# Project Study Report – Project Development Support (PSR-PDS)

# To

# Request Programming for Capital Support

# (Project Approval and Environmental Document Phase)

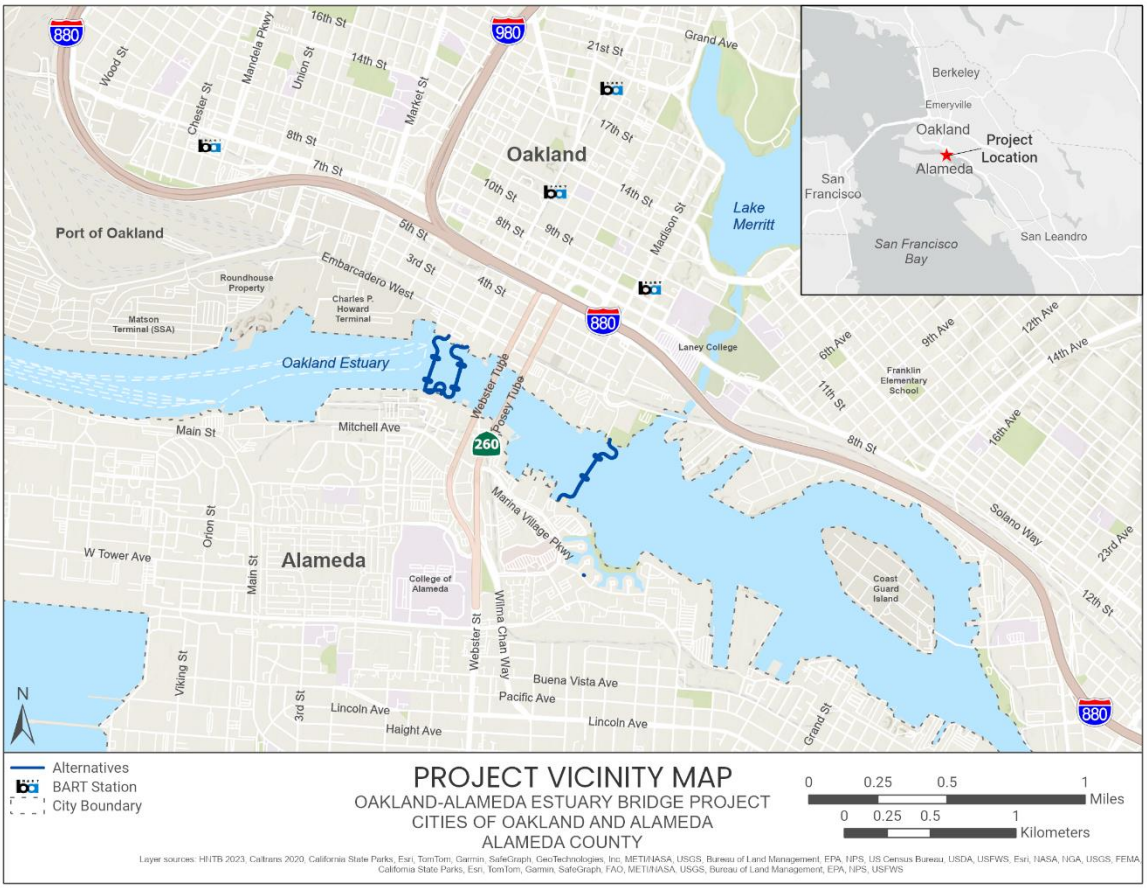
| | |
|---|---|
| On Route | Near Route 260 in Alameda County |
| Between | Marina Village Parkway/Mitchell Avenue (City of Alameda) |
| And | Embarcadero West (City of Oakland) |

APPROVED:

Allen Tai — June 26, 2024

Allen Tai, Planning, Building & Transportation Department Director, City of Alameda — *Date*

# Vicinity Map



This Project Study Report-Project Development Support has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

06/26/2024

REGISTERED CIVIL ENGINEER DATE

HNTB Corporation

# Table of Contents

**1 Introduction ..... 1**

**2 Background ..... 3**
Project History ..... 3

**3 Purpose and Need ..... 5**
Purpose ..... 5
Need ..... 5

**4 Traffic Engineering Performance Assessment ..... 9**
Existing Conditions ..... 9
Future Operational Performance ..... 9
Estimates Context ..... 10
Traffic Study Scope for PA&ED Phase ..... 11
Safety Analysis ..... 11

**5 Deficiencies ..... 12**

**6 Corridor and System Coordination ..... 13**
Corridor Overview ..... 13
State/Regional/Local ..... 13
Programmed and Planned Projects within the Project Limits ..... 13

**7 Alternatives ..... 17**
No Build Alternative ..... 17
Build Alternatives ..... 17
Vertical Clearance ..... 17
Span ..... 17
Shared Features Common to All Build Alternatives ..... 18
Movable Bridge Span ..... 18
Fixed Bridge Approach Spans ..... 18
Abutments and Retaining Walls ..... 19
Stormwater Best Management Practices ..... 19
Staging and Construction Schedule ..... 19
Utilities ..... 19
Build Alternatives ..... 20
Alternative W4: Washington Street to 5th Street ..... 20
Alternative W6: Broadway to 5th Street ..... 22
Alternative E2: Estuary Park to Alameda Park ..... 24
Drainage and Stormwater ..... 26
Construction ..... 28
Design Standards Risk Assessment ..... 28
Complete Streets ..... 29
Highway Planting ..... 29
Public Engagement and Social Equity ..... 30
Alternatives Considered but Rejected ..... 30
W1 – Clay Street to Mitchell Avenue – High Lift Bridge ..... 32
W2 – Clay Street to Mitchell Avenue – Low Lift/Bascule Bridge ..... 33

W3 – Washington Street to 5th Street – High Lift Bridge....34
W5 – Broadway to 5th Street – High Lift/Bascule Bridge....35
C1 – Alice Street to Marina Village Parkway – High Lift Bridge....36
C2 – Alice Street to Marina Village Parkway – Low Lift/Bascule Bridge....37
C3 – Alice Street to Alameda Shipways – High Lift Bridge....38
C4 – Alice Street to Alameda Shipways – Low Lift/Bascule Bridge....39
E1 – Estuary Park to Alameda Park – High Lift Bridge....40
Concepts for Further Consideration and Next Steps....41

**8 Right-of-Way....42**
Utilities....42

**9 Stakeholder Involvement....44**

**10 Environmental Compliance....49**
Anticipated Environmental Clearance....49
Environmental Issues Shared by Build Alternatives....49
Community Impacts....49
Context-Sensitive Solutions and Visual/Aesthetics....50
Cultural Resources....50
Hydrology and Floodplain....51
Water Quality and Storm Water Runoff....51
Geology, Soil, Seismic and Topography....52
Paleontology....52
Hazardous Waste/Materials....52
Air Quality....52
Noise/Vibration....52
Energy and Climate Change....53
Biological Environment....53
Environmental Issues Unique to Build Alternatives....54
Liveaboard Displacement....54
Hazardous Waste/Materials....54
Summary of Permits and Approvals....55

**11 Funding....56**
Capital Outlay Project Estimate (escalated)....56
Capital Outlay Support Estimate....56
Cooperative Agreement....56

**12 Delivery Schedule....58**

**13 Risks....59**

**14 External Agency Coordination....60**
U.S. Coast Guard....60
Port of Oakland....60
San Francisco Bay Area Water Emergency Transportation Authority....60
Technical Advisory Committee....61
Regulatory Agencies....61
Local Agencies....61

Railroads.....61
**15 Project Reviews.....62**
**16 Project Personnel.....63**
**17 Attachments.....64**

# ATTACHMENTS

A. Project Location Map
B. Preliminary Geometrics – Plan and Profile
C. Capital Outlay Project Estimate
D. Preliminary Environmental Analysis Report (PEAR)
E. Right-of-Way Data Sheets
F. Risk Register
G. Storm Water Data Report (SWDR)
H. Design Standards Risk Assessment
I. Complete Streets Decision Document (CSDD)
J. Advance Planning Study
K. Transportation Planning Scoping Information Sheet

# 1 INTRODUCTION

The Cities of Alameda and Oakland are working to advance the Oakland-Alameda Estuary Bridge Project, a new bicycle, pedestrian, and micromobility crossing of the Oakland Estuary connecting the two cities. The study area is focused on the Oakland Estuary between Howard Terminal and Estuary Park, a body of water that divides the cities of Alameda and Oakland. A Project Location Map is included as Attachment A.

Currently, the only walking and biking connection between western Alameda and downtown Oakland is a narrow 3-foot-wide walkway through the Posey Tube (State Route [SR] 260). The proposed Oakland-Alameda Estuary Bridge will improve sustainable access to businesses, employment, regional transit, and recreation hubs in both Alameda and Oakland; reduce motor vehicle trips between Alameda and Oakland, resulting in reduced air pollutant and climate change warming emissions; provide a free and accessible commuting option for adjacent neighborhoods and equity communities; and connect to both existing and planned regional multi-use trails, like the San Francisco Bay Trail (Bay Trail).

Several feasibility studies have been conducted in prior years to evaluate a pedestrian-bicycle crossing between Oakland and Alameda, including a 2009 Feasibility Study and 2021 Detailed Feasibility and Travel Demand Analysis.

Three Build Alternatives were identified by the Project Initiation Document (PID) phase for further study to provide a new pedestrian-bicycle crossing (see Section 7 for description of alternatives).

Total capital outlay cost for the Build Alternative is $303M in escalated dollars.

No agreement has been made on the lead agency for this project. If federal transportation funding is assigned, the California Department of Transportation (Caltrans) would be the likely lead agency under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). If Caltrans is not the lead agency, other potential lead agencies include the U.S. Army Corps of Engineers (USACE) or the U.S. Coast Guard (USCG).

Project information can be found in **Table 1-1**.

**Table 1-1. Project Information**

| | |
|---|---|
| **Project Limits** | Near 04-ALA-260, post mile (PM) R1.20 – R1.70 |
| **Number of Alternatives** | 4 (3 Build Alternatives and 1 No Build Alternative) |
| **Current Capital Outlay Support Estimate for PA&ED and subsequent phases** | $48M |
| **Current Capital Outlay Construction Cost** | $236M |

| | |
|---|---|
| **Current Capital Outlay Right-of-Way Cost** | $25M |
| **Funding Source** | 20.20.400.100<br>Measure BB: $1.56M<br>Federal: TBD<br>State: TBD<br>Regional: TBD |
| **Type of Facility** | Movable Pedestrian-Bicycle Bridge |
| **Number of Structures** | 3 |
| **Anticipated Environmental Determination or Document** | CEQA Environmental Impact Report (EIR)<br>NEPA Environmental Assessment (EA) |
| **Legal Description** | Near SR 260 in Alameda County, in the cities of Alameda and Oakland from PM 1.20-1.70 |
| **Project Development Category** | Category 2A/4A |

This Project Study Report-Project Development Support (PSR-PDS) outlines the project scope, schedule, capital costs, and capital outlay support costs needed to support programming for the Project Approval and Environmental Documentation (PA&ED) phase.

The capital outlay support, right-of-way (ROW), and construction components of the project are preliminary estimates and are not suitable for programming purposes. A project report (PR) prepared during PA&ED will serve as the programming document for the proposed project. A PR will serve as approval of the "preferred" alternative.

Other approvals required are:

- A Design Standard Decision Document documenting any deviations from design standards will need to be approved by the Headquarters Project Delivery Coordinator, the Deputy District Director of Design, or the Design Office Chief.
- Caltrans approval of a Draft PR (DPR) is needed as part of the project approval and environmental document phase and to proceed to any public hearings as needed for the project.
- Environmental compliance under the CEQA and NEPA is required.

# 2 BACKGROUND

The Oakland Estuary divides the island of Alameda from Oakland and is currently traversed by two tubes and four bridges. The last new crossing of the Estuary was opened in 1963. Within the study area, the Webster Tube carries two lanes of southbound traffic to Alameda, and the Posey Tube carries two lanes of northbound traffic to downtown Oakland. The Posey Tube has the only existing facility for bicyclists and pedestrians, a substandard 36-inch-wide, two-way shared-use walkway. The Oakland-Alameda Access Project will add a second walkway in the Webster Tube by 2025, but it will have similar deficiencies to the existing Posey Tube walkway.

In Oakland, the Tubes currently connect to Webster and Harrison streets at 6th Street. Drivers coming from Alameda currently then use local roads to access the Interstate (I) 880 and I-980 freeways from the Tubes. The surrounding area includes Chinatown, downtown Oakland, Jack London Square, and Laney College. Recent commercial and residential development is continuing to enliven this vibrant community. The nearest Bay Area Rapid Transit (BART) stops are Lake Merritt Station located near 8th and Oak streets and 12th Street Station at Broadway and 12th Street. There is also an Amtrak station in Jack London Square, and a ferry terminal at the foot of Clay Street. Alameda-Contra Costa Transit District (AC Transit) runs several bus routes through the Tubes (SR 260), including lines 51A, 19, 20, and 96, which have destinations around Alameda, downtown Oakland, Fruitvale, and Rockridge. The existing Bay Trail runs through the area, connecting to the north via 2nd and 3rd streets and to the south with Embarcadero West.

On the Alameda side, the Tubes can be accessed from Wilma Chan Way (formerly Constitution Way) and Webster Street at Willie Stargell Avenue. The surrounding area contains office parks, residential housing, two shopping centers, and the College of Alameda. Alameda Landing, the shopping center adjacent to the study area, contains a wide variety of stores, including a Target and Safeway, as well as restaurants and a gym. Development on the Alameda side of the waterfront is underway and is primarily residential, and includes new waterfront parks and extensions of the Bay Trail. At the former Naval Air Base at Alameda Point, new residential and commercial development has recently been added and more is planned. Many of the roads in Alameda include bicycling facilities, and the Cross Alameda Trail, a major 3-mile crosstown, separated multi-use facility, is about a half mile from the study area.

Locally, SR 260 connects downtown Oakland and western Alameda. Regionally, this route also connects to major public transit and the I-880 and I-980 freeways but primarily for people in vehicles. The nearest above ground pedestrian and bicycle connection is 2.5 miles to the east at the Park Street Bridge.

## Project History

In 2009, the City of Alameda completed the *Estuary Crossing Feasibility Study*, a study that analyzed the feasibility of new or improved estuary crossings between the cities of Alameda and Oakland, to bridge this major gap between the two cities. Funding was provided by the Alameda County Transportation Improvement Authority [predecessor agency to the Alameda County Transportation Commission (Alameda CTC)], Caltrans,

City of Alameda, and City of Oakland. The study analyzed 17 alternative crossing options consisting of existing service improvements such as bike shuttle and ferry service; new water crossings such as amphibious vehicles and water shuttles; and new structures such as a pedestrian-bicycle bridge and an aerial tramway. The study recommended three alternatives — a short-, medium-, and long-term one — each of which fell into one of the categories (existing service improvements, new water crossing, and structure). It also stressed the importance of stakeholder and public involvement. To date, the short-term alternative (modified railings in the Posey Tube) has been implemented, and the medium-term alternative (a water shuttle) will begin a limited pilot service in mid-2024. This leaves the long-term alternative (a new bicycle/pedestrian bridge) still outstanding.

In 2021, the Cities of Alameda and Oakland, with Alameda CTC, completed the *Estuary Crossing Study: Detailed Feasibility and Travel Demand Analysis*, with funding from Alameda CTC. This 2021 study expanded on the previous efforts initiated in the 2009 *Estuary Crossing Feasibility Study*, plus included additional possible pedestrian-bicycle bridge alignments in the study area, as seen in the Vicinity Map (Attachment A). Eleven alternatives to better connect Alameda and Oakland were studied. These included three possible bridge alignments, each with various ramping options that account for eight of the eleven alternatives. The 2021 study confirmed the technical feasibility of a 600-foot span, 175-foot-high lift bridge to meet USCG requirements. The Port of Oakland and USCG provided letters of support to proceed with the project at this time. The other three alternatives considered a new transit/bicycle/pedestrian tube, new water shuttle service, and adding a new pathway in the Webster Tube. These alternatives all had different benefits and drawbacks based on their alignments, touchdown locations, and constructability. In support of the analysis, an estimation tool was developed for forecasting pedestrian and bicycle trips for alternatives. The tool allowed users to compare the different alternative types, and compare different bridge designs, including bridge height and crossing location, and incorporated future land use conditions for expected crossing trips.

All alternatives were conceptualized to comply with standards from the USCG, Caltrans, and local agencies, and considered impacts to new and existing developments on the waterfronts. The tentative costs to design and construct these projects ranged from $1M to $2.7B based on a construction year of 2030.

# 3 PURPOSE AND NEED

The Oakland-Alameda Estuary Bridge Project purpose and need are as follows:

## Purpose

The purpose of the proposed project is to:

- Reduce the barrier effect of the Oakland Estuary on bicycle and pedestrian travel between western Alameda and downtown Oakland, especially for equity communities, by providing a comfortable, Americans with Disabilities Act (ADA) compliant, convenient, and low-stress crossing for people of all ages and abilities;
- Improve multimodal connectivity between western Alameda and downtown Oakland to regional transit hubs, major destinations, recreational centers and trails, employment opportunities, and future urban infill projects;
- Encourage mode shift away from single-occupant motor vehicle cross-estuary trips to reduce greenhouse gas (GHG) emissions;
- Provide a zero-cost estuary crossing to better serve equity priority communities (EPC) and environmental justice (EJ) communities in western Alameda and downtown Oakland to help reduce local air pollutants and promote positive health outcomes; and
- Increase resiliency to climate change and disaster recovery by providing an additional estuary crossing.

## Need

The project would address the following needs:

- Cross-estuary bicycle and pedestrian facilities between western Alameda and downtown Oakland are severely limited. As a result, the Oakland Estuary represents a barrier to walking and biking between these two communities that are separated by less than 1,000 feet.
  - The only existing biking/walking facility is a two-way, 3-foot-wide, shared-use walkway in the Posey Tube adjacent to vehicles going 45 miles per hour, or more. This narrow, underground walkway has inadequate passing space for bicyclists and pedestrians and is not ADA compliant. The existing Tube cannot be modified to accommodate a wider path. The facility is unpleasant and uncomfortable due to vehicle noise and emissions.[1] As a result, the Posey Tube serves approximately 140 bicycle and pedestrian trips/day.[2] To travel from western Alameda to downtown Oakland using the nearest alternative estuary crossing, at the Park

[1] City of Alameda. 2009. *Estuary Crossing Study – Final Feasibility Study Report*.
[2] City of Alameda, City of Oakland and Alameda CTC. 2021. *Estuary Crossing Study: Detailed Feasibility and Travel Demand Analysis*

Street Bridge, would require an almost six-mile round trip for bicyclists and pedestrians.

  - Construction of the Oakland-Alameda Access Project will provide an additional shared-use walkway via the Webster Tube. However, user conditions will mirror those within the Posey Tube, but with a slightly wider 4-foot wide walkway. With the addition of this facility, the number of estimated walking and biking trips in both the Posey Tube and Webster Tube (Tubes) is expected to increase to approximately 380 trips/day.[3] This represents less than 10% of the estimated demand that a dedicated bicycle/pedestrian estuary crossing would generate (up to 9,670 trips/day).[4]

- Within the Bay Area, a Webster Street connection between Alameda and Oakland was identified as one of three top corridors for a future bike highway.[5] Caltrans defines a bike highway as a high-quality, uninterrupted bikeway that fully separates its users from motor vehicles. Highway users not only include bicyclists but also pedestrians. According to Caltrans, bike highways connect to major destinations, employment centers, and transit hubs. In addition to existing and potential user demand, Caltrans considered a corridor's proximity to equity communities when scoring its suitability for a bike highway.
  - A crossing connecting to western Alameda would link users to grocery stores, office parks and jobs, housing, shopping centers, parks, and the College of Alameda. Users could also connect to the city's existing and planned bike/pedestrian network, including the Cross Alameda Trail and San Francisco Bay Trail (Bay Trail), to travel to other destinations within the city of Alameda.
  - A crossing connecting to downtown Oakland would link users to regional transit services including BART's 12th Street and Lake Merritt stations, Amtrak's Jack London District Station, San Francisco Bay Ferry's Oakland Ferry Terminal, and AC Transit bus lines. Users could connect to commercial and residential areas, including in downtown Oakland, Chinatown, and Jack London Square. In addition to connecting to the city's existing and planned pedestrian/bicycle networks, a new crossing would connect to the regional Bay Trail and the future West Oakland Link, a 1.1-mile elevated bicycle/pedestrian facility connecting to the Bay Bridge.
  - The Posey Tube currently serves as a cross-estuary connection for the Bay Trail. This facility does not conform to Bay Trail standards, which would require a 12- to 18-foot shared-use path to promote trail usage.

[3] City of Alameda, City of Oakland and Alameda CTC. 2021. *Estuary Crossing Study: Detailed Feasibility and Travel Demand Analysis.*
[4] City of Alameda, City of Oakland and Alameda CTC. 2024. *Oakland Alameda Estuary Bridge: Project Study Report – Project Development Study.*
[5] Caltrans (California Department of Transportation). 2022. *Caltrans Bay Area Bike Highway Study.*

- Approximately 48,000 motor vehicles per day travel between western Alameda and downtown Oakland via the Tubes.[6] Planned growth in both cities will increase demand for cross-estuary trips in 2030 to approximately 56,000.[7] Because motor vehicle travel is the primary mode of transportation to/from the island of Alameda and there are so few bicycle/pedestrian crossings, traffic volumes and associated GHG emissions are expected to increase.
  - In western Alameda, major planned or underway mixed use housing developments include Alameda Landing, Encinal Terminals, and Alameda Point. Large planned mixed use development projects in downtown Oakland include Brooklyn Basin, Jack London Square, transit-oriented development at BART's Lake Merritt Station, the potential Howard Terminal, and other planned urban infill projects.
  - GHG emissions, which contribute to climate change, would increase as a result of increased cross-estuary motor vehicle trips. Both Alameda and Oakland are vulnerable to impacts of climate change including sea level rise, drought, and wildfire smoke.[8,9] Both cities have identified mode shift away from single-occupancy fossil fuel vehicles to lessen polluting forms of transportation and to reduce their contributions to climate change.
- EPC[10] and EJ[11] communities are located along both sides of the Oakland Estuary. These communities include low-income, minority, and zero-vehicle households. Existing crossing modes not only place financial burden on equity communities, but also contribute to reduced community health outcomes.
  - Currently, the only no-cost estuary crossing between western Alameda and downtown Oakland is walking/biking through the Posey Tube. Bicyclists and pedestrians could use transit (AC Transit bus lines and San Francisco Bay Ferry service) to bypass the Posey Tube. Both transit options require users to pay a fee and are not offered 24 hours per day. Reduced frequency and hours of transit service are associated with both on weekends and evenings. Front rack space on AC Transit buses is limited to carrying three bicycles. Without transit, and without using the substandard walkway in the Posey Tube, equity communities are left to use motor vehicles, if available, for cross-estuary trips.
  - Asthma rates in western Alameda and downtown Oakland scored in the upper 70th percentile statewide, and cardiovascular disease rates scored in the upper

[6] City of Alameda, City of Oakland and Alameda CTC. 2021. *Estuary Crossing Study: Detailed Feasibility and Travel Demand Analysis.*
[7] City of Alameda, City of Oakland and Alameda CTC. 2021. *Estuary Crossing Study: Detailed Feasibility and Travel Demand Analysis.*
[8] *City of Alameda. 2022. Alameda General Plan 2040*.
[9] City of Oakland. 2019. *Downtown Oakland Specific Plan – Public Review Draft Plan*.
[10] MTC (Metropolitan Transportation Commission). 2022. *Equity Priority Communities – Plan Bay Area 2050*. Retrieved from https://mtc.maps.arcgis.com/home/item.html?id=28a03a46fe9c4df0a29746d6f8c633c8.
[11] EJ communities as defined by Caltrans (https://dot.ca.gov/programs/environmental-analysis/standard-environmental-reference-ser/volume-4-community-impacts-assessment/ch8-title-vi-env-justice)

50th percentile statewide.[12] Air pollution from motor vehicle emissions can trigger asthma and heart attacks.[13] By meeting the expected demand for a bicycle/pedestrian crossing (up to 9,670 trips/day),[14] mode shift could reduce air pollutant emissions, thereby improving community health. Sedentary and inactive lifestyles can contribute to cardiovascular disease, and a mode shift to biking and walking would promote physical activity and its associated health benefits.

- Western Alameda has limited connectivity to Oakland, which poses a hazard in the event of a disaster, such as flooding and earthquakes. Only the Tubes provide a direct link between these two areas and are susceptible to flooding from major rainfall events and sea level rise. If they are closed, the lack of connectivity could delay disaster response and recovery for Alameda, and this would increase traffic congestion and slow emergency services.[15] Redundant infrastructure would provide the ability to adapt and recover more easily from disasters.

[12] OEHHA (California Office of Environmental Health Hazard Assessment). 2022. CalEnviroScreen. Retrieved from https://oehha.ca.gov/calenviroscreen.
[13] EJ communities as defined by Caltrans (https://dot.ca.gov/programs/environmental-analysis/standard-environmental-reference-ser/volume-4-community-impacts-assessment/ch8-title-vi-env-justice)
[14] City of Alameda, City of Oakland and Alameda CTC. 2021. *Estuary Crossing Study: Detailed Feasibility and Travel Demand Analysis.*
[15] City of Alameda. 2019. *Climate Action and Resiliency Plan (CARP)*.

# 4 TRAFFIC ENGINEERING PERFORMANCE ASSESSMENT

The assessment discusses the expected trips per day across the alternative crossings. The analysis focuses on non-auto travel across the bridge, as auto trips through the Tubes are independent of and not part of the scope of the bridge project. While construction of a pedestrian and bike crossing would likely result in some people switching travel modes from driving, induced demand[16] may offset reductions in vehicle volumes. The assessment was conducted using an updated version of the forecast tool developed for the 2021 Crossing Study. The tool was updated to reflect Plan Bay Area 2050 land use data and reflect new information about the potential bridge crossing designs.

## Existing Conditions

The existing, 36-inch-wide Posey Tube pedestrian-bicycle walkway serves approximately 140 trips per day. This is expected to increase to about 380 trips per day with the addition of a 48-inch walkway in the Webster Tube for pedestrians and bicyclists. The walkway will be built as part of the Oakland-Alameda Access Project in 2025. The Webster Tube walkway is intended only as an incremental upgrade, as users would still experience many of the same negative effects associated with the existing Posey Tube walkway including narrowness, noise, and poor air quality in the facility.

## Future Operational Performance

The number of crossings completed by people on foot and biking was estimated for the three Build Alternatives for a forecast year of 2030. The estimates were created using a forecasting tool developed specifically for the Oakland-Alameda Estuary Bridge Project. The tool was developed using data from multiple sources to capture how expected demand would vary based on multiple factors, including changes in alignment, bridge design, and connections to the transportation network. The forecast year estimates also consider projected population and employment growth outlined in Plan Bay Area 2050.[17] At a high level, the forecast tool uses data from existing travel patterns to understand the characteristics of trips traveled across the estuary, grows the trips based on planned land use changes, and then forecasts a change in mode share due to improved quality of travel.

Table 4-1 provides a summary of the estimates for the three Build Alternatives (W4, W6 and E2). Each estimate assumes the following:

1. Employment and residential population growth is in line with Plan Bay Area 2050,
2. Comfortable transitions exist between the bridge and the local transportation network that minimize potential for conflict between Bridge users and activity at termini, and

[16] Caltrans. 2024. VMT Reduction Branch. Retrieved from https://dot.ca.gov/programs/esta/sb-743.
[17] MTC (Metropolitan Transportation Commission). 2021. Plan Bay Area 2050. Retrieved from https://mtc.ca.gov/planning/long-range-planning/plan-bay-area-2050. Population and employment for 2030 are interpolated assuming linear growth between the base year and 2050, with adjustments for growth expected to be completed prior to 2030.

3. Substantial improvements are made to pedestrian and bike facilities in Oakland and Alameda, including installation of protected bike lanes per current active transportation plans.[18]

**Table 4-1. Estimated Crossings for Build Alternatives, 2030**

| Build Alternative | Weekday Total | Weekend Total |
|---|---|---|
| W4 | 8,150 | 7,490 |
| W6 | 8,150 | 7,490 |
| E2 | 9,670 | 8,750 |

1. See Section 7 for descriptions of Build Alternatives.

Assumption number 2 provides credit for touching down close to existing or future low-stress bicycle/pedestrian facilities, such as cycle tracks, trails, or parks. All Build Alternatives ranked high for these comfortable transitions.

Assumption number 3 is in line with feedback from staff in Oakland and Alameda and published active transportation plans.

### *Estimates Context*

It is recognized that estimated trips for the alternatives would place the bridges in line with the highest volume pedestrian and bicycle crossings in the United States; however, the estimates are not unprecedented in nature. The estimates are less than estimated crossings of the Golden Gate Bridge and bicycle trips for the East River Bridges in New York City; and in the range of bridges such as the Tilikum Crossing in Portland, Oregon, the Massachusetts Avenue Bridge between Boston and Cambridge, Massachusetts, and the Pfluger Pedestrian-Bicycle Bridge in Austin, Texas.

In addition, the estimated trips include plans for substantial growth in population and employment along the estuary in combination with no planned growth in capacity through the Webster and Posey Tubes. **Figure 4-1** displays the updated growth factors based on planned population and employment growth in Plan Bay Area 2050. Furthermore, the estimates include recreational trips, which currently are very limited on the Posey Tube path. Note that estimate for E2 includes greater uncertainty relative to estimates for W4 and W6 as the area around E2 includes relatively more planned housing and employment compared to the western alignments where estimates are less dependent on future growth.

[18] City of Alameda. 2022. Active Transportation Plan. Retrieved from https://www.activealameda.org/Adopted-Plan. City of Oakland. 2019. Let's Bike Oakland: 2019 Oakland Bike Plan. Retrieved from https://www.oaklandca.gov/resources/bicycle-plan

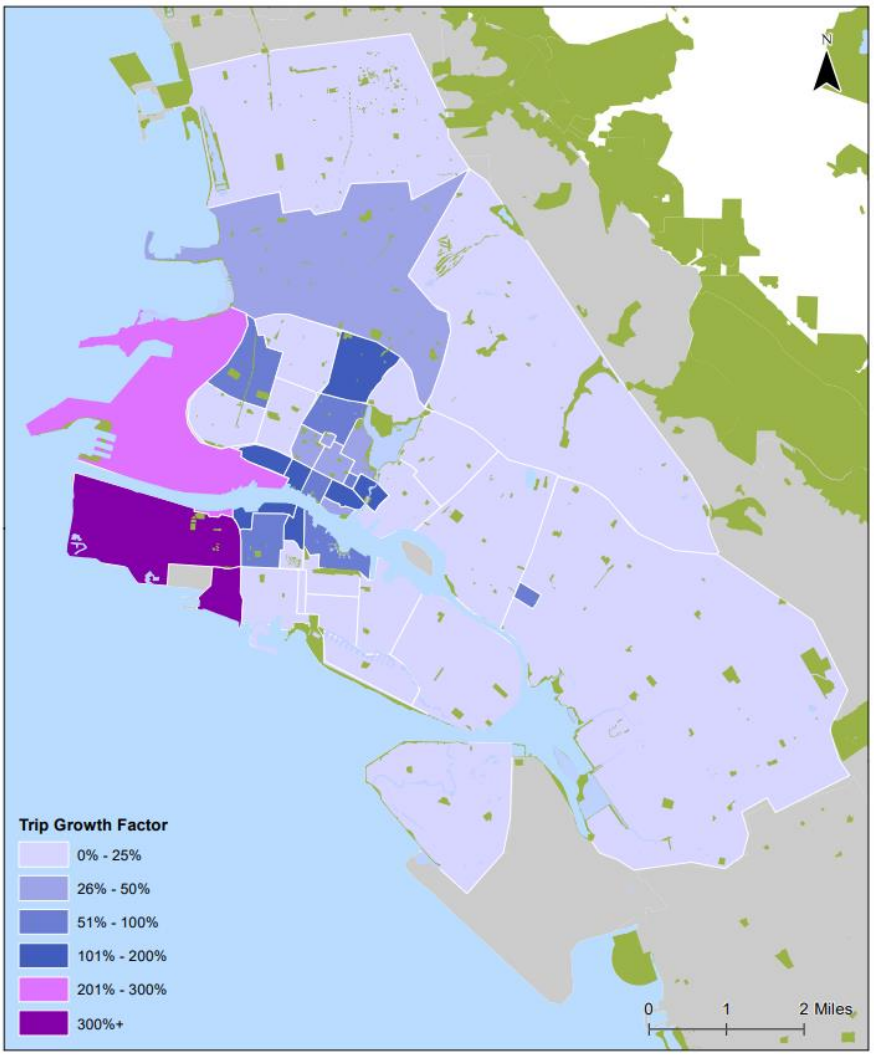



**Figure 4-1. Trip Growth Rates Base Year (2020) to Forecast Year (2030)**

### Traffic Study Scope for PA&ED Phase

The proposed Project will complete a Traffic Operations Analysis Report defining the study area, data collection, existing conditions operations analysis, project alternative analysis, travel forecasts, future year traffic operation, and a traffic analysis report in the PA&ED phase.

#### *Safety Analysis*

A safety analysis will be performed in the PA&ED phase. The analysis consists of a retrospective historical crash analysis and a predictive crash analysis based on the proposed geometry. The retrospective crash analysis is intended to highlight safety deficiencies on access routes to the bridge in the project study area, such as intersections with high bicycle/pedestrian accident rates. The goal of the predictive crash analysis would be to inform potential features on access routes to the bridge such as bulbouts, high-visibility crosswalks, pedestrian hybrid beacons, protected bike lanes, etc. that would reduce crash rates compared to no-build conditions.

# 5 DEFICIENCIES

As discussed in Section 3 (Purpose and Need), there is a major lack in connectivity for pedestrians and bicyclists between the west side of Alameda and Oakland. The only existing connection in the area is the substandard, 36-inch walkway in the Posey Tube. On a typical weekday, about 140 pedestrian and bicyclist trips are made using the existing Posey Tube walkway. An online survey was conducted on the City of Alameda's project website to better understand the communities' travel needs as well as their perspective on a potential new bridge crossing. Survey results indicated that users find the existing walkway to be narrow, noisy, dirty, and stressful, which leads many to avoid it. The next closest crossing for both motorized and non-motorized users is approximately 3.1 miles by biking or 2.9 miles by walking to the east, at the Park Street Bridge. The project study area is home to equity communities, who often experience limited access to vehicles and health issues resulting from vehicle pollution.

# 6 CORRIDOR AND SYSTEM COORDINATION

## Corridor Overview

SR 260 extends from Marina Village Parkway/Mitchell Avenue in Alameda to 8th Street in Oakland. The primary features on the state route are the Webster (southbound) and Posey (northbound) Tubes under the estuary. The Tubes are approximately 3,500 feet in length. SR 260 is primarily used by vehicles but also provides a two-way, 36-inch-wide walkway for pedestrians and bicyclists. Within the study area, the estuary varies from 600 to 1,100 feet wide. The estuary is used for a variety of purposes including shipping, passenger transportation (ferries), recreation, and military (USCG).

## State/Regional/Local

All three Build Alternatives would be consistent with existing state, regional, countywide and local plans (Table 6-1). Indeed, the project would fulfill recommendations in the state, regional, countywide and local bicycle and pedestrian plans to build a bike and pedestrian crossing between western Alameda and downtown Oakland.

**Table 6-1. List of Relevant State, Regional, Countywide and Local Plans**

| # | Plans | Year | Responsible Agency |
|---|---|---|---|
| 1 | Caltrans District 4 Bicycle Plan | 2018 | Caltrans |
| 2 | Caltrans District 4 Pedestrian Plan | 2021 | Caltrans |
| 3 | Caltrans Bay Area Bike Highway Study | 2022 | Caltrans |
| 4 | Metropolitan Transportation Commission (MTC) Regional Active Transportation Network | 2022 | MTC and Association of Bay Area Governments (ABAG) |
| 5 | MTC Plan Bay Area 2050 | 2021 | MTC and ABAG |
| 6 | MTC Bay Trail Gap Closure Implementation Plan (draft) | 2023 | MTC |
| 7 | North Alameda County Core Connections Plan | 2022 | Alameda CTC |
| 8 | Alameda CTC Countywide Bikeways Network | 2022 | Alameda CTC |
| 9 | Alameda CTC Countywide Transportation Plan | 2020 | Alameda CTC |
| 10 | Alameda CTC 2024 Comprehensive Investment Plan | 2023 | Alameda CTC |
| 11 | City of Oakland Downtown Oakland Specific Plan (Final Draft) | 2024 | City of Oakland |
| 12 | City of Oakland Bicycle Plan | 2019 | City of Oakland |
| 13 | City of Alameda General Plan 2040 | 2022 | City of Alameda |
| 14 | City of Alameda Transportation Choices Plan | 2018 | City of Alameda |
| 15 | City of Alameda Active Transportation Plan | 2022 | City of Alameda |

## Programmed and Planned Projects within the Project Vicinity

The programmed projects within and adjacent to the project vicinity are listed in Table 6-2 and Table 6-3. The State Highway Operation and Protection Program (SHOPP) is the state's "fix-it-first" program that funds safety improvements and some highway operational improvements, and the repair and preservation of the State Highway System. This includes the Oakland-Alameda Access Project (EA 04-0G360), which would construct separated lanes on Oak St, connecting the project vicinity to Lake Merritt BART. The Regional Transportation Plan (RTP) projects are listed in Plan Bay Area 2050, the MTC list of locally-funded projects.

**Table 6-2. State Highway Operation and Protection Program/State Transportation Improvement Plan Projects**

| PROJECT ID | EA | Route | PM | Location | Work Description | Program Category | Current Phase | M460 RTL |
|---|---|---|---|---|---|---|---|---|
| 0400000326 | 04-0G360 | 880, 260 | R30.47/R31.61, R0.78/R1.90 | On I-880 and SR 260 between 5th Avenue Overhead and 5th and 6th Street Viaduct | Reconstruct ramps to/from Posey/Webster Tubes, reconstruct 6th Street, improve pedestrian-bicycle walkway in Webster Tube, install jet fans in both Tubes | SHOPP | Plans, Specifications, and Estimates (PS&E) | 06/2024 |

Note: RTL: Ready to List

**Table 6-3. Regional Transportation Plan Projects (Plan Bay Area 2050)**

| RTP ID | Project Sponsor | Project Cost | Project Name | Project Description |
|---|---|---|---|---|
| 21-T06-024 | Alameda CTC | $637M | Corridor and Interchange Improvements – I-880 – Alameda County | This program includes funding to implement interchange improvements between Oak Street and Broadway, Whipple Road and Industrial Parkway, Winton Avenue and A Street, 23rd Avenue and 29th Avenue, and 42nd Avenue and High Street. |
| 21-T10-062 | AC Transit<br>San Francisco Bay Area Water Emergency Transportation Authority (WETA) | $500M | Multimodal Transportation Enhancements – AC Transit and WETA – Alameda Point | This program includes funding to implement improvements to existing transit service in the City of Alameda. Improvements include new bus service on Appezzato Parkway, with dedicated lanes (15 minute peak headways); new bus service between Fruitvale BART and Seaplane Lagoon (20 minute peak headways); new crosstown express bus service between Harbor Bay Ferry Terminal and Alameda Main Street Ferry Terminal (20 minute peak headways); and new ferry service between Seaplane Lagoon and San Francisco Ferry Building (30 minute peak headways). |
| 21-T10-065 | AC Transit | $3.76B | Local Bus – Service Frequency Boost – AC Transit – Systemwide | This program includes funding to implement improvements to AC Transit's existing local bus service. Improvements include frequency upgrades (5- to 10-minute peak headways along routes 72/72M/72R, 18, 51A/B, 6, 20/21, 57, 40/40L, 97, 99, Tempo BRT, NL, F-local and F-Transbay) and local/rapid service on some routes. |
| 21-T11-112 | BART | $28.8B | Rail – Service Expansion – Oakland-San Francisco (Link21 Program [Link21]) | This program includes funding to implement Link21, providing new transbay rail service between San Francisco and Oakland, including new stations in the East Bay and San Francisco (10 trains per hour per direction in peak). |
| 21-T12-120 | AC Transit | $229M | Express Bus – Service Expansion – AC Transit – Transbay Corridor | This program includes funding to implement improvements to existing express bus service along I-80, I-580 and I-880 (on express lanes where available). Improvements include frequency upgrades (15 minute peak headways on routes F, O, P, J, V and L) and planning for express bus expansion throughout the inner East Bay. |
| | City of Oakland | | MLK Jr Way Streetscape Improvements | Install new two-way raised cycle track; install new ADA ramps, bulbouts, and high-visibility crosswalks; plant new street trees; upgrade traffic signals; repave street. |
| | City of Oakland | | Broadway Streetscape Improvements | Extend bus-only lanes; expand transit signal priority; install new ADA ramps, bulbouts, and high-visibility crosswalks; |

| RTP ID | Project Sponsor | Project Cost | Project Name | Project Description |
|---|---|---|---|---|
| | | | | improve I-880/Broadway undercrossing; modify turn movements; upgrade traffic signals; lower speed limit. |
| | City of Oakland | $32M | Embarcadero West Rail Safety and Access Improvements | Reconstruct and upgrade eight at-grade crossings; install fencing; install new traffic signals with pre-emption; slow vehicle speeds and eliminate left turns across the railroad tracks; construct a multi-use path on Embarcadero West. |
| | City of Alameda | | Oakland-Alameda Estuary Long-Term Adaptation Plan | Protect shorelines communities of Oakland and Alameda from expected sea level and groundwater rise and liquefaction; enhance transportation and recreation corridors and bay access; reduce flood exposure; create or restore marsh, upland, and transitional habitat; improve air quality; reduce climate risks to shoreline communities. |

Note: Source: Plan Bay Area 2050 Transportation Project List (MTC 2021)[17]

# 7 ALTERNATIVES

## No Build Alternative

The "No Build" Alternative assumes no bridge construction in the estuary connecting Alameda and Oakland. Under this alternative, SR-260 would remain unchanged. The "No Build" Alternative is not recommended for the following reasons:

- Cross-estuary bicycle and pedestrian facilities between western Alameda and downtown Oakland will remain severely limited. The Bay Trail connection would remain substandard, and the bicycle highway identified in Caltrans District 4 Bicycle Highway Study would not be constructed. As a result, the Oakland Estuary will continue to represent a barrier to walking/biking between these two communities that are separated by 1,000 feet or less.
- Does not relieve traffic volumes, traffic congestion, and air pollutant emissions in neighborhoods near the Tubes with expected significant population growth in the coming decades, and EJ and EPC communities present.

Therefore, the "No Build" alternative will not meet the purpose and need of this proposed project and is not considered a viable alternative.

## Build Alternatives

Three Build Alternatives are proposed across the Oakland Estuary: Alternative W4, Alternative W6, and Alternative E2. Each Build Alternative is generally described below from its downtown Oakland approach to its western Alameda approach. For preliminary geometric plan and profiles, see Attachment B. For bridge drawings, see Attachment J.

### *Vertical Clearance*

While all three Build Alternatives have a 42-foot vertical clearance, the vertical clearances studied in this PID included a 42-foot and 70-foot clearance in the closed position, to fully understand the impacts of different bridge heights. The low and high range was based on an informal survey that was conducted from August 28, 2017 to September 3, 2017. The survey concluded that approximately 60% and 90% of vessels were able to cross the bridge without needing the bridge to open for a bridge height of 42 feet and 70 feet, respectively. A bridge lower than 42 feet would require too frequent of openings, making the bridge less usable. A bridge higher than 70 feet would severely discourage pedestrians and bicyclists from using the structure due to the climb required and the length of the crossing and would also require a much larger ramp footprint. In the next phase of the project, a waterway study will be conducted to determine the ideal height of the bridge. For details on the waterway study, please refer to section "Concepts for Further Consideration" of this report.

### *Span*

While all three Build Alternatives have a 400-foot span length, the span lengths of the bridge studied in this PID included a 400-foot and 600-foot horizontal clearance. To fully understand the impacts of different horizontal clearances, these low and high ranges were

studied. The high range at 600 feet was determined by USCG based on the narrowest part of the estuary in the existing condition. The low range at 400 feet was based on the maximum span that would be feasible for other structure types such as bascule bridge. The waterway study will be used to determine the minimum span length.

The total length of each alternative is summarized in **Table 7-1**.

**Table 7-1. Build Alternative Span Lengths**

| Alternative | South (Alameda) Approach and Abutment | Main Span | North (Oakland) Approach and Abutment | Grand Total |
|---|---|---|---|---|
| W4 | 670 feet | 400 feet | 655 feet | 1,725 feet |
| W6 | 690 feet | 400 feet | 695 feet | 1,785 feet |
| E2 | 710 feet | 400 feet | 745 feet | 1,855 feet |

### Shared Features Common to All Build Alternatives

The following features would be common between all three Build Alternatives.

#### *Movable Bridge Span*

Each bridge would extend across the Oakland Estuary and include a steel, movable main span. This would open for boat traffic by raising vertically (lift bridge). In its closed position, the main span would provide a vertical clearance for boats of 42 feet at the center of the bridge and a minimum vertical clearance of 36.7 feet at the fenders. Each bridge would provide a minimum horizontal channel clearance of 400 feet within the Oakland Estuary. The main span would have a width of approximately 22 feet for bicyclists and pedestrians. 22 feet exceeds Caltrans standards and allows for a delineation of pedestrians separately from bicyclists if desired. Wheelchair users would be able to use the pedestrian area. Scooters would be able to use the bike area. Maintenance and emergency vehicles would only access the structure in limited circumstances. Railings would be installed on both sides of the span.

Each side of the main span would be supported by piers. Piers would each occupy approximately 7,000 square feet within the Oakland Estuary and would require drilling shafts to a depth of 150 feet. Pier towers would extend up to 230 feet above the waterline.

Other movable structure types are possible, such as bascule, and will be evaluated in the PA&ED phase after the waterway study is completed.

#### *Fixed Bridge Approach Spans*

Connecting to the main span would be concrete bridge approaches. These approaches would extend over the Oakland Estuary and connect to the shoreline. Each approach would have a width of approximately 16 feet and a maximum grade of 4.9% to comply with ADA standards. Bridge approaches would have a variable length and number of spans depending on the Build Alternative. Railings would be installed along both sides of each approach. The bridge will also include pull out areas for viewing purposes.

Bridge approaches would be supported by piles that would extend to a depth of up to 150 feet below the bottom of the Oakland Estuary. Each pile would have a diameter of approximately 8 feet.

### *Abutments and Retaining Walls*

On both sides of the Oakland Estuary, bridge approaches would transition to an at-grade abutment surrounded by retaining walls. Walls would be up to 10 feet tall. Depending on the type of retaining wall used, excavation up to 25 feet deep would be required for the wall footings or piles. Along both sides of the Oakland Estuary, the at-grade abutments would connect to nearby segments of the Bay Tail along the shoreline.

### *Stormwater Best Management Practices*

Stormwater Best Management Practices (BMP) would be installed to treat runoff from the span and other impervious areas created by the project. BMP would include bioswales, which are shallow, vegetated depressions designed to capture and treat stormwater. Excavation up to 10 feet deep would be required to construct each bioswale.

### *Staging and Construction Schedule*

For the construction phase, temporary staging areas would be needed near the approaches on both sides of the Oakland Estuary for storage of materials and equipment. These would be on parcels the bridge approaches directly pass through. Public areas, such as the Ferry Lawn in Jack London Square near the Oakland Ferry Terminal, Estuary Park, and the Bay Trail (in both Oakland and Alameda), may be temporarily closed for staging or construction areas, as well. Staging areas would be restored to original conditions after construction is complete.

For in-water work, construction equipment would be placed on barges. These would be docked at a site to be determined. Temporary closure of the waterway will be required during installation of the main span.

No detours or closures of roadways are anticipated. However, there may be temporary parking restrictions or temporary lane closures for utility work associated with the project. Some existing paths and sidewalks along the Oakland Estuary (such as the Bay Trail) would be temporarily closed during construction, and detours would be provided for bicyclists and pedestrians.

Construction is anticipated to take at least 3 years, from 2033 to 2036 and would entail excavation work (e.g., scrapers, backhoes, dump trucks, and rollers), drilling/foundation work (e.g., oscillators, cranes, and concrete mixers), in-water work (e.g., barges and cranes), and bridge construction (e.g., concrete mixers, welders, and cranes). Stages of construction would include clearing and grubbing, foundation excavation and drilling, retaining wall construction, column construction, bridge superstructure construction, utility relocation and installation, electrical/mechanical work, testing and commissioning, and site closeout. Night work may be required to perform pile driving, foundations, and bridge superstructure work while there is less boat traffic in the Oakland Estuary.

### *Utilities*

Communication infrastructure on the bridge would include radio, internet, telephone, and closed-circuit television (CCTV) cameras. Utility connections would be needed to support communication infrastructure, which would be used to communicate with boat traffic and monitor bridge users to avoid conflicts and maintain safety. The motors for the

bridge would require new electric power supply connections on both sides of the Oakland Estuary. New stormwater connections may be required, as well.

**Build Alternatives**

***Alternative W4: Washington Street to 5th Street***

In Oakland, the bridge abutment for Alternative W4 would be located at the south end of Washington Street near the southeast corner of Ferry Lawn (Figure 7-1). The bridge approach would curve to the west as it extends into the Oakland Estuary, passing about 50 feet east of the WETA ferry terminal in Oakland. This distance would allow normal operations for the ferry system. The approach would then curve back to the east and head in a southerly direction approximately perpendicular to the center of the Oakland Estuary. The Oakland approach span would be 655 feet from the shore to the main span of the bridge.

After its main span, the bridge would descend into Alameda via an S-curve to the east. The Alameda abutment would be located in Bohol Circle Immigrant Park (**Figure 7-1**). It would have access to the north end of 5th Street. The Alameda approach span would be 670 feet from the shore to the main span of the bridge.

Due to its close proximity, construction of Alternative W4 may temporarily affect WETA's operations at the Oakland Ferry Terminal.

Temporary construction and permanent easements would be needed, along with some partial ROW acquisition.

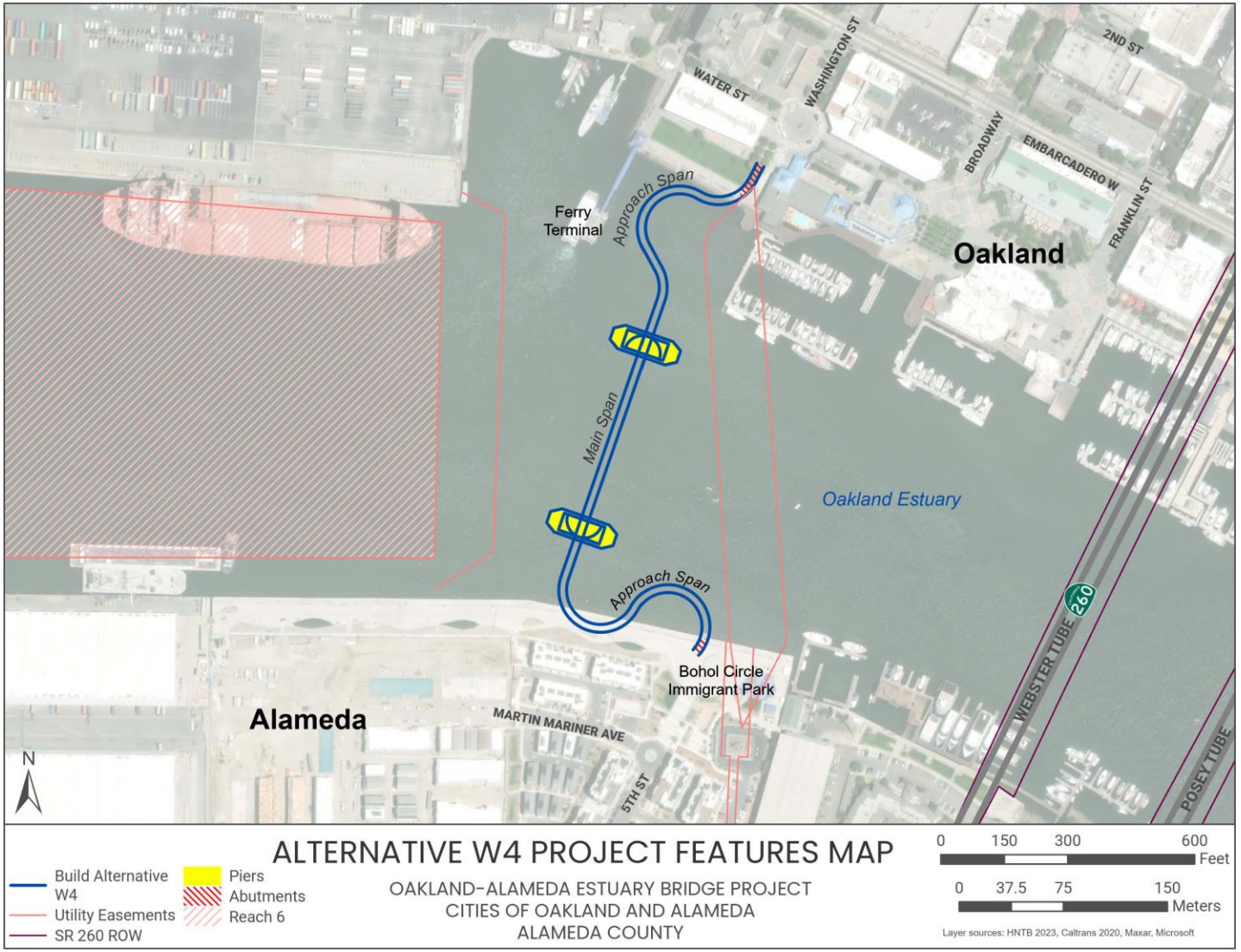



**Figure 7-1. Alternative W4 Project Features Map**

***Alternative W6: Broadway to 5th Street***

In Oakland, the bridge abutment for Alternative W6 would be located in the open space at the south end of Broadway (Figure 7-2). As it extends into the Oakland Estuary, the bridge approach would curve to the west over the existing marina. The approach span would require the permanent relocation of private docks in the marina. The approach would then curve back to the east and head in a southerly direction approximately perpendicular to the center of the Oakland Estuary before connecting to the main span of the bridge. The Oakland approach span would be 695 feet from the shore to the main span of the bridge.

After the main span, the approach would descend into Alameda via a curve to the west. The approach would run next to the shoreline before its touchdown in Bohol Circle Immigrant Park (**Figure 7-2**). The park connects to 5th Street, located to the southeast. The Alameda approach span would be 690 feet from the shore to the main span of the bridge.

Temporary construction and permanent easements would be needed, along with some partial ROW acquisition.

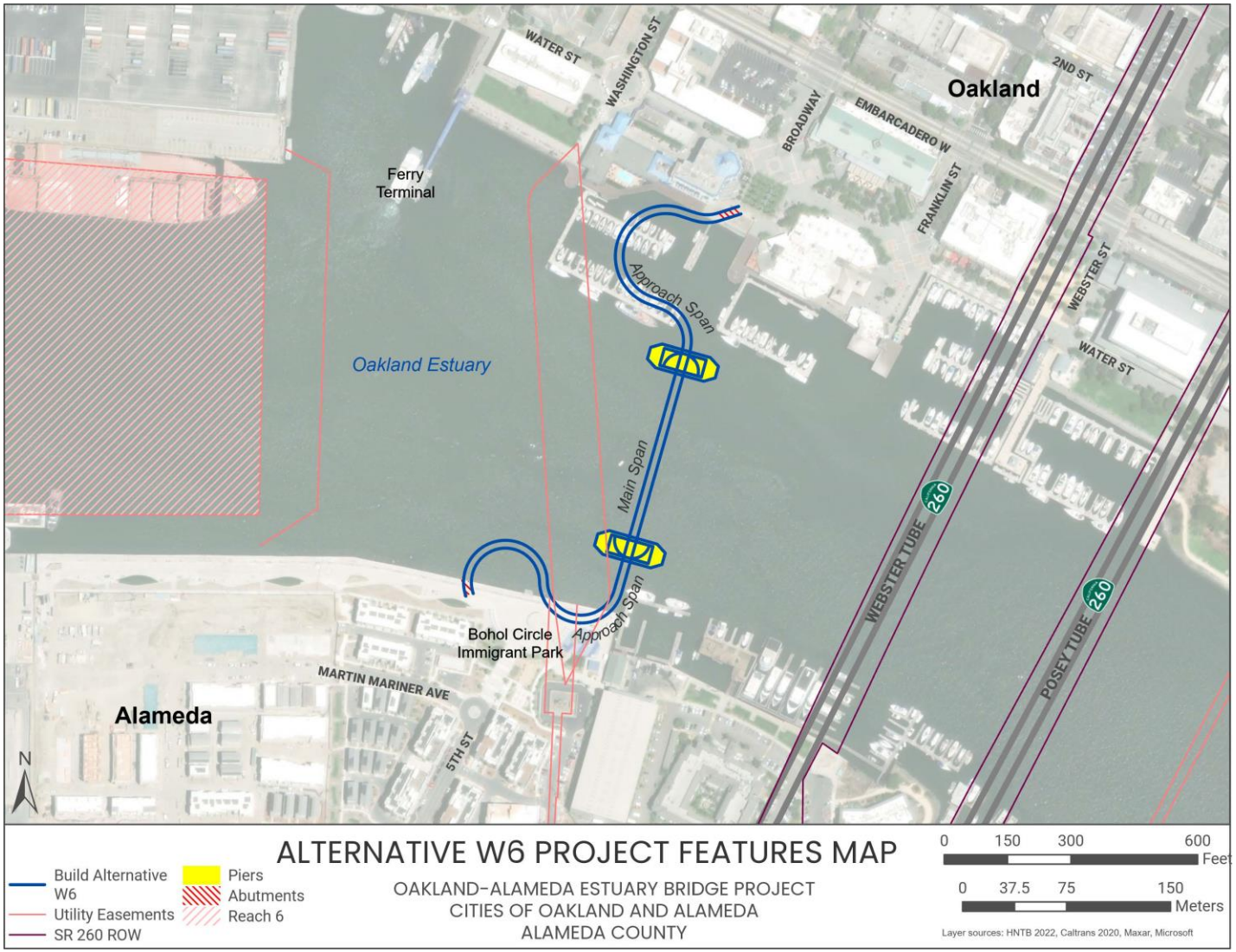



**Figure 7-2. Alternative W6 Project Features Map**

***Alternative E2: Estuary Park to Alameda Park***

In Oakland, the bridge abutment for Alternative E2 would be located at the south end of Estuary Park (Figure 7-3). A major redesign and improvements for this park are currently underway, which are expected to be constructed before the proposed project. After extending into the Oakland Estuary, the bridge approach would curve to the east and then curve back to the west. The approach would then head in a southerly direction, approximately perpendicular to the center of the Oakland Estuary, before connecting to the main span. The Oakland approach span would be 745 feet from the shore to the main span of the bridge.

After its main span, the bridge approach would descend into Alameda via a slight curve (**Figure 7-3**). This would pass over a marina, which would require some private docks to be permanently relocated. The Alameda touchdown would be in green space owned by the City of Alameda. The Alameda approach span would be 710 feet from the shore to the main span of the bridge.

Temporary construction and permanent easements would be needed, along with some partial ROW acquisition.

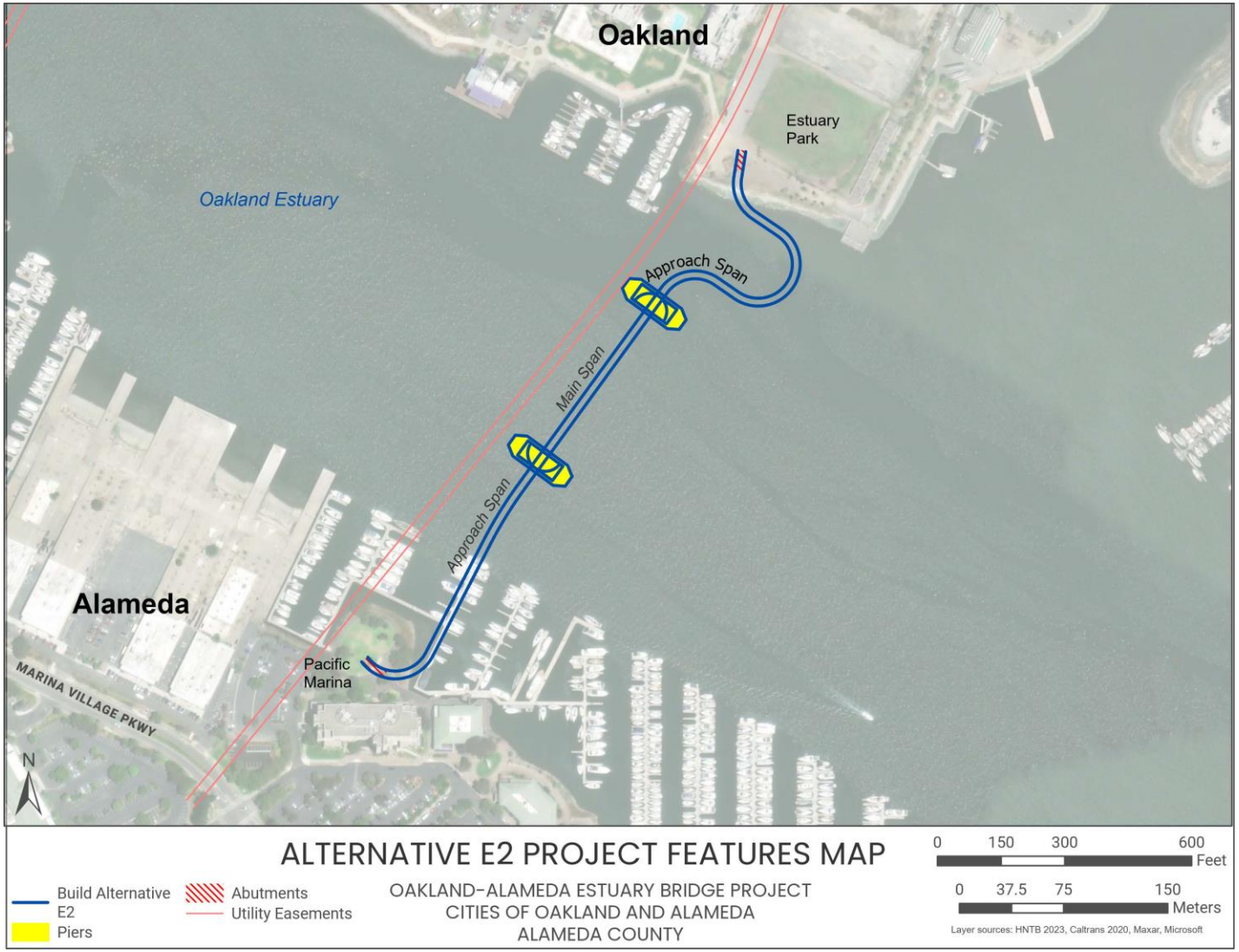



**Figure 7-3. Alternative E2 Project Features Map**

***Drainage and Stormwater***

The *Stormwater Data Report* (SWDR) in Attachment G summarizes potential water quality impacts from stormwater runoff for each of the three Build Alternatives. The purpose of the SWDR is to document the stormwater quality issues and design decisions made regarding project compliance with National Pollutant Discharge Elimination System (NPDES) Permits: Construction General Permit (CGP, NPDES No. CAS000002), Caltrans NPDES Permit (NPDES No. CAS000003, Order 2022-0033-DWQ), and Municipal Regional Permit (NPDES No. CAS612008). The SWDR is also used to establish the project's approach to avoiding and minimizing water quality impacts through temporary and permanent BMPs. The SWDR will be updated in PA&ED.

As part of the project, permanent stormwater BMPs would be installed to treat runoff and prevent pollution. Permanent BMPs under consideration include biofiltration or bioretention swales (bioswales). Bioswales are shallow, vegetated depressions designed to capture and treat stormwater. Where the groundwater is high, bioretention areas may require an impervious liner, or biofiltration may be the only treatment option.

Caltrans has a developed a *Statewide Trash Implementation Plan*[19] to ensure compliance with the Statewide Trash Provisions (Section 1.4.2.2, 2023 PPDG). Projects such as this one that have a trash total maximum daily load (TMDL) must consider full-capture trash devices, if feasible. Full-capture trash devices trap all particles 5 millimeters or greater and have a design treatment capacity that is either:

- Not less than the peak flow rate, Q, resulting from a 1-year, 1-hour storm for the contributing drainage area (full-capture flow [FCF], Section 5.3.4.3, 2023 PPDG), or
- Designed and sized to convey at least the same flows as the corresponding storm drain.

Projects that have both post construction and trash treatment requirements should consider multi-benefit trash treatment systems (MBTTS). These are certified full-capture trash devices that are also effective at removing other pollutants. MBTTS are a preferred treatment method because they remove multiple pollutants and can meet post construction TMDL requirements and significant trash generation areas requirements. They are sized using the water quality volume or flow, and then they are certified by showing adequate treatment capacity for either the FCF or the full-capture volume.

The Caltrans-approved treatment BMPs that can be certified as MBTTS include the following:

- Bioretention
- Detention basin
- Infiltration trench and basin

[19] Caltrans. 2019. Statewide Trash Implementation Plan. April 12, 2019. Retrieved from https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/caltrans/trash_implement_plan_20181130.pdf.

- Austin media filter (earthen and concrete vault)
- Delaware media filter

The project would also need to implement temporary construction BMPs. The project's disturbed soil area (DSA) would be greater than 1 acre for any of the three Build Alternatives, and therefore, is required to obtain coverage under the CGP and preparation of a Stormwater Pollution Prevention Plan (SWPPP). The construction contractor would prepare the Water Pollution Control Plans (WPCPs) depicting temporary sediment and erosion control BMPs as well as the SWPPP. The WPCPs and SWPPP would be developed to address the following objectives:

- All pollutants, and their sources, including sources of sediment associated with construction, construction site erosion and all other activities associated with construction activity are controlled;
- All non-stormwater discharges are identified and either eliminated, controlled, or treated;
- Construction site BMPs are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity to the best available technology economically achievable/best conventional pollutant control technology standard;
- Calculations and design details as well as BMP controls for site run-on are complete and correct;
- Temporary soil stabilization BMPs appropriate for the DSA, slope steepness, slope length, and erodibility are provided;
- Environmentally sensitive areas through delineation on all project plans are protected;
- Flow is channelized for all locations of concentrated flow that would enter the site from outside the ROW; and
- Stabilization BMPs are installed to reduce or eliminate pollutants after construction is completed.

As a part of the CGP, a project Risk Level Determination must be prepared. The projects Risk Level is determined by two factors, the Sediment Risk Factor and the Receiving Water Risk Factor. The Sediment Risk Factor is determined by three factors that were obtained from the Caltrans Water Quality Planning Tool.[20] The project has an Erosivity (R-factor) of 40, Soil Type (K-Factor) of 0.15, and Length Slope Factor (LS-Factor) of 0.26. These factors indicate that the project has a low sediment risk. Given a low receiving water risk, for the PID phase, the project's Combined Risk is estimated to be Level 1.

[20] Caltrans. 2023. Water Quality Planning Tool. Retrieved from https://svctenvims.dot.ca.gov/wqpt/wqpt.aspx

Specific construction BMPs would be determined at the construction phase. Clearwater diversion BMPs such as turbidity curtains or coffer dams would be needed for the pile and foundation work within the open water of the Oakland Estuary.

### *Construction*

Temporary staging areas would be needed near the approaches on both sides of the Oakland Estuary for storage of materials and equipment. These would be on parcels the bridge approaches directly pass through. Public areas, such as Ferry Lawn or portions of Estuary Park, may be temporarily closed for staging or construction areas, as well. Staging areas would be restored to original conditions after construction is complete.

For in-water work, construction equipment would be placed on barges. These would be docked at a to be determined site. The 400-foot main span would also need to be delivered by barge.

No detours or closures of nearby roadways are anticipated. However, there may be temporary parking restrictions or temporary lane closures for utility work associated with the project. Pedestrians and bicyclists using existing paths and sidewalks along the Oakland Estuary (such as the Bay Trail) would be temporarily detoured during construction.

Construction is anticipated from 2033 to 2036 and would entail excavation work (e.g., scrapers, backhoes, dump trucks, and rollers), drilling/foundation work (e.g., oscillators, cranes, and concrete mixers), in-water work (e.g., barges, cofferdams, and cranes), and bridge construction (e.g., concrete mixers, welders, and cranes). Stages of construction would include clearing and grubbing, foundation excavation and drilling, retaining wall construction, column construction, bridge superstructure construction, utility relocation and installation, electrical/mechanical work, testing and commissioning, and site closeout. Night work may be required to perform pile driving, foundations, and bridge superstructure work while there is less boat traffic in the Oakland Estuary. Pile driving would be required along the entire length of the bridge. The piles would be driven up to 150 feet into the ground.

### *Design Standards Risk Assessment*

All three Build Alternatives propose a new Class I shared-use path across the estuary. The Caltrans Highway Design Manual (HDM)[21] was used as the basis of design standards. The proposed bridge geometry meets HDM standards for minimum width, horizontal clear width, vertical clearance, stopping sight distance for the crest curve and grade.

There is one nonstandard design feature related to stopping sight distance on horizontal curves. All three Build Alternatives contain approaches with a minimum radius of 90 feet. 90 feet is the recommended minimum horizontal curve radius for a 20-mile per hour (mph) bike design speed according to HDM Index 1003.1(10). However, according to HDM Table 1003.1, a 30-mph design speed should be assumed for bike paths on long

[21] Caltrans. 2023. Caltrans Highway Design Manual (HDM). U.S. Customary Units. Seventh Edition. Retrieved from https://dot.ca.gov/programs/design/manual-highway-design-manual-hdm.

downgrades (steeper than 4% and longer than 500 feet). This corresponds to a stopping sight distance of 230 feet. The 90-foot curves on the approaches, assuming the bridge railing is a visual obstruction, would only provide a stopping sight distance of 53 feet. Providing standard 30-mph sight distance would require either widening the bridge to over 60 feet or widening the curve to over 1000 feet (which is wider than the main span of the bridge), both of which are infeasible. Therefore, the project would consider using see-through railings and/or warning signs to mitigate this nonstandard feature. See Attachment H for the Design Standards Risk Assessment matrix.

For the Build Alternatives, there is no crossing of roadways or state highways, so no new nonstandard features would be introduced to these facilities. In addition, the geometry complies with Caltrans Design Information Bulletin 82,[22] related to ADA standards for pedestrian and bicycle facilities. See Attachment B for preliminary geometrics and Attachment H for Preliminary Design Standards Risk Assessment.

### *Complete Streets*

The project's main purpose and feature is a pedestrian-bicycle bridge, so complete streets and active transportation are an inherent part of the project. The bridge itself would be exclusive to pedestrians and bicycles, including wheelchair users, scooters, and micromobility devices. Authorized maintenance and emergency vehicles may use the bridge to perform official duties. All Build Alternatives connect to open, public civic areas on both sides. The project will coordinate with both cities to develop high-quality, low-stress walking and biking routes to and from the bridge landings, consistent with the City of Alameda and City of Oakland pedestrian and bicycle plans. The cities should also take the bridge landing locations into consideration, as appropriate, as street improvement projects are planned and designed near the potential landing locations. Local plans identify corridors such as the Bay Trail, Marina Village Parkway, and Mitchell Avenue in Alameda; and Washington Street, Oak Street, and 2nd Street in Oakland, as priority bicycle network corridors to which the project would connect. Users could also connect to bus (AC Transit), ferry (SF Bay Ferry), and rail (BART, Amtrak) services in the Jack London area and on Broadway. See Attachment I for the Complete Streets Decision Document.

### *Highway Planting*

The project would consider landscaping and planting as appropriate to enhance the attractiveness of the bridge where the landing approaches and landings impact existing public open spaces, waterfront promenades, and the Bay Trail. Landscape design would give consideration to integration of the bridge landing areas with the surrounding uses and support placemaking and placekeeping in the area. Landscape design and plant selection would take the local environment into consideration and follow requirements for low water use, recycled water use, and Rescape (formerly Bay Friendly) landscape design guidance, as appropriate. If existing landscaped areas are affected by construction,

[22] Caltrans. 2021. Design Information Bulletin 82. Caltrans ADA Project Delivery Office. April 27, 2021. Retrieved from https://dot.ca.gov/-/media/dot-media/programs/design/documents/dib82-06-a11y.pdf.

the project would restore them. A preliminary landscape estimate has been included in the cost estimate. Detailed landscape plans will be developed at the next phase.

### *Public Engagement and Social Equity*

The Cities of Alameda and Oakland have been studying and engaging with the public on this project for the past 15 years, starting with the 2009 Estuary Feasibility Study. In 2016, two local advocacy groups, Bike Walk Alameda and Bike East Bay, advocated for more resources to be spent on developing the project, which supported allocation of the funding for, and development of, the 2021 Detailed Feasibility Study, and funding for this PSR-PDS. During this PSR-PDS phase, public engagement activities were conducted from October 2022 to the present. There were four Technical Advisory Committee (TAC) and three Stakeholder Advisory Committee (SAC)/Equity Advisory Committee (EAC) meetings held. These groups included a broad range of public agencies, nonprofits, businesses, and community groups. Both the SAC/EAC and TAC contributed to the development of the purpose and need statements and provided input on alternative selection. The S/EAC focused on capturing the concerns of EPC in the broader areas beyond the estuary who may be beneficiaries of the bridge and yet may still be impacted negatively by it in some respects. Discussions revolved around how the bridge project relates to key equity issues, especially access to jobs, environmental and health impacts, and the potential for displacement of existing communities. The aim was to ensure that the project does not exacerbate existing inequities and, where possible, contributes positively to these areas. In 2022, a project website[23] was established, which includes a community survey, on which 808 people have responded (See Section 9 for a summary of the results).

### Alternatives Considered but Rejected

Other methods of crossing the estuary have been considered over time, including in the 2009 Feasibility Study[24] and 2021 Detailed Feasibility Study and Travel Demand Report.[25] A new transit, bicycle, and pedestrian tube parallel to the Webster and Posey Tubes was studied, but was later rejected due to cost exceeding $2 billion. A water shuttle service was considered, but it was not included for further study as part of this project, since it would not be a permanent improvement, it would be very expensive to offer 24-hour service (comparable to a bridge), and the service could be reduced or eliminated due to future funding gaps. Similarly, an aerial tramway or gondola has been studied multiple times but has not advanced due to high operating and maintenance costs, the expense of offering 24-hour service, low user throughput, and the inherent difficulties of siting the alignment due to differing street grids on either side of the estuary. Based on the findings from the 2009 and 2021 studies, and other gondola studies, the non-bridge alternatives were not advanced to consideration in the PID.

---

[23] City of Oakland and City of Alameda. 2023. Oakland-Alameda Estuary Bridge Project Website. Retrieved from https://estuarybridge.org/.
[24] City of Alameda. 2009. *Estuary Crossing Study – Final Feasibility Study Report*.
[25] City of Alameda, City of Oakland and Alameda CTC. 2021. *Estuary Crossing Study: Detailed Feasibility and Travel Demand Analysis*

The three Build Alternatives were selected through a comprehensive evaluation process, which evaluated twelve (12) different bridge alternatives on thirteen (13) metrics, as follows:

1. Reduce the Barrier Effect of the Oakland Estuary on Equity Communities
2. Improve Multimodal Connectivity between Alameda and Oakland
3. Encourage Mode Shift from Single-Occupant Motor Vehicles
4. Positive Health Outcomes for Equity Communities
5. Touchdown Area - Urban Design
6. Navigability
7. Stakeholder Buy-In
8. User Experience
9. Displacements (Residential and Business)
10. Section 4(f) Constraints/ Opportunities
11. Hazardous Waste Contamination
12. Cultural Resources Sensitivity
13. Biological Resources

Nine (9) alternatives were ultimately eliminated for various reasons, as they scored the lowest amongst the group. A description of each of these eliminated alternatives is included below.

In 2023, six different bridge locations were evaluated. They were broadly located in the western, central or eastern parts of the study area. Each included a high and low bridge option, resulting in a total of 12 alternatives. Six of these alternatives were eliminated primarily because of their height above the water (70 feet). Low bridges scored better primarily since their estimated bicycle and pedestrian usage is higher and they have fewer impacts due to shorter approaches on both sides of the movable bridge. Of the remaining six alternatives, all of which were 42 feet above the water, three scored lower, for location-specific reasons as described below, and were also eliminated.

### *W1 – Clay Street to Mitchell Avenue – High Lift Bridge*

Alternative W1 would be a lift bridge with a 70-foot vertical clearance at the center (**Figure 7-4**). On the Oakland side, it would begin at the shore at the south end of Clay Street, where the WETA Oakland Ferry Terminal currently stands. The terminal would need to be relocated, potentially into the adjacent small bay, next to Howard Terminal. There would be a 90-foot-radius helix located south of the Port of Oakland building, in the estuary, which the path would wrap around twice. The main span of the bridge would be 600 feet long, and it would be located directly east of the Port of Oakland's Reach 6 and west of the Alameda Municipal Power (AMP) underwater cable easement. On the Alameda side, a long, straight approach would run through the Bay 37 residential development using an existing easement designated for a bridge, then curve to the west and touch down parallel to Mitchell Avenue. Alternative W1 ranked poorly in user experience, stakeholder buy-in, and cultural resources sensitivity. With all high bridges, the user experience is lower because of the longer approaches, greater elevation to climb and stacked circular approach span. Although there is a bridge easement through the residential property in Alameda, it was anticipated that constructing the path through the residential development could be controversial. Possible areas for Ferry relocations would require further coordination with WETA and other stakeholders. Since relocating the *USS Potomac* would be required to make way for a relocated ferry terminal, and it is a historical resource, this alternative had a lower cultural resources sensitivity score.

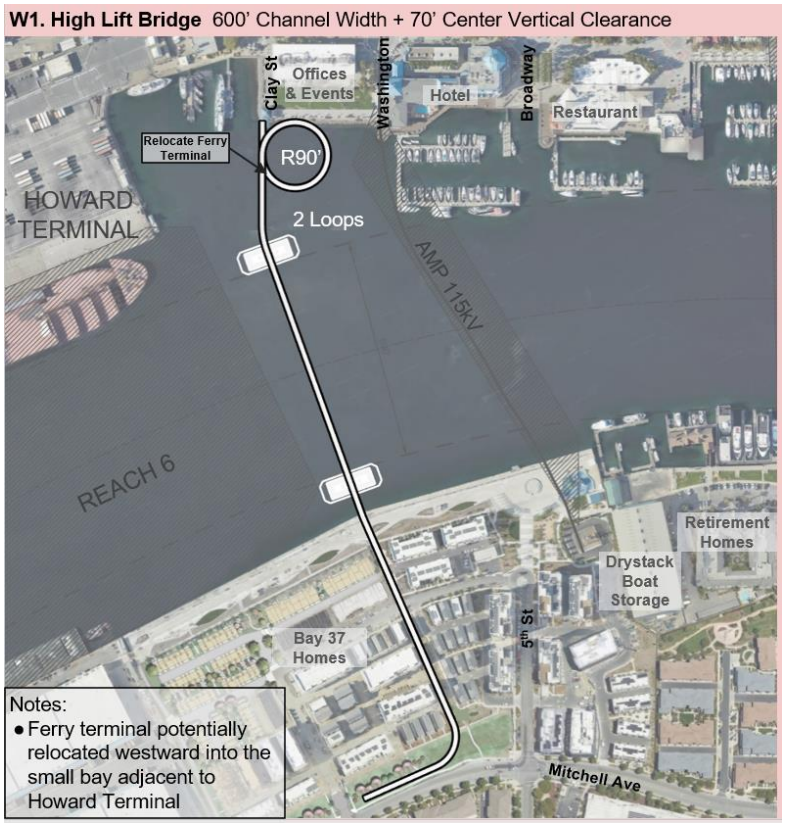



**Figure 7-4. Alternative W1 (rejected)**

### *W2 – Clay Street to Mitchell Avenue – Low Lift/Bascule Bridge*

Alternative W2 would be a lift or bascule bridge with a 42-foot vertical clearance at its center (Figure 7-5). With a shorter span, the possibility of other structure types such as a bascule can be feasible. On the Oakland side, it would begin at the shore at the south end of Clay Street, where the WETA Oakland Ferry Terminal currently stands. The terminal would need to be relocated, potentially into the adjacent small bay, next to Howard Terminal. The approach span would rise in the water with an S-curve, which would allow it to reach the required elevation for the lower bridge. The main span of the bridge would be 400 feet long, and it would be located directly east of the Port's Reach 6 and west of the AMP underwater cable easement. On the Alameda side, a long straight approach would pass through the Bay 37 development west of 5th Street, along the preserved bridge easement. The touchdown would be in an open space approximately 150 feet northwest of the Mitchell Avenue and 5th Street intersection. Like Alternative W1, Alternative W2 ranked poorly on stakeholder buy-in and cultural resources sensitivity, due to similar issues with cutting through a residential neighborhood and affecting a historic site. Although W2 ranked better than W1 on user experience, it ranked worse on navigability. This is a commonality to all low bridges: they provide a better user experience due to shorter approach spans, but they also reduce convenience to boat traffic due to lower clearance and potentially higher delay to open and close the span.

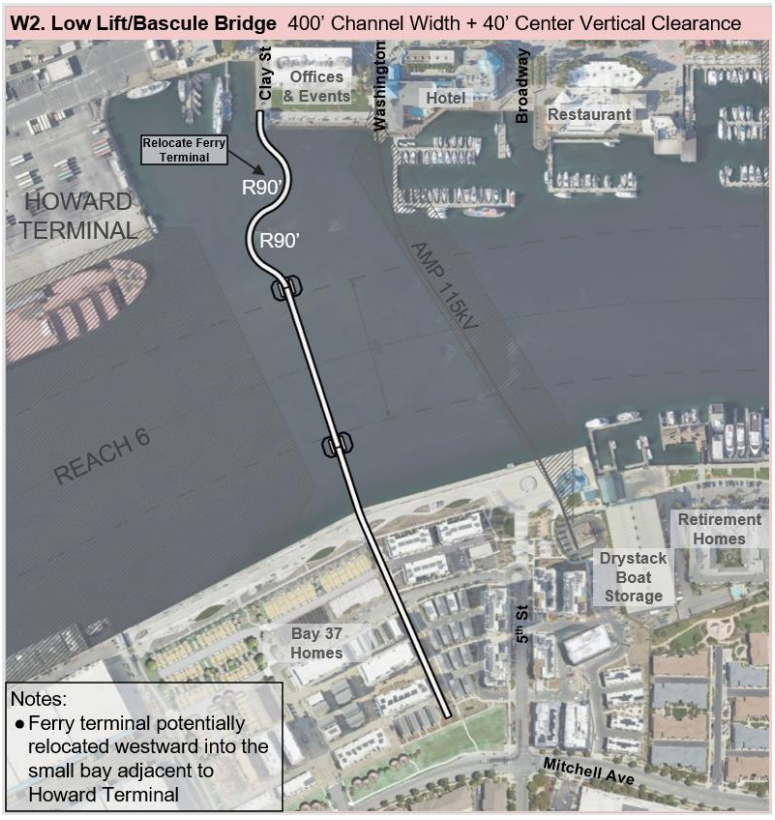



**Figure 7-5. Alternative W2 (rejected)**

### *W3 – Washington Street to 5th Street – High Lift Bridge*

Alternative W3 would be a lift bridge with a 70-foot vertical clearance at its center (Figure 7-6). On the Oakland side, it would begin at the shore near the south end of Washington Street, at the southeast corner of the Port of Oakland lawn. There would be a 100-foot-radius helix located in the water south of the Port of Oakland office/event building and east of the WETA Oakland Ferry Terminal. The path would go around this helix approximately 1.25 times, then lead to the center of the northern tower, which would be located off-center inside the helix. The path would turn 90 degrees to the south to cross the estuary. The main span would be 600 feet long and would be located between the Port's Reach 6 and the AMP underwater cable. On the Alameda side, a similar design would see the path turn left at 90 degrees and descend a helix wrapping around the southern tower. A final 100-foot-radius curve above the water would touch down on the Alameda side in Bohol Circle Immigrant Park, at the north end of 5th Street. Alternative W3 ranked low on stakeholder buy-in and user experience. The large tower and helix would create a large visual obstruction to the residential neighborhood on the Alameda side, which could be unpopular. Like other high bridge alternatives, user experience would be low due to the long approach paths.

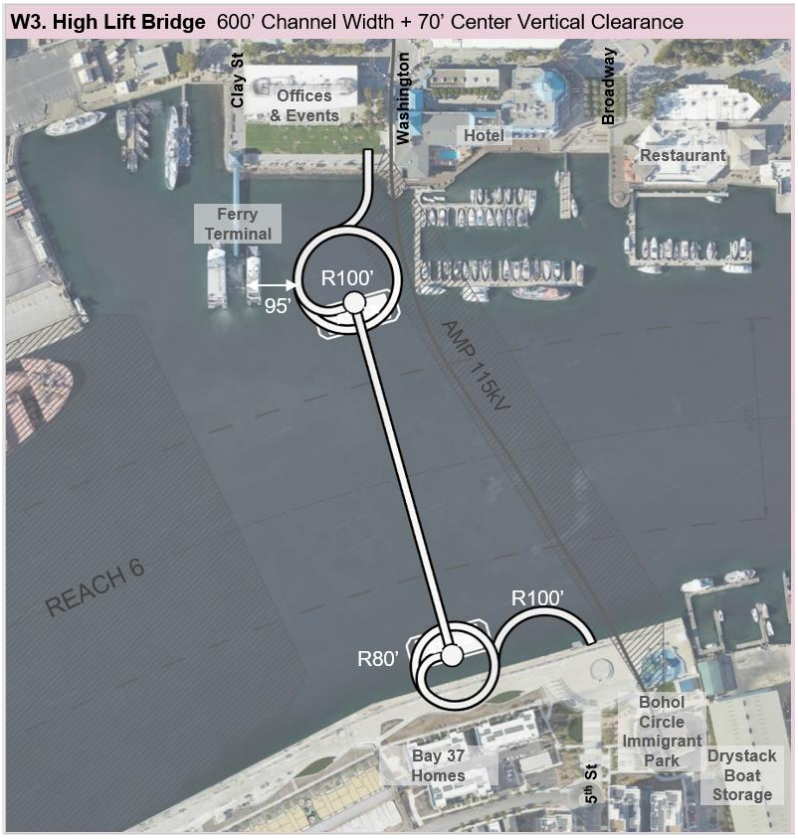



**Figure 7-6. Alternative W3 (rejected)**

### *W5 – Broadway to 5th Street – High Lift/Bascule Bridge*

Alternative W5 would be a high lift/bascule bridge with a 70-foot vertical clearance at its center (Figure 7-7). With a shorter span of 400 feet, the possibility of other structure types such as a bascule can be feasible. On the Oakland side, it would begin at the south end of Broadway, where a public dock currently exists. The Broadway dock would be relocated a bit further to the east. The Washington Street marina would need to be reconstructed to face west rather than east. The approach would lead to a 100-foot-radius helix above the water located approximately between the Waterfront Hotel and Scott's seafood restaurant. The main span would be 400 feet long and would be located east of the AMP underwater cable. On the Alameda side, a 90-foot-radius helix located at the eastern end of Bohol Circle Immigrant Park would ramp down and require the demolition of the Drystack Boat Storage's marina. The approach would then turn 90 degrees and continue to the west parallel to the waterfront and touch down inside Bohol Circle Immigrant Park, near the foot of 5th Street. The main span would cross the estuary on a slight 3-degree skew, which would slightly decrease the effective horizontal clearance for vessels traveling through the area. Alternative W5 ranked low on encouraging mode shift from single-occupant motor vehicles, user experience, and biological resources. The size of the helices over water as well as the extensive reconstruction of surrounding docks and marinas would result in the highest square footage of total impact (new bridge construction, demolition, and modification of existing structures) of all alternatives considered, and therefore the highest biological impact. Similar to other high bridges, the user experience and therefore mode shift are both low.

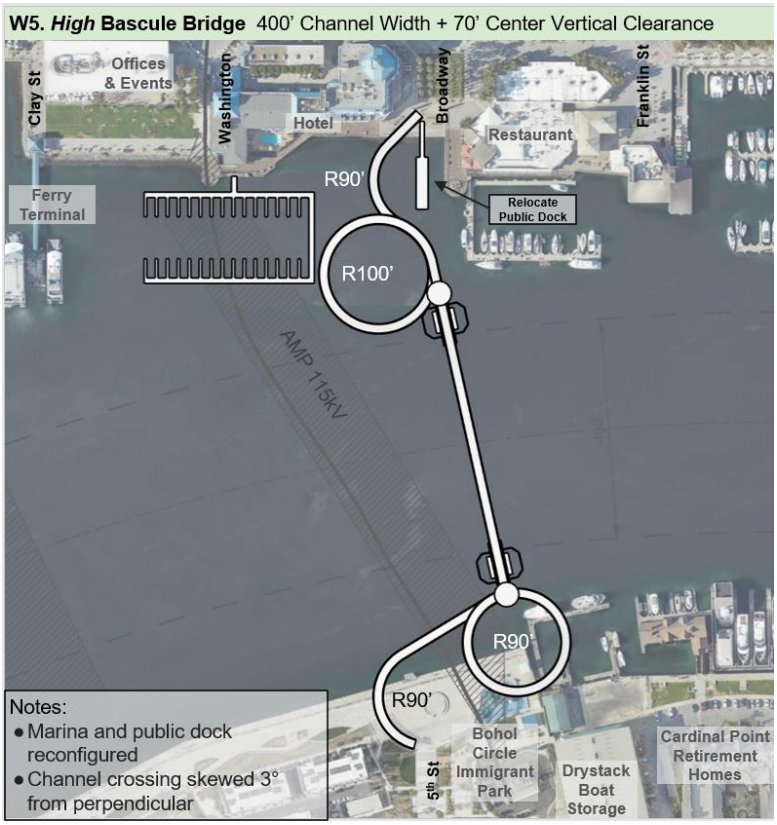



**Figure 7-7. Alternative W5 (rejected)**

### *C1 – Alice Street to Marina Village Parkway – High Lift Bridge*

Alternative C1 is the most feasible alignment next to State Route 260. It would be a lift bridge with a 70-foot vertical clearance at its center (Figure 7-8). On the Oakland side, it would begin at the south end of Alice Street, then approach a 90-foot-radius helix partially on land and partially over water to the west of Alice Street. The northern tower would be located adjacent to the shore to the west of Alice Street. The main span would be 600 feet long and would be east of the Posey and Webster Tubes, but west of the East Bay Municipal Utilities District (EBMUD) easement. On the Alameda side, the southern tower would be located within the Barnhill Marina floating homes community. One of the marinas and several residences would be displaced. The approach would continue through an industrial area and touch down at Marina Village Parkway. Although this alternative is the closest of all 12 alternatives to SR 260, the location is problematic. This alternative had the lowest overall rating, and low ratings for touchdown areas/urban design, stakeholder buy-in, residential and business displacements, and hazardous waste contamination. The touchdown in Alameda results in numerous residential (floating home) displacements, including at a possible equity community. Also, there would need to be partial acquisitions from businesses on Marina Village Parkway and an industrial property containing a concrete silo structure. The silo would potentially need to be demolished, adding costs. It is unknown if the property has hazardous contaminants. The 25 Alice Street parcel in Oakland, which is impacted by the north helix, has known hazardous contaminants. North of the Oakland touchdown area, there is a lack of at-grade crossing toward downtown Oakland due to the Union Pacific Railroad (UPRR)/Amtrak tracks. However, there is an existing pedestrian overcrossing accessed by stairs or elevator to get over the rail tracks. The nearest at-grade crossings are at Webster Street, two blocks to the west, and at Oak Street, three blocks to the east.


**Figure 7-8. Alternative C1 (rejected)**

### *C2 – Alice Street to Marina Village Parkway – Low Lift/Bascule Bridge*

Alternative C2 would have similar start and end points to C1, but with a 42-foot center vertical clearance and 400-foot horizontal clearance (Figure 7-9). In lieu of helices, the lower alternative would use an S-curve on the Oakland side and a shorter straight approach on the Alameda side, that lands away from any roadway or park. While C2 ranked higher than C1 on user experience, it ranks similarly low on touchdown area/urban design, stakeholder buy-in, displacements (residential and business), and hazardous waste contamination. It also ranked lower on navigability due to the low vertical clearance, than the western low alternatives since this central estuary area has higher recreational maritime users, particularly with frequent races.


**Figure 7-9. Alternative C2 (rejected)**

### *C3 – Alice Street to Alameda Shipways – High Lift Bridge*

Alternative C3 would be a lift bridge with a 70-foot vertical clearance at its center (Figure 7-10). On the Oakland side, it would begin near the south end of Alice Street and run approximately 350 feet to the east parallel to the Bay Trail. South of the KTVU News station, it would transition to a 90-foot-diameter helix, which, like Alternative W3, would wrap around the northern pier and tower. The main span would be 600 feet long and would be located to the east of both the Webster and Posey Tubes and the EBMUD easement. On the Alameda side, there would be another 90-foot-diameter helix that would wrap around the southern tower. The bridge would transition to a straight approach running along the west edge of Alameda Shipways, parallel to a marina. The bridge would touch down north of the marina parking lot, and pedestrians and bicyclists would travel at-grade to Marina Village Parkway. The main span would cross the estuary on a slight 5-degree skew, which would slightly decrease the effective horizontal clearance for vessels traveling through the area. The alternative scored low on encouraging mode shift from single-occupant motor vehicles, touchdown area/urban design, stakeholder buy-in, and user experience. The large towers would lead to a high visual impact on residences and the news station on the Oakland side, and there would be some marina modifications required on the Alameda side. Neither touchdown offers direct access to streets. The high bridge reduces user experience and mode shift.

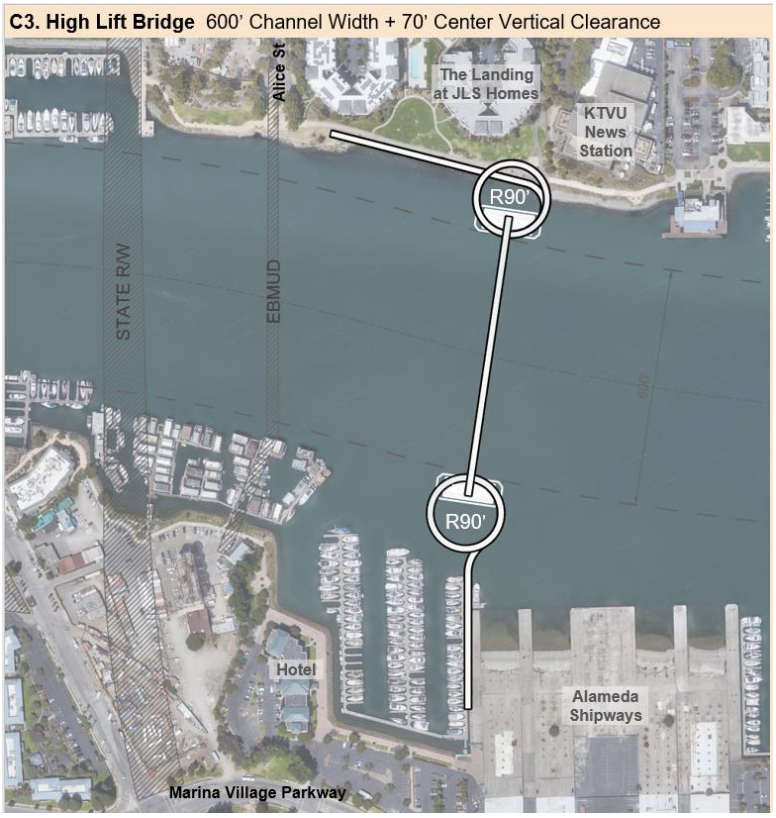



**Figure 7-10. Alternative C3 (rejected)**

### *C4 – Alice Street to Alameda Shipways – Low Lift/Bascule Bridge*

Alternative C4 would have similar start and end points to C3, but with a 42-foot center vertical clearance and 400-foot horizontal clearance (Figure 7-11). It would omit the helices from C3 due to its lower height. Like C3, it scored poorly for the touchdown area and stakeholder buy-in. It scored better than C3 in user experience, but worse in navigability, both due to its lower height. Although this alternative carries a lot of the benefits of a lower bridge, it is not located in open civic areas, unlike the western and eastern corridors.


**Figure 7-11. Alternative C4 (rejected)**

### *E1 – Estuary Park to Alameda Park – High Lift Bridge*

Alternative E1 would be a lift bridge with a 70-foot vertical clearance at its center (Figure 7-12). On the Oakland side, the bridge would begin at Estuary Park located south of Embarcadero and west of the Lake Merritt Channel. A major redesign and improvements for this park are currently underway, which are expected to be constructed before the estuary bridge would be. From the western edge of the park, an approach would extend to the southeast and ramp up to a 100-foot-radius helix, which would wrap around the northern bridge pier. The main span of the bridge would be located directly east of the EBMUD easement and would be 600 feet long. The main span would cross the estuary on a slight 9-degree skew, which would slightly decrease the effective horizontal clearance for vessels traveling through the area. On the Alameda side, a similar design for the bridge and wrap-around helix would allow the approach to descend just north of the Pacific Marina. One of the piers of the marina would need to be reconfigured or relocated. The approach would then descend parallel to the former marina pier and touch down in a City of Alameda park. The start and end points for this alternative are similar to Alternative E2, which is under consideration as a Build Alternative. Alternative E1 was eliminated due to low rankings in encouraging mode shift from single-occupant motor vehicles, touchdown area/urban design, stakeholder buy-in, and user experience due to bridge height. The high towers were considered visually impactive on views of the estuary from Estuary Park, and the high bridge design is less attractive to users who would have long approaches to climb.

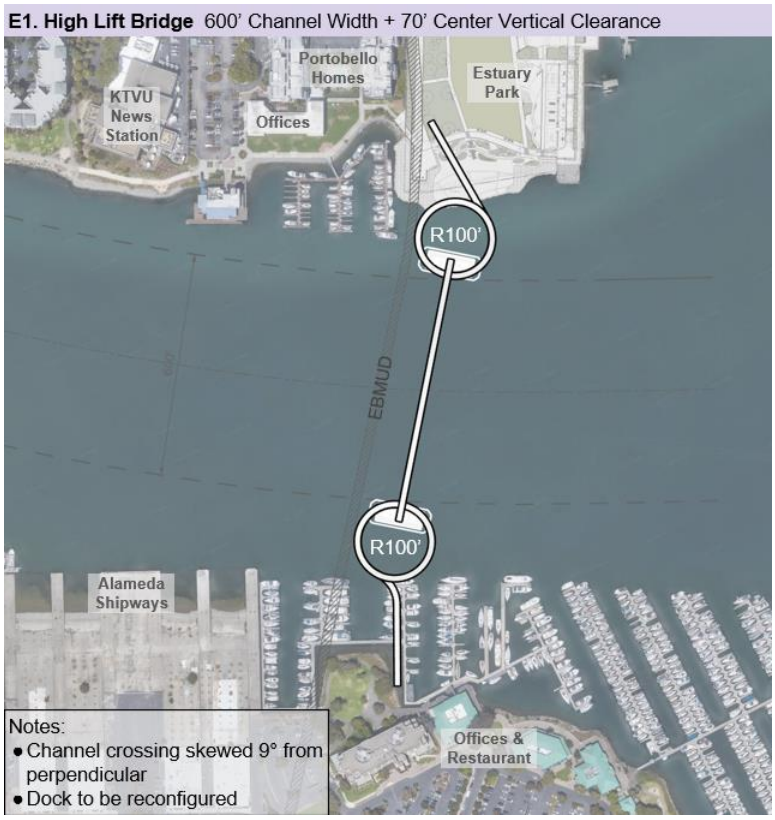



**Figure 7-12. Alternative E1 (rejected)**

**Concepts for Further Consideration and Next Steps**

After the PID is completed, but before the PA&ED phase, the project will need to conduct a waterway study to determine the current distribution of vessel traffic in the estuary. This would consist of surveying a sample of days and times using laser measurements of vessels. The survey will take multiple months to achieve an adequate sample size representative of seasonal variations. The results would provide additional information as to how often the bridge would be expected to open, which will help determine the vertical clearance. The waterway study will also include navigational modeling to provide information on the minimum horizontal clearance required.

The project would continue to coordinate with the USCG. While communication has been underway with USCG since 2009, previous written communications had all assumed a 600-foot-wide movable bridge that can open up to a 175-foot vertical clearance. The waterway study will be used to support a lower and/or shorter span bridge. USCG has been involved in TAC discussions to date. The USCG will have permitting authority over the final bridge dimensions.

Preliminary structural analysis and design were performed for lift bridge alternatives only. Other types of bridges, such as bascule, may be considered in the next phase. While bascule bridge alternatives are still under consideration, a 400-foot span length would be one of the longest ever built. Further analysis and cost estimation still need to be performed in PA&ED to determine the final bridge type, along with feasibility of a non-lift bridge, if one is selected.

# 8 RIGHT-OF-WAY

Additional ROW will need to be acquired by the project sponsor, with the amount and specific properties dependent on the alternative selected. Temporary construction and permanent easements would be required, along with some partial ROW acquisition, from private properties on the Oakland and Alameda sides. There would be no full takes, but displacement of boat slips would occur with Alternatives W6 and E2.

During construction, the project will need TCEs for construction access, traffic handling, and staging for the duration of construction.

The project sponsor is expected to obtain a permanent easement for the bridge route through the estuary. This easement would exclude other construction/utilities within the vicinity of the bridge. It would also include a setback for building clearances for portions of the approaches and touchdowns on land.

See Attachment E for Right-of-Way Data Sheets for each Build Alternative.

**Utilities**

Both sides of the estuary in Oakland and Alameda are developed and inhabited and contain electric, gas, water, sewer, and telecommunication lines along streets. There are several major trunk utility lines connecting Oakland and Alameda across the estuary. Starting on the west side of the project study area, near alternatives W4 and W6, there is a 115-kilovolt underwater power line feeding AMP that extends from Washington Street in Oakland to Bohol Circle Immigrant Park in Alameda. AMP owns a permanent easement through the estuary. Alternatives W4 and W6 would both terminate or cross within the easement area. It would be infeasible to relocate the line, so the alternatives would need to coordinate and design around the line.

To the east, connecting Alice Street in Oakland and Barnhill Marina in Alameda, EBMUD owns an easement in which both drinking water and sewer lines run under the estuary. There is also a Pacific Gas and Electric (PG&E) gas line using the EBMUD easement. The rejected C1, C2 and C3 alternatives are in the vicinity of this easement, but all Build Alternatives are well outside the easement (greater than 1,000 feet away).

An additional EBMUD easement will carry a proposed water line from Fallon Street in Oakland, along the west side of Estuary Park, across the estuary and below Dock Q in the Pacific Marina, ending at Marina Village Parkway in Alameda. Alternative E2 would terminate adjacent to the easement area on both the Alameda and Oakland sides.

Reach 6 is an area in the estuary which has been dredged to a deeper depth to allow maneuvering of large vessels. It is avoided by all Build Alternatives.

Caltrans ROW runs through the estuary for the Webster and Posey Tubes. It is avoided by all Build Alternatives.

See Figure 8-1 for a view of utility and transportation easements across the estuary.

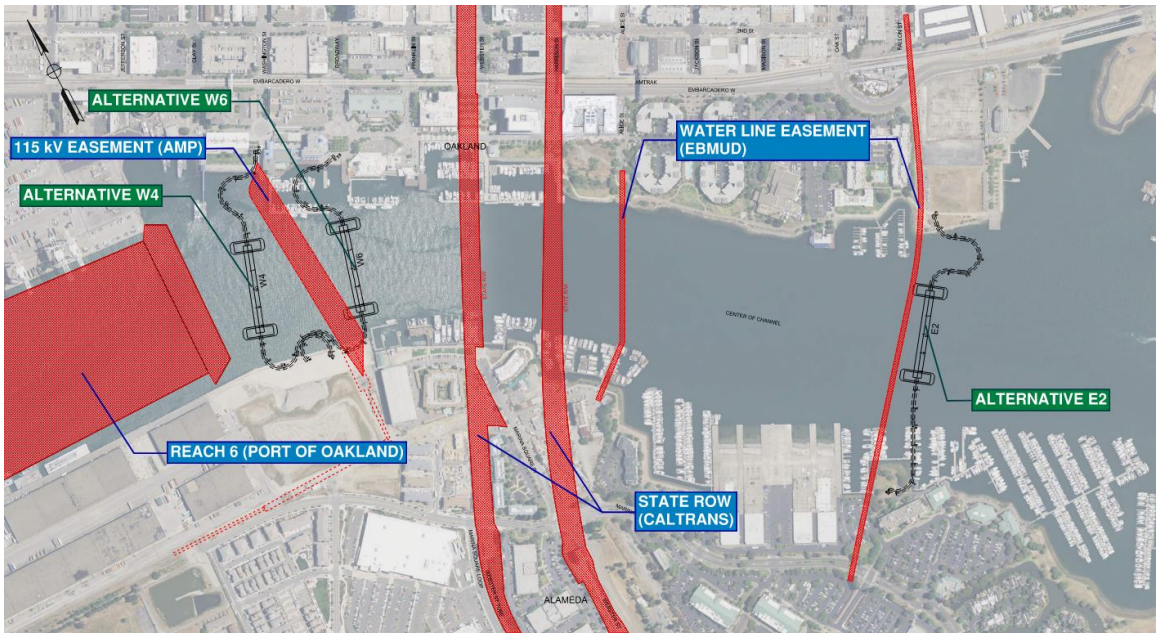



**Figure 8-1. Utility Easements Through the Estuary**

For all Build Alternatives, new power supplies would need to be developed for the movable bridge. It is anticipated that power connections would be required from both the Alameda and Oakland approaches for redundancy. In addition to new power supplies from each approach, the movable main span will also require a backup power system, typically a diesel generator(s). If space and fueling considerations require placement off the bridge, then location will have to be determined. Coordination would be required with PG&E on the Oakland side and AMP on the Alameda side. Distribution line or transformer upgrades may be required depending on existing capacity.

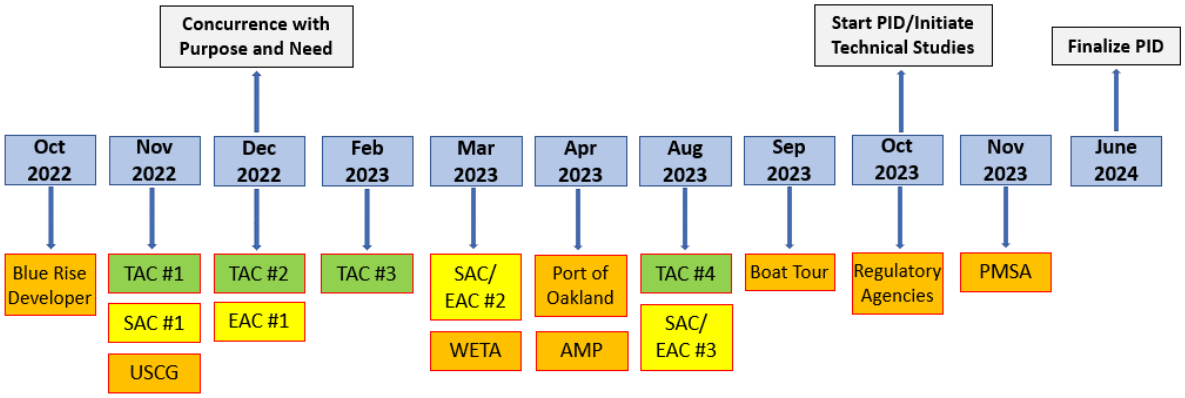
Additionally, new storm drain connections may be required depending on the location of BMPs. An employee restroom, if needed, would require new water and sewer connections. The bridge would have communications connections including telephone, radio, internet, and CCTV.

The project sponsor will confirm impacts with utility owners through the utility verification process in the PA&ED phase.

# 9 STAKEHOLDER INVOLVEMENT

A PID-phase Engagement and Outreach Plan was developed which served as a guide for stakeholder meetings and communications. Under the plan, the Project Development Team (PDT)[26] assembled a TAC, SAC, and Equity Advisory Committee (EAC) to ensure comprehensive representation and meaningful input from a diverse range of perspectives. The PDT conducted a series of virtual meetings between November 2022 and August 2023 with these advisory committees — four with the TAC and three with the SAC/EAC — to discuss project-specific details and garner diverse feedback at key milestone points, including development and concurrence on the project's purpose and need, project study area and corridor selection, and alternatives screening matrix review.

One meeting with regulatory agencies was held, in addition to many individual stakeholder meetings, as noted in the following Figure 9-1. Additionally, the City of Alameda conducted an in-person boat tour of the study area with a group of federal, state, and local elected officials, and transportation agency staff, to preview the project and the three Build Alternatives.




*USCG: United States Coast Guard*
*WETA: Water Emergency Transportation Authority*
*AMP: Alameda Municipal Power*
*PMSA: Pacific Merchant Shipping Association*

**Figure 9-1. Timeline for Stakeholder Outreach**

TAC members included representatives from the Cities of Alameda and Oakland, AC Transit, Alameda County, Alameda CTC, AMP, BART, California Public Utilities Commission, Caltrans, Capitol Corridor Joint Powers Authority, Association of Bay Area Governments, San Francisco Bar Pilots, Port of Oakland, USCG, MTC, WETA, and UPRR. TAC participants refined the project purpose and need, assisted with corridor

[26] The PDT is comprised of staff members from the Cities of Alameda and Oakland and the consultant project team. The PDT met monthly over the course of the project to coordinate on key decisions, corridor and alternative screening, and development and vetting of various design elements for the proposed project alternatives.

screening, reviewed the alternative screening criteria and analysis, confirmed alternatives to study in the PID, and provided critical feedback on bridge design components.

SAC members included a comprehensive array of groups that would be interested in the bridge project, including public, private, and nonprofit organizations representing pedestrian-bicycle and transportation advocacy, recreational boating, business, education, environmental advocacy, historical preservation, health, faith-based organizations, marinas, and adjacent homeowners groups.[27, 28]

An EAC was established to represent community-based organizations with an emphasis on equity priority and environmental justice communities on both sides of the estuary. Participating groups included organizations such as Alameda County Health Care Services Agency, City Team Ministries, Links Inc., East Asian Local Development Corporation, East Asian Youth Center, Asian Inc., Greenbelt Alliance, Prescott Neighborhood Council, Black Women Organized for Political Action, and Alameda Point Collaborative. The Bay Conservation and Development Commission's (BCDC) Environmental Justice team members also participated.[29, 30]

The SAC and EAC meetings were combined following the initial meetings of each group, as their interests overlapped and there was benefit in having all groups hear the concerns of others. At these meetings, equity perspectives were provided on the purpose and need, feedback was given on inclusive strategies for future project development phases, and comments were provided on the alternative screening criteria.

All TAC, SAC and EAC meetings were well attended. The feedback received from meetings was reviewed and discussed by the PDT, and resulted in refinements, adjustments and improvements to the items that were presented. Table 9-1 presents a summary of the TAC, SAC, and EAC meetings.[31]

[27] Caltrans. 2023. Caltrans Highway Design Manual (HDM). U.S. Customary Units. Seventh Edition. Retrieved from https://dot.ca.gov/programs/design/manual-highway-design-manual-hdm.
[28] Meeting minutes and list of attendees are available in the project's Public Outreach and Engagement Summary Report (HNTB, 2024)
[29] Meeting minutes and list of attendees are available in the project's Public Outreach and Engagement Summary Report (HNTB, 2024)
[30] Caltrans. 2023. Caltrans Highway Design Manual (HDM). U.S. Customary Units. Seventh Edition. Retrieved from https://dot.ca.gov/programs/design/manual-highway-design-manual-hdm.
[31] Meeting minutes and list of attendees are available in the project's Public Outreach and Engagement Summary Report (HNTB, 2024).

**Table 9-1. Summary of Advisory Committee Meetings in Chronological Order**

| Meeting Title/ Advisory Committee | Date | Meeting Outcome |
|---|---|---|
| Technical Advisory Committee (TAC) #1 | 11/08/2022 | Established a baseline group with a common understanding of the project and gathered suggestions for additions and revisions to the draft purpose and need. |
| Stakeholder Advisory Committee (SAC) #1 | 11/29/2022 | Established a baseline group with a common understanding of the project and gathered suggestion for additions and revisions to the draft purpose and need. In particular, the group requested a stronger emphasis on equity in the project's purpose.<br>In total, 50 individuals received invitations to the meeting, with 15 attending. |
| Equity Advisory Committee (EAC) #1 | 12/01/2022 | Established a baseline group with a common understanding of the project and gathered suggestion for additions and revisions to the draft purpose and need. Group also provided feedback on how the project should serve in creating local jobs, particularly for underserved communities, during all phases through contracting and construction opportunities.<br>In total, 24 individuals received invitations to the meeting, with 12 attending. |
| TAC #2 | 12/07/2022 | After reviewing 14 potential corridors and their constraints and benefits, the TAC supported advancing three corridors for further study (western, central and eastern). |
| TAC #3 | 02/09/2023 | Confirmation that the three selected corridors were appropriate. In depth discussion of bridges versus other types of crossing options, as well as the trade-offs between bridge users and the boating community also occurred. |
| SAC/EAC #2 | 03/02/2023 | Discussion of the 3 bridge corridor locations, and each of their constraints and opportunities. Also, clarification was provided that the proposed project is in its initiation phase and not yet selecting a preferred alternative. Bike/walk groups indicate support of the project. Boating and homeowner groups expressed various concerns. Group consensus was achieved to proceed with three top corridors for alternatives development.<br>In total, 186 individuals received invitations to the meeting, with 39 attending. |
| TAC #4 | 08/22/2023 | Support for eliminating the nine lowest scoring alternatives and proceeding in the PID with the top three scoring alternatives based on the screening matrix findings presented. USCG provided further guidance on permitting requirements and concerns over bridge height and span length. Project team explained that the waterway study, which will provide data for making decisions on height and span length, will occur after the PID, once funding is secured. |
| SAC/EAC #3 | 08/23/2023 | General consensus was achieved on eliminating the nine lowest scoring alternatives and proceeding in the PID with the top three scoring alternatives based on the screening matrix findings presented.<br>In total, 200 individuals received invitations to the meeting, with 25 attending. |

Individual stakeholder meetings were held to discuss specific topics particular to those stakeholders, including with USCG, WETA, Port of Oakland, AMP, Blue Rise Ventures (owner of a major commercial and research center in Alameda), and the Pacific Merchant Shipping Association.

A regulatory agencies meeting was held in November 2023, which was attended by BCDC, National Oceanic and Atmospheric Administration (NOAA) Fisheries, California Department of Fish and Wildlife (CDFW) – Marine Region, San Francisco Regional Water Quality Control Board, State Land Commission, USACE, U.S. Fish and Wildlife Services (USFWS), and USCG. This meeting served to introduce the project, review the known resources, present results of the alternative screening analysis, and present a draft list of potential necessary permits. Agencies provided feedback on anticipated regulatory requirements and potential upcoming regulatory changes and indicated their support for the screening criteria categories.

A boat tour of the project vicinity was held for elected and key transportation agency officials in September 2023 to preview the project and the three Build Alternatives. The agencies, offices, and organizations that attended this meeting included the Office of Congresswoman Barbara Lee, Office of Assemblymember Mia Bonta, Office of Alameda County Supervisor Lena Tam, USCG, Port of Oakland, Bay Area Council, Caltrans District 4, Mayor of City of Alameda, Oakland Councilmember Carol Fife, and the Office of Oakland Councilmember Rebecca Kaplan. Staff from the Cities of Alameda and Oakland, as well as the project team, led the tour. The meeting resulted in a better understanding of the current project design ideas and the project benefits, suggestions on potential Caltrans funding opportunities, and agreement that the Posey Tube is insufficient for bicycle and pedestrian travel.

For the general public, the project developed a stand-alone website at www.estuarybridge.org with a downloadable fact sheet, easily-understandable basic project information, and advisory committee meeting agendas, notes and PowerPoint presentations from all eight advisory committee meetings. The website also hosted a community survey to gauge interest in using the proposed bridge. Between February and November 2023, 808 responses were received representing residents of both sides of the estuary and in other Bay Area cities. High level results are as follows:[32]

- Majority of survey respondents were Alameda city residents (~60%), with Oakland representing ~21%. Approximately 19% of respondents were from other Bay Area communities including Concord, Castro Valley, San Francisco, and Mountain View.
- 46% of respondents reported crossing the estuary between Oakland and Alameda weekly, 31% daily, 15% monthly, and 8% rarely.
- Cars are by far the most common (83%) way people are traversing the estuary with bicycle and AC Transit the next most common modes of crossing. Shopping and leisure/recreation were common reasons for cross-estuary trips.

[32] Full survey results are available in the project's Public Outreach and Engagement Summary Report (HNTB, 2024).

- The majority of users (59%) begin their trips in Alameda, while 38% begin in Oakland, and the remaining from other Bay Area cities.
- 40% of trips end in Oakland, 40% in Alameda, and the remainder ended in San Francisco, Berkeley, San Leandro, and points further out in all directions.
- Saturday, Sundays, and Fridays, in that order, were the most popular days users crossed with all days well-represented.
- The Posey Tube was by far (68%) the most common crossing location.
- The top Oakland destinations frequented included Laney College, Oakland Amtrak station, the Lake Merritt and 12th Street BART stations, and parks. Top Alameda destinations included College of Alameda, Main Street Ferry Terminal, and the Marina Village Shopping Center.
- 47% of respondents preferred a Western Corridor location for the proposed bridge, 35% preferred a Center Corridor, and 18% an Eastern Corridor.
- 42% thought that they would use a new bridge weekly, 19% daily, and 19% monthly.
- 58% indicated the new bridge would replace their commute, 42% said it would not.
- The main benefits of the bridge included safe access for bicyclists and pedestrians and better transportation for people without cars. Good views and fun were cited as important attributes for the bridge.
- Some respondents indicated concerns that not enough people would use the bridge and that it would not be safe for seniors and people with disabilities.
- 6% of respondents frequently use the existing Posey Tube walkway while 59% said they had never used it.
- Of those who have used the Posey Tube walkway, 83% rate it as extremely poor.

# 10 ENVIRONMENTAL COMPLIANCE

## Anticipated Environmental Clearance

The Preliminary Environmental Analysis Report (PEAR) provides an initial environmental evaluation of each Build Alternative (Attachment D). Based upon the technical analysis represented in the PEAR, the anticipated environmental clearance for this project would be a NEPA EA with a CEQA EIR. The lead agency for both NEPA and CEQA is not yet decided. Note that the findings from the technical studies conducted during PA&ED may change the level of environmental documentation from what was identified in the PEAR.

## Environmental Issues Shared by Build Alternatives

### *Community Impacts*

Equity communities would benefit from the project. A new crossing would offer a free, ADA compliant crossing that would enhance access to employment opportunities, encourage active lifestyles, and reduce air pollution. However, equity communities may experience temporary inconveniences during construction from roadway lane closures, utility service interruptions, and/or detours along sidewalks and trails along the Oakland Estuary.

Permanent and temporary ROW would be acquired for all three Build Alternatives. No business displacements would occur for any of the Build Alternatives. No permanent relocation of residences would occur under Build Alternatives W4 and W6. There would be possible relocation of liveaboards with Build Alternative E2 (see “Liveaboard Displacement” on page 54).

The project has the potential to cause unplanned growth.[33] Further analysis is warranted during PA&ED to determine if this growth would occur and, if so, any indirect impacts to resources.

Impacts to Section 4(f) resources are anticipated regardless of the Build Alternative. Impacts include the acquisition of ROW (permanent and temporary), changes in access to resources during both construction and operation, and visual changes around resources. Coordination during PA&ED will be needed with the official(s) with jurisdiction for each resource to identify and resolve potential impacts.

Community impacts would be fully evaluated through the preparation of a Community Impacts Assessment. This would take 11 months to finish as it would require the results of other technical studies to complete.

Anticipated environmental commitments include, but would not be limited to, the following:

[33] Growth that occurs where not foreseen by established planning documents (general plans, specific area plans, etc.)

- Prepare and implement a Transportation Management Plan to disclose potential disruptions to travelers, emergency service providers, and utility services.
- Conduct extensive public outreach and stakeholder coordination during PA&ED to identify and incorporate context-sensitive solutions (CSS) into the project design, with a special focus on outreach with equity communities.

***Context-Sensitive Solutions and Visual/Aesthetics***

Each Build Alternative would have a less than significant impact on the visual character/quality of the project study area. Users would benefit from new views of the Oakland Estuary, its waterfront, and the distant skylines. The proposed bridge would be designed to be memorable and a landmark for those traveling through the project study area. However, it is likely that immediate neighbors along the waterfronts would be moderately sensitive to visual changes, which for some would include obstruction of views of the Oakland Estuary and the distant skyline. Visual impacts would be evaluated in a Visual Impact Assessment, which would take 7 months to complete.

Major environmental commitments would include, but not be limited to, the following:

- Incorporate CSS into project design to help create a crossing that fits into the existing context of the Oakland Estuary.
- Shield light (or use of directional lighting) to minimize new sources of light/glare.
- Minimize the bulk and height of the bridge towers to the extent feasible.

***Cultural Resources***

The project would have potential to encounter prehistoric, nineteenth century historic period, and twentieth century historic period resources. Bridge abutments would have a high sensitivity for buried archaeological sites. Bridge piers/piles have a lower sensitivity for buried sites because the Oakland Estuary has been dredged repeatedly. However, this in-water work may encounter historic shipwrecks.

The project's urban setting has been heavily modified by recent redevelopment projects. This, combined with the low number of documented historic architectural/built environmental resources, results in a low sensitivity for the project to encounter built environmental resources.

The following cultural technical studies and associated timelines are anticipated: Archaeological Survey Report (ASR) (6 months), Extended Phase I (XPI) (4 months), Phase II (6 months), Historical Property Survey Report (HPSR) (6 months), and Historical Resources Evaluation Report (HRER) (5 months). An area of potential effects (APE) would need to be established prior to conducting these studies for both archaeological and architectural resources.

Major environmental commitments would include, but not be limited to the following:

- Facilitate Native American tribal monitoring during construction, if required.
- Conduct monitoring by a qualified archaeologist during construction.
- Cultural Resource Mitigation:

- Avoidance of impacts may include project redesign, establishment of environmentally sensitive areas, or a Secretary of the Interior's Standards Action Plan.
- Phase III Data Recovery may be required if National Register of Historic Places–eligible archaeological resources are affected by the project.
- The Memorandum of Agreement, if required, will stipulate mitigation for adverse effects and could include Phase III Data Recovery, construction monitoring, and preparation of interpretive elements (such as publications, brochures, displays, education modules, and workshops).
- A Post Review Discovery and Monitoring Plan will be developed to guide identification and treatment of inadvertent discoveries during project construction.

***Hydrology and Floodplain***

All three Build Alternatives would discharge fill into the 100-year floodplain associated with the Oakland Estuary. No change is anticipated for the 100-year water surface elevation. Additional permanent ROW may need to be acquired to balance floodplain fill, if determined as part of design. A Location Hydraulic Study (LHS) (8 months after completing surveys) and Summary Floodplain Evaluation Report (4 months) are anticipated. Hydraulic modeling would be required to analyze potential impacts on the existing floodplain.

Major environmental commitments would include, but are not limited to, the following:

- Balance cut and fill within the floodplain.
- Incorporate permanent BMP to address stormwater runoff.
- Coordinate with the floodplain administrator(s) on a Letter of Map Change (LOMC).

Anticipated permits are as follows:

- USACE Rivers and Harbors Act (RHA) 408 Authorization (12 months).
- Federal Emergency Management Agency (FEMA) LOMC (6 months).

***Water Quality and Storm Water Runoff***

Project construction could result in the discharge of pollutants into groundwater and/or the Oakland Estuary. Dewatering would be required within the Oakland Estuary for pier and pile installation and likely for abutment foundations. BMP during construction would minimize potential impacts to surface water and groundwater quality.

Each Build Alternative would result in a similar amount of new impervious cover. BMP would be used to treat stormwater runoff to minimize potential water quality impacts. Build Alternatives would not permanently alter existing drainage patterns.

To document potential impacts to water quality, a Water Quality Assessment Report (WQAR) (7 months) and SWDR (7 months) are anticipated. The project would need to comply with all applicable NPDES permits.

### *Geology, Soil, Seismic and Topography*

Geologic units within the project study area are prone to seismic softening/liquefaction. Soil properties are unknown and are anticipated to be variable. Geology and soils would need to be investigated and characterized during PA&ED. Remediation may be required to address liquefaction and other concerns. A Preliminary Foundation Report (PFR) (6 months) and Preliminary Geotechnical Design Report (PGDR) (6 months) are anticipated.

### *Paleontology*

Each Build Alternative has a relatively high potential for encountering paleontological resources. A Paleontological Investigation Report (PIR)/Paleontological Evaluation Report (PER) (5 months) and Paleontological Mitigation Plan (PMP) (4 months) are anticipated. The PMP would outline procedures for fossil salvage in the event that fossils are encountered.

Major environmental commitments for paleontological resources would include, but are not limited to, the following:

- Implement a Worker Environmental Awareness Program during construction.
- Conduct paleontological monitoring during project excavation.

### *Hazardous Waste/Materials*

There is a high likelihood of encountering hazardous waste contamination based on historical land uses, a high density of documented release sites, and likely contaminated sediment in the Oakland Estuary. All three Build Alternatives also have a risk of encountering hazardous building materials during construction. To evaluate potential hazardous contamination, an Initial Site Assessment (ISA) (6 months) and Preliminary Site Investigation (PSI) (6 months during PS&E) would be conducted.

### *Air Quality*

The project would be exempt from the requirement for an air quality conformity determination. Construction-related air pollutant emissions would be similar for each Build Alternative. To evaluate potential air quality impacts, an Air Quality Report (AQR) (6 months) would be prepared. The project would incorporate construction BMP to limit air pollutant emissions.

### *Noise/Vibration*

Operationally, the project would not be a substantial new source of noise. Construction of the project would temporarily elevate ambient noise levels. Potential impacts to noise sensitive receptors would be minimized through implementation of BMP. Construction activities would also result in ground borne vibration levels that could damage structures or cause annoyance. Structures, including potential historic buildings, are in close proximity to all three Build Alternatives.

Pile driving for abutments, bridge piers/piles, and temporary structures could result in high underwater sound levels that would affect protected marine species. A hydroacoustic

assessment would be needed to determine appropriate noise thresholds to protect marine species in the Oakland Estuary. A Construction Noise and Vibration Assessment (6 months) would be warranted for all three Build Alternatives.

Major environmental commitments would include, but are not limited to the following:

- Conduct noise monitoring during construction.
- Implement hydroacoustic BMP to avoid/minimize impacts to marine species.

### *Energy and Climate Change*

All three Build Alternatives would promote active transportation (walking and biking) between Oakland and Alameda, and to areas beyond these two cities via biking and using transit. These modes of transportation do not consume energy (fossil fuels and electricity). Mode shift away from motor vehicles being used to cross the Oakland Estuary would decrease energy consumption. While electricity would be needed to operate the bridge, it is assumed this energy consumption would be offset by the energy savings associated with mode shift. Energy consumption would be formally evaluated in an Energy Technical Memorandum (4 months).

Located along the shorelines of the Oakland Estuary, the abutments for all three Build Alternatives are at risk of sea level rise (SLR)–related inundation during their design life. While abutments in some locations are more resilient to SLR than others, abutments on both sides of the Oakland Estuary would need to be accessible for a bridge crossing to be viable. In addition to direct SLR inundation, access to each Build Alternative could be affected by flooding of the touchdown and/or nearby areas. A Climate Action and Sea Level Rise Study is recommended (9 months). This study would propose adaptation measures to be included in project design.

Major environmental commitments would include, but are not limited to, the following:

- Maximize the use of recycled building materials and local disposal sites.
- Develop a living Adaptive Management Plan to recommend SLR adaptation measures and coordinate with the Cities of Oakland and Alameda to update existing plans/policies regarding SLR resiliency.

### *Biological Environment*

In-water work in the Oakland Estuary has the potential to adversely affect marine species and habitat. Terrestrial habitat is limited along both sides of the Oakland Estuary due to the area's highly urbanized nature. To evaluate potential impacts to biological resources, a Natural Environment Study (NES) (8 months after the completion of surveys), Aquatic Resource Delineation Report (ARDR) (5 months after the completion of surveys), Biological Assessment (BA)/Biological Opinion (BO) (12 months) would be prepared. The NES would include habitat assessments and surveys. A hydroacoustic assessment would be needed to support the BA.

Major environmental commitments would include, but are not limited to, the following:

- Comply with regulatory agency work windows for marine and terrestrial species.

- Implement hydroacoustic BMP to avoid/minimize impacts to marine species.
- Conduct hydroacoustic monitoring during construction.
- Conduct preconstruction nesting surveys for bird species.

The following listed permits and authorizations related to biological resources are anticipated. Note that all of these would be acquired during the project's design phase with the exception of Section 7 consultation, which would be completed during PA&ED.

- Section 404 Individual Permit (12 months)
- USACE Section 10 Permit (12 months)
- USCG Section 9 Permit (12 months)
- Section 7 consultation (9 months)
- Essential fish habitat (EFH) consultation (9 months)
- NOAA Incidental Harassment Authorization (IHA) (12 months)
- 401 Water Quality Certification (WQC) (9 months)
- BCDC Major Permit (12 months)
- CDFW Incidental Take Permit (ITP) (9 months)

**Environmental Issues Unique to Build Alternatives**

***Liveaboard Displacement***

Alternative W6 would require temporary relocation of people living on their boats ("liveaboards"), if there are any, during the relocation of a marina along the Oakland shoreline. It is assumed that construction of a new marina to the west would still accommodate liveaboards.

Alternative E2 would result in permanent impacts to a marina on the Alameda side of the Oakland Estuary. Any liveaboards in this area would be permanently displaced. Coordination would be needed during PA&ED to confirm the presence of any liveaboards that may be permanently displaced.

***Hazardous Waste/Materials***

Alternatives W6 and E2 have an elevated risk of encountering contaminated building materials due to work to be done to existing marinas. Marinas may have treated wood piers, which would have to be safely removed and properly disposed.

Alternatives W4 and W6 have an elevated risk of encountering hazardous contamination in Alameda. Their abutments would be located within the defined Marsh Crust contamination area. Excavation below 10 feet may encounter this contamination. As a result, a permit would be required from the City of Alameda. This permit would require approximately 2 months to obtain.

## Summary of Permits and Approvals

The below table summarizes permits and/or approvals anticipated for the selected Build Alternative.

### Table 10-1. Summary of Permits and Approvals

| Agency | Permit/Approval Type |
|---|---|
| Alameda County Public Works Agency | Drilling Permit |
| BCDC | Major Permit |
| Caltrans | NPDES |
| CDFW | Incidental Take Permit |
| City of Alameda | Marsh Crust Permit* |
| City of Alameda | Encroachment Permit |
| City of Oakland | Temporary Storm Drain Discharge |
| City of Oakland | Encroachment Permit |
| EBMUD | Special Discharge Permit |
| FEMA | LOMC |
| NOAA/USFWS | BO(s); IHA EFH Consultation |
| Regional Water Board | 401 WQC |
| San Francisco Regional Water Quality Control Board | NPDES |
| State Lands Commission | Lease |
| USACE | Individual Permit |
| USACE | 408 Authorization |
| USCG | Section 9 Permit |

**Applies to Build Alternatives W4 and W6 only*

# 11 FUNDING

The project is currently funded for the PID phase only. Additional funding is needed for the next phases of the project, which include a waterway study, PA&ED, PS&E, and construction. Approval of the PR at the conclusion of the PA&ED phase will be needed to program funds for ROW and construction.

The Cities of Alameda and Oakland plan to partner with appropriate agencies to target grant sources and develop public and political support to advance the project. Public and political support, including identifying a project champion for subsequent phases, will be critical to winning funding. Large-scale projects, such as this one, almost always require a combination of fund sources, and the project team has developed a preliminary funding plan to help identify those sources.

Potential sources of future funding include federal sources such as Rebuilding American Infrastructure with Sustainability and Equity discretionary grants and Reconnecting Communities and Neighborhoods; state sources such as Transformative Climate Communities Program Implementation grants, Caltrans planning grants, STIP, Local Partnership Program, and the Active Transportation Program; and regional and local sources including Transportation Fund for Clean Air, Regional Measure 3 and Measure BB discretionary grants.

### Capital Outlay Project Estimate (escalated)

The preliminary capital outlay project estimate is $303M for the Build Alternative that is ultimately selected. The capital outlay cost is based on conceptual level cost estimates completed for the PID. The escalation was assumed to be 3.2% per year. Mid-point of construction was taken to be 2034.

Preliminary Capital Outlay Project Estimates are included in Attachment C, and the Right-of-Way Data Sheets are included in Attachment E.

The level of detail available to develop these capital outlay project estimates is based on the assumptions described in this document and is useful for long-range planning purposes only. The capital outlay project estimates should not be used to program or commit state-programmed capital outlay funds.

### Capital Outlay Support Estimate

The capital outlay support estimate, needed to complete the PA&ED and subsequent phases, is estimated at $48M for the Build Alternative that is ultimately selected. The PA&ED phase is currently not funded.

### Cooperative Agreement

No cooperative agreements have been made at the time of this PSR-PDS documentation. A Cooperative Agreement for the PA&ED phase will need to be executed between the lead agency and the Cities of Alameda and Oakland prior to starting the PA&ED phase to define the duties, obligations, commitments, and any provisions for reimbursement for Caltrans Quality Management Assessment oversight. Alameda CTC could be considered as a partner as well. This PSR will serve as the first step prior to applying for grants and

identifying the project sponsor. Separate future cooperative agreements for the PS&E, ROW, and construction phases will be prepared before each phase begins.

# 12 DELIVERY SCHEDULE

The project delivery schedule through PA&ED completion only is shown in **Table 12-1**. The PS&E, Ready to List (RTL), and construction schedule will be determined in PA&ED when a preferred alternative is selected.

The anticipated funding fiscal year for construction is yet to be determined.

**Table 12-1. Project Delivery Schedule (through PA&ED completion only)**

| Project Milestones | | Scheduled Delivery Date (Month/Year) |
|---|---|---|
| **PID Approval** | M015 | June 2024 |
| **Waterway Study** | N/A | Mid 2026 |
| **Begin PA&ED** | M020 | Mid 2026 |
| **Circulate Draft Project Report (DPR) and Draft Environmental Document Externally** | M120 | Late 2028 |
| **PA&ED Approval*** | M200 | Late 2029 |

***ASSUMES JOINT NEPA/CEQA DOCUMENT.**

## 13 RISKS

A Level 3 Risk Register is being maintained for the project. Refer to Attachment F for the detailed Risk Register. A summary of some of the key risks is as follows:

- Business and developer coordination
- Coordination with other projects
- Insufficient funding for construction
- Park impacts
- Waters of U.S.
- Utility
- Residential/Liveaboard displacement
- Change in bridge height/span length
- Constructability
- Identification of project sponsor
- Identification of NEPA/CEQA lead
- Work Window Restrictions

# 14 EXTERNAL AGENCY COORDINATION

## U.S. Coast Guard

Since the conception of the bridge project over 15 years ago, the City of Alameda has been coordinating with the USCG, which operates a base at Coast Guard Island, approximately 1.25 miles east of the Webster and Posey Tubes in the Oakland Estuary. Since all USCG operations would need to pass through the project study area, USCG has paid particular attention to operational clearances to accommodate its National Security Cutters, which can be up to 140 feet high. Letters dated September 25, 2008; September 30, 2016; November 13, 2019; and January 21, 2021, established USCG's requirement for a 600-foot-minimum horizontal clearance measured fender-to-fender and 175-foot-minimum vertical clearance from mean high water to low steel. The January 21, 2021 letter was a letter of concurrence for moving forward with the project, and was attached to the Detailed Feasibility Study (2021).

A meeting with the USCG on November 21, 2022, clarified that the 600-foot horizontal clearance request is consistent with the narrowest existing horizontal clearance in the estuary between Reach 6 and Coast Guard Island. The project will continue to coordinate closely with USCG and will develop a USCG Bridge Permit application for the preferred alternative.

## Port of Oakland

The Port of Oakland (Port) issued a letter of concurrence on May 11, 2020, regarding the general design criteria and alternatives subsequently published in the Detailed Feasibility Study (2021). The Port is located to the west of all Build Alternatives, meaning that cargo ships would not pass through the project study area. Furthermore, all Build Alternatives are outside of Reach 6, a region of the estuary immediately west of the project study area that has been dredged to a greater depth than the estuary has to the east, within the project study area. Larger vessels are limited to the deeper waters of Reach 6. As a result, the project would not conflict with most Port operations. A meeting on April 3, 2023, confirmed the Port's continued concurrence with the project, and requirement that the project cannot be inside of Reach 6.

## San Francisco Bay Area Water Emergency Transportation Authority

A meeting was held with the WETA, commonly known as San Francisco Bay Ferry, on March 22, 2023, to discuss possible impacts of a new bridge on ferry operations. WETA's terminal and dock are located to the west of the proposed alignments; however, WETA may need to access the project study area to turn boats around or perform maintenance or refueling runs. At the meeting, WETA conveyed that the minimum vertical clearance for its ferries should be 50 feet. None of the Build Alternatives require the relocation of the Oakland Ferry Terminal. WETA did not provide a minimum horizontal offset from the terminal but requested adequate distance to maneuver and avoid conflict with operations. The closest alternative (W4) passes within 50 feet of the terminal. Alternative W6 requires the demolition and relocation of the existing marina directly east of the Oakland terminal, which may require reconstruction closer to the terminal. WETA also stated that all bridge alignments should be to the west of the

terminal to minimize operational impact due to bridge opening times. All Build Alternatives meet this criterion.

### Technical Advisory Committee

USCG, Port of Oakland, and WETA were all involved in the project's TAC.

### Regulatory Agencies

USACE, USFWS, USCG, NOAA Fisheries, BCDC, CDFW – Marine Region, San Francisco Regional Water Quality Control Board, and State Lands Commission attended the November 2023 regulatory agency meeting. In addition, BCDC participated in various SAC/EAC meetings. See discussion of November 2023 meeting in Section 9: Stakeholder Involvement for more details.

### Local Agencies

A Cooperative Agreement will be needed with the Cities of Oakland and Alameda.

### Railroads

The project will not impact railroads. UPRR has been involved in the SAC (see Section 9).

## 15 PROJECT REVIEWS

City of Alameda *Allen Tai* Date *06/26/2024*

# 16 PROJECT PERSONNEL

| Name | Title | Phone No. |
|---|---|---|
| **Rochelle Wheeler** | City of Alameda Project Manager | 510-747-7442 |
| **Allen Tai** | City of Alameda, Direct of Planning, Building, and Transportation | 510-747-6888 |
| **Nicole Ferrara** | City of Oakland, Department of Transportation | 510-238-4720 |
| **Acacia Dupierre** | City of Oakland, Major Projects Division | 510-631-2314 |
| **Ed Manasse** | City of Oakland, Planning | 510-238-7733 |
| **Celia McCuaig** | Caltrans D4, Advanced Planning Office Chief | |
| **Cameron Oakes** | Caltrans D4, Deputy District Director | 510-960-0741 |
| **Rodney Pimentel** | HNTB Project Manager | 510-587-8691 |
| **Anderson Ren** | HNTB Deputy Project Manager | 510-587-8749 |
| **Carie Montero** | HNTB Environmental Lead | 510-552-1079 |
| **Thomas Warrner** | HNTB Senior Environmental Planner | 510-587-8699 |
| **Brandon Wong** | HNTB Design Lead | 510-587-8763 |
| **Trieu Tran** | HNTB Staff Engineer | 510-587-8784 |

## 17 ATTACHMENTS

A. Project Location Map (1 page)
B. Preliminary Geometrics – Plan and Profile (4 pages)
C. Capital Outlay Project Estimate (13 pages)
D. Preliminary Environmental Analysis Report (PEAR) (105 pages)
E. Right-of-Way Data Sheets (30 pages)
F. Risk Register (3 pages)
G. Storm Water Data Report (SWDR) (36 pages)
H. Design Standards Risk Assessment (3 pages)
I. Complete Streets Decision Document (CSDD) (2 pages)
J. Advance Planning Study (1 page)
K. Transportation Planning Scoping Information Sheet (13 pages)

# Attachment A Project Location Map

# Attachment B Preliminary Geometrics

# Attachment C Capital Outlay Project Estimates

# Attachment D Preliminary Environmental Analysis Report (PEAR)

# Attachment E Right-of-Way Data Sheets

# Attachment F Risk Register

# Attachment G Storm Water Data Report

# Attachment H Design Standards Risk Assessment

# Attachment I Complete Streets Decision Document

# Attachment J Advance Planning Study

# Attachment K Transportation Planning Scoping Information Sheet