.6	E	72.4	No
3. Buchanan Street at I-80 WB Ramps *	S	C	31.2	C	22.5	C	31.2	C	22.5	No
4. Buchanan Street at I-80 EB Ramps*	S	B	12.0	B	13.4	B	12.0	B	13.4	No
5. Buchanan Street at Cleveland Avenue/Pierce Street**	TWSC	F	>50 (SB)	D	27.3 (SB)	F	>50 (SB)	D	27.3 (SB)	No
6. San Pablo Avenue at Marin Avenue*	S	E	73.4	F	>80	E	73.7	F	>80	No
8. Gilman Street at W. Frontage Road at I-80 WB Ramps	Roundabout	A	2.9	A	7.3	A	2.9	A	7.3	No
10. Gilman Street at I-80 EB Ramps at Eastshore Highway	Roundabout	A	3.3	B	13.5	A	3.3	B	13.5	No
11. Gilman Street at 6th Street*	S	B	14.2	D	47.0	B	14.2	D	47.1	No
12. Gilman Street at San Pablo Avenue	S	E	65.7	F	>80	E	67.3	F	>80	No
13. University Avenue at Marina Boulevard	TWSC	B	10.9 (WB)	C	18.2 (WB)	B	12.1 (WB)	D	26.6 (WB)	No
14. University Avenue at W. Frontage Road**	AWSC	F	>50	F	>50	F	>50	F	>50	No
15. University Avenue at I-80 WB Ramps	TWSC	F	>50 (NB)	F	>50 (NB)	F	>50 (NB)	F	>50 (NB)	No
16. University Avenue at 6th Street	S	F	>80	F	>80	F	>80	F	>80	No
17. University Avenue at San Pablo Avenue	S	E	63.8	F	>80	E	64.2	F	>80	No

Source: Wilbur Smith Associates, 2008.

Notes:

* Indicates signalized intersections under Caltrans jurisdictions.
** Indicates that changes were made to intersection geometry so as to enable analysis using the *HCM 2000* methodology.
S – Signalized, TWSC – Two-Way STOP-Controlled, AWSC – All-Way STOP-Controlled.
LOS – Level of Service.
Delay indicates Average Vehicle Delay in seconds per vehicle.
Values in **RED** indicate LOS exceeds acceptable threshold.

Table 4-5
A.M. and P.M. Peak Hour Intersection LOS – Comparison of Existing Conditions with and without Project Alternative C

Study Intersection	Intersection Control	Without Project Scenario				With Project Alternative C				Impacted (Yes/No)
		A.M.		P.M.		A.M.		P.M.		
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	
1. Solano Avenue at Pierce Street	AWSC	C	20.1	A	9.3	C	20.1	A	9.3	
2. San Pablo Avenue at Solano Avenue*	S	C	30.7	D	41.8	C	30.7	D	41.8	No
3. Buchanan Street at I-80 WB Ramps *	S	B	19.4	B	16.6	B	19.4	B	16.6	
4. Buchanan Street at I-80 EB Ramps*	S	B	10.2	B	10.5	B	10.2	B	10.5	
5. Buchanan Street at Cleveland Avenue/ Pierce Street**	TWSC	F	>50 (SB)	C	20.3 (SB)	F	>50 (SB)	C	20.3 (SB)	No
6. San Pablo Avenue at Marin Avenue*	S	E	64.3	E	73.0	E	64.3	E	73.2	No
7. Gilman Street at W. Frontage Road	TWSC	B	14.5 (NB)	C	15.3 (NB)	C	16.2 (NB)	C	19.3 (NB)	
8. Gilman Street at I-80 WB Ramps	TWSC	F	>50 (SB)	F	>50 (SB)	F	>50 (SB)	F	>50 (SB)	No
9. Gilman Street at I-80 EB Ramps	TWSC	C	23.5 (NB)	F	>50 (NB)	D	33.5 (NB)	F	>50 (NB)	No
10. Gilman Street at Eastshore Highway	TWSC	F	>50 (SB)	F	>50 (SB)	F	>50 (SB)	F	>50 (SB)	No
11. Gilman Street at 6th Street*	S	B	16.7	C	24.6	B	16.5	C	23.9	
12. Gilman Street at San Pablo Avenue	S	C	30.9	D	50.0	C	31.6	D	51.3	No
13. University Avenue at Marina Boulevard	TWSC	B	10.3 (WB)	B	13.1 (WB)	B	10.3 (WB)	B	13.1 (WB)	
14. University Avenue at W. Frontage Road**	AWSC	C	23.7	F	>50	C	23.7	F	>50	No
15. University Avenue at I-80 WB Ramps	TWSC	C	21.1 (NB)	D	28.6 (NB)	C	21.1 (NB)	D	28.6 (NB)	No
16. University Avenue at 6th Street	S	F	>80	F	>80	F	>80	F	>80	No
17. University Avenue at San Pablo Avenue	S	D	40.1	E	78.9	D	40.1	E	79.9	No

Source: Wilbur Smith Associates, 2008.

Notes:

* Indicates signalized intersections under Caltrans jurisdictions.
** Indicates that changes were made to intersection geometry so as to enable analysis using the *HCM 2000* methodology.
S – Signalized, TWSC – Two-Way STOP-Controlled, AWSC – All-Way STOP-Controlled.
LOS – Level of Service.
Delay indicates Average Vehicle Delay in seconds per vehicle.
Values in **RED** indicate LOS exceeds acceptable threshold.

Table 4-6
A.M. and P.M. Peak Hour Intersection LOS – Comparison of Year 2030 Conditions with and without Project Alternative C

Study Intersection	Intersection Control	Without Project Scenario				With Project Alternative C				Impacted (Yes/No)
		A.M.		P.M.		A.M.		P.M.		
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	
1. Solano Avenue at Pierce Street	AWSC	F	>50	B	12.1	F	>50	B	12.1	No
2. San Pablo Avenue at Solano Avenue*	S	D	40.7	E	72.1	D	40.6	E	72.4	No
3. Buchanan Street at I-80 WB Ramps *	S	C	31.2	C	22.5	C	31.2	C	22.5	No
4. Buchanan Street at I-80 EB Ramps*	S	B	12.0	B	13.4	B	12.0	B	13.4	No
5. Buchanan Street at Cleveland Avenue/Pierce Street**	TWSC	F	>50 (SB)	D	27.3 (SB)	F	>50 (SB)	D	27.3 (SB)	No
6. San Pablo Avenue at Marin Avenue*	S	E	73.4	F	>80	E	73.6	F	>80	No
8. Gilman Street at W. Frontage Road at I-80 WB Ramps	Roundabout	A	2.9	A	7.3	A	4.5	A	9.1	No
10. Gilman Street at I-80 EB Ramps at Eastshore Highway	Roundabout	A	3.3	B	13.5	A	3.7	B	16.0	No
11. Gilman Street at 6th Street*	S	B	14.2	D	49.8	B	14.2	D	49.8	No
12. Gilman Street at San Pablo Avenue	S	E	65.7	F	>80	E	68.1	F	>80	Yes (Increase in v/c for P.M. peak by 0.01)
13. University Avenue at Marina Boulevard	TWSC	B	10.9 (WB)	C	18.2 (WB)	B	10.9 (WB)	C	18.2 (WB)	No
14. University Avenue at W. Frontage Road**	AWSC	F	>50	F	>50	F	>50	F	>50	No
15. University Avenue at I-80 WB Ramps	TWSC	F	>50 (NB)	F	>50 (NB)	F	>50 (NB)	F	>50 (NB)	No
16. University Avenue at 6th Street	S	F	>80	F	>80	F	>80	F	>80	No
17. University Avenue at San Pablo Avenue	S	E	63.8	F	>80	E	63.8	F	>80	No

Source: Wilbur Smith Associates, 2008.

Notes:

* Indicates signalized intersections under Caltrans jurisdictions.
** Indicates that changes were made to intersection geometry so as to enable analysis using the *HCM 2000* methodology.
S – Signalized, TWSC – Two-Way STOP-Controlled, AWSC – All-Way STOP-Controlled.
LOS – Level of Service.
v/c – volume to capacity ratio.
Delay indicates Average Vehicle Delay in seconds per vehicle.
Values in **RED** indicate LOS exceeds acceptable threshold.

Table 4-7
A.M. and P.M. Peak Hour Intersection LOS – Comparison of Existing Conditions with and without Project Alternative D

Study Intersection	Intersection Control	Without Project Scenario				With Project Alternative D				Impacted (Yes/No)
		A.M.		P.M.		A.M.		P.M.		
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	
1. Solano Avenue at Pierce Street	AWSC	C	20.1	A	9.3	D	26.8	A	9.3	
2. San Pablo Avenue at Solano Avenue*	S	C	30.7	D	41.8	C	30.7	D	41.8	No
3. Buchanan Street at I-80 WB Ramps *	S	B	19.4	B	16.6	C	22.6	C	20.8	
4. Buchanan Street at I-80 EB Ramps*	S	B	10.2	B	10.5	B	10.9	B	11.8	
5. Buchanan Street at Cleveland Avenue/ Pierce Street**	TWSC	F	>50 (SB)	C	20.3 (SB)	F	>50 (SB)	C	20.3 (SB)	No
6. San Pablo Avenue at Marin Avenue*	S	E	64.3	E	73.0	E	66.0	E	76.1	Yes (Increase in delay for P.M. peak by 3.1 s)
7. Gilman Street at W. Frontage Road	TWSC	B	14.5 (NB)	C	15.3 (NB)	B	14.5 (NB)	C	15.3 (NB)	
8. Gilman Street at I-80 WB Ramps	TWSC	F	>50 (SB)	F	>50 (SB)	F	>50 (SB)	F	>50 (SB)	No
9. Gilman Street at I-80 EB Ramps	TWSC	C	23.5 (NB)	F	>50 (NB)	C	24.3 (NB)	F	>50 (NB)	No
10. Gilman Street at Eastshore Highway	TWSC	F	>50 (SB)	F	>50 (SB)	F	>50 (SB)	F	>50 (SB)	No
11. Gilman Street at 6th Street*	S	B	16.7	C	24.6	B	16.7	C	24.6	
12. Gilman Street at San Pablo Avenue	S	C	30.9	D	50.0	C	31.0	D	50.8	No
13. University Avenue at Marina Boulevard	TWSC	B	10.3 (WB)	B	13.1 (WB)	B	10.3 (WB)	B	13.1 (WB)	
14. University Avenue at W. Frontage Road**	AWSC	C	23.7	F	>50	C	23.7	F	>50	No
15. University Avenue at I-80 WB Ramps	TWSC	C	21.1 (NB)	D	28.6 (NB)	C	21.1 (NB)	D	28.6 (NB)	No
16. University Avenue at 6th Street	S	F	>80	F	>80	F	>80	F	>80	No
17. University Avenue at San Pablo Avenue	S	D	40.1	E	78.9	D	40.1	E	79.8	No

Source: Wilbur Smith Associates, 2008.

Notes:

* Indicates signalized intersections under Caltrans jurisdictions.
** Indicates that changes were made to intersection geometry so as to enable analysis using the *HCM 2000* methodology.
S – Signalized, TWSC – Two-Way STOP-Controlled, AWSC – All-Way STOP-Controlled.
LOS – Level of Service.
Delay indicates Average Vehicle Delay in seconds per vehicle.
Values in **RED** indicate LOS exceeds acceptable threshold.

Table 4-8
A.M. and P.M. Peak Hour Intersection LOS – Comparison of Year 2030 Conditions with and without Project Alternative D

Study Intersection	Intersection Control	Without Project Scenario				With Project Alternative D				Impacted (Yes/No)
		A.M.		P.M.		A.M.		P.M.		
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	
1. Solano Avenue at Pierce Street	AWSC	F	>50	B	12.1	F	>50	B	12.1	No
2. San Pablo Avenue at Solano Avenue*	S	D	40.7	E	72.1	D	38.7	F	>80	Yes (Change in LOS for P.M. peak to LOS F)
3. Buchanan Street at I-80 WB Ramps *	S	C	31.2	C	22.5	C	33.9	C	28.0	No
4. Buchanan Street at I-80 EB Ramps*	S	B	12.0	B	13.4	B	13.2	B	15.0	No
5. Buchanan Street at Cleveland Avenue/Pierce Street**	TWSC	F	>50 (SB)	D	27.3 (SB)	F	>50 (SB)	D	27.5 (SB)	No
6. San Pablo Avenue at Marin Avenue*	S	E	73.4	F	>80	E	75.2	F	>80	Yes (Increase in v/c for P.M. peak by 0.03)
8. Gilman Street at W. Frontage Road at I-80 WB Ramps	Roundabout	A	2.9	A	7.3	A	2.9	A	7.4	No
10. Gilman Street at I-80 EB Ramps at Eastshore Highway	Roundabout	A	3.3	B	13.5	A	3.3	B	13.7	No
11. Gilman Street at 6th Street*	S	B	14.2	D	54.0	B	14.2	D	47.2	No
12. Gilman Street at San Pablo Avenue	S	E	65.7	F	>80	E	65.9	F	>80	No
13. University Avenue at Marina Boulevard	TWSC	B	10.9 (WB)	C	18.2 (WB)	B	10.9 (WB)	C	18.2 (WB)	No
14. University Avenue at W. Frontage Road**	AWSC	F	>50	F	>50	F	>50	F	>50	No
15. University Avenue at I-80 WB Ramps	TWSC	F	>50 (NB)	F	>50 (NB)	F	>50 (NB)	F	>50 (NB)	No
16. University Avenue at 6th Street	S	F	>80	F	>80	F	>80	F	>80	No
17. University Avenue at San Pablo Avenue	S	E	63.8	F	>80	E	63.9	F	>80	No

Source: Wilbur Smith Associates, 2008.

Notes:

* Indicates signalized intersections under Caltrans jurisdictions.
** Indicates that changes were made to intersection geometry so as to enable analysis using the *HCM 2000* methodology.
S – Signalized, TWSC – Two-Way STOP-Controlled, AWSC – All-Way STOP-Controlled.
LOS – Level of Service.
v/c – volume to capacity ratio.
Delay indicates Average Vehicle Delay in seconds per vehicle.
Values in **RED** indicate LOS exceeds acceptable threshold.

The tables compare LOS at 17 critical intersections in the study area and indicate if intersections operating at LOS F would experience greater delays because of the ferry terminal alternatives. Peak hour traffic turning movements for each study intersection under existing and 2030 conditions are presented in Appendix E. The following paragraphs discuss whether any potential adverse traffic impacts would result from construction, operation, or cumulative effects of the ferry terminal alternatives.

Construction Impacts

Impact 1: Potential to cause temporary traffic impacts during construction.

Alternative A. Traffic circulation into and out of the Berkeley Marina and the Doubletree Hotel would be maintained during project construction. Marina Boulevard would not be blocked or have circulation impeded during this period. No adverse impacts on traffic circulation would occur as a result of project construction activities.

Alternative B. Traffic circulation along University Avenue to the Berkeley Fishing Pier would be unaffected by project construction. The roadway serving the Waterfront and Berkeley Marina businesses would remain open. No adverse impacts on traffic circulation would occur as a result of project construction activities.

Alternatives C and D. Traffic circulation on Gilman and Buchanan Streets would remain unchanged during ferry terminal construction, maintaining access to Golden Gate Fields and surrounding recreational uses. No adverse impacts on traffic circulation would occur as a result of project construction activities.

CEQA Determination: No significant or potentially significant impacts would occur as a result of project construction activities.

Operations and Cumulative Impacts and Mitigation

As indicated under the No-Action Alternative, eight critical intersections currently operate unsatisfactorily, and nine are expected to have deficient operation in 2030. The addition of ferry terminal traffic to the 17 study intersections is projected to have different impacts for each of the four ferry terminal alternatives for existing conditions and for 2030 conditions as described below. As mentioned earlier, the 2030 conditions include an annual growth factor of 1 percent.

Impact 2: Potential to cause traffic impacts at key study area intersections.

Alternative A. As indicated in Table 4-1, three of the 17 study intersections are projected to be affected by Alternative A given existing traffic conditions:

- Intersection 15 (University Avenue at I-80 WB ramps)
- Intersection 16 (University Avenue at Sixth Street)
- Intersection 17 (University Avenue at San Pablo Avenue)

The incremental increase in project-related traffic at Intersections 15, 16, and 17 would produce adverse effects at project start-up according the analysis criteria stated above. As indicated in Table 4-2, these intersections are expected to deteriorate to LOS F during the planning period without the project. Compared with the growth in area traffic volumes over the planning period, the relatively minor increase produced by Alternative A would not exceed the local threshold, which is an increase in the v/c ratio of 0.01 or more at an intersection already forecast to operate at LOS F.

Alternative B. Alternative B would have impacts similar to those described for Alternative A (Table 4-3). Three intersections along University Avenue—Intersection 15 (I-80 WB ramps), Intersection 16 (Sixth Street), and Intersection 17 (San Pablo Avenue)—would be affected by ferry traffic under existing conditions. As described for Alternative A, traffic conditions at these intersections are expected to deteriorate over the long term to LOS F without the project. As indicated in Table 4-4, compared with the growth in area traffic volumes over the planning period, the relatively minor increase in traffic produced by Alternative B would not exceed the local threshold, an increase in the v/c ratio of 0.01 or more at an intersection already forecast to operate at LOS F.

Alternative C. Table 4-5 indicates that, under existing conditions, Alternative C would not produce adverse traffic impacts on study intersections. However, in 2030, Alternative C would produce sufficient incremental increase in traffic to adversely affect Intersection 12 (Gilman Street and San Pablo Avenue), which is expected to operate at LOS F in 2030 (Table 4-6). Ferry traffic would increase the v/c ratio by 0.01, the defined impact threshold, an adverse impact.

Alternative D. As indicated in Table 4-7, under existing conditions, Alternative D is expected to adversely affect one intersection: Intersection 6 (San Pablo Avenue and Marin Avenue). Average vehicle delay during the p.m. peak traffic hour is projected to increase by 3.1 seconds, which exceeds the significance threshold for intersections that operate at LOS E, an adverse impact.

Table 4-8 indicates that under 2030 conditions, two intersections would be adversely affected by traffic generated for Alternative D: Intersection 2 (San Pablo Avenue and Solano Avenue) and Intersection 6 (San Pablo Avenue and Marin Avenue). Ferry operation would substantially increase traffic at Intersection 2, reducing LOS from E to F during the p.m. peak traffic hour. At Intersection 6, the v/c ratio would increase by 0.03, producing an adverse impact according to the defined impact criteria.

Mitigation. For Alternative A, the analysis indicates that minor refinements to intersection traffic controls or intersection design would mitigate the potential impacts at Intersections 16 and 17, but these refinements may not completely mitigate the unsatisfactory operation of the I-80 WB ramps at University Avenue/Frontage Road Intersection 15 (refer to the Transportation Technical Report).

For Alternative B, potential adverse impacts at Intersections 16 and 17 could be mitigated with minor traffic signal timing changes, but, as described for Alternative A, traffic control and intersection redesign could not, at project start-up, successfully mitigate the potential adverse impacts at Intersection 15.

For Alternative C, one potential significant traffic impact was identified at Gilman/San Pablo (Intersection 12) over the long term (2030). This impact cannot be successfully mitigated.

For Alternative D, under existing conditions, potential traffic impacts at San Pablo/Marin would be reduced to a less-than-significant level by re-timing the signal (Wilbur Smith, 2008). However, long-term (2030) project-related traffic impacts at San Pablo/Solano and San Pablo/ Marin could not be mitigated.

CEQA Determination. For Alternative A, potential traffic impacts resulting from project implementation under existing conditions could be mitigated to a less-than-significant level at Intersections 16 and 17, but not completely at Intersection 15, an unavoidable impact. However, over the long term, Intersection 15 would deteriorate to unacceptable levels without the project. The contribution of traffic resulting from Alternative A would not generate substantial traffic volumes to exceed the impact threshold. Therefore, no long-term or cumulative traffic impacts would occur at Intersection 15.

For Alternative B, potential adverse impacts at Intersections 16 and 17 could be mitigated to a less-than-significant level, but not completely at Intersection 15, an unavoidable impact. However, over the long term, Intersection 15 would deteriorate to unacceptable levels without the project. The contribution of traffic resulting from Alternative B would not generate substantial traffic to exceed the impact threshold. Therefore, no long-term or cumulative traffic impacts would occur at Intersection 15.

For Alternative C, one potential significant traffic impact was identified at Gilman/San Pablo (Intersection 12) over the long term (2030). This impact cannot be successfully mitigated, and would therefore be unavoidable.

For Alternative D, under existing conditions, potential traffic impacts at San Pablo/Marin would be reduced to a less-than-significant level by re-timing the signal (Wilbur Smith, 2008). However, long-term (2030) project-related traffic impacts at San Pablo/Solano and San Pablo/ Marin could not be mitigated, and would therefore be unavoidable.

4.1.2 Parking

METHODOLOGY

Parking demands for a ferry terminal serving the Berkeley/Albany waterfront area are projected to require approximately 400 spaces, including several spaces designated for the disabled. The patronage forecast assumed a $2 daily parking charge for ferry patrons. For the purposes of this analysis, the cities of Berkeley and Albany agreed to a common definition of adverse impacts for parking as described below.

On-Street Parking Significance Criteria. Analysis of on-street parking is required if the net peak hour vehicle trips generated by the project exceed 25. The ferry terminal project is estimated to generate 152 vehicle trips during both the a.m. and p.m. peak traffic hours and has therefore been analyzed in this document.

Off-Street Parking Significance Criteria. Analysis of off-street parking, circulation, and project driveway are required regardless of the number of trips generated by the project. The City of Berkeley has established specific off-street parking requirements for different zoning classifications

and land use types. The classifications consider the demand for off-street parking and the desire to promote the use of alternative modes of travel. Required parking based on the zone where the development site is located should always be the starting point, and any proposed deductions should be thoroughly justified. Parking reductions and high modal splits have to be justified separately.

Site plans for each alternative presented in Chapter 2 indicate the proposed location of ferry terminal parking. As mentioned previously, parking areas are sized to accommodate peak ferry patron demand and are placed adjacent to the ferry terminal entry. 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 LPA is chosen and the next phase of project development commences. Designated parking areas 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 LPA.

Each site often incorporates existing parking or asphalt areas into the site plan, existing spaces that may be currently used by business patrons or recreational users. An adverse impact would occur if on-street parking were displaced by the project or if the project reduced off-street parking to substantially affect access to residences, recreational uses, and businesses that could detrimentally affect their client base.

NO-ACTION ALTERNATIVE

The No-Action Alternative would retain parking along the Berkeley-Albany waterfront in the current areas as presently configured and designed. With the exception of the Gilman Street Playing Fields parking area being constructed at the foot of Gilman Street, no development plans have been approved that would alter this arrangement.

ACTION ALTERNATIVES

Construction Impacts and Mitigation

Impact 3: Potential to temporarily displace existing parking at nearby businesses or residences.

Alternative A. Multiple parking spaces along the Berkeley Marina at the location of the bus transit center and in the south end of the existing Doubletree Hotel Lot would be temporarily displaced by construction activities, therefore an adverse impact is possible.

Alternative B. The parking area adjacent to the Berkeley Fishing Pier would be restriped to accommodate ferry patrons. Restriping would be scheduled to allow adequate parking for the restaurants in the area. As a result, no temporary adverse impacts on parking would occur.

Alternatives C and D. Construction would occur in existing parking areas that are not fully used. Access to these parking areas would be maintained during construction. No temporary adverse impact on parking would occur.

Mitigation. For Alternative A, signage to advise drivers of alternative parking available in the vicinity (Lots 4 through 8, as illustrated in Figure 3-4) would mitigate the temporary impact to parking spaces caused by construction activities.

CEQA Determination. Potential construction impacts on parking for Alternative A could be reduced to a less-than-significant level with mitigation. No other construction-related parking impacts would occur.

Operations and Cumulative Impacts and Mitigation

Impact 4. Potential to permanently displace existing parking at nearby businesses or residences.

As indicated in Section 2.4.1, the travel demand forecast for Alternative 17 estimated the parking demand at all Berkeley-Albany site alternatives to be 388 spaces. The following analysis describes potential adverse impacts on businesses and other users of existing parking that would be incorporated into the project's designated parking area at each terminal site.

Alternative A. A total of 1,096 spaces, including spaces that are used by guests of the Doubletree Hotel, exist in the area surrounding the Doubletree Hotel. The site plan for Alternative A proposes to reassign a total of 400 parking spaces in three locations for ferry patron use: (1) 200 spaces along the unstriped area on the east side of Marina Boulevard; (2) 96 spaces in the parking area adjacent to the Berkeley Marina on the west side of Marina Boulevard; and (3) 104 spaces in the Doubletree Hotel's surface lot just south of the porte cochere. Only the spaces on the east side of Marina Boulevard could be used for ferry patron parking without affecting Doubletree Hotel and Berkeley Marina patrons.

Alternative B. The proposed parking plan for Alternative B is to re-stripe Lots 4B and 5B (see Figure 3-4), increasing the number of total spaces from 410 to 470 spaces. This concept would retain 70 spaces in the re-striped lots for Hs Lordships patrons. Parking along the waterfront for recreational users south of the Berkeley Fishing Pier would be reassigned for ferry patron use. The viability of the restaurant would be compromised with Alternative B's limited amount of adjacent parking for Hs Lordships patrons, particularly during the weekday lunch period.

More than 700 parking spaces currently exist in the vicinity of Alternative B. Accepting increased walking distances for restaurant patrons and recreation users could help to address the estimated parking demand. This option would include the use of 50 spaces each of Lots 2 and 3, the possibility to use 50 spaces on weekdays at the Sailing Club, and the potential to develop 80 on-street spaces along University Avenue. This option would have to be complemented by parking policies and enforcement to prevent use by ferry patrons of the area intended for Hs Lordships patrons.

Alternative C. While Alternative C displaces Golden Gate Field stables, it does not displace any parking resources, and therefore does not affect parking availability immediately south of the

racetrack. The bountiful parking supply could also accommodate future increased patronage at the racetrack, where no other development is currently planned.

Alternative D. The site is currently lightly used. On a typical weekday and weekend, fewer than 10 cars and several charter buses were observed parking on this lot. Alternative D would require only a small portion of the existing parking lot to be used for ferry parking, retaining most of the lot for Golden Gate Field patrons. The bountiful parking supply could also accommodate future increased patronage at the racetrack, where no other development is currently planned.

Mitigation. For Alternative A, potential impacts to parking for Doubletree Hotel and Berkeley Marina patrons could be mitigated through supply management measures, including enforcement of free parking resources and a parking availability information system. Negotiations with the hotel and Berkeley Marina might lead to a mutual agreement on the use of spaces in Lots 2A and 3A (see Figure 3-4). In addition, negotiations could provide agreement on use of approximately 50 spaces in Lot 7A and 100 spaces in Lot 6A, which are farther away from the ferry terminal and Doubletree Hotel front entry, as well as other available areas of Lots 4A, 5A, and 8A. Growth in recreation use could be accommodated at this site since most of the spaces required for recreation users would be used primarily on weekends when ferry service demand would be lower.

For Alternative B, demand management strategies could help to reduce the park and ride demands for the ferry service, including the use of valet parking on those days with high volumes of lunchtime clients. Bicycle and transit/shuttle enhancements combined with parking pricing could also be instituted. A combination of the aforementioned mitigation strategies would minimize potential impacts to restaurant patrons and to recreation users. Growth in recreation use at this site could be accommodated because most of the spaces required for recreation users would be used on weekends when ferry service demand would be lower.

If WETA selects either Alternative A or Alternative B as the LPA, WETA will negotiate with the City of Berkeley, the property owner, and if appropriate, the businesses that are lessees and are currently using this parking, to assume control and responsibility of the designated ferry terminal parking area. As a part of the Final EIS, WETA will develop and implement a Parking Mitigation Plan that addresses potential parking impacts on adjacent uses, particularly nearby businesses.

CEQA Determination. For Alternatives A and B, mitigation measures would reduce potential parking impacts on adjacent businesses and on recreation users to a less-than-significant level. For Alternatives C and D, no significant parking impacts would occur.

4.1.3 Transit

METHODOLOGY

AC Transit load factor standards are used to determine whether the ferry project would overcrowd AC Transit buses serving each of the ferry terminal alternative sites, thereby creating

an adverse impact on transit service. Specifically, an adverse impact would occur if the number of ferry riders using transit to access ferry service would contribute to passenger loads on buses greater than the AC Transit load factor standard. The analysis assumes that existing transit routes in the vicinity of the ferry terminal alternative sites and the AC Transit load factor standard would remain unchanged with or without the project. The analysis also assumes that WETA is committed to providing shuttle service between bus connections and the ferry as appropriate. The analysis focuses on peak periods, because the commute period is when the most substantial numbers of ferry riders are likely to use AC Transit service to access the ferries. Mitigation strategies are proposed if an adverse impact on AC Transit is likely to occur.

Significance Criteria. A load factor standard of 1.25 is used, representing buses at seated capacity plus 25 percent standees. Buses that exceed this threshold are considered to be overcrowded. This standard applies to all bus routes that would serve the ferry terminal alternative sites, as indicated in Table 4-9.

NO-ACTION ALTERNATIVE

The No-Action Alternative would not alter the transit service in the study area and would not produce adverse impacts on transit.

ACTION ALTERNATIVES

Construction Impacts and Mitigation

Impact 5: Potential for construction activities to temporarily disrupt existing transit service.

Alternatives A through D. Currently, AC Transit operates only one bus route that approaches the ferry terminal sites. Route 9 has stops close to Alternatives A and B, Berkeley Marina and Berkeley Fishing Pier sites, respectively. The route terminates at the foot of University Avenue near Skates Restaurant. Construction activities at Alternative A would be several blocks distant from Route 9, and would therefore not affect its operation. Development of the parking area for Alternative B could interfere with Route 9 operations at the terminal location, potentially producing temporary adverse impacts.

Mitigation. To prevent interference with bus movements at this location, flagmen would be assigned to the construction area where materials and supplies would be moved into and out of the parking area adjacent to the Berkeley Fishing Pier site. If construction activities require repaving or use of the area where Route 9 currently terminates, WETA will work with AC Transit to temporarily relocate the terminal location and provide signage for bus drivers and riders to locate the temporary terminal.

CEQA Determination. With mitigation, the temporary impacts to Route 9 from construction activities at Alternative B would be reduced to a less-than-significant level.

Table 4-9
Weekday Maximum Load Points for Routes 9 and 18

Direction		Current Load at Highest Maximum Load Point	Maximum Number of Riders Transferring to/from Ferry	Total Ridership	Location	Current Load Factor	New Load Factor
Route 9 – Transit Service Study Area – Weekday Load Points							
A.M. Peak	EB	22	2	24	6th-Gilman-Hopkins	0.56	0.62
	WB	26	21	47	Ashby-San Pablo-Dwight	0.67	1.21
P.M. Peak	EB	13	15	28	Dwight-San Pablo-Ashby	0.33	0.72
	WB	12	9	21	Hopkins Street and Gilman Street	0.31	0.54
Off Peak	EB	23	6	29	Dwight-San Pablo-Ashby	0.59	0.74
	WB	18	21	39	Hopkins Street and Gilman Street	0.46	1.00
Route 9 – Transit Service Study Area – Weekday Load Points							
A.M. Peak	EB	16	2	18	Buchanan-San Pablo-Solano-Alameda	0.33	0.38
	WB	19	21	40	Solano-Alameda-Buchanan-San Pablo	0.40	0.83
P.M. Peak	EB	14	15	29	Buchanan-San Pablo-Solano-Alameda	0.29	0.60
	WB	30	9	39	Solano-Alameda-Buchanan-San Pablo	0.63	0.81
Off Peak	EB	14	6	20	Buchanan-San Pablo-Solano-Alameda	0.29	0.42
	WB	23	21	44	Solano-Alameda-Buchanan-San Pablo	0.48	0.92

Source: AC Transit Planning Department data collected at various times in period from August 2003 to March 2007.

Load points are based on the single trip with the highest load within each peak/off-peak period and within each study area.

Information for each route was collected within different time frames and may not represent a 100 percent sample of all scheduled trips.

Operations and Cumulative Impacts and Mitigation

The Programmatic EIR for implementing regional ferry service projected more than 1,700 weekday riders using the Berkeley/Albany ferry service to San Francisco. Of this total, 19 percent would also use the bus to complete their trips. Assuming many of these ferry patrons are new transit riders, the ferry service would provide an alternative to the automobile and increase transit use, a beneficial impact. A discussion of the project's effect on AC Transit is presented below.

Impact 6: Potential to adversely affect transit operations and ridership.

WETA will provide shuttle service to accommodate ferry patrons who are estimated to use transit for their journeys to and from the ferry terminal. The approximately 330 weekday transit riders would be shuttled between the nearest bus stop or intermodal facility and the ferry terminal. Since most of the patrons are expected to be from the surrounding communities, most of the shuttle riders would be expected to transfer to nearby AC Transit routes as indicated below.

Alternatives A through D. The bus routes that travel closest to the ferry terminal sites and the load factors for these routes are indicated in Table 4-9. Although many transit riders are likely to use WETA shuttles to access the ferries, it is important to determine if nearby AC Transit routes have capacity to carry additional riders. For Alternatives A, B, and C, the closest AC Transit line running near these ferry terminal sites is the 9 line. With the project, the 9 line (EB) would have a maximum load factor of 0.62 in the a.m. peak and 0.72 in the p.m. peak, while the 9 line (WB) would have a maximum load factor of 1.21 in the a.m. peak and 0.54 in the p.m. peak. For Alternative D, the closest AC Transit line running near the ferry terminal site is the 18 line. As noted in Table 4-9, the 18 line (EB) would have a maximum load factor of 0.38 in the a.m. peak and 0.60 in the p.m. peak, while the 18 line (WB) would have a maximum load factor of 0.83 in the a.m. peak and 0.81 in the p.m. peak.

The number of additional transit riders, ferry patrons transferring between the ferries and AC Transit buses on WETA shuttles, is estimated to be more than 300 per day. An additional 30 passengers are expected to walk between buses and the ferry terminal. Since load factors on AC Transit routes in the study area are quite low, ferry patrons using AC Transit are not expected to increase load factors so substantially that they approach or exceed the AC Transit Maximum Load Factor Standard of 1.25. Similarly, growth in AC Transit ridership in the study area combined with additional riders traveling to and from the ferries is not expected to contribute to cumulative impacts.

CEQA Determination. None of the ferry terminal alternatives would produce significant impacts on transit operations.

4.1.4 Bicycle and Pedestrian Circulation

METHODOLOGY

Analysis of pedestrian and bicycle impacts is required regardless of the number of new trips generated. Impacts on alternative modes can result from projects that in themselves generate a significant number of trips for these modes or that are located on roadways that have been designated to serve these modes of travel. The assessment of impacts may be based on one or more of the following factors: (1) counts for bicycle and pedestrian movements; (2) street width; (3) collision history; (4) approved land use and transportation plans; and (5) approved capital improvement projects. In addition, the project could potentially produce adverse impacts on existing or future facilities designated to serve these modes of travel.

Analysis Threshold. Criteria from AASHTO's *Guide for the Development of Bicycle Facilities*, 1999, and Caltrans *Highway Design Manual*, 6th Edition, September 1, 2006, were used to assess potential bicycle and pedestrian impacts and recommend potential mitigation measures for the four ferry terminal alternatives. The major pedestrian pathway in the vicinity of the terminal sites is the Bay Trail. Disruption or interference with the Bay Trail, either by construction or implementation of the ferry terminal site plan, would also be considered an adverse impact. The Bay Trail impact assessment is provided in Section 4.4, Parklands and Recreational Facilities.

NO-ACTION ALTERNATIVE

No change to bicycle and pedestrian circulation would occur in the study area under the No-Action Alternative except for extension of the Bay Trail along the Berkeley/Albany waterfront, a beneficial impact.

ACTION ALTERNATIVES

Construction Impacts and Mitigation

Impact 7: Potential for construction activities to adversely affect bicycle and pedestrian circulation.

Alternatives A through D. Construction of the ferry terminal alternatives could potentially cause disruption to pedestrian and bicycle access through temporary closure of sidewalks and pathways, narrowing of adjacent roadways, and/or degradation of paving surfaces.

Mitigation. Access through the project site for pedestrians and bicyclists will be maintained during construction by minimizing sidewalk and pathway closures, providing suitable alternatives for necessary closures, and maintaining pavement surfaces in the construction zone so as not to be a hazard to pedestrians and bicyclists. Pedestrian and/or bicycle detour signage may be necessary to denote the temporary detour route for these modes.

CEQA Determination. With mitigation, construction impacts would be reduced to a less-than-significant level.

Operations Impacts and Mitigation

Impact 8: Potential to permanently affect bicycle circulation in the study area.

As indicated in Section 2.4.4, project-related bicycle or pedestrian facilities would be 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 (FHWA and California Supplement) – Provides standards for striping and signage of bicycle lanes, bicycle routes, and shared-use paths.

- 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.

After selection of the LPA is made, refinements to bicycle and pedestrian circulation will be considered for the LPA and, if required, additional analysis conducted and presented in the Final EIS/EIR

By following these guidelines, bicycle and pedestrian facilities would be readily identified and designed to optimize the safety of the users. Potential adverse impacts to bicycle and pedestrian circulation at each alternative site are described below.

Alternative A. *The Berkeley Bicycle Plan* (February 22, 2005) designates future bicycle lanes on Marina Boulevard between University Avenue and Spinnaker Way. Although the striping of bicycle lanes on Marina Boulevard is not necessarily the responsibility of this project, adequate road right-of-way will be maintained to accommodate these lanes in the future. The site design will also facilitate bike access to and from the ferries. In addition, the site plan design will incorporate pedestrian pathways that include striped crosswalks, signage, and adequate lighting to ensure visibility of pedestrians walking between the ferry terminal and the parking area. The Alternative A site plan (Figure 2-8) indicates the location of the proposed bike lane, Bay Trail, and pedestrian circulation through the area. The site plan incorporates and accommodates all existing and proposed pedestrian and bicycle plans identified in Figure 3-6. Therefore, no long-term adverse impacts to bicycle and pedestrian circulation would result from implementing this alternative.

Alternative B. An existing segment of the San Francisco Bay Trail follows Seawall Drive. Because it is unimproved and narrow, it is not suitable for sharing between bicyclists and pedestrians. Adequate road right-of-way will be maintained into and through the parking area to accommodate bicyclists and to facilitate bike access to and from the ferries. Safe passage of pedestrians and bicyclists will be provided by use of striped crosswalks, signage, and adequate

lighting to ensure visibility of pedestrians. The Alternative B site plan (Figure 2-10) indicates the location of the Bay Trail and pedestrian circulation paths (no bicycle facilities exist or are planned through this site). The site plan incorporates and accommodates all existing and proposed pedestrian plans identified in Figure 3-6. Therefore, no long-term adverse impacts to bicycle and pedestrian circulation would result from implementing this alternative.

Alternative C. This project site is located along a future segment of the San Francisco Bay Trail that would provide a bicycle and pedestrian connection between Buchanan Street and the existing San Francisco Bay Trail, which currently terminates at Gilman Street. The site plan indicates a future connection of the Bay Trail through the project site. Adequate road right-of-way will be maintained into and through the parking area to accommodate bicyclists and to facilitate bike access to and from the ferries. Pedestrian pathways to the ferry terminal will contain striped crosswalks, signage, and adequate lighting to ensure visibility of pedestrians. The Alternative C site plan (Figure 2-11) indicates the location of the Bay Trail and pedestrian circulation paths (no bicycle facilities exist or are planned through this site). The site plan incorporates and accommodates all existing and proposed pedestrian plans identified in Figure 3-6. Therefore, no long-term adverse impacts to bicycle and pedestrian circulation would result from implementing this alternative.

Alternative D. The existing Bay Trail pedestrian pathway along the water's edge would be retained for pedestrian access. Pedestrian pathways to the ferry terminal will contain striped crosswalks, signage, and adequate lighting to ensure visibility of pedestrians. The site design will accommodate bicyclists traveling through the parking area to arrive at the ferry plaza. Pedestrian crossing(s) would be provided at logical pedestrian access points between the ferry plaza and the parking area and include striped crosswalks, signage, and adequate lighting to ensure visibility of pedestrians. The Alternative D site plan (Figure 2-12) indicates the location of the Bay Trail and pedestrian circulation paths (no bicycle facilities exist or are planned through this site). The site plan incorporates and accommodates all existing and proposed pedestrian plans identified in Figure 3-6. Therefore, no long-term adverse impacts to bicycle and pedestrian circulation would result from implementing this alternative.

CEQA Determination. No significant bicycle or pedestrian impacts would occur under Alternatives A through D.

Cumulative Impacts and Mitigation

Alternatives A through D. Cumulative pedestrian and bicycle impacts would not result from use of the Bay Trail in combination with use of waterfront areas at the terminal sites because terminal area improvements will incorporate the Bay Trail alignment, which will be designed to address the increase in recreational users and allow continued and unobstructed use. In addition, the pedestrian and bicycle improvements that the cities and regional agencies are planning along the Berkeley/Albany waterfront would create cumulative beneficial effects at the terminal sites.

CEQA Determination. No cumulative pedestrian and bicycle impacts would occur.

4.2 LAND USE, PLANS, AND POLICIES

This section discusses the potential impacts of the ferry terminal alternatives on land uses within the project area. The focus of the analysis is on the project components that are on the landside, which primarily consist of the ferry plaza, bay trail, bus and car drop off, and parking areas.

4.2.1 Methodology

The analysis in this section focuses on the compatibility of land uses between existing and planned land use proposed for the project area. To determine the potential impacts, a review was performed of how the land use would be changed by the proposed project, along with a consistency review of applicable plans, policies, or regulations. Currently, the Berkeley Marina and Pier sites have a land use designation of "Waterfront/Marina" and zoning designation of "Unclassified." The Gilman Street site currently has a land use designation of "Waterfront/ Marina" and zoning designation of "Specific Plan." The Buchanan Street site has a land use designation of "Park and Recreation" and a zoning designation of "Waterfront."

4.2.2 Significance Criteria

The proposed project would have potentially adverse impacts on the environment if it would do any of the following:

- Cause community disruption resulting in the displacement of existing houses or businesses, either directly or indirectly.
- Disrupt community cohesion by physically dividing or otherwise substantially disrupting a community, either directly or indirectly.
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

The analysis in this section has been performed to address each of the criteria listed above, to determine potential impacts under NEPA and CEQA guidance.

4.2.3 Impacts and Mitigation

4.2.3.1 No-Action Alternative

Under the No-Action Alternative, the Project Alternatives would not be implemented, and land use would not change. The No-Action Alternative would not result in new development and would not cause displacement of existing houses or businesses; physically divide a community; conflict with any applicable land use plan for the project area; or alter or conflict with existing

planning documents, policies, and regulations. Therefore, the No-Action Alternative would not result in adverse direct or indirect land use impacts.

4.2.3.2 Action Alternatives

Construction Impacts and Mitigation

Impact 1: The potential to temporarily affect or displace land uses in and near the project sites due to construction activities.

Construction activities associated with implementation of all ferry terminal alternatives would require landside and waterside construction activities. Landside activities would consist of parking lot striping and repaving, ferry plaza construction, and Bay Trail incorporation into the design of the ferry terminal alternatives. Waterside construction activities would consist of pier driving associated with the construction of the enclosed pier and gangway, and dredging to create a navigable channel.

Alternative A. Construction activities at the Berkeley Marina site could impede access to the Bay Trail, The Berkeley Yacht Club, The Doubletree Hotel, and Hs Lordships Restaurant. Impediments to access could include construction equipment or trucks hauling, picking up, and dropping off materials, and blocking entrances to local business and facilities. Construction activities may temporarily disrupt the established business and facilities at the Berkeley Marina area. Furthermore, it is expected that access to the area would be maintained as much as possible. As a result, no adverse impacts are anticipated.

Alternative B. As with the Berkeley Marina site, the construction activities mentioned above could disrupt the business practices of Hs Lordships Restaurant. However, because construction activities are temporary, no permanent or substantial disruption to Hs Lordships Restaurant and no physical division of the area or displacement of business would occur. Therefore, no adverse impacts are anticipated.

Alternative C. The construction of the parking lot would be the main construction activity at the Gilman Street site. It would temporarily disrupt and impede access to a few existing horse stables. The disrupted horse stables would be relocated to another area of the property rather than be displaced, because adequate land exists to accommodate this change. Therefore, no adverse impacts are anticipated.

Alternative D. Construction activities at the Buchanan Street site, such as the striping and repaving of the parking lot area and the construction of the ferry plaza, would not result in the division or displacement of an established community as none exist in the area. Therefore, no potentially adverse impacts are anticipated.

CEQA Determination. No significant land use impacts resulting from construction would occur.

Operations Impacts and Mitigation

COMMUNITY DISRUPTION AND DISPLACEMENT

Impact 2: The potential to disrupt or displace existing land uses or communities.

Alternative A. The Berkeley Marina site is owned by the City of Berkeley and currently consists of a marina with docks, yachts, moorings, the Doubletree Hotel, a restaurant, a parking lot, and an unimproved portion of the Bay Trail. The Hornblower dock is proposed to be moved approximately 250 feet northwest from its current location at the Berkeley Marina to an area along the same dock. In addition, approximately eight slips within the Marina would be displaced.

The Berkeley Marina site would use approximately 104 parking spaces which are currently being used by the Doubletree Hotel. This would result in a net loss of parking spaces for the Doubletree Hotel unless a shared parking lot agreement is implemented between the project proponent and the Doubletree Hotel. The land use of the parking lot would not change due to implementation of the ferry terminal alternative at the Berkeley Marina site. Therefore, no adverse impacts on land use are anticipated (see Section 4.1, Transportation and Circulation; and Section 4.3, Socioeconomics).

Alternative B. The Berkeley Fishing Pier site is owned by the City of Berkeley and consists of a parking lot, Seawall Drive, and Shorebird Park. It is adjacent to an unimproved portion of the Bay Trail and Hs Lordships Restaurant. No adverse impacts would occur at this site because no established residential community would be divided or displaced as a result of this alternative.

As with the Berkeley Marina site, parking issues would not result in an adverse impact because no change in land use would occur. This issue is further explored in Section 4.1, Transportation and Circulation; and Section 4.3, Socioeconomics.

Alternative C. The Gilman Street site is owned by Magna Corporation and currently consists of a parking lot and a large paved area used by Golden Gate Fields for ancillary buildings. These ancillary buildings consist of temporary and permanent horse stables connected to sporting events at Golden Gate Fields. The parking lot for the Gilman Street site would require the relocation of approximately four permanent horse trailers. Though not considered an established community, the relocation of the horse trailers would be the responsibility of the project proponent, because these horse trailers are directly connected to an established business at Golden Gate Fields. This would include negotiations with the owners of Golden Gate Fields. As it appears that there is adequate land at Golden Gate Fields to relocate the horse stables, no displacement would occur, and no adverse land use impacts would occur. This issue is further discussed in Section 4.3, Socioeconomics.

Alternative D. The Buchanan Street site currently consists of a large parking lot. None of the current land uses at this site are residential or commercial in nature, nor are they representative of a community. Therefore, implementation of this ferry terminal alternative would not result in

the displacement or division of an established community or business, and no potentially adverse impacts are anticipated.

CEQA Determination. No significant community disruption and displacement of land uses would occur from project operation.

LAND USE COMPATIBILITY WITH PLANS, POLICIES AND REGULATIONS

Impact 3: The potential to conflict with existing plans, policies and regulations that govern the areas at and near the ferry terminal alternatives.

The plans identified below are described in Section 3.2.

San Francisco Bay Plan (2003)

Alternatives A, B, and D. Transportation Policy 5 in the Plan states that ferry terminals should be sited at locations that are near navigable channels, which would not rapidly fill with sediment, and would not significantly impact tidal marshes, tidal flats, or other valuable wildlife habitat. According to the Phase 1 Site Alternative Analysis, the Berkeley Marina site would require 77,000 cubic yards of dredge volume to be considered navigable, while the Berkeley Fishing Pier site would require 18,000 cubic yards of dredge volume. Neither site contains tidal marshes, tidal flats, or valuable wildlife which could be adversely impacted due to implementation of these ferry terminal alternatives. Since both sites would be navigable after dredging, and do not contain tidal marsh areas or valuable wildlife habitats, the ferry terminal alternatives would be consistent with Transportation Policy 5 and no potentially adverse impacts are anticipated.

According to the BCDC, a permit is needed for any development in and within 100 feet of the Bay. Since all elements of the ferry terminal alternative sites are within the jurisdiction of the BCDC, all elements would have to be permitted (McCrae, 2007). BCDC has stated that a ferry terminal is a compatible land use with their Bay Plan (McCrae, 2007). Because the proposed project would be compliant with the BCDC permitting process, no potentially adverse impacts are anticipated.

Alternative C. In addition to the permit requirement mentioned above, Alternative C contains a significant amount of valuable wildlife habitat in the form of eelgrass. According to the Phase 1 Site Alternative Analysis, a significant impact would occur if any portion of the eelgrass area was impacted by ferry service. Potential adverse impacts on eelgrass are analyzed and mitigations are proposed in Section 4.9, Biological Resources.

CEQA Determination. The project is compatible with the San Francisco Bay Plan and will not conflict with plan policies. No potentially significant impacts would occur for Alternatives A, B, or D. For Alternative C, implementation of eelgrass mitigations included in Section 4.9, Biological Resources, would result in compliance with Transportation Policy 5 in the San Francisco Bay Plan and reduce potentially adverse impacts to a less-than-significant level.

Eastshore State Park General Plan (2002)

Alternatives A and B. The proposed parking lot for the Berkeley Marina site would be located adjacent to the "Meadow" area of the Eastshore State Park, but would not impede upon lands belonging to the park. No part of the Berkeley Fishing Pier site would impact the Eastshore State Park, because the site is not located within its jurisdiction. Therefore, no adverse impacts on Eastshore State Park are anticipated at the Berkeley Marina or Berkeley Fishing Pier sites.

Alternatives C and D. The Gilman Street and Buchanan Street sites are located within an area identified as "Aquatic Parklands" of the Plan. According to Brad Olson of the EBRPD, the construction of ferry terminals within Eastshore State Park boundaries is not permitted, would be inconsistent with the Eastshore State Park General Plan, and would be a difficult project to implement (Olson, 2007). Therefore, construction of a ferry terminal at the Gilman Street and Buchanan Street sites would result in a significant unavoidable impact. In addition, in conformance with Section 4(f) and 6(f) requirements, park use for transportation projects must demonstrate that no prudent and feasible alternatives exist to receive federal funding support (refer to Section 3.4.1, Regulatory Framework for Parklands and Recreational Facilities).

CEQA Determination. Alternatives A and B are compatible with the Eastshore State Park General Plan and would produce no significant impacts on the plan policies. For Alternatives C and D, construction of a ferry terminal on lands under the jurisdiction of the Eastshore State Park General Plan is not permitted, and the Park District has stated that such a project would be difficult to implement. Therefore, this impact cannot be mitigated to a less-than-significant level, and remains a significant unavoidable impact.

City of Berkeley General Plan (2001) – Land Use Element and Open Space Element

Alternatives A, B, and C. Only sites A, B, and C are within the City of Berkeley and subject to Berkeley General Plan guidelines and policies. The Berkeley Marina and Berkeley Fishing Pier sites would not conflict with the City's General Plan Land Use and Open Space Elements. Both sites are located in areas that would not result in the loss or modification of open space. Shorebird Park, Cesar Chavez Park, Horseshoe Park, and The Meadow (part of Eastshore State Park) near the Berkeley Marina would not be impacted in any way by the project. Patrons would be able to continue to enjoy the Berkeley Marina and Gilman Street areas in the same way as they would in the absence of the project. The project would maintain the waterfront area of Berkeley as an area for recreational and open space uses, including access to the Bay Trail, while providing public transportation connections that would attract Bay Area residents to the area.

No general plan land use or zoning designation change is expected as a result of the project. However, according to the Berkeley Planning and Development Department, all Berkeley ferry terminal alternative sites would require Design Review and Use Permit applications and approval by the Design Review Committee and the Zoning Adjustment Board. Permits for the Alternative A and B sites would require Planning Commission approval because they are included in the Unclassified zoning district. Alternative C would require Waterfront

Commission approval because the site is included in the Specific Plan zoning district (whereas the Berkeley Marina and Berkeley Fishing Pier sites require Planning Commission approval). According to the Berkeley Planning and Development Department, there are no explicit standards for development along the Berkeley Waterfront, and all projects are reviewed on a case-by-case basis (Crane, 2007).

CEQA Determination. Based on the aforementioned reasoning, project implementation at the Berkeley sites would not conflict with Berkeley's General Plan Land Use and Open Space Elements. No potentially significant impacts are anticipated.

Bay Trail Plan

Alternatives A and B. Implementation of Alternatives A or B would not conflict with the Bay Trail Plan, which intends to encircle much of the Bay shoreline with a pedestrian and bicycle pathway. The site plans would be designed to accommodate and incorporate the Bay Trail where it traverses the site, a beneficial impact. For specific temporary effects on the Bay Trail resulting from project construction activities, refer to Section 4.4, Parklands and Recreational Facilities for project construction and other project operation impacts.

Alternatives C and D. Implementation of Alternative C or D is not anticipated to adversely affect the implementation of the Bay Trail through these sites as indicated in the Bay Trail Plan. At Alternatives C and D, the project would most likely precede Bay Trail operation. To accommodate the Plan, the sites would be designed to incorporate the Bay Trail where it traverses the sites.

CEQA Determination: None of the alternatives would conflict with or adversely affect implementation of the Bay Trail Plan.

City of Berkeley Waterfront Master Plan (1986) – Waterfront Land Use Policies

Alternatives A, B, and C. Only sites A, B, and C are within the City of Berkeley and subject to Berkeley Waterfront Master Plan guidelines and policies. As with Berkeley's General Plan, the Berkeley sites are consistent with the policies outlined in the City's Waterfront Master Plan. All Plan policies have been integrated into the City's General Plan. As previously discussed, the Berkeley ferry terminal alternatives would require Design Review and Use Permit applications and approval by the Design Review Committee, Zoning Adjustment Board, and the Planning Commission or the Waterfront Commission, as this is the standard procedure for development projects along the Berkeley Waterfront. The project would not interfere with the provisions of the Plan, because it would maintain existing open spaces, views, and natural resources along the Berkeley Waterfront. No conflict with the Plan is anticipated and no adverse impacts are anticipated.

CEQA Determination. Based on the aforementioned reasoning, project implementation at the Berkeley sites would not conflict with Berkeley's Waterfront Master Plan. No potentially significant impacts would occur.

Berkeley Bicycle Plan (1998, updated 2005)

Alternatives A, B, and C. Only sites A, B, and C are within the City of Berkeley and subject to Berkeley Bicycle Plan guidelines and policies. The Berkeley sites are consistent with *The Berkeley Bicycle Plan.* The project would not interfere with existing bicycle routes that traverse the project area. Existing bicycle routes in the Berkeley Marina and Pier follow the Bay Trail. Because the project would integrate the Bay Trail into the design of the ferry terminal, existing Berkeley bicycle routes would be preserved. Therefore, no adverse impacts are anticipated.

CEQA Determination. Based on the aforementioned reasoning, project implementation at the Berkeley sites would not conflict with Berkeley's Bicycle Plan. No potentially significant impacts would occur.

City of Albany General Plan (1990-2010)

Alternative D. Only Site D is in the City of Albany and subject to City of Albany plans and policies. The Buchanan Street site is consistent with the policies and provisions of the Albany General Plan. The provisions of the General Plan are intended to preserve and restore the Albany Waterfront (City of Albany, 1990). Furthermore, the Plan states that "Any future development must account for public access…" which the project would do by incorporating the Bay Trail into its design. Moreover, the design of the ferry terminal would be "low-impact" and would allow that area of the Albany Waterfront to preserve existing scenic viewsheds. Minimal landside work preparation would be required, because the area is already paved and the ferry terminal would extend out from the shoreline, resulting in preservation of natural features found around the site. The project site is included in the Waterfront Zone, and design review and use permit applications would have to be approved by the Planning and Zoning Commission. The project would preserve and restore Albany's waterfront, and as such is consistent with the City's General Plan. No adverse impacts are anticipated.

CEQA Determination. Alternative D does not produce significant impacts or conflicts with the Albany General Plan.

Albany Bicycle Plan

Only Site D is in the City of Albany and subject to City of Albany plans and policies. The Buchanan Street site is consistent with the Albany Bicycle Plan because operation of a ferry service at this site would not interfere with existing bicycle routes which traverse the project area. Existing bicycle routes in the project site area follow the Bay Trail. Because the project would integrate the Bay Trail into the design of the ferry terminal, existing Albany Bicycle routes would be preserved. Therefore, no adverse impacts are anticipated.

CEQA Determination. Alternative D does not produce significant impacts or conflicts with the Albany Bicycle Plan.

Cumulative Impacts and Mitigation

Cumulative Impact from Displacement of Existing Housing or Businesses. Area growth, including the implementation of approved projects in the study area, would not result in the displacement of existing housing because most of the projects would be in-fill projects located on parcels where no housing exists. Alternative C would relocate Golden Gate Field facilities on-site. This action would not cause businesses to relocate and would not contribute to a cumulative effect of business displacement of development projects in the study area.

Cumulative Impact from Physical Division of Established Communities. Implementation of ferry terminal alternatives plus approved development projects in the study area would not result in the physical division of established communities. A physical division of established communities would not occur because no established communities are present at any of the sites. None of the cumulative projects would require the acquisition of land where an established community is located and subsequently could be divided. Therefore, no cumulative impacts from the physical division of an established community would occur.

Cumulative Plan Consistency. The ferry terminal alternatives, as well as approved development projects, are consistent with the local General Plan and Zoning Code, although some of the development projects may have received General Plan and Zoning Code amendments to proceed. As stated in the Operations analysis, Alternatives C and D are inconsistent with the Eastshore State Park Plan. Their adverse impact on the parklands is project-specific and would not create a cumulative effect based on growth in recreational users of Eastshore State Park or construction of nearby development projects.

4.3 SOCIOECONOMICS

This section includes an analysis and determination of the potential adverse and beneficial project impacts on socioeconomics and environmental justice, each described under separate headings. The construction and/or operation of new transportation infrastructure could have adverse impacts on local communities and/or businesses through disruption of the community. This section is a generalized description of the overall effects on the ferry terminal alternatives on the area's population, housing, employment, and the local economy. The information presented pertains to all ferry terminal site alternatives, because their socioeconomic and environmental justice implications and potential impacts are similar. The potential impacts and benefits of project construction and operation are discussed below.

4.3.1 Methodology

Plausible adverse effects were evaluated through the analysis of the proposed project's socioeconomics and environmental justice impacts. These subjects were evaluated through comparison of the potential project's direct and indirect impacts to overall projected population, employment, housing growth forecasts of the City of Berkeley, the City of Albany, and Alameda County, as well as historical minority and low-income population comparisons.

4.3.2 Significance Criteria

Historical and projected data included in Section 3.3, Socioeconomics, were analyzed to determine whether the ferry terminal alternatives would result in potential impacts on employment, population, and housing. A socioeconomic impact would be considered adverse if the proposed project would:

- Directly or indirectly induce substantial population growth;
- Displace or create severe hardship for a substantial number of people, housing, or businesses; or
- Disrupt or separate a neighborhood, including transportation improvements that could change traffic patterns.

To determine if the ferry terminal alternatives would result in adverse impacts on minority and/or low income populations, a process was used based on the guidance provided by the Council of Environmental Quality, U.S. EPA, and the FHWA. Through this process, the broad range of project-related potential environmental and human heath effects were evaluated; the geographic area affected by the project and the demographic character of this geographic area were determined; and the affected populations were analyzed to determine if environmental justice communities existed within these populations.

4.3.3 Socioeconomic Impacts and Mitigation

4.3.3.1 No-Action Alternative

The No-Action Alternative would not result in implementation of the ferry terminal alternatives and therefore would not affect socioeconomics or environmental justice. However, without the project the beneficial effects of providing ferry service would not be realized.

4.3.3.2 Action Alternatives

Since the ferry terminal alternatives are located in the same vicinity, they would have similar socioeconomic impacts. Therefore, the impacts discussed pertain to all sites, as indicated below.

Impact 1: The potential to induce population growth.

Construction. The project construction would not induce substantial population growth, nor would it displace a substantial number of existing housing or people. Because of the large workforce available within the San Francisco Bay Area, the majority of the construction workers will be hired locally, and they will not have to relocate for the project construction. Therefore, the project would result in temporary growth during construction, but no long-term substantial changes are expected, and less-than-significant induced population growth is anticipated due to the project construction.

Operation. The project operation would not induce substantial population growth, nor would it displace a substantial number of existing housing or people. The majority of the operational workers will be hired from within the San Francisco Bay Area, and they will not have to relocate for the project operation. Therefore, no change is expected during operations and no adverse impact is anticipated due to the project operations.

CEQA Determination. This impact is less than significant.

Impact 2: The potential to displace people, housing, or businesses.

Construction. The majority of the project construction workers will come from the San Francisco Bay Area, and the majority of construction materials will be purchased locally. Because the San Francisco Bay Area has a large labor force and a successful economy, this number of temporary construction jobs and payroll would not adversely affect the labor supply, housing prices, or availability of housing. Vessel construction would also generate one-time jobs but because there are no shipyards building ferry vessels in the San Francisco Bay Area, this construction would not create local jobs. Therefore, the project construction would not displace people, housing, or businesses, but would create jobs during construction, resulting in a small beneficial impact.

Operation. Project operations would generate 30 full time jobs, not including administrative jobs, with an average annual payroll per worker of $100,000. This amount includes benefits and social security. The majority of the operations workers will come from the San Francisco Bay Area. In the large economy of Alameda County and the San Francisco Bay Area, this economic benefit would be relatively small and considered insignificant. Therefore, project operations would not adversely affect people, housing, or businesses.

CEQA Determination. This impact is less than significant.

Impact 3: The potential to disrupt or change neighborhood transportation and traffic patterns.

Construction. Project construction will temporarily disrupt the business communities within the project area. However, this impact will be temporary in nature and WETA will work with the affected businesses to determine an appropriate mitigation for the disruption.

Operation. Construction and operation of the ferry service will displace parking spots used by local businesses. WETA will work with these local businesses to determine an appropriate mitigation for these displaced parking spots. WETA will also work with Golden Gate Fields to relocate horse trailers/sheds to accommodate ferry service construction and operation.

A project benefit would include having a reliable contingency mode of transbay access to reduce the disruption to the Bay Area economy in the event of a catastrophic event that interrupted bridge or BART travel for an extended period.

Therefore, the project would result in changes in traffic during construction and operations, but would be designed so that the neighborhood maintains cohesion. Existing routes will be enhanced, and no adverse impact anticipated. A beneficial change in traffic outside of project area will result because the ferry terminal would provide a transportation alternative to the private automobile and other transit modes.

CEQA Determination. This impact is less than significant.

Socioeconomic Cumulative Impacts

None of the ferry terminal alternatives in combination with regional growth or other cumulative development in the City of Berkeley or the City of Albany will contribute to substantial cumulative population, housing, or employment changes within Alameda County. The ferry terminal will serve the existing populations rather than stimulate new population growth. The project does create new construction and operation jobs, but the direct, indirect, and induced effects of the project construction and operation jobs would not create substantial employment growth. Based on the environmental criteria developed by WETA, and in accordance with CEQA, NEPA, and all applicable state and federal laws, the project would not have an adverse effect on the environment.

CEQA Determination. This impact is less than significant.

Environmental Justice Discussion

Section X, EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires federal agencies to consider environmental justice issues in their policies, activities, and procedures. The potential impacts and benefits of project construction and operation on environmental justice issues, such as ethnicity of the populations, low income, and poverty status, are discussed below.

Ethnicity of Population. Census Tract 4204 has a racial and ethnic population of more than 50 percent of its population; this typically constitutes an environmental justice community. However, the racial and ethnic population distribution can be attributed to the University Village, a University of California at Berkeley-owned family student housing facility located at 1125 Jackson Street in Albany, and to the proximity of the census tracts to the University of California at Berkeley. Approximately 65 percent of the students at UC Berkeley in the fall of 2006 were considered to be racial minorities (UC Berkeley, 2007). The project will increase mobility for these residents by providing an additional mode of public transportation. Project construction and operation will also increase the area's economic prosperity, because the majority of the project construction workers will come from the San Francisco Bay Area, and the majority of construction materials will be purchased locally.

Low-Income and Poverty Status. University Village is family student housing facility located in Albany, available to students who are married, single parents, and domestic partner student families. University Village encompasses 58 acres and has 760 one-, two- and three-bedroom

apartments and two-bedroom townhouses (UC Housing, 2007). Residents of Census Tract 4220 have a percentage of the population below the poverty level that is more than 2 percentage points higher than the percentage of population below the poverty level in Alameda County and the City of Albany. While Census Tract 4204 would indicate the presence of a low income and minority population that is technically an environmental justice community, the tract consists almost entirely of University family housing. While many residents are minority and/or low income, these residents are undergraduate and graduate university students and do not live in a community that suffers environmental hardships.

No disproportionately adverse impacts to minorities, ethnic groups, or low-income households are anticipated as a result of the ferry terminal alternatives. The high percentage of minority and low income residents is due to the inclusion of university students who are not working or work in lower paying jobs while going to school.

Americans with Disabilities Act. The Action Alternatives include design features to address accessibility issues for disabled persons and seniors (refer to Sections 2.2 and 2.3). The design features pertain to vessel, terminal, pedestrian walkway, and parking area accommodations to facilitate the use of the ferry service by disabled people and seniors. More detailed information about the ADA project design elements is included in Appendix G.

The project, in combination with regional growth or other cumulative development in the City of Berkeley or the City of Albany, would not impose adverse impacts disproportionately on any of the high minority or low income neighborhoods identified in this section. Based on the environmental criteria developed by WETA, and in accordance with CEQA, NEPA, and all applicable state and federal laws, the project would not have an adverse effect on the environment.

4.4 PARKLANDS AND RECREATIONAL FACILITIES

This section discusses the potential impacts of the ferry terminal alternatives on study area parklands and recreational areas, including potential Section 4(f) properties (which are defined in U.S. DOT 49 USC, Section 303 and 223 USC, Section 138).

4.4.1 Methodology

Eight parkland and recreational areas located in the study area were identified as Section 4(f) properties. These include the Albany Bulb, Albany Beach, Eastshore State Park, the Bay Trail, Cesar Chavez Park, Shorebird Park, Aquatic Park, and Horseshoe Park. An evaluation of the potential direct ("use") and indirect ("constructive use") effects associated with the implementation of the terminal alternatives was conducted for these parkland and recreational facilities. A direct effect occurs when land is permanently incorporated into a transportation facility, or if there is a temporary occupancy of land that is adverse in terms of preservation. An indirect effect occurs when there are adverse impacts that would substantially impair the significance or enjoyment of a park or recreation property.

4.4.2 Significance Criteria

NEPA THRESHOLDS

The following criteria were applied to evaluate the terminal alternatives. An alternative is considered to result in impacts to parklands and Section 4(f) properties when:

- Protected land is permanently acquired for transportation facilities;
- A temporary use is considered adverse; or
- Constructive use of a resource occurs.

A more detailed definition of "use" and "constructive use" is provided below.

Section 303, 49 USC Subtitle 1, known as Section 4(f) of the U.S. DOT Act, allows the use of land from a significant publicly owned public park, recreational area, wildlife or waterfowl refuge, or any significant historic site for use on a transportation project only when the Secretary of Transportation has determined that there is no feasible and prudent alternative. The project must also include possible planning to minimize harm to the property resulting from such use. The purpose of Section 303 is to preserve public parklands and recreation areas, refuges, and historic sites by limiting the circumstances under which such land can be used for transportation programs or projects. Protection also applies to non-publicly owned historic sites if officials having the jurisdiction determine they have federal, state, or local significance. Section 303 does not apply to archaeological resources if WETA, in consultation with the SHPO, determines they do not require preservation in place, and their important information can be recovered or preserved through study.

Within the meaning of Section 303, "use" is generally considered to occur when the project requires a physical taking or other direct control of the land for the purpose of the project, and as a consequence, the use is changed and adversely impacted. For example, acquiring and developing a portion of a park to build a transportation improvement would be considered a "use."

However, "use" within the meaning of Section 303 includes not only actual physical takings, but also adverse impacts (constructive use) as well. For example, it has been said that a project that respects a park's territorial integrity may still, by means of noise, air pollution, or otherwise, "dissipate its aesthetic value, crush its wildlife, defoliate its vegetation, and take it in every practical sense." Therefore, when applied to transportation projects developed near Section 303 resources, a "constructive use" may occur when impacts due to proximity of the project substantially impair the activities, features, or attributes of the resource. Substantial impairment occurs when the protected activities, features, or attributes of the resource are substantially diminished.

In addition, Section 6(f) of the LWCFA as amended (16 USC Sections 460l-4 et seq.) is addressed as appropriate. If Section 6(f) effects are determined, coordination and approval of the U.S. Department of the Interior (U.S. DOI), National Park Service (LWCFA liaison), and local agencies would be initiated. Replacement of Section 6(f) property for property used may be necessary.

If it is determined that a use of Section 303 and Section 6(f) of the LWCFA land would occur as result of implementing the LPA, WETA must determine that no feasible and prudent alternatives exist, and that all possible mitigation has been incorporated into the project. The resulting Section 4(f) and Section 6(f) evaluation would be summarized in a new chapter incorporated into the Final EIS/EIR.

CEQA THRESHOLDS

According to Appendix G of the CEQA Guidelines, a significant impact to park and recreational facilities would occur if:

- The project would result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts for parks;

- The project would increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or

- The project would include recreational facilities or require the construction or expansion of recreational facilities which may have an adverse physical effect on the environment.

4.4.3 Parklands and Recreational Facilities Impacts and Mitigation

4.4.3.1 No-Action Alternative

Under the No-Action Alternative, the ferry terminal alternatives would not be implemented. The conversion of parklands, recreational facilities, or Section 4(f) properties would not occur. Therefore, Section 4(f) does not apply, and the No-Action Alternative would not result in direct or indirect parklands or Section 4(f) impacts.

4.4.3.2 Action Alternatives

Construction Impacts and Mitigation

Impact 1: The potential for direct or indirect use of Section 4(f) properties during project construction.

Alternatives A and B. Construction activities at the Berkeley Marina and Berkeley Fishing Pier sites have the potential to temporarily impair the Bay Trail right-of-way. This impairment could result in temporary access impacts along the Bay Trail in these areas. According to the Section 4(f) statute, a temporary occupancy of property does not constitute a use of a Section 4(f) resource when the following conditions are satisfied: (1) the occupancy is of a temporary duration shorter than the period of construction; (2) no change in ownership of the property

occurs; (3) only minimal changes to the protected resource occur; (4) no permanent physical effects or interference with the purpose of the resource exist; (5) the resource can be fully restored at the completion of project construction; and (6) there is documented agreement of the appropriate officials having jurisdiction over the resource. These conditions will be met prior to and during construction of the ferry terminal facilities. Temporary rerouting of the Trail may be required to accommodate construction activities without impeding trail users.

Alternative A borders Eastshore State Park along the Marina Boulevard Parking area. Alternative B parking area borders Shorebird Park. In neither case would project construction affect access to or use of the parkland.

Alternatives C and D. Construction activities at both sites have the potential to temporarily impair the Bay Trail right-of-way, which is currently planned for the waterfront at Alternatives C and D, as described for Alternatives A and B. In addition, construction activities such as dredging and pier pile driving would take place within the "Aquatic Parklands" of Eastshore State Park. In accordance with the terms established under 49 USC, Section 303 and 223 USC, Section 138, the resource must be fully restored to its original condition at the completion of construction and the temporary use of the parkland must terminate before the end of the construction period. The daily use of the ferry terminal at these sites as well as the need for continual maintenance dredging for continued ferry operation would not conform to these regulations. As a result, if either Alternative C or D is selected as the LPA, a Section 4(f) evaluation would be required to determine if no feasible and prudent alternatives exist. Also, it is unlikely that a documented agreement to permit this use of the aquatic parkland will be authorized by State officials.

Mitigation. By following the conditions for temporary use of the Bay Trail according to the Section 4(f) statute, and temporarily rerouting the Bay Trail to accommodate construction activities, no adverse impacts would occur on the Bay Trail for all ferry terminal alternatives. For Alternatives C and D, mitigation measures that comply with Section 303 stipulations for temporary use of Eastshore State Park aquatic parklands are not likely to be met, producing an unmitigated adverse impact.

CEQA Determination. Less-than-significant parkland or recreational facilities impacts would occur for the Bay Trail, but Eastshore State Park impacts for Alternatives C and D may not be sufficiently mitigated, producing significant unavoidable impacts.

Operations Impacts and Mitigation

Impact 2: The potential for direct or indirect use of Section 4(f) properties during project operation.

Alternatives A and B. Implementation of the ferry terminal alternatives studied at the Berkeley Marina and Berkeley Fishing Pier sites would not require permanent land acquisition from any of the aforementioned Section 4(f)-eligible properties in the vicinity (Eastshore State Park, the Bay Trail, Cesar Chavez Park, Shorebird Park, or Horseshoe Park). The project parking area for

Alternative A, Berkeley Marina site, would be located adjacent to the "Meadow" portion of Eastshore State Park, but would not require park property or directly or indirectly affect the use or access to the park. The project parking area for Alternative B, the Berkeley Fishing Pier site, would be located adjacent to Shorebird Park, but would not require park property or affect use or access to this park. The Bay Trail is currently unimproved along these sites. The project design would incorporate the Bay Trail to facilitate unimpeded public access along the Trail and would not result in permanent displacement or acquisition of any portion of the Bay Trail. Because neither site would require the permanent acquisition of land designated as a Section 4(f) property, no potentially adverse impacts are anticipated.

Alternatives C and D. Implementation of the ferry terminal alternatives studied at the Gilman and Buchanan Street sites would require direct use of "Aquatic Parklands" of the Eastshore State Park. Operational project components at these sites, such as the new dock extension and dredged channel, would be located in areas designated as part of a Section 4(f) and Section 6(f) property (Eastshore State Park). Implementation of these ferry terminal alternatives would result in an unavoidable adverse impact to the Park, because permanent use of a Section 4(f)/Section 6(f) property would occur and cannot be mitigated. To receive federal funding support for either Alternative C or D, WETA must demonstrate that no feasible and prudent alternatives exist (refer to U.S. DOT and U.S. DOI guidelines stated in Section 3.4.1),

Historic Sites. No historic sites were identified at these sites, as described in Section 4.6, Cultural Resources. Therefore, no impacts would occur to Section 4(f) properties under provisions of Section 106 of the NHPA of 1966.

Mitigation. No mitigation is required for Alternatives A and B. For Alternatives C and D, mitigation outlined in Section 303 may not receive concurrence from the jurisdiction governing Eastshore State Park, an adverse impact that could not be mitigated.

CEQA Determination. No significant operations impacts would occur for Alternatives A and B, but for Alternatives C and D, mitigation measures to reduce significant impacts to a less-than-significant level may not be agreed to by Eastshore State Park officials, potentially producing significant unavoidable impacts.

Cumulative Impacts and Mitigation

Currently, the City of Albany provides 1.87 acres of parklands per 1,000 residents, while Berkeley provides 12 acres per 1,000 residents (City of Albany, 1990; City of Berkeley, 2001). Moreover, a number of regional parks such as Tilden Regional Park (2,079 acres), Eastshore State Park (1,854 acres), and Claremont Canyon Regional Reserve (205 acres) are all available for use by Albany and Berkeley residents. Therefore, the need for more parklands as a result of improved access due to the project and regional growth would not be expected to produce cumulative impacts on parklands and recreational facilities.

4.5 AESTHETICS AND VISUAL RESOURCES

The following section identifies and describes visual and aesthetics changes that would result if the Action Alternatives were implemented. The existing visual landscape surrounding the ferry terminal alternatives sites, as described in Chapter 3, provides the baseline data for comparing the No-Action Alternative with the visual and aesthetic quality of the area after the project is implemented.

4.5.1 Methodology

Field trips were conducted to the sites of the four ferry terminal alternatives. During the field visits, photos were taken from different viewpoints and perspectives to illustrate the existing visual quality of the area surrounding each site. The photos were used as graphic examples of the visual and aesthetic setting described in Chapter 3. They were then used as the basis for visual simulations that would illustrate how the shoreline would be visually transformed if the project were implemented at each site location. The simulations offer the reader an impression of the scale of the terminal facilities relative to the surrounding landscape but are not intended to show details of the actual structures as they will be finally designed.

To analyze impacts according to the criteria listed below, views across the shoreline out into the Bay and views on the land were used to indicate whether the scale of the surrounding landscape or the visual resources that distinguish these landscapes were substantially altered. If the visual context was substantially altered to produce adverse visual impacts, the impact was described and mitigation measures were proposed. In accordance with CEQA guidelines, the significance of the impact after mitigation was determined. Because construction activities would not permanently alter the visual landscape, the analysis focuses on long-term or operational effects.

4.5.2 Significance Criteria

As indicated in the Regulatory Framework described in Section 3.5, Aesthetics and Visual Resources, the principal regulations that govern design for new construction and limit the appearance, height, and bulk of a new project are local and regional. As such, CEQA guidelines tend to reinforce the issues addressed in permitting new construction. For the NEPA analysis involving transportation improvement projects, FTA considers the effect of the project alternatives on scenic vistas and scenic resources, as well as substantial light and glare. CEQA also considers these criteria in addition to those that provide a more local perspective of on the scale or visual character of the surrounding landscape. Impacts are determined to be adverse if the project would:

- Create a substantial effect on a scenic vista;
- Substantially alter or obstruct scenic resources, including trees;
- Substantially degrade the visual character or quality of the site;
- Substantially contrast with the scale and context of the surrounding landscape; or
- Create a new source of light or glare which would affect views in the area.

4.5.3 Aesthetics and Visual Resources Impacts and Mitigation

4.5.3.1 No-Action Alternative

The No-Action Alternative does not include projects that would change the visual landscape, either temporarily or permanently, along the Berkeley/Albany shoreline in the study area. No visual or aesthetic impacts would result from the No-Action Alternative.

4.5.3.2 Action Alternatives

Construction and Operations Impacts and Mitigation

Impact 1: The potential to substantially alter or block views of scenic vistas or resources.

Alternatives A through D. The terminal extends into the Bay as a linear visual element. The terminal design includes the pier, which lies low close to the water, and glass-enclosed sides that allow unobstructed views of San Francisco, the Bay Bridge, and the Golden Gate Bridge—the primary scenic vistas and visual resources from the Berkeley/Albany shoreline. Only the roof line is opaque, creating a new visual element to the landscape that accentuates, rather than obscures, the view of the Bay. Figures 4-1 and 4-2 are visual simulations of the ferry terminals at the Berkeley Marina and Buchanan Street sites, respectively. The extension of pedestrian access onto the pier will also enhance the view of the ferry patron, who will have an unobstructed 360-degree perspective of the waterfront, the Bay, and the distant hills to the east. The views to the east over the parking areas will remain essentially the same as today, broken by regularly spaced thin poles for lighting the surface parking areas. In the case of existing landscaping, some trees and shrubs would be removed in Alternatives B and C to facilitate vehicular movement in the parking areas. The limited removal of landscaping, primarily along the perimeter of the parking area, would not be extensive. Therefore, the visual quality of these scenic resources would not be substantially altered and the visual buffer with Shorebird Park, a scenic resource in the vicinity of Alternative B, would not be degraded. As a result, no impact to scenic views or resources would occur.

CEQA Determination. The impact is less than significant.

Impact 2: The potential to degrade or contrast with the scale, visual quality, or visual context of the existing landscape.

Alternative A. The new terminal and parking area would blend in with the character and scale of the existing Berkeley Marina docks and vessels. The parking area already exists along the road and in front of the Doubletree Hotel. No adverse impacts would occur.

Alternative B. The new terminal would add a second linear element to the visual landscape, paralleling and mimicking the scale and visual quality of the nearby Berkeley Fishing Pier. The landscaping surrounding the parking area would provide a visual buffer with Shorebird Park, although some trees would be removed. No adverse visual impact would be expected.

Alternatives C and D. The new terminal would produce an additional visual element along the existing shoreline, harkening back to the old piers that were at one time located in the North Basin. The displacement of horse trailers and stables at Alternative C would remove a visual element associated with the adjoining race track, but the project sponsor intends to relocate these facilities nearby to keep the visual quality and scale intact. The existing visual context of large parking areas surrounding the elevated race track stadium would remain unchanged, because these areas would be retained as ferry patron parking lots. No adverse visual effects are expected.

CEQA Determination. The impact is less than significant.

Impact 3: The potential for light and glare to adversely affect nearby uses.

All Alternatives. Although most of the lighting effects of the project would originate along the shoreline, the ferry vessels would travel across the Bay during morning and evening hours, producing new lighting on the Bay during the winter. The additional lighting would be similar to the lighting emanating from other vessels on the Bay. Due to the transitory nature of ferry operation, and because light-sensitive receptors would be confined to liveaboards in the Berkeley Marina, the incremental and temporary effect of light emanating from the ferries would not be a substantial source of light and glare to the existing receptors. No adverse effects from vessel lighting are expected.

Alternative A. The light from the terminal and parking area would add to the night lighting effect already present at the Berkeley Marina and Doubletree Hotel facilities. The additional light would be a beneficial impact in that it would enhance pedestrian safety along the Bay Trail and at the Berkeley Marina and Doubletree Hotel facilities. Because ferry service would terminate in the early evening, the project lighting could be turned off, thereby preventing any stray light and glare from affecting views or quality of life for the hotel and Berkeley Marina live-aboard residents. No adverse effects from light and glare are expected.

Alternative B. The additional light from the terminal and parking area would enhance pedestrian safety along access routes to Hs Lordships Restaurant, the Berkeley Fishing Pier, and Shorebird Park. No residences or hotels are adjacent to this site, so nighttime lighting would not disturb the views or use of the aforementioned facilities. No adverse effects of light and glare are expected.

Alternatives C and D. The area north and south of Golden Gate Field is surrounded by well-lit parking lots and horse facilities. The lighting of the ferry terminal and parking areas would add to the brightness emanating from the track, enhancing pedestrian safety and traffic circulation for those moving in and out of the area. Nearby residences are located across the freeway, removed from the ferry terminal sites, and would not be affected by the incremental and time-limited light and glare produced by ferry terminal operation in the early evening hours.

CEQA Determination. The impact is less than significant.



VISUAL SIMULATION OF FERRY TERMINAL DESIGN AT BERKELEY MARINA

Berkeley/Albany
Ferry Terminal Study

October 2008
28067367

URS

FIGURE 4-1

9/26/08 hk ..\WTA\EIS EIR 2008\F4-1_berkeley_marina.cdr



VISUAL SIMULATION OF FERRY TERMINAL DESIGN AT BUCHANAN STREET

Berkeley/Albany
Ferry Terminal Study

October 2008
28067367

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FIGURE 4-2

9/26/08 hk ..\WTA\EIS EIR 2008\F4-2_buchanan.cdr

Cumulative Impacts and Mitigation

The light from the vessels and terminal facilities is removed from residential land uses or approved development projects in the study area. In addition, the freeway and intermediate uses located between the terminal areas and the existing residential and commercial development to the east of I-80 would minimize the incremental effects of the light and glare emanating from the ferry terminal area, and would not produce additional light and glare in combination with approved development projects that are scattered throughout the study area. Cumulative development in Berkeley and Albany would not obstruct or alter views looking west over the Bay. No cumulative visual effects would occur.

4.6 CULTURAL RESOURCES

This section identifies adverse impacts to archaeological resources and historic properties if the ferry terminal alternatives were to be implemented. Construction and operation activities that would affect cultural resources are described for archaeological, paleontological, and historic resources below.

4.6.1 Methodology

FEDERAL MANDATES

Federal laws, procedures, and policies affecting the treatment of cultural resources include the Antiquities Act of 1906, Public Law 59 209, EO 11593, Section 106 of the NHPA of 1966 (Public Law 89 665) (as amended), Public Law 93 291, NEPA (Public Law 91 190), and regulations 36 CFR 60 and 36 CFR 800 of the Federal Land Policy Management Act (Public Law 94 94 579).

For management purposes, a cultural resource must be recommended as either eligible or not eligible to the NRHP to determine the effect and need for mitigation of effect. If the property (cultural resource) is determined eligible, then a determination of effect, as per 36 CFR 800, must be provided. "Effect means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register." An adverse effect occurs "when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association" (36 CFR 800.5[a]). An effect, therefore, will only occur when a project activity has the potential to alter the characteristics of a historic property that qualifies it for inclusion in the NRHP. No historic properties have been identified within the APE for this project and no adverse effects are anticipated for this project.

If the property is identified as not eligible, then no determination of effect or mitigation measures is necessary. Recommendations are reviewed and approved by the SHPO and the ACHP. The letter from FTA to SHPO requesting this review is presented in Appendix D.

The NHPA requires all federal agencies to assess the effects of any agency-sponsored undertaking on cultural resources. The federal agency is responsible for project compliance with Section 106 of the NHPA and its implementing regulations, set forth by the ACHP at 36 CFR 800.

NEPA CRITERIA

Four evaluation criteria to determine a resource's eligibility to the NRHP, in accordance with the regulations outlined in 36 CFR 800, are identified at 36 CFR 60.4. To determine site significance through application of National Register criteria, several levels of potential significance that reflect different (although not necessarily mutually exclusive) values must be considered. As provided in 36 CFR 60.4:

> "The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> 1. That are associated with events that have made a significant contribution to the broad patterns of our history;
>
> 2. That are associated with the lives of persons significant in our past;
>
> 3. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> 4. That yield, or may be likely to yield, information important in prehistory or history."

These evaluation criteria are used to help determine what properties should be considered for protection from destruction or impairment resulting from project-related activities (36 CFR 60.2).

STATE MANDATES

In considering impact significance under CEQA, the significance of the resource itself must first be determined. At the state level, consideration of significance as an "important archaeological resource" is measured by cultural resource provisions considered under CEQA Sections 15064.5 and 15126.4, and the draft criteria regarding resource eligibility to the CRHR.

CEQA CRITERIA

Under CEQA, a historical resource (including built-environment historic and prehistoric archaeological resources) is generally considered significant if it meets the criteria for listing on the CRHR set forth in CEQA Section 15064.5. A resource that meets these criteria if it:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2. Is associated with lives of persons important in our past;

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

4. Has yielded, or may be likely to yield, information important in prehistory or history.

Section 15064.5 of CEQA also assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. These procedures are detailed under PRC Section 5097.98. Impacts to "unique archaeological resources" and "unique paleontological resources" are also considered under CEQA, as described under PRC 21083.2. A unique archaeological resource implies an archaeological artifact, object, or site which can be clearly demonstrated to have a high probability of meeting one of the following criteria (without merely adding to the current body of knowledge):

1. The archaeological artifact, object, or site contains information needed to answer important scientific questions, and there is a demonstrable public interest in that information;

2. The archaeological artifact, object, or site has a special and particular quality, such as being the oldest of its type or the best available example of its type; or

3. The archaeological artifact, object, or site is directly associated with a scientifically recognized important prehistoric or historic event or person.

A non-unique archaeological resource implies an archaeological artifact, object, or site that does not meet the above criteria. Impacts to non-unique archaeological resources and resources which do not qualify for listing on the CRHR receive no further consideration under CEQA.

Under CEQA Section 15064.5, a project would potentially have significant impacts if it would cause substantial adverse change in the significance of one of the following:

1. A historical resource (i.e., a cultural resource eligible for the CRHR);

2. An archaeological resource (defined as a unique archaeological resource which does not meet CRHR criteria);

3. A unique paleontological resource or unique geologic feature (i.e., where the project would directly or indirectly destroy a site); or

4. Human remains (i.e., where the project would disturb or destroy burials).

A non-unique archaeological or paleontological resource is given no further consideration other than the simple recording of its existence by the CEQA lead agency.

Potential impacts to identified cultural resources need only be considered if the resource is an "important" or "unique" archaeological resource under the provisions of CEQA Sections 15064.5 and 15126.4 and the eligibility criteria. If a resource cannot be avoided, then the resource must be examined vis-à-vis the provisions of CEQA Sections 15064.5 and 15126.4 and of the eligibility criteria as an "important" or "unique" archaeological resource. In many cases, determination of a resource's eligibility can only be made through extensive research and archaeological testing. No mitigation measures are required unless previously undiscovered cultural resources are detected. Mitigation under CEQA must address impacts to the values for which a cultural resource is considered important. To mitigate adequately, it must therefore be determined what elements make a site eligible for the CRHR. The first line of mitigation is complete avoidance, when feasible, of all cultural resources.

UNDERWATER CULTURAL RESOURCES (FEDERAL AND STATE MANDATES)

Several federal mandates relate to underwater cultural heritage, including shipwrecks, related historic maritime resources, and submerged prehistoric sites. The acts cited below, although federal level, also apply to resources within state waters and are therefore relevant to both federal and state projects. The Submerged Lands Act of 1953, although largely superseded by the Abandoned Shipwreck Act, has been used to protect abandoned historic shipwrecks. The Abandoned Shipwreck Act (1987), 43 USC 2101-2106, asserts federal title to abandoned shipwrecks located within state waters if they are embedded in state-submerged lands; are embedded in the coralline formations protected by a state on submerged lands; or are resting on state-submerged lands and either included in or determined eligible for the NRHP.

4.6.2 Cultural Resources Impacts and Mitigation

4.6.2.1 No-Action Alternative

This ferry terminal alternative would continue the existing transit services connecting the East Bay communities of Berkeley and Albany with San Francisco without implementing ferry service. Programmed bus and rail transit improvements between the East Bay and San Francisco identified in the Regional Transportation Plan would be implemented as part of the No-Action Alternative. Programmed transit improvements that may result from the No-Action Alternative may cause substantial impacts to cultural resources that are unknown.

4.6.2.2 Action Alternatives

Construction and Operations Impacts and Mitigation

The Class I record search indicates that no known historical resources are located within the project area. Historical maps indicate that the ferry terminal alternatives would be located primarily on imported fill, and preliminary project engineering information indicates that

construction would not penetrate below the fill zone. In addition, a previous pedestrian survey encompassing portions of the study area was conducted in 2006 and failed to identify any resources (Allan, 2006). Therefore, no adverse impacts to known cultural resources or unique archaeological resources are anticipated. While the probability of encountering intact historical resources or unique archaeological resources during construction activities is extremely low, project construction activities such as ground disturbance and dredging of channels may cause significant impacts to subsurface or submerged and heretofore unknown historical resources and/or unique archaeological resources that have been redeposited or remain intact.

Impact 1: The potential to adversely affect unknown archaeological resources during construction.

Alternatives A through D. Project construction activities, including dredging, may cause substantial adverse impacts to unknown cultural resources, including unique archaeological resources and/or submerged cultural resources.

Mitigation. To reduce impacts associated with unanticipated discoveries, the following measures would be implemented. If, during the course of construction within the project area any prehistoric or historic cultural resources (e.g., large amounts of shell, dark soil residues, lithic material, or historic refuse) are discovered, all work in the vicinity must halt, and a qualified archaeologist shall be notified to assess the significance of the find according to CEQA Guidelines Section 5064.5. If any find is determined to be significant, the project proponent and the archaeologist will meet to determine the appropriate avoidance measures or other appropriate mitigation.

If human skeletal remains are uncovered during project construction, the project proponent (depending on the project component) will immediately halt work, contact the Alameda County coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines. If the County coroner determines that the remains are Native American, the project proponent will contact the NAHC, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and PRC 5097.98 (as amended by AB 2641). In accordance with PRC 5097.98, the landowner shall ensure that, according to generally accepted cultural or archaeological standards or practices, the immediate vicinity of the Native American human remains is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section (PRC 5097.98), with the most likely descendents regarding their recommendations, if applicable, taking into account the possibility of multiple human remains.

CEQA Determination. With proposed mitigation, this impact would be less than significant.

Impact 2: The project could adversely affect unidentified paleontological resources.

Alternatives A through D. Paleontological resources are the fossilized evidence of past life found in the geologic record. Despite the tremendous volume of sedimentary rock deposits preserved worldwide and the enormous number of organisms that have lived through time,

preservation of plant or animal remains as fossils is an extremely rare occurrence. Because of the infrequency of fossil preservation, fossils—particularly vertebrate fossils—are considered to be nonrenewable resources. Because of their rarity and the scientific information they can provide, fossils are highly significant records of ancient life. The paleontological review and survey conducted on the project site did not identify any paleontologic sites or any geologic phenomena that may predict such resources.

While fossils are not expected to be discovered during project construction, significant fossils could be discovered during excavation activities, even in areas with a low likelihood of occurrence. Fossils encountered during excavation could be inadvertently damaged. If a paleontological resource is discovered, the impact to the resource could be substantial. However, implementation of the following mitigation measure would minimize this impact to a less-than-significant level.

Mitigation. In the event that paleontological resources are discovered, the project proponent (depending on the project component) will notify a qualified paleontologist. The paleontologist will document the discovery as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in CEQA Guidelines Section 15064.5. If fossil or fossil bearing deposits are discovered during construction, excavations within 50 feet of the find will be temporarily halted or diverted until the discovery is examined by a qualified paleontologist (in accordance with Society of Vertebrate Paleontology standards [Society of Vertebrate Paleontology, 1995]). The paleontologist will notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the project proponent determines that avoidance is not feasible, the paleontologist will prepare an excavation plan for mitigating the effect of the project on the qualities that make the resource important. The plan will be submitted to the project proponent for review and approval prior to implementation.

CEQA Determination. With mitigation, this impact would be less than significant.

Impact 3: The potential to adversely alter the characteristics of a historic property that qualifies it for inclusion in the NRHP.

Alternatives A through D. No historic properties have been identified within the APE for this project and no adverse effects on historic properties are anticipated for this project. No mechanisms to affect cultural resources (i.e., ground disturbance or material alteration of existing structures or buildings) would result from the operation of this project; therefore, no adverse cultural resource impacts are anticipated.

CEQA Determination. No significant impacts on historic resources are expected due to project construction or operation.

Cumulative Impacts and Mitigation

Impact 4: The potential to cause cumulative impacts to historical resources or unique archaeological resources.

Alternatives A through D. Given that project implementation would not result in significant impacts to known important cultural resources, it is unlikely that the project could have significant cumulative effects on cultural resources. The reasonably anticipated future projects within the cities of Berkeley and Albany that are subject to CEQA level environmental review are required to mitigate cultural resource impacts to a less-than-significant level. Therefore, cumulatively considerable impacts to cultural resources are not expected to occur.

If previously undiscovered archaeological resources are exposed during construction activities, an incremental effect to cultural resources may result. However, if these resources are properly evaluated and managed, no cumulatively considerable effect to cultural resources is expected to occur.

Mitigation. No mitigation necessary.

CEQA Determination. This impact is less than significant.

4.7 AIR QUALITY

This section describes adverse impacts to air quality resulting from construction and operation of the ferry terminal alternatives, as indicated below.

4.7.1 Methodology

PROJECT CONFORMITY

A conformity determination (in accordance with 40 CFR 93) is required for FHWA or FTA projects before the NEPA EIS process can be completed. Although the requirements of NEPA apply to all areas regardless of attainment status, projects located in areas designated as nonattainment or maintenance must make a determination of conformity with applicable SIPs prior to taking any action on the proposed project.

In accordance with 40 CFR 93 Subpart A, the general requirements for determining conformity for this proposed project are:

- **40 CFR 93.114 – Criteria and Procedures: Currently conforming transportation plan and transportation improvement plan (TIP).** There must be a currently conforming transportation plan and a currently conforming TIP at the time of project approval.

- **40 CFR 93.115 – Criteria and procedures: Projects from a plan and TIP.** The project must come from a conforming plan and program.

- **40 CFR 93.116 – Criteria and procedures: Localized CO, PM_{10}, and $PM_{2.5}$ violations (hot spots).** The project must not cause or contribute to any new localized CO, PM_{10}, and/or $PM_{2.5}$ violations or increase the frequency or severity of any existing CO, PM_{10}, and/or $PM_{2.5}$ violations in CO, PM_{10}, and $PM_{2.5}$ nonattainment and maintenance areas. This criterion is satisfied for all other FHWA/FTA projects in CO, PM_{10}, and $PM_{2.5}$ nonattainment and maintenance areas if it is demonstrated that during the timeframe of the transportation plan (or regional emissions analysis) no new local violations will be created and the severity or number of existing violations will not be increased as a result of the project.

- **40 CFR 93.117 – Criteria and procedures: Compliance with PM_{10} and $PM_{2.5}$ control measures.** The FHWA/FTA project must comply with any PM_{10} and $PM_{2.5}$ control measures in the applicable implementation plan. This criterion is satisfied if the project-level conformity determination contains a written commitment from the project sponsor to include those control measures in the final plans, specifications, and estimates for the project. The proposed project is included in a currently conforming regional transportation plan and is included in a transportation improvement program (MTC, 2006).

It should be noted that a hot spot analysis for particulate matter is not included in this analysis because the study area is federally designated as unclassified/attainment for the 24-hour and annual standards (both PM_{10} and $PM_{2.5}$). Hot spot analyses are only required for projects located in federal nonattainment or maintenance areas. Currently, there is not an applicable PM_{10} or $PM_{2.5}$ implementation plan for the study area. As such, there are no applicable implementation plan PM_{10} or $PM_{2.5}$ control measures for the project to adhere to. However, under the BAAQMD CEQA Guidelines, project-related fugitive and combustion particulate emissions will be controlled.

Similarly, a hot spot analysis for CO (which would result from the study area's current federal designation as a maintenance area) is not being conducted because the ferry terminal alternatives are not expected to create any new localized CO violations. This determination was made using the criteria established under the BAAQMD CEQA Guidelines.

4.7.2 Significance Criteria

In accordance with the CAAQS identified in CEQA guidelines (Appendix G, Environmental Checklist Form), the BAAQMD has established impact criteria that can be relied upon to determine whether the ferry terminal alternatives would:

- Conflict with or obstruct implementation of the applicable air quality plan;

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for O_3 precursors);

- Expose sensitive receptors to substantial pollutant concentrations; or

- Create objectionable odors affecting a substantial number of people.

Therefore, construction and operational emissions generated from the proposed project would result in significant air quality impacts under any of the following conditions (BAAQMD, 1999).

Construction (Short-Term Temporary Emissions)

- Control measures recommended by the BAAQMD are not incorporated into the project design or applied to project construction.

Operations (Long-Term Continual Emissions)

- Mobile-source emissions (local to the proposed project) of CO violate or contribute substantially to a violation of the NAAQS or CAAQS.

- Project emissions of reactive organic gas (ROG), NO_X, or PM_{10} exceed BAAQMD mass emissions thresholds of 15 tons per year or 80 pounds per day.

- The proposed project exposes members of the public to objectionable odors.

- The proposed project has the potential to expose sensitive receptors (including residential areas) or the general public to substantial incremental increases in TAC emissions that exceed 10 chances per million of excess cancer risk for the Maximally Exposed Individual (MEI) and/or a hazard Index of 1 for non-cancer risk for the MEI.

- The proposed project would be considered to have a significant cumulative air quality impact if it would individually have a significant air quality impact. For any project that does not individually have significant operational air quality impacts, the determination of significant cumulative impacts should be based on an evaluation of the consistency of the project with the local and regional air quality plans.

4.7.3 Air Quality Impacts and Mitigation

4.7.3.1 No-Action Alternative

The No-Action Alternative would not implement the ferry services project. Existing air quality issues would be addressed through the measures undertaken by the BAAQMD and identified in the SIP to reduce air pollutants to acceptable levels under federal and state guidelines.

4.7.3.2 Action Alternatives

Construction Impacts and Mitigation

Construction of the proposed project will result in short-term impacts to the existing air quality in the area. These impacts include temporary increases of CO, carbon dioxide (CO_2), NO_x, PM_{10}, $PM_{2.5}$, ROG, and oxides of sulfur (SO_x), emissions. Emissions resulting from the construction of this project are broadly categorized as follows:

- Equipment exhaust (CO, CO_2, NO_x, PM_{10}, $PM_{2.5}$, SO_x, and ROG);
- Fugitive dust from earth moving (PM_{10}, $PM_{2.5}$);
- Employee vehicle emissions (CO, CO_2, NO_x, PM_{10}, $PM_{2.5}$, SO_x, and ROG);
- Construction truck emissions (CO, CO_2, NO_x, PM_{10}, $PM_{2.5}$, SO_x, and ROG); and
- Paving emissions (ROG).

Impact 1: Construction of the proposed project would result in emissions of criteria pollutants.

Alternatives A through D. Construction of the Action Alternatives will create short-term emission increases of criteria pollutants and precursors. In accordance with the BAAQMD, the impacts of construction to air quality are considered to be adverse. The BAAQMD considers PM_{10} to be the pollutant of concern when evaluating impacts from construction.

Mitigation. The following BAAQMD-recommended mitigation measures will be implemented to reduce emissions of fugitive PM_{10} dust from construction activities:

- Basic Control Measures:
  - All active construction areas will be watered at least twice daily.
  - All construction trucks hauling soil, sand, and other loose materials will be covered or will maintain at least 2 feet of freeboard.
  - All unpaved access roads, parking areas, and staging areas at the construction sites will be paved, watered three times daily, or have a soil stabilizer (non-toxic) applied.
  - All paved access roads, parking areas, and staging areas at the construction sites will be swept daily (with water sweepers).
  - If visible soil material is carried onto adjacent public streets, the affected streets will be swept daily (with water sweepers).
- Enhanced Control Measures:
  - Hydroseed or soil stabilizers (non-toxic) will be applied to all construction areas (previously graded areas inactive for 10 days or more).

- All exposed stockpiles (e.g., dirt or sand) will be enclosed, covered, watered twice daily, or have soil binders (non-toxic) applied.
- Traffic speeds on unpaved roads will be limited to a maximum of 15 mph and, if possible, will avoid residential areas east of I-80.
- Sandbags or other erosion control measures to prevent silt runoff to public roadways will be installed.
- Vegetation in disturbed areas will be replanted as quickly as possible.

The following BAAQMD-recommended mitigation measures will be implemented to reduce the emissions generated from construction equipment exhaust, **when and where feasible:**

- Alternative-fueled or ultra-low sulfur fuel will be used on construction equipment if feasible
- Catalyst-equipped diesel construction equipment and other add-on emission control measures will be employed if feasible.
- Idling time (e.g., a maximum of 5 minutes) will be minimized.
- Heavy duty equipment hours of operation and/or the amount of equipment in use will be limited.
- All equipment used at the construction site will be maintained in good working order and properly tuned in accordance with manufacturers' specifications.
- Construction managers will be responsible for maintaining emission control mitigations and will conduct spot checks for compliance. If possible, receipts of fuel purchases/engine tuning will be kept

CEQA Determination. Implementation of the above mitigation will reduce the impacts of construction emissions to a less-than-significant-level.

Operational Impacts and Mitigation

Impact 2: Mobile source emissions of CO would violate or contribute substantially to a violation of the NAAQS or CAAQS.

Alternatives A through D. Operational emissions generated from the Action Alternatives would result in a significant air quality impact if mobile-source emissions (local to the proposed project) of CO violate or contribute substantially to a violation of the NAAQS or CAAQS (BAAQMD, 1999). Vehicle emissions of CO from the general public traveling to and from the ferry terminal are calculated at approximately 270 lb/day, assuming 3,217 vehicles per day and an average vehicle commuter distance from the East Bay to the ferry terminal of approximately 15 miles per one-way trip. It is important to note that this methodology is very conservative (assuming worst case for all inputs). In reality, far higher primary and secondary traffic volumes would have to be

exceeded to cause a violation of either CO CAAQS. Based on the traffic analysis (Section 4.1), peak 1-hour traffic volumes are not expected to exceed 8,500 vehicles per hour on any primary or secondary roads. As such, localized concentrations of CO would not create an adverse impact.

CEQA Determination. The impact of localized violations of the CO NAAQS and CAAQS is less than significant.

Impact 3: Project emissions of ROG, NO_x, or PM_{10} would exceed 15 tons per year or 80 pounds per day (BAAQMD, 1999).

Alternatives A through D. Operation of the Action Alternatives would result in air emissions (CO, CO_2, NO_x, PM_{10}, $PM_{2.5}$, SO_x, and ROG) from the operation of ferries. However, implementation of the proposed project would also result in a reduction of vehicle trips across Bay Area bridges. The primary users of the Berkeley/Albany Ferry Terminal will be residents of Alameda and Contra Costa Counties. It is estimated that operation of the ferry terminal will partially displace approximately 1,738 vehicles per day each way (assuming one car per person) traveling from the East Bay to San Francisco. The current average vehicle commuter distance from the East Bay to San Francisco is estimated to be approximately 30 miles per one-way trip (20 miles to the Bay Bridge and 10 miles into San Francisco).

Following implementation of the project, the average vehicle commuter distance (1,738 vehicles per day) from the East Bay to the ferry terminal is estimated to be at approximately 20 miles per one-way trip. Based on these approximations, implementation of the ferry terminal will result in 10 fewer vehicle miles per person per one-way trip. This one way 10-mile reduction represents the portion of travel over the Bay Bridge to a location in San Francisco.

Operational emissions from the ferry terminal must be compared to the existing emissions of the vehicles it will partially displace. Table 4-10 details this emissions scenario and compares the net increase to the emissions thresholds provided by BAAQMD. Calculations for the emissions presented in Table 4-10 are detailed in the Air Quality Technical Report.

The ferry emissions were estimated using a combination of site-specific data and available emission factors (assuming the ferries will comply with U.S. EPA Tier II Standards for Marine Vessels). Additionally, add-on control devices will be used to reduce NO_X and PM_{10} emissions. Selective catalytic reduction (SCR) and particulate traps are expected to reduce NO_X and PM_{10} emissions to 10 percent and 5 percent of Tier II emission levels, respectively.

Emissions from the operation of the ferry terminal alternatives would not exceed any BAAQMD significance thresholds, as shown in Table 4-10. Significance thresholds are not provided for CO, NO_X, and SO_X, because these emissions have remained within the BAAQMD threshold, and this project would not contribute to substantial increases in these emissions. Although the ferry terminal alternatives would contribute to increased CO emissions, no standard for CO has been set for the Bay Area. Therefore, no adverse air quality impacts are expected.

CEQA Determination. The impact of the proposed project's operational emissions is less than significant.

Table 4-10
Operational Emissions Comparison (lb/day)

Pollutant	Ferry Terminal[a]	Existing Condition[b]	Net Increase	Applicable Threshold[c]
CO	588.23	291.50	296.73	N/A
CO_2e[d]	139,268.79	103,175.91	36,092.88	N/A
NO_X	100.78	25.93	74.84	80
PM_{10}	8.30	9.06	-0.76	80
$PM_{2.5}$	6.06	5.72	0.33	N/A
ROG	66.90	38.61	28.30	80
SO_X	29.03	0.97	28.05	N/A

Notes:

[a] Ferry terminal emissions include contributions from operation of the ferry terminal plus emissions from vehicles traveling from the East Bay to the ferry terminal.

[b] Existing condition emissions represent vehicle emissions from vehicles traveling from the East Bay to San Francisco.

[c] N/A indicates that a threshold has not been established for the applicable pollutant.

[d] CO_2e represents CO_2 emissions plus methane (CH_4) and nitrous oxide (N_2O) emissions, with the latter two components weighted by their respective global warming potential values. In general, CH_4 and N_2O have 21 and 310 times the warming potential of CO_2, respectively.

Impact 4: The potential to expose members of the public to objectionable odors (BAAQMD, 1999).

Inhalation of objectionable odors rarely results in any physical harm to humans. However, particular odors are disagreeable and can cause discomfort to members of the public who are frequently exposed to them. For this reason, odor complaints are a frequent grievance received by air quality management districts.

The BAAQMD provides guidance for determining the significance of potential odor impacts, which involves the following two steps:

- Determine whether the project will result in an odor source and whether or not receptors are located within the screening distances, as indicated in BAAQMD CEQA Guidance; and

- If the proposed project will result in an odor source and receptors are located closer than the screening level distances indicated in BAAQMD CEQA Guidance, a more detailed odor analysis is required, as well as possible mitigation.

Alternatives A through D. The ferry project does not fall into any of the known categories of concern for objectionable odors identified by the BAAQMD. Operation of the ferry service would create exhaust emissions from the operation of diesel fueled ferries. However, ferries

would only expose receptors to exhaust emissions during periods of start-up, shut-down, and turn-around (i.e., loading of passengers.). Therefore, the majority of emissions generated by the ferries will be away from any public receptors close to the terminal. The majority of emissions will occur when the ferries are in transit, and the ferries would only operate from 6 a.m. and 7 p.m. Therefore, project odors will be limited to daytime hours.

Public exposure to potential odors from the operation of the proposed project is limited due to nature of the ferry operations. Odors are expected to be confined to the immediate vicinity of the ferries. Based on guidance provided by the BAAQMD, ferry operation is not considered a common odor source and should not warrant special consideration. No adverse impacts are expected.

CEQA Determination. Odor impacts from the operation of the proposed project are less than significant.

Impact 5: The potential to expose sensitive receptors or the general public to substantial incremental increases in TAC emissions (BAAQMD, 1999).

Operation of the proposed ferry terminal would expose members of the public to diesel exhaust, which contains a variety of gaseous and solid particulate chemical compounds, many of which have been identified as TACs by CARB. TACs are hazardous compounds that can lead with chronic exposure to a variety of human health problems, including cancer. Of the TACs found in diesel exhaust, the primary TAC of concern is DPM, which is generated from the combustion of diesel fuel. DPM is a combination of various particulate compounds found in diesel exhaust. According to supporting CARB studies, DPM represents 50 to 90 percent of the risk of mutations that lead to cancer from diesel exhaust. Therefore, DPM is generally used as a surrogate to identify the potential health risks from diesel emissions.

The BAAQMD provides two thresholds of significance for TACs in BAAQMD CEQA Guidance. They are as follows:

- Probability of contracting cancer for the MEI exceeds 10 in 1 million.
- Ground-level concentrations of non-carcinogenic TACs would result in a Hazard Index greater than 1 for the MEI.

According to this guidance, a cancer risk greater than 10 in 1 million is considered significant. DPM will be used as a surrogate to evaluate the cancer risk of diesel exhaust.

Alternatives A through D. Public exposure to DPM from the operation of the ferries is very limited due to nature of the ferry operations, because they only expose receptors to exhaust emissions during periods of start-up, shut-down, and turn-around (i.e., loading of passengers). Furthermore, the ferries would only operate from 6 a.m. to 7 p.m.; therefore, DPM emissions will be limited to daytime hours. The majority of emissions generated by the ferries will be away from any public receptors situated close to the ferry terminal sites and will occur when the ferries are in transit. In addition, the ferries will use particulate traps that will reduce PM_{10} emissions to 5 percent of the current U.S. EPA

Tier II requirements. Based on this information, it is expected that the cancer risk associated with DPM will be well below 10 in a million. No adverse impacts are expected.

CEQA Determination. The impact of DPM emissions is less than significant.

Cumulative Impacts and Mitigation

Impact 6: Operational emissions generated from the ferry terminal alternatives would result in a significant cumulative air quality impact if the proposed project would individually have a significant air quality impact. For any project that does not individually have significant operational air quality impacts, the determination of significant cumulative impact should be based on an evaluation of the consistency of the project with the local and regional air quality plans (BAAQMD, 1999).

The Action Alternatives do not have any significant operational air impacts, as shown in Impacts 1 through 5. In light of this fact, the cumulative determination will be based on an evaluation of the consistency of the project with local general plans and the consistency of the general plan with the regional air quality plan.

The BAAQMD periodically prepares and updates general air quality plans that outline future pollutant reduction strategies, for the purpose of achieving attainment of ambient air quality standards in the San Francisco Bay Area Air Basin. These plans are prepared in collaboration with the MTC and ABAG.

As stated in the BAAQMD CEQA Guidelines, "If a project is proposed in a city or county with a general plan that is consistent with the Clean Air Plan and the project is consistent with that general plan (i.e., it does not require a general plan amendment), then the project will not have a significant cumulative impact (provided, of course, the project does not individually have any significant impacts). No further analysis regarding cumulative impacts is necessary."

Alternatives A through D. These plans anticipate that new sources of emissions will locate within the District in future years and seek authority to emit air pollutants under the District's rules, guidelines, and regulations. To allow for such future economic growth, these plans anticipate that new sources would comply with "all feasible measures." The BAOS points out that no non-attainment area in the state has ever achieved a 5 percent reduction in O_3 precursor pollutants each year (in accordance with the requirements of the 1988 CCAA). As such, the majority of areas within the state, specifically the Bay Area, have opted to meet the requirements of the CCAA by applying "all feasible measures." Although there is no formal definition of "all feasible measures," the general consensus is that it implies adherence to all applicable emissions standards, permitting requirements, emissions limits, and the use of best available control technology. The project will operate ferries that will comply with all applicable federal and state rules and regulations. Furthermore, the ferries will use SCR add on controls that will reduce NO_x (precursor to O_3) emissions to 10 percent of the current U.S. EPA Tier II requirements. As such, the project is consistent with the 2005 BOAS and will not require a general plan amendment. No adverse impacts are expected.

CEQA Determination. The cumulative impacts are less than significant.

Greenhouse Gases

Currently, there are no published thresholds of significance for measuring or determining the impact of GHG from a project to global climate change. The OPR is responsible for adopting regulations implementing CEQA, yet that agency has not promulgated any regulations directly concerning analysis of global climate change. CARB is the statewide agency responsible for administering air quality programs within the state, and has been tasked with developing many of the regulatory programs required by AB 32, but has likewise not developed any regulations, guidance, or recommendations regarding evaluation of global climate change within CEQA documents. The BAAQMD is the regional agency responsible for regulating air emissions within the project area, but has yet to develop guidance regarding evaluation of global climate change within CEQA documents.

In the absence of adopted regulations, thresholds, or guidance, this section provides a qualitative component demonstrating how the project would comply with existing federal and state emission reduction strategies, including the state's goals of reducing GHG emissions to 1990 levels by 2020. With this approach, it is possible to conclude that the proposed project that implements all feasible and applicable emissions reduction strategies would have a less-than-significant impact on global climate change.

Construction of the proposed project would result in short-term and temporary increases in GHG emissions. These increases are associated with the operation of construction equipment, material hauling vehicles, and construction employee vehicles. Based on the implementation of the mitigation required for Impact 1 (which will reduce equipment exhaust, as required by BAAQMD CEQA Guidelines), and continuing compliance with any federal and state GHG regulations, construction of the project is not expected to conflict with the state's goals of reducing GHG emissions to 1990 levels by 2020 and would have a less-than-significant impact on global climate change.

GHG regulations allow for development and growth. Operation of the ferry service would result in long-term increases in GHG emissions. These increases are associated with the combustion of fuel in the ferries. However, control technologies applied to the ferries will achieve significant reductions of NO_x and PM_{10} emissions from current U.S. EPA Tier II requirements for ferries. Furthermore, the project will comply with any applicable federal and state GHG regulations. Therefore, operation of the project is not anticipated to conflict with the state's goals of reducing GHG emissions to 1990 levels by 2020 and would have a less-than-significant impact on global climate change.

4.8 NOISE AND VIBRATION

The following section describes the potential noise impacts that expanded ferry service to Berkeley or Albany could have on the noise-sensitive land uses around the potential ferry and on the underwater environment. It is organized by operational impacts, construction impacts, and cumulative impacts. This section provides an evaluation of impacts for each ferry terminal alternative. Where differences in the magnitude or type of effect occur between alternatives, they are discussed separately for each alternative. Otherwise, the impacts are discussed and

evaluated for all of the ferry terminal alternatives. Where applicable, mitigation measures are addressed that can be adopted to avoid or minimize these effects.

4.8.1 Significance Criteria

Impacts would be considered adverse if they would:

- Result in an overall noise level at the noise-sensitive land uses of 65 dB CNEL or more;
- Result in an overall increase in noise level at the noise-sensitive land uses of 3 dB or more;
- Exceed the prescribed criteria listed within the Noise Ordinance for either level or duration of stationary noise sources;
- Cause underwater sound pressure levels during construction or operation that exceed NMFS guidelines for protection of marine mammals (i.e., 160 dB referenced to 1 μPa); or
- Conflict with any other locally applicable policies protecting noise-sensitive land uses.

4.8.2 Noise and Vibration Impacts and Mitigation

4.8.2.1 No-Action Alternative

This alternative would result in no additional noise-generating sources at any of the potential docking sites, and there would be additional impacts to the communities surrounding those sites. All of the existing transit services connecting the East Bay communities of Berkeley and Albany with San Francisco would continue without implementing ferry service.

Therefore, there would be no construction or operational impacts to any noise-sensitive receptors and the ambient noise environment would remain the same as the existing setting.

4.8.2.2 Action Alternatives

Construction Impacts and Mitigation

POTENTIAL IMPACTS ON SEA ANIMALS

Impact 1: Underwater noise from pile driving and other construction activities could affect nearby fish.

Underwater noise and acoustic pressure from pile driving could affect aquatic resources by causing both behavioral avoidance of the construction area and/or sublethal or lethal effects on sensitive species. The severity of adverse effects on fish (e.g., behavioral avoidance) is dependent upon a number of factors, including the concentration and location of fish within the area, species-specific

differences in sensitivity to acoustic pressures, the depth of water, bottom- and surface-water characteristics, and the type of pile (steel, concrete, and hammer size). Exposure to sound pressure levels associated with pile driving decreases in water exponentially as a function of the distance from the source. Sound pressure levels of 180 dB referenced to 1 μPa are known to cause permanent injury to the lateral line and inner ear of fishes (Hastings et al., 1996), resulting in damage to these organs, disorientation, and the inability to locate food and avoid predators. Delayed mortality may also occur. In addition, exposure to low-frequency underwater sound may result in reduced hatching rates of fish eggs and reduced larval fish survival (see Section 4.9, Biological Resources).

Alternatives A through D. Widening of the San Mateo Bridge required the driving of 900 to 1,200 concrete piles with 2- to 3-foot diameters. No fish kills were reported during this pile driving operation. Pile driving for the Berkeley/Albany ferry terminal facilities would include small-diameter concrete piles, such as those used for the San Mateo Bridge. It is therefore not expected that significant fish mortalities would result from pile driving. Harmful sound pressures may still occur, which could produce adverse temporary effects on fish.

Mitigation. Underwater sound monitoring would be conducted if estimated sound pressure levels could approach those that may harm fish (e.g., 180 dB). Measures to reduce sound pressure levels in surrounding waters, such as bubble jackets surrounding the piles, may have to be deployed if sound pressure levels exceed those that could harm fish.

CEQA Determination. This impact would be less than significant after implementation of the mitigation.

POTENTIAL EFFECTS ON MARINE MAMMALS

Impact 2: Underwater pile driving noise could disturb marine mammals.

Underwater noise related to pile driving could result in temporary disturbance to foraging or migrating marine mammals. Under the Marine Mammal Protection Act of 1972 (amended in 1994), it is forbidden to intentionally harass marine mammals. NMFS considers, as a guideline, underwater sound pressure levels at or above 160 dB referenced to 1 μPa to constitute harassment to marine mammals.

Alternatives A through D. Caltrans conducted a Marine Mammal Impact Assessment for the Pile Installation Demonstration Project as part of studies conducted for the San Francisco–Oakland Bay Bridge East Span Seismic Safety Project (Caltrans, 2001). The Caltrans study included a series of underwater noise measurements made during pile driving activities. Data from the study was used to correlate the energy of the impact strike with the noise level made in the water, and to develop an equation to calculate the impact noise level from a given impact energy level at various distances, as indicated in Table 4-11. The impact from the piles driven for this project is expected to generate a noise level of 188 to 189 dB root mean square at a distance of 100 meters (328 feet) from the pile, as shown below. Pile driving noise levels are expected to exceed the 160 dB referenced to 1 μPa guideline, a temporary adverse impact.

Table 4-11
Pile Driver Energy and Underwater Sound Level

Energy (kilojoules)	Sound Level dB Root Mean Square (at 100 meters)	Distance to 190 dB Contour (feet)	Distance to 180 dB Contour (feet)	Distance to 160 dB Contour (feet)
136	188	252	796	7,955
203	189	308	974	9,743

Mitigation. Pile driving noise levels in excess of standard would require an Incidental Harassment Authorization from NMFS. In addition, avoidance mitigation measures, identified in Section 4.9, Biological Resource, would also be applied.

CEQA Determination. This impact would be less than significant after implementation of the aforementioned mitigation measure.

POTENTIAL EFFECTS ON ADJACENT NOISE-SENSITIVE LAND USES

Impact 3: Project construction could impact existing noise-sensitive receptors adjacent to the alternative terminal sites.

Alternative A. Pier and plaza construction will take place within approximately 125 feet south of the Doubletree Hotel on Marina Boulevard. The pile driving activities associated with the construction may have an impact on the sleeping, dining, and meeting activities of the guests at the hotel. The diesel powered impact hammer driving a prestressed concrete pile is expected to generate a sound power level (SPL) of 128 dBA, which translates to a maximum sound pressure level of 85.5 dBA at a distance of 125 feet from the driver. Transient noise levels of this magnitude can interfere with sleep, conversation, or business related activities, constituting an adverse impact.

Alternative B. Pier and plaza construction will take place within approximately 300 feet of the south end of Shorebird Park. At this distance, the sound pressure level from the pile driving is expected to be about 80 dBA SPL, potentially constituting an adverse impact. The pier and plaza for this ferry terminal alternative will also be located within approximately 500 feet of Hs Lordships Restaurant, which is at the south end of the Berkeley Fishing Pier. At this distance, the sound pressure level from the pile driving is expected to be about 73.5 dBA SPL.

Alternatives C through D: There are no noise-sensitive receptors within 1,000 feet of the pier or plaza construction areas for these ferry terminal alternatives. Therefore, no noise-sensitive receptors will be impacted during construction at these sites. No adverse impacts are expected.

Mitigation. If the pile driving activities of the construction process can be completed within a period 10 days, then the commercial noise standard of 85 dBA for construction noise would apply for activities conducted during the weekdays. In this case, the noise ordinance standard could be

exceeded at the site of Alternative A, but would be met at the park and the restaurant adjacent to the site for Alternative B. Should the pile driving activities be conducted for a period of more than 10 days, then the noise standard for commercial land uses drops to 70 dBA and the noise ordinance limits would be exceeded at both the Alternative A and B sites. To be consistent with the Construction Noise Ordinance for the City of Berkeley, the following steps must be implemented:

- The construction activities must be conducted during the week days between the hours of 7:00 a.m. and 7:00 p.m.

- The commercial land uses that could be impacted must be notified of the noise generating construction activities prior to the start of construction. These businesses shall be provided with a phone number where the construction foreman can be reached prior to the start of the job.

- Noise from power equipment or other noise producing activities shall be mitigated with the use of sound barriers, muffling devices, lower settings on power equipment, and shortened work periods. It is recommended that the pile drivers be mitigated with noise blankets, such as the KNC Noise Control Curtain barrier, by Kinetics Noise Control. It is also recommended that the Flexoply shock absorbing pad be used in the anvil chamber to further reduce the impact noise. Both of these measures are recommended for construction activities at the Alternative A and B sites.

- If power equipment is to be used, preliminary noise readings should be taken to determine whether the construction activities may be in violation of the noise ordinance. These readings should be taken at the closest adjacent property line from the noise source.

CEQA Determination. With implementation of the proposed mitigation measures, the potential impact would be less than significant.

Operational Impacts and Mitigation

POTENTIAL EFFECTS ON MARINE ANIMALS

Impact 4: Transiting ferries disturb marine mammal resting and foraging activities.

Human activities have been shown to adversely affect the behavioral patterns of marine mammals. Seals react to both visual and acoustic disturbances (Richardson et al., 1995). According to Green et al. (2001), the primary sources of disturbance for harbor seals in San Francisco Bay are boats, kayaks, jet skis, aircraft, foot traffic, and dogs in the vicinity of haul-out sites. Disturbance sources that occur closer to the animals tend to provoke a stronger negative response.

Alternatives A through D. Disturbance by ferries to foraging marine mammals is expected to be similar to existing boat traffic. NMFS guidelines would be followed to minimize acoustic

disturbance on nearby mammals, and no adverse impact would be created (see Section 4.9, Biological Resources).

CEQA Determination. This impact would be less than significant if ferry operation follows NMFS guidelines.

POTENTIAL EFFECTS ON ADJACENT NOISE-SENSITIVE RECEPTORS

Impact 4: Project operation could impact existing noise-sensitive receptors adjacent to the ferry terminal alternative sites.

Alternatives A through D. Ferry operational activities will generate noise levels less than the exterior noise standard for all noise-sensitive receptors at all ferry terminal alternative locations for all operational cases. No adverse impacts would occur.

CEQA Determination. Impacts to noise-sensitive land uses from operations would be less than significant for all Action Alternatives.

Cumulative Impacts and Mitigation

Impact 5: Cumulative traffic impacts could affect existing noise-sensitive receptors in the study area.

Alternatives A through D. Table 4-12 presents the cumulative traffic noise levels at key intersections with and without the project. The intersections with the greatest increases—Alternative C, Gilman Street (1.6 dB); and Alternative A, Marina Boulevard (1.3 dB)—are both in areas without any noise sensitive receptors. There is an increase along 6th Street of 1.0 dB, but that is not great enough to be considered an adverse cumulative impact.

CEQA Determination. Cumulative impacts to noise-sensitive land uses from traffic would be less than significant for all Action Alternatives.

4.9 BIOLOGICAL RESOURCES

The following section describes the potential impacts that expanded ferry service to Berkeley or Albany could have on the biological environment. It is organized by construction impacts, operational impacts, and cumulative impacts, and then by major biological habitat or species type (e.g., overall Bay habitat, benthic environment, fish, birds, and marine mammals). This section provides an evaluation of impacts for each ferry terminal alternative. Where differences in the magnitude or type of effect occur between ferry terminal alternatives, they are discussed separately. Otherwise, the impacts are discussed and evaluated together for all of the project alternatives. Where applicable, mitigation measures that can be adopted to avoid or minimize these effects are addressed.

Table 4-12
Traffic Noise Levels 50 Feet from Roadway Centerline

Road Segment	Speed (mph)	Peak Hour Percentage	Existing		Future No-Action		Change
			ADT	dB CNEL	ADT	dB CNEL	
Buchanan Street/Marin Avenue							
West of Pierce Street	40	8.5	25,235	71.6	34,035	72.9	1.3
Gilman Street							
West of W. Frontage Road	45	8.5	3,188	63.7	4,000	64.6	1.0
University Avenue							
West of Marina Boulevard	35	7.2	5,569	64.0	7,000	65.0	1.0
East of Marina Boulevard	45	7.2	9,514	68.4	11,958	69.4	1.0
West of W. Frontage Road	45	7.2	9,375	68.3	11,792	69.3	1.0
East of I-80 WB Ramps	45	7.2	25,903	72.8	32,389	73.7	1.0
West of 6th Street	45	7.2	45,333	75.2	56,986	76.2	1.0
East of 6th Street	45	7.2	31,458	73.6	39,542	74.6	1.0
West of San Pablo Avenue	45	7.2	29,542	73.3	37,125	74.3	1.0
Marina Boulevard							
North of University Avenue	25	10.0	3,540	59.6	4,450	60.6	1.0
W. Frontage Road							
South of Gilman Street	35	10.0	12,630	67.6	16,050	68.6	1.0
North of University Avenue	35	10.0	11,980	67.3	15,070	68.3	1.0
6th Street							
South of Gilman Street	40	10.0	7,440	66.3	9,360	67.3	1.0
North of University Avenue	40	10.0	13,480	68.9	13,320	68.9	-0.1
South of University Avenue	40	10.0	14,130	69.1	17,760	70.1	1.0

4.9.1 Methodology

Under NEPA, impacts are evaluated on the basis of magnitude and duration of the impact. CEQA evaluates significance of impacts relative to criteria established for the project.

4.9.2 Significance Criteria

For this project, impacts would be considered significant if they would:

- Substantially decrease the acreage or quality of waterfowl breeding or wintering habitat, or substantially decrease the acreage or quality of migrant and wintering shorebird habitat;

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable Habitat Conservation Plan;

- Result in the "take" of any federal or state listed threatened, endangered, or protected species or the habitat of such species;

- Alter or diminish federally designated critical habitat or a special aquatic site, including eelgrass beds, mudflats, and wetlands;

- Result in the reduction of, or have a substantial adverse effect on, protected wetland habitat as defined in Section 404 of the CWA;

- Result in alteration of desirable functions and values of protected wetland habitat through direct removal, filling, hydrological interruption, or other means;

- Cause underwater sound pressure levels during construction or operation that exceed NMFS guidelines for protection of marine mammals (i.e., 160 dB referenced to 1 μPa);

- Cause the introduction or substantial spread of invasive nonnative plants or wildlife;

- Interfere substantially with the movement of any native resident or migratory fish, or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

- Cause substantial or sustained impact to spawning habitat of commercially important species (e.g., Pacific herring); or

- Conflict with any locally applicable policies protecting biological resources.

4.9.3 Biological Resources Impacts and Mitigation

4.9.3.1 No-Action Alternative

This alternative would continue the existing transit services connecting the East Bay communities of Berkeley and Albany with San Francisco without implementing ferry service. Programmed bus and rail transit improvements between the East Bay and San Francisco identified in the Regional Transportation Plan would be implemented as part of the No Build/No-Action Alternative. Therefore, there would be no construction or operational impacts to biological resources and biological conditions would remain the same as the existing setting.

4.9.3.2 Action Alternatives

Construction Impacts and Mitigation

POTENTIAL IMPACTS ON HABITAT

This section identifies impacts that could affect biological habitat types. These habitat types include tidal marshes (including salt and brackish marshes), mudflats, agricultural baylands, salt ponds, and sandy or rocky shorelines.

Impact 1: Construction of terminal facilities and access channels could result in the loss or disturbance of jurisdictional wetlands.

Both young salt marsh and young brackish marsh are present within the study area, as are seasonal wetlands. Project construction would not take place within any jurisdictional wetland; therefore, no direct loss of these wetlands is expected to occur during construction of any of the ferry terminal alternatives.

Alternative A. No wetlands occur within the Berkeley Marina; therefore, no loss of wetlands would be expected under this ferry terminal alternative and no adverse impacts would be produced.

Alternative B. The closest tidal wetlands to the construction site on the Berkeley Pier are near the Brickyard, approximately 0.75 mile east. No loss of tidal wetlands would occur under this ferry terminal alternative and no adverse impacts would be produced.

Alternatives C and D. Within the study area, small salt marshes exist along the entire shoreline of the Albany mudflat, the east shore of the Albany Bulb, and at the mouth of Codornices Creek. Construction is not planned within any marsh areas, no loss of wetlands would be expected under this ferry terminal alternative, and no adverse impacts would be produced.

Mitigation. No loss of wetland habitat would be expected under any of the proposed ferry terminal alternatives; therefore, no mitigation is necessary.

CEQA Determination. The impact is less than significant.

Impact 2: Project construction could result in the disturbance of "Special Aquatic Sites," including eelgrass beds and mudflats.

Eelgrass beds and mudflats are considered special aquatic sites and are subject to USACE jurisdiction under Section 404 of the CWA and BCDC jurisdiction under Section 66605 of the McAteer-Petris Act.

Mudflats serve as important foraging areas for shorebirds species and provide shallow water habitat for juvenile fish. Dredge channels are not planned to cross any of the mudflats within the project area. No loss of mudflat acreage would occur as a result of project construction.

Eelgrass in the Bay provides spawning habitat for herring, and serves as a nursery ground and shelter for juvenile fish, among other functions. Eelgrass could be impacted directly or indirectly by project construction, resulting in the permanent loss of this habitat type. Dredging may directly remove eelgrass beds. In addition, eelgrass may be indirectly impacted by turbidity and increased sedimentation in areas adjacent to, or down current from, dredging operations. Potential removal or other disturbance causing degradation to eelgrass beds would be considered an adverse impact.

Dredging for project construction would increase suspended sediments in the vicinity of the project site. Dredging activities for channel construction are expected to increase the concentration of suspended sediments for short periods of time. However, concentrations are expected to be within the natural variability of the Central Bay.

Alternatives A and B. No eelgrass beds or mudflats are known within or adjacent to either potential dredge footprint directly in the ferry path for either the Berkeley Marina or Berkeley Fishing Pier options, and direct removal via dredging may be ruled out for both of these areas. Indirect effects due to turbidity and sedimentation are possible, but are expected to be minimal. The nearest known eelgrass beds are more than 0.6 mile to the south of the proposed dredged channel for Alternative B and nearly 1 mile south of the proposed Alternative A channel. No adverse impacts would be expected.

Alternatives C and D. Eelgrass beds were documented just north of the Buchanan Street Beach in 2003. Merkel & Associates are currently conducting a 1-acre eelgrass mitigation pilot project for the East Span Bay Bridge construction south of Gilman Street, with the potential to expand northward, eventually encompassing 15 acres (Merkel, 2007). This mitigation site is just offshore from the proposed Alternatives C and D sites.

The proposed dredged channel for Alternative C would directly remove a portion of eelgrass at the Caltrans eelgrass mitigation site, an adverse impact. Direct shading of remaining beds by piers and floating docks may also adversely affect eelgrass by reducing available light required for photosynthesis.

Indirect effects are also possible due to sedimentation and turbidity. Turbidity plumes from dredging operations may temporarily reduce light penetration in waters adjacent to the plumes. Sediment near areas of dredging may settle on eelgrass blades and affect the viability of the eelgrass in beds that are not directly removed via dredging, but are adjacent to dredging operations, a potentially adverse effect of Alternatives C and D. Eelgrass beds are easily affected by changes in water quality and turbidity because their growth and survival is a direct function of light penetration within the water column. However, as discussed above, turbidity affects from dredging are expected to be short-lived and within natural variability.

Mitigation. For Alternatives C and D, additional eelgrass surveys would be conducted to update existing eelgrass mapping at these locations and more precisely determine current locations and density of eelgrass. Methods would include use of side-scan sonar techniques, possibly in

conjunction with other techniques such as visual surveys. If eelgrass beds cannot be avoided, suitable compensatory mitigation would be designed in consultation with the appropriate state and federal agencies, such as the USACE, U.S. EPA, CDFG, BCDC, and the San Francisco Bay RWQCB. Correspondence that identifies agencies contacted for consultation on potential biological resource impacts is presented in Appendix C. Mitigation would provide enhanced functions and values relative to the impacted special aquatic sites. A mitigation plan would include monitoring and evaluating the success of the mitigation effort, and a contingency plan if the mitigation fails.

It should be noted that very little eelgrass mitigation has been done in San Francisco Bay and that mitigation of eelgrass impacts may not be feasible or successful in all cases. Furthermore, that some of the eelgrass that could potentially be disturbed is itself part of a mitigation project. Should Alternative C be carried forward, this Caltrans mitigation site would be adversely affected, and the amount of necessary compensatory or offsetting mitigation for ferry routing may be increased by the amount previously deemed necessary for the Bay Bridge east span construction.

For Alternatives C and D, indirect impacts to eelgrass beds from sedimentation and turbidity may be avoided or reduced through the use of silt curtains to protect the beds from sedimentation, or other methods that would protect the eelgrass from turbidity plumes generated during dredging. The use of silt curtains would have to be evaluated on a site-specific basis to determine feasibility for each ferry terminal alternative. Silt curtains can to be logistically difficult to deploy and can be ineffective in areas of high current velocity.

CEQA Determination. This impact would be less than significant for Alternatives A and B and would be considered less than significant after successful implementation of proposed mitigation measures for Alternatives C and D.

Impact 3: Construction activities could result in increased potential for the spread of invasive nonnative plant species, potentially altering local habitat.

Nonnative invasive species are of particular concern in San Francisco Bay. The nonnative smooth cordgrass, *Spartina alterniflora*, which has invaded the study area in the last decade, is of particular concern. This species has the ability to invade and exclude the native Pacific cordgrass, alter native northern saltmarsh habitat, colonize tidal mudflats, and reduce open-water areas, potentially resulting in reduced habitat for foraging shorebirds, fish, and invertebrates. Dredging in areas of nonnative cordgrass infestations can increase the spread of this species by creating root fragments and rhizomes that disperse with the tides.

Alternatives A and B. *Spartina alterniflora* is an intertidal colonizer of mud or sand flats. Appropriate *Spartina alterniflora* habitat does not occur in areas to be disturbed by either of these ferry terminal alternatives; therefore, no potential for spread of this invasive species exists.

Alternatives C and D. *Spartina alterniflora* and other nonnative plants are documented within Eastshore State Park (CDPR, 2001) and were mapped both north and south of the study area in 2004 by the invasive spartina project (San Francisco Estuary Project, 2004).

Mitigation. Alternatives C and D involve dredging and construction of new facilities in areas potentially colonized by *Spartina alterniflora* and other invasive plants. Construction activities may further spread the invasion via dispersal of root fragments and rhizomes. Preconstruction surveys by a qualified biologist would be conducted to identify and map areas of *Spartina alterniflora* or hybrids within the project area. Identified stands of nonnative cordgrass would be removed to the extent feasible prior to dredging or construction activities. The methods of removal would be developed in coordination with the USACE. Eradication of this species at a site would be done in advance of construction.

CEQA Determination. This impact would be less than significant after successful implementation of the proposed mitigation.

Impact 4: Construction of a breakwater would remove soft-bottom habitat.

Alternatives A, C, and D. No breakwater would be constructed for these ferry terminal alternatives.

Alternative B. Construction of a breakwater would be necessary to provide wind and wave protection for the docking and docked ferry. Current plans call for a 300-foot-long breakwater, either sheetpile (vertical wall) or rock (sloping wall). A sheetpile breakwater footprint would remove between 0.02 and 0.05 acre of soft bottom habitat. A rock breakwater would remove approximately 0.48 acre of soft bottom habitat.

Although soft bottom subtidal habitat would be removed by construction of the breakwater, hard substrate habitat would be added. This breakwater would have the potential to create a "reef effect" or area of locally high biodiversity based on a manmade structure colonized by marine organisms. Hard substrate creates suitable habitat for algal growth and sessile invertebrates, which in turn create habitat (including food, shelter, and larval attachment sites) for diverse marine biota both subtidally and intertidally. Typical hard substrate subtidal and intertidal habitat in San Francisco Bay supports seaweeds, sponges, starfish, barnacles, mussels and marine snails, small crustaceans such as amphipods and isopods, sea anemones, and small fish. Either sheetpile or rock construction would add an equal or greater area of hard substrate habitat, in the form of subtidal and intertidal breakwater walls, than the soft-bottom habitat removed.

CEQA Determination. Biological impacts from removal of soft-bottomed habitat are considered less than significant with the addition of hard bottom substrate that would be created.

Impact 5: Construction of pile-supported piers, shoreline retaining, and wing walls for the ferry pier would remove soft-bottom habitat.

Alternatives A through D. Pier construction plans call for the use of 24-inch octagonal concrete piles. Current plans call for the use of approximately 34 piles for Alternative A, approximately 18 piles each for Alternatives B and C, and approximately 22 piles for Alternative D, which would entail amounts of soft-bottom habitat that are fractions of an acre (0.00258, 0.00136, and 0.00167 acre, respectively). These areas are small relative to the amount of soft bottom habitat locally and through the Bay. While small amounts of soft bottom habitat would be removed by each pier, both subtidal and intertidal hard substrate habit would be added in the form of piles. Other constructed features such as retaining and wing walls would also replace small amounts of soft-bottom habitat with hard substrate. The surface area for attachment of organisms would exceed the loss of soft bottom habitat, providing hard substrate habitat benefits as discussed above.

CEQA Determination. Biological impacts from removal of soft-bottomed habitat are considered less than significant.

POTENTIAL EFFECTS ON PLANKTON/PRODUCTIVITY

Impact 6: Turbidity caused by dredging would reduce light penetration in the water column and could locally reduce phytoplankton production.

Phytoplankton, a major source of primary productivity in the Bay, is the base of a food chain that supports zooplankton, invertebrates, fish, aquatic birds, and marine mammals. Phytoplankton productivity requires solar energy, or sunlight, plus nutrients. Increased sediment concentrations in the upper water column reduce sunlight penetration, thus reducing the depth of the photic zone and magnitude of phytoplankton productivity. Suspended sediment concentrations have been measured for hydraulic dredging and mechanical dredgers, including clamshell dredging, one of the most common dredge types. Both hydraulic and mechanical dredgers increased suspended sediment above background levels by 10 to 400 mg/L, with an average of 60 mg/L for mechanical and 83 mg/L for hydraulic (Anchor Environmental, 2003). Dredging activities for channel construction are expected to increase the concentration of suspended sediments for a short period of time, but concentrations are expected to be within the natural variability of the Central Bay. The Biological Resources Technical Report provides more detailed information about turbidity and its effects on plant and animal life.

Alternatives A through D. The impact of a turbidity plume on phytoplankton productivity via decreased light transmission would depend largely on the difference between natural turbidity and added turbidity via dredged material during the time period in which dredging takes place. The western or offshore portions of dredged channel for all ferry terminal alternatives are situated in exposed water, subject to strong winds and intense mixing. Turbidity plumes in these portions of the project may be quickly diluted to near or within background particulate concentrations. The nearshore portions of Alternatives A and C, however, occur in more protected water, and

here the difference between natural turbidity and added turbidity may be sufficient to affect small-scale phytoplankton productivity in these areas. However, given the scale of the nearshore dredge plume compared to the area of the Bay where primary production occurs, dredging necessary for construction of new terminals and nearshore access channels would not result in an adverse impact on Baywide phytoplankton productivity.

CEQA Determination. This impact is less than significant.

POTENTIAL EFFECTS ON BENTHOS

Impact 7: Construction activities could result in the temporary or permanent loss of benthic (bottom dwelling) organisms and temporary or permanent disruption of benthic communities.

Dredging would directly impact benthic communities through physical disruption and direct removal of sessile benthic organisms, resulting in the loss of most, if not all, organisms in the dredge path. Following dredging, disturbed areas are anticipated to recolonize, beginning with mobile and opportunistic species. Opportunistic species, characterized by rapid growth and reproduction, may or may not be the same species that were present in the area prior to the disturbance. The project would not result in the introduction of any new species to the Bay.

Alternative A. Dredging for Alternative A would occur in an area that has historically been maintained by dredging as a shipping channel. Although the benthic community can be assumed to be highly disturbed, this is not considered an adverse impact.

Alternatives B, C, and D. Dredging for these ferry terminal alternatives would affect Bay bottom that is not regularly dredged. The benthic community in the dredge path is expected to recover over a period of months. On the scale of the soft bottom habitat of the Central Bay, this disturbance is relatively small and not considered adverse.

CEQA Determination. Given that benthic communities will recover in dredged disturbed areas, the impacts to benthic communities are not considered significant.

Impact 8: Construction activities may remove native oysters.

While they are not a state or federally listed species, native oysters (*Ostrea conchaphila*) are considered a historical keystone species for the Bay. A century ago, native oysters were a highly visible component of Bay ecosystems, covering thousands of Bay shore acres, and supporting industries from cement-making to gourmet dining. *Ostrea conchaphila* requires hard substrate for larval settlement, preferably other oyster shells, and this settling habit led to the formation of vast oyster reefs, the nooks and crannies of which supported diverse communities of fish, crab, and other native invertebrates. By the early 1900s, however, overfishing, habitat degradation and the introduction of non native shellfish led to the decline of Native oysters. Native oyster recovery is now closely watched by several groups, including Save The Bay, San Jose State University, the National Oceanic and Atmospheric Association (NOAA) Fisheries Restoration

Center, the Smithsonian Environmental Research Center, Restore America's Estuaries, and others.

Native oysters are currently known in the study area, although surveys for the site are unavailable. Given the lack of survey data, estimates of potential native oyster removal from each dredging alternative can not be made.

Alternatives A through D. Native oysters are known to occur within the Berkeley Marina. Populations may exist at or near the other three alternatives sites. Dredging could permanently remove this native bivalve, and, as they are slow to recolonize, this habitat may be taken over by invasive benthic species. In the absence of native oysters at this location, current benthic communities may undergo temporary disruption and loss of organisms, and may be recolonized by a higher percentage of nonnative species.

Mitigation. If Alternative A were selected as the LPA, WETA would work with NOAA Fisheries, CDFG, and other interested resource agencies to determine whether native oysters would be adversely affected by dredging, using the results of studies currently being conducted at the terminal site for the South San Francisco project and other sites in the Bay. Alternatively, WETA may agree to conduct pre-construction surveys for native oysters at the Marina site. Given the outcome of the surveys, WETA would consult with the resource agencies to determine whether mitigation measures are required to re-establish the affected beds. Correspondence identifying on going consultation with agencies concerned with potential biological resource impacts is presented in Appendix C.

CEQA Determination. Removal of native oysters, or replacement of native oysters by nonnative species, would not be considered significant under the criteria established for this project.

POTENTIAL EFFECTS ON FISH

Impact 9: Dredging could adversely affect fish species near construction activities.

Alternatives A through D. Increased turbidity levels caused by dredging can decrease water column dissolved oxygen concentrations in the vicinity of the plume. Mobile animals such as fish and crustaceans tend to avoid areas of high turbidity and may be temporarily displaced from the area during dredging operations. Dredge-induced increases in suspended sediment concentration are predicted to be short-lived and generally within the range of normal suspended sediment variability in the Bay. Special-status fish species are addressed under Impact 15.

Mitigation. Turbidity caused by dredging may briefly and locally affect fish movements. Mitigation for Impact 2 would apply and would help to confine the spread of turbidity in the water turbidity.

CEQA Determination. This impact is considered less than significant.

Impact 10: Dredging and associated turbidity could affect spawning by Pacific herring.

Dredging activity during the Pacific herring spawning season (starting as early as November and ending as late as March [Watters et al., 2004]) in areas where spawning is occurring could impact spawning success. Spawned eggs are very susceptible to suspended sediments at concentrations as low as 125 to 250 mg/L, which would likely be achieved during dredging activities. As yet unpublished data by researchers at Bodega Marine Laboratory suggest that such concentrations impact eggs only during an approximate 2-hour window after spawning, as the eggs' adhesive layer becomes sticky and sediments adhere to the eggs. Sediment adhesion to eggs within this window can cause larval abnormalities during later development (Cherr, 2007). Herring may also be excluded from areas where they might otherwise spawn during dredge-induced high turbidity events.

Alternatives A through D. As pier pilings and boat hulls are a common spawning habitat within the Bay (Watters et al., 2004), it can be assumed that spawning is equally likely, and equally likely to be affected, at locations of all of the ferry terminal alternatives. The adverse impact is not expected to vary among ferry terminal alternatives.

Mitigation. Dredging would be limited to resource agency designated work windows, avoiding the spawning period from December 1 to March 1. If dredging must extend outside of the work window, a waiver from CDFG must be obtained. This waiver may include specifications such as monitoring by a qualified biologist and halting of dredging activities for a specified period if herring spawning activity is noted in the construction area.

The use of silt curtains while dredging may reduce turbidity adjacent to the dredging area and protect undetected spawning activity. The use of silt curtains would have to be evaluated on a site-specific basis to determine feasibility for each ferry terminal alternative. Silt curtains can be logistically difficult to deploy and can be ineffective in areas of high current velocity.

CEQA Determination. This impact would be less than significant after implementation of proposed mitigation measures.

Impact 11: Underwater noise from pile driving and other construction activities could affect nearby fish.

Underwater noise and acoustic pressure resulting from pile driving could affect aquatic resources by causing avoidance of the construction area and/or sublethal or lethal effects on sensitive species. The severity of adverse effects on fish (e.g., behavioral avoidance) is dependent upon a number of factors, including the concentration and location of fish within the area, species-specific differences in sensitivity to acoustic pressures, the depth of water, bottom- and surface-water characteristics, and the type of pile (steel, concrete, and hammer size). Exposure to sound pressure levels associated with pile driving decreases in water exponentially as a function of the distance from the source. Sound pressure levels of 180 dB referenced to 1 μPa are known to cause permanent injury to the lateral line and inner ear of fishes (Hastings et al., 1996). Damage

to these organs results in disorientation and the inability to locate food and avoid predators. Delayed mortality may also occur.

Exposure to low-frequency underwater sound may result in reduced hatching rates of fish eggs and reduced larval fish survival. Fish eggs are known to be especially vulnerable to vibration and acoustic pressure waves during the first few days after fertilization. Fish larvae and small juvenile fish have been found to be much more vulnerable to elevated sound pressure levels than adult fish (Yelverton et al., 1975).

Fish could be temporarily displaced by noise from construction activities (barges, workboats, etc.), but would return once the construction activities ceased. Construction activity associated with pile driving would result in increased underwater noise and acoustic pressure waves.

Alternatives A through D. Recent experience in San Francisco Bay during a pile installation test for the Bay Bridge East Span indicated that the use of large pile drivers can result in the death of fish with swim bladders (Caltrans, 2001). In comparison to the Bay Bridge construction, widening of the San Mateo Bridge required the driving of 900 to 1,200 concrete piles with 2- to 3-foot diameters. No fish kills were reported during this pile driving operation. Pile driving for the ferry terminal fixed pier would be 24-inch octagonal precast, prestressed concrete, such as those used for the San Mateo Bridge and would be unlikely to have the same sorts of impacts as bridge projects using much larger piles. Although it is not expected that significant fish mortalities would result from pile driving, adverse impacts could occur.

Mitigation. Underwater sound monitoring would be conducted if estimated sound pressure levels could approach those that may harm fish (e.g., 180 dB). Measures to reduce sound pressure levels in surrounding waters, such as bubble jackets surrounding the piles, may have to be deployed if sound pressure levels exceed those that could harm fish.

CEQA Determination. This impact would be less than significant after implementation of the proposed mitigation measure.

POTENTIAL EFFECTS ON BIRDS

Impact 12: Construction activities could result in loss of habitat for waterfowl, shorebirds, and migratory bird species.

San Francisco Bay is an important stopover for many species of migratory waterfowl in the Pacific Flyway. Flying is a high-energy activity for waterfowl (Korschgen and Dalhgren, 1992) and frequent flying due to human disturbance may take away from the energy reserves that would normally be used to complete migration. Large flocks appear to be more susceptible to disturbance than small flocks and canvasback and scaup are especially vulnerable (USFWS, 1992; Mori et al., 2001). Habitats that could be temporarily or permanently affected during construction include upland nesting areas, tidal wetland, sandy beach, rocky shoreline, and bay waters.

Alternative A and B. The Berkeley Marina and Berkeley Fishing Pier are highly disturbed areas where human activity is consistent and ongoing. Birds within these areas are accustomed to human activity and noise. Dredging outside of the Berkeley Marina would occur in an area exposed to frequent boat traffic. Construction activity in this area is not expected to adversely affect avian species. Construction within the Berkeley Marina or on the Berkeley Fishing Pier is not expected to adversely impact aquatic avian species. However, upland species, including white-tailed kite, northern harrier, and burrowing owl may be temporarily adversely impacted by construction related traffic and noise from Alternative A. These impacts are discussed more fully in Impact 15.

Alternatives C and D. At least 122 bird species were recorded in the North Basin during a 3-year survey conducted between 2004 and 2006 (Shafer, 2007). These include waterfowl such as sea ducks, loons, and grebes that rest and forage on the waters during high tides; wading birds such as egrets and herons that forage in shallow water and exposed soft bottom at low tides; and shorebirds that roost, forage, and nest on rocky shorelines and sandy beaches surrounding the flats.

Shallow open water foraging areas, wetlands, tidal flats, and sandy beaches, such as those in the North Basin near Alternatives C and D, are valuable to migratory birds. Human activity can affect bird fitness, as measured by energy balance, especially during migration and winter. When disturbed, waterfowl often flush or take flight. Surf scoters, canvasback, and lesser scaup appear to be more sensitive to human activity than other species (Goals Project, 2000; Korschgen and Dahlgren, 1992; Korschgen et al., 1985; Huffman, 1999).

Pier construction (including pile driving), dredging, and construction staging would add temporary but frequent human disturbance to habitats used migratory species. Birds that do not vacate the area entirely may suffer from the energetic costs of responding to and avoiding construction activity. Temporary or permanent relocation out of the North Basin may also adversely affect these species, depending on the habitat quality and carrying capacity of the areas to which birds relocate.

Mitigation. During construction, Alternatives C and D would result in temporary but adverse impacts to the quality of nearshore bird habitats, affecting a high diversity of avian species. No appropriate mitigation for this impact has been identified. Specific impacts to special-status species are detailed in Impact 15.

CEQA Determination. Alternatives A and B would result in less-than-significant impacts. Alternatives C and D are expected to cause temporary but potentially significant and unavoidable impacts.

POTENTIAL EFFECTS ON MARINE MAMMALS

Impact 13: Increased turbidity and activity from dredging operations could affect marine mammal foraging.

Alternatives A through D. Increased turbidity and activity during dredging may disturb marine mammal foraging activities by temporarily decreasing visibility or causing removal of mobile prey from the area affect by the sediment plume. Given the lack of marine mammal breeding areas or haul out sites within the study area, the relative paucity of marine mammals off this shoreline, and the relatively large feeding ranges of marine mammals in the Bay, this would not result in an adverse impact to marine mammals.

CEQA Determination. No potentially significant impact would occur.

Impact 14: Underwater pile driving noise could disturb marine mammals.

Underwater noise related to pile driving could result in temporary disturbance to foraging or migrating marine mammals. Under the Marine Mammal Protection Act of 1972 (amended in 1994), it is forbidden to intentionally harass marine mammals. Harassment is defined under the Act as "any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment) or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption to migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment)." Pile driving activities would be considered Level B harassment.

Alternatives A through D. Caltrans conducted a Marine Mammal Impact Assessment for the Pile Installation Demonstration Project as part of studies conducted for the San Francisco–Oakland Bay Bridge East Span Seismic Safety Project (Caltrans, 2001). The Caltrans study, which included a series of underwater noise measurements made during pile driving activities, was used to estimate the underwater noise level that could be generated by the pile driver expected to be used for construction of the Berkeley/Albany ferry terminal alternatives. Because pile driving noise levels are expected to exceed the 160 dB NMFS guideline, pile driving could produce a temporary adverse impact on marine mammals (see Section 4.8, Noise and Vibration).

Mitigation. An Incidental Harassment Authorization from NMFS would be needed for pile-driving activities, even though activities would not occur near known haul-out sites. To minimize harassment to marine mammals, the following avoidance measures are proposed:

- Work would occur only during daylight hours (7 a.m. to 7 p.m.) so that marine mammals are visible at all times during the pile installation.

- A safe zone would be enforced during pile driving operations. A marine mammal monitor would survey the area either from the work boats or a separate vessel prior to the startup of pile driving equipment. Installation would not begin until

no marine mammals are sighted within a designated "safe zone" for at least 15 minutes prior to the initiation of the drilling.

- For pile driving activities, the proposed safety zone would be a radius of 1,000 feet from the pile location. At 1,000 feet, sound levels from drilling are expected to be below 180 dB.

- Once pile driving begins, installation would continue until completed. Before driving the next pile, the monitor would again confirm that the safety zone is clear of marine mammals.

- The construction contractor would establish daily "soft start" or "ramp up" procedures for pile-driving activities. This technique would be used at the beginning of each piling installation to allow any marine mammal that may be in the area to leave before pile driving activities reach full energy. The contractor would provide an initial three strikes at reduced energy (40 percent), followed by a 1-minute waiting period, then subsequent 3-strike sets.

- A qualified biological monitor would visually survey the area 1 day prior to the start of drilling operations to establish a baseline.

CEQA Determination. This impact would be less than significant after implementation of the proposed mitigation measures.

POTENTIAL EFFECTS ON SPECIAL-STATUS SPECIES

Impact 15: Project construction could result in the "take" of state or federally listed species or loss of degradation of critical habitat.

Plants

No special-status plants are expected to occur within areas disturbed by project construction.

Fish

Alternatives A through D. Special-status fish with potential to be affected by project construction include Central California Steelhead (*Oncorhynchus mykiss*), winter run Chinook Salmon (*Oncorhynchus tshawytscha*), and Green Sturgeon (*Acipencer medirostris*). These species may be adversely affected by dredging activity as described under Impacts 2, 6, 7, 9, and 10, and by pile driving noise, as described under Impact 11.

Birds

Potentially suitable habitat for California Black Rail (*Latterallus jamaicensis coturniculus*), California Clapper Rail (*Rallus longistostris obsoletus*), Saltmarsh Common Yellowthroat (*Geothlypis trichas sinuosa*), and Alameda Song Sparrow (*Melospiza melodia pusillula*) occurs

within the study area. Although potential habitat is present, these birds are not currently known to occur within the study area and are not expected to be impacted.

California brown pelican (*Pelecanus occidentalis californicus*) and double-crested cormorant (*Phalacrocorax auritus*) may forage at all of the ferry terminal alternative locations. No nesting colonies of either bird exist within 300 feet of any of the alternatives. Construction activities and noise may cause birds to flush from resting or foraging activities. However, these species are common to highly impacted areas such as harbors marinas and forage over large areas of the Bay. No adverse impacts are expected.

California least terns have nested on a small island just south of Central Avenue to the north of the ferry terminal alternative locations. This island is approximately 1 to 1½ miles north of the construction sites for the ferry terminal alternatives, to the north of the Albany Bulb. California least terns tend to forage within 1 to 2 miles of their nesting site (del Nevo et al., 1997). There is the potential that foraging could be adversely affected during dredging activities if terns are nesting at the time.

Alternative A. Northern harriers (*Circus cyaneus)* are known to nest in the northwest corner of Berkeley Meadows, within 300 feet of the proposed ferry terminal. Northern harriers, like owls, have sound-reflecting facial ruffs that allow them to locate prey by sound (Ehrlich et al., 1988). Construction noise and activity may disturb harrier foraging and nesting.

Burrowing owls *(Athene cunicularia hypugea)* have been reported in the study area in ruderal grassland and ruderal scrub habitats, including the south shoreline of the North Basin, although it is unknown whether the owls use these areas year-round or if breeding occurs. Suitable nesting habitat for burrowing owls is being incorporated into the restoration of Berkeley Meadows as designated by the restoration plan. Construction noise and activity may adversely affect burrowing owls as they do harriers, if nests are present at the time of construction.

Alternative B. No bird nests are known near the ferry terminal site under this alternative. The planned dredging and construction sites are situated in open bay developed riprap shoreline. Neither of these habitats are known to be heavily used by sensitive avian species, and no adverse impacts would occur.

Alternatives C and D. Sensitive avian species known to use habitats surrounding the North Basin include burrowing owl *(Athene cunicularia hypugea)*, white-tailed kite (*Elanus leucurus)*, American peregrine falcon (*Falco peregrinus anatum*), osprey *(Pandion haliaetus)*, and long-billed curlew (*Numenius americanus*). Construction activity and noise, including dredging, staging, pile driving, and other nearshore and onshore construction activity, may disturb foraging and resting behaviors, decrease time available for foraging, and increase energetic costs as a result of increased flight times and startling responses. Construction may adversely affect the use of portions of the North Basin by these birds for the duration of construction.

Mitigation. Underwater noise impacts to special-status fish would be mitigated as described in Impact 11. NMFS would be informally consulted as to any seasonal restrictions on pile driving

or other measures to avoid take of listed species. If mitigation that avoids take cannot be implemented, then WETA would enter into formal consultation with NMFS to obtain an incidental take permit.

Environmental work windows for dredging have been established for the protection of special-status fish species as part of the Long-Term Management Strategy (LTMS) for placement of dredged materials in San Francisco Bay. The dredging work window for steelhead in the Central Bay, where the ferry terminal alternatives are located, is from June to November. Dredging during this time period would reduce impacts to this listed species and no consultation with NMFS would be required. If this work window cannot be adhered to, WETA would enter into formal consultation with NMFS to obtain an incidental take permit. This permit may include specifications for monitoring and other mitigation measures to reduce impacts during dredging activities.

To reduce impacts to other special-status bird species and ensure compliance with the Migratory Bird Treaty Act (16 U.S.C. 703-712) and California Fish and Game Code (§§3503, 3511, and 3513) the following measures would be implemented:

- Preconstruction bird surveys should be conducted by a qualified biologist no more than 2 weeks prior to the start of construction for activities occurring during the breeding season (February 1 to August 31) or during the wintering period (September 1 to January 31) for sensitive wintering species.

- If active nests of special-status bird species are found where work is to occur within 300 feet of raptor or 100 feet of passerine nests the construction limits, a non-disturbance buffer would be established at a distance sufficient to minimize nest/roost disturbance based on the nest location, topography, cover, the species' sensitivity to disturbance, and the intensity/type of potential disturbance. The buffer size would be determined in cooperation with the CDFG and the USFWS.

- If rescheduling of work around active nests/roosts of special-status bird species is infeasible, a qualified biologist should monitor nests for signs of disturbance. If it is determined that project activities are resulting in nest/roost disturbance, work should cease immediately and the CDFG and the USFWS would be contacted.

The LTMS contains a dredging work window for California least terns that applies to the area from the Berkeley Marina south to San Lorenzo Creek. The work window is between August 1 and November 30. Dredging during this time period would reduce impacts to this listed species and no consultation with USFWS would be required. If this work window cannot be adhered to, WETA would enter into consultation with USFWS to obtain an incidental take permit as necessary. This permit may include specifications for monitoring and other mitigation measures to reduce impacts during dredging activities.

CEQA Determination. Impacts to special-status species for all ferry terminal alternatives would be less than significant after implementation of the proposed mitigation measures.

Impact 16: Contaminated sediments could become resuspended during construction and dredging operations and be toxic to Bay organisms, including plankton, benthos, fish, birds, and marine mammals.

Alternatives A through D. Dredging of sediments for any of the ferry terminal alternatives has the potential to resuspend into the water column contaminants associated with the sediments. The resuspension of the sediments may have adverse toxic effects on marine life in the Bay in the vicinity of the dredging.

Mitigation. Dredging would be conducted under the appropriate permits as indicated in Section 4.10, Water Resources. Prior to dredging, a dredged materials sampling and management plan would be developed. Sediments would be sampled and tested prior to the start of dredging activities. Testing would include analysis of chemical constituents and bioassay testing to determine potential for environmental toxicity. If tests show potential for environmental toxicity, appropriate impact minimization measures would be developed in consultation with the appropriate agencies.

CEQA Determination. With implementation of the proposed mitigation measures, the potential impact would be less than significant.

Operational Impacts and Mitigation

POTENTIAL EFFECTS ON HABITATS

Impact 17: Habitats: Wetlands, eelgrass, bayflats, and sandy beaches.

Sensitive shorelines and ecosystems may experience increased traffic (foot, car, bus, or boat) due to ferry operations. This traffic may lead to adverse habitat impacts including erosion, sedimentation, and permanent lowering of habitat value as avian resting, foraging, or nesting areas.

Alternative A. The Berkeley Marina currently experiences high levels of human use, including car, foot, and boat traffic. No tidal wetlands, eelgrass, bayflats, or sandy beaches are expected to be affected by ferry operations within the Berkeley Marina. No adverse impacts would occur.

Alternative B. The Berkeley Fishing Pier currently experiences high levels of human use, including car, foot, and boat traffic. No wetlands, eelgrass, bayflats, or sandy beaches are expected to be affected by ferry operations under this terminal alternative. Wake wash from vessels entering the Alternative B pier site would be ameliorated by the effects of the breakwater on wave attenuation. The breakwater would reduce the effects of wave action on nearby habitats to less than ambient levels. Draft Technical Memorandum Conceptual Engineering Design and Analysis for the proposed Berkeley Ferry Terminal, Coast and Harbor Engineering, August 8, 2007. No adverse impacts would occur.

Alternatives C and D. Bayflats along the shore of the North Basin to Albany Beach are important foraging zones for a number of sensitive bird species. Eelgrass beds, described in Impact 2, may be subjected to physical disturbance, including uprooting and sedimentation, by

ferry passage and wake. Two areas of sandy beach habitat occur north of the Buchanan Street (Alternative D), one of them within 200 feet of planned ferry dock. Although sandy beaches are not protected habitat, they are rare in the Central Bay and play an important role in the bay ecology. Erosion of sandy beach habitat would be considered adverse.

Mitigation. For Alternatives C and D, bayflats and eelgrass beds may be adversely affected by ferry passage, and sandy beach habitat may be impacted by ferry passage under Alternative D if wake from the transiting ferries causes erosion of nearshore habitats. A no-wake policy within the North Basin would be implemented to reduce erosion of tidal wetlands, bayflats, and sandy beaches; reduce suspension of bay sediments; and minimize physical disturbance of eelgrass beds. In addition, prior to project construction, eelgrass beds would be studied to see if they have shifted location.

CEQA Determination. Impacts to biological resources in the North Basin are expected to be less than significant after implementation of the mitigation.

POTENTIAL EFFECTS ON PLANKTON

Impact 18: Ferry operations, including maintenance dredging, could disrupt phytoplankton productivity.

Alternatives A through D. As discussed under Impact 6, impacts to phytoplankton productivity from maintenance dredging operations are not expected to adversely affect plankton productivity on a larger scale. Turbidity from ferry movement, wake effects, and wake-induced erosion are expected to be minor and have no adverse effect on productivity.

CEQA Determination. This impact would be less than significant.

POTENTIAL EFFECTS IN BENTHOS

Impact 19: Periodic maintenance dredging or ferry operations may adversely impact the benthic community.

Alternatives A through D. As discussed under Impact 7, disturbance to benthos from dredging are expected to be adverse and temporary. Erosion and sedimentation of the bay bottom from ferry movement, wake effects, and wake-induced erosion could be adversely affected.

Mitigation. Mitigation measures for Impact 16 would apply.

CEQA Determination. The mitigation measures would reduce this impact to a less-than-significant level.

POTENTIAL EFFECTS ON BIRDS

Impact 20: Ongoing, regular large boat traffic could disturb roosting and foraging water waterfowl in the vicinity of ferry activity and may decrease use of project areas by sensitive bird species.

The effects of human activity, including various types of boat traffic, are discussed in detail under Impact 12.

Alternative A. Ferry activity would be similar to current boating traffic for this ferry terminal alternative. No adverse impacts are expected.

Alternative B. This site is not commonly used by a sensitive bird species because it is highly exposed and subject to much human activity. No adverse impacts are expected.

Alternatives C and D. The North Basin is currently closed to motorized boat traffic. Ferries traveling to and from piers in either Alternative C or D would therefore comprise the only motor-driven boats in the North Basin. This addition of boat traffic to an area currently without boat traffic may cause changes to the behavior of sensitive avian species using this habitat. The disturbance on waterbirds was described under Impact 12. Adding ferry traffic to the North Basin is expected to have an adverse and long-term impact on avian species here.

Mitigation. Burger (1998) found that racing motorboats and boats outside established boating channels elicited strong responses in a nesting colony of Common terns, as did particularly loud boats such as personal watercraft (jet skis). Therefore, limiting engine noise and speed of ferries entering the North Basin, as proposed in Impact 17, may decrease, but may not entirely mitigate, the disturbance of sensitive birds in the vicinity of the ferry.

CEQA Determination. Impacts to birds from ferry operations are considered less than significant for Alternatives A and B, and significant for Alternatives C and D. For Alternatives C and D, the impact may remain significant and unavoidable after implementation of this mitigation measure.

POTENTIAL EFFECTS ON MARINE MAMMALS

Impact 21: Transiting ferries disturb marine mammal resting and foraging activities.

Human activities have been shown to adversely affect the behavioral patterns of marine mammals. Seals react to both visual and acoustic disturbances (Richardson et al., 1995). According to Green et al. (2001), the primary sources of disturbance for harbor seals in San Francisco Bay are boats, kayaks, jet skis, aircraft, foot traffic, and dogs in the vicinity of haul-out sites. Disturbance sources that occur closer to the animals tend to provoke a stronger negative response.

Alternatives A through D. No haul out or resting sites for any marine mammals currently exist within the study area. Disturbance by ferries to foraging marine mammals is expected to be

similar to existing boat traffic. Although NMFS does not regulate normal watercraft operations or require Incidental Harassment Authorizations for regular shipping and pleasure craft operations, NMFS does have guidelines for avoidance of marine mammals to reduce disturbance and avoid producing adverse effects.

CEQA Determination. This impact is less than significant.

Impact 22: High-speed ferries could strike gray whales in San Francisco Bay.

Alternatives A through D. Because of the increase in gray whale sightings in San Francisco Bay over the last several years, concern exists about collisions between whales and vessels during normal operations. No documented collisions between gray whales and any type of vessel have occurred in San Francisco Bay (Cordero, 2001). Ferry operators will be made aware of the potential for whales entering the Bay. The USCG reports whale sightings and distance to vessels when they receive reports of whale sightings. Ferry captains would be made aware of these reports and exercise diligence when a whale sighting has been reported.

CEQA Determination. Given the extremely low risk of a whale strike, this impact would be considered less than significant.

POTENTIAL EFFECTS ON SPECIAL-STATUS SPECIES

Impact 23: Project operation could result in the "take" of state or federally listed species.

Operational activities that could affect listed species or critical habitat include ferry movement to and from the ferry pier; ferry-related car, bus, and foot traffic onshore; and maintenance dredging of access channels.

Plants

No special-status plants are likely to occur within the study area.

Fish

Alternatives A through D. Special-status fish with potential to be occur in the study area include Central California steelhead (*Oncorhynchus mykiss*), winter run Chinook salmon (*Oncorhynchus tshawytscha*), and green sturgeon (*Acipencer medirostris*). These species may be adversely impacted by periodic maintenance dredging activity as described under Impact 15.

Birds

Alternative A. Northern harriers are known to nest in the northwest corner of Berkeley Meadows, within 300 feet of the new ferry. Ferry operations, including ferry passenger parking, are expected to be similar to current human use of the Berkeley Marina, and thus are not expected to adversely impact Northern harriers. Burrowing owl occur in the Berkeley Meadow

adjacent to the proposed parking area for this alterative. Since no habitat will be taken for the parking lot, no adverse impacts are expected.

Alternative B. No bird nests are known near the ferry terminal site under this alternative. This area is not heavily used by special-status bird species and no adverse impacts are expected.

Alternatives C and D. Operational impacts to special-status bird species within the North Basin are expected to be similar to those detailed under Impact 15. Ferry operations may disturb foraging or resting for burrowing owl, white-tailed kite, American peregrine falcon, osprey, and long-billed curlew. The repeated disturbance may cause these species to reduce their use of these locations for foraging and resting, constituting an adverse impact.

Mitigation. Mitigation Measures for Impact 15 related to dredging would be followed for periodic maintenance dredging activities. Ferry operations may repeatedly disturb special-status species in the North Basin or may cause reduced use of areas of the North Basin under Alternatives C and D. No mitigation for this potential impact has been identified.

CEQA Determination. Impacts to special-status species from operations would be less than significant for Alternatives A and B, with implementation of the proposed mitigation measures. For Alternatives C and D, continued disturbance of habitat used for foraging and resting by special-status bird species is considered a significant and unavoidable impact.

Impact 24: Creation of piers could increase shading and add structural cover which could be used by predatory fish

Alternatives A through D. The construction of new piers in San Francisco Bay would primarily affect subtidal shallow water bay mud habitat. The alternatives would create structural cover and increase shading to the waters below the pier. Alternatives B, C, and D would be roughly similar in length and width, ranging from 352 feet (Alternative B) to 389 feet (Alternative D) in length. All alternatives would be 17 feet in width. Alternative A would result in the longest pier, at 522 feet. This pier, within the Berkeley Marina, is in an area were there are a number of other docks and piers.

Subtidal shallow water bay habitat in San Francisco Bay provides habitat for a variety of species. Prey species such as topsmelt (*Antherinops affinis*), anchovy (*Engraulis mordax*), and shiner surfperch (*Cymatogaster aggregata*) use this habitat to forage for food and as shallow water refuge. Shallow estuarine habitats throughout the world are recognized as valuable nursery grounds for juvenile fishes (Sheaves, 2001). Many predatory fish, such as striped bass (*Morone saxatilis*), are associated with structure (Haeseker et al., 1996) and would be expected to occur within the area associated with the new piers. This could result in a slight increase in predation on larval and young fish in the local project area. This increase would be most pronounced during high tide, when larger predatory fish move into shallow water to feed. However, larval or young fish would most likely tend to concentrate in areas that are not shaded by the pier. Increased productivity of algae, warmer water temperatures, and emergent vegetation provide a more ideal habitat for larval fish. Therefore, the increase in predation on larval fish would not

likely be significant. Other predatory fish found within San Francisco Bay, such as California halibut (*Paralichthys californicus*), are not associated with structure. Halibut move onto shallow mud flats during high tide to feed on benthic invertebrates and fish. While they could be expected to occur near and under the pier, their densities would not be expected to increase as a result of the pier construction, and increased predation by these fish would therefore not occur.

The construction of a new pier in San Francisco Bay would shade the water below the pier. This could lead to a potential decrease in the amount of emergent vegetation, the production of algae and planktonic food, and water temperatures beneath the pier. Garrison et al. (2005) found that the installation of a pier shifts the aquatic plant community in freshwater Wisconsin lakes toward more shade-tolerant species with overall less plant life. Planktonic algae (phytoplankton) float through the area with the currents and would not be expected to remain in shaded areas. The area of shade is small relative to the size of the Bay, and the impact on the food chain is expected to be negligible.

CEQA Determination. This impact is considered less than significant.

4.9.4 Cumulative Impacts and Mitigation

Projected growth and planned development in the study area are not expected to produce cumulative effects on biological resources. An approved project in the vicinity of Alternative C, the Gilman Street playing fields, has the potential for impacts to biological resources. This project may affect burrowing owls, if still present on the site. Mitigation measures have been specified and no cumulative adverse impacts would occur.

All of the ferry terminal alternatives would involve dredging of approach channels to the proposed dock locations. While this would add to current dredging operations at various marinas and ports in San Francisco Bay, cumulative effects from dredging may be adverse in a limited area for a short duration.

CEQA Determination. Cumulative effects of dredging on biological resources are not considered significant.

4.10 WATER RESOURCES

This section describes the potential impacts that expanded ferry service to Berkeley or Albany could have on water resources, including water quality, water supply, flood hazards, and navigation. This section is organized by construction impacts, operational impacts, and cumulative impacts. It provides an evaluation of impacts for each ferry terminal alternative and, where applicable, mitigation measures that can be adopted to avoid or minimize these effects.

4.10.1 Significance Criteria

Impacts could have an adverse effect on the environment if they would:

- Cause a degradation in water quality due to release of contaminated sediments during initial or maintenance dredging activities;
- Cause a degradation in water quality from on-site construction of new terminal facilities including buildings and associated structures;
- Result in a flood hazards to human safety and property due to construction in floodplain;
- Result in a degradation in water quality due to increases stormwater runoff from paved or regraded areas;
- Result in fuel spills from vessel operations; or
- Result in significant wake wash impacts to shorelines or to small vessels.

Mitigation measures for addressing potential safety risks from ferry operation cited in the Water Resources section of the Programmatic EIR for the Regional Ferry Implementation Plan are incorporated by reference into this document.

4.10.2 Water Resources Impacts and Mitigation

4.10.2.1 No-Action Alternative

This alternative would not involve construction of a ferry terminal or operation of a new ferry service. Therefore, there would be no construction or operational impacts to water quality, and water quality would remain the same as the existing setting.

4.10.2.2 Action Alternatives

Construction Impacts and Mitigation

All of the ferry terminal alternatives would require dredging along the approach channels and in the turning basins at the terminals. Approach channels were assumed to be 150 feet wide and 10 feet deep (MLLW), and have side slopes of 3 horizontal to 1 vertical (3:1). For all ferry terminal alternatives, the turning basin area beneath the boarding float was also assumed to require a 10-foot depth (MLLW).

Impact 1: Dredging could impact water quality through mobilization of contaminated sediment.

Contaminated sediments are known to occur near historical industrial sites along the San Francisco Bay shoreline. Disturbance of contaminated sediment could impact water quality.

Alternative A. Approximately 110,000 cubic yards of dredging would be required in the channel approaching the Berkeley Marina and in the Berkeley Marina. The Berkeley Marina currently maintains a channel depth of 7 feet MLLW and a depth within the Berkeley Marina of approximately 15 feet (City of Berkeley, 2006).

Dredging volumes and areas were calculated by Coast & Harbor Engineering (CHE), using the recent hydrographic survey and conceptual channel designs (CHE, 2007). A detailed bathymetric survey would be required to determine the actual required dredge volume and area. The footprint of the required dredge area (approximately 57.8 acres) is shown on Figure 4-3.

Alternative B. Approximately 150,000 cubic yards of dredging would be required along the channel to the Berkeley Fishing Pier. From the shore, the water depth increases quickly to 8 feet, based on MLLW (CHE, 2007). The depth is approximately 8 feet for 6,000 feet in the direction of the San Francisco Ferry Terminal; beyond this distance, water depths gradually increase.

The footprint of the required dredge area based on the available survey (2001) is shown on Figure 4-3. The dredge footprint (including the proposed breakwater) represents approximately 59.2 acres.

Alternative C. A ferry route to the Gilman Street site would require approximately 240,000 cubic yards of dredging along the channel and terminal turning basin (CHE, 2007). The water depth directly offshore of the Gilman Street site is 4 feet MLLW, gradually increasing to 6 feet just west of Cesar Chavez Park. Water depth remains at approximately 7 feet for 3,000 feet west of the park.

Both the shoreward (eastern) end of the dredged channel and the terminal would be located within the aquatic parklands of Eastshore State Park (Figure 4-4). Approximately 1,400 feet of the channel alignment closest to the shore are within the Park. The footprint of the required dredge area is shown on Figure 4-3. The dredge footprint represents approximately 48 acres.

Alternative D. The Buchanan ferry terminal site alternative would require the largest dredge volume, approximately 280,000 cubic yards (CHE, 2007). Water depth is approximately 4 feet offshore of the Buchanan Street site. Depths slowly increase to 6 feet at a distance of 3,000 feet from the shoreline.

Both the shoreward end of the dredged channel and the terminal would be located within the aquatic parklands of Eastshore State Park (Figure 4-4). Approximately 1,250 feet of the channel alignment closest to the shore are within the Park. The footprint of the required dredge area is shown on Figure 4-3. The dredge footprint would represent approximately 42.8 acres.

Mitigation. All ferry terminal alternatives require dredging of between 110,000 and 280,000 cubic yards of Bay sediment. Before dredging can be performed, a Sampling and Analysis Plan (SAP) detailing sediment sampling and analysis would be submitted to the San Francisco Dredged Material Management Office (DMMO), which includes representatives from the USACE, RWQCB, BCDC, U.S. EPA, and other resource agencies. If the results of the SAP indicate that water quality would not be impacted by dredging, a consolidated Dredging – Dredge Material Reuse/Disposal permit would be issued by the USACE. The permits covers both Section 404 of the CWA and Section 10 of the Rivers and Harbors Act and is functionally equivalent to a RWQCB Report of Waste Discharge, pursuant to Article 4, Chapter 4, of the Porter-Cologne Water Quality Control Act. The water quality impacts due to dredging would be

minimal, both spatially and temporally, because suspended sediment is anticipated to settle quickly out of the water column. If contaminated sediment is encountered, further sediment characterization and a sediment removal plan (including upland disposal or beneficial reuse) would be required to protect water quality.

Additional mitigation measures would be required for dredging for Alternatives C and D. Dredging for these ferry terminal alternatives would be within aquatic parklands of Eastshore Park (Figure 4-4) and would require approval of the EBRPD and California State Parks Department of Parks and Recreation, in addition to the USACE/DMMO process. Based on regulatory agency input, a more detailed level of environmental analysis would be required before dredging could be considered at these sites. (NOAA Fisheries, BCDC, and California State Parks input provided at stakeholder meetings). The EBRPD and California State Parks Department of Parks and Recreation indicated that even with mitigation measures, dredging within aquatic parklands of Eastshore Park would still be considered an adverse impact.

CEQA Determination. With implementation of the proposed mitigation measures, the potential impacts for Alternatives A and B would be less than significant. For Alternatives C and D, dredging within aquatic parklands of Eastshore Park would be considered significant and unavoidable.

Impact 2: Dredge material disposal could exceed the capacity of disposal sites.

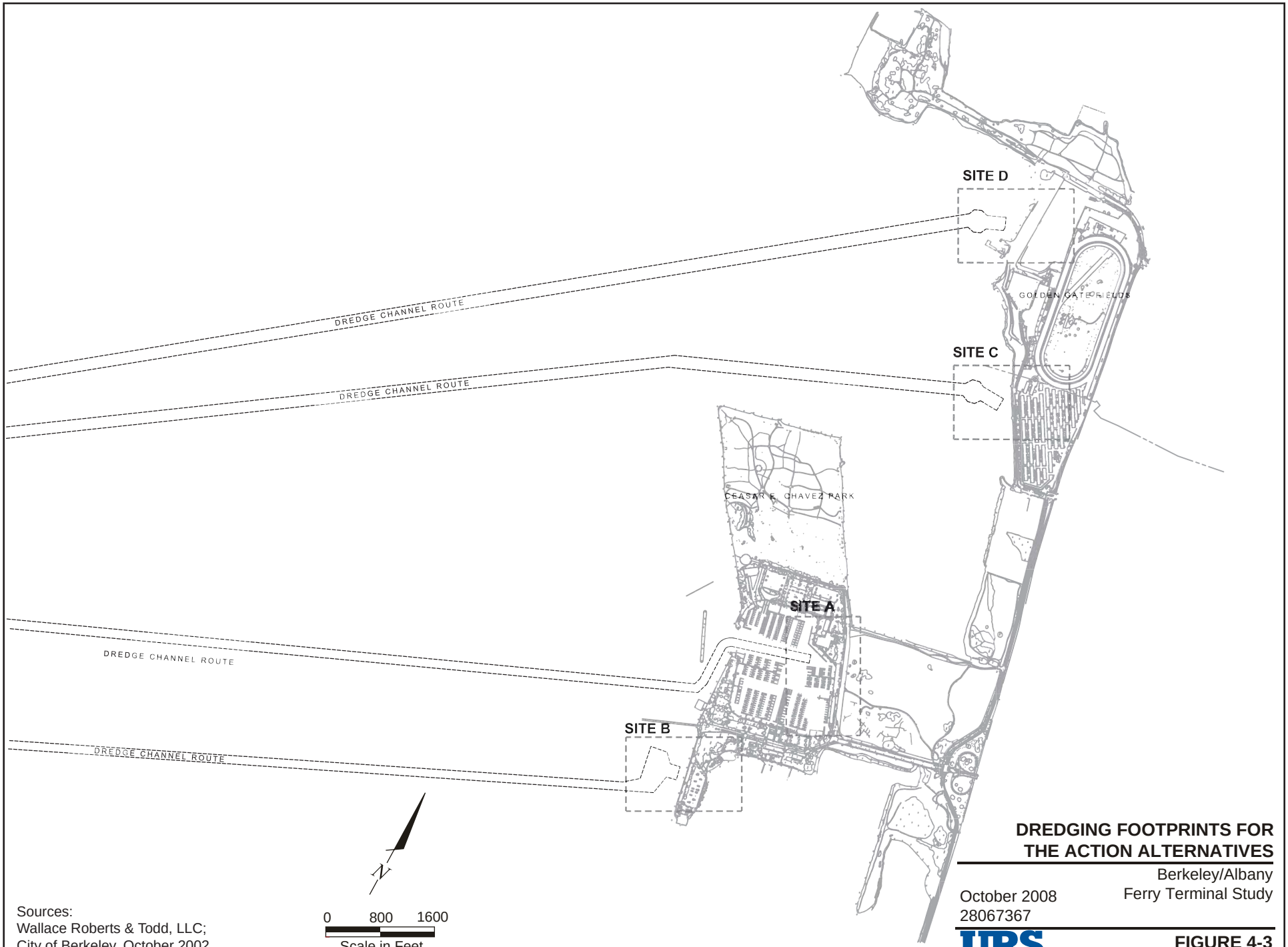
Long-term dredging and disposal needs for the Bay Area were estimated at approximately 300 million cubic yards over a 50-year period, an average of 6 million cubic yards per year (U.S. EPA and USACE, 1998). This is a conservatively high estimate based on historical dredge volumes.

The U.S. EPA, USACE, RWQCB, and BCDC have established the LTMS Program for the dredged material from the Bay Area (USACE, 2000). The LTMS goals are to:

- Maintain in an economically and environmentally sound manner those channels necessary for navigation in San Francisco Bay;
- Eliminate unnecessary dredging activities in the Bay and estuary;
- Conduct dredged material disposal in the most environmentally sound manner;
- Maximize the use of dredged material as a resource; and
- Establish a cooperative permitting framework for dredging and disposal applications.

Dredged material disposal sites are:

- In the Bay (e.g., Alcatraz);
- Deep ocean;
- Upland; and
- Beneficial reuse (i.e., wetlands restoration).



Sources:
Wallace Roberts & Todd, LLC;
City of Berkeley, October 2002.

DREDGING FOOTPRINTS FOR THE ACTION ALTERNATIVES

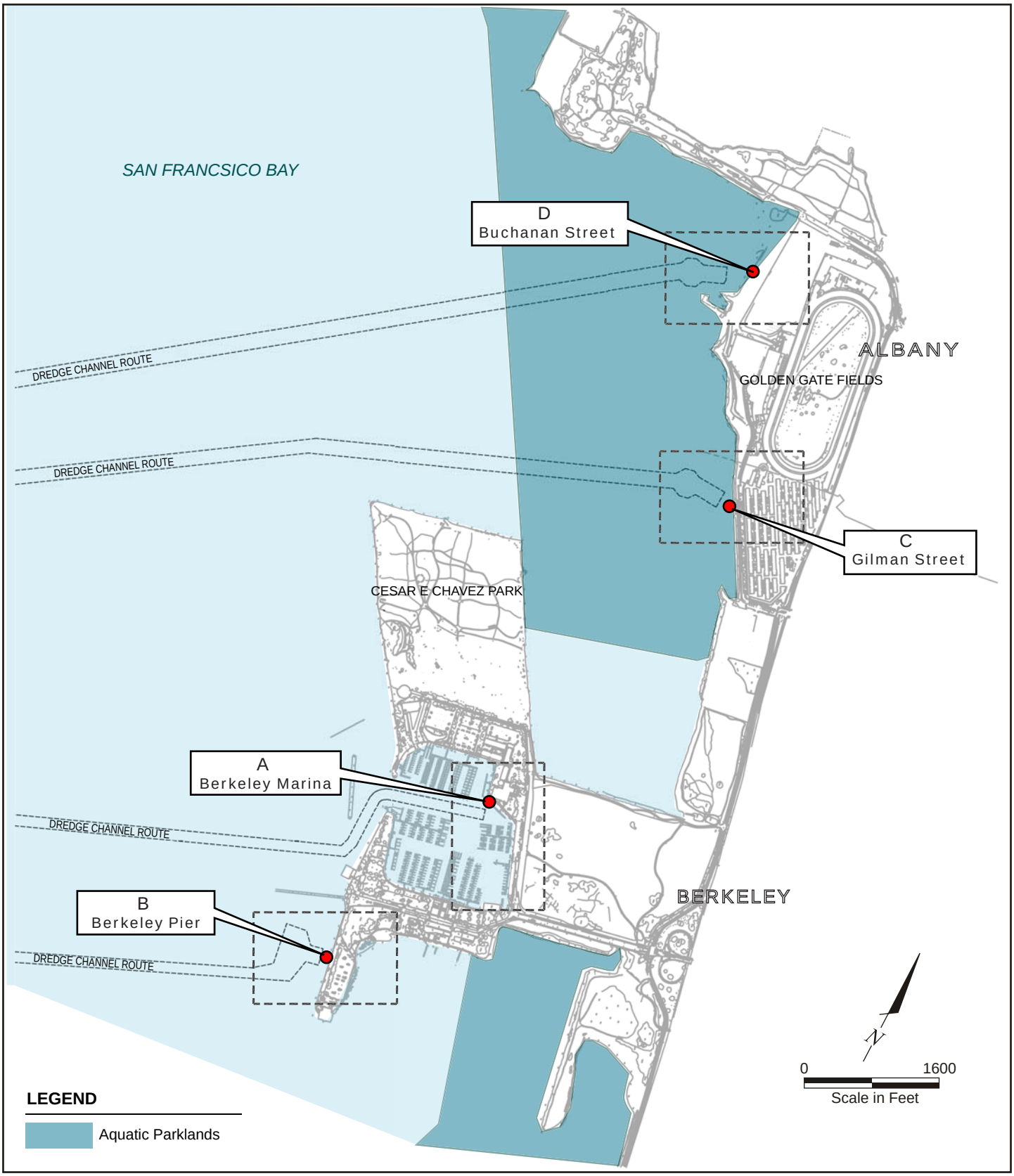
Berkeley/Albany Ferry Terminal Study

October 2008
28067367

URS

FIGURE 4-3

9/26/08 vsa/hk..\T:\WTA\EIS EIR 2008\F4-3_parkland impact.ai



EASTSHORE STATE PARK
AQUATIC PARKLANDS

Berkeley/Albany
Ferry Terminal Study

October 2008
28067367

URS

FIGURE 4-4

Source:
Winzler & Kelly, Aug. 2007

9/26/08 vsa/hk..\T:\WTA\EIS EIR 2008\F4-4_aquatic.ai

The dredged material produced by the dredging for the proposed project would be disposed at the San Francisco Deep Ocean Disposal Site (SF-DODS). This site is located on the continental shelf, approximately 50 nautical miles west of the Golden Gate, at a depth of approximately 760 feet.

Alternatives A through D. The volumes of dredged materials for Alternatives A through D range from 110,000 to 280,000 cubic yards. This volume is minor compared to the capacity of the SF-DODS. This site was designated in 1994 under Section 102 of the Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA). It can accept up to 4.8 million cubic yards per year. MPRSA requires project sponsors to consider feasible, practicable, and environmentally superior alternatives to this site, if such alternatives are available.

Mitigation. The dredged materials will be evaluated for potential disposal within the Bay, disposal at an upland Facility, or beneficial reuse.

CEQA Determination. With implementation of the proposed mitigation measures, the potential impact would be less than significant.

Impact 3: Onshore construction activities could cause stormwater contamination.

Onshore construction activities such as site grading could increase the potential for erosion and uncontrolled runoff of stormwater contaminated with sediments or other pollutants that could impact surface water quality and sedimentation.

Alternatives A and D. Onshore site construction would include a ferry plaza connecting the parking area with the terminal pier and a new parking area in the existing gravel area adjacent to the Eastshore State Park fence line.

Alternative B. Onshore site construction would include a ferry plaza, and new pavement if the existing parking area between Hs Lordships and Skates restaurants requires reconfiguration to provide additional parking and circulation.

Alternative C. Onshore site construction would include a ferry plaza connecting the parking area with the terminal pier, and construction of a new surface parking area to accommodate 388 cars in an area of the Golden Gate Fields facility that is currently used for horse barns.

Mitigation. Impacts to surface water from erosion are expected to be minimal during construction. Erosion will be controlled in accordance with an approved Erosion Control Plan. In addition, all construction activities will be performed in accordance with the California NPDES General Permit for Storm Water Discharge Associated with Construction Activities (SWRCB, 1999), requiring the implementation of best management practices (BMPs) to control sediment and other pollutants mobilized from construction activities.

Temporary BMPs could include revegetation, slope stabilization, construction of berms, ditches, and sediment barriers such as straw bales or silt fences to prevent sediment discharges from the

site. These measures will be developed and described for the construction activities in a construction Storm Water Pollution Prevention Plan (SWPPP) that must be prepared before construction begins. With proper implementation of BMPs, no significant impacts to surface water quality are anticipated during short-term construction activities. In addition, use of existing infrastructure will minimize physical impacts from construction activities. No adverse impacts to surface water or groundwater are anticipated as a result of construction activities.

Permanent erosion control measures could include drainage systems and revegetation. Operation of the facility will be in conformance with the California NPDES General Permit for Storm Water Discharge Associated with Industrial Activities (SWRCB, 1997). In accordance with this permit, an industrial SWPPP will be developed, and BMPs will be implemented to control pollutants in stormwater discharges. As applicable, BMPs will include refueling and maintenance of equipment only in designated lined and/or bermed areas, isolating hazardous materials from stormwater exposure, and preparing and implementing spill contingency plans in specified areas. With proper implementation of these and other BMPs in the SWPPP, no adverse impacts to water quality are anticipated during the long-term operation of the facility.

An Engineering, Procurement, and Construction (EPC) contractor will engineer and construct the terminal, including connections to existing facilities. The EPC contract will include provisions requiring the EPC contractor to be responsible for the proper storage, handling, and disposal of all construction-related wastes, including hazardous wastes.

CEQA Determination. With implementation of the proposed mitigation measures, the potential impact would be less than significant.

Impact 4: Fuel spills/leaks could impact water quality.

Alternatives A through D. Inadvertent spills during construction and/or operation of the ferry terminal could affect water quality.

Mitigation. Petroleum products and chemical substances (termed “hazardous materials”) shall be managed in such a manner as to minimize the potential for threats to human health and the environment. Hazardous waste may be generated during the course of project construction. The details regarding the management of hazardous waste on site shall be contained in the Hazardous Waste Management Plan.

The onsite management and offsite disposal of non-hazardous solid wastes generated during construction of the Converter Stations shall be governed by the regulations of a solid waste management plan for the project. The onsite management and offsite disposal of hazardous wastes shall be governed by the regulations of hazardous waste management plan for the Project. Waste shall be stockpiled temporarily before disposal off site. The local fire departments and emergency management teams shall be provided with a list of the waste material expected to be generated and stored on site.

All vehicles and construction equipment shall be inspected to ensure that there are no leaking fluids (e.g., oil, hydraulic, lubricants, or brake fluid) and that all fuels and fluids are stored in proper, labeled containers. Any observation of spills, leaking fluids, or improperly stored fluids shall trigger the issuance of a "stop work" notice until the problem is resolved, including the removal of any soil contaminated by vehicle fluids. All applicable regulations governing the storage, transport, use, and disposal of fluids and all reporting requirements for spills shall be enforced.

CEQA Determination. With implementation of the proposed mitigation measures, the potential impact would be less than significant.

Operations Impacts and Mitigation

Impact 5: Maintenance dredging could impact water quality.

Alternative A, C, and D. Maintenance dredging is anticipated to be required every 2 to 3 years. Dredging would be required when approximately 2 feet of sediment builds up in the channels, reducing the channel depth from -10 feet MLLW to -8 feet MLLW (Stahnke, 2007). Dredging volume is difficult to estimate because it is unlikely that the sediment will build up uniformly along the entire length of the dredged channels. If a 2-foot thickness of sediment did accumulate along the entire channel lengths, the maintenance dredge volumes could approach half to three-quarters of the initial dredge volumes.

Alternative B. Maintenance dredging is anticipated to be required every 3 to 5 years.

Mitigation. Same mitigation as in Impact 1.

CEQA Determination. With implementation of the proposed mitigation measures, the potential impact would be less than significant

Impact 6: Wake wash could impact the shoreline and vessels.

Transit of ferries through dredged channels at the Berkeley Marina could create wakes that could potentially damage unprotected shorelines or, in the Berkeley Marina, moored vessels.

Alternative A. The shoreline on either side of the Berkeley Marina is armored with riprap. Significant impacts to the shoreline resulting from ferry wake wash are not anticipated adjacent to the ferry terminal. CHE's wake wash analysis concluded that shoreline erosion, damage to the waterfront, and impacts to biological resources from ferry transits would not likely be significant, but ferry traffic could potentially impact small craft navigation safety near the Berkeley Marina (CHE, 2007). The impact is not anticipated to be adverse.

Alternative B. The shoreline on either side of the pier is armored with riprap. Significant impacts to the shoreline resulting from ferry wake wash are not anticipated adjacent to the ferry terminal.

Alternative C. The outer approach to the Gilman Street ferry terminal site would pass north of Cesar Chavez Park. The shoreline of the park is armored with poured concrete. Shoreline erosion, damage to the waterfront, and impacts to biological resources from ferry transits would not likely be adverse.

Alternative D. The outer approach 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 Buchanan Street ferry terminal location, between the Albany Neck to the north and Golden Gate Fields to the south. The shoreline near the ferry terminal location is armored with concrete rubble. Impacts are not anticipated to be adverse.

Mitigation. None required.

CEQA Determination. No significant wake wash impacts would occur.

Impact 7: Stormwater runoff from the terminal site and parking could degrade water quality.

Onshore construction activities such as site grading could increase the potential for erosion and uncontrolled runoff of stormwater contaminated with sediments or other pollutants that could impact surface water quality and sedimentation.

Alternative A. Onshore site construction would include the ferry plaza connecting the parking area with the terminal pier and a new parking area in the existing gravel area adjacent to the Eastshore State Park fence line.

Alternative B. Onshore site construction would include a ferry plaza, and new pavement if the existing parking area between Hs Lordships and Skates restaurants requires reconfiguration to provide additional parking and circulation.

Alternative C. Onshore site construction would include a ferry plaza connecting the parking area with the terminal pier, and construction of a new surface parking area to accommodate 388 cars in an area of the Golden Gate Fields facility that is currently used for horse barns.

Alternative D. Onshore site construction would include a ferry plaza, and reconfiguration of the existing parking area for parking and circulation.

Mitigation. To eliminate surface runoff from the new parking areas, either gravel or permeable pavement would be used so that rainwater could permeate into underlying soil.

CEQA Determination. With implementation of the proposed mitigation measures, the potential impact would be less than significant.

Impact 8: Operations in a floodplain constitute hazards to human safety and property.

Areas along the Bay shoreline and drainages leading to the Bay are potential floodplains. Building within a floodplain involves risks to life and property.

Alternatives A through D. None of the ferry terminal alternatives are located within the FEMA 100-year flood zone (URS, 2003.)

CEQA Determination. Floodplain hazards are considered less than significant.

Cumulative Impacts and Mitigation

Alternatives A through D. No cumulative impacts to water resources from growth or from the combined effects of project development in the study area have been identified. Planned mixed use and residential development is located in built up areas removed from the waterfront locations of the ferry terminal alternatives. Additional runoff that would occur as a result of the combined effects of these projects could be accommodated by the existing storm water infrastructure (see Utilities, Section 4.13). As a result, cumulative effects on water resources, particularly the Bay, are not likely.

4.11 GEOLOGY AND SOILS

The following section discusses significance criteria and potential impacts to and from the geologic environment for the proposed project. Geologic hazards considered include surface fault rupture, earthquake ground shaking, liquefaction and lateral spreading, uplift and subsidence, expansive soils, mass wasting, erosion, and tsunamis.

This section also describes mitigation measures proposed by the project proponent that will be implemented to ensure project-related impacts to geologic resources are less than significant. Potential impacts could result from construction and/or operations.

4.11.1 Methodology

Significance criteria were developed and compared with potential impacts identified for each ferry terminal alternative. Mitigation measures were developed to decrease potential impacts to a less-than-significant level.

4.11.2 Significance Criteria

Impacts would be considered significant if they would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving surface fault rupture, earthquake ground shaking, liquefaction, subsidence, uplift, expansive soils, mass wasting, erosion, and tsunami or seiche;

- Expose people or structures to onsite or offsite landslides, lateral spreading, ground subsidence, liquefaction, or collapse because terminals were situated on unstable geologic units or soil, or soil that could become unstable as a result of the project; or

- Prevent future access to geologic features and resources of economic or scientific value.

4.11.3 Geology and Soils

4.11.3.1 No-Action Alternative

The No-Action Alternative would not involve construction of a ferry terminal or operation of a ferry, and therefore would not have any impacts related to geologic resources.

4.11.3.2 Action Alternatives

Construction impacts and Mitigation

No construction impacts associated with the geology or soils under the Action Alternatives have been identified.

Operations Impacts and Mitigation

Impact 1: Seismic shaking could damage facilities and/or injure people.

Alternatives A through D. The San Andreas fault is located approximately 16 miles to the southwest of the sites. It is the major tectonic boundary between the Pacific and North American plates. The Hayward fault, located approximately 4 miles to the northeast, is another major active tectonic feature in the Bay Area. Both the San Andreas and Hayward faults have generated major historical earthquakes and are considered to have a moderate probability of producing another major earthquake within the next 30 years. Seismically-induced strong ground shaking is potentially an adverse geologic hazard expected in the study area.

Mitigation. Terminal facilities shall be designed and constructed at a minimum to "Essential Structure" standards as well as the seismic design requirements for ground shaking specified in the Uniform Building Code for Seismic Zone 4. Additionally, to satisfy the provisions of the 1998 CBC, these facilities shall be designed to withstand ground motions equating to approximately a 500-year return period (10 percent probability of exceedence in 50 years). For design purposes, site-specific ground motions shall be calculated for all project sites.

CEQA Determination. This impact is less than significant.

Impact 2: Liquefaction or lateral spreading could damage facilities and/or injure people.

Alternatives A through D. Liquefaction of soils occurs when loose, cohesionless soils become saturated, temporarily losing shear strength during strong ground shaking. Significant factors that affect soil liquefaction potential are grain-size distribution, relative density, degree of saturation, the initial stresses acting on the soils, and the characteristics of the earthquake, such as the intensity and duration of the ground shaking. As indicated on Figure 3-26, all of the study area along the shoreline in the region of the ferry terminal alternatives is potentially prone to liquefaction (State of California, 2003), an adverse impact.

In addition to liquefaction, other potential hazards in the study area include compaction consolidation (settlement) and seismically-induced settlement. Dissipation of excess pore pressure generated by ground shaking will produce volume changes within the liquefied soil layers, which would be manifested at the ground surface as settlement.

Mitigation. A program of site-specific exploratory borings and accompanying laboratory testing will be required to delineate any potentially liquefiable materials underneath ferry terminal alternative sites. These geotechnical investigations will also be required for consideration prior to foundation design. Potentially liquefiable deposits will either have to be removed or engineered (dewatered or densified) to reduce their liquefaction potential. This has been performed with success within areas of liquefaction risk in the Bay Area. For example, densified fill material in areas of Foster City and Redwood Shores survived the 1989 M_w 6.9 Loma Prieta earthquake without liquefying (Benuska, 1990). The commercial and residential developments situated on these areas of engineered fill suffered no major structural damage during the earthquake.

CEQA Determination. This impact is less than significant.

Impact 3: Subsidence could damage facilities.

Alternatives A through D. Around the margins of San Francisco Bay, settlement commonly occurs in areas of manmade fill underlain by young Bay Mud through consolidation of the Bay Mud, and consequent subsidence of the overlying materials. Areas of the potential sites that are underlain by bedrock and dense fill have a low susceptibility to subsidence. Areas that are underlain by Bay Mud, estuarine sediments, organic rubbish, or thick organic deposits may be moderately to highly susceptible to subsidence. Settlement is discussed under liquefaction, above.

Mitigation. A program of site-specific exploratory borings and accompanying laboratory testing will be required to determine the probability of subsidence of soils underneath ferry terminal alternative sites. These geotechnical investigations will also be required for consideration prior to foundation design.

CEQA Determination. This impact is less than significant.

Impact 4: Expansive soils could lead to structural damage.

Alternatives A through D. Artificial fill underlies the study areas, but the high groundwater table along the margins of the Bay indicates that soils at these localities are permanently saturated. Therefore, there is a very low risk of expansive soil behavior and this is not an adverse impact.

CEQA Determination. No potentially significant impact would occur.

Impact 5: A tsunami or seiche could inundate the terminal site, causing damage to facilities and/or injuring people.

An analysis of hazards related to tsunamis and seiche in the area has been performed (URS, 2003). The ranking of tsunami hazard is based on the exposure of the locality to the open ocean. The project areas are sheltered from potential tsunami waves, and tsunami and seiche hazards are therefore considered low. No adverse impact is expected.

CEQA Determination. No potentially significant impact would occur.

Impact 6: Flooding could inundate the terminal site, causing damage to facilities and/or injuring people.

Alternatives A through D. None of the Alternatives are located within the FEMA 100-year flood zone (URS, 2003).

The ferry terminal alternatives are not anticipated to increase the risk of flooding, erosion, or siltation, nor will it cause changes in absorption rates, drainage patterns, or the rate or amount of surface runoff. The ferry terminal alternative sites do not receive storm runoff from off site and no significant impacts related to flooding are anticipated.

CEQA Determination. No potentially significant impact would occur.

4.11.4 Cumulative Impacts and Mitigation

Impact 7: Cumulative impacts from projects in the study area could be generated on soils.

Alternatives A through D. No other projects have been planned and approved in the area surrounding the ferry terminal alternative sites that could cause a cumulative effect on soils.

CEQA Determination. No potentially significant impact would occur.

4.12 HAZARDOUS MATERIALS

This section presents the potential impacts and mitigation measures that have been identified for ferry terminal hazardous materials associated with construction and operation of the ferry terminal alternatives.

4.12.1 Significance Criteria

The following environmental significance criteria are based on criteria developed in accordance with the requirements of CEQA, NEPA, and all applicable state and federal laws. Impacts would occur if the ferry terminal alternatives were to:

- Create a hazard to the public or the environment through the routine use, generation, transport, or disposal of hazardous materials or wastes;
- Create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials or wastes into the environment; or
- Expose people or the environment to contaminants in soil, groundwater, sediments, or structures slated for demolition.

For the adverse impacts identified, mitigation measures were developed to decrease the potential impacts.

Potential impacts from both construction and operation of the ferry terminal alternatives, as well as the No-Action Alternative, are discussed below.

4.12.2 Hazardous Materials Impacts and Mitigation

4.12.2.1 No-Action Alternative

The No-Action Alternative would not involve construction of a ferry terminal or operation of a ferry at any of the ferry terminal alternative sites, and would therefore not have any impacts related to hazardous materials or wastes.

4.12.2.2 Action Alternatives

Construction Impacts and Mitigation

Impact 1: Use and storage of hazardous materials during construction.

Alternatives A through D. For the construction of all Action Alternatives, there would be the potential for the use and storage of minor amounts of hazardous materials and the generation of small quantities of hazardous waste including, but not limited to, storage of fuels, cleaners, and paints, and generation of waste oil. However, the quantity of these materials is expected to be minimal. No adverse impacts are expected.

CEQA Determination. The impact on the public or the environment through the routine use, generation, transport, or disposal of hazardous materials or wastes associated with construction activities is considered less than significant. The construction contractor would be responsible for the proper storage and disposal of any hazardous materials or wastes in accordance with all

federal, state, and local laws and regulations. This may involve obtaining permits from the local regulatory agency for the storage of hazardous materials and a Waste Generators Identification Number from the state for the disposal of any hazardous wastes generated at the site.

Impact 2: Accidental spills and release of hazardous materials.

Alternatives A through D. Accidental spills or releases of hazardous materials (e.g., fuels and oils) during construction of the proposed ferry terminal (offshore) alternatives and associated parking area (onshore) could potentially create a hazard to the public or the environment. This is considered an adverse impact.

Mitigation. Mitigation measures to address potential releases are presented in Section 4.10, Water Resources.

CEQA Determination. With implementation of the proposed mitigation measures, the potential impact would be less than significant.

Impact 3: Contaminated dredged materials.

Alternatives A through D. The construction of the ferry terminal alternatives will require dredging for the ferry route, which would require a water depth of 10 feet at MLLW. The ferry terminal alternatives would require the dredging of approximately 110,000 to 280,000 cubic yards of sediment, depending on the site alternative. The Final Regional Toxic Hot Spot Cleanup Plan, prepared by the San Francisco Bay Region RWQCB in March 1999, identified sources of sediment contamination and candidate Toxic Hot Spots throughout San Francisco Bay. The report based its findings on historical shoreline industrial activities and the results of the multi-year (and ongoing) RMP, which includes sediment sampling at locations near the Berkeley and Albany sites. The data in this report, recent RMP data, and knowledge of historical activities near the Berkeley and Albany sites, do not provide reason to suspect that contaminated sediments occur in the approach channels to the terminal sites, or that the cost of dredging on a unit cubic yard basis will significantly vary between sites.

The San Francisco DMMO 2007 Annual Report (Draft Report presented at the DMMO Annual Meeting, May 13, 2008) confirmed that routine operational and maintenance dredging from San Francisco Bay channels (not including remediation at identified Toxic Hot Spots) rarely encounter contaminated sediments. The report indicated that in 2007, 99.8 percent of dredged material was Suitable for Aquatic Disposal. The DMMO Agencies include the USACE, U.S. EPA, BCDC, the RWQCB, and California State Lands Commission.

While no known contamination is present at the alternative sites, the sediments to be dredged could be contaminated. If proposed channel bottom sediments are found to be contaminated after pre-dredging testing, an adverse impact could occur if contaminated dredged material were not disposed of properly.

Mitigation. Before dredging can occur in San Francisco Bay, a sediment SAP must be submitted to, and be approved by, the DMMO. Specifically, the USACE "Inland Testing Manual" and the "Guidelines for Implementing the Inland Testing Manual in the San Francisco Bay Regions" (DMMO, September 21, 2001) guidelines must be followed to select the appropriate chemical analyses and number of samples. Sediment sampling will identify the sediment quality and sediment use. The results of the SAP are used to determine appropriate disposal alternatives. Based on the results of the analyses, appropriate reuse or disposal options, including beneficial reuse or upland disposal, will be developed to avoid creating adverse impacts. Whenever contaminated materials are to be dredged, negative impacts on water quality shall be minimized through the use of the most appropriate dredge type and dredging techniques (see Section 4.10, Water Resources).

Therefore, pre-dredge sampling and testing will be performed before any dredging associated with the project occurs. Based on available information, it is reasonable to assume that contaminated sediment is not present, and hence, the unit cost of dredging would be similar at all sites.

CEQA Determination. With implementation of the proposed mitigation measure, the potential impact would be less than significant.

Impact 4: Contaminated fill material during grading.

Alternatives A through D. The construction sites of landside facilities, including the parking areas associated with the Action Alternatives, are located on areas of fill. Although there is no known contamination identified in this area, it is possible that fill material used for land filling operations is contaminated. Grading for the development of the parking area is likely to be minimal. However, a net excess of material that requires offsite disposal or reuse may be generated, which would constitute an adverse impact.

Mitigation. If it is determined that grading operations for the construction of landside facilities and parking areas at the ferry terminal alternative sites will generate a net excess of material requiring offsite disposal or reuse, a Soil Management Plan would be developed to address the management of the excess material. The Soil Management Plan would identify engineering controls to be used to mitigate offsite migration of potentially contaminated material via fugitive dust emissions or erosion. Additionally, the Soil Management Plan would specify the nature and frequency of chemical analyses to be conducted on the excess material to ensure there are no adverse impacts from its disposal or reuse.

CEQA Determination. With implementation of the proposed mitigation measure, the potential impact would be less than significant.

Impact 5: Demolition of structures containing lead-based paints and asbestos.

Alternatives A, B, and D. No demolition of existing structures would occur during project construction at these sites, and no adverse impacts would be created.

Alternative C. The parking area for Alternative C would be constructed on a portion of the Golden Gate Fields stable/barn area. Several of these structures would have to be demolished to allow grading for construction of the parking lot. Based on the age of these structures, there is the potential that there is lead-based paint and possibly some asbestos containing materials present. If this material is present and not properly abated prior to demolition, it could potentially expose the public and the environment to these contaminants, an adverse impact.

Mitigation. Prior to any demolition activities of the horse stables/barns that are currently part of Golden Gate Fields, a lead-based paint and asbestos survey of the structures will be conducted. Based on the results of the survey, it will be determined if any lead-based paint or asbestos are present that require abatement prior to demolition of the structures. Any abatement required would be conducted in accordance with all federal, state, and local regulatory requirements by properly licensed abatement contractors.

CEQA Determination. With implementation of the proposed mitigation measure, the potential impact would be less than significant.

Operations Impacts and Mitigation

Impact 6: Use of hazardous materials for ferry operation and maintenance.

Alternatives A through D. With the exception of onsite fueling, the project site would not accommodate hazardous materials. Vessel fueling and maintenance activities could also occur off site. In either case, fueling would be conducted using standard BMPs.

For Alternative A, hazardous materials common to the everyday operation of the Berkeley Marina would be handled in the vicinity. However, the project would not introduce the transport, use, or disposal of additional hazardous materials. Therefore, no adverse impacts due to the handling of hazardous materials are expected and no mitigation is required.

CEQA Determination. The impact on the public or the environment through routine transport, use, or disposal of hazardous materials would be considered less than significant. No mitigation would be required.

Impact 7: Accidental release of fuel into the Bay.

Alternatives A through D. An accidental release of fuel from the ferry could potentially create a hazard to the public or the environment. This is considered an adverse impact. Mitigation measures to address potential releases are presented in Section 4.10, Water Resources.

CEQA Determination. With implementation of the proposed mitigation measures, the potential impact would be less than significant.

Impact 8: Contaminated dredging material from routine dredging.

Alternatives A through D. The approach channel to the ferry terminal will require routine maintenance dredging for the ferry route. Sediments to be dredged could potentially be contaminated. If proposed channel bottom sediments are found to be contaminated after pre-dredging testing, and if contaminated dredged material were not disposed of properly, a potentially significant impact could occur.

Mitigation. As part of the DMMO dredging permit requirements, sediment in the proposed dredging locations must be sampled and analyzed to determine the presence and extent of potential contamination. Based on the results of the analyses, appropriate reuse or disposal options will be developed to reduce potential impacts to a less-than-significant level. Whenever contaminated materials are to be dredged, negative impacts on water quality shall be minimized through the use of the most appropriate dredge type and dredging techniques. These impacts and associated mitigation measures are discussed in detail in Section 4.10, Water Resources.

CEQA Determination. With implementation of the proposed mitigation measures, the potential impact would be less than significant.

Cumulative Impacts and Mitigation

Of the approved developments in the study area, only the Gilman Street playing fields, near Alternative C, has the potential for impacts to hazardous materials. This project may generate hazardous materials from excavation and grading activities. However, there is regulatory oversight from the RWQCB associated with the project, and a Remediation and Risk Management Plan has been developed to address these issues. Therefore, cumulative impacts from multiple projects encountering hazardous materials are not expected.

CEQA Determination. Cumulative effects associated with hazardous materials from other identified development projects are not considered significant.

4.13 UTILITIES AND PUBLIC SERVICES

This section discusses the potential impacts of the ferry terminal alternatives on project area utilities and public services.

4.13.1 Methodology

The analysis in this section focuses on whether the implementation of the proposed project would impact existing utilities (domestic water, sanitary sewer, storm drainage, electricity, gas, and telecommunications) and public services (fire protection, emergency medial transport, police protection, schools, and libraries) within the vicinity of the proposed project site locations.

Public services were analyzed to determine if implementation of the ferry terminal alternatives would require additional public services or result in the deterioration of existing service levels. Public service staffing and resources were also evaluated against the size, complexity, and the

future public service needs of the project. In this regard, the impact analysis combines the discussion of potential short-term construction impacts with long-term requirements of the ferry terminal alternatives for each public service evaluated. Because the sites extend across two jurisdictions that provide most of the public services evaluated, the information for the three Berkeley sites (Alternatives A, B, and C) is typically distinguished from the site located in the City of Albany (Alternative D).

4.13.2 Significance Criteria

In accordance with the requirements of CEQA and NEPA and all applicable state and federal environmental laws, the proposed project would have a potentially adverse effect on the environment if it would result in the following:

- Result in the degradation or relocation of existing utility infrastructure;
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effect;
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effect; or
- Result in substantial adverse physical or environmental impacts that affect service ratios, response times, or other performance objectives for any of the public services: fire protection, police protection, emergency transport, schools, or libraries.

4.13.3 Utilities and Public Services Impacts and Mitigation

4.13.3.1 No-Action Alternative

Under the No-Action Alternative, the proposed waterside and landside facility projects detailed in the Proposed Project Alternatives would not be implemented. For this reason, the No-Action Alternative would not result in the need for expanded utility infrastructure or service levels, result in a determination from a utility service provider about capacity for the proposed project, or create the need for an increase of public services. Utility infrastructure and service upgrades and expansion are anticipated to occur within the project study area regardless of whether the proposed project is implemented. Therefore, the ferry terminal alternatives studied in detail would not result in potentially adverse direct or indirect utility impacts.

4.13.3.2 Action Alternatives

Construction Impacts and Mitigation

Impact 1: Construction activities have the potential to adversely impact existing underground utilities.

Water

Alternative A. An existing 12-inch-diameter domestic water line runs north-south along the west side of Marina Boulevard and services the Doubletree Hotel as well as domestic connections and fire hydrants along Spinnaker Way. According to the City of Berkeley, the exact utility depth is unknown and some utility lines have been buried closer to the surface than is standard by industry practice (Neu, 2007). Construction activity that could disrupt this line would include the repaving of an existing parking lot on the west side of Marina Boulevard for use as an ADA parking lot. This could result in construction activities coming into contact with the line, an adverse impact.

Alternative B. An existing 8-inch-diameter domestic waterline runs north-south along the west side of Seawall Drive. Water from this line services Hs Lordships Restaurant and provides water for the fire hydrants located every 700 feet along Seawall Drive. According to the City of Berkeley, the exact utility depth is unknown and some utility lines have been buried closer to the surface than is standard by industry practice (Neu, 2007). Construction activity that could disrupt this line would include the repaving of an existing parking lot on the west side of Seawall Drive for use as an ADA parking lot, and construction of the car and bus drop-off areas. This could result in construction activities coming into contact with the line, a potentially adverse impact.

Alternative C. According to information provided by EBMUD, no water utilities are located at or near the proposed Gilman Street site. Therefore, no potentially adverse construction impacts are anticipated.

Alternative D. According to information provided by EBMUD, no water utilities are located at or near the proposed Buchanan Street site. Therefore, no potentially adverse construction impacts are anticipated.

Mitigation. Prior to the start of construction activities, the project proponent shall consult with public utility providers who have infrastructure in the immediate vicinity of the Berkeley Marina and Berkeley Fishing Pier sites to determine the exact location and depth of utility lines.

CEQA Determination. Alternatives C and D would result in no significant impacts. For Alternatives A and B, implementation of the mitigation measures would reduce potentially significant construction impacts on this public utility to a less-than-significant level.

Sanitary Sewer

Alternative A. An existing 15-inch-diameter PVC line runs north-south underneath the west side of Marin Boulevard and provides sanitary sewer services for Berkeley Marina. According to the City of Berkeley, the exact utility depth is unknown and some utility lines have been buried closer to the surface than is standard by industry practice (Neu, 2007). Furthermore, Berkeley Pumping Station No. 2 is located in an underground vault, and an aboveground generator and control panel is located directly east of the proposed Berkeley Marina site on the west side of Marina Boulevard. Construction activity that could disrupt this line would include the repaving of an existing parking lot on the west side of Marina Boulevard for use as an ADA parking lot. This could result in construction activities coming into contact with the line, an adverse impact.

Alternative B. An existing 10-inch-diameter PVC sanitary sewer line runs north-south down the center of Seawall Drive adjacent to the proposed site. This line currently provides sanitary sewer services to Hs Lordships Restaurant. Because the line runs down the center of Seawall Drive, it does not appear that any construction activity for this site would be impacted. Therefore, no adverse impacts are anticipated from construction activity.

Alternative C. No sanitary sewer utilities exist at or near the proposed Gilman Street site. Therefore, no adverse construction impacts are anticipated.

Alternative D. According to information obtained from Angel Silva from the City of Albany, no storm drainage network is located in the vicinity of this proposed site. Therefore, no adverse construction impacts are anticipated (Silva, 2007).

Mitigation. Prior to the start of construction activities, the project proponent shall consult with public utility providers who have infrastructure in the immediate vicinity of the Berkeley Marina and Berkeley Fishing Pier sites to determine the exact location and depth of utility lines.

CEQA Determination. Alternatives C and D would result in no significant impacts. For Alternatives A and B, implementation of the mitigation measures would reduce potentially significant construction impacts on this public utility to a less-than-significant level.

Storm Drainage

Alternative A. According to information obtained from the City of Berkeley, no storm drainage network is located in the vicinity of this proposed site. Stormwater generally flows toward the Bay or into shallow catch basins, which are eventually piped to an outfall in the Bay. Therefore, no adverse construction impacts are anticipated.

Alternative B. According to information obtained from the City of Berkeley, no storm drainage network is located in the vicinity of this proposed site. Stormwater generally flows toward the Bay or into shallow catch basins, which are eventually piped to an outfall in the Bay. Therefore, no adverse impacts are anticipated from construction activity.

Alternative C. According to information obtained from the City of Berkeley, no storm drainage network is located in the vicinity of this proposed site. Stormwater generally flows toward the Bay or into shallow catch basins, which are eventually piped to an outfall in the Bay. Therefore, no adverse construction impacts are anticipated.

Alternative D. According to information obtained from the City of Albany, no storm drainage network is located in the vicinity of this proposed site. Stormwater generally flows toward the Bay or into shallow catch basins, which are eventually piped to an outfall in the Bay. Therefore, no adverse construction impacts are anticipated.

CEQA Determination. No significant impacts would occur.

Electricity

Alternative A. An existing underground 12-kV electrical line runs north-south along the west side of Marina Boulevard and provides electrical services to the Berkeley Marina and Doubletree Hotel. According to the City of Berkeley, the exact utility depth is unknown and some utility lines have been buried closer to the surface than is standard by industry practice (Neu, 2007). The closest transformer is approximately 400 feet to the south of the proposed site and provides power to Piers F and G at the Berkeley Marina. Construction activity that could disrupt the underground 12-kV electrical line would include the repaving of an existing parking lot on the west side of Marina Boulevard for use as an ADA parking lot. This could result in construction activities coming into contact with the line, an adverse impact.

Alternative B. An existing underground 12-kV electrical line runs north-south along the east side of Seawall Drive, and provides electrical services to the Berkeley Marina and Doubletree Hotel. The closest transformer is located at the south end of Seawall Drive and provides power to Hs Lordships Restaurant. According to the City of Berkeley, the exact utility depth is unknown and some utility lines have been buried closer to the surface than is standard by industry practice (Neu, 2007). Construction activity that could disrupt the underground 12-kV electrical line would include the repaving of the proposed ADA parking lot, located just east of proposed ferry plaza. This could result in construction activities coming into contact with the line, an adverse impact.

Alternative C. No electricity utilities exist at or near the proposed Gilman Street site. Therefore, no adverse construction impacts are anticipated.

Alternative D. No electricity utilities exist at or near the proposed Buchanan Street site. Therefore, no adverse construction impacts are anticipated.

Mitigation. Prior to the start of construction activities, the project proponent shall consult with public utility providers who have infrastructure in the immediate vicinity of the Berkeley Marina and Berkeley Fishing Pier sites to determine the exact location and depth of utility lines.

CEQA Determination. Alternatives C and D would result in no significant impacts. For Alternatives A and B, implementation of the mitigation measures would reduce potentially significant construction impacts on this public utility to a less-than-significant level.

Gas

Alternative A. A gas line is located beneath Marina Boulevard between the sanitary sewer and electricity lines. The line runs north-south and provides gas services to the Berkeley Marina and the Doubletree Hotel. According to the City of Berkeley, the diameter of the pipe and the exact utility depth are unknown, and some utility lines have been buried closer to the surface than is standard by industry practice (Neu, 2007). Construction activities that could disrupt this line would include the repaving of the proposed ADA parking lot, located just east of proposed ferry plaza. This could result in construction activities coming into contact with the line, an adverse impact.

Alternative B. A 2-inch gas line is located beneath Seawall Drive, just east of the 12-kV electricity line. The line runs north-south and provides gas services to the Berkeley Fishing Pier area and Hs Lordships Restaurant. According to the City of Berkeley, the exact utility depth is unknown and some utility lines have been buried closer to the surface than is standard by industry practice (Neu, 2007). Construction activity that could disrupt this line would include repaving of the proposed ADA parking lot, located just east of proposed ferry plaza. This could result in construction activities coming into contact with the line, an adverse impact.

Alternative C. No gas utilities exist at or near the proposed Gilman Street site. Therefore, no potentially adverse construction impacts are anticipated.

Alternative D. No gas utilities exist at or near the proposed Buchanan Street site. Therefore, no potentially adverse construction impacts are anticipated.

Mitigation. Prior to the start of construction activities, the project proponent shall consult with public utility providers who have infrastructure in the immediate vicinity of the Berkeley Marina and Berkeley Fishing Pier sites to determine the exact location and depth of utility lines. Since the Gilman Street and Buchanan Street sites do not have known utilities present in the vicinity of project facilities and construction activities, no mitigations are required for these sites.

CEQA Determination. Alternatives C and D would result in no significant impacts. For Alternatives A and B, implementation of the mitigation measures would reduce potentially significant construction impacts on this public utility to a less-than-significant level.

Telecommunications

Alternative A. An AT&T telephone service pedestal is located at the entrance of Marin Piers F and G, just south of the proposed site. An overhead communications line is located in the former Virginia Street right-of-way, north of Berkeley Meadow Park. This line appears to service the Doubletree Hotel. Since no additional telecommunications utility information is available for the

Berkeley Marina project site area, it is anticipated that little telecommunication infrastructure exists in that area. Therefore, no potentially adverse construction impacts are anticipated.

Alternative B. No information was available from AT&T about telecommunication lines in the vicinity of the Berkeley Fishing Pier Site. Furthermore, a visual reconnaissance of the area did not reveal surface-evident telephone system features. However, it is assumed that because Hs Lordships Restaurant has telephone service, there must be a line located below Seawall Drive. If this is the case, then no potentially adverse impacts would be anticipated because these lines would be too deep to be impacted by construction activities related to proposed parking lot improvements.

Alternative C. No telecommunication utilities exist at or near the proposed Gilman Street site. Therefore, no potentially adverse construction impacts are anticipated.

Alternative D. No telecommunication utilities exist at or near the proposed Buchanan Street site. Therefore, no potentially adverse construction impacts are anticipated.

Mitigation. Prior to the start of construction activities, the project proponent shall consult with public utility providers who have infrastructure in the immediate vicinity of the Berkeley Marina and Berkeley Fishing Pier sites to determine the exact location and depth of utility lines. Because there are no known utilities present in the vicinity of project facilities and construction activities at the Gilman Street and Buchanan Street sites, no mitigations are required for these sites.

CEQA Determination. Implementation of the above mitigation measure would reduce adverse construction impacts to a less-than-significant level for Alternatives A and B. No significant utility impact would occur for Alternatives C and D.

Operations Impacts and Mitigation

Impact 2: Implementation of the ferry terminal alternatives would require enhanced fire protection facilities.

Fire Protection

Alternatives A and B. According to BFD Deputy Chief David Orth, the Berkeley Marina area has basic fire protection infrastructure (Orth, 2007). For example, all floating docks have a fire standpipe system that uses water provided by the EBMUD. These standpipes are only sufficient to reach vessels that are located in marina slips or tied to the dock. The Deputy Chief stated that, in the event that a boat is on fire in the Berkeley Marina but not in a slip, the Harbormaster's boat may be used to extinguish the fire, but has limited capabilities. Furthermore, the BFD has a number of floating pumps that could be used to fight a fire in the Berkeley Marina; however, these too have limited capabilities. According to Deputy Chief Orth, all vessels are required by the USCG to have a fire extinguisher on board and should be used as a first line of protection against fires.

Currently, the Berkeley Marina has limited fire protection infrastructure on site, consisting of fire hydrants, standpipes, and fire extinguishers. The ferry terminal itself must adhere to the California Building and Fire Codes with respect to fire sprinklers and emergency access. Implementation of the Berkeley Marina or Berkeley Fishing Pier ferry terminal alternatives would result in the need for upgraded fire protection facilities at the Berkeley Marina. Therefore, a potentially adverse impact is anticipated.

Alternative C. Currently, the Gilman Street site is serviced by the BFD. Implementation of the ferry terminal alternative at this site is not anticipated to result in a significant impact to the BFD, as the site is easily accessible by existing BFD staff and equipment. It is not anticipated that this alternative would create a hardship at this site for BFD that would require new facilities or more staff. As with the Berkeley Marina and Berkeley Fishing Pier ferry terminal alternative sites, offshore fire fighting capabilities at Gilman Street are limited. Floating pumps and the USCG could be summoned in the event of an offshore incident at this site. Because the Gilman Street ferry terminal alternative is readily accessible by existing roads, standpipes, and fire hydrants (whereas the Berkeley Marina and Berkeley Fishing Pier sites entail more complex infrastructure issues), no adverse impacts to the BFD are anticipated (Orth, 2007).

Alternative D. According to Battalion Chief Brian Crudo of the AFD, fire protection infrastructure in the vicinity of the Buchanan Street site is limited to two fire hydrants. Chief Crudo said it is likely that the project proponent would be required to install a fire hydrant in the vicinity of the ferry terminal (Crudo, 2007). Apart from fire hydrant installation, the AFD stated that they could adequately service the project with existing staff and resources. As with the ferry terminal alternatives in the City of Berkeley, in the event that additional help is needed to respond to an incident, the USCG could be summoned from their station at Yerba Buena Island. The AFD further mentioned that this site would have to adhere to California Building and Fire Codes with respect to fire sprinklers and emergency access for the ferry terminal. Because the Buchanan Street ferry terminal site would be adequately serviced by existing AFD personnel, no adverse impacts to the AFD are anticipated.

Mitigation. For ferry terminal Alternatives A and B, the project proponent shall be required to consult with the BFD regarding acceptable mitigation measures to provide an adequate standard of fire protection at the Berkeley Marina or Berkeley Fishing Pier project alternative site.

CEQA Determination. For Alternatives A and B, Consultation between the project proponent and the BFD on acceptable fire protection mitigation measures at the Berkeley Marina or Berkeley Fishing Pier ferry terminal alternative site would reduce potential impacts to a less-than-significant level.

Emergency Medical Transport

Alternatives A, B, and C. Currently, emergency transport for the Berkeley project sites is provided by the BFD (Orth, 2007). It is not anticipated that implementation of the three ferry terminal alternatives in the City of Berkeley would degrade existing service levels or require

additional staff or emergency transport facilities. BFD firefighters are cross-trained as EMTs and some are cross-trained as paramedics as well. Access to each site is uninhibited. Therefore, existing BFD emergency transport personnel are expected to be able to accommodate implementation of the Berkeley Marina, Berkeley Fishing Pier, or Gilman Street ferry terminal alternatives, and no adverse impacts are anticipated.

Alternative D. According to the AFD, four paramedics are available at any given time to respond to the Buchanan Street site and provide emergency medical transport and service (Crudo, 2007). Implementation of the project is not anticipated to substantially increase the amount of emergency calls to the area. Therefore, existing AFD emergency transport personnel are expected to be able to accommodate the project at the Buchanan Street site. No adverse impacts are anticipated.

Police Protection

Alternatives A, B, and C. Currently, police protection for the Berkeley Marina, Berkeley Fishing Pier, and Gilman Street ferry terminal alternative sites is provided by the BPD. Implementation of the project is not expected to result in adverse impacts to BPD service levels, response times, and service ratio levels. According to the BPD, two incidents have occurred at the Gilman Street site and none at the Berkeley Marina or Berkeley Fishing Pier sites over the last 6 months (City of Berkeley, 2007b). Furthermore, the BPD does not collect developer mitigation fees. Thus, it can be concluded that BPD staff are not "stretched thin" at these sites and that expanded patrols would not be needed to accommodate the project (BDP, 2007). Therefore, no adverse impacts to the BPD are anticipated.

Alternative D. In 2005, Albany experienced 55 violent crimes, 371 property crimes, and 497 thefts (State of California, 2007). These numbers are among the lowest in Alameda County. The Buchanan Street site is located in an area where little development occurs. Thus, the number of calls to this area is quite low. Implementation of the Buchanan Street ferry terminal alternative is not expected to result in the need for expanded police forces, because the current force adequately serves the entire city and maintains a response time of 2 to 4 minutes (Adams, 2007). Therefore, it is anticipated that existing APD staff would be able to accommodate the ferry terminal at the Buchanan Street site and no adverse impacts are anticipated.

Schools

Alternatives A, B, and C. Currently, the BUSD has a capacity for 9,240 students. In 2007, the school district reported a total district enrollment of 8,570 students (see Section 3.13, Utilities and Public Services). Therefore, the district has the capacity to accommodate another 670 students. The Berkeley Marina, Berkeley Fishing Pier, and Gilman Street ferry terminal alternatives are not expected to significantly impact school enrollment, because they would not result in a significant number of new students enrolling in the BUSD. Because the school district can accommodate approximately 670 more students, additional enrollments resulting from the ferry terminal alternatives would not cause potentially adverse impacts to the BUSD.

Alternative D. Currently, the AUSD is approximately 112 students over capacity for the 2007 school year (see Section 3.13, Utilities and Public Services). The Buchanan Street ferry terminal alternative is not expected to significantly impact school enrollment, because this project alternative would not result in a significant number of new students enrolling in the AUSD. However, if this project alternative would result in additional students for AUSD, the impact would be mitigated to a less-than-significant level because the AUSD collects developer mitigation fees. The AUSD collects $2.24 for residential development and $0.36 for commercial development. Under the provisions of CEQA, collection of developer fees is considered adequate mitigation for school impacts (State of California, 2008). Therefore, it is not expected that the project would result in a significant impact to student enrollment within the AUSD, and no potentially adverse impacts to the AUSD are anticipated.

Libraries

Alternatives A, B, and C. Because less-than-significant population growth is expected to occur as a result of the project, there will be an insignificant increase in library usage at the six libraries that operate in the City of Berkeley. No adverse impacts are anticipated.

Alternative D. Because limited population growth is expected to occur as a result of implementation of the Buchanan Street ferry terminal alternative, an insignificant increase in library usage in the City of Albany is anticipated. No adverse impacts are anticipated.

Impact 3: Operation of the ferry terminal facilities and associated parking area could increase utility service demand in the study area.

Alternatives A and B. Operation activities for the proposed project at these sites would require water and electrical services. Water services would be required for the fire sprinkler system. Because no restrooms are planned for the proposed ferry terminal, wastewater service would not be needed. Electrical services would be needed for uses such as terminal and parking lot night lighting, automated ticket machines, change machines, automated teller machines, newspaper vending machines, automatic passenger and bicycle turnstiles, and closed-circuit television, which do not consume large amounts of electricity. The existing water and electricity infrastructure capacity in the area is adequate for operational activities. Because existing utilities do not extend to the immediate vicinity of the proposed project sites, both sites would require connections. These connections would not result in adverse impacts because installation/ expansion activities would occur within established street rights-of-way; the increase in water usage would be minimal and no new treatment facilities would have to be constructed. Bill McGowen of EBMUD stated that there are no specific water entitlement limits for the City of Berkeley, as long as the increase in use is not radically different from EBMUD Master Water Plan forecasts. The proposed project is considered development accounted for under the forecast (McGowen, 2007). Implementation of the proposed project at these sites would not require stormwater infrastructure upgrades, because all areas of impervious surfaces would remain, and no new areas of impervious services would be constructed. Therefore, no potentially adverse operation impacts are anticipated.

Alternative C. Implementation of the proposed project at the Gilman Street site would require the same utilities as the Berkeley Marina and Berkeley Fishing Pier sites. Because the site does not currently have any water or electrical infrastructure in place, expanded infrastructure would be required. The installation of these utilities would not result in an adverse impact because they could be installed south along the Buchanan Street right-of-way and then east along the Gilman Street right-of-way, not impacting any sensitive land uses. The existing capacity of this infrastructure is adequate. No new treatment facilities would have to be constructed, as the increase in water usage would be minimal. Bill McGowen of EBMUD stated that there are no specific water entitlement limits for the City of Berkeley, as long as the increase in use is not radically different from EBMUD Master Water Plan forecasts. The proposed project is considered development accounted for under the forecast (McGowen, 2007). Implementation of the proposed project at this site would not result in the need for new stormwater drainage infrastructure. The proposed main parking lot area for the site would be constructed of gravel or some other pervious material, so that the area of impervious surfaces (and stormwater runoff) would not significantly increase. Therefore, no potentially adverse operation impacts are anticipated.

Alternative D. Implementation of the proposed project at the Buchanan Street site would require the same utilities as the Berkeley Marina, Berkeley Fishing Pier, and Gilman Street sites. Because the site does not currently have any water or electrical infrastructure in place, expanded infrastructure would be required. The installation of these utilities would not result in an adverse impact, because they could be installed, much like the Gilman Street site, south along the Buchanan Street right-of-way and then east along the Gilman Street right-of-way, not impacting any sensitive land uses. The existing capacity of this infrastructure is adequate. No new treatment facilities would have to be constructed, as the increase in water usage would be minimal. Bill McGowen of EBMUD stated that there are no specific water entitlement limits for the City of Albany, as long as the increase in use is not radically different from EBMUD Master Water Plan forecasts. The proposed project is considered development accounted for under the forecast (McGowen, 2007). Implementation of the proposed project at these sites would not require stormwater infrastructure upgrades, because the area of impervious surfaces would not increase. Therefore, no adverse operation impacts are anticipated.

CEQA Determination. No significant utility impacts would occur as a result of project implementation and operation.

Cumulative Impacts and Mitigation

Impact 4: Cumulative Impacts could occur on water supply and wastewater treatment.

Implementation of the cumulative projects would increase demand for wastewater services. Wastewater infrastructure from the cumulative project sites in Albany and Berkeley is connected to the EBMUD regional interceptor line. From there, all wastewater in conveyed to EBMUD's Wastewater Treatment Plant (WWTP). The WWTP has a maximum capacity for 168 million gallons per day (MGD) of wastewater. Currently, the WWTP is operating considerably under

capacity at 80 MGD (EBMUD, 2007). With the WWTP operating significantly under capacity, it is not anticipated that the cumulative projects would result in the need for expansion of this facility. Furthermore, the City of Berkeley implemented a 5-year Capital Improvement Program, providing $137 million for capital improvements between 2002 and 2006. Of this amount, $39 million was devoted solely to upgrading the City's sewer system. Areas that were upgraded included the areas surrounding many of the cumulative project sites (City of Berkeley, 2008a). With the EBMUD WWTP operating well under capacity and the City of Berkeley's Capital Improvement Program, no potentially adverse impacts to wastewater treatment are anticipated.

Alternatives A through D. Area growth in combination with approved development in the study area would increase demand for water services. According to Bill McGowen of EBMUD, any development that exceeds 500 dwelling units or 500,000 square feet of retail floor space would be inconsistent with EBMUD 2020 water forecasts and would require a water assessment (McGowen, 2007). None of the planned development is equivalent in size to 500 dwelling units or 500,000 square feet of retail floor space. The water consumed by these projects would have been included in EBMUD's 2020 water forecasts. In addition, drinking water and restroom facilities are not being provided by the ferry terminal alternatives. Therefore, no cumulative impacts to the local water supply are anticipated.

Impact 5: Cumulative impacts could occur on stormwater systems.

Alternatives A through D. Area growth in combination with approved development in the study area would increase stormwater. However, it is anticipated that the existing capacity of the stormwater system is adequate to accommodate the cumulative projects. Currently, all cumulative projects sites, apart from the proposed ferry terminal sites, have existing stormwater infrastructure. According to the City of Berkeley, the Fiscal Year 2008 budget has allocated $1 million for repairs to the storm drainage system (City of Berkeley, 2008a). Such repairs would consist of replacing and upgrading various catch basins and storm inlets, construction of new valley gutters, and re-grading problematic street sections. Therefore, no cumulative impacts are anticipated for the area's storm drainage system.

Impact 6: Cumulative impacts could occur on electricity, gas, and telecommunications.

Alternatives A through D. Area growth in combination with approved development in the study area is not anticipated to adversely affect the area's electricity, gas, and telecommunications utilities. It is assumed that approved projects have been designed to ensure adequate supply connections are available.

Impact 7: Cumulative impacts could occur on fire protection, police and emergency services.

Alternatives A through D. Area growth in combination with approved development in the study area would be accommodated by existing BFD and AFD staff. According to the BFD, from January 1, 2007, through September 30, 2007, the BFD responded to 8,668 calls (228 calls for fires, 5,709 medical calls) (NFPA, 2007). It is not anticipated that implementation of the ferry terminal alternatives in combination with approved development would result in a

significant increase in fire and medical calls that could not be accommodated by existing BFD staff. In the event that additional fire or medical support is needed, the BFD and AFD would receive support from local jurisdictions through automatic aid agreements. The BPD, APD, and the University of California Police Department, which patrols the University Village project, provide police services within the study area. Minimal criminal activity has been reported in the study area (State of California, 2007), and the planned project development could be accommodated by the existing police services. Therefore, no cumulative impacts to the local fire departments or three police agencies that serve the area are expected.

Impact 8: Cumulative impacts could occur on public facilities, such as schools and libraries.

Alternatives A through D. Area growth in combination with approved development in the study area could increase the number of children attending the BUSD and AUSD. The BUSD is currently 670 under capacity, and it is anticipated that the school district could accommodate additional students from these projects. The AUSD is currently 112 students over capacity. However, developer mitigation fees are collected to offset the impact of new developments on the school district. Under the provisions of CEQA, collection of developer fees is considered adequate mitigation for school impacts (State of California, 2008). In addition, the existing libraries in Berkeley and Albany have the capacity to accommodate growth.

No adverse cumulative impacts on public facilities are anticipated.

4.14 ENERGY

This section discusses the potential impacts of the ferry terminal alternatives on overall energy consumption.

4.14.1 Methodology

A number of methods were used to determine if the ferry terminal alternatives would result in an increase in overall energy consumption or inefficient and wasteful usage of energy during the construction and operational phases of the project. Potential direct and indirect impacts are analyzed and described below.

CONSTRUCTION METHODS

An analysis was performed of the amount of energy consumption that would be required during construction of the ferry terminal at the proposed sites. Construction energy consumption related to transportation of project site materials and construction equipment was analyzed.

OPERATION METHODS

Energy consumption for ferries currently in service on San Francisco Bay was compared to the energy consumption for the vessel (*Spare Vessel)*, which has been described in Section 3.14, Energy, to be used for the project. Several key assumptions were made to determine energy calculations for existing and proposed ferry vessels. These assumptions included: a service

route to the Berkeley shore of 11 minutes at 25 knots, 10 minutes at 10 knots, and 6 minutes and 5 knots; power is proportional to the cube of speed; and the distance to the Berkeley shore is 6.9 nautical miles. Energy calculations for existing and proposed ferry vessels took into account vessel size, speed, engine power, and the maximum of number passengers that could be transported at any given time. Energy consumption for this analysis was calculated in terms of gallons of fuel per passenger trip. Indirect energy consumption for vehicles was also analyzed, as it is often overlooked as a contributing element to energy consumption.

4.14.2 Significance Criteria

The proposed project would have an adverse effect on the environment if it would do any of the following:

- Result in a substantial increase in energy consumption per passenger trip;
- Result in a wasteful, inefficient, or unnecessary consumption of energy; or
- Result in a significant demand on regional energy supply or requirement of substantial additional capacity.

4.14.3 Energy Impacts and Mitigation

4.14.3.1 No-Action Alternative

Under the No-Action Alternative, the proposed waterside and landside facility projects detailed in the Action Alternatives would not be implemented. Fuel and electrical power consumption for ferry terminal-related facilities, including parking areas, would not increase because new facilities would not be built. Therefore, no potentially adverse impacts are anticipated.

4.14.3.2 Action Alternatives

Construction Impacts and Mitigation

DIRECT LANDSIDE ENERGY IMPACTS

Impact 1: Temporary energy consumption increases resulting from project construction.

Construction-related energy consumption would result from project activities and the use of secondary facilities. A secondary facility is defined as any facility that would produce or convey any materials that would be used during the construction of the proposed project. Project activities resulting in energy consumption would include construction of the ferry terminal and its ancillary facilities, and transportation of materials and equipment to and from the work site.

The construction period for the proposed project is estimated at 10 to 14 months. As a result, any energy consumption from construction and transportation of build materials and equipment to and from the work site would be minimal. No adverse impacts are anticipated.

It is assumed that secondary facilities, such as those that would produce or convey construction materials for the proposed project, would use all reasonable energy conservation practices to minimize the costs associated with energy use. As such, it can be assumed that construction-related energy consumption by secondary facilities during the construction of the project would not result in a wasteful, inefficient, and unnecessary usage of energy, nor would it place a significant demand on regional energy suppliers. No adverse impacts are anticipated.

CEQA Determination. No significant energy impacts would result from project construction activities.

Operations Impacts and Mitigation

DIRECT ENERGY IMPACTS

Impact 2: Implementation of the Action Alternatives could result in impacts pertaining to a substantial increase in energy consumed per passenger mile traveled for the proposed ferry service.

Alternatives A through D. According to energy consumption calculations discussed in Section 3.14, Energy, the ferry vessel proposed for use at all four ferry terminal alternatives would result in a slight increase in energy consumption over ferries that are currently in service in San Francisco Bay. The *Spare Vessel* is estimated to consume 0.19 gallon of fuel per passenger trip, while other ferries such as the *Peralta, Encinal,* and *Bay Breeze* currently consume between 0.10 and 0.12 gallon of fuel per passenger trip. Furthermore, the *Spare Vessel* would only operate at 2,820 HP, with a top speed of 25 knots and a maximum capacity of 149 passengers at any give time. The *Peralta, Encinal,* and *Bay Breeze* operate at a range between 2,570 and 2,600 HP, traveling at maximum speeds ranging from 20 to 26 knots, and transporting between 250 and 400 passengers. Thus, existing San Francisco Bay ferries employ (for the most part) larger engines, travel faster, transport more passengers, and consume less fuel than the *Spare Vessel*. However, this is not seen as an adverse impact, because the *Spare Vessel* would consume 0.09 gallon of fuel more per passenger trip, which is not a substantial increase in energy consumed over existing San Francisco Bay ferries. The Gilman and Buchanan Street sites are farther away from the ferry's point of origin than the Berkeley Marina sites (approximately 1 nautical mile). As a result, Alternatives C and D would require more energy consumption for ferry operations, approximately 5 gallons per trip (Culnane, 2008). However, the amount of additional energy required for project operation is not substantial for any alternative site. Furthermore, the energy used would be balanced by the slight reduction in overall vehicle miles traveled by persons using the ferry rather than driving across the Bay Bridge. No adverse impacts are expected from vessel energy consumption.

CEQA Determination. The increase in energy consumed per passenger trip due to implementation of the proposed project is considered less than significant.

DIRECT LANDSIDE ENERGY IMPACTS

Impact 3: Implementation of the Action Alternatives could result in impacts pertaining to a substantial increase in energy consumed by the terminal waterside and landside facilities.

Alternatives A through D. For all four ferry terminal alternatives, the design would essentially be the same. The design would include a ferry plaza that would serve as a gathering area, handicapped parking, bus drop off, car drop off, a pedestrian path link to the Bay Trail, an enclosed pier, ferry parking, a 92-foot gangway, a float where the ferries would dock, and, if needed, a new dock extension. Due to the nature and design of the proposed ferry terminal for all four alternatives, significant energy consumption is not anticipated. The majority of energy consumed by these types of facilities would be in the form of night lighting. Other energy consumption would come from sources such as automated ticket machines, change machines, automated teller machines, newspaper vending machines, automatic passenger and bicycle turnstiles, and closed-circuit television, which do not consume large amounts of energy. The energy consumed during operation of the ferry terminal would not result in a wasteful, inefficient, or unnecessary consumption of energy, nor would it result in a significant demand on regional energy supply or requirement of substantial additional capacity, as current capacity levels are anticipated to accommodate the proposed project. Therefore, no adverse impacts are anticipated.

CEQA Determination. The increase in direct landside energy consumption due to implementation of the proposed project is considered less than significant.

INDIRECT LANDSIDE ENERGY IMPACTS

Impact 4: Implementation of the Action Alternatives could result in impacts pertaining to a substantial increase in energy consumed per passenger mile traveled accessing the terminal sites.

Most of the automobile and bus trips generated by the ferry terminal alternatives are expected to be "primary" trips. In other words, the ferry terminal would be the sole destination for the majority of people who travel there. It is unlikely that the majority of automobile trips to the ferry terminal would be "linked" trips, or stops along the way to another destination. All proposed ferry terminal sites have the capacity for approximately 400 parking stalls. Parking at the proposed sites would result in up to 400 automobiles being taken off the road, and a decrease in regional energy consumption. Because most of automobile trips are "primary" trips to the ferry terminals, and because of the number of automobiles that would be taken off the road as a result of the ferry terminal alternatives, no adverse energy impacts are anticipated.

With respect to bus routes, the Buchanan and Gilman Streets sites are not currently serviced by AC Transit. The Berkeley Marina and Pier sites are directly serviced by AC Transit local line 9. Thus, no new routes would be needed to service the proposed project and no increase in energy consumption by public transit would result. However, minor route changes would occur, because these lines do not directly access the proposed ferry terminal sites. The energy

consumption contributed to these modifications would be negligible. Therefore, no adverse impacts are anticipated.

CEQA Determination. The increase in indirect landside energy consumption due to minor route changes to existing AC Transit line 9 to the Berkeley Marina sites is considered less than significant.

4.14.4 Cumulative Impacts and Mitigation

Impact 5: Cumulative impacts from increased demand on regional energy supplies could occur.

Alternatives A through D. Area growth in combination with approved development in the study area would use energy for construction and operation activities. However, this is not anticipated to be a substantial increase over existing conditions within the region due to the limited growth in the study area and the relative size of the approved development. It is anticipated that each project would be designed in accordance with California Title 24 Energy Saving Standards to reduce energy consumption. The limited energy consumption of the projects relative to the total consumption of the region is not expected to substantially contribute to the cumulative energy demand. In addition, the ferry terminal project is seen as necessary to relieve existing traffic congestion in the San Francisco Bay Area, while saving energy by reducing the number of automobiles on the road. The majority of the approved development projects would be high-density residential mixed use projects that would effectively reduce vehicle trips on local roadways. As a result, no cumulative impacts are anticipated.

CEQA Determination. The project does not substantially contribute to increased energy use due to cumulative regional demand on energy supplies.

5.0 CEQA CONSIDERATIONS

5.1 IRREVERSIBLE AND IRRETRIEVABLE RESOURCE EFFECTS

CEQA Guidelines Section 15126.2(c) requires that environmental documents describe any significant irreversible environmental changes that would be caused by a proposed project. Section 15126.2(c) states:

> "Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified."

Resources would be used during construction and operation of the proposed project. Fossil fuel energy would be used during construction to produce and transport construction materials, transport construction equipment to and from the work site, and construct the ferry terminal and ancillary facilities. Other natural resources to produce glass, steel, concrete, and asphalt would be used to construct the ferry terminal and ancillary facilities. Operational use of resources would primarily be fossil fuel energy associated with vessel operation, and night lighting of the ferry terminal and adjacent areas. However, as noted in Section 4.14, Energy, the increase in fossil fuel energy consumption associated with construction and operation of the proposed project would not be substantial, wasteful, inefficient, or unnecessary. Automobile trips would also be reduced during operation of the ferry terminal, which would reduce fossil fuel energy use. Other natural resources used to construct the proposed project would generally not be retrievable, although some materials may be reused or recycled. However, the quantity of these resources that would be used would not be significant, and they are generally not in short supply.

Removal or nonuse of the proposed ferry terminal is unlikely, particularly since capital construction costs are estimated to be approximately $17 million to $20 million dollars (2007 dollars; refer to Section 2.5). Costs would also be associated with reclaiming the land should the ferry terminal be abandoned at a future date. It is possible that the ferry terminal could have other maritime uses in the future; however, these are also likely to involve resource use. Therefore, while not impossible, it is assumed that the land developed for ferry terminal use would represent an irreversible and irretrievable commitment of land resources. However, the proposed project would not result in the conversion of previously undeveloped land, because all of the alternative sites are along developed areas of the foreshore. Site A (Berkeley Marina) and Site B (Berkeley Fishing Pier) are more developed and committed to maritime use. The shorelines near Site C (Gilman Street) and Site D (Buchanan Street) are armored with concrete debris, and fill overlays Bay Mud offshore. The Eastshore State Park General Plan (CDPR,

2002) indicates that the shoreline adjacent to Site C (Gilman Street) should be restored in the future.

Irreversible environmental damage may also result from environmental accidents caused by a project. Environmental accidents that may occur during construction and operation of the proposed project include accidental spills or releases of hazardous materials (e.g., fuels and oils), and the release of any contaminated material found in dredged sediments or soils excavated to construct landside facilities. These potential impacts are described in Section 4.10 and Section 4.12, and mitigation measures are identified such as preparing and implementing a hazardous waste management plan, a contaminated materials sampling and analysis plan, and a contaminated materials removal plan, if necessary. Implementation of these mitigation measures would reduce these potential impacts to a less-than-significant level. Therefore, irreversible environmental damage is not anticipated.

The proposed ferry terminal would not consume a substantial quantity of resources such as fossil fuel energy, and these resources would not be used in a wasteful, inefficient, or unnecessary manner. While not impossible, it is assumed that the land developed for the ferry terminal would represent an irreversible and irretrievable commitment of land resources given capital construction costs. However, the proposed project would not result in the conversion of previously undeveloped land, because all of the alternative sites are along developed areas of the foreshore. Implementation of mitigation measures identified in this EIS/EIR would reduce potential impacts associated with environmental accidents, and irreversible environmental damage is not anticipated. The resource commitments described above are justified because they would result in improvements to the local and regional transit system, and reduce automobile trips and associated fossil fuel energy use. These benefits are expected to outweigh the costs of the permanent commitment of resources described above.

5.2 CUMULATIVE EFFECTS

CEQA Guidelines Section 15130 requires that environmental documents include a discussion of cumulative impacts. Cumulative impacts are two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts (CEQA, Section 15355, 1992). The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. CEQA Guidelines Section 15130(b) indicates that either a list-based approach or a projections-based approach may be used evaluate cumulative impacts. The list-based approach considers a list of past, present, and probable future projects producing related or cumulative impacts. The projections-based approach considers regional or areawide conditions contributing to cumulative impacts.

NEPA and FTA guidelines require that regional growth projections from the Metropolitan Planning Organization be used as input for evaluating the cumulative impacts of transportation projects for future year conditions. In the San Francisco Bay Area, the MTC maintains a regional travel demand forecast model that uses the regional population and employment growth forecasts by ABAG.

As indicated in the introduction to Chapter 4, Caltrans used a projections-based approach tailored to the specific conditions of the project study area (Caltrans, 2005). The 2030 cumulative analysis follows the Caltrans methodology, but also incorporates a list of projects potentially producing related or cumulative impacts. The approved development projects listed below have been identified based on recent environmental studies and actions conducted by the cities of Berkeley and Albany, as well as correspondence with the respective planning departments:

1. Read Building (2039 4th Street)
2. 700 University Mixed-Use
3. West Berkeley Bowl
4. Gilman Street Playing Fields
5. Trader Joe's (University/Martin Luther King Way)
6. University Village

This method of analysis satisfies both NEPA and CEQA requirements to evaluate the proposed project's contribution to the effect on the environment caused by the accumulation of past, present, and reasonably foreseeable projects. The evaluation of potential cumulative impacts associated with the project is discussed in each of the technical analysis sections in Chapter 4. This evaluation of potential cumulative impacts identified significant transportation and circulation impacts. No other cumulatively significant impacts were identified. Potentially significant cumulative transportation and circulation impacts are as follows:

- **Alternative C:** Cumulative traffic impacts at Alternative C would produce an incremental increase in traffic sufficient to adversely affect Intersection 12 (Gilman Street and San Pablo Avenue), which is expected to operate at LOS F in 2030. Ferry traffic would increase the v/c ratio by 0.01, the defined impact threshold.

- **Alternative D:** Cumulative traffic impacts would occur at San Pablo Avenue and Solano Avenue and at San Pablo Avenue and Marin Avenue. Ferry operation would substantially increase traffic at San Pablo Avenue and Solano Avenue, reducing LOS from E to F during the p.m. peak traffic hour. The v/c ratio at San Pablo Avenue and Marin Avenue would increase by 0.03, producing an adverse impact according to the defined impact criteria.

No cumulative impacts would occur for Alternatives A or B.

5.3 GROWTH INDUCING EFFECTS

NEPA and CEQA require environmental documents to include an evaluation of growth-inducing impacts.

NEPA Regulations Sections 1502.16 and 1508.8 require an environmental document to include an evaluation of indirect project impacts "…which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (NEPA Regulations Section 1508.8).

CEQA Guidelines Section 15126(d) states that environmental documents must:

> "Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a waste water treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment."

This section provides the framework for a discussion of potential growth-inducing impacts, as follows:

- Would the project foster economic or population growth, or the construction of additional housing?
- Would the project remove obstacles to population growth?
- Would the project result in a population increase that may tax existing community service facilities, requiring construction of new facilities?
- Would the project encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively?

5.3.1 Economic or Population Growth

Because of the large available workforce within the San Francisco Bay Area, the majority of construction and operational workers will be hired from within the region, and they will not have to relocate for project construction or operation. Project operations would generate 30 full time jobs, not including administrative jobs. The resulting economic growth would be relatively small and considered insignificant in the large economy of the San Francisco Bay Area, or even

when considered within the local area where the project would be located (see Section 4.3, Socioeconomics).

People may also move into areas due to a perceived increase in the quality of life afforded by an increase in transit service. This is not likely to significantly affect population growth in the study area because the surrounding community is relatively developed and accessible by transit.

All of the alternative ferry terminal locations would serve areas that are generally developed with maritime or urban uses. Although the concentration of transit users at the proposed ferry terminal could encourage additional development or redevelopment of the surrounding area, no new development is being planned for the terminal areas. Local governments have the responsibility to make land use decisions about specific projects to ensure that they do not result in unplanned or unwanted growth.

For these reasons, project construction and operations would not foster substantial economic or population growth, or the construction of additional housing. Population increase as a result of the proposed project would not likely be significant relative to the number of people projected to move to the study area by 2035 (see Section 3.3, Socioeconomics). The proposed project may reduce potential impacts associated with this growth by improving transit service and reducing automobiles trips.

5.3.2 Remove Obstacles to Growth

A project may also be growth-inducing if it removes an impediment to growth through the construction of infrastructure or the provision of additional public services. These growth constraints may include utilities, roadways, and police or fire protection.

The four alternative ferry terminal locations are located in built up areas of Berkeley and Albany. The proposed project would require water and electrical services for operational activities; however, the increase in usage would be minimal and existing water and electricity infrastructure capacity is adequate. Connections to existing water and electricity infrastructure can be readily provided to the Berkeley Marina Site (Alternative A) and the Berkeley Fishing Pier Site (Alternative B). The Gilman Street Site (Alternative C) and Buchanan Street Site (Alternative D) would require the extension of existing water and electricity infrastructure south along the Buchanan Street right-of-way, and then east along the Gilman Street right-of-way (see Section 3.13, Utilities and Public Services). The lack of water and electricity infrastructure is not a significant constraint to growth in these two locations, and the minor infrastructure extension would not induce growth in these areas.

The proposed project is not anticipated to significantly increase the demand for local public services, including emergency medical transport, and police and fire protection. These local public services adequately serve the study area and no increase in capacity would be needed to accommodate the proposed project (see Section 3.13, Utilities and Public Services).

5.3.3 Require Construction of New Facilities

The proposed project is not anticipated to increase population significantly enough to require the construction of new community service facilities, such as schools, libraries, or parks (see Section 4.3, Socioeconomics; and Section 3.13, Utilities and Public Services).

5.3.4 Encourage and Facilitate Other Activities

The proposed project is not anticipated to significantly contribute to economic or population growth, or require construction of infrastructure or the provision of additional public services that would be growth-inducing.

5.4 CEQA SIGNIFICANCE CRITERIA

CEQA Guidelines Section 15126 indicates that an EIR must discuss significant environmental effects of a project. Significant effects on the environment are defined as "…substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (CEQA Guidelines Section 15382). CEQA does not include thresholds for determining whether effects on the environment are significant. CEQA Guidelines Section 15064 states that:

> "The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting. For example, an activity which may not be significant in an urban area may be significant in a rural area."

CEQA Guidelines Appendix F and G include guidance to assist in the preparation of environmental documents. Criteria derived from these appendices are summarized in Table 5-1.

5.5 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Table 5-2 presents a summary of significant and potentially significant impacts for each project alternative, the corresponding mitigation measures for each impact, and the significance level after mitigation. A detailed discussion of these impacts and mitigation measures is included in Chapter 4, Environmental Consequences.

5.6 UNAVOIDABLE SIGNIFICANT ADVERSE EFFECTS

CEQA Guidelines Section 15126.2(b) requires an EIR to include a discussion of any significant impacts, including those which can be mitigated but not reduced to a level of insignificance. CEQA also requires a discussion of impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed,

notwithstanding their effect. All of the significant impacts identified in Chapter 4 can be mitigated to a less than significant level, except those summarized below.

Alternative A

- Traffic impact at University/West Frontage may be difficult to mitigate.

Alternative B

- Traffic impact at University/West Frontage may be difficult to mitigate.

Alternative C

- Cumulative traffic impact at Alternative C would produce sufficient incremental increase in traffic to adversely affect Intersection 12 (Gilman Street and San Pablo Avenue), which is expected to operate at LOS F in 2030. Ferry traffic would increase the v/c ratio by 0.01, the defined impact threshold.

- Construction of a ferry terminal would not conform to the regulations of the Eastshore State Park General Plan.

- Ferry operations through Eastshore State Park aquatic parklands may not be permitted by the State and may not meet the U.S. DOT Section 4(f) stipulation that no feasible and prudent alternatives exist.

- Daily use of the ferry terminal at this site, as well as periodic maintenance dredging for continued ferry operation would not conform to the regulations of the Eastshore State Park General Plan.

- The Gilman Street site would require approximately 240,000 cubic yards of dredging through EBRPD and California State Parks Department of Parks and Recreation. Dredging could impact water quality in the aquatic parkland through mobilization of contaminated sediment.

- Ferry operations within the North Basin may disturb foraging or resting for special-status bird species, such as the burrowing owl, white-tailed kite, American peregrine falcon, osprey, and long-billed curlew. The repeated disturbance may cause these species to reduce their use of these locations for foraging and resting.

Alternative D

- Under existing conditions, Alternative D is expected to adversely affect San Pablo Avenue and Marin Avenue. Average vehicle delay during the p.m. peak traffic hour is projected to increase by 3.1 seconds, which exceeds the significance threshold for intersections that operate at LOS E.

- Cumulative (2030) traffic impacts would occur at San Pablo Avenue and Solano Avenue and at San Pablo Avenue and Marin Avenue. Ferry operation would substantially increase traffic at San Pablo Avenue and Solano Avenue, reducing LOS from E to F during the p.m. peak traffic hour. The v/c ratio San Pablo Avenue and Marin Avenue would increase by 0.03, producing an adverse impact according to the defined impact criteria.

- Construction of a ferry terminal would not conform to the regulations of the Eastshore State Park General Plan.

- Ferry operations through Eastshore State Park aquatic parklands may not be permitted by the State and may not meet the U.S. DOT Section 4(f) stipulation that no feasible and prudent alternatives exist.

- Daily use of the ferry terminal at this site, as well as periodic maintenance dredging for continued ferry operation would not conform to the regulations of the Eastshore State Park General Plan.

- The Buchanan site alternative would require the largest dredge volume, approximately 280,000 cubic yards through EBRPD and California State Parks Department of Parks and Recreation. Dredging could impact water quality in the aquatic parkland through mobilization of contaminated sediment.

- Ferry operations within the North Basin may disturb foraging or resting for special-status bird species, such as the burrowing owl, white-tailed kite, American peregrine falcon, osprey, and long-billed curlew. The repeated disturbance may cause these species to reduce their use of these locations for foraging and resting.

Table 5-1
Summary of CEQA Significance Thresholds

Impact Category	CEQA Significance Threshold	Source(s)
Transportation and Traffic	A significant impact would occur if the project would cause a substantial traffic increase in relation to the existing traffic load and street system capacity, exceed the established level of service, result in a changes to air traffic patterns, substantially increase transportation hazards, result in inadequate emergency access or parking, or conflict the adopted policies plans or goals that support alternative transportation.	State CEQA Guidelines, Appendix G
Circulation	On ACCMA Roadways, a significant impact would occur if the project would cause the LOS on roadways to reach LOS E, except where an intersection or roadway is already operating at LOS F. At Caltrans intersections, a significant impact would occur if the project would cause the LOS for I-80 interchange intersections and for San Pablo Avenue intersections to go above LOS C. If the intersection at LOS D, E, or F, then the existing level of service needs to be maintained. At the City of Berkeley and City of Albany intersections, a significant impact would occur if the project would cause City-controlled intersections to surpass LOS D. For those intersections that currently or are forecast to operate at LOS E or F without the project, significance criteria are defined depending upon the type of traffic control involved: • For signalized intersections a significant impact would occur if the project would cause an increase of 0.01 in the v/c ratio. • For unsignalized intersections in general, a significant impact would occur if the project would cause the intersection to reach LOS F, the peak hour signal warrant is met, and a minimum of 10 vehicles is added to the critical movement. Nevertheless, as delays increase dramatically once LOS F is reached, consideration is given to the number of new trips added by a project and other factors, such as the feasibility of alternative routes and the proximity of adjacent traffic signals. • For roundabouts intersections, Caltrans criteria was used to determine whether an impact is significant.	Caltrans, ACCMA, City of Berkeley
Parking	A significant impact would occur if on-street parking were displaced by the project or if the project reduced off-street parking to substantially affect access to residences, recreational uses, and businesses that could detrimentally affect their client base.	City of Berkeley, City of Albany
Public Transportation	A significant impact would occur if the project induces the AC Transit buses to exceed the load factor standard of 1.25. Buses that exceed this threshold are considered to be overcrowded. This standard applies to all AC Transit bus routes that would serve the project.	AC Transit
Bicycles and Pedestrians	A significant impact would occur if the project would result in significant overcrowding of public sidewalks or bicycle lanes, or if the project would create potentially hazardous conditions for pedestrians or bicyclists, or interfere with pedestrian and bicyclist accessibility to the project site and adjacent areas. A significant impact would occur also if the project disrupts or interferes with the Bay Trail.	Caltrans

Table 5-1
Summary of CEQA Significance Thresholds (Continued)

Impact Category	CEQA Significance Threshold	Source(s)
Land Use and Planning	A significant impact would occur if the project would physically divide an established community, have a substantial adverse impact upon the existing character of the project's vicinity or conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	State CEQA Guidelines, Appendix G
Population and Housing	A significant impact would occur if the project would directly or indirectly induce substantial population growth or displace a substantial amount of existing housing or residents that would require the construction of replacement housing elsewhere. CEQA does not require a discussion of socioeconomic effects, except where these effects would result in physical changes, and states that social or economic effects should not be treated as significant unless there is a physical effect.	State CEQA Guidelines, Appendix G. CEQA Guidelines Sections 15064(e) and 15131
Public Services and Recreation	A significant impact would occur if the project would conflict with established recreational, educational, or religious uses; conflict with adopted plans and goals of the community; or create an additional demand for public service facilities, the expansion of which would result in significant environmental impact. A significant impact would occur if the project would significantly impact acceptable service ratios, response times, or other performance objectives for fire, police, school, parks, or other public facilities, or the project would increase the use of public facilities that would induce or accelerate substantial physical deterioration.	State CEQA Guidelines, Appendix G
Cultural Resources	A significant impact would occur if the project would cause a significant substantial adverse change in the significance of a historical resource or an archaeological resource, as defined in State CEQA Guidelines Section 15064.5. A significant impact would also occur if the project would directly or indirectly destroy a unique paleontological resource, site, or unique geologic feature or disturb any human remains.	State CEQA Guidelines, Appendix G
Aesthetics	A significant impact would occur if the project would have a significant substantial adverse effect on the scenic vista, cause substantial damage or degradation to scenic resources and the existing visual character and/or quality of the site, or create substantial light or glare that would adversely affect views in the project area.	State CEQA Guidelines, Appendix G
Utilities and Service Systems	A significant impact would occur if the project would exceed the Bay Area RWQCB's wastewater treatment requirements or if the project would require or result in construction of new water facilities, wastewater treatment facilities, or storm water drainage facilities, or expansion of existing storm, water, or wastewater facilities that could cause significant environmental effects. A significant impact would also occur if there were not sufficient water supplies available to serve the project from existing entitlements and resources or new or expanded entitlements were needed. A significant impact would also occur if the project's wastewater treatment provider does not have adequate capacity to serve the project's demands in addition to existing commitments, if the project is not served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs, or if the project does not comply with all local, state, and federal solid waste regulations.	State CEQA Guidelines, Appendix G

Table 5-1
Summary of CEQA Significance Thresholds (Continued)

Impact Category	CEQA Significance Threshold	Source(s)
Geology and Soils	A significant impact would occur if the project would expose people or structures to large geological hazards, like the rupture of a known earthquake fault, strong seismic ground failure, or landslides. A significant impact would also occur if the project resulted in substantial soil erosion or loss of topsoil, if the project is located on an unstable or expansive soils or geologic units that would result in substantial risk, or if the project has soils that cannot adequately support the use of septic tanks or alternative waste water disposal systems where sewers are not available.	State CEQA Guidelines, Appendix G
Hydrology and Water Quality	A significant impact would occur if the project would violate any water quality standards or waste discharge requirements, substantially deplete groundwater supplies, interfere substantially with groundwater recharge, substantially alter the existing drainage pattern of the area, substantially increase the rate and/or amount of surface runoff, degrade water quality, or place structures within a 100-year flood hazard area.	State CEQA Guidelines, Appendix G
Biological Resources	A significant impact would occur if the project would have a substantial adverse effect on any candidate species, sensitive species, special-status species, riparian habitat, or other sensitive natural community as identified in local or regional plans, policies, regulations, or by the CDFG or the USFWS. A significant impact would also occur if the project would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA, or interfere substantially with the movement of native resident migratory fish, wildlife species, or established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites. A significant impact would also occur if the project would conflict with local policies or ordinances that protect biological resources, or conflict with provisions of any adopted conservation plans.	State CEQA Guidelines, Appendix G
Hazards and Hazardous Materials	A significant impact would occur if the project would create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous material or a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Also, if the project would emit hazardous emissions or handle hazardous substances within ¼ mile of an existing or proposed school, a significant impact would occur. A significant impact would also occur if the project is located on a site compiled pursuant to Government Code 65962.4 and would create a significant hazard, or if the project would impair implementation of an adopted emergency response or evacuation plan. Also, if the project would expose people or structures to a significant risk of loss, a significant impact would occur.	State CEQA Guidelines, Appendix G

Table 5-1
Summary of CEQA Significance Thresholds (Continued)

Impact Category	CEQA Significance Threshold	Source(s)
Air Quality	A significant impact would occur if the project would violate an air quality standard or conflict and/or obstruct with the implementation of the BAAQMD Clean Air Plan and the City of Albany's Climate Protection Program, expose sensitive receptors to substantial pollutant concentrates, create objectionable odors that could affect a substantial amount of people, or contribute significantly to an existing or projected air quality violations. Also, construction and operational emissions generated from the proposed project would result in significant air quality impacts (BAAQMD, 1999) if: • Construction (short-term temporary emissions): – Control measures recommended by the BAAQMD are not incorporated into the project design or applied to project construction. • Operation (long-term continual emissions): – Mobile-source emissions (local to the proposed project) of CO violate or contribute substantially to a violation of the NAAQS or CAAQS; – Project emissions of ROG, NO_X, or PM_{10} exceed BAAQMD mass emissions thresholds of 15 tons per year or 80 pounds per day; – The proposed project exposes members of the public to objectionable odors; – The proposed project has the potential to expose sensitive receptors (including residential areas) or the general public to substantial incremental increases in TAC emissions that exceed 10 chances per million of excess cancer risk for the MEI and/or a hazard index of 1 for non-cancer risk for the MEI; and – The proposed project would be considered to have a significant cumulative air quality impact if it would individually have a significant air quality impact. For any project that does not individually have significant operational air quality impacts, the determination of significant cumulative impacts should be based on an evaluation of the consistency of the project with the local and regional air quality plans.	State CEQA Guidelines, Appendix G BAAQMD
Noise	A significant impact would occur if the project would: • Result in an overall noise level at the noise sensitive land uses of 65 dB CNEL or more; • Result in an overall increase in noise level at the noise sensitive land uses of 3 dB or more; • Cause stationary noise sources exceed the prescribed criteria listed within the Noise Ordinance for either level or duration; or • Conflict with any other locally applicable policies protecting noise sensitive land uses.	State CEQA Guidelines, Appendix G
Energy	A significant impact would occur if the project would result in any of the following: • a substantial increase in energy consumption per passenger trip; • a wasteful, inefficient, or unnecessary consumption of energy; or • a significant demand on regional energy supply or requirement of substantial additional capacity.	State CEQA Guidelines, Appendix F

Table 5-2
Summary of Significant and Potentially Significant Impacts

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.1	**Transportation and Circulation**				
	Traffic	No-Action	**Impact:** Existing – 8 of 17 key intersections have substandard operation without project; Future (2030) – 9 of 17 intersections have substandard operation without project.		
		Alternative A	**Impact:** Existing – 3 of 17 key intersections have substandard operations with project; Future (2030) – 0 of 17 intersections have substandard operation with project.	**Mitigation:** Existing – signal timing and intersection design modifications; Future (2030) – none required.	**Existing:** Less than significant, except at University/Frontage Road, which may not be mitigated completely.
		Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	**Existing:** Refer to Alternative A.
		Alternative C	**Impact:** Existing – 0 of 17 key intersections have substandard operation with project; Future (2030) – 2 of 17 intersections have substandard operation with project.	**Mitigation:** Existing – None required; Future (2030) – None identified.	**Future (2030):** Unavoidable Significant Impact.
		Alternative D	**Impact:** Existing – 1 of 17 key intersections have substandard operation with project; Future (2030) – 2 of 17 intersections have substandard operation with project.	**Mitigation:** Existing – Signal timing and intersection design modifications.	**Future (2030):** Unavoidable Significant Impact.
	Parking	Alternative A	**Impact:** Potential to displace existing parking for nearby businesses or residents during construction. This would be an adverse impact.	**Mitigation:** Alternative parking would be provided, including signage.	Less than Significant
			Impact: Potential to displace existing parking for nearby businesses or residents during operations. This would be an adverse impact.	**Mitigation:** Parking supply measures, such as provision of additional parking spaces, enforcement of free parking, and a parking availability information system would minimize impacts to a less-than-significant level. WETA would negotiate agreement with property owners for control and responsibility of the designated parking areas. As a part of the FEIS, WETA will develop and implement a Parking Mitigation Plan that addresses potential parking impacts on adjacent uses, particularly nearby businesses.	Less than Significant

Table 5-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.1 (cont'd)	Parking (cont'd)	Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	None identified		
		Alternative D	None identified		
	Transit	Alternative A	**Impact:** AC Transit service standards would not be affected.	**Mitigation:** None required.	
		Alternative B	**Impact:** Potential to adversely affect transit operations during construction.	**Mitigation:** Flagmen at the construction and staging areas.	Less than Significant
			Impact: AC Transit service standards would not be affected.	**Mitigation:** None required.	
		Alternative C	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	
		Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	
	Bicyclists and Pedestrians	Alternative A	**Impact:** Potential to adversely affect bicycle and pedestrian circulation during construction. Construction could cause temporary closure of sidewalks and pathways, narrowing of adjacent roadways, and/or degradation of paving surfaces, thereby disrupting bicycle and pedestrian access. This would be an adverse impact.	**Mitigation:** Access to sidewalks and pathways would be maintained by minimizing closings and providing suitable alternatives during closures. Pavement surfaces would be maintained in the construction zone and appropriate temporary detour signage would be used.	Less than Significant
		Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
4.2	**Land Use**	Alternative A	None identified		
		Alternative B	None identified		
		Alternative C	**Impact:** The potential to conflict with existing plans, policies and regulations that govern the areas at and near the ferry terminal alternatives.	**Mitigation:** Implementation of eelgrass mitigations included in Section 4.9, Biological Resources, would result in compliance with Transportation Policy 5 in the San Francisco Bay Plan.	Less than Significant

Table 5-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.2 (cont'd)	**Land Use (cont'd)**	Alternative C	**Impact:** The potential to conflict with existing plans, policies and regulations that govern the areas at and near the ferry terminal alternatives, in particular compatibility with Eastshore State Park General Plan.	**Mitigation:** Construction of a ferry terminal on lands under the jurisdiction of the Eastshore State Park General Plan is not permitted, and the Park District has stated that such a project would be difficult to implement. Therefore, this impact cannot be mitigated to a less-than-significant level.	Significant and Unavoidable
		Alternative D	**Impact:** Refer to second impact for Alternative C.	**Mitigation:** Refer to second impact for Alternative C.	Significant and Unavoidable
4.3	**Socioeconomics**	All Alternatives	All impacts less than significant		
4.4	**Parklands and Recreational Facilities**	Alternative A	None identified		
		Alternative B	None identified		
		Alternative C	**Impact:** Construction activities at the site would impact "Aquatic Parklands" of Eastshore State Park. According to the Eastshore State Park General Plan, "the park resource must be fully restored to its original condition at the completion of construction and the temporary use of the parkland must terminate before the end of the construction period." Construction of a ferry terminal would not conform to these regulations. This is an adverse impact.	**Mitigation:** No mitigation for this impact has been identified.	Unavoidable Significant Impact

Table 5-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.4 (cont'd)	**Parklands and Recreational Facilities (cont'd)**	Alternative C (cont'd)	**Impact:** Daily use of the ferry terminal at this site, as well as periodic maintenance dredging for continued ferry operation, would not conform to the regulations of the Eastshore State Park General Plan, and in conformance with Section 4(f) requirements must determine that no feasible and prudent alternatives exist. Also, it is unlikely that a documented agreement to permit this use of the aquatic parkland will be authorized by state officials. This is considered an adverse impact.	**Mitigation:** No mitigation for this impact has been identified.	Unavoidable Significant Impact
		Alternative D	**Impact:** Refer to Alternative C.	**Mitigation:** Refer to Alternative C.	Unavoidable Significant Impact
4.5	**Aesthetics and Visual Resources**	All Alternatives	All impacts less than significant		
4.6	**Cultural Resources**	Alternative A	**Impact:** The potential to adversely affect unknown archaeological resources during construction.	**Mitigation:** If, during the course of construction within the project area any prehistoric or historic cultural resources (e.g., large amounts of shell, dark soil residues, lithic material, or historic refuse) are discovered, all work in the vicinity must halt, and a qualified archaeologist shall be notified to assess the significance of the find according to CEQA Guidelines Section 5064.5. If any find is determined to be significant, the project proponent and the archaeologist will meet to determine the appropriate avoidance measures or other appropriate mitigation.	Less than Significant

Table 5-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.6 (cont'd)	**Cultural Resources (cont'd)**	Alternative A (cont'd)		If human skeletal remains are uncovered during project construction, the project proponent (depending on the project component) will immediately halt work, contact the Alameda County coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines. If the County coroner determines that the remains are Native American, the project proponent will contact the NAHC, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and PRC 5097.98 (as amended by AB 2641). In accordance with PRC 5097.98, the landowner shall ensure that, according to generally accepted cultural or archaeological standards or practices, the immediate vicinity of the Native American human remains is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section (PRC 5097.98), with the most likely descendents regarding their recommendations, if applicable, taking into account the possibility of multiple human remains.	
		Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant

Table 5-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.6 (cont'd)	**Cultural Resources (cont'd)**	Alternative A	**Impact:** The project could adversely affect unidentified paleontological resources	**Mitigation:** In the event that paleontological resources are discovered, the project proponent (depending on the project component) will notify a qualified paleontologist. The paleontologist will document the discovery as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in CEQA Guidelines Section 15064.5. If fossil or fossil bearing deposits are discovered during construction, excavations within 50 feet of the find will be temporarily halted or diverted until the discovery is examined by a qualified paleontologist (in accordance with Society of Vertebrate Paleontology standards [Society of Vertebrate Paleontology, 1995]). The paleontologist will notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the project proponent determines that avoidance is not feasible, the paleontologist will prepare an excavation plan for mitigating the effect of the project on the qualities that make the resource important. The plan will be submitted to the project proponent for review and approval prior to implementation.	Less than Significant
		Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant

Table 5-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.7	**Air Quality**	Alternative A	**Impact:** Construction of the terminal will result in short-term impacts to the existing air quality in the area. These impacts include temporary increases in emissions of CO, CO_2, NO_x, PM_{10}, $PM_{2.5}$, ROG, and SO_x. Impacts of construction to air quality are considered to be adverse.	**Mitigation:** When and where feasible, BAAQMD-recommended mitigation measures will be implemented to reduce the emissions generated from construction equipment exhaust.	Less than Significant
		Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
4.8	**Noise and Vibration**	Alternative A	**Impact:** Noise due to pile driving could impact fish. Pile driving for the terminal facility would include small-diameter concrete piles, such as those used for the San Mateo Bridge. It is therefore not expected that significant fish mortalities would result from pile driving. Harmful sound pressures may still occur, which could produce adverse temporary effects on fish.	**Mitigation:** Underwater sound monitoring would be conducted if estimated sound pressure levels could approach those that may harm fish (e.g., 180 dB). Measures to reduce sound pressure levels in surrounding waters, such as bubble jackets surrounding the piles, may have to be deployed if sound pressure levels exceed those that could harm fish.	Less than Significant
			Impact: Transiting ferries could disturb marine mammal resting and foraging.	**Mitigation:** Disturbance by ferries to foraging marine mammals is expected to be similar to existing boat traffic. NMFS guidelines would be followed to minimize acoustic disturbance on nearby mammals, and no adverse impact would be created.	Less than Significant
			Impact: Construction noise could impact existing noise-sensitive users adjacent to the ferry terminal site.	**Mitigation:** Steps outlined in the Construction Noise Ordinance for the City of Berkeley must be followed.	Less than Significant

Table 5-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.8 (cont'd)	**Noise and Vibration (cont'd)**	Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	**Impact:** Refer to the first two impacts noted for Alternative A. No noise-sensitive receptors are located adjacent to the site.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative D	**Impact:** Refer to Alternative C.	**Mitigation:** Refer to Alternative A.	Less than Significant
4.9	**Biological Resources**	Eelgrass – Alternative A	None identified		
		Eelgrass – Alternative B	None identified		
		Eelgrass – Alternative C	**Impact:** Project construction would result in the disturbance of the Eelgrass Mitigation pilot project for the East Span Bay Bridge construction south of Gilman Street, with the potential to expand northward, eventually encompassing 15 acres.	**Mitigation:** Because the eelgrass disturbance would be within an existing mitigation plot, suitable compensatory mitigation (mitigation ratio up to 1:10) would be designed in consultation with appropriate state and federal agencies such as the USACE, U.S. EPA, CDFG, BCDC, and the San Francisco Bay RWQCB. A mitigation plan would include monitoring and evaluating the success of the mitigation effort, and an approved contingency plan negotiated with appropriate state and federal agencies if the mitigation fails. It is important to note that there is little data available on replacement of eelgrass in the Bay.	Less than Significant, if mitigation is successful
		Eelgrass – Alternative D	**Impact:** Refer to Alternative C.	**Mitigation:** Refer to Alternative C.	Less than Significant

Table 5-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.9 (cont'd)	**Biological Resources (cont'd)**	Dredging – Alternative A	**Impact:** Dredging could adversely impact the California least tern, a listed species.	**Mitigation:** The LTMS contains a dredging work window for California least terns that applies to the area from the Berkeley Marina south to San Lorenzo Creek. The work window is between August 1 and November 30. Dredging during this time period would reduce impacts to this listed species and no consultation with USFWS would be required. If this work window cannot be adhered to, WTA would enter into consultation with USFWS to obtain an incidental take permit as necessary. This permit may include specifications for monitoring and other mitigation measures to reduce impacts during dredging activities. The DMMO agencies have indicated that minimizing dredging is preferable.	Less than Significant
			Impact: Dredging could affect Pacific herring spawning.	**Mitigation:** Dredging would not occur between December 1 and March 1 unless a CDFG waiver were obtained.	Less than Significant
			Impact: Construction activities may remove native oysters.	**Mitigation:** WETA would work with interested resource agencies to determine whether native oysters would be adversely affected by dredging. WETA may agree to conduct pre-construction surveys for native oysters at the Marina site. WETA would consult with the resource agencies to determine whether mitigation measures are required to re-establish the affected beds.	Less than Significant
		Dredging – Alternative B	**Impact:** Refer to the dredging impacts listed for Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Dredging – Alternative C	**Impact:** Refer to the dredging impacts listed for Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
			Impact: Dredging can spread invasive nonnative species, such as smooth cordgrass.	**Mitigation:** Identified strands of cordgrass would be removed prior to dredging and construction of pier.	Less than Significant

Table 5-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.9 (cont'd)	**Biological Resources (cont'd)**	Dredging – Alternative D	**Impact:** Refer to the dredging impacts listed for Alternative C.	**Mitigation:** Refer to Alternative C.	Less than Significant
		Fish – Alternative A	**Impact:** Special-status fish species with the potential to be affected by project construction include central California steelhead, winter run chinook salmon, and green sturgeon. These species may be adversely affected by dredging activity.	**Mitigation:** NMFS would be informally consulted as to any seasonal restrictions on pile driving or other measures to avoid take of listed species. If mitigation that avoids take cannot be implemented, then WTA would enter into formal consultation with NMFS to obtain an incidental take permit.	Less than Significant
		Fish – Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Fish – Alternative C	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Fish – Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Birds – Alternative A	No impacts identified		
		Birds – Alternative B	No impacts identified		
		Birds – Alternative C	**Impact:** Ongoing ferry traffic could disturb roosting and foraging water waterfowl in the vicinity and may decrease use of project areas by sensitive bird species. Ferry operations within the North Basin may disturb foraging or resting for special-status bird species, such as the burrowing owl, white-tailed kite, American peregrine falcon, osprey, and long-billed curlew. The repeated disturbance may cause these species to reduce their use of these locations for foraging and resting, constituting an unavoidable adverse impact.	**Mitigation:** No mitigation for this impact has been identified.	Unavoidable Significant impact

Table 5-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.9 (cont'd)	**Biological Resources (cont'd)**	Birds – Alternative D	**Impact:** Refer to Alternative C.	**Mitigation:** Refer to Alternative C.	Unavoidable Significant impact
		Bird Habitat – Alternative A	No impacts identified		
		Bird Habitat – Alternative B	No impacts identified		
		Bird Habitat – Alternative C	**Impact:** Sensitive shorelines and ecosystems within the North Basin could be eroded by ferry wakes, resulting in adverse impacts to habitat used for avian resting, foraging, or nesting.	**Mitigation:** A no-wake policy within the North Basin would reduce erosion of tidal wetlands, bayflats, and sandy beaches.	Less than Significant
		Bird Habitat – Alternative D	**Impact:** Refer to Alternative C.	**Mitigation:** Refer to Alternative C.	Less than Significant
4.10	**Water Resources**	Alternative A	**Impact:** Dredging could impact water quality through mobilization of contaminated sediment. Approximately 110,000 cubic yards of dredging would be required in the channel approaching the Berkeley Marina and in the Berkeley Marina.	**Mitigation:** As required by the DMMO, a SAP would be submitted prior to dredging. DMMO agencies have indicated that minimizing dredging is preferable.	Less than significant
			Impact: Onshore construction could cause stormwater contamination.	**Mitigation:** Construction would be done in accordance with NPDES General Permits, which require implementation of Best Management Practices.	
			Impact: Dredging could affect the capacity of the San Francisco Deep Ocean disposal site.	**Mitigation:** Evaluate potential disposal within the Bay at an upland facility, or beneficial reuse.	
			Impact: Inadvertent fuel spills from construction or operation would affect water quality.	**Mitigation:** Hazardous waste management plan and solid waste management plan will govern the storage and disposal of hazardous materials. All vehicles and construction equipment will be inspected to ensure no leaking fluids occur.	

Table 5-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.10 (cont'd)	**Water Resources (cont'd)**	Alternative A (cont'd)	**Impact:** Stormwater runoff at the terminal site and parking area could degrade water quality.	**Mitigation:** Gravel or permeable pavement would be used so rainwater could permeate into underlying soil.	
		Alternative B	**Impact:** Dredging could impact water quality through mobilization of contaminated sediment. Approximately 150,000 cubic yards of dredging would be required along the channel to the Berkeley Fishing Pier.	**Mitigation:** Refer to Alternative A.	Less than Significant
			Impact: Refer to the second, third, fourth, and fifth impacts for Alternative A.	**Mitigation:** Refer to Alternative A.	
		Alternative C	**Impact:** Dredging could impact water quality through mobilization of contaminated sediment. A ferry route to the Gilman Street site would require approximately 240,000 cubic yards of dredging along the channel and terminal turning basin. The EBRPD and California State Parks Department of Parks and Recreation indicated that even with mitigation measures, dredging within aquatic parklands of Eastshore State Park would still be considered an adverse impact.	**Mitigation:** No mitigation for this impact has been identified.	Unavoidable Significant impact
			Impact: Refer to the second, third, fourth, and fifth impacts for Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant

Table 5-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.10 (cont'd)	**Water Resources (cont'd)**	Alternative D	**Impact:** Dredging could impact water quality through mobilization of contaminated sediment. A ferry route to the Buchanan site would require approximately 280,000 cubic yards of dredging along the channel and terminal turning basin. The EBRPD and California State Parks Department of Parks and Recreation indicated that even with mitigation measures, dredging within aquatic parklands of Eastshore State Park would still be considered an adverse impact.	**Mitigation:** No mitigation for this impact has been identified.	Unavoidable Significant impact
			Impact: Refer to the second, third, fourth, and fifth impacts for Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
4.11	**Geology and Soils**	Alternative A	**Impact:** Seismic shaking could damage facilities and/or injure people.	**Mitigation:** Terminal facilities shall be designed and constructed at a minimum to "Essential Structure" standards as well as the seismic design requirements for ground shaking specified in the Uniform Building Code for Seismic Zone 4. Additionally, to satisfy the provisions of the 1998 CBC, these facilities shall be designed to withstand ground motions equating to approximately a 500-year return period (10 percent probability of exceedence in 50 years). For design purposes, site-specific ground motions shall be calculated for the project.	Less than Significant

Table 5-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.11 (cont'd)	**Geology and Soils (cont'd)**	Alternative A (cont'd)	**Impact:** Liquefaction or lateral spreading could damage facilities and/or injure people. Liquefaction of soils occurs when loose, cohesionless soils become saturated, temporarily losing shear strength during strong ground shaking. Significant factors that affect soil liquefaction potential are grain-size distribution, relative density, degree of saturation, the initial stresses acting on the soils, and the characteristics of the earthquake, such as the intensity and duration of the ground shaking. All of the study area along the shoreline in the region of the alternatives is potentially prone to liquefaction an adverse impact. In addition to liquefaction, other potential hazards in the study area include compaction consolidation (settlement) and seismically-induced settlement. Dissipation of excess pore pressure generated by ground shaking will produce volume changes within the liquefied soil layers, which would be manifested at the ground surface as settlement.	**Mitigation:** A program of site-specific exploratory borings and accompanying laboratory testing will be required to delineate any potentially liquefiable materials underneath potential terminal sites. These geotechnical investigations will also be required for consideration prior to foundation design. Potentially liquefiable deposits will either have to be removed or engineered (dewatered or densified) to reduce their liquefaction potential.	Less than Significant
			Impact: Subsidence could damage facilities**.**	**Mitigation:** Previous Mitigation applies.	Less than Significant
		Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant

Table 5-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.12	**Hazardous Materials**	Alternative A	**Impact:** Accidental spills or releases of hazardous materials (e.g., fuels and oils) during construction of the proposed terminal (offshore) and associated parking area (onshore) could potentially create a hazard to the public or the environment. This is considered an adverse impact.	**Mitigation:** Mitigation measures to address potential releases are presented in Section 4.10, Water Resources.	Less than Significant
			Impact: Contaminated water from fill material exposed during grading could migrate offsite.	**Mitigation:** If it is determined that contaminated fill would be exposed during construction, a Soil Management Plan would be prepared, identifying engineering controls to be used to mitigate migration of potentially contaminated material offsite via fugitive dust emissions or erosion.	Less than Significant
		Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
			Impact: Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	**Impact:** Demolition of structures containing lead-based paints and asbestos could expose the public and the environment to these contaminants, an adverse impact.	**Mitigation:** Prior to any demolition activities of the horse stables/barns a lead-based paint and asbestos survey would be conducted. Required abatement would be conducted by properly licensed abatement contractors.	Less than Significant
		Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant

Table 5-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.13	**Utilities and Public Services**				
	Fire Protection	Alternative A	**Impact:** Implementation of the project alternative would require enhanced fire protection facilities. Currently, the Berkeley Marina has limited fire protection infrastructure onsite, consisting of fire hydrants, standpipes, and fire extinguishers. The ferry terminal itself would have to adhere to the California Building and Fire Codes with respect to fire sprinklers and emergency access. Implementation of the Berkeley Marina or Berkeley Fishing Pier project alternatives would result in the need for upgraded fire protection facilities at the Berkeley Marina. Therefore, a potentially adverse impact is anticipated.	**Mitigation:** The project proponent shall consult with the BFD on acceptable mitigation measures to provide an adequate standard of fire protection at the site.	Less than Significant
		Alternative B	**Impact:** Implementation of the project alternative would require fire protection facilities.	**Mitigation:** The ferry terminal itself would have to adhere to the California Building and Fire Codes with respect to fire sprinklers and emergency access. The project proponent shall consult with the BFD on acceptable mitigation measures to provide an adequate standard of fire protection at the site.	Less than Significant

Table 5-2
Summary of Significant and Potentially Significant Impacts (Continued)

EIR/EIS Section	Environmental Area/Impacts	Alternatives	Impacts	Mitigation	Level of Significance After Mitigation
4.13 (cont'd)	Fire Protection (cont'd)	Alternative C	**Impact:** Implementation of the project alternative would require fire protection facilities.	**Mitigation:** The ferry terminal itself would have to adhere to the California Building and Fire Codes with respect to fire sprinklers and emergency access. The project proponent shall consult with the Berkeley Fire Department on acceptable mitigation measures to provide an adequate standard of fire protection at the site.	Less than Significant
		Alternative D	**Impact:** Implementation of the project alternative would require fire protection facilities.	**Mitigation:** The ferry terminal itself would have to adhere to the California Building and Fire Codes with respect to fire sprinklers and emergency access the project proponent shall consult with the AFD on acceptable mitigation measures to provide an adequate standard of fire protection at the site.	Less than Significant
	Gas, Electricity, Sanitary Sewer	Alternative A	I**mpact:** Construction activities could come into contact with utility lines, and an adverse impact could occur.	**Mitigation:** Prior to the start of construction activities, the project proponent shall consult with public utility providers who have infrastructure in the immediate vicinity of the site to determine the exact location and depth of utility lines.	Less than Significant
		Alternative B	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative C	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
		Alternative D	**Impact:** Refer to Alternative A.	**Mitigation:** Refer to Alternative A.	Less than Significant
4.14	**Energy**	All Alternatives	All impacts less than significant		

Note:
Impacts determined to be less than significant without mitigation are not included in this table.

6.0 EVALUATION OF ALTERNATIVES

6.1 SUMMARY OF ALTERNATIVES ANALYZED

The EIS/EIR studied five alternatives, including the No-Action Alternative and four Action Alternatives. Under the No-Action Alternative, no ferry terminal facilities or service would be provided from Berkeley or Albany. Existing transportation infrastructure and services would remain unchanged, except for those transportation improvements identified and programmed in the Regional Transportation Plan. All Action Alternatives would construct and operate a ferry terminal along the Berkeley/Albany waterfront containing a passenger waiting area and amenities, boat dock, and ramps connecting to landside facilities. The landside facilities would include passenger pick-up and drop-off areas, bus/shuttle/vehicle circulation routes, bicycle/ pedestrian circulation pathways, and lighted parking areas. The Action Alternative ferry terminal sites are located at:

- the Berkeley Marina,
- the Berkeley Fishing Pier,
- near the foot of Gilman Street south of Golden Gate Field, and
- north of Golden Gate Field along the waterfront extension of Buchanan Street.

More detailed information for these alternatives is presented in Chapter 2.

6.2 SUPPORTING THE PROJECT PURPOSE AND NEED

The No-Action Alternative would partially respond to the deficiencies in the transportation network and goals established in the project Purpose and Need by implementing infrastructure improvements that have been identified and funded in the Regional Transportation Plan. The Action Alternatives would more fully support the Purpose and Need by adding an alternative mode of travel for transbay commuters and midday travelers destined for San Francisco or to destinations in the Berkeley/Albany area. The ferry service would provide additional capacity to the already congested transbay transportation network, including the Bay Bridge and the BART transbay tube, and provide emergency access between San Francisco and the East Bay in the event of a catastrophic situation that cripples or shuts down the Bay Bridge or the BART tube.

6.3 INCLUSION IN THE REGIONAL TRANSPORTATION PLAN

The MTC "Transportation 2030 Plan for the San Francisco Bay Area," adopted in February 2005, is the financially constrained Regional Transportation Plan that includes the Berkeley/ Albany Ferry Project (#22511). The Plan allots $22.0 million from the Resolution 3434 Regional Transit Expansion Program and from the RM-2 Toll Bridge Program for implementation and operation of the new ferry service and terminal facilities.

6.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Section 15126(A)(d)(4) of the CEQA Guidelines states that if the environmentally superior alternative is the No-Action alternative, the EIR shall also identify the environmentally superior alternative among the others. With the exception of traffic impacts in the study area, the No-Action Alternative would not produce construction and operations impacts generated by the new ferry service. However, the transportation and environmental benefits of the Action Alternatives would not occur under this alternative, nor would the project Purpose and Need be addressed.

In contrast, all Action Alternatives provide beneficial impacts to the environment by establishing an additional modal alternative to driving into San Francisco from the Berkeley/Albany area, thereby removing cars from congested roadways. The Action Alternatives also provide a means to cross the Bay during a catastrophic event that disables the Bay Bridge or BART tube. The plans for the ferry terminal incorporate pathways for pedestrians and bicyclists that enhance the operation of the Bay Trail. Environmental trade-offs among the Action Alternatives are summarized below. The summary identifies and compares adverse impacts that cannot be easily or completely mitigated as a way to determine which Action Alternative is the Environmentally Superior Alternative.

Alternatives C and D produce multiple environmental issues that would be difficult or impossible to mitigate. For Alternative C, the project would substantially contribute to cumulative traffic impacts at Gilman Street/San Pablo Avenue, which is expected to operate at LOS F in 2030. This cumulative impact could not be mitigated. In addition, ferry operation would traverse the aquatic parklands of Eastshore State Park and require periodic dredging. The operation would be in conflict with the Park's General Plan, and dredging could affect water quality through mobilization of contaminated sediment, an unavoidable impact on the aquatic park. The use of and conflict with aquatic parklands may not be permitted by the State or meet U.S. DOT Section 4(f) requirements. Ferry operation may also disturb foraging or resting for special-status bird species, such as the burrowing owl, white-tailed kite, American peregrine falcon, osprey, and long-billed curlew. The repeated disturbance may cause these species to reduce their use of these locations for foraging and resting. Alternative C also would disturb existing eelgrass beds, including an eelgrass mitigation area that Caltrans has established for the Bay Bridge project. Although it is possible to re-establish eelgrass beds and reduce this impact to a less-than-significant level, the mitigation is difficult to implement and may not succeed.

For Alternative D, unavoidable impacts on Eastshore State Park described for Alternative C would also occur. In addition, Alternative D would have multiple unavoidable traffic impacts resulting from the project. This alternative is expected to adversely affect the San Pablo Avenue/ Marin Avenue intersection by increasing average vehicle delay during the p.m. peak traffic hour by 3.1 seconds, which exceeds the significance threshold for intersections that operate at LOS E. Also, cumulative traffic impacts would occur at San Pablo Avenue/Solano Avenue and at San Pablo Avenue/Marin Avenue. Ferry operation would substantially increase traffic at San Pablo Avenue/Solano Avenue, reducing LOS from E to F during the p.m. peak traffic hour.

In contrast, Alternatives A and B do not produce unavoidable impacts except for the potential traffic impacts at University/West Frontage Road, which may be difficult to mitigate. Alternatives A and B may produce parking impacts on existing businesses by converting and controlling existing parking areas that are currently used by patrons of the nearby businesses and recreational opportunities. These impacts, which can be mitigated, are less likely to occur at Alternatives C and D. Overall, Alternatives A and B produce similar long-term impacts that can be mitigated. However, differences in waterside impacts occur. For example, Alternative B requires a breakwater to be constructed to protect the terminal pier from wave action, whereas Alternative A uses an existing sheltered harbor,. Potential impacts from breakwater construction can be mitigated. Alternative A requires that eight docks in the Berkeley Marina be moved, including the location of the existing Hornblower dock, and that the harbor channel used by recreational and commercial vessels is shared. Alternative B would also require more extensive dredging than Alternative A, but the disruption to existing marine-related uses would not occur under Alternative B. Therefore, Alternative B is considered the Environmentally Superior Alternative.

6.5 OTHER CONSIDERATIONS

The ferry travel time between the East Bay and San Francisco would be less for Alternatives A and B than the other alternatives, allowing more frequent ferry service during the peak. In addition, the amount of dredging and disruption to the existing waterfront land uses would be less for Alternative B than for the other alternatives. The preliminary capital cost estimate, which does not include utility requirements, mitigation costs, or architectural elements of design, is the lowest for Alternative A. A comparison of these trade-offs is provided in Table 6-1.

Table 6-1
Comparison of Other Considerations for Alternatives

Consideration	Alternative A – Berkeley Marina	Alternative B – Berkeley Fishing Pier	Alternative C – Gilman Street	Alternative D – Buchanan Street
Travel Time	29 minutes	25 minutes	35 minutes	34 minutes
Peak Period Frequency of Service	35 minutes	35 minutes	45 minutes	45 minutes
Dredging Volumes	110,000 cubic yards	150,000 cubic yards	240,000 cubic yards	280,000 cubic yards
Preliminary Capital Cost Estimate (2007 dollars)	$17,152,380	$17,905,949	$18,277,730	$19,151,546

7.0 COORDINATION AND CONSULTATION

Section 6002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users created a new Section 139 of Title 23 of the USC mandating, among other requirements, that the lead agency must establish a plan for coordinating public and agency participation in and comment on the environmental review process for a project or category of projects. Stakeholders and public agencies, including those with permitting authority for the project, have been engaged throughout the project's Phase 1 Feasibility Study and the Phase 2 Environmental Process, as indicated below.

During Phase 1, stakeholder meetings were conducted to identify project-related environmental and community issues raised by local agencies and community organizations, as well as regional, state, and federal agencies. A summary of the Phase 1 meetings with public agencies is presented in Table 7-1. Maps of the project area and alternative ferry terminal sites, Project Description Fact Sheets, and a list of potential Issues and Concerns were developed for these meetings. In addition, meetings were arranged with local businesses that could be directly affected by project implementation.

The issues and concerns raised at the stakeholder meetings were then summarized in the Phase 1 report (Berkeley/Albany Ferry Terminal Study, Site Alternatives Analysis, July 2006) and reiterated as oral comments from the agencies and community groups to the WTA Board at the July 26, 2006, meeting. In addition, in September 2005, the Cities of Albany and Berkeley passed resolutions advocating the study and implementation of ferry service in their cities (URS, 2006).

During Phase 2, the Environmental Process was initiated by the publication of the NOI in the Federal Register on February 12, 2007, and the issuance of the NOP, submitted to the State Clearinghouse (refer to Appendix B). The NOI and NOP announced that FTA and WTA were preparing an EIS/EIR for the project alternatives The announcement described the project background and alternatives considered and explained the Scoping process, including the location of three public meetings, to receive comments on the issues to be addressed in the EIS/EIR. In addition, FTA sent a letter, included in Appendix B, to public agencies announcing the Scoping meetings and inviting the agencies to participate in the Environmental Process. The recipients of the FTA letter are identified in Table 7-2.

Additional information about the Scoping process was publicized through a press release to more than 60 local media outlets and a legal notice published in local newspapers (presented in Appendix B).

On March 2, 2007, in advance of the three public Scoping meetings, WTA conducted a meeting with the Cities of Berkeley and Albany to discuss landside circulation issues and to identify a common approach for analyzing the effects of the project on the local transportation network. On March 7, the first Scoping meeting was held in Berkeley, targeting public agencies having an interest in the project. Evening Scoping meetings were subsequently held in Berkeley and

Table 7-1
Phase 1 Stakeholder Meetings

Meeting Date	Meeting Location	Agencies and Organizations Attending
February 9, 2006	Berkeley City Hall	City of Berkeley and City of Albany Staff
February 20, 2006	FTA Regional Office, San Francisco	FTA – Region 9
March 20, 2006	Berkeley Marina Harbormaster Office	East Bay Regional Parks District, Berkeley Shorebird Nature Center, Berkeley Marina Harbormaster, AC Transit, Assoc of Bay Area Governments Bay Trail Project, Berkeley Waterfront Commission
March 22, 2006	Berkeley Marina Harbormaster Office	Golden Gate Audubon, Sierra Club, CESP
March 22, 2006	Berkeley City Hall	Mayor Bates
April 6, 2006	Albany City Hall	Mayor Maris, Albany Waterfront Commission, and Albany Planning and Building Staff
April 20, 2006	Albany City Hall	Mayor Maris and Albany Waterfront Commission
May 5, 2006	URS Corporation, San Francisco	Bay Conservation Development Commission, Army Corps of Engineers, National Oceanic and Atmospheric Fisheries, California Department of Fish and Game

Table 7-2
Recipients of the FTA Participating Agency Letter

Name	Organization
Jim Townsend	Eastshore State Park, State Department of Parks and Recreation
Larry Tong	East Bay Regional Parks District
Brian Wiese	East Bay Regional Parks District
Laura Thompson	Bay Trail Project
Lee Huo	Bay Trail Project
Jim Gleich	AC Transit
Nathan Landau	AC Transit
Gary Adams	Caltrans District 4
Alix Bockleman	Metropolitian Transportation Commission (MTC)
Carter Mau	BART
Mark D'Avignon	U.S. Army Corps of Engineers (USACE)
Rob Lawrence	U.S. Army Corps of Engineers (USACE)
Bruce Wolfe	Regional Water Quality Control Board (RWQCB)
William C. Norton	Bay Area Air Quality District (BAAQMD)
Gary Stern	National Oceanographic and Atmospheric Administration (NOAA) Fisheries - National Marine Fisheries Service (NMFS)
Will Travis	Bay Conservation and Development District (BCDC)
Brenda Goeden	Bay Conservation and Development District (BCDC)
Nancy Smith	California State Lands Commission
George Issac	California Department of Fish and Game (CDFG)
Ryan Olah	U.S. Fish and Wildlife Services (FWS)
Peter Hillier	City of Berkeley Office of Transportation
Ann Chaney	City of Albany Community Development Department
Ms. Nandini Shridhar	Caltrans District 4
Mr. Tim Sable	Caltrans Office of Transit and Community Planning
Mr. Rod Chisholm	Chief of Planning Branch, SF District, U.S. Army Corps of Engineers (USACE)
Mr. Randy Lee	Regional Water Quality Control Board (RWQCB)
James R. Bybee	Northern California Habitat Manager National Oceanographic and Atmospheric Administration Fisheries-National Marine Fisheries Service (NMFS)
Mr. Steve McAdam	Bay Conservation and Development District (BCDC)
Mr. David Kranking, Commander USCG	US Coast Guard, Marine Safety Office, SF Bay
Mr. Al Storm	California Department of Fish and Game (CDFG)
Kathleen Dadey	U.S. Environmental Protection Agency (EPA)

Albany on the evenings of March 8 and March 15, 2007, respectively. A summary of the comments received during Scoping is presented in Table 7-3. Comment letters from public agencies and community organizations are presented in Appendix B. The complete summary of the Scoping process, including materials produced for the Scoping meetings and the press release, is provided in the Scoping Report, available on the WETA website.

Consultation with public agencies has been on-going since the completion of Scoping. Discussions with the California Parks Department and Bay Area Conservation and Development Commission occurred after Scoping was completed in March and May 2007. Subsequently, the Cultural Resource APE and technical report were submitted by FTA to SHPO in September 2007 and April 2008, respectively (cover letters are included in Appendix D). In April 2008, FTA also arranged a meeting with NOAA NMFS to discuss biological resource issues identified in the EIS/EIR (correspondence and a summary of NOAA NMFS comments are included in Appendix C). Comments from this meeting have been addressed in this EIS/EIR. In addition, in June 2008, letters were sent to USFWS, CDFG, U.S. EPA, and USACE requesting the opportunity to discuss potential adverse impacts resulting from project implementation (Appendix C). Response letters from these agencies are included in Appendix C. Contact with the Cities of Berkeley and Albany and local businesses has continued during this period.

Agency consultation and approvals required are summarized in Table 7-4.

Table 7-3
Summary of Scoping Comments

TABLE 2 Scoping Comment Summary

No	Last Name	First Name	Agency, Organization, or Self	Title	Letter Title	Date	Aesthetics	Access	Air Quality	Alternatives Evaluation	Biology, Habitat	Business Impacts	Costs	Cumulative Impact	Geology	Hazardous Materials	Historic	Land Use	Noise	Parklands, Recreation	Ridership	Safety/Disaster Relief	Service	Site Preference	Transportation, Traffic, Parking	Water Quality	Other
GROUP 1: Written Responses During Scoping Period																											
1	Jones	Pat	Self	None	Berkeley/Albany EIR/EIS	2/23/07			1		1																
2	La Force	Norman	Sierra Club	Chair	Further Sierra Club Comment on the NOP for the Berkeley-Albany	3/10/07										1										1	
3	Piper	Bob	Self	None	Scoping for East Bay ferry Service EIR/EIS	4/2/07							1								1						
4	Lee	Huo	San Francisco Bay Trail Project	Bay Trail Planner	Notice of Preparation for the Berkeley/Albany Ferry Terminal Draft EIR/EIS	3/28/07														1							
5	Bachman	Steve	Parks and Recreation, Diablo Vista District	Associate Park & Recreation Specialist	Berkeley/Albany Ferry Terminal Project Notice of Preparation EIR, SCH#2007022034						1									2					1		
6	Wyman	Joe	Hornblower Cruises and Events	Planning & Development Manager	URS Alternative study in Berkeley/Albany	3/1/07						1						1							1		
7	Hillier	Peter	ACM for Transportation	None	BCDC Inquiry File Nos. AL.MC.8205.1, AL.BY.7035.1 and AL.AY.7905.1; Notice of Preparation of an Environmental Impact Report for the Proposed Berkeley/Albany Ferry Terminal and Service Project	3/16/07																			5		
8	La Clair	Joe	BCDC	None	Untitled	3/30/07												1									
9	Rodriguez	Herman	Self	None	Berkeley/Albany EIR/EIS	2/27/07																		1			
10	Tong	Larry	East Bay Regional Park District	Interagency Planning Manager	Comments on NOI/NOP and Scope of EIS/EIR for proposed Berkeley/Albany Ferry Terminal	3/28/07	2		1		5			1		2	1	3	1	3				2	4	2	
11	Cassell	Jim	Berkeley Agency	None	The Albany Ferry	3/18/07							2										1	1			
12	Smolens	Amy	Self	None	Untitled	3/28/07																		1			
13	Papalia	Francesco	Self	None	Untitled	3/31/07		1													1			1		1	
14	Skinner	Mike	Self	None	Untitled	3/20/07														1		1			1		
15	Vohs	Richard	Self	None	Untitled	3/26/07																			1		
16	Steckel	Hilda	Self	None	Untitled	3/28/07																		1			
17	Wyman	Joe	Hornblower Cruises and Events	Planning & Development Manager	Untitled	3/19/07						1													1		
18	La Force	Norman	Sierra Club	Chair	Further Comment from Sierra Club on Berkeley-Albany Ferry NOP	2/27/07												1		1							
19	La Force	Norman	Sierra Club	Chair	NOP for Albany-Berkeley Ferry	2/27/07				2	2		1	2				4		4				1	6	2	
20	Cheasty	Robert	Citizens for East Shore Parks	President	NOP for Albany-Berkeley Ferry	3/8/07				2	2			2				3		3				1	6	2	
21	Fielding	Doug	Association of Sports Field	None	Parking for Ferry Water Transit at the Foot of Gilman	3/16/07																			1		
22	Gradia	Lauren	PE	Transportation Engineer/ Transit Planner	City of Albany Website Contact Form	2/9/07																		1	1		
23	Goldberg	Tracey	Self	None	Albany meeting comments	3/28/07		1																	1		1
24	Arkin	David	Self	None	Comments on the Berkeley/Albany Ferry Terminal EIR/EIS	3/31/07												1									
25	Khan	Christiane	Self	None	Buchanan Street EIR	1/25/07																		1			
26	McMahon	D.J.	Self	None	Scoping for the Berkeley/Albany Ferry System	3/16/07									1							3			2		
27	Pilch	Nick	Self	None	Untitled	3/28/07															1						
28	Rubin	Thelma	Self	None	Untitled	3/29/07															1						
29	Holan	Jerri	Friends of the Albany Ferry	Captain	Scoping for Berkeley/Albany Ferry	3/26/07	4	2			3							1		10			1		9	2	
30	Skowbow	Nancy	AC Transit	Deputy General Manager - Service Development	Notice of Preparation for Environmental Impact Report (EIR)/Notice of Intent for Environmental Impact Statement (EIS) on Berkeley/Albany Ferry	4/9/07			1				1								1		2				1

Table 7-3
Summary of Scoping Comments (Continued)

Last Name	First Name	Agency, Organization, or Self	Title	Letter Title	Date	Aesthetics	Access	Air Quality	Alt Eval	Biology/Habitat	Business Impacts	Costs	Impact	Geology	Materials	Historic	Land Use	Noise	Recreation	Ridership	Relief	Service	Site Preference	Transit/Traffic	Water Quality	Other
GROUP 2: Written and Oral Comments Received During Interagency March 7 Scoping Meeting																										
La Clair	Joe	BCDC			3/7/07		1			1									1						2	
Shafer	Cyndy	California State Parks, Diablo Vista District	Environmental Scientist		3/7/07					1																
Bachman	Steve	Parks and Recreation, Diablo Vista District	Associate Park & Recreation Specialist		3/7/07														2							
Humphrey	Scott	Coast Guard Vessel Traffic Service Center			3/7/07														1						1	
						0	1	0	0	2	0	0	0	0	0	0	0	0	4	0	0	0	0	0	3	0
GROUP 3: Written and Oral Comments Received During March 8 Scoping Meeting																										
Poisson	Neil	Doubletree Berkeley Marina	General Manager		3/8/07	1					1														1	
Mitchell	Merrilie	Self			3/8/07			1																		
Bennett	Edward	Citizens for Eastshore Parks			3/8/07					1															1	1
Blackwell	Marjorie	Golden Gate Audubon Society	President		3/8/07					1																
Smalley	Jacqui	Golden Gate Audubon Society	Vice President		3/8/07					1									1							
Bachman	Steve	Parks and Recreation, Diablo Vista District	Associate Park & Recreation Specialist		3/8/07					1									1							
Ongurth	Steve	Self			3/8/07						1												2			
Kamen	Paul	Berkeley Waterfront Commission			3/8/07						1	2											1	1	1	
La Force	Norman	Sierra Club	Chair		3/8/07												1		1				2			
McBride	John	West Berkeley PAC	Chair		3/8/07												1							1		
Levy	Clara	Self			3/8/07																		1	1		
Savidge	Mike	Golden Gate National Recreation Area			3/8/07																		1			
Williams	Sennet	Self			3/8/07																		1	1		
Holan	Jerri	Self			3/8/07																			2	1	
Hartman	Robert	Golden Gate Fields and Berkeley Convention and Visitors Bureau	Manager (Golden Gate Fields), Executive Board Member (Berkeley Convention &		3/8/07																					1
Berwin	Mary Ann	Self			3/8/07		2																	2		
Levy	Clara	BEST			3/8/07																		1			
Anonymous					3/8/07																				1	
						1	2	1	0	4	3	2	0	0	0	0	2	0	3	0	0	0	9	10	3	2
GROUP 4: Written and Oral Comments Received During March 15 Scoping Meeting																										
Larson	Clay	Self			3/15/07	1				1							1						1			
Keppel	Wima	Self			3/15/07			1																2		
Diehl	Kathy	Self			3/15/07			1		1													1			
Outis	Robert	Self			3/15/07				1																	
Okawachi	Jewel	Self			3/15/07				1																	
Cheasty	Robert	Citizens for Eastshore Parks			3/15/07					3							1							2	2	
La Force	Norman	Sierra Club	Chair		3/15/07					1							2		1				1		1	
Jordan	Preston	Self			3/15/07						2									2				2	1	
Parker	Brian	City of Albany Waterfront Committee			3/15/07							1	1				1		1					1		
Moffat	Susan	Self			3/15/07														1	3	1				1	
Maass	Peter	Albany Planning and Zoning Commission			3/15/07															1			1			
Goldberg	Tracey	Self			3/15/07																	1				
Herman	Gene	Progressive Democrats East Bay, United Seniors of Oakland and Alameda County, Sierra Club			3/15/07			1		1												1		3	1	
Dann	William	Albany Shoreline, Albany Waterfront			3/15/07																		2	3	1	
So	Eddy	Self			3/15/07																		1	2		
Maris	Allen	Self			3/15/07																			3		
Jones	Patricia	Self			3/15/07		1			2									1				2			
Jordan	Preston	EBBC, Albany Strollers and Rollers			3/15/07							2								2		1				
						1	1	3	2	9	0	5	1	0	0	0	5	0	4	8	1	3	9	18	7	0
TOTAL						8	8	7	6	29	5	12	6	1	3	1	22	1	36	13	5	7	29	68	23	4

Table 7-4
Agency Approval or Permits Required

Agency	Approval or Permit
City of Berkeley	Design Review, Utility, and Use Permits
City of Albany	Design Review, Utility, and Use Permits
U.S. Army Corps of Engineers Dredge Material Management Office	Dredge Permit, Consolidated Section 10/Section 404 Dredge and Dredge Disposal
San Francisco Bay Conservation and Development Commission (BCDC)	BCDC Permit, Approval for Waterfront Usage Consistency/ Fill in the Bay, authorization for temporary use of the Bay Trail right-of-way for construction purposes.
National Oceanic and Atmospheric Administrating National Marine Fisheries Service	Incidental Take Permit, Consultation on Eelgrass and National Oyster Issues.
Eastshore State Park District and California State Parks Department of Parks and Recreation	Dredging Approval, Permit to Allow Direct Use of Aquatic Parklands for Alternatives C and D
Regional Water Quality Control Board	General Construction Activity Stormwater Permit, Section 401 Water Quality Certification
Bay Area Air Quality Management District	Conformity Determination

8.0 REFERENCES

511 Transit, 2005. Shuttles to BART. http://transit.511.org/providers/bartshuttles.asp.

511 Transit, 2007. List of Transit Providers. http://transit.511.org/providers/index.asp.

ABAG (Association of Bay Area Governments), 2006. Projections 2007. Released December 2006.

ABAG (Association of Bay Area Governments), 2007. San Francisco Bay Trail, http://baytrail.abag.ca.gov/generalfacts.html, Accessed March 23, 2007.

AC Transit (Alameda–Contra Costa Transit District), 2004. AC Transit Board Policy No. 550, Service Standards and Design Policy (July).

AC Transit (Alameda–Contra Costa Transit District), 2005. AC Transit Bus System and Road Map. http://www.actransit.org/riderinfo/mapsandschedules.wu.

AC Transit (Alameda–Contra Costa Transit District), 2006. AC Transit Boarding and Alighting Data, Spring 2006 Signup (March-June).

AC Transit (Alameda–Contra Costa Transit District), 2007. AC Transit web site. www.actransit.org.

Accurso, L.M., 1992. Distribution and Abundance of Wintering Waterfowl on San Francisco Bay 1988-1990. Unpublished Master's Thesis. Humboldt State University, Arcata, California.

Adams, Daniel, 2007. Personal telephone communication between Lt. Daniel Adams, Albany Police Department, and Justin Kosta of URS Corporation. April 13.

Adie, Donald W., 1977. *Marinas: a Working Guide to their Development and Design*. Second edition. New York: Nichols Publishing Company.

Alameda County Congestion Management Agency, 2004. 2004 LOS Monitoring Study, p. A-1. http://www.accma.ca.gov/pdf/2004_level_of_service/appendices.pdf.

Alameda County Library, 2007a. Welcome to the Albany Library, http://www.aclibrary.org/branches/alb/default.asp?topic=Albany&cat=ALBHome.

Alameda County Library, 2007b. Albany Library Building, http://www.aclibrary.org/branches/alb/default.asp?topic=Albany&cat=ALBBuilding.

Allan, James M., 2006. Archaeological Survey of Cultural Resources Assessment for the Golden Gate Fields Project in the City of Albany, Alameda County, California (letter report). S-31544 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Allan, James M., C.D. Wills, and W. Self, 1997. Archaeological Survey, Testing and Date Recovery, West Antioch Creek Storm Drain Project, Contra Costa County, California. Report prepared for the City of Antioch, California.

Allen, S, 1999. Point Reyes Seashore. Personal communication. Conversation regarding California sea lions and harbor seals in the Bay. October 25.

Allison, Jim, 2007. Personal communication between Jim Allison, Capital Corridor Joint Powers Authority, and Tam Tran of URS, October 4.

Almogerra, N., 2006. Personal Communication between Tam Tran (URS) and Nicole Almogerra, Environmental Resources Associate, January 10.

Ambler, J.W., J.E. Cloern, and A. Hutchinson, 1985. Seasonal cycles of zooplankton from San Francisco Bay, California, USA. *Hydrobiologia* 129:177-198.

Ananian, Benjamin, 1986. Archaeological Investigation of the Durkee site, Berkeley, CA (letter report). S-8753 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Anchor Environmental CA, L.P. 2003. Literature Review of Effects of Resuspended Sediments due to Dredging Operations, prepared for Los Angeles Contaminated Sediments Task Force. June.

APTA (American Public Transportation Association), 2004. Energy Consumption by Transit Authority.

Archaeological Consulting and Research Service, No Date. Report of Archaeological Research and Field Reconnaissance of the Location of Proposed Modifications and Improvements of State Route 17, Richmond, California; 04-ALA-17 34.7/35.2, CC-17 0.0/5.3; El Cerrito Overhead in Albany to Marin Street. S-12965 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

ARUP, 2005. Berkeley Marina Weekday Parking Demand Study. March 1.

Atkinson, John, 2007. Personal communication between John Atkinson, West Berkeley Shuttle/ Berkeley Gateway TMA, and Tam Tran of URS, September 11.

Atul Patel, DKS Associates, Technical Memorandum to Heba El-Guendy, August 1, 2003

Atwater, Brian F and five others, compilers, 1999. Surviving a Tsunami – Lessons from Chile, Hawaii, and Hapan: U.S. Geological Survey Circular 1187. 18 pp.

BAAQMD (Bay Area Air Quality Management District). 1999. BAAQMD CEQA Guidelines Assessing the Air Quality Impacts of Projects and Plans. December

Badiner, L., 1995. Commute Patterns to Downtown San Francisco, San Francisco Planning Department, June 30.

Bahtiarian, M., 2002. Noise: A COMMON Problem for Small Ships. Noise Control Engineering, Inc., http://www.noise-control.com/workboat.html.

Banks, P., 1977. Archaeological Site CA-ALA-390 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Barich, Bill, 1980. *Laughing in the Hills.* New York: Viking Press.

Bartoy, Kevin M., 2004. Archaeological Monitoring at the Franklin Adult School (letter report). S-28226 on file at the Northwest Information Center of the California Historical Resources Information Center, Sonoma State University, Rohnert Park, California.

Basin Research Associates, Inc., 2004. Results of Focused Archaeological Coring Program, Area Bounded by University Avenue, 4th Street, Addison Street and 3rd, City of Berkeley, Alameda County. S-30605 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Basin Research Associates, Inc., 2005. Results of Two Focused Archaeological Coring Programs, Area Bounded by University Avenue, 4th Street, Addison Street and 3rd Street, City of Berkeley, Alameda County. S-30620 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Baxter, R., K. Hieb, S. DeLeon, K. Fleming, and J. Orsi, 1999. Report on the 1980-1995 fish, shrimp, and crab sampling in the San Francisco Estuary, California. *California Department of Fish and Game Technical Report 63*. Interagency Ecological Program for the Sacramento-San Joaquin Estuary.

BCDC (Bay Conservation and Development Commission), 2002. San Francisco Bay Plan.

Beardsley, R.K., 1948. Culture Sequence in Central California Archaeology. *American Antiquity* 14(1):1-28.

Beardsley, R.K., 1954a. Temporal and Areal Relationships in California Archaeology: Part I. *Reports of the University of California Archaeological Survey* 24, Berkeley, California.

Beardsley, R.K., 1954b. Temporal and Areal Relationships in California Archaeology: Part II. *Reports of the University of California Archaeological Survey* 24, Berkeley, California.

Beck, Warren and Ynez Haase, 1974. *Historical Atlas of California.* Norman, OK: University of Oklahoma Press.

Benuska, L. (ed.). 1990. Loma Prieta Earthquake Reconnaissance Report, Earthquake Engineering Research Institute, Supplement to Earthquake Spectra 6, 90-01, 488 pp.

Berkeley Bicycle Plan, 2005 February 22.

Berkeley Gateway TMA (Berkeley Gateway Transportation Management Association), 2007a. http://www.westberkeleyshuttle.com.

Berkeley Gateway TMA (Berkeley Gateway Transportation Management Association), 2007b. West Berkeley Shuttle Information Phone Line,

Berkeley Historical Society, 1983. *Exactly Opposite the Golden Gate: Essays on Berkeley's History, 1845 – 1945*. Edited by Phil McArdle. Berkeley, CA: The Berkeley Historical Society.

Berkeley Parks Recreation and Waterfront Department, 2005. Environmental Initial Study for the Gilman Street Playing Fields. City of Berkeley. June 10.

Berkeley Public Library, 2007. Berkeley Public Library web site: www.berkeleypubliclibrary.org.

BFD (Berkeley Fire Department), 2007. Berkeley Fire Department web site. http://www.ci.berkeley.ca.us/ContentDisplay.aspx?id=4220.

BPD (Berkeley Police Department), 2007. Personal email communication between Chief Douglas Hambleton, Berkeley Police Department, and Justin Kosta of URS Corporation. April 9.

Bickel, Polly, 1978. Changing Sea Levels along the California Coast. *Journal of California Anthropology* 5(1):6-20.

Bickel, Polly, 1981. San Francisco Bay Archaeology Ala-328, Ala-13, and Ala-12." *University of California Archaeological Research Facility Contributions* 43, Berkeley, California.

Billat, Lorna, 2002. MetroPCS Evaluation of Proposed Cellular Facility (Metro PCS Project Number SFA-C13-247A "Ashby Avenue") in Berkeley, California (letter report). S-25107 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Billat, Lorna, 2004. Nextel Communications Wireless Telecommunications Service Facility – Alameda County (letter report). S-29225 on file at the Northwest Information Center of the California Historical Resources Information Center, Sonoma State University, Rohnert Park, California.

Bond, Jeff, 2007. Personal communication between Jeff Bond, Building and Planning Manager, City of Albany and Justin Kosta, URS Corporation.

Bortugno, E.J., R.D. McJunkin, and D.L. Wagner, 1991. Map showing recency of faulting, San Francisco-San Jose Quadrangle, California. CDMG Map No. 5A, 1:250,000.

Boyer, Dr. Kathryn, 2007. Personal communication between Dr. Katharyn Boyer, San Francisco State University and Rebecca Verity, URS Corporation. June.

Bradley, Denise, and Michael Corbett, 1999a. Historic Property Survey Report for the I-80 Bicycle/Pedestrian Overcrossing Project Berkeley, California. S-22100 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Bradley, Denise, and Michael Corbett, 1999b. Primary Record P-01-010281 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Brandt, Stephen A., 1980. Berkeley Harbor Small Navigation Project, Cultural Resources Investigation. S-2148 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Breschini, G.S., and T. Haversat, 1980. Central California Obsidian Source Data and C-14 Dates. S-4840 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Bruzzone, Anthony, 2007. AC Transit; AC Transit website (www.actransit.org).

Bryne, Stephen, 2003. Cultural Resources Monitoring of Utility Excavation at the Berkeley Amtrak Rail Station (letter report). S-26383 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Burger, J. 1998. Effects of Motorboats and Personal Watercraft on Flight Behavior Over a Colony of Common Terns. *The Condor* 100:528-534.

Busby, Colin I. and Stuart A. Guedon, 1999. East Bay Regional Park District-Cultural Resources Study for RTP Grant Project Point Isabel to Central Avenue San Francisco Bay Trail, City of Richmond, Contra Costa County (letter report). S-23366 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Busby, Colin I., 1997. Cultural Resources Assessment – Cleveland Avenue/Eastshore Highway Redevelopment Plan, City of Albany, Alameda County, California (letter report). S-21194 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Busby, Colin I., 1999. Cultural Resources Review and Recommendations, Fourth Street and Hearst Avenue, City of Berkeley (letter report). S-23091 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Busby, Colin I., 2000a. Cultural Resources Review-Berkeley Crossing Project, Block Bounded by Fourth Street, Virginia Street, Cedar Street and Union Pacific Railroad Tracks, City of Berkeley, Alameda County (letter report). S-23390 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Busby, Colin I., 2000b. Archaeological Monitoring Closure Report, 1842-1860 Fourth street (APN 057-2101-008-02? 057-2102-009), City of Berkeley, Alameda County, Use Permit #99-10000089 (letter report). S-24969 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Busby, Colin I., 2000c. Archaeological Resources Assessment – The Understanding Business 242 Fifth Street (between Channing and Dwight Way) City of Berkeley, Alameda County, Use Permit 00-10000078 (letter report).

Busby, Colin I., 2000d. Archaeological Resources Assessment-Bayer South Properties Project 7th Carleton, and Grayson Streets, City of Berkeley, Alameda County (letter report). S-23386 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Busby, Colin I., 2001a. Archaeological Resources Assessment, 800 to 916 Bancroft Way (between Fifth and Sixth Streets) Parcels APN 56-1942-001, 56-1942-003-1, 56-1942-025, City of Berkeley, Alameda County (letter report). S-24988 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Busby, Colin I., 2001b. Archaeological Resources Assessment, 2224/228 Sixth Street (between Allston Way and Bancroft Way), Parcels APN 56-1963-012, 56-1963-013, City of Berkeley, Alameda County (letter report). S-24992 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Busby, Colin I., 2002. Archaeological Resources Assessment/Finding of Effect, Ursula Sherman Village/Harrison House (711 Harrison Street), City of Berkeley, Alameda County, California, HUD Activity No. MC-06-0202 (letter report). S-25550 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Busby, Colin I., 2003. Archaeological Assessment – South Half of Block Bounded by University Avenue, Addison, 3rd and 4th Streets (Parcels C and D), City of Berkeley, Alameda County (letter report). S-28967 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Busby, Colin I., 2004. Archaeological Assessment – L-shaped Parcel within Block Bounded by University Avenue, Addison, 3rd and 4th Streets (Parcels B, C, and D), City of Berkeley, Alameda County (letter report). S-28979 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Busby, Colin I., 2005. Archaeological Resources Assessment – 2039 Fourth Street Project, APN 056-1960-012-03, 056-1960-012-04, City of Berkeley, Alameda County (letter report). S-31877 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Busby, Colin I., and James C. Bard, 1978a. An Assessment of Aboriginal Cultural Resources Present on Certain Berkeley Redevelopment Commission Properties, City of Berkeley: A Short Form Report. S-1288 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Busby, Colin I., and James C. Bard, 1978b. An Archaeological Assessment of Nine Proposed Park Development Locations, City of Berkeley, California. S-1972 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Busby, P.J., T.C. Wainwright, and G.J. Bryant, 1996. Status Review of West Coast Steelhead from Washington, Oregon and California. NOAA Technical Memorandum NMFS-NWFSC-27. National Marine Fisheries Service. Seattle WA.

Buss, Margaret, 1982. Archaeological Survey Report for Proposed High Occupancy Vehicle Lanes form the Bay Bridge to Carquinez Bridge, 04-ALA/CC-80, 2.0/8.0, 0.0/14.1, 04209-400211. S-4950 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

California Energy Commission, 2007. California's Major Sources of Energy. California Energy Commission web site: www.energy.ca.gov/html/energysources.html.

California Highways and Public Works, 1955. "Great Strides." Mar-Apr: 8.

California Office of Historic Preservation, 2001a. "How to Nominate a Resource to the California Register of Historical Resources." *Technical Assistance Series No. 7.* Sacramento: OHP.

California Office of Historic Preservation, 2001b. *Instructions for Preparing Documentation for Nominating Historical Resources to the California Register of Historical Resources.* Appendix 3: Resource Attribute Codes. August 1997, revised July 2001.

Caltrans (California Department of Transportation), 2001. Pile Installation Demonstration Project (PIDP). San Francisco-Oakland Bay Bridge East Span Seismic Safety Project; Marine Mammal Impact Assessment. August.

Caltrans (California Department of Transportation), 2005. Gilman Street Interchange Improvements, Project Survey Report, 2005

Caltrans (California Department of Transportation), 2006. *Highway Design Manual*, 6th Edition, September 1, 2006

CSI (Cambridge Systematics, Inc.), 2002. Ridership Model Forecasts Final Working Paper. July.

CSI (Cambridge Systematics, Inc.), 2005. Draft Working Paper Ridership Model Summary of Alternatives and Sensitivity Analysis. December 8.

CARB (California Air Resources Board), 2007. CARB ADAM website (http://www.arb.ca.gov/adam/welcome.html). Accessed November 2.

Carlton, J.T., 1979. Introduced invertebrates of San Francisco Bay. In *San Francisco Bay – The urbanized estuary*, Conomos, T.J., ed., pp. 427-444. Pacific Division, American Association for the Advancement of Science, San Francisco, CA.

Carrico, Richard, Theodore Cooley, and William Eckhardt, 2000. Cultural Resources Reconnaissance Survey and Inventory Report for the Metromedia Fiberoptic Cable Project, San Francisco Bay Area and Los Angeles Basin Networks. S-26045 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

CDFG (California Department of Fish and Game), 1987. Delta outflow effects on the abundance and distribution of San Francisco Bay fishes and invertebrates, 1980-1985. Exhibit 60. CDFG for the State Water Resources Control Board 1987 Water Quality/Water Rights Proceedings on the San Francisco Bay/Sacramento-San Joaquin Delta. Interagency Ecological Study Program for the Sacrament-San Joaquin Estuary, Sacramento, CA.

CDFG (California Department of Fish and Game), 2007. California Natural Diversity Data Base.

CDFG (California Department of Fish and Game), 2008. Special Animals: Wildlife and Habitat Analysis Branch, California Natural Diversity Data Base. February.

CDFG (California Department of Fish and Game) and Game Habitat Conservation Planning Branch, 2005. The Status of Rare, Threatened, and Endangered Plants and Animals of California 2000-2004. Report to the Governor, the Legislature, and the Fish and Game Commission. Mary Ann Showers, Editor.

CDMG (California Division of Mines and Geology), 1969. Geologic and Engineering Aspects of San Francisco Bay Bill, Special Report 97.

CDPR (California Department of Parks and Recreation), 2001. Eastshore Park Project Resource Inventory. LSA Associates. 305 pp.

CDPR (California Department of Parks and Recreation), 2002. Eastshore State Park General Plan. California Department of Parks and Recreation, East Bay Regional Park District, and California State Coastal Conservancy. December 6.

CDPR (California Department of Parks and Recreation), 2002. Eastshore State Park General Plan. California Department of Parks and Recreation, East Bay Regional Park District, and California State Coastal Conservancy. December 6.

CH2M HILL, 1998. Richmond Harbor Eelgrass Monitoring Report #3. Prepared for U.S. Army Corps of Engineers, San Francisco District. 29 pp. plus appendices.

Chaicharn, C., 2006. Personal Communication between Tam Tran (URS) and Cherry Chaicharn, City of Albany Associate Transportation Planner. January 11.

Chaney, A., 2006. Personal Communication between Tam Tran (URS) and Anne Chaney, City of Albany Community Development Director. January 13.

Chavez, David and Jan M. Hupman, 1993. Cultural Resources Investigations for the Stege Sanitary District I/I Correction Program – Phase IV/Moeser/Stockton/Carlson Relief Sewer. S-15160 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Chavez, David and Jan M. Hupman, 1999. Archaeological Resources Investigations for the Stege Sanitary District I/I Correction Program, Phase IX, Contra Costa County, California (Project No. C-06-4556-11). S-22316 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Chavez, David and Jan M. Hupman, 2000. Archaeological Resources Investigations for the EBMUD East Bayshore Recycled Water Project, Alameda County, California. S-23778 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Chavez, David and Jan M. Hupman, 2002. Archaeological Resources Investigations for the EBMUD East Bayshore Recycled Water Project, Alameda County, California, Additional Pipeline Alignments. S-26419 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Chavez, David and Jan M. Hupman, 2003. Archaeological Resources Investigations for the Stege Sanitary District I/I Correction Program, Phase XI Sanitary Sewer Rehabilitation Project, Fall 2003, Contra Costa County, California (SRF No. C-06-4665-210/SSD Project No. 02203). S-27284 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Chavez, David, 1977. Preliminary Cultural Resources Assessment of the East Bay Municipal Utility District (EBMUD) Wet Weather Facilities/Overflow Project Facilities Sites, Alameda and Contra Costa Counties, California. S-779 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Chavez, David, 1979a. Preliminary Cultural Resources Identification; San Francisco Bay Study for Corps of Engineers Projects. S-3131 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Chavez, David, 1979b. Supplement to Preliminary Cultural Resources Assessment of the East Bay Municipal Utility District (EBMUD) Wet Water Facilities/Overflow. S-12958 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Chavez, David, 1985. Cultural Resources Evaluation for the East Bay Municipal Utility District Infiltration/Inflow Project (P.O. 951 1143 E A). S-7903 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Chavez, David, 1989. Archaeological Recovery Program for the West Berkeley Site (CA-ALA-307), Sanitary Sewer Rehabilitation for Infiltration/Inflow Correction Projects, City of Berkeley, California (Subbasin 15-011), Clean Water Grant No. C-06-2967-110). S-11125 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Chavez, David, 1991a. Archaeological Resources Investigations for the North Interceptor Wet Weather Facilities, Alameda and Contra Costa Counties, California. S-14851 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Chavez, David, 1991b. Archaeological Resources Investigations for the Point Isabel Wet Weather Treatment Plant Project, Contra Costa County, California. S-14850 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Chavez, David, 1997. Cultural Resources Investigations for the Albany Relief Sewer, Alameda County, California. S-19797 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Chavez, David, 2002. Archaeological Resources Investigations for the EBMUD East Bayshore Recycled Water Project, Alameda County, California. S-25603 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Chavez, David, and Nancy Valente, 2001. Archaeological Resources Monitoring Program for the Stege Sanitary District I/I Correction Program, Phase IX, Contra Costa County, California (Project No. C-06-4556-11). S-24462 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Chavez, David, Nina Ilic, Jan M. Hupman, Thomas M. Origer, Sue-Ann Schroder, Nancy E. Valente, Lori D. Hager, David DeVries, and Eric Wohlgemuth, 2004. Archaeological Investigations at CA-ALA-29, Albany, Alameda County, California. S-31542 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

CHE (Coast and Harbor Engineering), 2004. Berkeley Terminal Wake Wash Analysis. Performed for the Water Transit Authority. October.

CHE (Coast and Harbor Engineering), 2007. Conceptual Coastal DRAFT Engineering Design and Analysis for the Proposed Berkeley Ferry Terminal. August 8.

Cheng, R.T., V. Casulli, J.W. Gartner, 1993. Tidal Residual Intertidal Mudflat (TRIM) Model and its Applications to San Francisco Bay, California. Estuarine, Coastal, and Shelf Science 369: 235-280.

Cherr, G. 2007 University of California Davis, Bodega Marine Laboratory. Personal communication. September

City of Albany, 1990. City of Albany General Plan, Conservation, Recreation and Open Space Element.

City of Albany, 1992. City of Albany General Plan, Circulation Element. December 7.

City of Albany, 2004. Eastshore Highway/Buchanan Street Signal Study, p. 17. September.

City of Albany, 2006. City of Albany Bicycle Master Plan.

City of Berkeley Community Crime View, http://www.ci.berkeley.ca.us./cvc/wizard.asp Accessed September 4, 2007.

City of Berkeley General Plan, 2001, Open Space and Recreation Element.

City of Berkeley Planning Department, 2007, http://www.ci.berkeley.ca.us/planning/landuse/plans/generalPlan/environmentalManagement.html, Accessed on November 9.

City of Berkeley Public Works Department, 2007, http://www.ci.berkeley.ca.us/pw/Storm/stormmap.html, Accessed on November 9, 2007.

City of Berkeley, 1986. City of Berkeley Waterfront Master Plan.

City of Berkeley, 2002. General Plan, Transportation Element. http://www.ci.berkeley.ca.us/planning/landuse/plans/generalPlan/transportation.html.

City of Berkeley, 2003. City of Berkeley General Plan, Housing Element. April 23.

City of Berkeley, 2005. Draft Project Study Report (Project Development Support) for Gilman Street Interchange Improvements. November.

City of Berkeley, 2007a. Horseshoe Park, http://www.ci.berkeley.ca.us/ContentDisplay.aspx?id=12608, Accessed March, 16, 2007.

City of Berkeley, 2007b. City of Berkeley Community Crime View, http://www.ci.berkeley.ca.us./cvc/wizard.asp Accessed September 4, 2007.

City of Berkeley, 2007c. City of Berkeley Geographic Information Systems.

City of Berkeley, 2008a. City of Berkeley web site, Stormwater Construction Program. http://www.ci.berkeley.ca.us/contentdisplay.aspx?id=8030, accessed March 5, 2008.

City of Berkeley, 2008b. City of Berkeley web site, Capital Improvement Plan, Environmental Management Element, http://www.ci.berkeley.ca.us/contentdisplay.aspx?id=478, accessed March 4, 2008

Cordero, Jim. 2001. NMFS, Personal Communication.

Crane, 2007. Telephone communication between Fatema Crane, Associate Planner, Berkeley Planning and Development Department, and Justin Kosta, URS Corporation. September 19 and November 26, 2007.

Crocker, M., 1997. Encyclopedia of Acoustics, Four Volume Set. Wiley Publishing. April.

Crudo, Brian, 2007. Personal telephone communication between Battalion Chief Brian Crudo, Albany Fire Department, and Justin Kosta of URS Corporation. September 5.

Culnane, 2008. Memorandum from Mary Culnane, WETA, to John Sindzinski, WETA. May 16.

del Nevo, A.J., T. Scofield, and L. Feeney. 1997. Nonrandom foraging habitat use by California least terns in San Francisco Bay, California. Biological Assessment for Berths 55-58 and Oakland Harbor Navigation Improvement. (-50 foot) Projects. December.

del Rosario, Robert, 2007. Personal communication between Robert del Rosario, AC Transit, and Tam Tran of URS, September 21.

Dore, Christopher D., Stephen Bryne, and James W. Jenks, 2002a. Cultural Resources Inventory, Significance Evaluation, and Effects Assessment for Capital Improvement Projects in Public Streets in the West Berkeley Redevelopment Area, City of Berkeley, Alameda County, California. S-24591 on file with the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Dore, Christopher D., Stephen Bryne, and James W. Jenks, 2002b. Archaeological Survey Report for Public Improvement Projects and Maintenance in the West Berkeley Redevelopment Area, City of Berkeley, Alameda County, California; a Local Assistance Project, Charge Unit 110, EA Number 04-923579. S-26039 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Durham, David L., 1998. *California's Geographic Names.* Clovis, CA: Quill Driver Books.

DWR (Department of Water Resources), 1980. Bulletin 118-80. Ground Water Basins in California: A Report to the Legislature in Response to Water Code Section 12924. January.

EBMUD (East Bay Municipal Utility District), 2007. http://www.ebmud.com/wastewater/treatment/, Accessed November 9.

Ehrlich, P. R., Dobkin, D. S., and Wheye, D. 1988. *The Birders Handbook. A Field Guide to the Natural History of North American Birds.* Simon & Schuster Inc. New York, New York. 785 pp.

EIP Associates, 2005. Environmental Impact Report/Environmental Assessment, Administrative Draft, Prepared for the San Francisco Bay Water Transit Authority, South San Francisco Ferry Terminal Project, September.

EIP Associates, 2006. South San Francisco Ferry Terminal Project Draft EIR, for WTA, Volume 1, February 2006.

Elliott, Greg, 2002. A Bird's Eye View of San Francisco Bay: Four Stories from the Pacific Flyway, IN *Bay Nature*, October-December 2002 <http://www.baynature.com/2002octdec/birds_2002octdec.html>.

Elssasser, A.B., 1959. Archaeological Site CA-CCO-29 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Emeryville TMA (Emeryville Transportation Management Association), 2007. Emery Go Round web site, http://www.emerygoround.com.

Estes, J.A., 1990. Growth and equilibrium in sea otter populations. Journal of Animal Ecology 59:385-401.

Evens, J.G., G.W. Page, S.A. Laymon, and R.W. Stallcup, 1991. Distribution, relative abundance and status of the California Black Rail in Western North America. Condor 93:952-966.

Fajans, Michael, 2006. Memorandum to Mark Weisman Related to Ferry Travel Time Comparisons Among Potential Terminal Sites, April 5, 2006.

Federal Register, 1996. Endangered and threatened species; threatened status for central California coast coho salmon evolutionarily significant unit (ESU). Vol. 61, no. 212, Thursday, October 31.

Federal Register, 1999. Endangered and threatened species; threatened status for two Chinook salmon evolutionarily significant units (ESUs) in California; Final Rule. Vol. 64, No. 179, Thursday, September 16.

Federal Writer's Project, 1984. *The WPA Guide to California*. New York: Pantheon Books. Reprint of *California: A Guide to the Golden State*. New York: Hastings House Publishers, 1939.

Fehr & Peers, 2004. University Village and Albany/Northwest Berkeley Property Master Plan Amendments. January.

Ferrier, William Warren, 1933. *Berkeley, California; The Story of the Evolution of a Hamlet into a City of Culture and Commerce*. Oakland, CA: West Coast Printing Company.

Fredrickson, David, 1973. Early Cultures of the North Coast Ranges, California. Ph.D. Dissertation, University of California, Davis.

FTA (Federal Transit Administration), 1995. Transit Noise and Vibration Impact Assessment. Final Report, U.S. DOT Office of Planning. Prepared by Harris Miller Miller & Hanson Inc., Burlington, MA. April.

Furlong, Denise, and Kim Tremaine, 2001. Archaeological Monitoring for WS01 Long Haul Fiber Optic Segment, between Sacramento and Emeryville, California. S-24592 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Gandesbery, T., 2007. California Coastal Conservancy. Personal communication. June.

Garrison, Paul J., David W. Marshall, Laura Stremick-Thompson, Patricia L. Cicero, and Paul D. Dearlove, 2005. Effects of Pier Shading on Littoral Zone Habitat and Communities in Lakes Ripley and Rock, Jefferson County, Wisconsin. PUB-SS-1006 2005. Wisconsin Department of Natural Resources, Jefferson County Land and Water Conservation Department, and Lake Ripley Management District. 19 pp.

Gebhard, David, 1985. *Guide to Architecture in San Francisco and Northern California.* Revised edition Salt Lake City: Gibbs-Smith Publishers.

Gerow, B.A. and R.B. Force, 1968. *An Analysis of the University Village Complex with a Reappraisal of Central California Archaeology*. Stanford University Press, Stanford, California.

Gillies, Sara and John Kelley, 2001. Primary Record P-01-010617 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Goals Project, 1999. Baylands Ecosystem Habitat Goals. A Report of Habitat Recommendations Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. First Reprint. U.S. Environmental Protection Agency, San Francisco, CA. San Francisco Bay Regional Water Quality Control Board, Oakland, CA.

Goals Project, 2000. Baylands Ecosystem Species and Community Profiles: Life Histories and Environmental Requirements of Key Plants, Fish, and Wildlife of the San Francisco Bay Area. Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project, Olofson, P.R., ed. San Francisco Bay Regional Water Quality Control Board, Oakland, California.

Green, D.E., Grigg, E., Allen, S., and H. Markowitz. 2001. Monitoring the Potential Impact of the Seismic Retrofit Construction Activities at the Richmond San Rafael Bridge on Harbor Seals (*Phoca vitulina*): May 1998-August 2001. Final Interim Report. August.

Grosholz, T., 2007. Personal communication between T. Grosholz, UC Davis and Rebecca Verity, URS Corporation. June.

Guedon, Stuart A. and Colin I. Busby, 1997. 04-CCO, ISTEA REF. No. 04-CCO-0-EBRPD STPLE-6075, Pt. Isabel to Miller/Knox Trail. S-21150 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Guide for the Development of Bicycle Facilities, 1999,

Haeseker, S.L., J.T. Carmichael, and J.E. Hightower, 1996. Summer Distribution and Condition of Striped Bass within Albemarle Sound, North Carolina. Transactions of the American Fisheries Society, Vol. 125, Issue 5, pp. 690-704. September.

Hardinger, Ann, 2006. Personal Communication with Ann Hardinger, Berkeley Marina Harbormaster.

Harvey, J.T. and M.L. Torok, 1994. Movements, dive behaviors, and food habits of harbor seals (*Phoca vitulina richardsi*) in San Francisco Bay, California. Moss Landing Marine Laboratories, Moss Landing, CA. March 28.

Hastings, M.C., Popper, A.N., Finneran, J.J., and P.J. Lanford. 1996. Effects of Low-Frequency Underwater Sound on the Hair Cells of the Inner Ear and Lateral Line of the Teleost Fish (*Astononus ocellatus*). *Journal of the Acoustical Society of America* 99:1759-1765.

Hatch, J.J., and D.V. Weseloh, 1999. Double-crested Cormorant (Phalacrocorx auritus). In *The Birds of North America*, No. 441 (A. Poole and F. Gill, eds.). The Birds of North America, Inc. Philadelphia, PA.

Hatch, J.J., and D.V. Weseloh, 1999. Double-crested Cormorant (*Phalacrocorax auritus*). *In* The Birds of North America, No. 441 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA

Haug, E.A., B.A. Millsap, and M.S. Martell, 1993. Burrowing Owl (*Speotyto cunicularia*). *In* The Birds of North America, No. 61 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

Healey, M.C, 1991. The life history of chinook salmon (*Oncorhynchus tshawytscha).* In *Life history of Pacific Salmon,* C. Groot and L. Margolis, eds., pp. 311-393. Vancouver, B.C.: University of British Columbia Press.

Herbold, B., A.D. Jassby, and P.B. Moyle, 1992. *Status and Trends Report on Aquatic Resources in the San Francisco Estuary*. Public Report of the San Francisco Estuary Project.

Hill, Ward, 2004a. Historic Architecture Report, 2040 4th Street, City of Berkeley, Alameda County. S-28976 on file at the Northwest Information System, Sonoma State University, Rohnert Park, California.

Hill, Ward, 2004b. Historic Architecture Report, 2040 4th Street and 720 University Avenue, City of Berkeley, Alameda County. S-28980 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Hill, Ward, 2004c. Primary Record P-01-010658 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Hill, Ward, 2004d. Primary Record P-01-010683 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Hillier, P., 2006. Personal Communication between Tam Tran (URS) and Peter Hillier, Assistant Public Works Director. January 11.

Holman, Miley Paul, 2006a. Cultural Resources Study of the Stege Property, Richmond, Contra Costa County, California (letter report). S-31579 on file at the Northwest Information Center of the California Historical Resources Information Center, Sonoma State University, Rohnert Park, California.

Holman, Miley Paul, 2006b. Cultural Resources Study of the Stege Property, Richmond, Contra Costa County, California (letter report). S-31582 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Huffman, K. 1999. San Diego South Bay Survey Report: Effects of Human Activity and Water Craft on Wintering Birds in the South San Diego Bay. February.

Jester, Thomas, editor, No Date. *Twentieth Century Building Materials, History and Conservation.* Washington D.C.: McGraw Hill Publishers.

John, C., 2006. Personal Communication between Tam Tran (URS) and Cephas John, UC Berkeley Family Student Housing. February 14.

Jones, Fred W, 1941. "Functional Design: The Albany Track." *Architect & Engineer* (January): 38-42.

Jones, K., 2005. Pier Fishing in California: The Complete Coast and Bay Guide. http://www.pierfishing.com/pier_of_the_month/2000-05.html.

AFD (Alameda Fire Department) 2007. Personal Communication with Capitan James Jorgenson, AFD.

Josselyn, Michael, 1983. The Ecology of San Francisco Bay Tidal Marshes: A Community Profile. U.S. Fish and Wildlife Service, Division of Biological Service, Washington, D.C.

JRP, 2007. Technical Report: Historic Architectural Resources Inventory and Evaluation, Berkeley/Albany Ferry Terminal Project. August 22.

Kemble, John Haskell, 1957. *San Francisco Bay: A Pictorial Maritime History*. New York: Bonanza Books.

Knauer, Jeff, 2007. Personal email communication between Jeff Knauer, Winzler & Kelly, and Mark Weisman, URS Corporation. November 11.

Kopec, D. and J. Harvey, 1995. Toxic Pollutants, Health Indices, and Pollution Dynamics of Harbor Seals in San Francisco Bay, 1989-91: Final Report. Moss Landing Marine Labs. Moss Landing, CA.

Korschgen, C. E., L.S. George, and W. L. Green. 1985. Disturbance of diving ducks by boaters on a migrational staging area. Wildlife Society Bulletin, 13 (3): 290-296.

Korschgen, C.E., and R.B. Dalhgren. 1992. Human Disturbances of Waterfowl: Causes, Effects and Management. Waterfowl Management Handbook. U.S. Fish and Wildlife Service Leaflet 13.2.1.

Kroeber, A.L., 1925. *Handbook of the Indians of California.* Dover Publications, Inc., New York. Originally published by the Government Printing Office, Washington, in 1925 as *Bulletin 78* of the Bureau of American Ethnology of the Smithsonian Institution.

Lagreve, Julie, 2007. Telephone communication between Julie Lagreve, Golden Gate Fields, and Tammy Dorje, URS Corporation. April 17.

Langum, David J., 1994. *Crossing Over the Line: Legislating Morality and the Mann Act.* The Chicago Series in Sexuality, History, and Society, edited by John C. Fout. Chicago and London: The University of Chicago Press.

Latta, M., 2007. Personal communication between M. Latta, Save the Bay, and Rebecca Verity, URS Corporation. June.

Lawrence Berkeley Labs, 2002. Environmental Monitoring Plan. http://www.lbl.gov/ehs/esg/tableforreports/tableforreports.htm.

Leland Saylor Associates, 2008. Preconcept Opinion of Cost Ferry Terminal – Four Locations, Albany/Berkeley. January 14.

Levy, D.J., R.S. Duncan, and C.F. Levins, 2004. Use of dung as a tool by burrowing owls. *Nature* 431:39.

Lienkaemper, J.J., G. Borchardt, and M. Lisowski, 1991. Historic creep rate and potential for seismic slip along the Hayward fault, California. *Journal of Geophysical Research.* 96B:18261-18283.

Lillard, J.B., R.F. Heizer, and F. Fenenga, 1939. An Introduction to the Archaeology of Central California. *Sacramento Junior College, Department of Anthropology, Bulletin 1.*

Long, E.R., D.D. MacDonald, S.L. Smith, and F.D. Calder, 1995. Incidence of adverse biological effects within ranges of chemical concentrations in marine and estuarine sediments. *Env. Mgmt.* 19(1):81-97.

Longstreth, Richard (editor), 1987, 2000. *A Guide to American Commercial Architecture.* Walnut Creek, CA: Alta Mira Press.

Lopez, John A. and Brian McEneaney, 2000. Primary Record P-01-010543 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Lowe, L., 2006. Personal Communication between Susan Zielinski (URS) and Lindy Lowe, BCDC. May 9.

MacWhirter, R.B., and K.L. Bildstein, 1996. Northern Harrier (*Circus cyaneus*). *In* The Birds of North America, No. 210, A. Poole and F. Gill, eds.

Maddox, C., 2006. Personal Communication between Tam Tran (URS) and Heath Maddox, Associate Transportation Planner (Pedestrian/Bicycle). February 14.

Madsen, J., 1994. Impacts of Disturbance on Migratory Waterfowl. IBIS 137:S67-S74.

Marchetti, C., 2006a. Personal Communication between Joe Quartini (URS) and Cliff Marchetti, City of Berkeley Waterfront Manager. January 17.

Marchetti, C., 2006b. Personal Communication between Tam Tran (URS) and Cliff Marchetti, City of Berkeley Waterfront Manager. January 11.

Martin, Thomas, 2000. An Archaeological Resources Study of 1225 Eastshore Highway, Berkeley, Alameda County, California. S-22998 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Marvin, Judith, 2003a. Primary Record P-01-010810 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Marvin, Judith, 2003b. Primary Record P-01-010811 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Marvin, Judith, Randy Gorza, and Andrew Pulcheon, 2003. Historical Architectural Inventory of the Step 2 and Step 3 Areas of University Village, Albany, Alameda County, California. S-30406 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

McAlester, Virginia and Lee, 2000. *A Field Guide to American Houses*. New York: Alfred A. Knopf.

McCrae, Brad, 2007. Personal communication between Brad McCrae, Bay Design Analyst, Bay Area Conservation and Development Commission , and Justin Kosta, URS Corporation. August 30.

McGinnis, S.M., 1984. *Freshwater fishes of California*. Berkeley, CA: University of California Press.

McGowen, 2007. Personal telephone communication with Bill McGowen, Associate Civil Engineer, EBMUD, on November 6, 2007.

Melandry, Mara and Cindy S. Desgrandchamp, 1978. Archaeological Survey, Route 17 (Hoffman Freeway) between Hwy. 80 and Bayview Avenue, 04133-108701. S-2915 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Merkel & Associates, Inc., 2004a. Baywide Eelgrass (*Zostera marina* L.) Inventory of San Francisco Bay. San Francisco – Oakland Bay Bridge East Span Seismic Safety Project. Prepared in cooperation with NOAA Fisheries. Prepared for Caltrans. October.

Merkel & Associates, Inc., 2004b. Baywide Eelgrass (*Zostera marina* L.) Inventory of San Francisco Bay: Pre-Survey Screening Model and Eelgrass Survey Report. San Francisco – Oakland Bay Bridge East Span Seismic Safety Project. Prepared in cooperation with NOAA Fisheries. Prepared for Caltrans. October.

Merkel, Keith. 2007. Merkel & Associates. Personal Communication. September.

Milliken, Randy, 1995. *A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area, 1769-1810.* Ballena Press, Menlo Park, California.

Moratto, Michael J., 1984. *California Archaeology.* Academic Press, Inc., San Diego, California.

Mori, Y., Sodhi, N.S., Kawanishi, S., and S. Yamagishi. 2001. The Effect of Human Disturbance and Flock Composition on the Flight Distances of Waterfowl Species. *Journal of Ethology* 19:115-119.

Mostowfi, 2007. Personal communication between Hamid Mostowfi, City of Berkeley, and Tam Tran of URS, October 23.

Moyle, P.B., 1976. *Inland fishes of California*. Berkeley: University of California Press.

MTC (Metropolitan Transportation Commission), 2002. San Francisco Bay Crossing Study, July.

MTC (Metropolitan Transportation Commission), 2006. 2007 Transportation Improvement Program. July 26.

Mundie & Associates, 1986. Aquatic Park Center (Durkee Site). S-8700 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Murray, S., 2006. Personal Communication Between Susan Zielinski (URS) and Samantha Murray, Conservation Coordinator Golden Gate Audubon. April 12 and 21.

Myers, J.M., R.G. Kope, G.J. Bryant, D. Teel, L.J. Lierheimer, T.C. Wainwright, W.S. Grant, F.W. Waknitz, K. Neeley, S.T. Lindley, and R.S. Waples, 1998. *Status Review of Chinook Salmon from Washington, Idaho, Oregon, and California*. U.S. Department of Commerce, NOAA Tech. Memo. NMFS_MWFSC-35, 443 p.

Nelson, N.C., 1907a. Archaeological Site CA-ALA-305 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Nelson, N.C., 1907b. Archaeological Site CA-ALA-302 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, Rohnert Park, California.

Nelson, N.C., 1907c. Archaeological Site CA-ALA-303 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Nelson, N.C., 1907d. Archaeological Site CA-ALA-304 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Nelson, N.C., 1907e. Archaeological Site Record CA-CCO-272 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Nelson, N.C., 1909. Shellmounds of the San Francisco Bay Region. University of California Publication in American Archaeology and Ethnology 7(4):309-356.

Nelson, Wendy J., Maureen Carpenter, and Julia G. Costello, 2000. Cultural Resources Survey for the Level (3) Communications Long Haul Fiber Optics Project, Segment WS01: Sacramento to Oakland. S-22817 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Neu, 2007. Personal telephone communication with Jim Neu, Berkeley Marina Manager, on November 6, 2007.

NFPA (National Fire Protection Agency), 2007. National Fire Protection Survey Report, January 01, 2007 through September 30, 2007, http://www.ci.berkeley.ca.us/fire/NFPAjan07sept07.PDF, accessed November 15, 2007.

NOAA (National Oceanographic and Atmospheric Administration), 2006. NOAA Tides and Currents. http://unr.edu/homepage/edc/tides.html> accessed January 2006.

Nur, N., S. Zack, J.G. Evens, and T. Gardali, 1997. Tidal marsh birds of the San Francisco Bay region: status, distribution and conservation of five Category 2 taxa. Final report to the

United States Geological Survey – Biological Resources Division (Formerly National Biological Service).

O'Banion, K., 2006. Personal Communication between Tam Tran (URS) and Kerry O'Banion, UC Capital Projects. February 14.

O'Brien, J.F., 1954. "Eastshore Highway." *California Highways and Public Works* (July-Aug): 10-11.

Ogburn, Dennis, 1993. Archaeological Sites in the Vicinity of the East Bay Municipal Utility District North Interceptor Wet Weather Facilities Project. S-20365 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Olson, B., 2007. East Bay Parks. Personal Communication. June.

Olson, J.A., M.L. Zoback, R.W. Simpson, R.W., and M.S. Marlow, 1994. Deformation of the San Francisco Block? American Geophysical Union, 1994 Fall Meeting, EOS Transactions V. 75, No. 44, 683 pp.

Orth, David, 2007. Personal telephone communication between Deputy Chief David Orth, Berkeley Fire Department, and Justin Kosta of URS Corporation. September 5.

Page, G.W., L. Stenzel, and J. Kjelmyr, 1999. Overview of shorebird abundance and distribution in wetlands of the Pacific coast of the contiguous United States. *Condor* 101 (August): 461-471.

Partridge, Julie, 2007. Telephone communication between Julie Partridge, Manager, Berkeley Marina, and Justin Kosta, URS Corporation. April 3.

Pastron, Allen G. and Andrew Gottsfield, 2005. Archaeological Survey Report for the Pedestrian/Bicycle Path Portion of the Codornices Creek Improvements Project. S-30574 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Pastron, Allen, 1997. Cultural Resources Evaluation, Consisting of a Focused Archival Literature Review and an On-Site Archaeological Surface Reconnaissance of the University Village, Albany/Northwest Berkeley Properties Master Plan Project (letter report). S-25172 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Pentcheff, D., 2005. WWW Tide and Current Predictor. http://tbone.biol.sc.edu/tide.

Pettitt, George A., 1973. *Berkeley: the Town and Gown of It.* Berkeley, CA: Howell-North Books.

Pettitt, George A., No Date. *A History of Berkeley*. Berkeley, CA: Lederer, Street & Zeus.

Pilling, 1952. Archaeological Site CA-CCO-301 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Poole, A.F., R.O. Bierregaard, and M.S. Martell, 2002. Osprey (*Pandion haliaetus*). *In* The Birds of North America, No. 683 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.

Port of Oakland, 1998. Oakland Harbor Navigation Improvement (-50 foot) Project. Final Environmental Impact Statement/Environmental Impact Report. May.

Pycha, R.L., 1956. Progress report on white sturgeon studies. *California Fish and Game* 42(1)23-35.

Rhode, Pete et al., 1989. A Charmstone Compendium for Central California. S-17895 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Richardson, W.J., Greene, C.R., Jr., Malme, C.I., and D.H. Thompson. 1995. Marine Mammals and Noise. Academic Press. 576 p.

Rifkind, Carole, 2001. *A Field Guide to Contemporary American Architecture*. New York: Plume.

Ritter, J. R. and W. R. Dupre, 1972. Map showing Areas of Potential Inundation by Tsunamis in the San Francisco Bay Region. U.S. Geological Survey. Miscellaneous Field Studies Map MF-480.

Roark, Gabriel, 2001. Cultural Resources Inventory Report for Sprint Cellular Builds in Alameda and Contra Costa Counties, California. S-24576 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Robertson, William H.P., 1965. *The History of Thoroughbred Racing in America*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc..

Robinson, D., 1982. *The Brickyard*. Pp. 173-182, *In* The East Bay Shoreline; Selected Environmental Issues. D. Sloan (Ed.). Senior Seminar, Environmental Science Group Major. University of California, Berkeley CA.

RWQCB (Regional Water Quality Control Board), 1999. Bay Protection and Toxic Cleanup Program. Final Regional Toxic Hot Spot Cleanup Plan. March.

RWQCB (Regional Water Quality Control Board), 2006. Water Quality Control Plan – San Francisco Bay Basin (Region 2).

San Francisco Planning Department, 2001. [need full reference]

Schaffer, K., 2006. Personal Communication between Susan Zielinski (URS) and Korie Schaffer, NOAA Fisheries. January 31.

Schwartz, Richard, 2002a. Primary Record P-01-010497 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Schwartz, Richard, 2002b. Primary Record P-07-002582 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Schwartz, D. P., D. Pantosti, S. Hecker, K. Okomura, K. E. Budding, and T. Powers, 1992. Late Holocene behavior and seismogenic potential of the Rodgers Creek fault zone. Sonoma County, California, in Proceedings of the Second Conference on Earthquake Hazards in the Eastern San Francisco Bay Area. Borchardt, G., S. E. Hirschfeld, J. J. Lienkaemper, P. McClellan, P. L. Williams, and I. G. Wong (eds.). California Department of Conservation, Division of Mines and Geology. pp. 393-398.

SFEI (San Francisco Estuary Institute), 2006a. 2003 Annual Monitoring Results. The San Francisco Estuary Regional Monitoring Program for Trace Substances (RMP). San Francisco Estuary Institute, Oakland, CA.

SFEI (San Francisco Estuary Institute), 2006b. Sediment, Water, and Bivalve Bioaccumulation Data from 1993-2004. The San Francisco Estuary Regional Monitoring Program for Trace Substances (RMP). San Francisco Estuary Institute, Oakland, CA. http://www.sfei.org/rmp/rmp_data_access.html.

SFEP (San Francisco Estuary Project), 1992. State of the Estuary – A report on conditions and problems in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. June.

SFEP (San Francisco Estuary Project), 1999. State of the Estuary: A Report on Conditions and Problems in the San Francisco Bay/Sacrament-San Joaquin Delta. Prepared by M.W. Monroe and J. Kelley.

SFEP (San Francisco Estuary Project), 2004. Invasive Spartina Project: http://www.spartina.org/maps/maps/SFEstuary_wpics_poster.pdf.

Shafer, C., 2007. California State Parks – Diablo Vista District. Personal communication. June.

Sheaves, Marcus, 2001. Are there really few piscivorous fishes in shallow estuarine habitats? Marine Ecology Progress Series. Vol. 222: 279-290. November.

Shelly, 2007. Telephone communication between Dave Shelly, Berkeley Marina, and Tammy Dorje, URS Corporation. April 7.

Shellhammer, H.S., 1984. Salt marsh harvest mouse/California clapper rail recovery plan. U.S. Fish and Wildlife Service. Sacramento, CA. November 16.

Silva, Angel, 2007. Personal communication between Angel Silva, Engineer, City of Albany, and Justin Kosta of URS Corporation. November 6.

Simpson, G.D., W.R. Lettis, and K.I. Kelson, 1992. Segmentation model for the northern Calaveras fault, Calaveras Reservoir to Walnut Creek, *Proceedings of the Second Conference on Earthquake Hazards in the Eastern San Francisco Bay Area*. G. Borchardt, S.E. Hirschfeld, J.J. Lienkaemper, P. McClellan, P.L. Williams, and I.G. Wong (eds.). California Department of Conservation, Division of Mines and Geology. pp. 253259.

Sindzinski, John, 2007. Personal communication between John Sindzinski, Water Transit Authority, and Tam Tran of URS, September 28.

Skinner, J.E., 1962. An historical review of the fish and wildlife resources of the San Francisco Bay Area. *California Department of Fish and Game Water Projects Branch Report* No. 1.

Skinner, M. and B. Pavlik, 1994. *California Native Plant Society's Inventory of rare and Endangered Vascular Plants of California*. Fifth Edition. California Native Plant Society, Sacramento, CA.

Sloan, D., 1992. The Yerba Buena Mud: Record of the last interglacial precursor of San Francisco Bay, California. *Geological Society of America Bulletin* 104:716-727.

Small, A., 1994. California Birds. Their Status and Distribution. Ibis Publ. Company. Vista, CA.

Society of Vertebrate Paleontology, 1995. Society of Vertebrate Paleontology Assessment and mitigation of adverse impacts to nonrenewable paleontologic resources: Standard Guidelines. Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee, Robert E. Reynolds, Chairman. Society of Vertebrate Paleontology News Bulletin Number 163, pages 22-27. 1995.

Springer, John A., 2002. Personal communication: email from John A. Springer III, The Glosten Associates, Inc., to Joseph Czech, URS Corporation, re: "Noise Spec., AMHS FVF." May 17.

Stahnke, Keith, 2007. Personal communication between Keith Stahnke, WTA Operations Manager, and Susan Zielinski of URS.

State of California, 2003. Seismic Hazards Zones Map. California Geological Survey. Richmond and Oakland West Quadrangles. 1:24,000.

State of California, 2007. California State Office of the Attorney General, Criminal Justice Statistics Center, http://caag.state.ca.us/cjsc/, Accessed September 10, 2007.

State of California, 2008. Government Code §65996(a)(1)(b). http://info.sen.ca.gov/cgi-bin/displaycode?section=gov&group=65001-66000&file=65995-65998.

Steinhart, P., 1990. *California's wild heritage: threatened and endangered animals in the Golden State*. Prepared for the California Department of Fish and Game. California Academy of Sciences and Sierra Club Books.

Stinson, M.C., M.W. Manson, and J.J. Plappert, 1987. Mineral land classification: Aggregate materials in the San Francisco-Monterey Bay Area, Part II, Classification of aggregate resource areas South San Francisco Bay Production-Consumption Region. California Division of Mines and Geology. Special Report 146, Part 11. 74 pp.

Stright, Melanie J., 1990. Archaeological Sites on the North American Continental Shelf. *Geological Society of America Centennial Special Volume 4.* Boulder, Colorado.

Sumich, J.L., 1985. Gray whales along the Oregon coast in summer, 1977-1980. Murrelet. 65:33-40.

Supernowicz, Dana E., 2006a. Collocation ("CO") Submission Packet, FCC Form 621, Discovery Center, BA-12018A. S-32578 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Supernowicz, Dana E., 2006b. Collocation ("CO") Submission Packet, FCC Form 621, Church on the Corner, BA-12017C. S-32437 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

Supernowicz, Dana E., 2006c. Primary Record P-01-010816 on file at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.

SWRCB (State Water Resources Control Board), 1997. National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 (General Permit) Water Quality Order No. 97-03-DWQ Waste Discharge Requirements (WDRs) for Discharge of Storm Water Associated with Industrial Activities Excluding Construction Activities.

SWRCB (State Water Resources Control Board), 1999. National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002 for Storm Water Discharges Associated with Construction Activity (General Permit) Water Quality Order 99-08-DWQ.

Thompson, B., S. Lowe, and M. Kellogg, 2000. Results of the benthic pilot study, 1994-1997, Part 1 – Macrobenthic assemblages of the San Francisco Bay-Delta and their responses to abiotic factors. San Francisco Estuary Institute, San Francisco, CA. August.

Tong, L., 2006. Personal Communication between Susan Zielinski (URS) and Larry Tong, Coordinator Eastshore Regional Parks District. April 11.

Toppozada, T.R., J.H. Bennett, C.L. Hallstrom, and L.G. Youngs, 1992. 1898 "Mare Island" earthquake at the southern end of the Rodgers Creek fault, in G. Borchardt and others (eds.). *Proceedings of the Second Conference on Earthquake Hazards in the Eastern San Francisco Bay Area*. California Department of Conservation, Division of Mines and Geology Special Publication 113. pp. 385-392.

Transportation Research Board, 2000. Highway Capacity Manual.

U.S. Coast and Geodetic Survey, 1905, 1926, 1949, 1957, 1966, 1970. *San Francisco Entrance, California*. C. & G.S. Chart No. 5532. Scale 1:40,000. Washington, D.C.

U.S. Coast Survey, 1859. Entrance to San Francisco Bay, California. Scale 1:50,000. Washington, D.C.

U.S. Coast Survey, 1877. Entrance to San Francisco Bay, California. Chart No. 621, Edition of 1877. Scale 1:50,000. Washington, D.C.

U.S. Coast Survey, 1988, 1992, 1997, 2001. San Francisco Bay to Antioch, California. Nautical Chart No. 18652. 29th ed., August 16/97. Scale 1:40,000. Washington, D.C.

U.S. Department of Energy, 2007. Tax Breaks. U.S. Department of Energy web site: www.energy.gov/taxbreaks.htm.

U.S. Department of Labor, 1989. Occupational Health & Safety Administration (OSHA), Section 29 Code of Federal Regulations (CFR) Part 126, Safety & Health Regulations for Construction.

U.S. Department of the Interior, National Park Service, 1995. "Guidelines for Applying the National Register Criteria for Evaluation." *National Register Bulletin 15.* Washington, D.C.: U.S. Government Printing, 1991, revised 1995.

U.S. DOT (U.S. Department of Transportation), 1994. Executive Order 12898 on Environmental Justice. Website: www.fhwa.dot.gov/environment/index.htm.

U.S. EPA (U.S. Environmental Protection Agency), 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. EPA Report 550/9-74-004. Washington D.C. March.

U.S. EPA (U.S. Environmental Protection Agency), 2007. EPA AirData website (http://www.epa.gov/air/data/reports.html). Accessed November 2.

U.S. EPA and USACE. 1998. Long Term Management Strategy – Management Plan. U.S. USACE, USEPA, BCDC, and SFRWQCB.

U.S. Geological Survey. Topographic Maps. 7.5 Minute Topographic Series. *West Oakland Quadrangle*, 1949, 1959, 1968, 1973, 1980, 1993. *Richmond Quadrangle*, 1947, 1949, 1959, 1968, 1973, 1980, 1993, 1995.

U.S. Geological Survey. Topographic Maps. Scale 1:62,500. *San Francisco Quadrangle*, 1895, 1899, 1915, 1942, 1946, 1948.

UC Berkeley, 2002. Draft EIR for 2020 Long-Range Development Plan. Appendix F-3: Level of Service Summaries.

UC Berkeley, 2007. Office of Student Research Ethnic Distribution. Website. https://osr2.berkeley.edu/. Accessed April 12.

UC Housing. University of California at Berkeley Student Housing. Website. http://www.housing.berkeley.edu/livingatcal/studentsfamilies.html. Accessed April 6.

Uncles, R.J. and D.H. Peterson, 1995. A Microcomputer Model of Long-term Salinity in San Francisco Bay, Environment International, in press U.S. Geological Survey, 1994, Water Resources Data California Water Year 1993 Volume 2. Pacific Slope Basins from Arroyo Grande to Oregon State Line Except Central Valley: U.S. Geological Survey Water-Data Report CA-93-2, Sacramento CA. 391 p.

URS Corporation, 2003. Final Program Environmental Impact Report: Expansion of Ferry Transit Service in the San Francisco Bay Area. Prepared for Water Transit Authority. June.

URS Corporation, 2004. Draft Initial Study and Negative Declaration: San Francisco Bay Area Water Transit Authority, Spare Passenger-Only Vessels Program, December.

USACE (U.S. Army Corps of Engineers), 2000. Final Long Term Management Strategy – Management Plan. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, San Francisco Bay Conservation and Development Commission, and San Francisco Bay Regional Water Quality Control Board.

USACE (United States Army Corps of Engineers), 1949. *Small-Boat Harbors and Shelters, Pacific Coast of California*. Oakland, CA: Office of the Division Engineer, South Pacific Division, Oakland Army Base.

U.S. Census Bureau, 1990. United States Census Bureau American Fact Finder. Website. http://factfinder.census.gov/servlet/QTSelectedDatasetPageServlet?_lang=en&_ts=200420795359. Accessed June 22, 2007.

U.S. Census Bureau, 2000. United States Census Bureau American Fact Finder. Website. http://factfinder.census.gov/servlet/QTSelectedDatasetPageServlet?_lang=en&_ts=200420795359. Accessed June 22, 2007.

USFWS (U.S. Fish and Wildlife Service). 1992. Status and trends report on wildlife of the San Francisco Estuary. Prepared under USEPA cooperative agreement CE-009519-0. Sacramento, CA. January.

Wakabayashi, J. and D.L. Smith, 1994. Evaluation of Recurrence Intervals, Characteristic Earthquakes and Slip Rates Associated with Thrusting Along the Coast Range-Central Valley Geomorphic Boundary. Bulletin of the Seismological Society of America. 84:1960-1970.

Wallace, R.E., 1990. The San Andreas Fault System, California. U.S. Geological Survey Professional Paper 1515. 283 pp.

Wallace, William J. and Donald W. Lathrap, 1975. West Berkeley (CA-ALA-307): A Culturally Stratified Shellmound on the East Shore of San Francisco Bay. *Contributions of the University of California Archaeological Research Facility* Number 29, Berkeley, California.

Walters, R.A., R.T. Cheng, and T.J. Conomos, 1985. Time Scales of Circulation and Mixing Processes of San Francisco Bay Waters: In: Temporal Dynamics of an Estuary: San Francisco Bay. Eds., J.E. Cloern and F.H. Nichols. Developments in Hydrobiology, Dr. W. Junk Publishers, 13-36.

Watters, D. L., H. M. Brown, F. J. Griffin, E. J. Larson and G. N. Cherr. 2004. Pacific Herring Spawning Grounds in San Francisco Bay: 1973 -2000. American Fisheries Society Symposium 39:3-14.

Weitkamp, L.A., T.C. Wainwright, G.J. Bryant, G.B. Milner, D.J. Teel, R.G. Kope, R.G., and R.S. Waples, 1995. Status review of coho salmon from Washington, Oregon, and California. *NOAA Technical Memo* NMFS-NWFSC-24.

WGNCEP (Working Group on Northern California Earthquake Potential), 1996. Database of potential sources for earthquakes larger than magnitude 6 in northern California. U.S. Geological Survey. Open-File Report 96-705. 53 pp.

Wheeler, 2007. Personal communication between Kenya Wheeler, BART, and Tam Tran of URS, September 17.

White, C.M., N.J. Clum, T.J. Cade, and W.G. Hunt, 2002. Peregrine Falcon (*Falco peregrinus*). *In* The Birds of North America No. 660 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.

Wilbur Smith and Associates, 2006. Draft Parking and Access Assessment, Berkeley/Albany Ferry Terminal Study, April 4, 2006

Wilbur Smith Associates, 2008. Berkeley/Albany Ferry Terminal EIS/EIR, Transportation Technical Report. Revised January 28.

Wiles, Burl, editor, 2002. *Picturing Berkeley: A Postcard History.* Berkeley, CA: Berkeley Architectural Heritage, Association (BAHA) and Berkeley Historical Society.

Wollenberg, C., 2002. Berkeley, A City in History. http://berkeleypubliclibrary.org/system/Chapter6.html.

Wollenberg, Charles, 2002. *Berkeley, A City in History*. Berkeley History Series at the Berkeley Public Library, October 2 – November 13.

Writers' Program, Work Projects Administration in Northern California, 1941. *Berkeley: The First Seventy-Five Years.* Berkeley: The Gillick Press.

WTA (Water Transit Authority), 2007. Water Transit Authority web site. http://www.watertransit.org/berkeley_overview.shtml.

Yelverton, J.T., Richmond, D.R., Hicks, W., Sanders, K., and E.R. Fletcher. 1975. The Relationship Between Fish Size and Their Response to Underwater Blast. Lovelace Foundation for Medical Education and Research. Albuquerque, NM.

Zeiner, D.C., W.F. Laudenslayer, K.E. Mayer, and M. White, 1990. *California's Wildlife. Volume II: Birds and Volume III: Mammals.* California statewide wildlife habitat relationships system. California Department of Fish and Game. Sacramento, CA.

The following references were also reviewed: National Register of Historic Places (NRHP) – Listed Properties and Determined Eligible Properties (1988, Computer Listings 1966 through 7-00 by the National Park Service), the California Register of Historical Resources (2007), the California Inventory of Historic Resources (1976), California Points of Historical Interest (1992), California Historical Landmarks (1996), Office of Historic Preservation, Historic Properties Directory for Berkeley and Albany, the Handbook of North American Indians, Volume 8, California (1978), GLO plat map for T1N, R4W (1867), 1859 and 1871 Rancho San Antonio plat maps, 1863 Rancho San Pablo plat map, 1878 Thompson & West, Historical Atlas Map of Alameda, California, 1895 USGS San Francisco Sheet, 1915 USGS San Francisco quadrangle, and 1942 U.S. Army Corps of Engineers, San Francisco quadrangle, grid zone "G", and the Historic Spots in California (1966).

Newspapers/Periodicals

Berkeley Daily Planet
Hayward Review
Los Angeles Times
Oakland Tribune
San Francisco Chronicle

Unpublished Sources

Alameda County Assessor's Office. Property Records Database, accessed via: First American Real Estate.

Albany Library Historical Collection. Photographs online, Albany branch, Alameda County Library. http://www.aclibrary.org/.

California Office of Historic Preservation. "Directory of Properties in the Historic Property Data File for Alameda County." As of December 2004.

Earth Sciences and Map Library. http://www.lib.berkeley.edu/EART/aerial2.html. University of California Berkeley.

Frank, Wallace, 1973. "History of Thoroughbred Racing in California." Ph.D. dissertation. University of Southern California.

Research Libraries Group. *Avery Index to Architectural Periodicals.* Subscription database, accessed at UC Davis main library.

Sanborn Map Company, 1894, 1911, 1929, and 1950. Sanborn Fire Insurance Maps, "Berkeley, California."

U.S. Agricultural Adjustment Administration, 1939. Alameda County Aerial Photographs.

U.S. Census Bureau, 1900-1930. Schedule of Population, Alameda and Sacramento County.

U.S. Geological Survey. San Francisco Bay Aerial Photographs. 1968. Earth Sciences and Map Library. http://www.lib.berkeley.edu/EART/aerial2.html. University of California, Berkeley.

United States Census. Accessed via: Ancestry.com.

URS (URS Corporation) 2006. Alternatives Analysis.

APPENDIX A

LIST OF PREPARERS

APPENDIX A

LIST OF PREPARERS

Name	Role
San Francisco Bay Water Transit Authority	***CEQA Lead Agency and Project Sponsor***
Steve Castleberry	Chief Executive Officer
John Sindzinski	Manager, Planning and Development
Shirley Douglas	Manager, Public Involvement
Mary Culnane	Manager, Marine Engineering
Keith Stahnke	Manager, Operations
Scott Houston	Administrative Assistant
Federal Transit Administration	***Federal Lead Agency***
Ray Sukys	Director of Planning and Program Development
Alexander Smith	Transportation Planner
URS Corporation	***Environmental Consultant***
Ian Austin	Principal in Charge
Mark Weisman	Project Manager
Susan Zielinski	Deputy Manager, Geology, Soils, and Hydrology
Duncan Watry	Transportation/Transit
Julia Chan	Transportation/Transit
Justin Kosta	Land Use, Parks and Recreation, Public Facilities and Services, Energy
Christopher Wolf	Land Use and Growth Inducement
Tammy Dorje	Socio-economics and Environmental Justice
Maureen Kick	Cultural Resources
Michelle Jerman	Cultural Resources
Brian Hatoff	Cultural Resources
Matt Hakos	Air Quality
Ron Reeves	Noise and Vibration
Ted Lindberg	Noise and Vibration
Erik Skov	Hazardous Materials

Name	Role
Tim Smith	Utilities
Bill Martin	Biological Resources and Wetlands
Rebecca Verity	Biological Resources and Wetlands
Derek McCulloch	Editorial Support
Vivien Arnold	Graphic Support
Hiroko Koike	Graphic Support
Belinda Kindell	Word Processing Support
Wilbur Smith and Associates	***Transportation Analysis***
Peter Martin	Traffic and Parking
Manoj Madhavan	Traffic Analysis
Carol Levine	Bicycle and Pedestrian Circulation
JRP Historical Consulting	***Historic Survey***
Meta Bunse	Historic Resources
WKA	***Visual Analysis***
Bill Kanemoto	Visual Simulations
Michael Fajans	***Ferry Operations, Socio-economics Analysis***
Darolyn Davis and Associates	***Public Involvement***
Darolyn Davis	Public Involvement Manager
Delphine Henri	Scoping Meeting and Materials

APPENDIX B

SCOPING:
NOTICE OF INTENT, NOTICE OF PREPARATION, AGENCY NOTIFICATION, SCOPING COMMENTS

NOTICE OF INTENT IN THE FEDERAL REGISTER

Issued in Washington, DC on February 6, 2007.

D.J. Stadtler,

Director, Office of Budget, Federal Railroad Administration.

[FR Doc. E7–2293 Filed 2–9–07; 8:45 am]

BILLING CODE 4910–06–P

DEPARTMENT OF TRANSPORTATION

Federal Transit Administration

Preparation of an Environmental Impact Statement for the Berkeley/Albany Ferry Terminal Project in the Cities of Berkeley and Albany, California

AGENCY: U.S. Department of Transportation (DOT), Federal Transit Administration (FTA).

ACTION: Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS).

SUMMARY: The Federal Transit Administration and the San Francisco Bay Water Transit Authority (WTA) are planning to prepare an Environmental Impact Statement (EIS) for the proposed construction of a ferry terminal along the Berkeley/Albany waterfront that would link the San Francisco Ferry Terminal with communities in the East Bay. The project would serve commuters, visitors, and recreational users who desire an alternative way to cross San Francisco Bay to access nearby employment, entertainment, and recreational destinations. The EIS will be prepared in accordance with section 102(2)C of the National Environmental Policy Act of 1969 (NEPA) and pursuant to the Council on the Environmental Quality's regulations (40 CFR parts 1500–08) as well as provisions of the recently enacted Safe, Accountable, Flexible Efficient Transportation Equity Act: A Legacy for Users. (SAFETEA-LU). The purpose of this Notice of Intent (NOI) is to alert interested parties regarding the plan to prepare an EIS, to provide information on the proposed transit project, to invite participation in the EIS process, including comments on the scope of the EIS proposed in this notice, and to announce public scoping meetings will be conducted.

DATES: Written comments on the scope of the EIS should be sent to John Sindzinski, WTA Project Manager, by March 30, 2007. Public scoping meetings will be held on March 8, 2007, and March 15, 2007, from 6:30 pm to 8:30 pm at locations indicated under the heading **ADDRESSES** below. An interagency scoping meeting for agencies with interest in the project will be held on March 7 from 1:30 pm to 3:30 pm at the South Berkeley Senior Center, 2939 Ellis Street, Berkeley, California.

ADDRESSES: Written comments on the scope of the EIS should be sent to John Sindzinski, Project Manager, San Francisco Bay Water Transit Authority, Pier 9, Suite 111, The Embarcadero, San Francisco, CA 94111. Comments may also be offered at the public scoping meetings. The addresses for the public scoping meetings are as follows:

Albany Location (March 15)

Albany City Hall, 1000 San Pablo Avenue, Albany, California.

Berkeley Location (March 8)

North Berkeley Senior Center, 1901 Hearst Avenue, Berkeley, California.

The meeting will be accessible to persons with disabilities. If special translation or signing services or other special accommodations are needed, please contact Delphine Henri at (415) 274–1821 at least 48 hours before the meeting. A scoping information packet is available on the Water Transit Authority Web site at *http://www.watertransit.org* or by calling Delphine Henri (415) 274–1821. Copies will also be available at the scoping meetings.

FOR FURTHER INFORMATION CONTACT: Alex Smith, Community Planner, Federal Transit Administration, San Francisco Regional Office at (415) 744–2599.

SUPPLEMENTARY INFORMATION: *The Proposed Project:* The project would initiate ferry service between the East Bay communities of Berkeley/Albany and the San Francisco Ferry Terminal administered by the WTA. Service would operate during the day and evenings, including Saturdays and Sundays, at headways that would reflect the travel demand for commute and non-commute periods. Depending on the Berkeley/Albany terminal site selected, one-way travel times would range from approximately 30 and 45 minutes. The project would involve constructing a new ferry docking facility; passenger ticketing and sheltered waiting area on the pier; car and bike parking; bus boarding; and provision for pedestrian, bicycle and traffic circulation at a location along the Berkeley/Albany waterfront. Dredging would be conducted to allow ferry vessels access to the terminal site. In San Francisco, existing San Francisco Ferry Terminal facilities would be utilized for this new service and would not require modification.

Purpose and Need for the Proposed Project: In July 2003, the WTA finalized the Implementation and Operations Plan (IOP) to expand ferry service throughout San Francisco Bay. The IOP included ferry service between San Francisco and Berkeley/Albany as an element of a regional ferry network. Regional Measure 2, approved by local voters in March 2, 2004, earmarked funds for developing a comprehensive strategy to address congestion on Transbay corridors. The San Francisco to Berkeley/Albany ferry service was designated as a priority transportation project in carrying out this strategy. The project would:

- Provide an alternative mode of transportation that would encourage automobile users to forego traveling by car across the Bay Bridge, thus reducing congestion on the Bay Bridge
- Provide additional Transbay capacity to existing BART and AC Transit services
- Provide an alternative way of crossing the Bay during regional emergencies
- Provide direct access for San Francisco residents to the Eastshore State Park and other activity centers in the Berkeley/Albany area
- Provide direct access for East Bay residents to employment and activity centers along and near the San Francisco waterfront

Alternatives: A study of potential ferry terminal sites in the Berkeley/Albany area was completed by the WTA in July 2006. The Berkeley/Albany Ferry Terminal Study is available on the Water Transit Authority Web site at *http://www.watertransit.org*. On July 27, 2006, four sites were approved by the WTA Board to be carried forward as alternatives for further review and environmental analysis in the EIS. In addition to the No Build alternative, four Build alternatives are being considered in the EIS as described below.

1. *No Build Alternative:* This alternative would continue the existing transit services connecting the East Bay communities of Berkeley/Albany with San Francisco without implementing ferry service. Programmed bus and rail transit improvements between the East Bay and San Francisco identified in the Regional Transportation Plan would be implemented as part of the No Build alternative. This alternative serves as the baseline against which the environmental effects of the other alternatives are measured.

2. *Alternative A—Berkeley Marina Site.* This alternative would include a new terminal and docking facilities at the Doubletree Hotel along the eastern end of the Berkeley Marina for a WTA ferry terminal site. Hornblower

operation, currently using the existing dock, also would be accommodated in the design. Access to the site would be provided via the western extension of University Avenue and Marina Boulevard. Parking, passenger drop-off and bus boarding would be accommodated in the existing parking areas surrounding the Doubletree Hotel.

3. *Alternative B—Berkeley Fishing Pier Site.* This alternative would include a new ferry terminal located south of the existing fishing pier near Hs Lordships restaurant. Access to the site would be provided via the western extension of University Avenue. The existing parking areas in the vicinity of Hs Lordships and Skates would be designed to accommodate ferry parking, passenger drop-off, and bus boarding.

4. *Alternative C—Gilman Street Site.* This alternative would locate a new ferry terminal in the general vicinity of the western end of Gilman Street adjacent to the existing Golden Gate horse facilities, which would need to be relocated to accommodate ferry parking, passenger drop-off and bus boarding. Access to the site would be provided via Gilman Street and would avoid conflicting with the City of Berkeley's Gilman Street Recreation facilities, currently under construction immediately west of I–80.

5. *Alternative D—Buchanan Street site.* This alternative would locate a new ferry terminal south of the Albany Bulb and at the northern end of Golden Gate Field near the old pier. Access to the site would be provided via Buchanan Street. A portion of the existing Golden Gate Field parking area would be used for ferry parking, passenger drop-off and bus boarding.

The EIS Process and the Role of Participating Agencies and the Public: The purpose of the EIS process is to explore in a public setting potentially significant effects of implementing the proposed action and alternatives on the physical, human, and natural environment. Areas of investigation include, but are not limited to, land use, environmental justice, historic resources, visual and aesthetic qualities, air quality, noise and vibration, energy use, traffic, safety and security, wetlands, threatened and endangered species, and hazardous materials. Measures to avoid, minimize, or mitigate any significant adverse impacts will be identified. Regulations implementing NEPA, as well as provisions of the recently enacted Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA–LU), call for public involvement in the EIS process. Section 6002 of SAFETEA–LU requires that FTA and PCJPB do the following: (1) Extend an invitation to other Federal and non-Federal agencies and Indian tribes that may have an interest in the proposed project to become "participating agencies", (2) Provide an opportunity for involvement by participating agencies and the public in helping to define the purpose and need for a proposed project, as well as the range of alternatives for consideration in the impact statement, and (3) Establish a plan for coordinating public and agency participation in and comment on the environmental review process. An invitation to become a participating agency, with the scoping information packet appended, will be extended to other Federal and non-Federal agencies and Indian tribes that may have an interest in the proposed project. It is possible that we may not be able to identify all Federal and non-Federal agencies and Indian tribes that may have such an interest. Any Federal or non-Federal agency or Indian tribe interested in the proposed project that does not receive an invitation to become a participating agency should notify, at the earliest opportunity, the Environmental Manager identified above under ADDRESSES. A comprehensive public involvement program has been developed. The program includes a public scoping process, public hearings on release of the Draft Environmental Impact Statement (DEIS), development of project newsletters and their distribution and posting on the project Web site (*http://www.watertransit.org*). We invite the public and participating agencies to consider the preliminary statement of purposes of and need for the proposed project, as well as the alternatives proposed for consideration, and the public is welcome to use the public scoping process to further define the issues of concern among all parties interested in the project. Comments on potential significant environmental impacts that may be associated with the proposed project are also welcomed. All comments and suggestions will be given serious consideration. The purposes of and need for the proposed project have been preliminarily identified in this notice. We invite the public and participating agencies to consider the preliminary statement of purposes of and need for the proposed project, as well as the alternatives proposed for consideration. Suggestions for modifications to the statement of purposes of and need for the proposed project and any other alternatives that meet the purposes of and need for the proposed project are welcomed and will be given serious consideration. Comments on potentially significant environmental impacts that may be associated with the proposed project and alternatives are also welcomed. There will be additional opportunities to participate in the scoping process at the public meetings announced in this notice.

In accordance with 23 CFR 771.105(a) and 771.133, FTA will comply with all Federal environmental laws, regulations and executive orders applicable to the proposed project during the environmental review process to the maximum extent practicable. These requirements include, but are not limited to, the regulations of the Council on Environmental Quality implementing NEPA (40 CFR parts 1500–1508 and 23 CFR part 771), the project-level air quality conformity regulation of the U.S. Environmental Protection Agency (EPA) (40 CFR part 93), section 404(b)(1) guidelines of EPA (40 CFR part 230), Executive Orders 11988, 11990 and 12898 regarding floodplains, wetlands, and environmental justice, respectively, Section 106 of the National Historic Preservation Act (36 CFR Part 800), Section 7 of the Endangered Species Act (50 CFR part 402), and section 4(f) of the Department of Transportation Act (23 CFR 771.135).

Issued On: February 5, 2007.

Leslie T. Rogers,

Regional Administrator, FTA, Region 9.

[FR Doc. E7–2246 Filed 2–9–07; 8:45 am]

BILLING CODE 4910–57–P

DEPARTMENT OF TRANSPORTATION

Federal Transit Administration

Intent To Prepare an Environmental Impact Statement for the Proposed Exposition Corridor Light Rail Transit Project Phase 2

AGENCY: Federal Transit Administration, DOT.

ACTION: Notice of Intent to Prepare an Environmental Impact Statement.

SUMMARY: The Federal Transit Administration (FTA) and the Exposition Metro Line Construction Authority (Authority), in cooperation with the Los Angeles County Metropolitan Transportation Authority (LACMTA), intend to prepare an Environmental Impact Statement (EIS) on the proposed Phase 2 of the Exposition Corridor Light Rail Transit Project. Phase 2 would extend from the current planned terminus of the Exposition Corridor Light Rail Transit

NOTICE OF PREPARATION

To: Responsible and Trustee Agencies

From: San Francisco Bay Area Water Transit Authority

Re: Notice of Preparation of an Environmental Impact Report

The San Francisco Bay Water Transit Authority will be the lead agency and will prepare an Environmental Impact Report (EIR) for the following project: Berkeley/Albany Ferry Terminal Project.

BACKGROUND: In July 2003, the Water Transit Authority (WTA) finalized the Implementation and Operations Plan (IOP) to expand ferry service throughout San Francisco Bay. The IOP included ferry service between San Francisco and Berkeley/Albany as an element of a regional ferry network. Regional Measure 2, approved by local voters in March 2, 2004, earmarked funds for developing a comprehensive strategy to address congestion on Transbay corridors. The San Francisco to Berkeley/Albany ferry service was designated as a priority transportation project in carrying out this strategy.

The objectives of the project would:

- Provide an alternative mode of transportation that would encourage automobile users to forego traveling by car across the Bay Bridge, thus reducing congestion on the Bay Bridge
- Provide additional Transbay capacity to existing Bay Area Rapid Transit and Alameda–Contra Costa County Transit District services
- Provide an alternative way of crossing the Bay during regional emergencies
- Provide direct access for San Francisco residents to the Eastshore State Park and other activity centers in the Berkeley/Albany area
- Provide direct access for East Bay residents to employment and activity centers along and near the San Francisco waterfront

A study of potential ferry terminal sites in the Berkeley/Albany area was completed by the WTA in July 2006. Four sites, identified as Alternatives A through D below, were approved by the WTA Board to be carried forward for environmental analysis.

PROJECT ALTERNATIVES:

The proposed project would initiate ferry service between the East Bay communities of Berkeley/Albany and the San Francisco Ferry Terminal. Service, which would be administered by the WTA, would operate during days and evenings, including Saturdays and Sundays, at headways that reflect the travel demand during commute and non-commute periods. Depending on the Berkeley/Albany terminal site selected, one-way travel times would range between approximately 30 and 45 minutes. The project would involve constructing a new ferry docking

facility; passenger ticketing and sheltered waiting area on the pier; car and bike parking; bus boarding; and provision for pedestrian, bicycle and traffic circulation at a location along the Berkeley/Albany waterfront. Dredging would be conducted to allow ferry vessels access to the terminal site. In San Francisco, existing San Francisco Ferry Terminal facilities would be utilized for this new service and would not require modification.

In addition to a No Build/No Action Alternative, four ferry terminal alternatives that include a new ferry docking facility; passenger ticketing and sheltered waiting area on the pier; car parking; bus boarding; and pedestrian, bicycle and traffic circulation, will be analyzed in the EIR (**Attachment A**). They are:

1. **No Build/No Action Alternative**: This alternative would continue the existing transit services connecting the East Bay communities of Berkeley/Albany with San Francisco without implementing ferry service. Programmed bus and rail transit improvements between the East Bay and San Francisco identified in the Regional Transportation Plan would be implemented as part of the No Build/No Action Alternative.

2. **Alternative A – Berkeley Marina Site**. This alternative would include a new terminal and docking facilities at the Doubletree Hotel along the eastern end of the Berkeley Marina for a WTA ferry terminal site. Hornblower operation, currently using the existing dock, also would be accommodated in the design. Access to the site would be provided via the western extension of University Avenue and Marina Boulevard. Parking, passenger drop-off and bus boarding would be accommodated in the existing parking areas surrounding the Doubletree Hotel.

3. **Alternative B – Berkeley Fishing Pier Site**. This alternative would include a new ferry terminal located south of the existing fishing pier near Hs Lordships restaurant. Access to the site would be provided via the western extension of University Avenue. The existing parking areas in the vicinity of Hs Lordships and Skates would be designed to accommodate ferry parking, passenger drop-off, and bus boarding.

4. **Alternative C – Gilman Street Site**. This alternative would locate a new ferry terminal in the general vicinity of the western end of Gilman Street adjacent to the existing Golden Gate horse facilities, which would need to be relocated to accommodate ferry parking, passenger drop-off and bus boarding. Access to the site would be provided via Gilman Street and would avoid conflicting with the City of Berkeley's Gilman Street Recreation facilities, currently under construction immediately west of I-80.

5. **Alternative D – Buchanan Street site**. This alternative would locate a new ferry terminal south of the Albany Bulb and at the northern end of Golden Gate Field near the old pier. Access to the site would be provided via Buchanan Street. A portion of the existing Golden Gate Field parking area would be used for ferry parking, passenger drop-off and bus boarding.

PUBLIC SCOPING

The responsible and cooperating agencies are given the opportunity to raise issues that need to be addressed in the EIR. Comments should be sent by March 30, 2007, to John Sindzinski, WTA Project Manager, at the following address:

John Sindzinski
Project Manager
San Francisco Bay Water Transit Authority
Pier 9, Suite 111
The Embarcadero
San Francisco, CA 94111

In addition, WTA will hold public scoping meetings to explain the project alternatives to be studied in the EIR and to receive written and oral comments. Public scoping meetings will be held on March 8, 2007, and March 15, 2007, from 6:30 p.m. to 8:30 p.m. at locations indicated below.

Albany Location (March 15)

Albany City Hall
1000 San Pablo Avenue
Albany, California

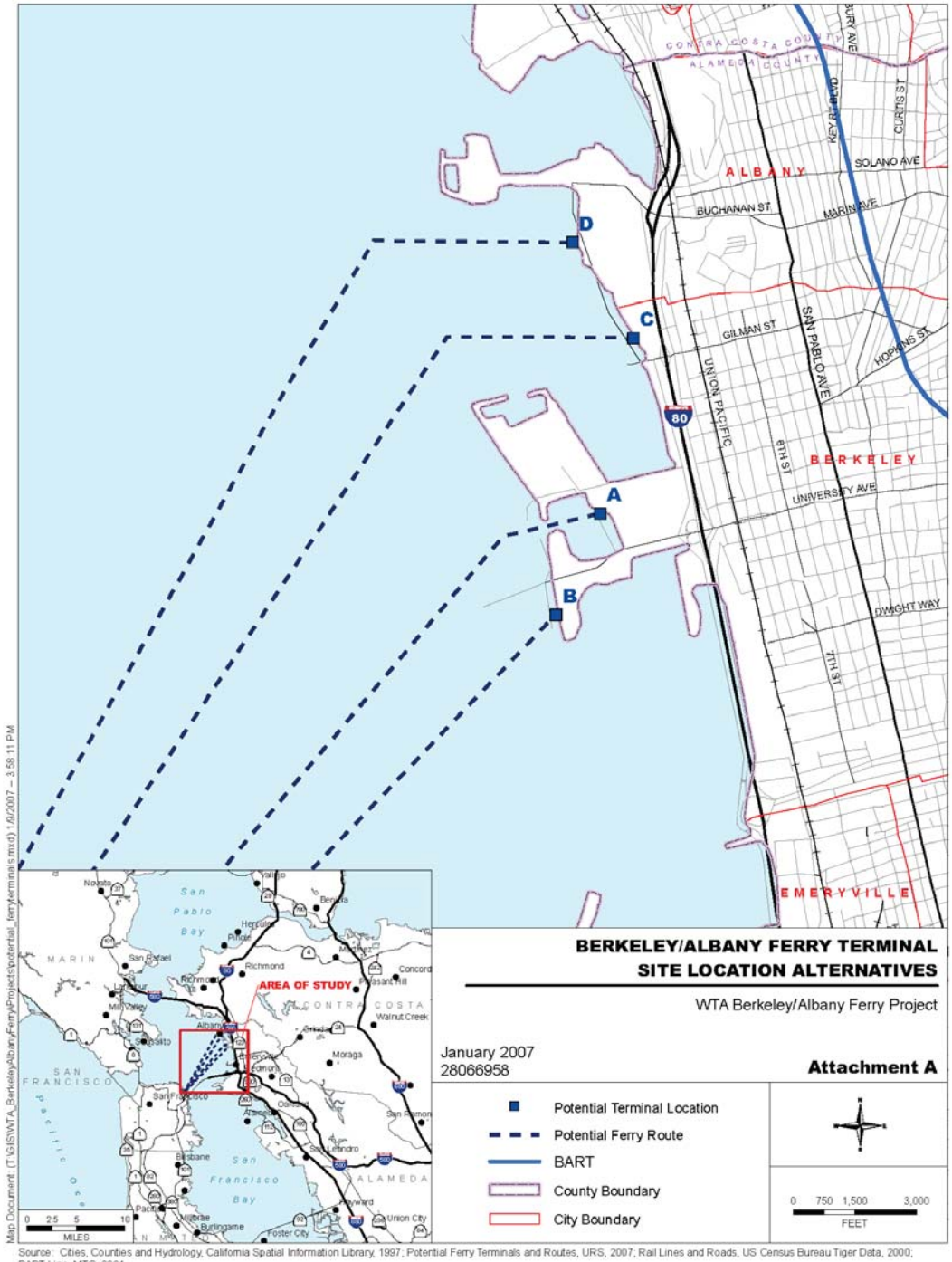
Berkeley Location (March 8)

North Berkeley Senior Center
1901 Hearst Avenue
Berkeley, California

An interagency scoping meeting for agencies with interest in the project will be held on March 7 from 1:30 p.m. to 3:30 p.m. at the South Berkeley Senior Center, 2939 Ellis Street, Berkeley, California.

The meetings will be accessible to persons with disabilities. If special translation or signing services or other special accommodations are needed, please contact Delphine Henri at (415) 274-1821 at least 48 hours before the meeting. A scoping information packet is available on the Water Transit Authority website at http://www.watertransit.org or by calling Delphine Henri at (415) 274-1821. Copies will also be available at the scoping meetings.

ATTACHMENT A



Notice of Preparation

Form B

To: California State Clearinghouse
(Agency)
1400 Tenth Street
(Address)
Sacramento, CA 95814

Subject: Notice of Preparation of a Draft Environmental Impact Report

Lead Agency:		**Consulting Firm (If applicable):**	
Agency Name	San Francisco Bay Water Transit Auth.	Firm Name	URS Corporation
Street Address	Pier 9, Suite 111, The Embarcadero	Street Address	221 Main Street, Suite 600
City/State/Zip	San Francisco, CA 94111	City/State/Zip	San Francisco, CA 94105
Contact	John Sindzinski	Contact	Ian Austin

San Francisco Bay Water Transit Authority will be the Lead Agency and will prepare an environmental impact report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information that is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the potential environmental effects are contained in the attached materials. A copy of the Initial Study **is not** attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but **not later than 30 days** after receipt of this notice.

Please send your response to John Sindzinski at the address shown above. We will need the name for a contact person in your agency.

Project Title: Berkeley/Albany Ferry Terminal Project EIS/EIR

Project Location: Berkeley/Albany (City (nearest)) Alameda (County)

Project Description: (brief)

The proposed project would initiate ferry service between the East Bay communities of Berkeley/Albany and the San Francisco Ferry Terminal administered by the San Francisco Bay Water Transit Authority. Service would operate during the day and evenings, including Saturdays and Sundays, at headways that would reflect the travel demand for commute and non-commute periods. Depending on the Berkeley/ Albany terminal site selected, one-way travel times would range from approximately 30 to 45 minutes. The project would involve constructing a new ferry docking facility; passenger ticketing and sheltered waiting area on the pier; car and bike parking; bus boarding; and provision for pedestrian, bicycle and traffic circulation at a location along the Berkeley/Albany waterfront. Dredging would be conducted to allow ferry vessels access to the terminal site. In San Francisco, existing San Francisco Ferry Terminal facilities would be utilized for this new service and would not require modification.

Date		Signature	
		Title	Project Manager
		Fax	(415) 291-3388

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375. January 2000

Form C

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 – (916) 445-0613

SCH # _____

Project Title: Berkeley/Albany Ferry Terminal Project EIS/EIR
Lead Agency: San Francisco Bay Water Transit Authority **Contact Person:** John Sindzinski
Street Address: Pier 9, Suite 111, The Embarcadero **Phone:** (707) 954-3734
City: San Francisco, CA **Zip:** 94111 **County:** San Francisco

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Project Location:
County: Alameda **City/Nearest Community:** Berkeley/Albany
Cross Streets: 4 alternative sites: Berkeley Marina, Berkeley Fishing Pier, Gilman Street, Buchanan Street **Zip Code:** 94706, 94702, 94710
Total Acres: Each site varies
Assessor's Parcel No.: 60-2527, 60-2528, 60-2535, 60-2540, 60-2545,66-2675, 66-2680
Within 2 miles: **State Hwy #:** I-80 and I-580 **Waterways:** San Francisco Bay
Airports: N/A **Railways:** Union Pacific **Schools:** Berkeley Arts,Jefferson,Rosa Parks,MLK, Berkeley High, Gene Plant, Marin, Albany High

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Document Type:

CEQA:	■ NOP	☐ Supplemental/Subsequent EIR	**NEPA:**	■ NOI	**OTHER:**	■ Joint Document
	☐ Early Cons	(Prior SCH No.) _____		☐ EA		☐ Final Document
	☐ Neg Dec	☐ Other _____		■ Draft EIS		☐ Other _____
	■ Draft EIR			☐ FONSI		

Local Action Type:

■ General Plan Update	☐ Specific Plan	☐ Rezone	☐ Annexation
☐ General Plan Amendment	☐ Master Plan	☐ Prezone	☐ Redevelopment
☐ General Plan Element	☐ Planned Unit Development	■ Use Permit	■ Coastal Permit
☐ Community Plan	■ Site Plan	☐ Land Division (Subdivision, etc.)	☐ Other _____

Development Type:

☐ Residential	*Units* _____ *Acres* _____	☐ Water Facilities:	*Type* _____ *MGD* _____
☐ Office:	*Sq. ft.* _____ *Acres* _____ *Employees* _____	■ Transportation:	*Type* Ferry Terminal
☐ Commercial:	*Sq. ft.* _____ *Acres* _____ *Employees* _____	☐ Mining:	*Mineral* _____
☐ Industrial:	*Sq. ft.* _____ *Acres* _____ *Employees* _____	☐ Power:	*Type* ___ *Watts* _____
☐ Educational _____		☐ Waste Treatment:	*Type* _____
☐ Recreational _____		☐ Hazardous Waste:	*Type* _____
		☐ Other: _____	

Funding (approx.) Federal $5 million State $12 million (Regional Measure 2) Total $17 million

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Project Issues Discussed in Document:

■ Aesthetic/Visual	■ Flood Plain/Flooding	☐ Schools/Universities	■ Water Quality
☐ Agricultural Land	☐ Forest Land/Fire Hazard	☐ Septic Systems	■ Water Supply/Groundwater
■ Air Quality	■ Geologic/Seismic	■ Sewer Capacity	■ Wetland/Riparian
■ Archaeological/Historical	☐ Minerals	■ Soil Erosion/Compaction/Grading	■ Wildlife
■ Coastal Zone	■ Noise	■ Solid Waste	■ Growth Inducing
■ Drainage/Absorption	■ Population/Housing Balance	■ Toxic/Hazardous	■ Land Use
■ Economic/Jobs	■ Public Services/Facilities	■ Traffic/Circulation	■ Cumulative Effects
■ Fiscal	■ Recreation/Parks	■ Vegetation	☐ Other _____

Present Land Use/Zoning/General Plan Designation: Land Use: Recreational and Open Space (Berkeley) and Parks and Recreation and Commercial Recreation (Albany). Zoning Designations: Public (P) in Berkeley and Waterfront Development (WD) in Albany

Project Description: The proposed project would initiate ferry service between the East Bay communities of Berkeley/Albany and the San Francisco Ferry Terminal administered by the San Francisco Bay Water Transit Authority. Service would operate during the day and evenings, including Saturdays and Sundays, at headways that would reflect the travel demand for commute and non-commute periods. Depending on the Berkeley/Albany terminal site selected, one-way travel times would range from approximately 30 and 45 minutes. The project would involve constructing a new ferry docking facility; passenger ticketing and sheltered waiting area on the pier; car and bike parking; bus boarding; and provision for pedestrian, bicycle and traffic circulation at a location along the Berkeley/Albany waterfront. Dredging would be conducted to allow ferry vessels access to the terminal site. In San Francisco, existing San Francisco Ferry Terminal facilities would be utilized for this new service and would not require modification.

Signature of Lead Agency Representative: _____ **Date:** _____

Reviewing Agencies Checklist
Form C, *continued*

KEY

S = Document sent by lead agency
X = Document sent by SCH
✓ = Suggested distribution

RESOURCES AGENCY

✓ Boating & Waterways
✓ Coastal Commission
✓ Coastal Conservancy
____Colorado River Board
____Conservation
✓ Fish & Game
____Forestry & Fire Protection
✓ Office of Historic Preservation
✓ Parks & Recreation
____Reclamation Board
✓ S.F. Bay Conservation & Development Commission
✓ Water Resources (DWR)
✓ California State Lands Commission

Business, Transportation & Housing

____Aeronautics
____California Highway Patrol
✓ CALTRANS District # 4
____Department of Transportation Planning (headquarters)
____Housing & Community Development

____Food & Agriculture

Health & Welfare

____Public Services _____

State & Consumer Services

____General Services
____OLA (Schools)

Environmental Protection Agency

✓ Air Resources Board
✓ California Waste Management Board
____SWRCB: Clean Water Grants
____SWRCB: Delta Unit
____SWRCB: Water Quality
____SWRCB: Water Rights
✓ Regional WQCB

Youth & Adult Corrections

____Energy Commission
____National American Heritage Commission
____Public Utilities Commission
____Santa Monica Mountains Conservancy
✓ State Lands Commission
____Tahoe Regional Planning Agency

Other

✓ Metropolitan Transportation Commission
✓ AC Transit

Public Review Period (to be filled in by lead agency)

Starting Date: February 16, 2007 Ending Date: March 30, 2007

Signature _____ Date _____

Lead Agency:
Applicant: San Francisco Bay Water Transit Authority
Address: Pier 9, Suite 111, The Embarcadero
City/State/Zip: San Francisco, CA 94111
Contact: John Sindzinski
Phone: (415) 291-3377

Consulting Firm: URS Corporation
Address: 221 Main Street, Suite 600
City/State/Zip: San Francisco, CA 94105
Contact: Ian Austin
Phone: (415) 896-5858

For SCH Use Only:
Date Received at SCH: _____
Date Review Starts: _____
Date to Agencies: _____
Date to SCH: _____
Clearance Date: _____
Catalog Number: _____
Notes:

LEGAL NOTICE

SAN FRANCISCO BAY AREA WATER TRANSIT AUTHORITY NOTICE OF ENVIRONMENTAL REVIEW AND SCOPING MEETING. The Federal Transit Administration (FTA) and the San Francisco Bay Area Water Transit Authority (WTA) are planning to prepare an Environmental Impact Report/Environmental Impact Statement (EIR/EIS) and notice of public scoping meeting for the proposed construction of a ferry terminal along the Berkeley/Albany waterfront. The project would provide water transit service between Berkeley/Albany and the San Francisco ferry terminal for east bay commuters, visitors and recreational users. The EIR/EIS will be prepared in accordance with section 102(2)C of the National Environmental Policy Act of 1969 (NEPA) and pursuant to the Council on the Environmental Quality's regulations (40 CFR parts 1500-08) as well as provisions of the recently enacted Safe, Accountable, Flexible Efficient Transportation Equity Act: A Legacy for Users. (SAFETEA-LU).

In addition, WTA will hold **TWO PUBLIC SCOPING MEETINGS** to receive oral comments and assist WTA in reviewing the scope and focus of the proposed project's environmental impact analysis and information to be contained in the EIR/EIS. Public scoping meetings will be held on March 8, 2007 from 6:30 – 8:30 p.m. at the North Berkeley Senior Center, 1901 Hearst Avenue, Berkeley, CA 94709; and on March 15, 2007, from 6:30 – 8:30 p.m. at the Albany Public Library, 1247 Marin Avenue, Albany, CA 94706. Written comments will also be accepted at the meetings and until the close of business on March 30, 2007 and should be sent to John Sindzinski, Project Manager, San Francisco Bay Area Water Transit Authority, Pier 9, Suite 111, The Embarcadero, San Francisco, CA, 94111.

Additionally, WTA will host an inter-governmental agency scoping meeting on March 7, 2007 from 1:30 – 3:30 p.m. at the South Berkeley Senior Center, 2939 Ellis Street, Berkeley, CA 94703. The purpose of the inter-governmental agency meeting is to receive oral comments and assist WTA in reviewing the scope and focus of the proposed project's environmental impact analysis and information to be contained in the EIR/EIS.

All meetings will be accessible to persons with disabilities. If special translation or signing services or other special accommodations are needed, please contact Delphine Henri at (415) 274-1821 at least 48 hours before the meeting.

[Name]
[Cooperating Agency]
[Address]

[Salutation]:

The Federal Transit Administration (FTA), in cooperation with the San Francisco Bay Water Transit Authority (WTA), is preparing an Environmental Impact Statement (EIS) and Environmental Impact Report (EIR) for proposed transportation improvements in Berkeley/Albany, California. The new Berkeley/Albany ferry terminal and service connecting Berkeley/Albany with the San Francisco Ferry Building will almost certainly require your agency's approval to implement the proposed improvements, so we are formally requesting your agency to be a cooperating agency.

We have arranged a special scoping meeting to provide a venue for your agency to learn more about the proposed ferry project and to express issues and concerns that need to be addressed in the EIS/EIR. The **resource agency scoping meeting** is scheduled for:

March 7 from 1:30 pm to 3:30 pm at the South Berkeley Senior Center, 2939 Ellis Street, Berkeley, California.

If a representative from your agency cannot come to the meeting on March 7, two evening scoping meetings have been scheduled from 6:30 pm to 8:30 pm as follows:

Albany Location (March 15)

Albany Public Library
1247 Marin Avenue
Albany, California

Berkeley Location (March 8)

North Berkeley Senior Center
1901 Hearst Avenue
Berkeley, California

In addition, your agency can submit written comments on the scope of the EIS/EIR to John Sindzinski, Project Manager, San Francisco Bay Water Transit Authority, Pier 9, Suite 111, The Embarcadero, San Francisco, CA, 94111. All comments must be received by March 30, 2007.

FTA seeks your agency's cooperation in coordinating and determining effects of the proposed construction of the ferry terminal and associated facilities and identifying mitigation measures that can minimize potentially adverse impacts. You can expect that the EIS/EIR will, to the greatest extent possible, satisfy your agency's statutory responsibilities and concerns. The environmental documentation will address environmental and programmatic concerns identified by your agency and will be sufficiently detailed to enable your agency to grant necessary permits or other approvals that may ensue from the build alternatives under study. If at any point in the process

your needs are not being met, please let us know. We expect that at the end of the process the EIS/EIR will satisfy your requirements.

We look forward to your response to this request and your role as a cooperating agency on this project. If you have questions or would like to discuss in more detail the project or our agencies' respective roles and responsibilities during the preparation of this EIS/EIR, please contact John Sindzinski of the WTA at 415-291-3377 or Alexander Smith of the FTA Regional Office at 415-744-2599.

Sincerely,

John Sindzinski
WTA Project Manager

Name	Organization	Street Address	City	Zip Code
Jim Townsend	Eastshore State Park, State Department of Parks and Recreation	2950 Peralta Oaks Court	Oakland, CA	94605
Larry Tong	East Bay Regional Parks District	2950 Peralta Oaks Court	Oakland, CA	94605
Brian Wiese	East Bay Regional Parks District	2950 Peralta Oaks Court, Post Office Box 5381	Oakland, CA	94605
Laura Thompson	Bay Trail Project	Post Office Box 2050	Oakland, CA	94604-2050
Lee Huo	Bay Trail Project	Post Office Box 2050	Oakland, CA	94604-2050
Jim Gleich	AC Transit	1600 Franklin Street	Oakland, CA	94612
Nathan Landau	AC Transit	1600 Franklin Street	Oakland, CA	94612
Gary Adams	Caltrans District 4	Post Office Box 23660	Oakland, CA	94623-0660
Alix Bockleman	Metropolitian Transportation Commission (MTC)	101 8th Street	Oakland, CA	94607
Carter Mau	BART	300 Lakeside Drive, 16th Floor	Oakland, CA	94612
Mark D'Avignon	U.S. Army Corps of Engineers (USACE)	333 Market Street	San Francisco, CA	94105-2197
Rob Lawrence	U.S. Army Corps of Engineers (USACE)	333 Market Street	San Francisco, CA	94105-1831
Bruce Wolfe	Regional Water Quality Control Board (RWQCB)	1515 Clay Street	Oakland, CA	94612
William C. Norton	Bay Area Air Quality District (BAAQMD)	939 Ellis Street	San Francisco, CA	94109
Gary Stern	National Oceanographic and Atmospheric Administration (NOAA) Fisheries - National Marine Fisheries Service (NMFS)	777 Sonoma Avenue, Room 325	Santa Rosa, CA	95404
Will Travis	Bay Conservation and Development District (BCDC)	50 California Street	San Francisco, CA	94111
Brenda Goeden	Bay Conservation and Development District (BCDC)	50 California Street	San Francisco, CA	94111
Nancy Smith	California State Lands Commission	100 Howe Avenue, Suite 100-South	Sacramento, CA	95825-8202
George Issac	California Department of Fish and Game (CDFG)	20 Lower Ragsdale Drive, Suite 100	Monterey, CA	93953
Ryan Olah	U.S. Fish and Wildlife Services (FWS)	2800 Cottage Way, Room W2605	Sacramento, CA	95825
Peter Hillier	City of Berkeley Office of Transportation	2180 Milvia Street, 5th Floor	Berkeley, CA	94704
Ann Chaney	City of Albany Community Development Department	1000 San Pablo Avenue	Albany, CA	94706
Ms. Nandini Shridhar	Caltrans District 4	Post Office Box 23660	Oakland, CA	94623-4700
Mr. Tim Sable	Caltrans Office of Transit and Community Planning	111 Grand Avenue	Oakland, CA	94612
Mr. Rod Chisholm	Chief of Planning Branch, SF District, U.S. Army Corps of Engineers (USACE)	333 Market Street	San Francisco, CA	94105-1831
Mr. Randy Lee	Regional Water Quality Control Board (RWQCB)	1515 Clay Street, Suite 1400	Oakland, CA	94612
James R. Bybee	Northern California Habitat Manager National Oceanographic and Atmospheric Administration Fisheries-National Marine Fisheries Service (NMFS)	777 Sonoma Avenue, Room 325	Santa Rosa, CA	95404
Mr. Steve McAdam	Bay Conservation and Development District (BCDC)	50 California Street	San Francisco, CA	94102-6080
Mr. David Kranking, Commander USCG	US Coast Guard, Marine Safety Office, SF Bay	121 Via La Cumbre	Greenbrae, CA	94904
Mr. Al Storm	California Department of Fish and Game (CDFG)	Post Office Box 94244	Sacramento, CA	94244
Kathleen Dadey	U.S. Environmental Protection Agency (EPA)	75 Hawthorne Street	San Francisco, CA	94105

SUMMARY OF SCOPING COMMENTS

WTA held public scoping meetings to explain the project alternatives to be studied in the EIR and to receive written and oral comments on March 8, 2007, and March 15, 2007, from 6:30 p.m. to 8:30 p.m. at locations indicated below.

Albany Location (March 15)

Albany City Hall
1000 San Pablo Avenue
Albany, California

Berkeley Location (March 8)

North Berkeley Senior Center
1901 Hearst Avenue
Berkeley, California

An interagency scoping meeting for agencies with interest in the project was held on March 7 from 1:30 p.m. to 3:30 p.m. at the South Berkeley Senior Center, 2939 Ellis Street, Berkeley, California.

Written and oral comments received from the general public and interested agencies during Scoping are summarized below.

TABLE 2 Scoping Comment Summary

No	Last Name	First Name	Agency, Organization, or Self	Title	Letter Title	Date	Aesthetics	Access	Air Quality	Alternatives Evaluation	Biology, Habitat	Business Impacts	Costs	Cumulative Impact	Geology	Hazardous Materials	Historic	Land Use	Noise	Parklands, Recreation	Ridership	Safety/Disaster Relief	Service	Site Preference	Transportation, Traffic, Parking	Water Quality	Other
GROUP 1: Written Responses During Scoping Period																											
1	Jones	Pat	Self	None	Berkeley/Albany EIR/EIS	2/23/07			1		1																
2	La Force	Norman	Sierra Club	Chair	Further Sierra Club Comment on the NOP for the Berkeley-Albany	3/10/07										1										1	
3	Piper	Bob	Self	None	Scoping for East Bay ferry Service EIR/EIS	4/2/07							1								1						
4	Lee	Huo	San Francisco Bay Trail Project	Bay Trail Planner	Notice of Preparation for the Berkeley/Albany Ferry Terminal Draft EIR/EIS	3/28/07														1							
5	Bachman	Steve	Parks and Recreation, Diablo Vista District	Associate Park & Recreation Specialist	Berkeley/Albany Ferry Terminal Project Notice of Preparation EIR, SCH#2007022034						1									2					1		
6	Wyman	Joe	Hornblower Cruises and Events	Planning & Development Manager	URS Alternative study in Berkeley/Albany	3/1/07						1						1							1		
7	Hillier	Peter	ACM for Transportation	None	BCDC Inquiry File Nos. AL.MC.8205.1, AL.BY.7035.1 and AL.AY.7905.1; Notice of Preparation of an Environmental Impact Report for the Proposed Berkeley/Albany Ferry Terminal and Service Project	3/16/07																			5		
8	La Clair	Joe	BCDC	None	Untitled	3/30/07												1									
9	Rodriguez	Herman	Self	None	Berkeley/Albany EIR/EIS	2/27/07																		1			
10	Tong	Larry	East Bay Regional Park District	Interagency Planning Manager	Comments on NOI/NOP and Scope of EIS/EIR for proposed Berkeley/Albany Ferry Terminal	3/28/07	2		1		5			1		2	1	3	1	3				2	4	2	
11	Cassell	Jim	Berkeley Agency	None	The Albany Ferry	3/18/07							2										1	1			
12	Smolens	Amy	Self	None	Untitled	3/28/07																		1			
13	Papalia	Francesco	Self	None	Untitled	3/31/07		1													1			1		1	
14	Skinner	Mike	Self	None	Untitled	3/20/07														1		1			1		
15	Vohs	Richard	Self	None	Untitled	3/26/07																			1		
16	Steckel	Hilda	Self	None	Untitled	3/28/07																		1			
17	Wyman	Joe	Hornblower Cruises and Events	Planning & Development Manager	Untitled	3/19/07						1													1		
18	La Force	Norman	Sierra Club	Chair	Further Comment from Sierra Club on Berkeley-Albany Ferry NOP	2/27/07												1		1							
19	La Force	Norman	Sierra Club	Chair	NOP for Albany-Berkeley Ferry	2/27/07				2	2		1	2				4		4				1	6	2	
20	Cheasty	Robert	Citizens for East Shore Parks	President	NOP for Albany-Berkeley Ferry	3/8/07				2	2			2				3		3				1	6	2	
21	Fielding	Doug	Association of Sports Field	None	Parking for Ferry Water Transit at the Foot of Gilman	3/16/07																			1		
22	Gradia	Lauren	PE	Transportation Engineer/ Transit Planner	City of Albany Website Contact Form	2/9/07																		1	1		
23	Goldberg	Tracey	Self	None	Albany meeting comments	3/28/07		1																	1		1
24	Arkin	David	Self	None	Comments on the Berkeley/Albany Ferry Terminal EIR/EIS	3/31/07												1									
25	Khan	Christiane	Self	None	Buchanan Street EIR	1/25/07																		1			
26	McMahon	D.J.	Self	None	Scoping for the Berkeley/Albany Ferry System	3/16/07									1					1		3			2		
27	Plich	Nick	Self	None	Untitled	3/28/07															1						
28	Rubin	Thelma	Self	None	Untitled	3/29/07															1						
29	Holan	Jerri	Friends of the Albany Ferry	Captain	Scoping for Berkeley/Albany Ferry	3/26/07	4	2			3							1		10			1		9	2	
30	Skowbow	Nancy	AC Transit	Deputy General Manager - Service Development	Notice of Preparation for Environmental Impact Report (EIR)/Notice of Intent for Environmental Impact Statement (EIS) on Berkeley/Albany Ferry	4/9/07			1				1								1		2				1

Last Name	First Name	Agency, Organization, or Self	Title	Letter Title	Date	Aesthetics	Access	Air Quality	Alt Eval	Biology/Habitat	Business Impacts	Costs	Impact	Geology	Materials	Historic	Land Use	Noise	Recreation	Ridership	Relief	Service	Site Preference	Transit/Traffic	Water Quality	Other
GROUP 2: Written and Oral Comments Received During Interagency March 7 Scoping Meeting																										
La Clair	Joe	BCDC			3/7/07		1			1									1						2	
Shafer	Cyndy	California State Parks, Diablo Vista District	Environmental Scientist		3/7/07					1																
Bachman	Steve	Parks and Recreation, Diablo Vista District	Associate Park & Recreation Specialist		3/7/07														2							
Humphrey	Scott	Coast Guard Vessel Traffic Service Center			3/7/07														1						1	
						0	1	0	0	2	0	0	0	0	0	0	0	0	4	0	0	0	0	0	3	0
GROUP 3: Written and Oral Comments Received During March 8 Scoping Meeting																										
Poisson	Neil	Doubletree Berkeley Marina	General Manager		3/8/07	1					1													1		
Mitchell	Merrille	Self			3/8/07			1																		
Bennett	Edward	Citizens for Eastshore Parks			3/8/07					1														1		1
Blackwell	Marjorie	Golden Gate Audubon Society	President		3/8/07					1																
Smalley	Jacqui	Golden Gate Audubon Society	Vice President		3/8/07					1									1							
Bachman	Steve	Parks and Recreation, Diablo Vista District	Associate Park & Recreation Specialist		3/8/07					1									1							
Ongurth	Steve	Self			3/8/07						1												2			
Kamen	Paul	Berkeley Waterfront Commission			3/8/07						1	2											1	1	1	
La Force	Norman	Sierra Club	Chair		3/8/07												1		1				2			
McBride	John	West Berkeley PAC	Chair		3/8/07												1							1		
Levy	Clara	Self			3/8/07																		1	1		
Savidge	Mike	Golden Gate National Recreation Area			3/8/07																		1			
Williams	Sennet	Self			3/8/07																		1	1		
Holan	Jerri	Self			3/8/07																			2	1	
Hartman	Robert	Golden Gate Fields and Berkeley Convention and Visitors Bureau	Manager (Golden Gate Fields), Executive Board Member (Berkeley Convention &		3/8/07																					1
Berwin	Mary Ann	Self			3/8/07		2																	2		
Levy	Clara	BEST			3/8/07																		1			
Anonymous					3/8/07																				1	
						1	2	1	0	4	3	2	0	0	0	0	2	0	3	0	0	0	9	10	3	2
GROUP 4: Written and Oral Comments Received During March 15 Scoping Meeting																										
Larson	Clay	Self			3/15/07	1				1							1						1			
Keppel	Wima	Self			3/15/07			1																2		
Diehl	Kathy	Self			3/15/07			1		1													1			
Outis	Robert	Self			3/15/07				1																	
Okawachi	Jewel	Self			3/15/07				1																	
Cheasty	Robert	Citizens for Eastshore Parks			3/15/07					3							1							2	2	
La Force	Norman	Sierra Club	Chair		3/15/07					1							2		1				1		1	
Jordan	Preston	Self			3/15/07						2									2				2	1	
Parker	Brian	City of Albany Waterfront Committee			3/15/07						1	1					1		1					1		
Moffat	Susan	Self			3/15/07														1	3	1				1	
Maass	Peter	Albany Planning and Zoning Commission			3/15/07															1			1			
Goldberg	Tracey	Self			3/15/07																	1				
Herman	Gene	Progressive Democrats East Bay, United Seniors of Oakland and Alameda County, Sierra Club			3/15/07			1		1													1	3	1	
Dann	William	Albany Shoreline, Albany Waterfront			3/15/07																		2	3	1	
So	Eddy	Self			3/15/07																		1	2		
Maris	Allen	Self			3/15/07																			3		
Jones	Patricia	Self			3/15/07		1			2									1				2			
Jordan	Preston	EBBC, Albany Strollers and Rollers			3/15/07							2								2		1				
						1	1	3	2	9	0	5	1	0	0	0	5	0	4	8	1	3	9	18	7	0
TOTAL						8	8	7	6	29	5	12	6	1	3	1	22	1	35	13	5	7	29	68	23	4

APPENDIX C

AGENCY PARTICIPATION AND CONSULTATION

Agencies Receiving Cooperating Agency Invitation

WTA Berkeley/Albany Ferry Project	Contact	Address			Phone	Fax
FTA	Ray Sukys					
	Alex Smith (Env Planner)	201 Mission St.	San Francisco, CA 94105-1831	alexander.smith@fta.dot.gov	415-744-2599	415-744-2726
Resource Agencies						
USACE	Edward Wylie – Regulatory Branch					
NOAA - NMFS (eelgrass)	Korie Schaffer				707-575-6081	
NOAA - NMFS	Brian Mulvey			Brian.Mulvey@noaa.gov	707-575-6056	
NOAA - NMFS	David Woodbury			David.P.Woodbury@noaa.gov	707-575-6088	
BCDC	Will Travis – Executive Director	50 California Street, Suite 2600	San Francisco, California 94111	travis@bcdc.ca.gov	415-352-3653	415-352-3606
BCDC	Lindy Lowe – Coastal Planner	50 California Street, Suite 2600	San Francisco, California 94111	lindyl@bcdc.ca.gov	415-352-3642	415-352-3606
CDFG	Robert Floerke?					
CDFG	George Isaac			Gisaac@dfg.ca.gov	831-649-2813	
East Shore Agencies						
Berkeley Marina - Harbormaster	Ann Hardinger, Supervisor (Harbormaster)	201 University Avenue	Berkeley, CA 94704	ahardinger@ci.berkeley.ca.us	510-981-6740	
East Bay Regional Parks District	Brian Wiese, Interagency Planning					
Shorebird Nature Center	Patty Donald, Coordinator	160 University Avenue	Berkeley, CA 94710	Pdonald@ci.berkeley.ca.us	510-981-6720	
AC Transit	Jim Gleich	1600 Franklin Street	Oakland, CA 94612	jgleich@actransit.org	510-891-7185	510-891-7157
AC Transit	Nathan Landau	1600 Franklin Street	Oakland, CA 94612	nlandau@actransit.org	510-891-4792	510-891-4874
Bay Trail Project	Lee Huo, Bay Trail Planner (ABAG)	P.O. Box 2050	Oakland, CA 94604-2050	LeeH@abag.gov	510-464-7915	510-433-5515
Eastshore Park	Larry Tong			ltong@ebparks.org	510-544-2621	
NGOs						
Sierra Club	Michael Bornstein, SF BaySenior Chapter Dire	2530 San Pablo Ave., Suite I	Berkeley, CA 94702-2000	mb@sfbaysc.org	510-848-0800 x303	510-848-3383
Sierra Club	Mike Daley	2530 San Pablo Ave.	Berkeley, CA 94702	mike.daley@sierraclub.org	510-848-2026 x304	510-848-3383
(with Sierra Club and East Bay Public Transit)	Norman La Force	802 Balra Drive	El cerrito, CA 94530	n.laforce@comcast.net	415-227-2322	
Golden Gate Audubon	Samantha Murray, Cons. Dir.				510-843-2222	
	Arthur Feinstein					
Citizens for East Shore Parks (CESP)	Patricia Jones, Program Director	P.O. Box 6087	Albany, CA 94706	eastshorepark@hotmail.com	510-461-4665	

[Name]
[Cooperating Agency]
[Address]

[Salutation]:

The Federal Transit Administration (FTA), in cooperation with the San Francisco Bay Water Transit Authority (WTA), is preparing an Environmental Impact Statement (EIS) and Environmental Impact Report (EIR) for proposed transportation improvements in Berkeley/Albany, California. The new Berkeley/Albany ferry terminal and service connecting Berkeley/Albany with the San Francisco Ferry Building will almost certainly require your agency's approval to implement the proposed improvements, so we are formally requesting your agency to be a cooperating agency.

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Albany, California

Berkeley Location (March 8)

North Berkeley Senior Center
1901 Hearst Avenue
Berkeley, California

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your needs are not being met, please let us know. We expect that at the end of the process the EIS/EIR will satisfy your requirements.

We look forward to your response to this request and your role as a cooperating agency on this project. If you have questions or would like to discuss in more detail the project or our agencies' respective roles and responsibilities during the preparation of this EIS/EIR, please contact John Sindzinski of the WTA at 415-291-3377 or Alexander Smith of the FTA Regional Office at 415-744-2599.

Sincerely,

John Sindzinski
WTA Project Manager

Hello Mark,

It would be more convenient for me to meet in Santa Rosa. I have Thurs 5/8 at 2pm on my calendar. Please note that you will have to go through security to enter our building (address below). Also, although we do not have a public parking lot for our building, there is free 4 hour parking along E Street south of Sonoma Ave.

I am in room 212, first cubicle on the right, and have signed out a conference room for us to use.

See you then,

Laura

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><> ><> ><> ><> ><> ><> ><> ><> ><> ><> ><> <><
Laura Hoberecht, PhD
Fishery Biologist
Habitat Conservation Division
National Marine Fisheries Service
777 Sonoma Ave, Rm 325
Santa Rosa, CA 95404
phone: 707-575-6056
fax: 707-578-3435
email: Laura.Hoberecht@noaa.gov

Mark_Weisman@URSCorp.com wrote:
> Laura: We can meet with you on Thursday May 8 in the afternoon around
> 2pm. We will come to Santa Rosa unless you are willing to travel to the
> City to meet with us at our office (address below). Please confirm. Mark
>
> Mark Weisman
> URS Corporation
> 221 Main Street, Suite 600
> San Francisco, CA 94105
> Tel: 415-243-3853
> Fax: 415-882-9261
> mark_weisman@urscorp.com
>
> This e-mail and any attachments are confidential. If you receive this
> message in error or are not the intended recipient, you should not
> retain, distribute, disclose or use any of this information and you
> should destroy the e-mail and any attachments or copies.

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Laura Hoberecht, PhD
Fishery Biologist
Habitat Conservation Division
National Marine Fisheries Service
777 Sonoma Ave, Rm 325
Santa Rosa, CA 95404
phone: 707-575-6056
fax: 707-578-3435
email: Laura.Hoberecht@noaa.gov

Hello Mark and Ian,

Wanted to follow up with you about some information I said I'd provide after our last meeting. I apologize that it has taken so long for me to get this out.

1. You asked for a reference for alternative dock construction materials that would reduce shading affects. I have attached a document that investigates some different materials.

2. You asked about potential mitigation for permanent shade increases due to dock/float construction. Mitigation depend on the amount and type of habitat lost, so this is difficult to speculate about. Potential mitigation could include restoration or improvement of degraded habitat in or near the project area, with associated monitoring and success criteria requirements.

Hope this is helpful. Please let me know if you have additional questions.

Laura

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Laura Hoberecht, PhD
Fishery Biologist
Habitat Conservation Division
National Marine Fisheries Service
777 Sonoma Ave, Rm 325
Santa Rosa, CA 95404
phone: 707-575-6056
fax: 707-578-3435
email: Laura.Hoberecht@noaa.gov



DockMaterials.pdf

NOAA NATIONAL MARINE FISHERIES SERVICE
Meeting with Laura Hoberecht, Fishery Biologist
777 Sonoma Avenue
Santa Rosa, CA
May 8, 2008

COMMENT	RESPONSE
1. Eel Grass: NOAA Fisheries is lead agency on eel grass issues	Added to Table 7-4
2. Eel Grass: Discuss all eel grass areas on map not just restoration area - Merkel	Included in Figure 3-23 and described in Section 3.9.3
3. Eel Grass: If selected, Alts C and D may require additional study to determine if eel grass has shifted location	Discussion in Section 4.9.5 under Impact 17 indicates, for Alternatives C and D, study of eel grass bed locations would occur
4. Eel Grass: Alt B needs examination of footprint of wake wash to determine effect on eel grass along Brickyard Cove shoreline	Discussion in Section 4.9.5 under Impact 17 indicates, for Alternative B, the breakwater would ameliorate wake wash effects of the ferry so that nearby eel grass habitat would be unaffected by project operation
5. Ferry Trips: Are trips identified on pg 2-33 round trip or one-way	The table has been updated to identify ferry trip totals as one way
6. Dredge disposal – clarify if dredged materials would primarily would be for beneficial reuse or deposited outside the Bay - Hamilton	The determination of location for disposal is included in the mitigation for Impact 2
7. Sites A and B: Compare effects of breakwater in Alt B with longer pier in Alt A citing habitat disruption and restoration, shadow effects, turbidity	In Section 4.9.4, Impact 4 and Section 4.9.5, Impact 24, the effects of the breakwater for Alternative B and the longer pier of Alternative A are compared
8. Native oysters: Alt A has potential for oyster beds in terminal area. No in-kind mitigation but study of pre and post construction habitat would be required over a specified duration similar to South SF site – growth, density, survivability – presence/absence survey	Section 4.9.4, Impact 8 describes the potential effect of project construction on oyster beds under Alternative A
9. Dredging: Enumerate and clarify effects of dredging – contaminants, removal and disposal of prey, turbidity on benthos and fish, loss of habitat,	Section 4.9.4, Impacts 2, 3, 5, 7, 8, 9, 10, 13, 16 discuss the potential impacts from dredging
10. Effect of pile driving – clarify acoustic effect, use of vibratory hammer. Add number of piles and interval, engineering plans to text	The potential effect of pile driving on sea life is presented in Section 4.8.3, Impacts 1 and 2 and Section 4.9.4, Impact 14. Mitigations to reduce the temporary effects of pile driving are proposed. Pile intervals and plans are provided in Section 2.7 and Appendix I, respectively.
11. Turbidity: Effect of dredging, vessel traffic, fish and benthic communities	Section 4.9.4 describes the potential effect of construction-generated turbidity on biological resources under Impacts 6, 8, 9, 10, 13, and 18.
12. Shading from Piers: Excess predation, permeable materials, cite size of dock and height above water to determine shading, mitigation for loss TBD	Section 4.9.5, Impact 24 describes the relative amount of shading and the potential effects of shading created by the ferry pier at each terminal site.
13. Summary of Outstanding Issues: pre-construction studies and mitigation of eel grass beds, survey and monitoring oyster beds, vibratory hammer for pile driving, reuse of dredge materials,	These issues are discussed in Sections 4.9 and 4.10

COMMENT	RESPONSE
salmon period, sediment sampling of dredged materials and effects of old dilapidated piers, materials for pier construction to minimize shading, clarify endangered species – green sturgeon, steelhead and Chinook salmon, essential fish habitat as impact	
14. Summary of Potential Mitigation: Eelgrass- preconstruction surveys, follow-up monitoring, mitigation if impact Oysters: Survey, post-construction monitoring Piles: Vibratory hammer DMMO: sampling Disposal: Beneficial reuse, June to Nov work window Shade: Pier materials	Mitigation measures for these impacts are proposed in Sections 4.8, 4.9, and 4.10.
15. Joint consultation with other agencies	Joint consultation will occur after the LPA has been selected by the WETA Board

WATER EMERGENCY TRANSPORTATION AUTHORITY

WETA

June 2, 2008

Kathleen Dadey
U.S. Environmental Protection Agency (USEPA)
75 Hawthorne Street
San Francisco, CA 94105

Re: Berkeley-Albany Ferry Project Draft EIS/EIR

Dear Ms. Dadey:

In preparation of the Draft EIS/EIR, the San Francisco Bay Water Emergency Transportation Authority (WETA) has conducted environmental technical studies for the Berkeley-Albany Ferry Project. The technical studies describe the Affected Environment and Environmental Consequences for implementing the project at four alternative sites. The sites are:

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

Depending on the alternative ferry terminal site selected, environmental issues that could affect water resources, biological resources, parklands and recreational areas along the Berkeley-Albany shoreline have been identified. WETA is requesting your participation in discussing these issues to ensure that the issues are adequately addressed in the Draft EIS/EIR. In this regard, I would like to arrange a meeting to update you on the project and to discuss issues of interest. Please contact me as at (415) 364-3182 or via e-mail at sindzinski@watertransit.org.

Sincerely,

John Sindzinski
Manager, Planning and Development

Pier 9, Suite 111, The Embarcadero, San Francisco, CA 94111 Phone: (415) 291-3377 Fax: (415) 291-3388

WATER EMERGENCY TRANSPORTATION AUTHORITY

WETA

June 2, 2008

Ryan Olah
U.S. Fish and Wildlife Service (FWS)
2800 Cottage Way, Rm W2605
Sacramento, CA 95828

Re: Berkeley-Albany Ferry Project Draft EIS/EIR

Dear Mr. Olah:

In preparation of the Draft EIS/EIR, the San Francisco Bay Water Emergency Transportation Authority (WETA) has conducted environmental technical studies for the Berkeley-Albany Ferry Project. The technical studies describe the Affected Environment and Environmental Consequences for implementing the project at four alternative sites. The sites are:

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Sincerely,

John Sindzinski
Manager, Planning and Development

Pier 9, Suite 111, The Embarcadero, San Francisco, CA 94111 Phone: (415) 291-3377 Fax: (415) 291-3388

WATER EMERGENCY TRANSPORTATION AUTHORITY

WETA

June 2, 2008

George Isaac
California Department of Fish and Game (CDFG)
20 Lower Ragsdale Drive, Suite 100
Monterey, CA 93940

Re: Berkeley-Albany Ferry Project Draft EIS/EIR

Dear Mr. Isaac:

In preparation of the Draft EIS/EIR, the San Francisco Bay Water Emergency Transportation Authority (WETA) has conducted environmental technical studies for the Berkeley-Albany Ferry Project. The technical studies describe the Affected Environment and Environmental Consequences for implementing the project at four alternative sites. The sites are:

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Depending on the alternative ferry terminal site selected, environmental issues that could affect water resources, biological resources, parklands and recreational areas along the Berkeley-Albany shoreline have been identified. WETA is requesting your participation in discussing these issues to ensure that the issues are adequately addressed in the Draft EIS/EIR. In this regard, I would like to arrange a meeting to update you on the project and to discuss issues of interest. Please contact me as at (415) 364-3182 or via e-mail at sindzinski@watertransit.org.

Sincerely,

John Sindzinski
Manager, Planning and Development

Pier 9, Suite 111, The Embarcadero, San Francisco, CA 94111 Phone: (415) 291-3377 Fax: (415) 291-3388

WATER EMERGENCY TRANSPORTATION AUTHORITY

WETA

June 2, 2008

Rob Lawrence
U.S. Army Corps of Engineers (USACE)
333 Market Street
San Francisco, CA 94105-1831

Re: Berkeley-Albany Ferry Project Draft EIS/EIR

Dear Mr. Lawrence:

In preparation of the Draft EIS/EIR, the San Francisco Bay Water Emergency Transportation Authority (WETA) has conducted environmental technical studies for the Berkeley-Albany Ferry Project. The technical studies describe the Affected Environment and Environmental Consequences for implementing the project at four alternative sites. The sites are:

- Berkeley Marina: located at the Berkeley Marina, adjacent to the Hornblower dock.
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Depending on the alternative ferry terminal site selected, environmental issues that could affect water resources, biological resources, parklands and recreational areas along the Berkeley-Albany shoreline have been identified. WETA is requesting your participation in discussing these issues to ensure that the issues are adequately addressed in the Draft EIS/EIR. In this regard, I would like to arrange a meeting to update you on the project and to discuss issues of interest. Please contact me as at (415) 364-3182 or via e-mail at sindzinski@watertransit.org.

Sincerely,

John Sindzinski
Manager, Planning and Development

Pier 9, Suite 111, The Embarcadero, San Francisco, CA 94111 Phone: (415) 291-3377 Fax: (415) 291-3388

From: James_Browning@fws.gov [mailto:James_Browning@fws.gov]
Sent: Monday, June 09, 2008 7:37 AM
To: John Sindzinski
Cc: Ryan_Olah@fws.gov
Subject: Berkeley-Albany Ferry Project

John,

This responds to your June 2, 2008, letter to this office requesting to arrange a meeting to discuss issues associated with this project's DEIS/EIR. Looking at the proposed locations for the ferry terminal contained in your letter, I'm not sure if a meeting is needed but feel free to give me a call and I can answer any questions you may have about the proposed sites.

Jim Browning
Senior Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento,California 95825
916-414-6649

Complete List of Cooperating Agencies and Stakeholders

WTA Berkeley/Albany Ferry Project — **Stakeholders List**

	Stakeholder	Contact	Address			Phone	Fax
City of Berkeley	Mayor	Tom Bates, Mayor	2180 Milvia Street	Berkeley, CA 94704	tbates@ci.berkeley.ca.us	510-981-7100	
City of Berkeley		Calvin Fong, Asst. to Mayor	2180 Milvia Street	Berkeley, CA 94704	cfong@ci.berkeley.ca.us	510-981-7104	510-981-7199
City of Berkeley	- City Council	City Clerk – will distribute letters to Council	2180 Milvia Street	Berkeley, CA 94704	clerk@ci.berkeley.ca.us	510-981-6900	
City of Berkeley	Waterfront Manager	Cliff Marchetti	201 University Avenue	Berkeley, CA 94710	cmarchetti@ci.berkeley.ca.us	510-981-6737	510-981-6745
City of Berkeley	- Parks, Recreation, and Waterfront Department:	Parks Manager	2180 Milvia Street, 3rd Floor	Berkeley, CA 94704	parks@ci.berkeley.ca.us	510-981-6700	510-981-6710
City of Berkeley	- Convention and Visitors Bureau	Barbara Hillman, President	2015 Center Street	Berkeley, CA 94704	bhillman@mindspring.com	510-549-7040	510-644-2052
City of Berkeley	Parks Recreation & Waterfront - Marina Division		160 University Ave.	Berkeley, CA 94710		510-981-6720	510-981-6725
City of Berkeley	- Office of Transportation	Peter Hillier, Asst. City Manager	2180 Milvia Street, 5th Floor	Berkeley, CA 94704	phillier@ci.berkeley.ca.us	510-981-7000	510-981-7099
City of Berkeley	- Waterfront Commission	Brad Smith, Chair	1205 Francisco Street	Berkeley, CA 94702	bsmith@ci.berkeley.ca.us	510-981-6737	
City of Berkeley	- Waterfront Commission	Cliff Marchetti, Secretary	1205 Francisco Street	Berkeley, CA 94702	cmarchetti@ci.berkeley.ca.us	510- 981-7110	
City of Berkeley	- Waterfront Commission	Paul Kamen	5 Northgate Avenue	Berkeley, CA 94708	pk@well.com	510-540-7968	510-540-6324
City of Berkeley	- Transportation Commission	Dave Campbell	1590 LeRoy Avenue	Berkeley, CA 94708-1942	dcampbel@lmi.net	510-701-5971	
City of Berkeley	- Transportation Commission	Rob Wrenn	2259 Derby Street	Berkeley, CA 94705-1017	robwrenn@attbi.com	510-549-2467	
City of Berkeley	- Ferry Committee (PUC)	Linda Perry	2118 Marin Drive	Berkeley, CA 94707	lindaperry@attbi.com	510-525-1743	510-525-1792
City of Albany	Mayor	Robert Lieber, Mayor	1000 San Pablo Avenue	Albany CA 94706	rlieber@albanyca.org	510-528-5710	510-528-5797
City of Albany	Community Development Department	Ann Chaney, Community Development Director	1000 San Pablo Avenue	Albany, CA 94706	achaney@albanyca.org	510-528-5768	
City of Albany	- Recreation and Community Services Department		1249 Marin Avenue	Albany, CA 94706			
City of Albany	-Waterfront Commission	Nicole Almaguer, Environmental Resources Associate	1000 San Pablo Avenue	Albany, CA 94706	nalmaguer@albanyca.org	(510) 528.5754	(510) 524.9359
City of Berkeley	Berkeley Marina						
City of Berkeley	- Harbormaster	Ann Hardinger, Supervisor (Harbormaster)	201 University Avenue	Berkeley, CA 94704	ahardinger@ci.berkeley.ca.us	510-981-6740	
Businesses	- Hornblower Cruises	Joe Wyman	Pier 3, The Embareadero	San Francisco, CA 94111			
Businesses	- Hs Lordships Restaurant	Mohammed Dabood, Manager Hs Lordships	199 Seawall Drive	Berkeley CA 94710		510-843-2733	510-540-4775
Businesses	- Berkeley Yacht Club		One Seawall Drive	Berkeley, California 94710		510-843-9292	
Businesses	- Doubletree Hotel	George Rogers, GM Doubletree	200 Marina Boulevard	Berkeley, CA 94710	grogers@boykinlodging.com	510-548-7920	510-655-7127
Businesses	- Skates on the Bay		100 Seawall Drive	Berkeley CA 94710		510-549-1900	
Businesses	Golden Gate Fields	Peter Tunney, GM				510-559-7321	
Businesses	Caruso Affiliated (developer for Golden Gate Fields)	Matt Middlebrook, VP				510-526-8079	
Businesses	Cal Adventures Sports Programs		UC Berkeley	Berkeley, CA 94720-4430		510-642-4000	
Businesses	Cal Sailing Club						
Parks	California Department of Parks & Recreation	Steve Baehman, Associate Park & Recreation Specialist	845 Casa Grande Road	Petaluma, CA 94954		707-769-5652 X21	707-769-5675
Parks	Eastshore State Park – State Department of Parks and Recreation	Jim Townsend, East Bay Regional Parks Trails	2950 Peralta Oaks Court	Oakland, CA 94605	jtownsend@ebparks.org	510-544-2602	
Parks	East Bay Regional Parks District	Larry Tong, Eastshore Park	2950 Peralta Oaks Court	Oakland, CA 94605	ltong@ebparks.org	510-544-2621	
Parks	East Bay Regional Parks District	Brian Wiese	2950 Peralta Oaks Court PO Box 5381	Oakland, CA 94605			
Parks	Shorebird Nature Center	Patty Donald, Coordinator	160 University Avenue	Berkeley, CA 94710	Pdonald@ci.berkeley.ca.us	510-981-6720	
Parks	Adventure Playground (Parks, Rec and Waterfront)					510-644-8623	
NGOs	Sierra Club	Michael Bornstein , Senior Chapter Director, San Francisco Bay Chapter	2530 San Pablo Ave., Suite I	Berkeley, CA 94702-2000	mb@sfbayse.org	510-848-0800 x303	510-848-3383
NGOs	Sierra Club	Mike Daley	2530 San Pablo Ave.	Berkeley, CA 94702	mike.daley@sierraclub.org	510-848-2026 x304	510-848-3383
NGOs	(with Sierra Club and East Bay Public Transit)	Norman La Force	802 Balra Drive	El Cerrito, CA 94530	n.laforce@comcast.net	415-227-2322	
NGOs	Golden Gate Audubon Society	Elizabeth Murdock, Executive Director	2530 San Pablo Ave, Suite G	Berkeley, CA 94702	emurdock@goldengateaudubon.org	510-843-9912	510-843-5351
NGOs	Golden Gate Audubon Society	Tara Zuardo, Office Manager	2530 San Pablo Ave, Suite G	Berkeley, CA 94702	tzuardo@goldengateaudubon.org	510-843-2222	
NGOs	Golden Gate Audubon	Samantha Murray, Cons. Dir.			smurray@goldengateaudubon.org	510-843-6551	
		Arthur Feinstein					
NGOs	Citizens for East Shore Parks (CESP)	Patricia Jones, Program Director	P.O. Box 6087	Albany, CA 94706	eastshorepark@hotmail.com	510-461-4665	
NGOs	League of Women Voters	Eva Bansner	1340 Arch	Berkeley, CA 94708	evabaer@earthlink.net	510-849-2154	
NGOs	Bluewater Network	Teri Shore, Clean Vessels Campaign Director	311 California St., Suite 510	San Francisco, CA 94104	bluewater@bluewaternetwork.org	415-544-0790	
NGOs	East Bay Bicycle Coalition	David Burch, President	PO Box 2214	Novato, CA 94948-2214	bikeburch@hotmail.com	415-749-4641	415-893-9596
NGOs	East Bay Bicycle Coalition	Cole Portocarrero, Executive Director	PO Box 2214	Novato, CA 94948-2214 bik	Cole@BayAreaBikes.org	415-246-8078	415-893-9596
NGOs	Berkeley Design Advocates	Tony Bruzzone	1600 Franklin Street	Oakland, CA 94612		510-891-7175	510-891-4874
NGOs	Friends of the Berkeley Ferry	Linda Perry	perrybri@pacbell.net				
NGOs	Friends of the Albany Ferry	Jerri Holan	1393 Solano Avenue #B	Albany, CA 94706	holan@nothingbutnet.net	510-559-9119	
Bay Trail	Bay Trail Project	Laura Thompson, Executive Director	call Lee Huo (BT Planner)		laurat@abag.ca.gov	510-464-7935	
Bay Trail	Bay Trail Project	Lee Huo, Bay Trail Planner (ABAG)	P.O. Box 2050	Oakland, CA 94604-2050	LeeH@abag.gov	510-464-7915	510-433-5515
Transit Agencies	FTA	Ray Sukys	call Alex Smith (Env Planner)				
Transit Agencies	FTA	call Alex Smith (Env Planner)	201 Mission St.	San Francisco, CA 94105-18	alexander.smith@fta.dot.gov	415-744-2599	415-744-2726
Transit Agencies	AC Transit	Jim Gleich	1600 Franklin Street	Oakland, CA 94612	jgleich@actransit.org	510-891-7185	510-891-7157
Transit Agencies	AC Transit	Nathan Landau	1600 Franklin Street	Oakland, CA 94612	nlandau@actransit.org	510-891-4792	510-891-4874
Transit Agencies	Caltrans	Cheryl Navares-Project Management East Region	Mail Stop 9D, Caltrans Dist. 4, 111 Grand Avenue	Oakland, CA 94623-0660	cheryl_navares@dot.ca.gov	510-286-5925	510-286-5952
Transit Agencies	Caltrans District 4	Gary Adams, CEQA Coordinator	P.O. Box 23660	Oakland, CA 94623-0660			
Transit Agencies	Caltrans District 4	Nandini Shridhar	P.O. Box 23660	Oakland, CA 94623-4700			
Transit Agencies	Caltrans Office of Transit and Community Planning	Tim Sable	111 Grand Avenue	Oakland, CA 94612			
Transit Agencies	Metropolitan Transportation Commission (MTC)	Alix Bockleman	101 8th Street	Oakland, CA 94607	abockleman@mtc.ca.gov	510-817-5850	510-817-5848

Complete List of Cooperating Agencies and Stakeholders

Transit Agencies	Capital Corridor/Amtrak	David Kurtosky	300 Lakeside Drive, 14th Fl. East	Oakland, CA 94612		510-464-6993	
Transit Agencies	BART	Carter Mau, Exe. Mgr of Planning & Budget	300 Lakeside Drive, 16th Floor	Oakland, CA 94612	cmau@bart.gov	510-464-6194	
Transit Agencies	BART	Marianne Payne, Department Manager	300 Lakeside Drive, 16th Floor	Oakland, CA 94612	mpayne@bart.gov	510-464-6140	
Govt. agencies	U.S. Army Corps of Engineers (USACE)	Timothy O'Rourke (new commander?)					
Govt. agencies	U.S. Army Corps of Engineers (USACE)	Mark D'Avignon – Regulatory Branch, Chief, South Section	333 Market Street	San Francisco, CA 94501-2197			
Govt. agencies	U.S. Army Corps of Engineers (USACE)	Rod Chisholm, Chief of Planning Branch, SF District	333 Market Street	San Francisco, CA 94501-2197			
Govt. agencies	U.S. Army Corps of Engineers (USACE)	Rob Lawrence	333 Market Street	San Francisco, CA 94105-1831			
Govt. agencies	Regional Water Quality Control Board (RWQCB)	Elizabeth Christian	1515 Clay Street, Suite 1400	Oakland, CA 94612		510-622-2330	510-622-2459
Govt. agencies	Regional Water Quality Control Board (RWQCB)	Randy Lee	1515 Clay Street, Suite 1400	Oakland, CA 94612		510-622-2375	
Govt. agencies	Regional Water Quality Control Board (RWQCB)	Bruce Wolfe – Executive Officer	1515 Clay Street, Suite 1400	Oakland, CA 94612		510.622-2314	
Govt. agencies	Bay Area Air Quality Management District (BAAQMD)	New Contact-Terry Carter	939 Ellis Street	San Francisco, CA 94109			
Govt. agencies	Bay Area Air Quality Management District (BAAQMD)	William C. Norton, Executive Officer/APCO	939 Ellis Street	San Francisco, CA 94109			
Govt. agencies	National Oceanographic and Atmospheric Administration (NOAA) Fisheries – National Marine Fisheries Service (NMFS)	Gary Stern	777 Sonoma Ave., Room 325	Santa Rosa, CA 95404	gary.stern@noaa.gov	707-575-6060	707-578-3435
Govt. agencies	National Oceanographic and Atmospheric Administration (NOAA) Fisheries – National Marine Fisheries Service (NMFS)	Laura Hoberecht, Fishery Biologist	777 Sonoma Ave., Room 325	Santa Rosa, CA 95404	Brian.Mulvey@noaa.gov	707-575-6056	
Govt. agencies	National Oceanographic and Atmospheric Administration (NOAA) Fisheries – National Marine Fisheries Service (NMFS)	David Woodbury	777 Sonoma Ave., Room 325	Santa Rosa, CA 95404	David.P.Woodbury@noaa.gov	707-575-6088	
Govt. agencies	National Oceanographic and Atmospheric Administration (NOAA) Fisheries – National Marine Fisheries Service (NMFS)	James R. Bybee, Northern California Habitat Manager	777 Sonoma Ave., Room 325	Santa Rosa, CA 95404			
Govt. agencies	Bay Conservation and Development District (BCDC)	Will Travis – Executive Director	50 California Street, Suite 2600	San Francisco, CA 94111	travis@bcdc.ca.gov	415-352-3653	415-352-3606
Govt. agencies	Bay Conservation and Development District (BCDC)	Brenda Goeden, Dredging Management and Legislative	50 California Street, Suite 2600	San Francisco, CA 94111			
Govt. agencies	Bay Conservation and Development District (BCDC)	Lindy Lowe – Coastal Planner	50 California Street, Suite 2600	San Francisco, CA 94111	lindyl@bcdc.ca.gov	415-352-3642	415-352-3606
Govt. agencies	Bay Conservation and Development District (BCDC)	Steve McAdam	50 California Street, Suite 2600	San Francisco, CA 94102-6080			
Govt. agencies	US Coast Guard	- Vessel Traffic Safety					
Govt. agencies	US Coast Guard, Marine Safety Office, SF Bay	David Kranking, Commander USCG	121 Via La Cumbre	Greenbrae, CA 94904			
Govt. agencies	California State Lands Commission	Nanci Smith	100 Howe Ave., Suite 100-South	Sacramento, CA 95825-8202			
Govt. agencies	California Department of Fish and Game (CDFG)	Robert Floerke	P.O. Box 47	Yountville, CA 94599			
Govt. agencies	California Department of Fish and Game (CDFG)	George Isaac	20 Lower Ragsdale Drive, Suite 10	Monterey, CA 93940	Gisaac@dfg.ca.gov	831-649-2813	
Govt. agencies	California Department of Fish and Game (CDFG)	Al Storm	PO Box 94244	Sacramento, CA 94244			
Govt. agencies	U.S. Fish and Wildlife Service (FWS)	Ryan Olah	2800 Cottage Way, Rm W2605	Sacramento, CA 95828	ryan_olah@fws.gov	916-414-6600	
Govt. agencies	U.S. Environmental Protection Agency (USEPA)	Kathleen Dadey	75 Hawthorne Street	San Francisco, CA 94105			
Govt. agencies	U.S. Environmental Protection Agency (USEPA)	Brian Ross			Ross.brian@epamail.epa.gov	415-972-3475	

APPENDIX D

SHPO, NATIVE AMERICAN, AND NORTHWEST INFORMATION CENTER CONSULTATION

U.S. Department
of Transportation
Federal Transit
Administration

REGION IX
Arizona, California,
Hawaii, Nevada, Guam
American Samoa,
Northern Mariana Islands

201 Mission Street
Suite 1650
San Francisco, CA 94105-1839
415-744-3133
415-744-2726 (fax)

SEP - 5 2007
RECEIVED
SEP 14 2007
SAN FRANCISCO BAY AREA

Milford Wayne Donaldson, FAIA
Office of Historic Preservation
California Department of Parks and Recreation
P.O. Box 942896
Sacramento CA 94296-0001

Re: APE for Berkeley Albany Ferry Terminal

Dear Mr. Donaldson:

The Federal Transit Administration (FTA) is submitting this revised APE for your review and approval as part of the Section 106 consultation process. The proposed project by the San Francisco Bay Water Transit Authority (WTA) and the Federal Transit Authority (FTA) is to construct a new ferry terminal along the Berkeley/Albany waterfront. The proposed action includes the construction of a terminal, parking lots, and dredging of a navigation channel. There are four sites currently being considered for the ferry terminal location; the Berkeley Fishing Pier, the Berkeley Marina, the Gilman Street site and the Buchanan site. These sites are identified in Figure 1 (the attachment to this letter). For the purpose of this APE determination, effects are considered for all four locations.

The FTA, in accordance with revised implementing regulations of the National Historic Preservation Act (NHPA) found at 36 CFR 800.3(a), has determined that the proposed project is an undertaking.

Archaeological APE

The FTA has determined that the undertaking's horizontal APE would consist of the ferry terminal locations, areas that would be used for parking lots and portions of navigation channels where dredging will occur. The approximate total area for each site, including dredge channel, is as follows: Berkeley Pier, 103 acres, Berkeley Marina Site, 118 acres, Gilman site, 128 acres, and Buchanan site, 124 acres. The portions of the navigational channels that fall within the APE are 150 feet wide and range in length from 10,000 to 12,000 feet. The APE for the proposed navigation channels includes a 50 foot buffer to allow for temporary anchorages and other potential disturbances related to dredging activities. Elements of this undertaking include, but are not limited to, dredging of navigation channels, grading and paving of parking lots, installation of utility distribution systems, and construction of fixed piers, gangways and floats. Figure 1 depicts the horizontal APE for this undertaking.

The vertical APE has been determined to range in depth, due to various types of construction activities. Some of the construction activity associated with this undertaking will have negligible vertical disturbance, e.g. re-striping of existing surface parking lots. Activities

associated with this undertaking that have been determined to have vertical disturbance include dredging, construction of fixed piers and trenching of utility corridors. It is estimated that the maximum vertical disturbance of these activities will be up to eight feet within the navigation channels and up to five feet for utility trenches.

Architectural APE

The FTA has determined that the undertaking's architectural APE would extend from the northern boundary of the Golden Gate Fields property to the south end of the Berkeley Marina complex, including the existing Berkeley Fishing Pier and any associated ruins, as depicted in Figure 1. The architectural APE would be bounded by Interstate 80 to the east and extend to the end of the Berkeley Fishing Pier to the west.

Pursuant to the revised implementing regulations of the NHPA found at 36 CFR 800.4(a) (1), the FTA seeks your concurrence with its determination of the APE.

Please call FTA's Alex Smith at (415) 744-2599 or WTA's John Sindzinski at (415) 364-3182 if you have any questions, or if you need further information.

Sincerely,

Raymond Tellis for

Leslie T. Rogers
Regional Administrator

Attachment

cc: John Sindzinski, WTA

Facsimile Transmittal

Transmitted By:

Name:	**Maureen S. Kick**	**Date:**	May 30, 2007
Company:	URS, Oakland, CA	**Number of Pages** (including cover):	2
Fax #:	510/874-3268	**Phone #:**	510/874-3107

Please Deliver To:

Name:	Ms. Debbie Pilas-Treadway		
Company:	NAHC		
Fax #:	916/657-5390	**Office Phone #:**	916/653-4040
Subject:	Data Request for Proposed Berkeley/Albany Ferry Terminal, Alameda County, CA		

Dear Ms. Pilas-Treadway,

The purpose of this letter is to apprise you of a proposed project of the San Francisco Bay Water Transit Authority (WTA) to construct a new ferry terminal along the Berkeley/Albany waterfront. The project is located along the San Francisco Bay shoreline in the cities of Berkeley and Albany, CA. The proposed action includes construction of a terminal, parking lots, and dredging of channels.

The project is located on the following USGS 7.5' quad and Townships, Ranges, and Sections:

Alameda County

Quad: Richmond Township: 1N Range: 4W Section: Unsectioned

Quad: West Oakland Township: 1N Range: 4W Section: Unsectioned

**Please see the attached map for exact project location.

I am requesting the following information:

- Groups or individuals the NAHC believes should be notified regarding this project.
- Identification by the NAHC of any sacred lands within the subject lands that are listed within the Sacred Lands File.

Thank you for your attention to this request.

Sincerely,

Maureen Kick

Maureen S. Kick, MA
Archaeologist
URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612
Phone: 510/874-3037 Fax: 510/874-3268

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM



ALAMEDA
COLUSA
CONTRA COSTA
LAKE

MARIN
MENDOCINO
MONTEREY
NAPA
SAN BENITO
SAN FRANCISCO

SAN MATEO
SANTA CLARA
SANTA CRUZ
SOLANO
SONOMA
YOLO

Northwest Information Center
Sonoma State University
1303 Maurice Avenue
Rohnert Park, California 94928-3609
Tel: 707.664.0880 • Fax: 707.664.0890
E-mail: leigh.jordan@sonoma.edu

MEMO

Date: 26 March 2007

To: Michelle Jerman, URS Corporation, 1333 Broadway, Suite 800, Oakland, CA 94612

From: Lisa Hagel

Re: Berkeley/Albany Ferry Terminal, NWIC File #: 06-1344

Richmond & Oakland West 7.5'

Sites in or within 1/2 mile radius of the project area: P-01-10617, 10810, 10811, 10543, 10658, 10683, 10497, & 10281; CA-ALA-306 & 390 are within the project area. P-01-81 & 10816; P-07-2582; CA-ALA-305; CA-CCO-301, 302, 29, & 303 are within ½ mile. Enclosed are copies of the site record forms. The site locations are plotted on the enclosed maps.

Studies in or within 1/2 mile radius of the project area: Please refer to the enclosed bibliographic references for the reports within the project area and within ½ mile. The study locations are plotted on the enclosed maps.

OHP Historic Properties Directory: Copied the indices for Albany & Berkeley.

California Inventory of Historical Resources: Copied the index pages with listings in Berkeley.

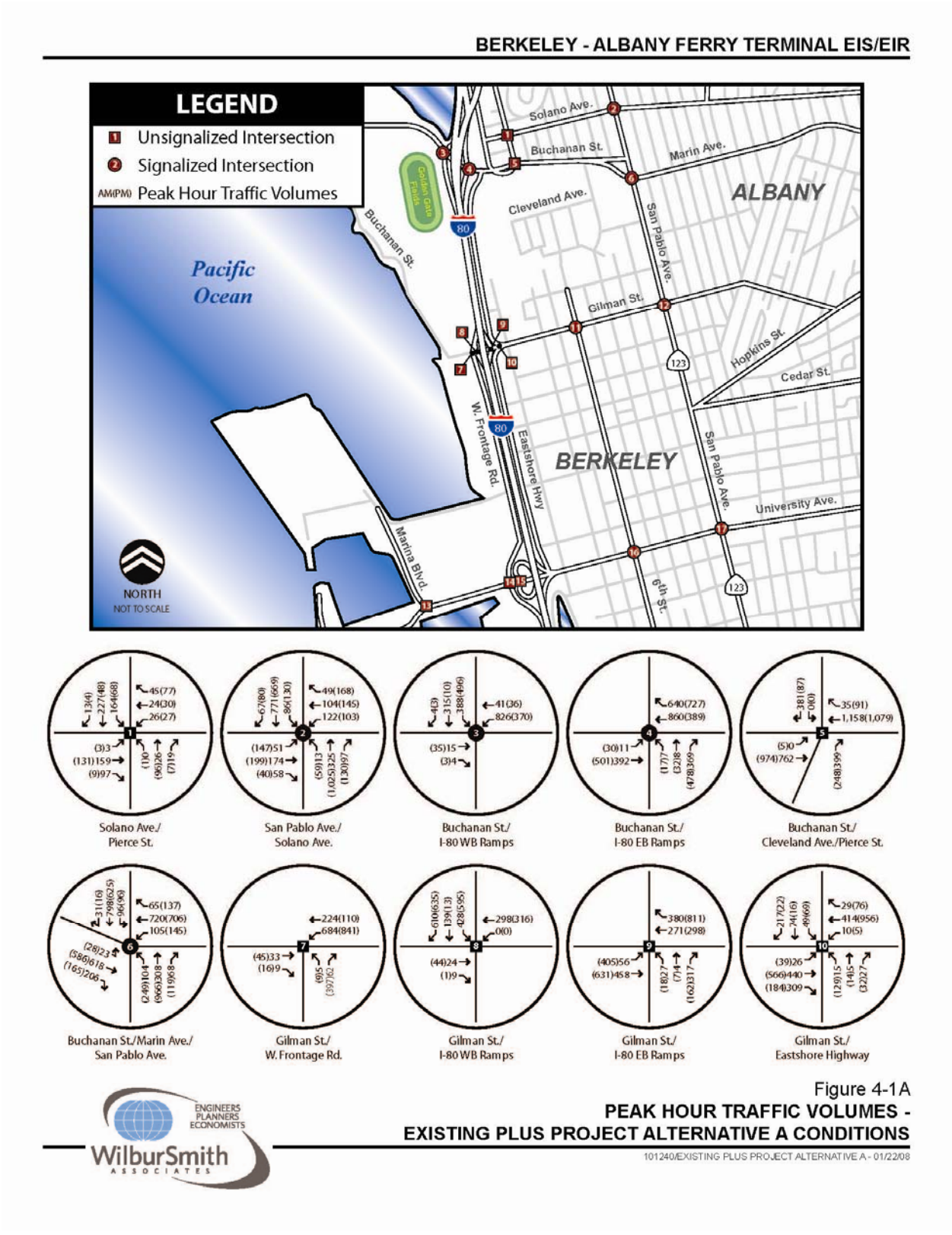
Historic maps (copied the pertinent sections of the maps):
1867 GLO Plat Map, T1N, R4W
1859 & 1871 Rancho San Antonio Plat Maps
1863 Rancho San Pablo Plat Map
1878 Thompson & West, Historical Atlas Map of Alameda County, California
1895 USGS San Francisco Sheet
1915 USGS San Francisco Quadrangle
1942 U.S. Army Corps of Engineers, San Francisco Quadrangle, Grid Zone "G"

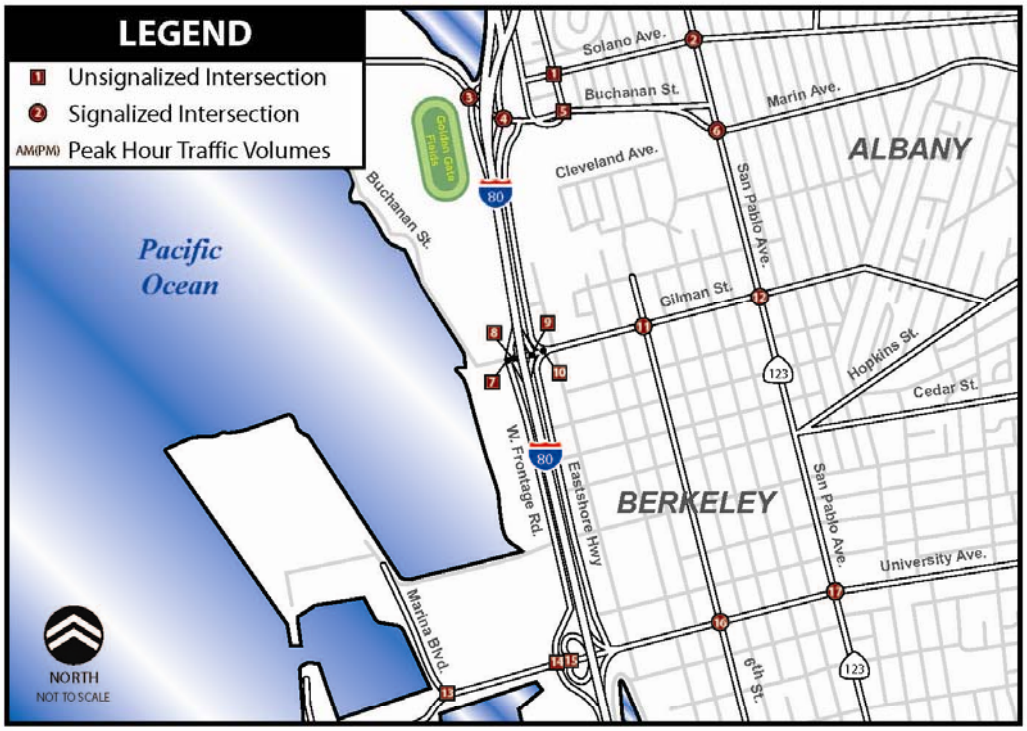
APPENDIX E

TRANSPORTATION BACK-UP

APPENDIX E

TRANSPORTATION BACK-UP





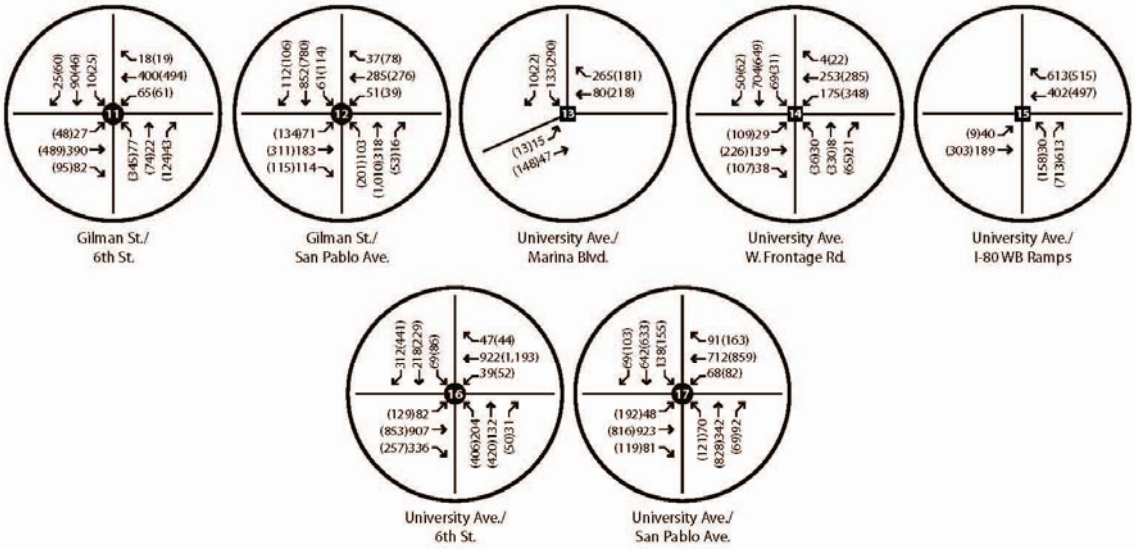
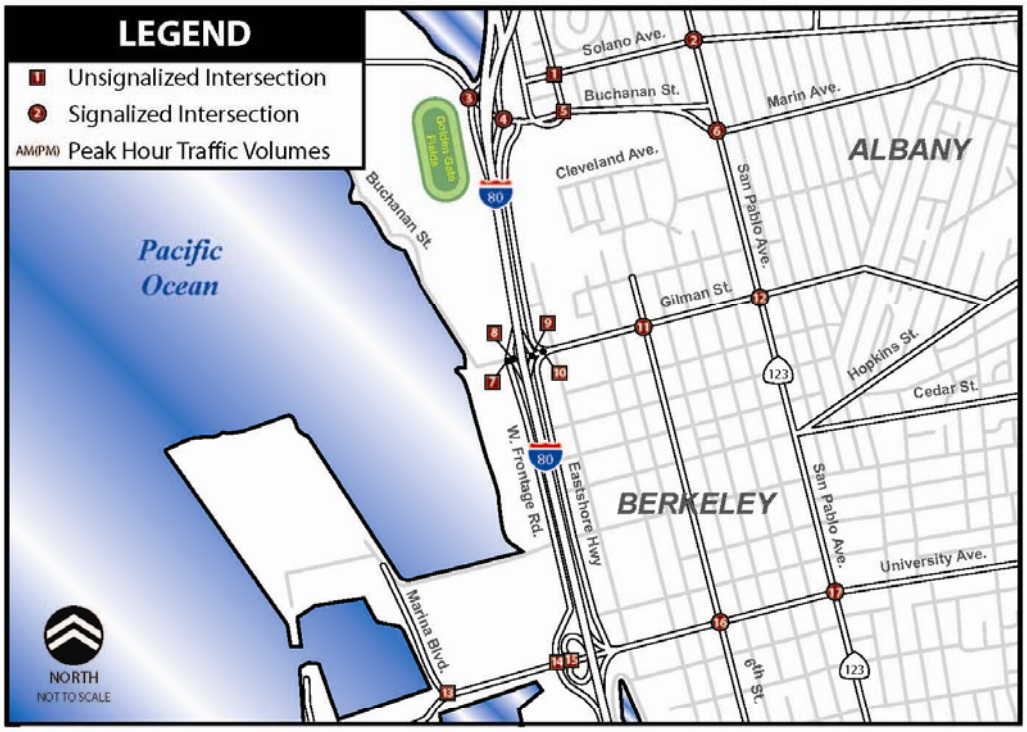


Figure 4-1B
PEAK HOUR TRAFFIC VOLUMES - EXISTING PLUS PROJECT ALTERNATIVE A CONDITIONS

101240/EXISTING PLUS PROJECT ALTERNATIVE A - 01/22/08



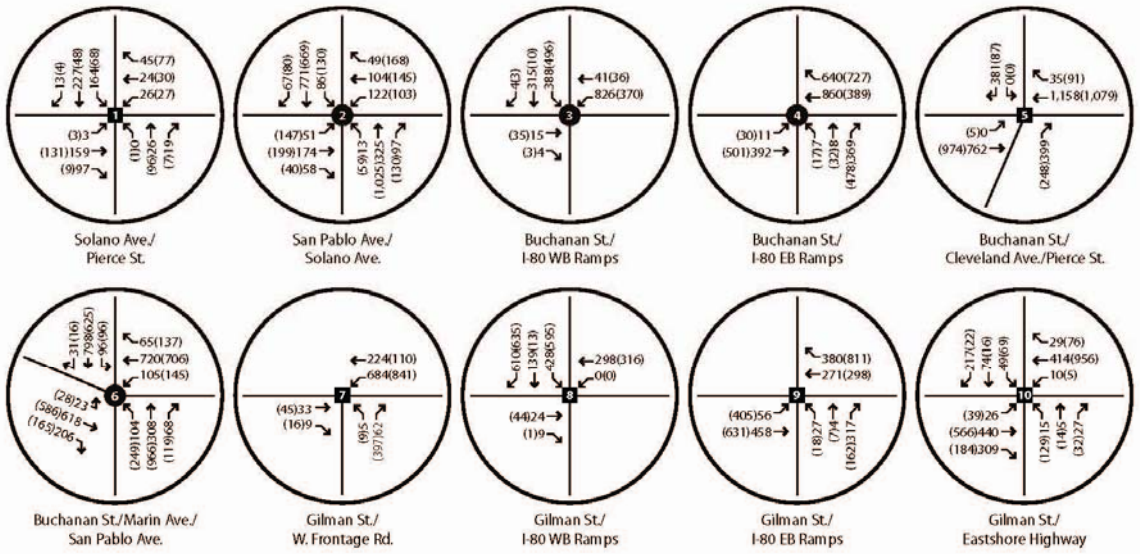
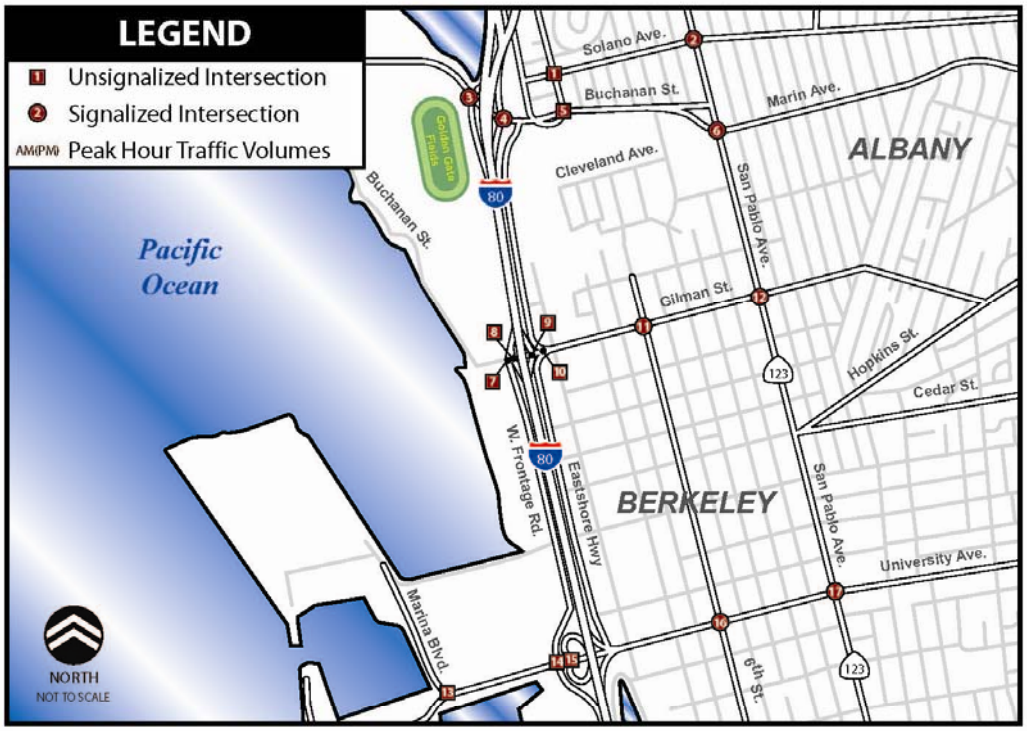


Figure 4-2A
PEAK HOUR TRAFFIC VOLUMES - EXISTING PLUS PROJECT ALTERNATIVE B CONDITIONS

101240/EXISTING PLUS PROJECT ALTERNATIVE B - 01/22/08

ENGINEERS PLANNERS ECONOMISTS
WilburSmith ASSOCIATES



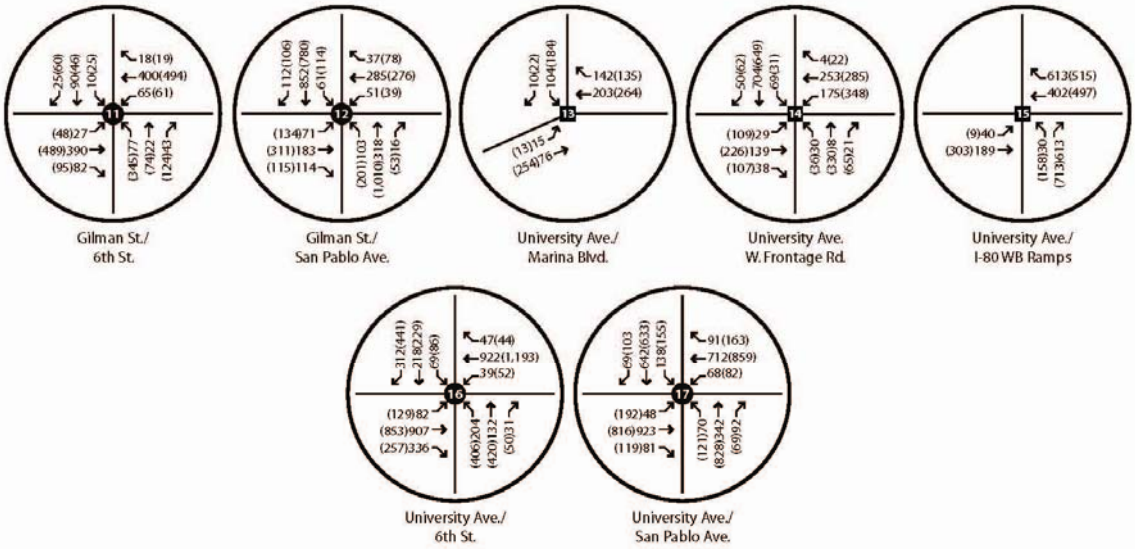
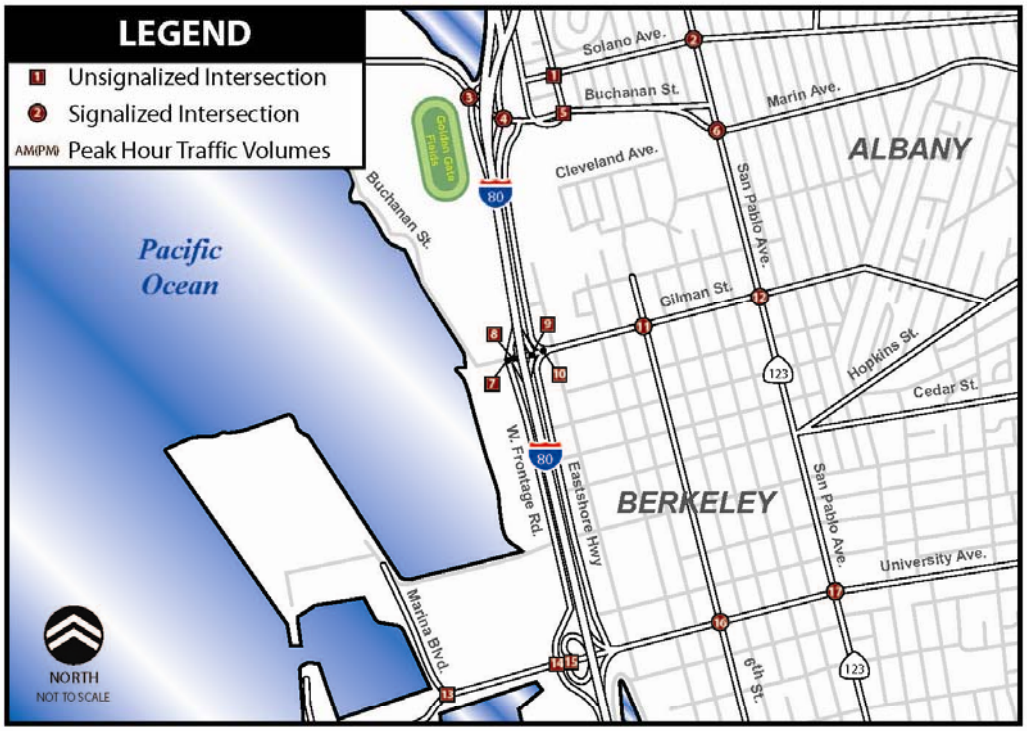


Figure 4-2B
PEAK HOUR TRAFFIC VOLUMES - EXISTING PLUS PROJECT ALTERNATIVE B CONDITIONS

101240/EXISTING PLUS PROJECT ALTERNATIVE B - 01/22/08



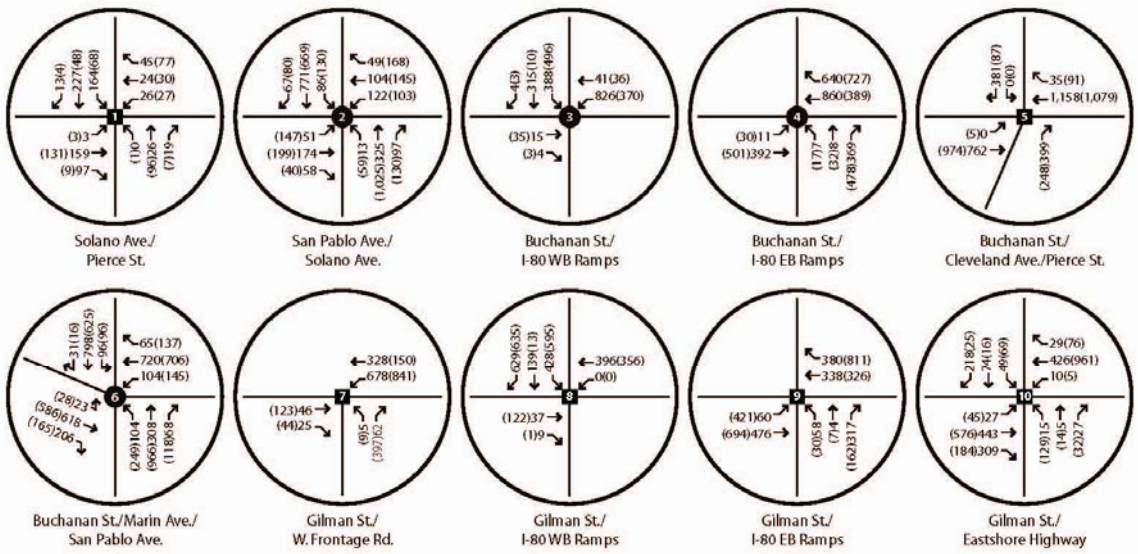
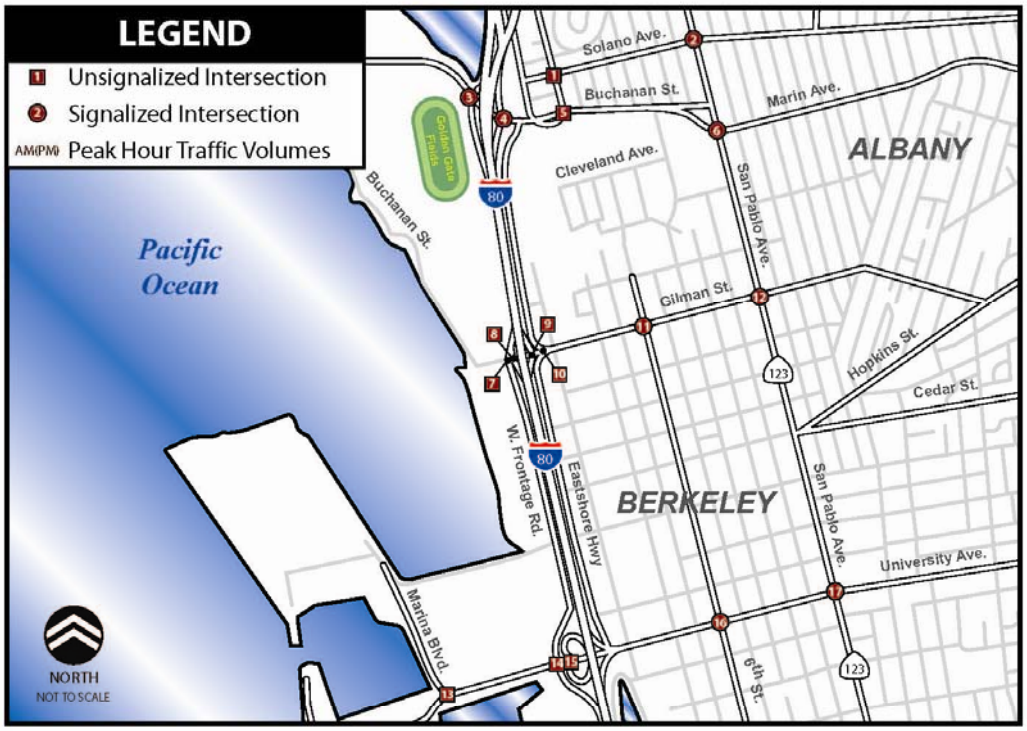


Figure 4-3A
PEAK HOUR TRAFFIC VOLUMES - EXISTING PLUS PROJECT ALTERNATIVE C CONDITIONS

101240/EXISTING PLUS PROJECT ALTERNATIVE C - 01/22/08

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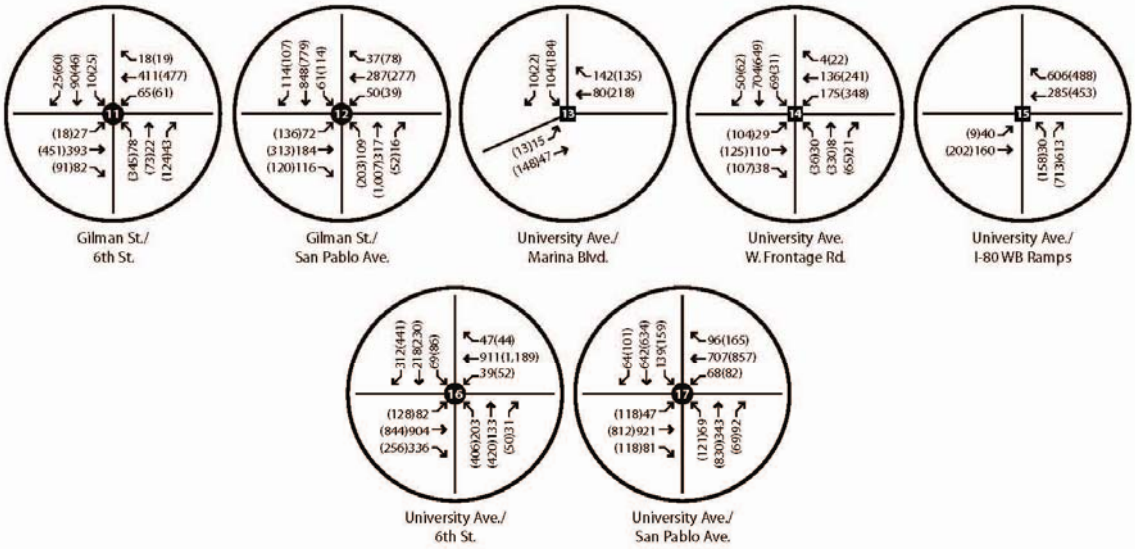
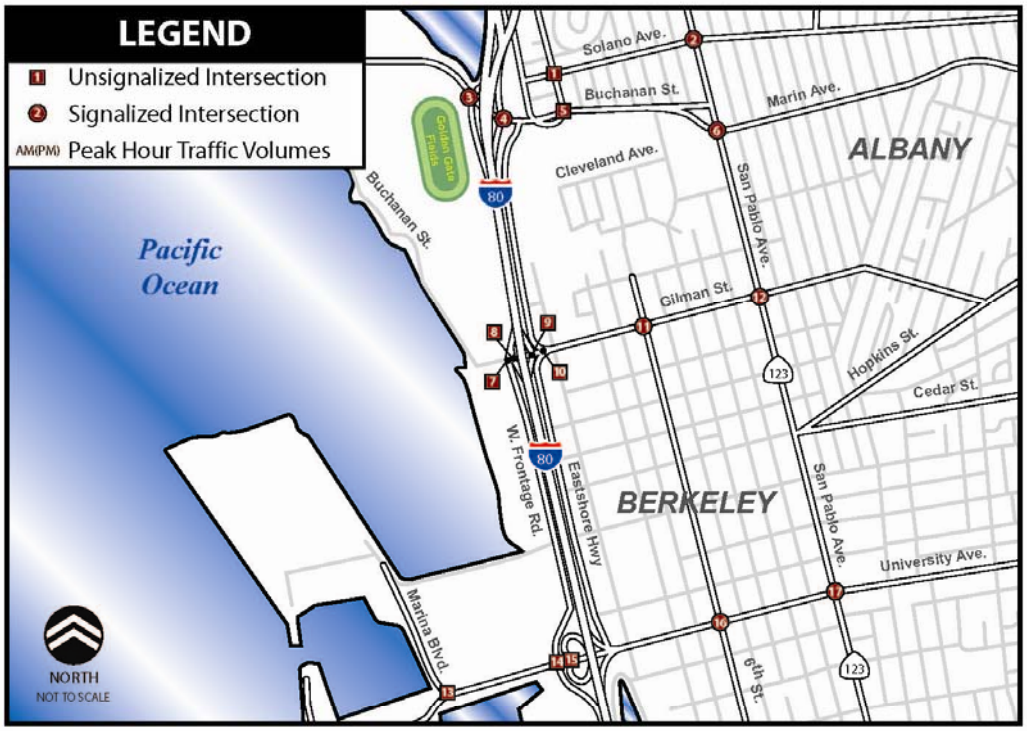


Figure 4-3B
PEAK HOUR TRAFFIC VOLUMES - EXISTING PLUS PROJECT ALTERNATIVE C CONDITIONS

101240/EXISTING PLUS PROJECT ALTERNATIVE C - 01/22/08

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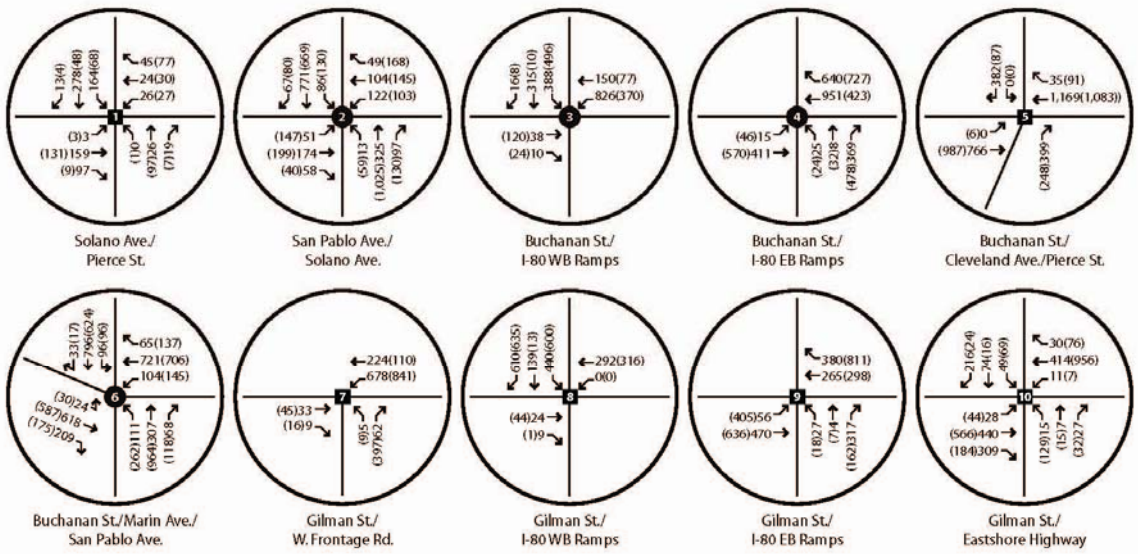


Figure 4-4A
PEAK HOUR TRAFFIC VOLUMES - EXISTING PLUS PROJECT ALTERNATIVE D CONDITIONS

101240/EXISTING PLUS PROJECT ALTERNATIVE D - 01/22/08

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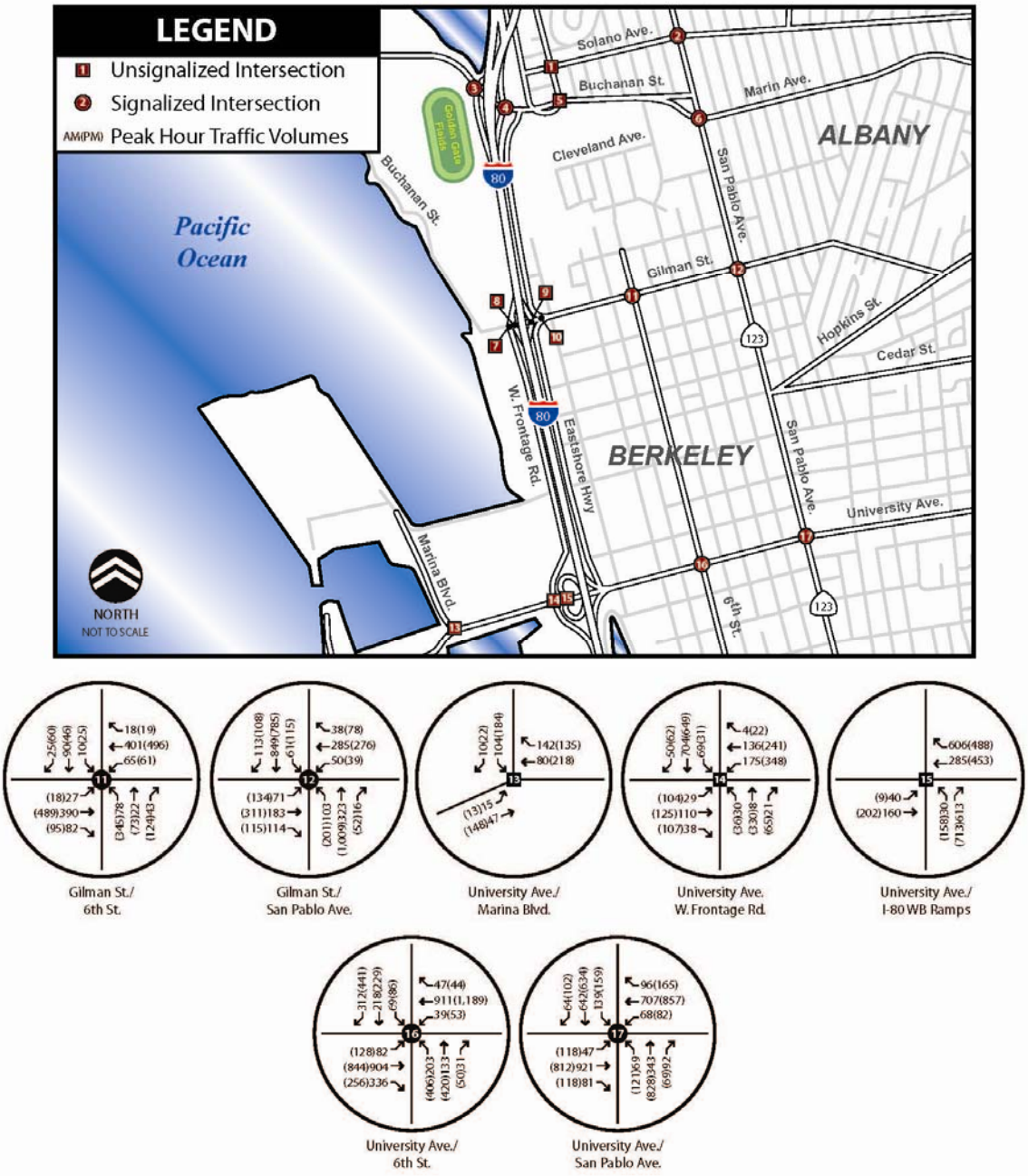
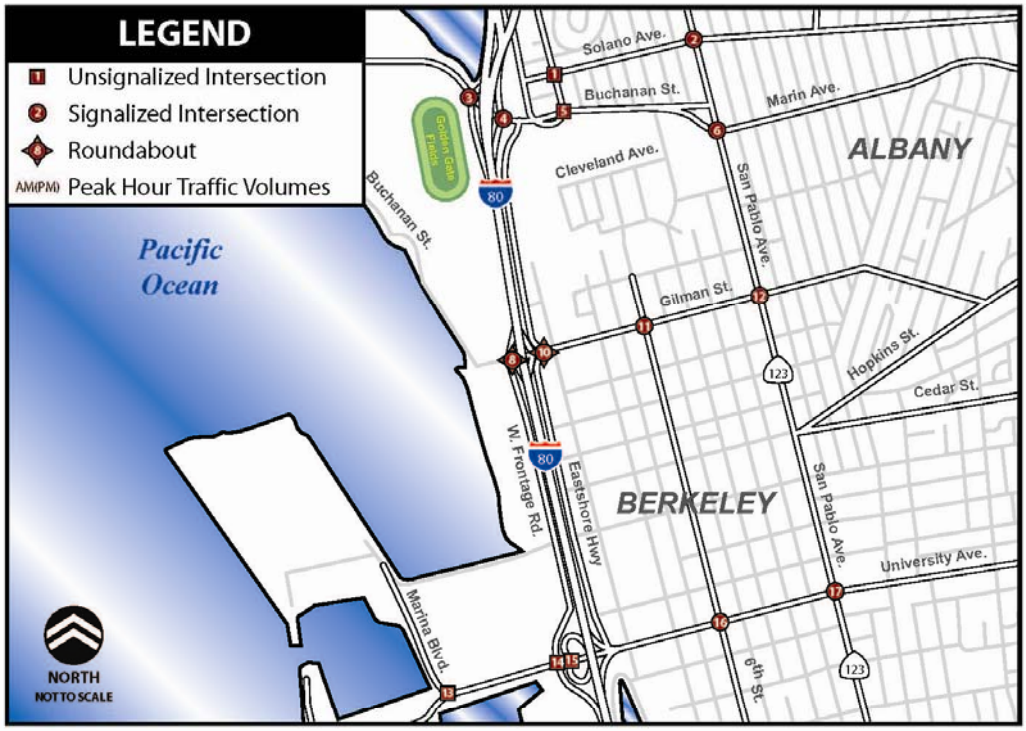


Figure 4-4B
PEAK HOUR TRAFFIC VOLUMES - EXISTING PLUS PROJECT ALTERNATIVE D CONDITIONS

101240/EXISTING PLUS PROJECT ALTERNATIVE D - 01/22/08

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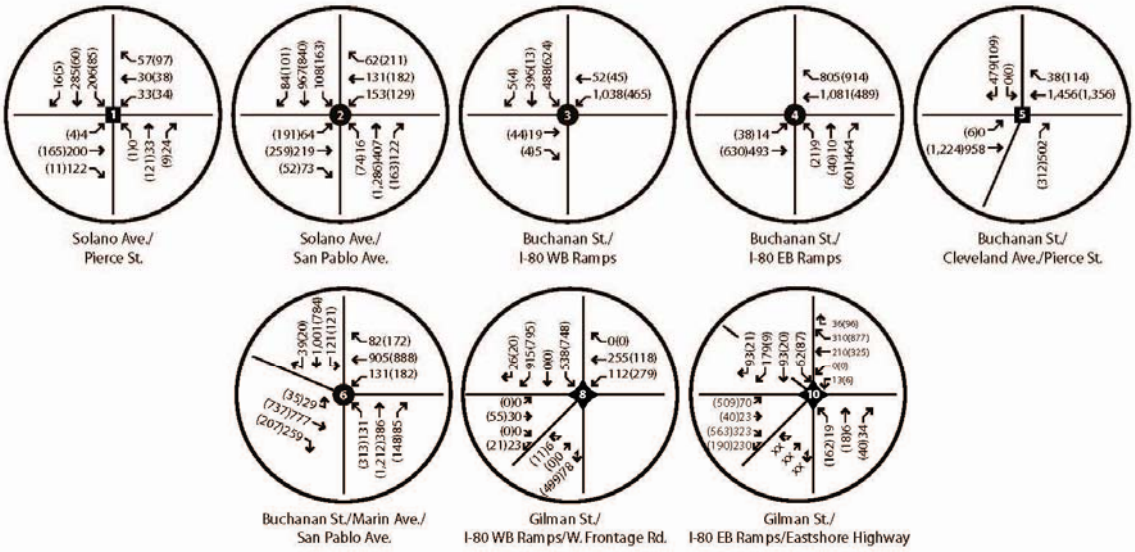
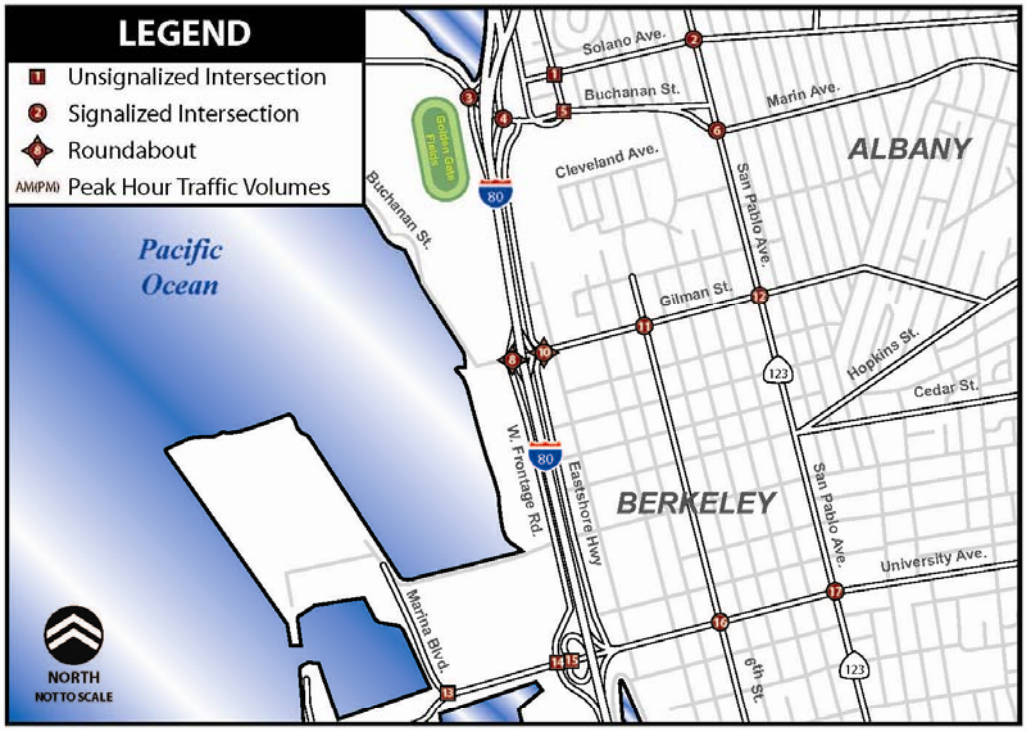


Figure 4-10A
PEAK HOUR TRAFFIC VOLUMES - YEAR 2030 CONDITIONS

101240/2030 CONDITIONS - 01/18/08



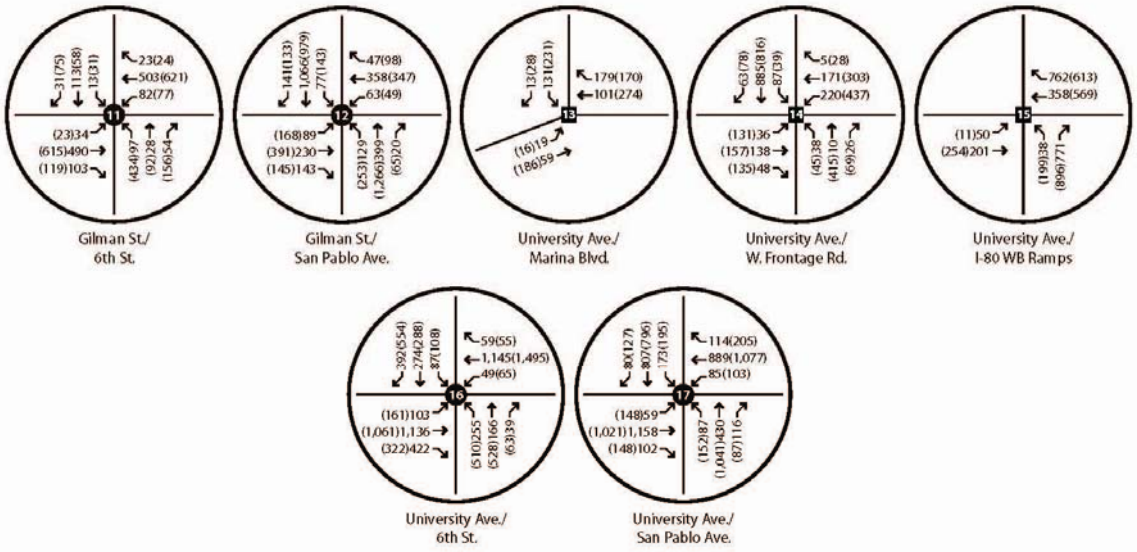


Figure 4-10B
PEAK HOUR TRAFFIC VOLUMES - YEAR 2030 CONDITIONS

101240/2030 CONDITIONS - 01/18/08

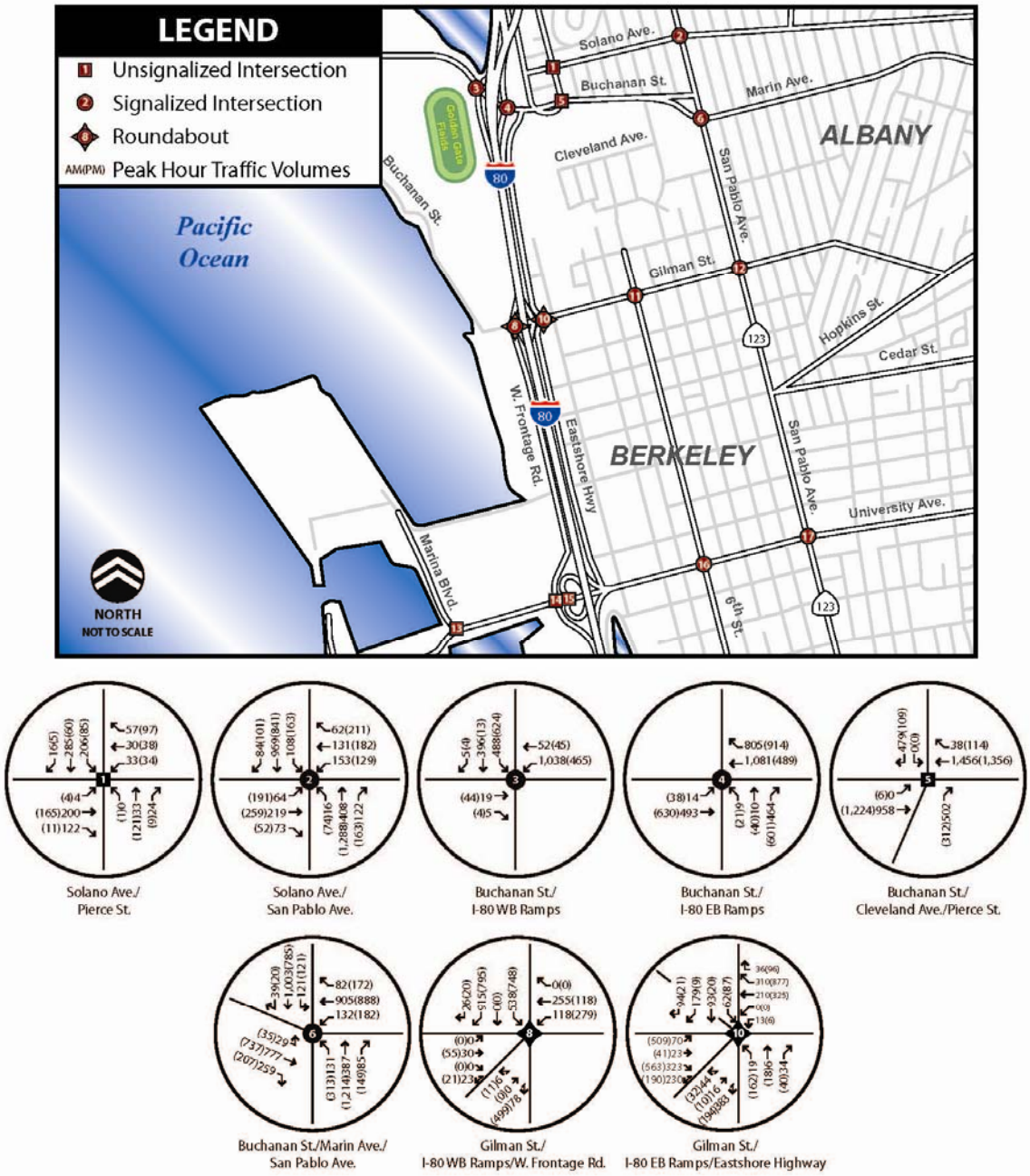
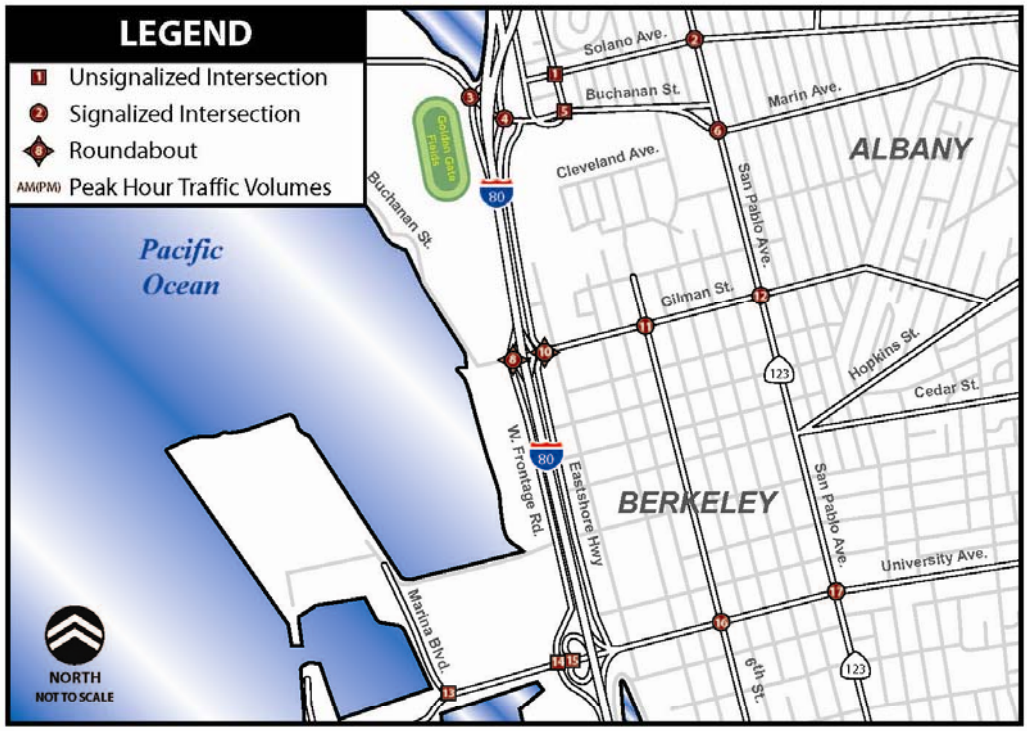


Figure 4-11A
PEAK HOUR TRAFFIC VOLUMES - YEAR 2030 PLUS PROJECT ALTERNATIVE A CONDITIONS

101240/2030 PLUS PROJECT CONDITIONS ALTERNATIVE A - 01/23/08



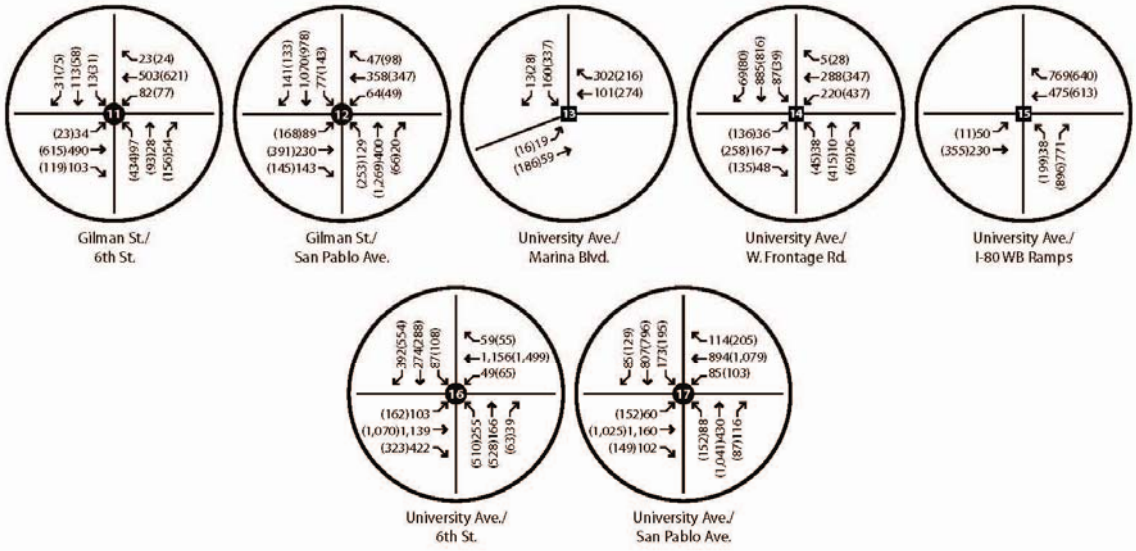
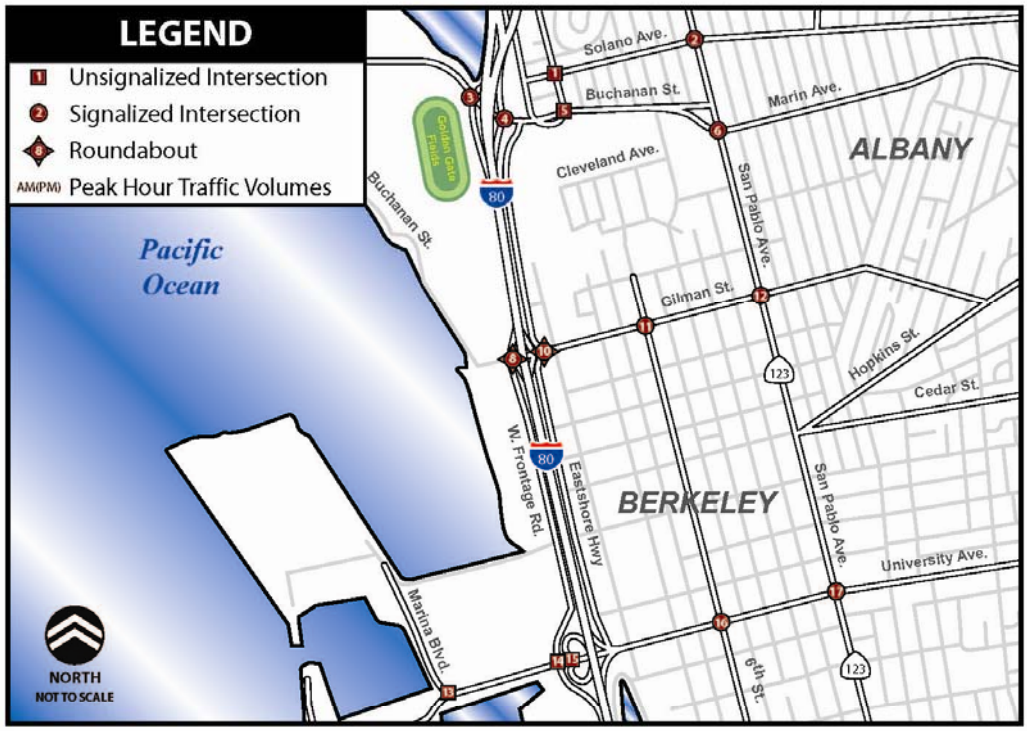


Figure 4-11B
PEAK HOUR TRAFFIC VOLUMES - YEAR 2030 PLUS PROJECT ALTERNATIVE A CONDITIONS

101240/2030 PLUS PROJECT CONDITIONS ALTERNATIVE A - 01/23/08



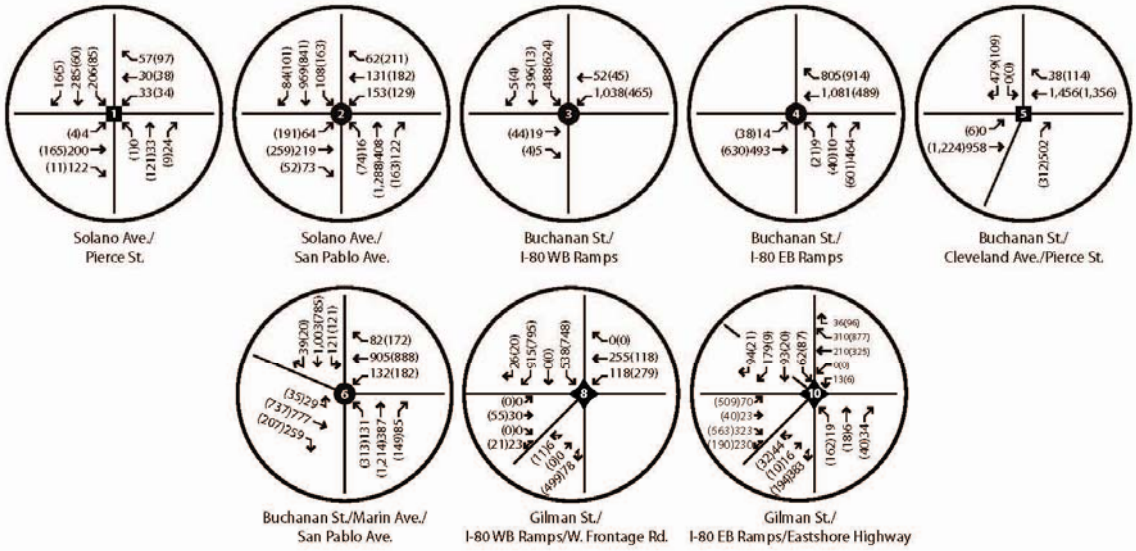
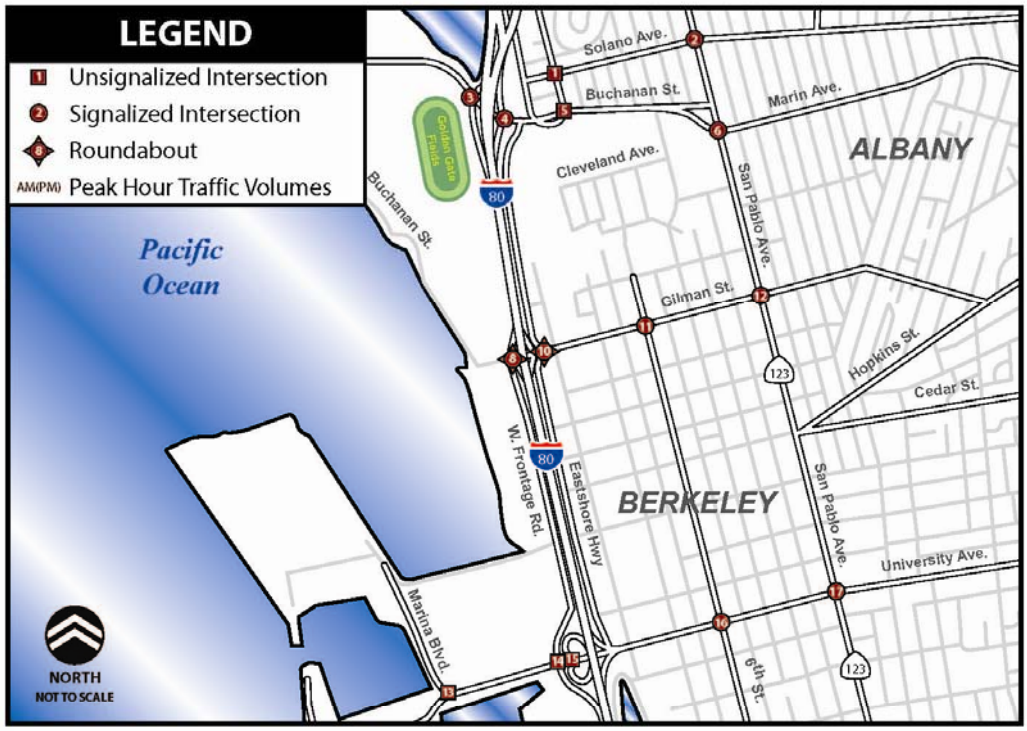


Figure 4-12A
PEAK HOUR TRAFFIC VOLUMES - YEAR 2030 PLUS PROJECT ALTERNATIVE B CONDITIONS

ENGINEERS PLANNERS ECONOMISTS
WilburSmith ASSOCIATES

101240/2030 PLUS PROJECT CONDITIONS ALTERNATIVE B - 01/23/08



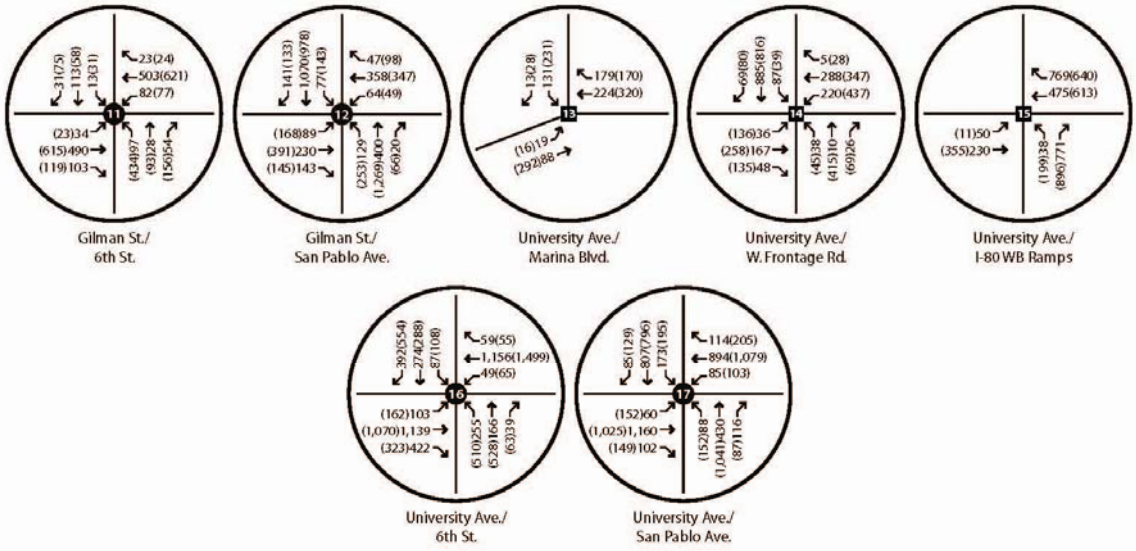
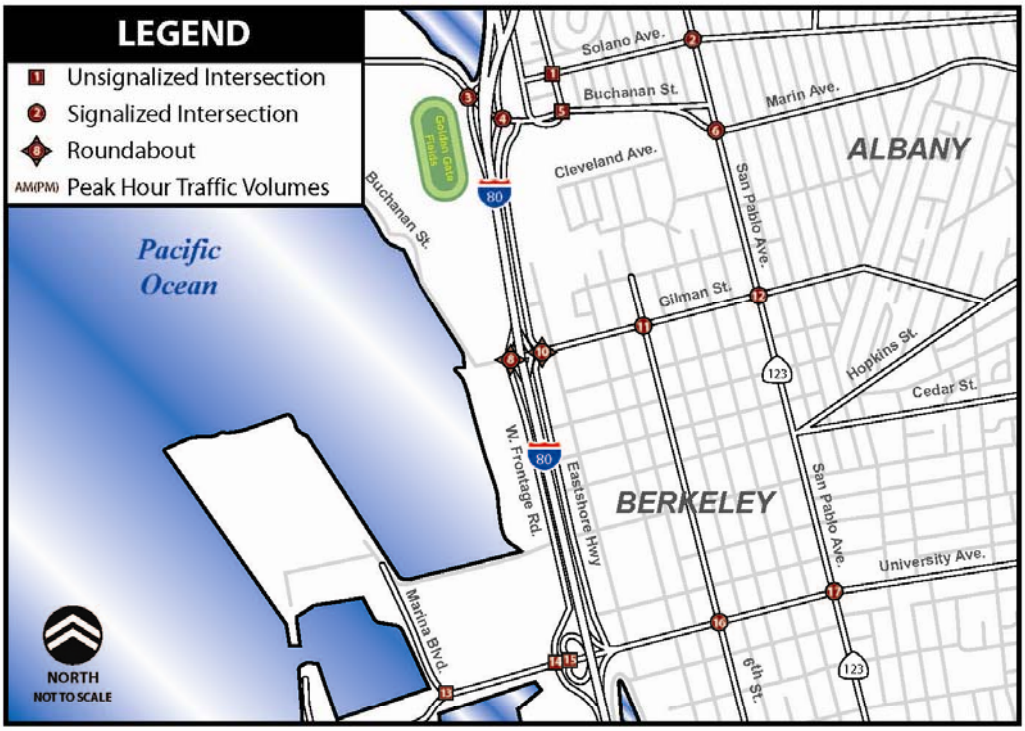


Figure 4-12B
PEAK HOUR TRAFFIC VOLUMES - YEAR 2030 PLUS PROJECT ALTERNATIVE B CONDITIONS

101240/2030 PLUS PROJECT CONDITIONS ALTERNATIVE B - 01/23/08



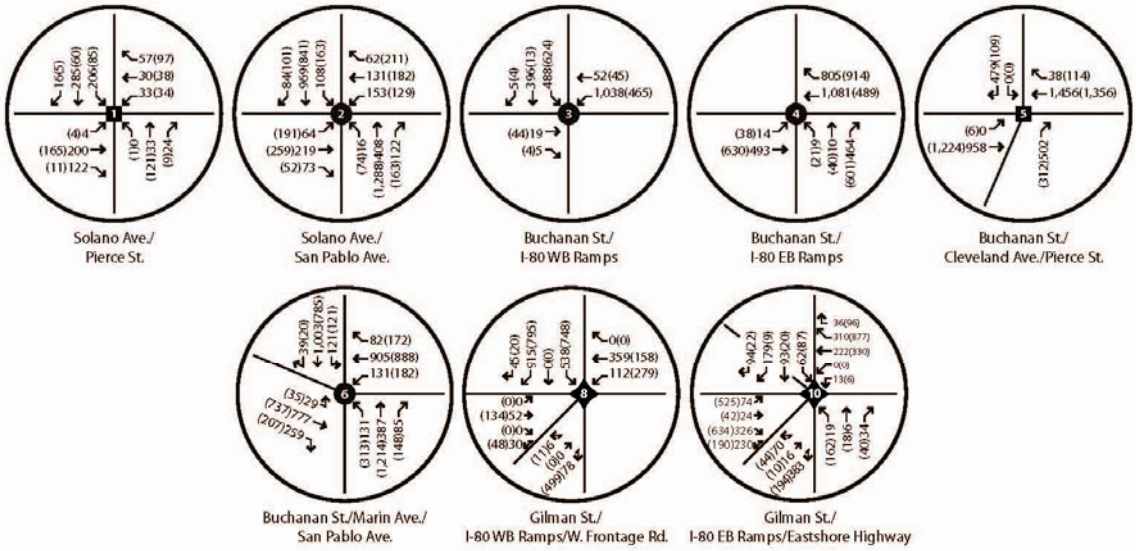
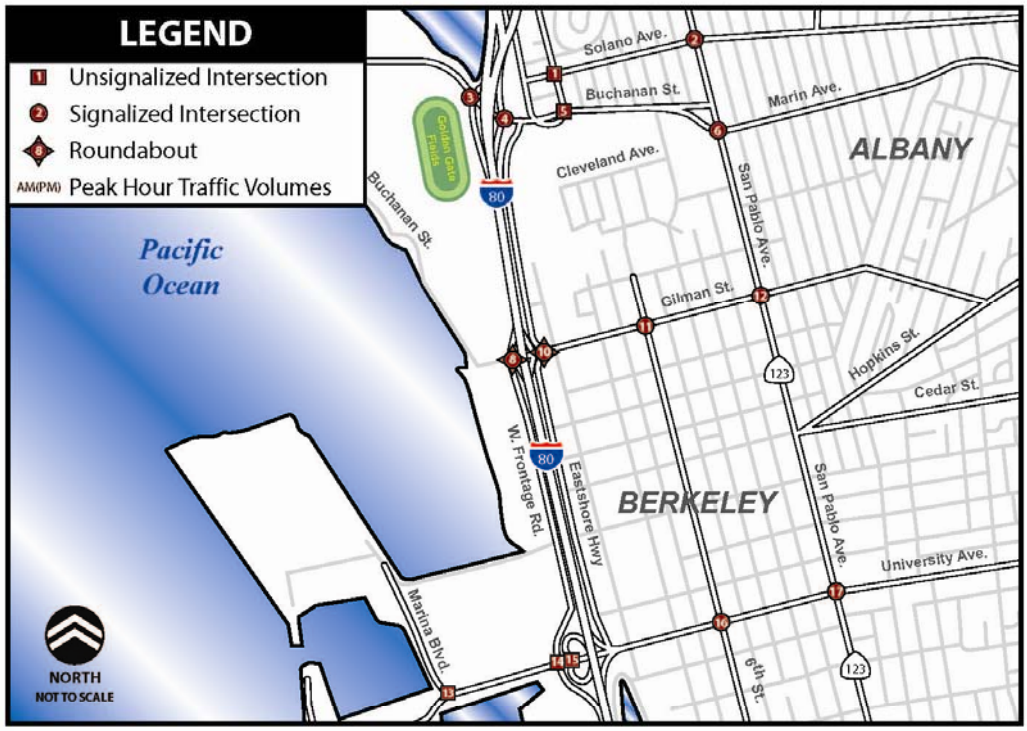


Figure 4-13A
PEAK HOUR TRAFFIC VOLUMES - YEAR 2030 PLUS PROJECT ALTERNATIVE C CONDITIONS

101240/2030 PLUS PROJECT CONDITIONS ALTERNATIVE C - 01/23/08



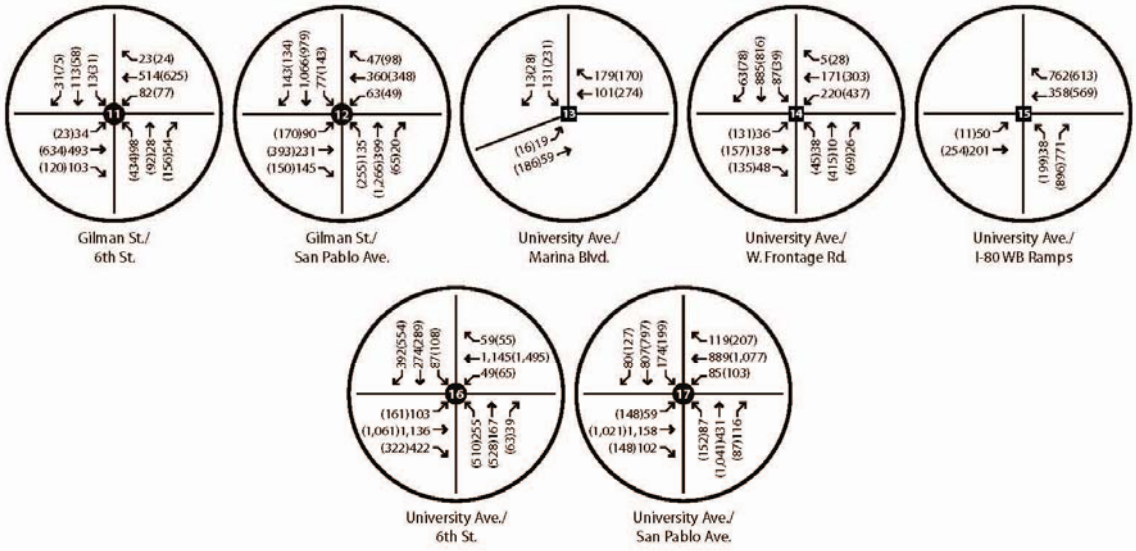
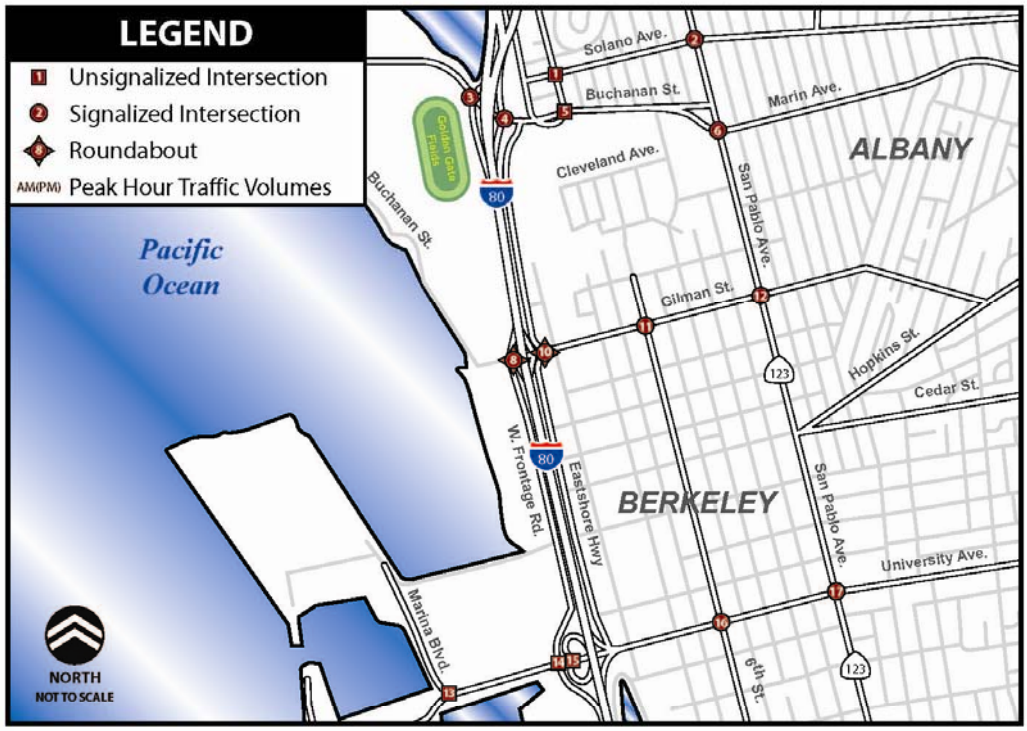


Figure 4-13B
PEAK HOUR TRAFFIC VOLUMES - YEAR 2030 PLUS PROJECT ALTERNATIVE C CONDITIONS

101240/2030 PLUS PROJECT CONDITIONS ALTERNATIVE C - 01/23/08



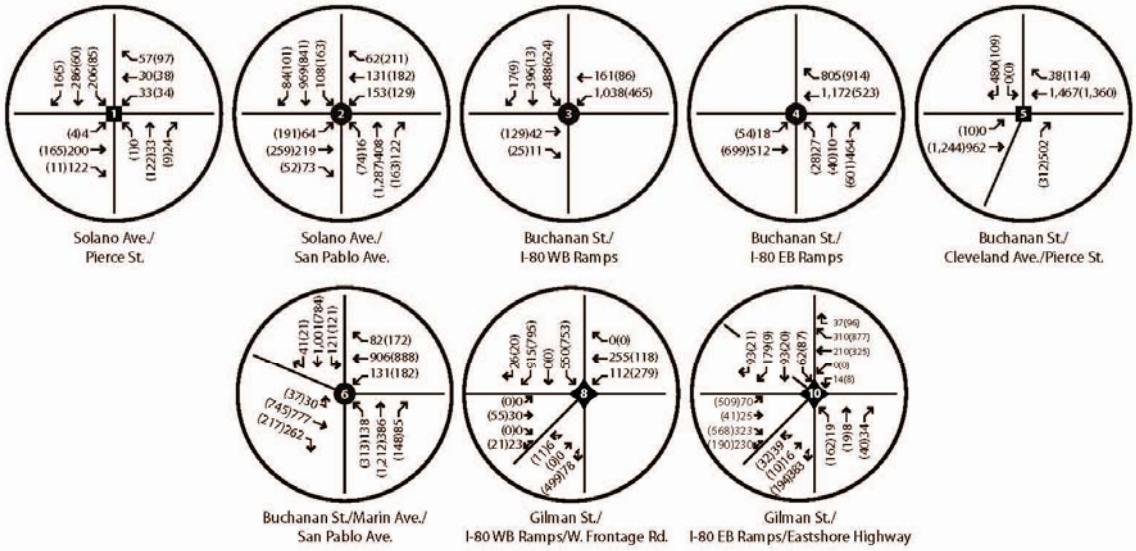
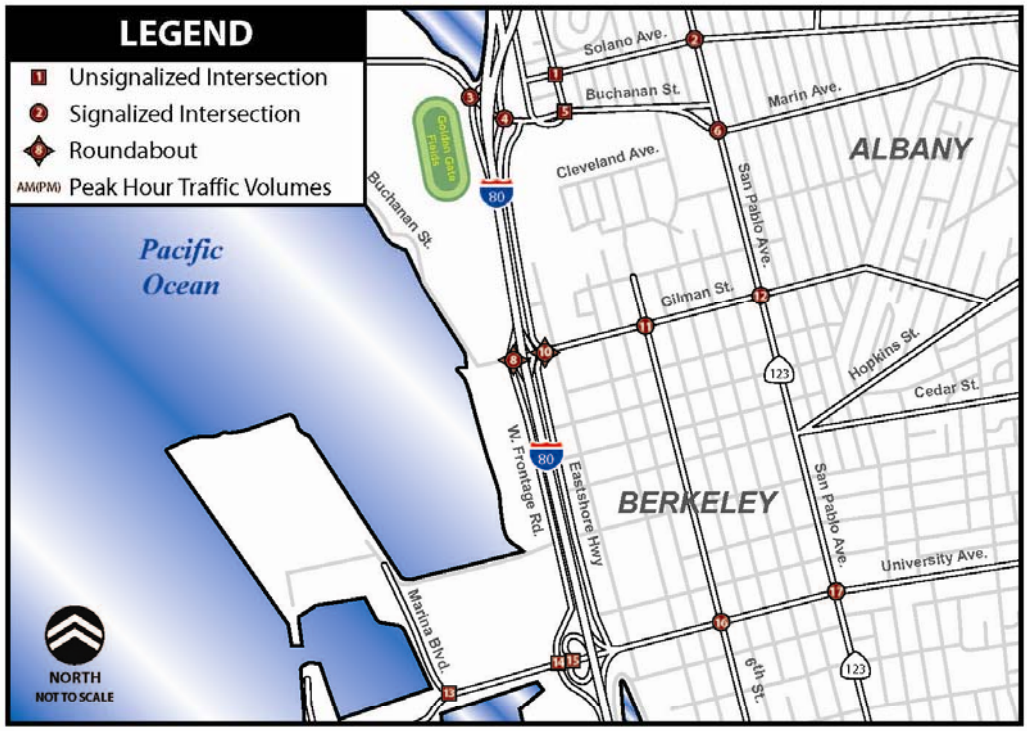


Figure 4-14A
PEAK HOUR TRAFFIC VOLUMES - YEAR 2030 PLUS PROJECT ALTERNATIVE D CONDITIONS

101240/2030 PLUS PROJECT CONDITIONS ALTERNATIVE D - 01/23/08

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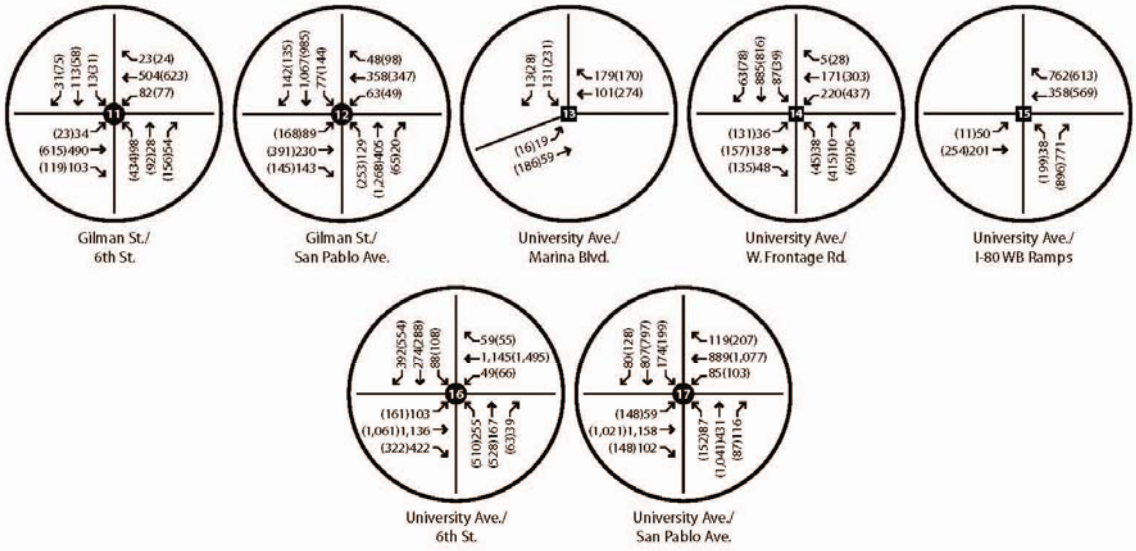


Figure 4-14B
PEAK HOUR TRAFFIC VOLUMES - YEAR 2030 PLUS PROJECT ALTERNATIVE D CONDITIONS

101240/2030 PLUS PROJECT CONDITIONS ALTERNATIVE D - 01/23/08

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WilburSmith ASSOCIATES

APPENDIX F

BIOLOGICAL RESOURCES:
PROTECTED SPECIES AND HABITAT IN THE STUDY AREA

Table F-1
Special-Status Species Potentially Occurring Within the WTA Ferry Service Expansion Area

Common Name	Scientific Name	Status			Supporting Habitat/Flowering Period
		Federal	State	CNPS	
Mammals					
Pallid bat	*Antrozous pallidus*		SC	NA	Rocky outcrop regions with scattered desert scrub, ranges up into the forested oak and pine regions. roosts in rock crevices and buildings, less frequently in mines, caves, and hollow trees.
Right whale	*Balaena glacialis*	E	FP	NA	Near shore in shallow waters, large bays
Southern sea otter	*Enhydra lutris nereis*	T	None	NA	Pacific Ocean nearshore marine waters; historically in San Francisco Bay
Gray whale	*Eschrichtius robustus*	MMPA	None	NA	Pacific Ocean marine waters; occasionally in San Francisco Bay
Steller sea lion	*Eumetopias jubatus*	T	None	NA	Isolated shoreline and rocky islands from San Mateo County north
Silver-haired bat	*Lasionycteris noctivagans*		SC	NA	Coniferous or mixed coniferous and deciduous forest, especially in areas of Old Growth.
San Pablo vole	*Microtus californicus snpabloensis*		SC	NA	
Big free-tailed bat	*Nyctinomops macrotis*		SC	NA	Rocky areas of desert scrub or coniferous forests. Roosts by day in crevices on cliff faces
Harbor seal	*Phoca vitulina*	MMPA	None	NA	Shallow water; in and near mouths of rivers; sand bars
Salt Marsh Harvest Mouse	*Reithrodonyomys raviventris*	E	E	NA	Coastal salt marsh, dense stands of pickleweed

Table F-1
Special-Status Species Potentially Occurring Within the WTA Ferry Service Expansion Area

Common Name	Scientific Name	Status			Supporting Habitat/Flowering Period
		Federal	State	CNPS	
Alameda Island mole	*Scapanus latimanus parvus*	SC	None	NA	Grassland, pasture, montane and valley foothill riparian, cropland, wet meadow, open forest (not specific to subspecies).
Suisun shrew	*Sorex irnatys sinuosus*		SC	NA	Tidal marshes and brackish marshes. Needs dense, low-lying cover where small invertebrates are abundant. Detritus above the mean high-tide line is required for nesting and foraging sites. Contiguous upland habitats offering sufficient cover and food during prolonged flooding of marshes is also essential.
Salt-Marsh Wandering Shrew	*Sorex vagrans halicoetes*	SC	SC	NA	Salt marshes 6 to 8 feet above sea level where abundant driftwood is scattered throughout pickleweed.
California Sea Lion	*Zalophus californicus californianus*	MMPA	None	NA	Shallow water; on offshore rocks, sand bars, bays
Birds					
Cooper's Hawk	*Accipter cooperii*		SC	NA	Forests and riparian woodlands
Short-eared owl	*Asio flammeus*	SC	SC	NA	Meadows, grasslands, wetlands, irrigated land
Burrowing Owl	*Athene cunicularia*	None	SC	NA	Short-grass prairie and open space; associated with burrowing mammals such as ground squirrels
Western Snowy Plover	*Charadrius alexandrinus nivosus*	T	None	NA	Sandy coastal beaches, salt pans, coastal dredges spoils sites, dry salt ponds, salt pond levees

Table F-1
Special-Status Species Potentially Occurring Within the WTA Ferry Service Expansion Area

Common Name	Scientific Name	Status			Supporting Habitat/Flowering Period
		Federal	State	CNPS	
Northern Harrier	*Circus cyaneus*	None	SC	NA	Nests and forages in salt marsh, freshwater marsh, and grassland habitats.
White-tailed kite	*Elanus leucurus*	SC	FP	NA	Nests among dense-topped trees; forages in open grasslands, meadows or marshes
American peregrine falcon	*Falco peregrinus anatum*	D	E, FP	NA	Cliff ledges, particularly near shores and marshes
Common loon	*Gavia immer*	SC	SC	NA	Estuaries and subtidal marine habitats from September through May
Saltmarsh common yellowthroat	*Geothylpis trichas sinuosa*	None	SC	NA	San Francisco Bay region in fresh and saltwater marshes with thick continuous cover to water surface, tall grasses, tule patches and willows for nesting.
Bald Eagle	*Haliaeetus leucocephalus*	PD	T, FP	NA	Seacoast, islands, sea cliffs, large lakes, large rivers, coastal lagoons
California black rail	*Laterallus jamaaciensis coturniculus*	SC	SC	NA	Tidal salt marshes, freshwater and brackish marshes.
San Pablo song sparrow	*Melospiza melodia samuelis*	SC	None	NA	Intermixed stands of bulrush (*Scirpus* spp.), cattail (*Typha* spp.), and other emergent vegetation
Alameda song sparrow	*Melospiza melodia pusillula*	SC	SC	NA	Salient emergent wetland
Long-billed curlew	*Numenius americanus*	SC	SC	NA	Intertidal mudflats of large estuaries, upland herbaceous areas, and cropland (winter)

Table F-1
Special-Status Species Potentially Occurring Within the WTA Ferry Service Expansion Area

Common Name	Scientific Name	Status			Supporting Habitat/Flowering Period
		Federal	State	CNPS	
Osprey	*Pandion haliaetus*	None	SC	NA	Along rivers, lakes, and coasts, nests in trees near or over water.
Brown pelican	*Pelecanus occidentalis*	E	E, FP	NA	Nests on coastal islands, lacking ground predators; roost on piers, buys and other structures
Double-crested cormorant (rookery)	*Phalacrocorax auritus*	None	SC	NA	Coastal cliffs, offshore islands, and inland along lake margins; nests on ground or in tall trees.
California clapper rail	*Rallus longirostric obsoletus*	E	E, FP	NA	Salt marshes dominated by pickleweed and cord grass
California least tern	*Sterna antillarum*	E	E, FP	NA	Flat, open areas along the coast near inshore estuaries, river mouths, or shallows, sandy ground with little or no vegetation, bays, freshwater ponds, channels, lakes.
Elegant tern	*Sterna elegans*	SC	SC	NA	Inland coastal waters, bays, estuaries, and harbors
Fish					
Green sturgeon	*Acipenser medirostris*	SC	SC	NA	Rivers and estuaries
Sacramento perch	*Archoplites interruptus*	None	SC	NA	Delta and Central Valley brackish marshland
Tidewater goby	*Eucyclogobius newberryi*	E	SC	NA	Upper end of lagoons in salinities less than 10 parts per thousand.
Delta smelt	*Hypomesus transpacificus*	T	T	NA	Sacramento-San Joaquin Delta, Suisun Bay, San Pablo Bay, river channels and sloughs
Central California Coast Coho salmon	*Oncorhynchus mykiss*	T	E	NA	Between Punta Gordo and San Lorenzo River

Table F-1
Special-Status Species Potentially Occurring Within the WTA Ferry Service Expansion Area

Common Name	Scientific Name	Status			Supporting Habitat/Flowering Period
		Federal	State	CNPS	
Central California steelhead	*Oncorhynchus mykiss*	T	None	NA	Delta, Suisun Bay and associated marshes, San Francisco Bay west to the Golden Gate bridge is designated as suitable habitat.
Sacramento Valley winter-run Chinook salmon	*Oncorhynchus tshawytscha*	E	E	NA	Sacramento River from Keswick Dam (near Redding) south to Chipps Island, then west through Carquinez Strait, San Pablo Bay and San Francisco Bay
Central Valley spring-run Chinook salmon	*Oncorhynchus tshawytscha*	T (PE)	T	NA	Central Valley rivers and their tributaries, west to the Pacific Ocean
Central Valley fall/late-fall Chinook salmon	*Oncorhynchus tshawytscha*	C	SC	NA	Central Valley rivers and their tributaries, west to the Pacific Ocean
Sacramento splittail	*Pogonichthys macrolepidotus*	T	SC	NA	Fresh water from lower Sacramento and San Joaquin rivers down to Montezuma Slough (may extend to the mouth of Napa River at San Pablo Bay)
Invertebrates					
Sandy beach tiger beetle	*Cicindela hirticollis gravida*	SC	None	NA	Sandy areas adjacent to non-brackish water along coast; found in dry sand of upper zone
Bridges' Coast Range shoulderband snail	*Helminthoglypta nicklinianan bridgesi*	SC	None	NA	Grasslands of Alameda and Contra Costa counties
Callippe silverspot butterfly	*Speyeria callippe callippe*	E	None	NA	Grassy hillsides, chaparral, and oak woodland with native forbs; host plant a native violet (*Viola pedunculata)*

Table F-1
Special-Status Species Potentially Occurring Within the WTA Ferry Service Expansion Area

Common Name	Scientific Name	Status			Supporting Habitat/Flowering Period
		Federal	State	CNPS	
Reptiles and Amphibians					
California tiger salamander	*Ambystoma californiense*	C	SC	NA	Annual grassland and valley-foothill hardwood habitats, vernal pools and other seasonal water sources adjacent to underground refuges.
Alameda whipsnake	*Masticophis lateralis euryxanthus*	T	T	NA	Chaparral and other scrubland habitats
California red-legged frog	*Rana aurora draytonii*	E	SC	NA	Lowlands and foothills with deep water remaining for at least 11 weeks; water source is usually associated with abundant emergent and/or shoreline vegetation
Plants					
Bent-flowered fiddleneck	*Amsinckia lunaris*	None	None	1B	Coastal bluff scrub, cismontane woodland, valley and foothill grassland; Mar-Jun
Pallid manzanita	*Arctostaphylos pallida*	T	E	1B	Chaparral, Foothill Woodland, Mixed Evergreen Forest; Dec-Mar
Suisun Marsh aster	*Aster lentus*	None	None	1B	Brackish and freshwater marshes and swamps; May-Nov
Alkali milk-vetch	*Astragalus tener* var. *tener*	None	None	1B	Playas, adobe clay grasslands, vernal pools; Mar-Jun
San Joaquin spearscale	*Atriplex joaquiniana*	None	None	1B	Alkaline meadows, playas, chenopod scrub, valley and foothill grassland; Apr-Oct

Table F-1
Special-Status Species Potentially Occurring Within the WTA Ferry Service Expansion Area

Common Name	Scientific Name	Status			Supporting Habitat/Flowering Period
		Federal	State	CNPS	
Round-leaved filaree	*California macrophylla*	None	None	1B	Open habitat with friable clay soils in valley and foothill grasslands and foothill woodlands up to 3,900 feet in elevation
Tiburon mariposa lily	*Calochortuns tiburonensis*	T	T	1B	Serpentine soils; Mar-Jun
Coastal bluff morning glory	*Calystegia purpurata* ssp. *Saxicola*	None	None	1B	Coastal dunes, coastal scrub
Bristly sedge	*Carex comosa*	None	None	2	
Tiburon paintbrush	*Castilleja affinis* ssp. *neglecta*	E	T	1B	Serpentine soils; Apr-Jun
Congdon's tarplant	*Centromadia parryi* ssp. *congdonii*	None	None	1B	Valley foothill grassland; Jan-Nov
San Francisco Bay spineflower	*Chorizanthe cuspidata* var. *cuspidata*	None	None	1B	Coastal bluff scrub, coastal dunes, coastal prairies, coastal scrub; Apr-Aug
Robust spineflower	*Chorizanthe robusta* var. *robusta*	E	None	1B	Cismontaine woodland, coastal dunes, coastal scrub; Apr-Sep
Point Reyes bird's-beak	*Cordylanthus maritimus* ssp. *palustris*	None	None	1B	Coastal salt marshes; Jun-Oct
Soft bird's-beak	*Cordylanthus mollis* ssp. *mollis*	E	Rare	1B	Coastal salt marsh; Jul-Nov

Table F-1
Special-Status Species Potentially Occurring Within the WTA Ferry Service Expansion Area

Common Name	Scientific Name	Status			Supporting Habitat/Flowering Period
		Federal	State	CNPS	
Western leatherwood	*Dirca occidentalis*	None	None	1B	Broadleaved coniferous forest, closed cone coniferous forest, chaparral, cismontane woodland; Jan-Apr
Fragrant fritillary	*Fritillaria liliacea*	None	None	1B	Coastal prairie, coastal scrub, grassland; often serpentinite; Feb-Apr
Dune gilia	*Gilia capitata* ssp. *chamissonis*	None	None	1B	Coastal dunes, coastal scrub; Apr-Jul
Diablo helianthella	*Helinathella castanea*	None	None	1B	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, grassland; Apr-Jun
Marin dwarf flax	*Hesperolinon congestum*	T	T	1B	Chaparral, grassland; serpentinite; Apr-Jul
Loma Preita hoita	*Hoita strobilina*	None	None	1B	Chaparral, serpentite soils in cismontane woodland; May-Oct
Santa Cruz tarplant	*Holocarpha macradenia*	T	E	1B	Coastal prairie, grasslands; often clay; Jun-Oct
Kellogg's (wedge-leaved) horkelia	*Horkelia cuneata* ssp. *sericea*	None	None	1B	Coniferous forest, chaparral, coastal scrub; Apr-Sep
Contra Costa goldfields	*Lasthenia conjugens*	E	None	1B	Grasslands, vernal pools; Mar-Jul
Beach layia	*Layia carnosa*	E	E	1B	Coastal dunes, coastal scrub; Mar-Jul
Rose leptosiphon	*Leptosiphon rosaceus*	None	None	1B	
Mason's lilaeopsis	*Lilaeopsis masonii*	None	Rare	1B	Brackish and freshwater marshes and swamps; Apr-Nov

Table F-1
Special-Status Species Potentially Occurring Within the WTA Ferry Service Expansion Area

Common Name	Scientific Name	Status			Supporting Habitat/Flowering Period
		Federal	State	CNPS	
Robust monardella	*Monardella villosa* ssp. *globosa*	None	None	1B	
Oregon meconella	*Meconella oregana*	None	None	1B	Coastal prairie, coastal scrub; Mar-Apr
White-rayed pentachaeta	*Pentachaeta belliciflora*	E	E	1B	Valley and foothill grassland; often serpentinite; Mar-May
Choris's popcornflower	*Plagiobothrys chorisianus* var. *chorisianus*	None	None	1B	Chaparral, coastal prairie; Mar-Jun
Hairless popcornflower	*Plagiobothrys glaber*	None	None	1A	
Adobe sanicle	*Sanicula maritima*	None	Rare	1B	Chaparral, coastal prairie, meadows, grassland; serpentine soils; Feb-May
Rayless ragwort	*Senecio aphanactis*	None	None	2	
Most beautiful jewelflower	*Streptanthus albidus* ssp. *peramoenus*	SC	None	1B	Chaparral, grassland; sepentinite; Apr-Jun
Tiburon jewelflower	*Streptanthus niger*	E	E	1B	Serpentine soils; May-Jun
California sea blite	*Suaeda californica*	E	None	1B	Coastal salt marshes and swamps; Jul-Oct
Showy Indian clover	*Trifolium amoenum*	E	None	1B	Wet swales, grasslands and grassy hillsides; occasionally found on serpentine soils; Apr-Jun
Saline clover	*Trifolium depauperatum var. hydrophilum*	None	None	1B	Vernal pools, valley grassland, mixed evergreen forests; Apr-Jun

APPENDIX G

ADA PROJECT DESIGN ELEMENTS

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The current design locates the terminals at grade, requiring few ADA-specific features. The following is a list of both the current features and strategies for dealing with possible future grade changes:

1. Terminal Design
    a. The Current terminal designs are flat at grade.
    b. All doors widths are to be a minimum 32" clear
    c. Clearance around doors shall be designed in accordance with ADA Chapter 11 guidelines.
    d. Thresholds shall not be more than ½". Change in level between ¼" and ½" shall be beveled with a slope no greater than 50%
    e. All doors to have lever hardware
    f. Effort to operate doors shall be in accordance with ADA Chapter 11 guidelines.
    g. All gates, including ticket gates, shall meet all applicable specifications for doors
    h. Possible future ADA bathrooms to be designed in accordance with ADA Chapter 11 guidelines.
2. Plaza Design
    a. The current plaza design is level, at 6" above the adjacent street grade.
    b. A curb ramp is provided down to parking lot grade. The slope of the ramp shall not exceed 1:12. The slope of the flared sides of the ramp shall not exceed 1:10, if pedestrians may walk across the ramp. The curb ramp shall have a detectable warning surface in accordance with ADA Chapter 11 guidelines.
    c. Should the elevation of the terminal be raised, an alternate plan has been developed. This design includes a 1:12 maximum slope ramp with 5'0" landings every 30" rise, handrail, and guardrail in accordance with ADA Chapter 11 guidelines.
    d. Passenger Loading Zones shall provide an access aisle at least 60 inches wide and 20 feet long adjacent and parallel to the vehicle pull-up space.
        i. Such zones shall be located on a surface with a slope not exceeding 2%.
        ii. Provide minimum vertical clearance of 114 inches at accessible passenger loading zones and along at least one vehicle access route to such areas from site entrance and exits.
3. Gangway Design
    a. The gangway is designed such that the slope shall not exceed 1:12 during operating conditions.
    b. The gangway (ramp) shall have handrails in accordance with ADA Chapter 11 guidelines.
4. Parking Lot Design
    a. ADA parking spaces shall be the closest spaces to the entrance to the terminal.
    b. All ADA parking spaces to be in accordance with ADA Chapter 11 guidelines
5. Path of Travel
    a. Where walk crosses a vehicular way, the boundary between the areas shall be defined by a continuous detectable warning which is 36 inches wide, complying with 1133B.8.3 through 1133B.8.5.

APPENDIX H

TRAVEL DEMAND FORECAST BACK-UP (ALTERNATIVE 17)

URS

Memorandum

Date: June 10, 2008

To: Mark Weisman, URS

From: Duncan Watry, URS

Subject: Transportation and Circulation - Response to FTA Comments

The purpose of this memo is to provide more background information on the ridership figures and description of the ferry service scenario in the draft Transportation and Circulation sections for the WETA Berkeley-Albany Ferry Terminal Draft EIS/EIR. This is being prepared in response to comments provided by FTA staff on the draft Transportation and Circulation sections.

The ridership figures and descriptions of the ferry service scenario in this draft section are based on ridership forecasts described in the Program EIS/EIR for the WETA Ferry System Plan under Alternative 17 in Year 2025. These figures were initially established in the *Final Working Paper – Ridership Model Forecasts* (July 2002) prepared by Cambridge Systematics (CSI).[1] This paper presented the ridership forecast results for three alternatives and compared the alternatives to the future No Project alternative in both 2025 and for existing conditions (1998). These alternatives were further refined in the CSI's *Draft Working Paper Ridership Model Summary of Alternatives and Sensitivity Analysis* (December 2005),[2] 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 11-17), 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.

The preferred alternative, Alternative 17, combined selected assumptions for Alternatives 13-16, which are summarized below. Alternative 17 resulted in a decrease in the overall ridership by 11 percent or 4,869 riders.[3]

- Alternative 13 (new baseline): Based on ferry service assumptions from Alternative 8, which was based on Alternatives 4 and 5, originating from Alternative 2. Minor changes in service provision assumptions resulted in an increase in ridership by 1 percent, compared to Alternative 8.
- Alternative 14: Minor modifications in land use assumptions resulted in a reduction in the total ridership by 2 percent.
- Alternative 15: More realistic headways and running times decreased total ridership by 9 percent.
- Alternative 16: Minor terminal location changes and increased headways and running times decreased total ridership by 8 percent.

[1] Water Transit Authority, *Final Ridership Model Forecasts*, prepared by Cambridge Systematics, July 25, 2002.
[2] Water Transit Authority, *Draft Working Paper Ridership Model Summary of Alternatives and Sensitivity Analysis*, prepared by Cambridge Systematics, December 8, 2005.
[3] Water Transit Authority, *Draft Working Paper Ridership Model Summary of Alternatives and Sensitivity Analysis*, Cambridge Systematics, December 8, 2005, p. 33.

Table 1 (attached) summarizes FTA's comments, and shows the response based on information contained in the two CSI ridership reports noted earlier. In the 2005 report from CSI, not all of the information was updated for all of the new alternatives, and therefore some responses are based on specific information shown in the 2005 report for Alternative 17, and some are based on information shown in the 2002 report for Alternative 2, which was the original basis for Alternative 17.

Table 1: Summary of Ridership Assumptions (Alternative 17)

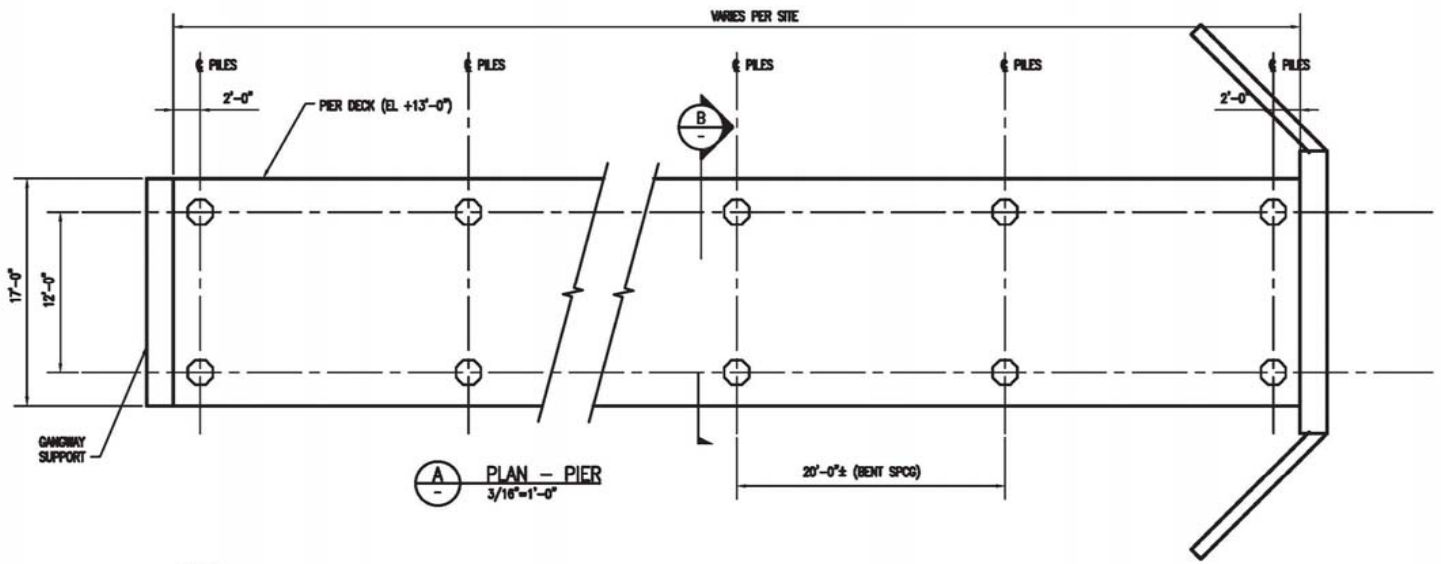
No.	Comment	Response	Source
1	Proposed ferry headways	30 minutes peak 60 minutes off peak	CSI, Table 4, Draft Working Paper, 2005, p. 18
2	Cost to Riders	$3.50 (in 2004 dollars)	CSI, Table 4, Draft Working Paper, 2005, p. 18
3	Average wait time	12 minute peak, 16 minute off peak	CSI, Table 4, Draft Working 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-SF 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-SF-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 SF Financial District commuters traveling from the East Bay to downtown SF. The assumption is that the 63% drive access riders would park at the ferry terminal in the East Bay, take the ferry, and once they are in SF, 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[4] 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 not cited, so useful for relative comparisons only.	CSI, Table 27, Final Report, 2002, p. 44

[4] 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*, prepared by Cambridge Systematics, 2002, p. 39.

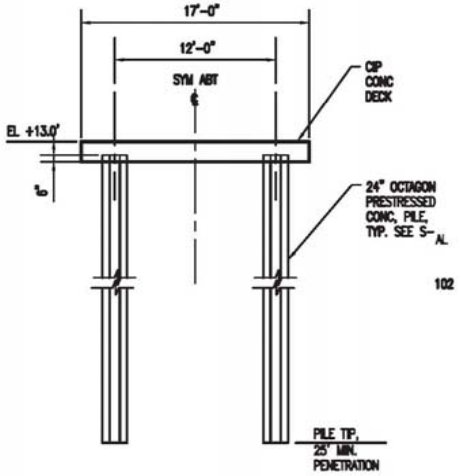
Baseline Routes		Model Assumptions							Total Ridership	Ridership By Mode of Access			Weekday Ridership By Purpose				Weekend Ridership By Purpose					Ridership By Direction								Parking Demand/Supply					
Corridor	Ferry Route	Run Times	Headways	Peak Max Wait Time	Off peak Max Wait Time	Fares (2004 $)	Parking Spaces	Parking Fare	2025 Ridership	Walk Access	Drive Access	Transit Access	HBW Riders	HBSH Riders	HBSR Riders	NHB Riders	HBW Riders	HBSH Riders	HBSR Riders	NHB Riders	Weekend	AM PEAK TO SF	AM PEAK FROM SF	PM PEAK TO SF	PM PEAK FROM SF	Weekday Peak	Off-Peak TO SF	Off Peak FROM SF	Weekday Off-Peak	% Over-flow	% Kiss and Ride	Average Auto Occupancy	Persons Parking On-Site	Vehicles Parked On-Site	Annual Ridership
Solano	Vallejo to San Francisco	57	30/60	11	14	$ 6.00	1600	$ 2.00	4,429	319	3,866	244	3,175	357	764	133	32	114	390	86	622	1,525	151	620	1,056	3,352	851	226	1,077	1%	10%	1.57	1,726	1,102	1,216,858
Solano	Benicia/Martinez to San Francisco	57	60/240	14	20	$ 6.00	500	$ 2.00	1,241	75	1,114	52	861	135	238	7	n/a	n/a	n/a	n/a	n/a	327	32	133	226	719	412	110	522	1%	10%	1.57	497	317	322,660
Contra Costa	Antioch/Pittsburg to San Francisco	95	60/240	14	20	$ 7.00	300	$ 2.00	825	11	813	1	384	237	204	0	n/a	n/a	n/a	n/a	n/a	149	15	61	103	328	393	104	497	1%	10%	1.57	363	232	214,500
Contra Costa	Hercules/Rodeo to San Francisco	41	60/240	14	20	$ 5.00	500	$ 2.00	1,123	360	591	172	748	166	184	25	n/a	n/a	n/a	n/a	n/a	291	29	118	201	639	382	102	484	1%	10%	1.57	264	168	291,980
Contra Costa	Richmond-San Francisco	33	40/80	12	16	$ 4.00	1000	$ 2.00	2,175	396	1,613	166	1,326	315	468	66	13	101	239	43	396	508	50	206	352	1,116	837	222	1,059	1%	10%	1.57	720	460	607,042
Alameda	Berkeley-SF	28	30/60	11	14	$ 3.50	1000	$ 2.00	1,738	39	1,363	336	982	214	528	14	10	68	269	9	357	359	35	146	248	788	751	200	950	1%	10%	1.57	609	388	489,331
Alameda	Alameda Point-SF	21	30/60	11	14	$ 3.25	1000	$ 2.00	1,225	308	538	379	587	157	427	54	6	50	218	35	309	220	17	83	154	473	549	203	752	1%	9%	1.28	243	190	350,943
Alameda	Oakland to San Francisco	22	30/60	11	14	$ 3.25	500	$ 2.00	2,606	179	1,508	919	1,655	213	738	0	17	68	376	0	461	554	42	208	387	1,191	1,033	382	1,415	0%	7%	1.55	699	453	725,974
Alameda	Harbor Bay to San Francisco	27	60	14	none	$ 3.50	400	$ 2.00	553	257	271	25	439	15	42	57	n/a	n/a	n/a	n/a	n/a	257	19	97	180	553	0	0	0	1%	9%	1.28	122	96	143,780
Peninsula	Oakland to So. San Francisco	37	60	14	none	$ 3.50	250	$ 2.00	936	3	730	203	919	6	11	0	n/a	n/a	n/a	n/a	n/a	435	33	164	304	956	0	0	0	1%	9%	1.28	329	258	243,360
Peninsula	Oakland to Redwood City	60	60	14	none	$ 4.50	200	$ 2.00	277	12	212	53	270	4	3	0	n/a	n/a	n/a	n/a	n/a	129	10	48	90	277	0	0	0	1%	9%	1.28	96	75	72,020
Marin	Sausalito to San Francisco	23	30/60	11	14	$ 3.50	100	$ 2.00	4,088	1,926	1,894	268	3,084	71	431	502	31	23	220	326	600	1,188	89	447	830	2,555	1,349	184	1,533	19%	34%	1.99	443	223	1,125,845
Marin	Tiburon to San Francisco	21	30/60	11	14	$ 3.50	100	$ 2.00	2,707	1,454	887	366	2,243	42	147	275	22	13	75	179	290	924	70	348	646	1,987	634	86	720	17%	38%	1.56	199	128	734,227
Marin	Larkspur to San Francisco	36	20/60	10	14	$ 4.00	2000	$ 2.00	6,843	833	4,914	1,096	5,429	421	779	214	54	135	397	139	725	2,144	161	807	1,498	4,610	1,965	268	2,233	3%	13%	1.43	2,063	1,446	1,855,347
Sonoma	Port Sonoma to San Francisco	59	65/150	14	17	$ 5.50	300	$ 2.00	1,291	4	1,238	49	891	116	281	3	n/a	n/a	n/a	n/a	n/a	358	27	135	250	769	459	63	522	3%	13%	1.43	520	364	335,660
San Mateo	South San Francisco to San Francisco	33	35/70	12	14	$ 4.00	600	$ 2.00	1,967	92	1,729	146	1,274	142	485	66	13	45	247	43	348	339	29	133	236	737	910	320	1,250	1%	10%	1.57	772	493	548,005
San Mateo	Redwood City to San Francisco	51	60/60	14	14	$ 5.50	500	$ 2.00	1,849	209	1,587	53	1,577	21	224	27	n/a	n/a	n/a	n/a	n/a	419	36	164	292	911	694	244	938	1%	10%	1.57	709	452	480,740
Santa Clara	Moffett Field to San Francisco	58	65	15	8	$ 6.00	500	$ 2.00	282	22	237	23	265	0	6	11	n/a	n/a	n/a	n/a	n/a	130	11	51	90	282	0	0	0	1%	10%	1.57	106	68	73,320
Treasure Island	Berkeley to Treasure Island	23	60	14	8	$ 2.50	300	$ 2.00	300	48	209	43	152	34	84	30	2	11	43	20	75	140	11	53	98	300	0	0	0	1%	10%	1.57	93	60	85,848
Treasure Island	Oakland to Treasure Island	24	60	14	8	$ 2.50	100	$ 2.00	249	78	92	79	120	32	72	25	1	10	37	16	64	116	9	44	81	249	0	0	0	0%	7%	1.55	43	28	71,503
Treasure Island	San Francisco to Treasure Island	16	20/40	10	12	$ 1.50	0	$ 2.00	3,393	2,065	0	1,328	1,176	123	808	1,286	12	39	412	836	1,299	705	61	276	491	1,533	1,376	484	1,860						1,018,586
Solano							2,100		5,670	394	4,980	296	4,036	492	1,002	140	32	114	390	86	622	1,852	183	753	1,282	4,071	1,263	336	1,599				2,224	1,419	1,539,518
Contra Costa							1,800		4,123	767	3,017	339	2,458	718	856	91	13	101	239	43	396	948	94	385	656	2,083	1,612	428	2,040				984	628	899,022
Alameda							2,900		6,122	783	3,680	1,659	3,663	599	1,735	125	32	187	863	44	1,127	1,389	113	534	969	3,005	2,332	785	3,117				1,673	1,127	1,710,029
Peninsula							450		1,213	15	942	256	1,189	10	14	0	0	0	0	0	0	564	42	212	394	1,213	0	0	0				425	332	315,380
Marin							2,200		13,638	4,213	7,695	1,730	10,756	534	1,357	991	108	171	692	644	1,615	4,256	320	1,602	2,974	9,152	3,948	538	4,486				2,706	1,797	3,715,419
Sonoma							300		1,291	4	1,238	49	891	116	281	3	n/a	n/a	n/a	n/a	n/a	358	27	135	250	769	459	63	522				520	364	335,660
San Mateo							1,100		5,816	301	3,316	199	2,851	163	709	93	13	45	247	43	348	758	66	297	527	1,648	1,604	564	2,168				1,481	945	1,028,745
Santa Clara							500		282	22	237	23	265	0	6	11	n/a	n/a	n/a	n/a	n/a	130	11	51	90	282	0	0	0				106	68	73,320
Treasure Island							400		3,942	2,191	301	1,450	1,448	189	964	1,341	14	60	492	872	1,438	960	81	372	669	2,082	1,376	484	1,860				136	87	1,175,936
	TOTAL						11,750		40,097	8,690	25,406	6,001	27,557	2,821	6,924	2,795	212	679	2,923	1,732	5,546	11,215	987	4,340	7,812	24,305	12,595	3,197	15,792				10,616	6,998	11,007,580

APPENDIX I

STRUCTURAL ENGINEERING PLANS FOR FERRY TERMINAL PIER



A — PLAN – PIER
3/16"=1'-0"



B — SECTION – TWO PILE BENT
3/16"=1'-0"

24" SOLID OCTAGONAL PRESTRESSED CONCRETE PILE

PILE DATA

SIZE 24" OCTAGONAL
SECTION AREA 477 SQ. IN.
WEIGHT 497 LB/FT
SECTION MODULUS 1398 IN3

MIN. CONC. COMPRESSIVE STRENGHT:

- RELEASE 4000 PSI
- DRIVING 6000 PSI
- 28 DAYS 6000 PSI

PRESTRESSING STEEL:

TYPE 1/2" DIA. 270 KSI ASTM A416
CROSS SECTION AREA PER STRAND 0.133 SQ. IN

PRE TENSION

MIN. NO. OF STRANDS 22
MIN. FINAL PRESTRESSING FORCE 680 KIPS
MIN. FINAL PRESTRESS 1000 PSI

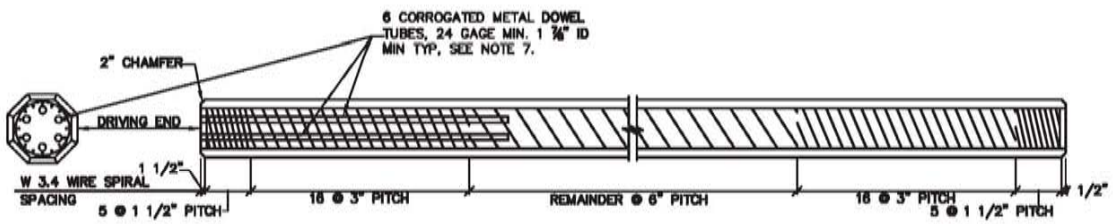
SPIRAL W 3.4 ASTM A82

STRUCTURAL DETAILS 1 of 2

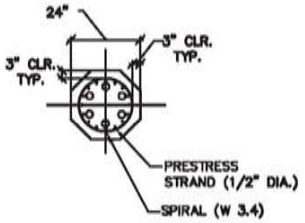
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July 2008
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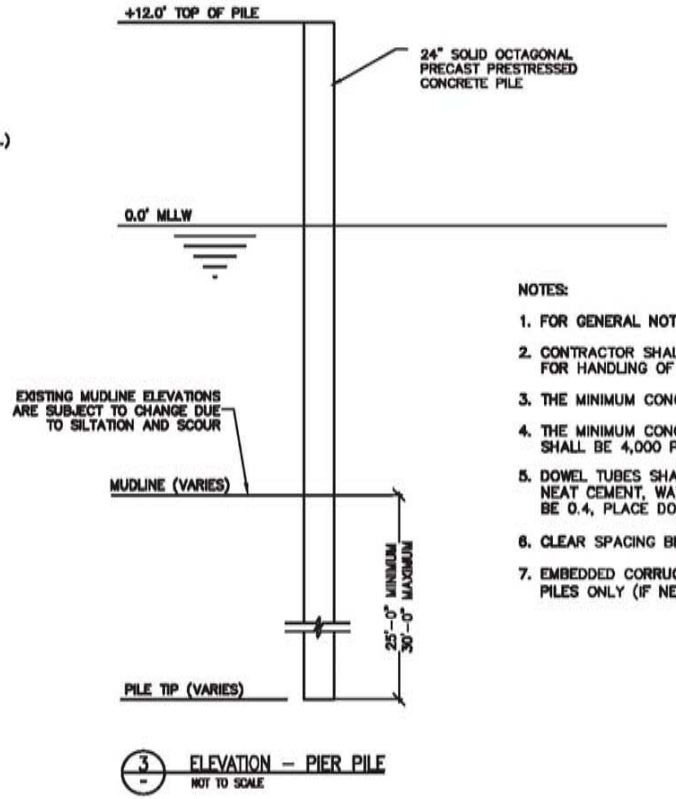
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1 — 24" OCTAGONAL PRECAST PRESTRESSED CONCRETE PILE
NOT TO SCALE



2 — PILE SECTION
NOT TO SCALE



3 — ELEVATION – PIER PILE
NOT TO SCALE

NOTES:

1. FOR GENERAL NOTES SEE STRUCTURAL DWG S–001.
2. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR HANDLING OF PILES BOTH AT PRECAST PLANT AND IN THE FIELD.
3. THE MINIMUM CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE 6,000 PSI.
4. THE MINIMUM CONCRETE COMPRESSIVE STRENGTH AT TRANSFER OF PRESTRESS SHALL BE 4,000 PSI.
5. DOWEL TUBES SHALL BE FILLED WITHIN 2 FT FROM TOP WITH A FLUID GROUT MADE OF NEAT CEMENT, WATER AND SUPERPLASTICIZER. MAXIMUM WATER CEMENT RATIO TO BE 0.4, PLACE DOWELS IMMEDIATELY AFTER GROUTING.
6. CLEAR SPACING BETWEEN WIRE STRANDS SHALL NOT BE LESS THAN 1 ½".
7. EMBEDDED CORRUGATED METAL DOWEL TUBE 30'–0" MIN FOR INDICATOR PILES ONLY (IF NEEDED) AND 20'–0" MIN FOR OTHERS.

STRUCTURAL DETAILS 2 of 2

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