Vallejo Ferry Terminal Reconfiguration Project

Draft Initial Study/Mitigated Negative Declaration

May 2024

Prepared for

WETA
San Francisco Bay Area
Water Emergency Transportation Authority
Pier 9, Suite 111, The Embarcadero
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1.0 INTRODUCTION & PURPOSE

1.1 Purpose and Scope of the Initial Study

This IS/MND has been prepared in accordance with the California Environmental Quality Act (CEQA) (California Public Resources Code [PRC] Section (§) 21000 et seq.) and its Guidelines (California Code of Regulations [CCR], Title 14, §15000 et seq.), to evaluate the potential environmental effects associated with the construction and operation of the San Francisco Bay Area Water Emergency Transportation Authority's (WETA) Vallejo Ferry Terminal Reconfiguration project (proposed project). Pursuant to Section 15367 of the State CEQA Guidelines, WETA is the lead agency for the proposed project. The lead agency has the principal responsibility for carrying out or approving a project.

As set forth in the State CEQA Guidelines Section 15070, a mitigated negative declaration can be prepared when the Initial Study has identified potentially significant environmental impacts, but revisions have been made to a project, prior to public review of the Initial Study, that would avoid or mitigate the impacts to a level considered less than significant, and there is no substantial evidence in light of the whole record before WETA that the project, as revised, may have a significant effect on the environment.

1.2 Summary of Findings

Section 4.0 of this document contains the Environmental Checklist that was prepared for the proposed project pursuant to CEQA requirements. The Environmental Checklist helps WETA determine whether the proposed project would result in no impact, less than significant impacts, less than significant impacts with the implementation of mitigation measures, or potentially significant impacts. The impacts analysis is identified and discussed within each subsequent resource area throughout this document.

Based on the environmental checklist (Section 4.0) completed for the proposed project and supporting environmental analyses, the project would primarily result in no impact or a less than significant impact to environmental issue areas identified below. The project's impacts on the following issue areas would be less than significant with mitigation incorporated: Biological Resources, Cultural Resources, Geology and Soils, Noise, Transportation, and Tribal Cultural Resources.

As set forth in the State CEQA Guidelines Section 15070 (Decision to Prepare a Negative or Mitigated Negative Declaration), a public agency shall prepare or have prepared a proposed negative declaration or mitigated negative declaration for a project subject to CEQA when:

(a) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or

(b) The initial study identifies potentially significant effects, but:

  (1) Revisions in the project plans or proposals made by, or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and

  (2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.

This IS/MND contains and constitutes substantial evidence supporting the conclusion that preparation of an EIR, or other more involved environmental document is not required prior to approval of the project.

1.3 Initial Study Public Review Process

A Notice of Intent (NOI) to adopt the MND based on State CEQA Guidelines § 15072, was prepared and submitted to the State Clearinghouse for filing and circulation. The document was made available for a 30-day public review period. During this time the public, interested parties, stakeholders, and any state or local agency could provide comment on the document. The IS/MND may be viewed at WETA's website at the following link: https://weta.sanfranciscobayferry.com/current-projects/vallejo-ferry-terminal-reconfiguration-project, on the State Clearinghouse website, or at the Water Emergency Transportation Authority office, located at:

Pier 9, Suite 111, The Embarcadero
San Francisco, CA 94111

Written comments on the IS/MND should reference the "WETA Vallejo Ferry Terminal Reconfiguration Project," and be addressed to:

San Francisco Bay Area Water Emergency Transportation Authority
Pier 9, Suite 111, The Embarcadero
San Francisco, CA 94111
Contact: Chad Mason
Email: mason@watertransit.org

WETA, as the Lead Agency for this project, will consider comments received and in accordance with (State CEQA Guidelines § 15074(b)), decide whether to adopt the IS/MND prior to taking action to approve the project. If the IS/MND is adopted and the proposed project is approved, WETA will adopt the MMRP, which will detail the mitigation measures, timing of mitigation implementation, and list the responsible parties.

WETA will serve as the custodian of record for this Initial Study and Environmental Checklist and related technical studies. These studies are available for public review at the following address:

San Francisco Bay Area Water Emergency Transportation Authority
Pier 9, Suite 111, The Embarcadero
San Francisco, CA 94111
Contact: Chad Mason

1.4 Report Organization

This document has been organized into the following sections:

Section 1.0 – Introduction. This section provides an introduction and overview describing the conclusions of the Initial Study.

Section 2.0 – Project Description. This section identifies key project characteristics and includes a list of anticipated discretionary actions.

Section 3.0 – Initial Study Checklist. The Environmental Checklist Form provides an overview of the potential impacts that may or may not result from project implementation.

Section 4.0 – Environmental Evaluation. This section contains an analysis of environmental impacts identified in the environmental checklist.

Section 5.0 – References. The section identifies resources used to prepare the Initial Study.

2.0 DESCRIPTION OF PROPOSED PROJECT

2.1 Project Overview

The San Francisco Bay Area Water Emergency Transportation Authority (WETA) proposes to reconfigure the existing ferry terminal in Vallejo to reduce or eliminate maintenance dredging and increase operational safety in support of continued ferry service between the cities of San Francisco and Vallejo. The City of Vallejo is collaborating in this effort and WETA is the local lead agency under CEQA. WETA is responsible for implementation of the Vallejo Ferry Terminal Reconfiguration Project (proposed project). The Federal Transit Administration (FTA) is the federal lead agency under the National Environmental Policy Act (NEPA) and will provide funding for to the project. FTA, in coordination with WETA, will prepare a separate NEPA document for the proposed project.

The proposed project includes reconfiguration of an existing ferry terminal, including the relocation and expansion of an existing bridge and gangway, and installation of a new passenger float. The proposed terminal in Vallejo would be constructed at the existing site on the eastern shore of Mare Island Strait, adjacent to the tourism information center. The existing fixed pier, gangway, and passenger float are accessible by a gate on the walkway that surrounds the terminal basin area, a paved portion of the San Francisco Bay Trail. The existing components are currently used for standard WETA ferry operations that transport passengers to San Francisco Bay ferry terminals. As described later in this section, the existing fixed pier, gangway, and passenger float would be removed during project construction.

2.2 Project Location

Regional Vicinity

The project is in the City of Vallejo (City) in Solano County, California (See **Figure 1: Regional Map**). The City occupies approximately 48.78 square miles of land area east of the San Pablo Bay, south of Napa County, and north and east of the San Francisco Bay. The mainland city area makes up approximately 90 percent of the City's land area, with the remainder on Mare Island across Mare Island Strait (See **Figure 2: Project Vicinity**). Regional access to the City is provided by various transportation modes. Interstate 80 (I-80) through San Francisco and Oakland provides regional access for automobiles and transit from the south, while I-780 provides access through Benicia from the east. Regional traffic accesses the project site via State Route 29 (SR 29) through the Curtola Parkway exit, which turns into Mare Island Way.

Local Vicinity

The project site is located at 289 Mare Island Way (Assessor Parcel Numbers 0055-170-050 and 0055-170-400) and includes the existing Vallejo Ferry Terminal, which consists of a steel float structure, fixed pier, steel gangway, and covering (See **Figure 3: Existing Setting**). The surrounding site area is designated under the Parks, Recreation, and Open Space land use, and is zoned Waterfront Mixed-Use. The project site is accessible by vehicle via Mare Island Way, and by ferry from the existing ferry terminal. See **Figure 4: Existing Site Photos**.

Additional uses in this area along Mare Island Strait include the Vallejo Tourism Information Center, Mare Island Brewing Company Taproom and Panama Coffee (both located within the Tourism Information Center Building), Bay Hibachi Express, The Wharf restaurant, Independence Park, Barbara Kondylis Waterfront Green, a currently vacant office building, and parking. Parking is currently provided in waterfront parking lots on the eastern side of Mare Island Way, across the street from terminal site. The existing lots and garages adjacent to the proposed project site accommodate Vallejo Ferry Terminal and Transit Center passengers and employees, guests and employees of the Tourism Information Center building and surrounding restaurants, and public users. Waterfront parking, including the existing parking garage and surrounding lots (Lots A1, A2, and B), is all paid parking. Additionally, three hour timed free parking is available adjacent to the terminal site to the northwest and southeast in Lot A and Lot E.

2.3 Environmental Setting

Setting

Solano County encompasses seven jurisdictions including the City of Vallejo. The proposed project site is located in the southwestern portion of Solano County. The Western portion of Solano County, including the proposed project site, is located within the Bay Area Air Quality Management District (BAAQMD).

General Plan and Zoning

The proposed project site is subject to the provisions of the adopted Vallejo General Plan and the Vallejo Municipal Code. The site is primarily designated for Parks, Recreation, and Open Space by the Vallejo General Plan and is zoned as Waterfront Mixed-Use. Currently, the fixed pier access point is located within APN 0055170060.

2.4 Project Details

Purpose and Need

The project is proposed with the goals of reducing dredging events, improving queueing, and adjusting berthing to be more safe and more efficient, to effectively reduce costs and materials while upholding WETA standards in practice. The proposed project would facilitate a reduction in the need for regular maintenance dredging at the Vallejo Ferry Terminal. Currently, the ferry terminal basin requires regular dredging (every 2-3 years) to remove built-up siltation caused by river currents from Mare Island Strait. Reconfiguring and extending the ferry terminal to a position located out of the basin and closer to the main channel of the river would significantly reduce the siltation around the terminal and reduce the frequency for regular dredging. The duration between dredge events will likely increase to at least 20 years, thus reducing the need for scheduled disrupting activities. This reconfiguration would not only improve the efficiency of ferry landings but also support WETA standards for safety and resiliency. The benefits of the proposed project are as follows:

- The proposed project will minimize or avoid the need for regular dredging of the existing basin; resulting in a significant reduction in maintenance costs and impacts to the terminal basin.
- The proposed project will result in increased operational safety as there will be less risk of ferries running aground when siltation builds up within the existing terminal basin.
- The proposed project will result in increased operational safety as the proposed dock layout will allow ferries to dock and undock parallel to the river current of Mare Island Strait instead of perpendicular to the river current.
- The proposed project will result in reduced commute times because of reduced time required for docking and undocking.
- The proposed project will remove existing dolphin fenders that are no longer needed and return those areas to natural channel bottom.

- The proposed project will remove the existing float and replace with a new WETA standard size float that makes loading and unloading operations consistent with other WETA terminals.

The proposed project would be located on the eastern shore of Mare Island Strait, within the footprint of the existing ferry terminal and basin area. The proposed project would remove and replace 5,322 sf of existing fixed pier, gangway, passenger float, and piles with a new reconfigured fixed pier, gangway, passenger float, and piles. The new WETA Standard float would be approximately 134.5 feet by 42 feet and would accommodate both sides of the float for passenger loading and unloading. All project features would be compliant with Americans with Disabilities Act (ADA) standards. Passengers would pay for their fares with Clipper cards, on board the vessels, or through mobile ticketing system or online. Passenger queuing would be located on the new fixed pier and along an existing portion of the San Francisco Bay Trail adjacent to the proposed fixed pier entry gate. Restroom access would be provided at existing restrooms in the Tourism Center building.

Project Layout
There is minor variability in how WETA can configure the Project. As explained below, WETA considered site-specific factors like currents within the Mare Island Straight, overwater coverage, mudline impacts, and public preference for layout configuration. WETA considered three layouts (Figures 5A through 5C: Project Site Plans) for the relocation of the existing ferry terminal, each requiring the same sized-float and intensity of use after construction. The layouts are as follows:

- Preferred Configuration (Figure 5A) : This layout extends the existing ferry terminal outside of the basin and further offshore and adds extra length to the passenger access gangway leading to the terminal. The access point would remain in its current location.
- Configuration Option 1 (Figure 5B): This layout also relocates the existing ferry terminal outside of the basin, with an access point at the southwest corner of the basin.
- Configuration Option 2 (Figure 5C): This layout also relocates the existing ferry terminal outside of the basin with an access point at the northwest corner of the basin.

These three configurations were presented to ferry captains from Blue & Gold Fleet and also to the public to gather their feedback on a preferred configuration. The captains were identified as key stakeholders due to their daily operational insights. See Appendix A1: Blue & Gold Ferry Captains Feedback for the Captains feedback on the three configuration options. Public input was collected through extensive outreach efforts, both in-person and online, ensuring that ferry riders and the community had the opportunity to contribute to WETA's decision-making process. Feedback indicated that extending the existing ferry terminal was the preferred configuration (Figure 5A). See Appendix A2: Public Outreach Report for details regarding public engagement feedback. This preferred configuration also is referred to as the "proposed project" in this document, with the other two configurations labeled as " Configuration Option 1" and " Configuration Option 2".

The analysis in this document is focused on the preferred configuration (proposed project), which has a relatively larger footprint (9,630 sf) than either Configuration Option 1 or 2 (8,013 sf each). While the three configurations are substantially similar, the preferred configuration (proposed project) has the largest footprint. In the discussion below (please see Tables 1 through 6), Configuration Options 1 and 2 have nearly identical impacts and would not result in any more dredging or in-water work than the proposed project. Because neither Configuration Option 1 or 2 involve any substantially different or more severe impact than those analyzed for the preferred configuration, the impacts analysis focuses on the preferred configuration as that analysis also encompasses any impacts related to both Configuration Options 1 and 2.

As mentioned above, the selection of the preferred configuration was the result of stakeholder input based on preferences to keep the existing terminal entry location in the same location as it exists today. Other factors such as minimizing impacts to the San Francisco Bay Trail and preferred queuing locations for passengers were also considered in selecting the preferred configuration as the proposed project.

The proposed project proposes a four- section fixed pier and gangway extending from the existing ferry terminal access point. The proposed project adds additional length to the passenger access gangways and fixed pier leading to the terminal. This action will provide more passenger queuing area than the existing configuration, which will help to manage and organize lines during passenger loading and unloading. The proposed project will provide vessel berthing on both sides of the ferry landing float. The float will provide berthing in a direction parallel to the current of Mare Island Strait for quicker docking procedures and greater efficiency overall.

Figure 6: Project Configurations depicts the layout of the preferred configuration alongside the other configuration options of the ferry terminal. Configuration Options 1 and 2 propose access from outside of the basin in the southwest and northwest corners respectively and feature a three-section fixed pier and gangway “dog-leg” design to situate pedestrian access to the ferry; All three configurations were configured to use both sides of the float for loading and unloading during regular activities. The construction of any configuration would result in overwater coverage of Mare Island Strait, which hosts estuarine habitat. WETA is planning on using materials and components which have been reviewed and approved by the relevant environmental agencies for past WETA projects. These components may include but are not limited to, fixed pier and gangway surfaces designed with grating to allow sunlight penetration, navigation lights, and a new WETA standard size float.

As previously mentioned, construction would also result in the existing Vallejo ferry terminal to be removed, with ferry service continuing with the use a temporary terminal that would be installed prior to demolition. The proposed project is anticipated to be similar to the temporary terminal utilized during regular dredge events that disrupt existing terminal use. The temporary terminal would be located within approximately 50 to 175 feet from the south bank of the basin (Refer to **Figures 5A** through **5C**). Construction and use of temporary float use would cause minimal to no ferry schedule delays or changes. An additional dredge event is proposed before removal of the existing terminal for the proposed project, to ensure adequate room for the temporary terminal to be installed along the shore wall and to fulfill the biennial dredging around the existing terminal prior to its demolition.

<u>Fixed Pier, Gangway and Passenger Float</u>

As depicted in **Figure 5A** through **5C**, the project would include an entry gate on the east edge of the basin along the San Francisco Bay Trail, pile-supported dolphins, berthing monopiles, a new float, and a fixed pier and gangway leading to the passenger float. These components would extend out of the Vallejo Ferry Terminal basin area to the west, towards Mare Island Strait. The gangway would connect the entry gate and fixed pier to the new passenger float. The portion of the gangway connecting the float to a dolphin would be fixed on the dolphin side and free to move with the tide on the float side. To account for the side slope associated with dredging of the federal channel, as standard practice, the distance from a federal navigation channel in where a structure may be located is typically a horizontal distance three (3) times the authorized project depth. The federal navigation channel in Mare Island Strait is authorized to a depth of 30' MLLW, which requires a minimum of 90-foot offset from the edge of the federal channel. Each configuration would place the new ferry passenger float at least 300 feet from the edge of the federal channel. The proposed new WETA standard ferry passenger float would be approximately 134.5 feet by 42 feet, with an area of approximately 5,650 sf. The preferred reconfiguration and additions would remove approximately 5,322 sf of material. The total overwater area impacted by the configuration options is listed below in Table 1: Overwater Coverage Areas.

Table 1: Overwater Coverage Areas

	OVERWATER COVERAGE AREA (square feet)	NET DIFFERENCE
Existing Structure	4,990	-
CONFIGURATIONS		
Preferred Configuration (Proposed Project)	9,645	+ 4,655
Configuration Option 1	8,013	+ 3,023
Configuration Option 2	8,014	+ 3,024

Passenger Queuing and Waiting Area

As explained above, the entry gate to the proposed terminal would be placed along a portion of the San Francisco Bay Trail similar to its current placement. Queuing at the ferry gate is currently located along the paved walkway between the tourism center building and the terminal access point. There's currently a fixed pier and gangway spanning 90 feet between the entry gate and the float. Pedestrian access to the terminal would be provided from an existing section of the San Francisco Bay Trail. To avoid conflicts between trail users (especially faster moving users, such as cyclists) and ferry passengers, the segment of the trail near the terminal entrance would be marked with paint and signage to indicate the pedestrian crossing and queuing. These features would be designed in coordination with BCDC and San Francisco Bay Trail staff. Queuing for the existing ferry terminal currently extends to the north from the terminal access point, wrapping around the ferry terminal basin as shown in **Figure 7: Existing Ferry Terminal Queuing.** Queuing for the proposed project is shown in **Figure 8: Project Queuing**. The fenced railing surrounding the ferry terminal basin would require reconfiguration for implementation of Configuration Option 1 or 2, as new access points for entrance to the terminal would need to be created in place of the existing railing. Clipper card readers would be installed on the float or on a waterside pile-supported corner dolphin near the gangway, with additional signage surrounding the terminal entrance. Queuing may also impact the placement of existing trash receptacles; WETA would coordinate with the City of Vallejo about signage and relocation of trash receptacles.

Parking and Circulation

The proposed project would utilize existing automobile and bicycle parking for ferry passengers in the existing parking lots and garages adjacent to the terminal. The existing lots and garages currently accommodate Vallejo Ferry Terminal passengers and employees, guests and employees of the Tourism Information Center building and surrounding restaurants, and public users. Parking for ferry passengers and employees would continue to be located in the existing lots and garages. No improvements or modifications are proposed at these existing lots with implementation of the proposed project. As shown in **Figure 3**, the existing surrounding parking lots all allow access to the ferry terminal and would continue to serve the proposed project. Parking use for workers related to the proposed project's construction are detailed in the Construction section of this document.

The proposed project site is accessible from Mare Island Way and would continue to be the primary road that the ferry terminal is accessible from.

Other Area Improvements

The proposed project would also include modifications to the portion of the San Francisco Bay Trail in the vicinity of the project, to provide access to the project site. Currently, the San Francisco Bay Trail travels along the eastern perimeter of the Vallejo ferry terminal basin area, in a northwest/southeast direction along the eastern side of Mare Island Strait. The proposed project would continue to provide an access point to the ferry terminal along the San Francisco Bay Trail. This access point would continue to include a gate system.

Ferry Route

The existing ferry route provides service between the Downtown San Francisco Ferry Terminal and the Vallejo Ferry Terminal, as depicted in **Figure 9: Existing Ferry Route**. The Downtown San Francisco Ferry Terminal is located on the Embarcadero in downtown San Francisco and serves other WETA ferry routes travelling from Oakland, Alameda, and Richmond. Other ferry services using the Downtown San Francisco Ferry Terminal include Golden Gate Ferry and Blue & Gold Fleet. No alterations or expansions of the Downtown San Francisco Ferry Terminal are proposed as part of the project. The duration of the trip between San Francisco and Vallejo may be reduced with more efficient vessel landings as a result of docking and undocking parallel to the current of Mare Island Strait. The existing ferry route from Downtown San Francisco to Vallejo travels through established navigational channels in inner San Francisco Bay, and would turn east upon reaching the entrance of the San Pablo Bay at Point San Pablo. After travelling through San Pablo Bay, the vessel would turn north just west of the Carquinez Bridge, travelling through Mare Island Strait until reaching the Vallejo Ferry Terminal. The service route would be reversed in the opposite direction but would remain essentially the same, with slight modifications for currents and other navigational constraints. The Vallejo Ferry Terminal also provides service to Oracle Park depending on the day and time of San Francisco Giants home games. Direct ferry service for evening home games is provided between Vallejo and Oracle Park for pre- and post-game service on weekends, and post-game only on weekdays.

The U.S. Coast Guard (USCG) Regulated Navigation Areas that enhance navigational safety by organizing traffic flow patterns on San Francisco Bay pertain to large cargo vessels but not ferries. USCG maintains the Office of Vessel Traffic Safety (VTS) that applies to all vessels 40 meters or greater in length, all vessels certified to carry 50 or more passengers, and all commercial vessels 8 meters or more that are towing another vessel. The VTS issues direction to enhance vessel safety during conditions of vessel congestion, restricted visibility, adverse weather, or other dangerous conditions. Impacts to the overall route would be minor with the implementation of the temporary terminal, and schedule timing changes would be minimal to none. There would be no route or schedule changes with implementation of the proposed project.

2.5 Project Construction and Operations

Construction

Construction of the project is expected to occur over a period of approximately 4-6 weeks, beginning in Summer 2026 with an anticipated completion date of late Fall 2026. It is estimated that project construction would require 4-8 daily construction crew members, with the possibility for up to 15 onsite construction workers during major operations. Fabrication of the float, fixed pier, gangway, and piles would require approximately five to six months and would be completed off site. Generally, site preparation, and ground improvements would occur over one month and could overlap with waterside work; construction of landside improvements would require approximately one month; in-water work (demolition/removal of existing components and installation of proposed terminal components) would be completed in approximately two weeks; and the overwater work would occur over three weeks. The in-water work window is limited to August 1 through November 30, and would include the installation of piles as well as the float. Overwater construction would include the installation of all the approach sections, concrete dolphins, and utility installation.

Demolition of the existing ferry terminal would be required prior to installation of any new waterside terminal components. The demolition work includes removal of the existing piles, fixed pier, gangway, and float. This work would be conducted from barges, one for materials storage and one outfitted with demolition equipment (crane and clamshell bucket, vibratory pile driver, or impact hammer for pulling of piles and a crane for fixed pier and gangway removal). Diesel power tugboats would bring the barges to the project site, where the barges would be anchored.

Piles would be removed by pulling the pile. The in-water demolition work would also be limited to the in-water work window from August 1 to November 30, and would include the removal of the existing piles, pile dolphins, and floats. The demolition waste from these activities would be disposed of at the nearest waste and recycling facility. Disposal of all materials will follow regulatory requirements.

Landside construction activities include site preparation, and utility installation or reconfiguration. Construction equipment would include a small backhoe and bulldozer/bobcat, haul trucks, material delivery trucks, a crane, and delivery and support trucks. All equipment would be powered by diesel or gasoline. Where feasible and available, diesel construction equipment would be powered by Tier 3 or Tier 4 engines as designated by the California Air Resources Board (CARB) and U.S. Environmental Protection Agency. In addition, if available for on-site delivery, diesel construction equipment would be powered with renewable diesel fuel that is compliant with California's Low Carbon Fuel Standards and certified as renewable by the CARB executive officer.

The project would require Bay fill removal (existing piles) and placement for installation of pilings for the new float and donut fenders, and fixed pier support. It is estimated that approximately 17 to 18 pilings would be installed, totaling 126 to 130 sf. Further, the existing steel dolphins within the basin and terminal area would be removed (See **Figure 10: Components To Be Removed**). See Table 2: Components to be Removed and Table 3: Components to be Added, below for details of existing and proposed ferry terminal components . The project proposes 9,515 sf of components in addition to 130 sf of pilings, including 3,735 sf of fixed pier, gangway, and dolphins, 5,650 sf of new WETA Standard float, and 130 sf of fender donuts (Table 4: Proposed Project Footprint).

Table 2: Components to be Removed

SECTION	DESCRIPTION	MATERIAL	QTY	Mudline Impacts (SF)
FIXED PIER/GANGWAY				
Gangway Support Piles	Steel Pipe Piles for gangway support	Steel	2	6.28
Concrete Pad	64.69 SF' Concrete Pad	Concrete	1	-
Fixed Pier/Gangway	Existing Fixed Pier/Gangway	Steel	1	-
Float	**Float**			
Anchor Piles	W18x211 Anchor Piles	Steel	2	0.87
	W16x177 Anchor Piles	Steel	2	0.13
Float Anchor Chains	1 ¼" Stud Link Chain, 426 LF total	Steel	4	159.75
MONOPILES				
Cluster Piles	18" Diameter Cluster Piles	Steel	2	3.54
	16" Diameter Cluster Piles	Steel	4	5.56
Piles	HP 14x177 Piles	Steel	4	0.96

Table 3: Components to be Added

SECTION	DESCRIPTION	MATERIAL	QTY -- PROPOSED PROJECT	QTY – CONFIG OPTION 1	QTY – CONFIG OPTION 2
FIXED PIER/GANGWAY					
Steel pipe piles for gangway support	36” diameter x 0.75” wall thickness x 80’ long	Steel	6	4	4
Concrete Cap	17'x5'x5' Concrete Cap	Concrete	3	2	2
Fixed Pier/Gangways	11’X50’ Gangway - Steel Only	Steel	1	0	0
	11’x90’ Gangway - Steel Only	Steel	3	3	3
DOLPHIN					
Steel pipe piles for gangway support	36” diameter x 0.75” wall thickness x 80’ long	Steel	4	4	4
Concrete Cap	17' x 17'	Concrete	1	1	1
Float					
New Standard WETA Float	134’ x 42’ float	Various	1	1	1
Steel pipe piles for fixed pier support	36” diameter x 0.75” wall thickness x 80’ long	Steel	5	5	5
MONOPILES					
Steel pipe piles for fixed pier support	36” diameter x 0.75” wall thickness x 100’ long	Steel	3	4	4
Donut Fenders	Marine Donut Fender	Foam/Reinforced Polyurethane	3	4	4
Steel Marker Piles	12" Diameter x 0.5” wall thickness x 100’ long	Steel	4	8	8

Project components would be fabricated off-site and transferred to the project site via barge. Debris generated during construction and site clearing activities would consist of the existing steel float, steel guide piles, gangway, bridge structure, bridge structure steel support system (H-Pile and steel beams), anchor chains, concrete approach slab, and miscellaneous electrical/mechanical conduit attached to the existing elements to be removed. In accordance with Section 5.408 of the CALGreen Code, the project would implement a Construction Waste Management Plan (CWMP) for recycling and/or salvaging for reuse of a minimum of 65 percent of nonhazardous construction/demolition debris. Further, the City of Vallejo requires construction and demolition projects to comply with a construction and demolition (C&D) debris recycling ordinance to salvage and/or recycle 50% of debris and 75% of concrete and asphalt. Solid waste collected throughout the City is hauled by Recology or self-haul where it is taken to salvage or recycling facilities such as the Devlin Road Recycling and Transfer Facility, where it is then taken to Potrero

Hills Landfill in Suisun, in Solano County. Materials removed from the project site would be removed via a support barge in the Vallejo Ferry Terminal basin area.

Consistent with Section 16.502.10 D of the Vallejo Zoning Ordinance, noise-generating construction activities would be limited to occur between 7:00 a.m. and 6:00 p.m. It is anticipated that project construction would occur Monday through Friday, 7:00 a.m. to 3:30 p.m., with the potential for Saturday and Sunday work. In the event that weekend construction activities would be required, WETA would coordinate with the City of Vallejo to obtain necessary permits/approvals.

As shown in **Figure 11: Project Staging Area**, project construction staging would occur within the Vallejo Ferry Terminal basin and surrounding area, with most material being anchored offshore with limited land staging. Before construction activities begin on any project component, signage would be posted surrounding the project site notifying the public of temporary parking lot closure. Further, construction workers would park in existing Lot B on Mare Island Way, which currently has a capacity of 326 parking spaces in addition to 8 ADA-compliant spaces and 2 motorcycle spaces. A portion of Lot B may also be used as staging laydown area. No street closures are anticipated. The San Francisco Bay Trail, which traverses north/south through the Vallejo Ferry Terminal and project site, would remain open for pedestrian access with the potential for brief interruptions during certain construction activities, such as terminal access gate installation. Access and use of the San Francisco Bay Trail would return to its original condition upon project completion.

See Table 4: Proposed Project Footprint, Table 5: Footprint for Configuration Option 1, and Table 6: Footprint for Configuration Option 2, for a calculation of the project footprint both on the water surface and at the mudline within the river channel for all the configurations. Once the new Vallejo Ferry Terminal is operational, limited dredging may be required to accommodate vessels associated with the project.

Table 4: Proposed Project Footprint

ITEM	NUMBER	AREA	TOTAL	UNIT
Impact Below Mudline				
3' Diameter Piling	18	7.07	127.24	SF
1' Diameter Piling (sacrificial steel marker piles)	4	0.79	3.14	SF
Total			**130.38**	**SF**
Impact Above Mudline				
Fixed Pier and Gangway		3,735	3,735	SF
Float	1	5,650	5,650	SF
Donut Fenders	3	43.19	129.59	SF
Total			**9,514.59**	**SF**

Table 5: Footprint for Configuration Option 1

ITEM	NUMBER	AREA	TOTAL	UNIT
Impact Below Mudline				
3' Diameter Piling	17	7.07	120.17	SF
1' Diameter Piling (sacrificial)	8	0.79	6.28	SF
Total			**126.45**	**SF**
Impact Above Mudline				
Fixed Pier and Gangway		3,313.54	3,313.54	SF
Float		5,650	4,400.41	SF
Donut Fenders	4	43.19	172.79	SF
Total			**7,886.74**	**SF**

Table 6: Footprint for Configuration Option 2

ITEM	NUMBER	AREA	TOTAL	UNIT
Impact Below Mudline				
3' Diameter Piling	17	7.07	120.17	SF
1' Diameter Piling (sacrificial)	8	0.79	6.28	SF
Total			**126.453**	**SF**
Impact Above Mudline				
Fixed Pier and Gangway		3,313.93	3,313.93	SF
Float	1	5,650	4,400.41	SF
Donut Fenders	4	43.19	172.79	SF
Total			**7,887.13**	**SF**

Source: ESRI, 2023

Figure 1: Regional Map

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn

Source: Nearmap, 2023

Figure 2: Project Vicinity

WETA Vallejo Ferry Terminal Reconfiguration Project

N

Not to scale

Kimley»Horn

Source: Nearmap, 2023

Figure 3: Existing Setting

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn

View of existing Vallejo Ferry Terminal facing south.

Access point and entrance gate to existing Vallejo Ferry Terminal gangway.

Existing Vallejo Ferry Terminal gangway and float.

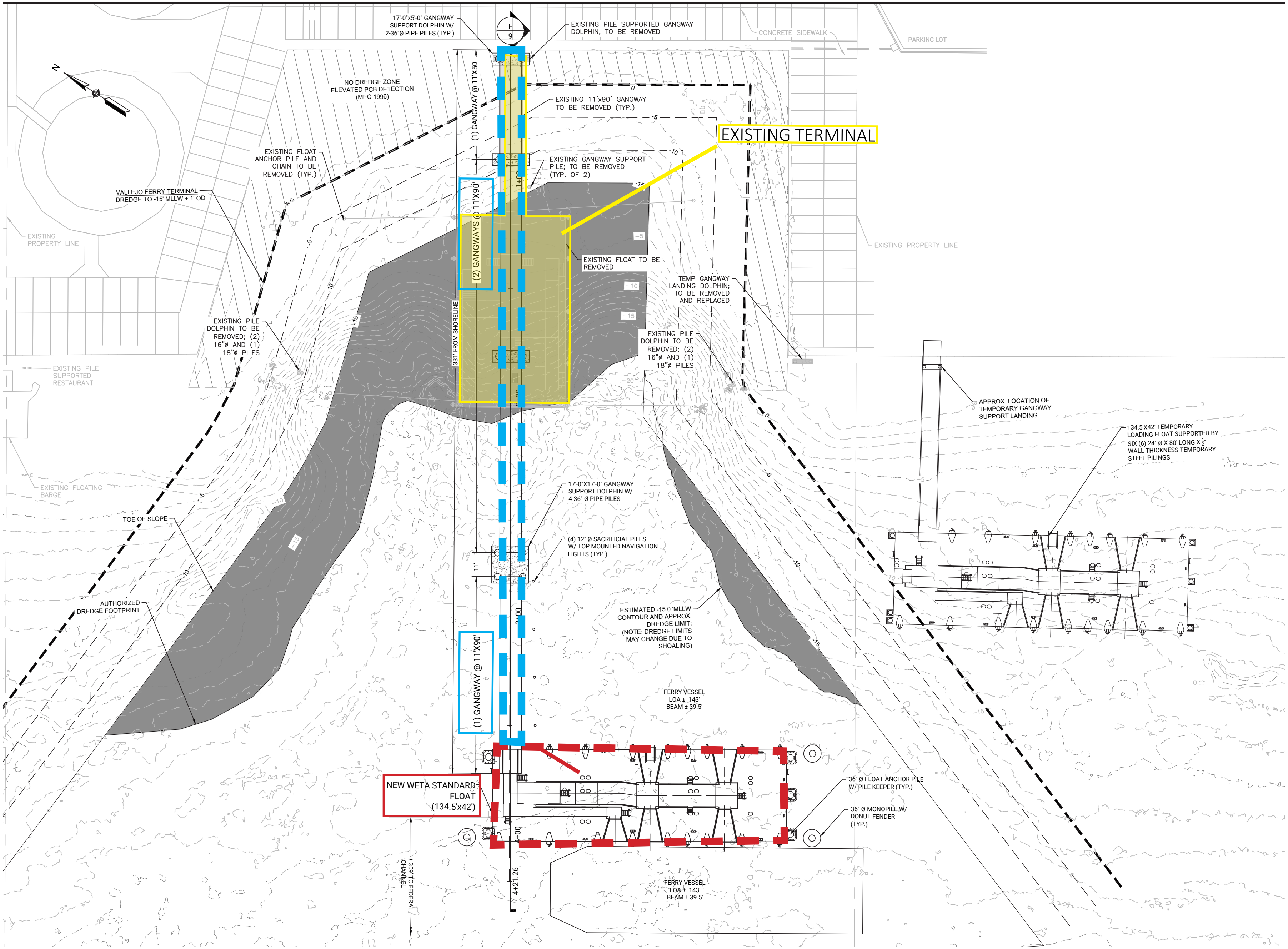
View of existing Vallejo Ferry Terminal facing north.

Source: Kimley-Horn, 2023

Figure 4: Existing Site Photos

WETA Vallejo Ferry Terminal Reconfiguration Project

Kimley»Horn



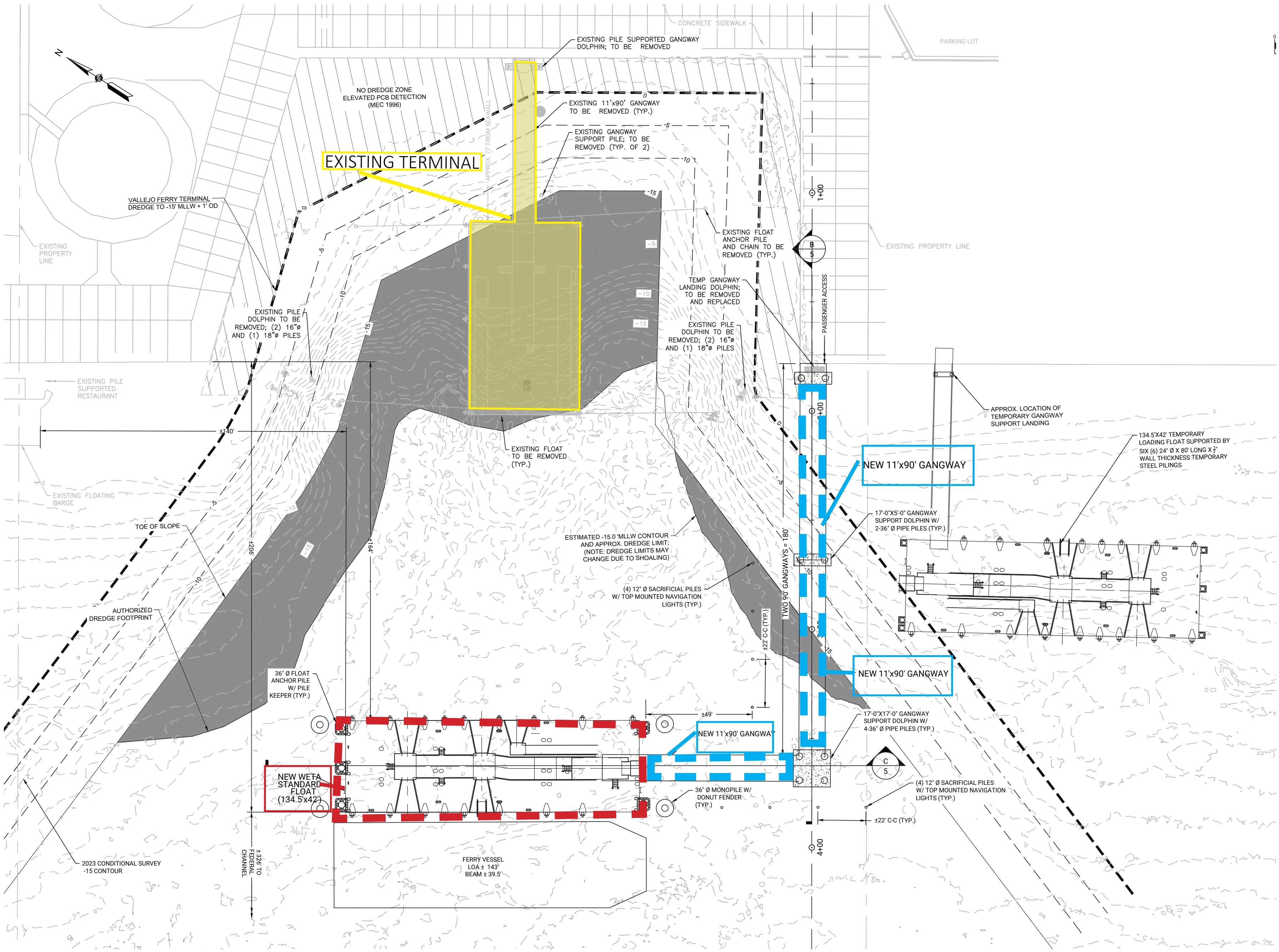
Source: Foth, 2023

Figure 5A: Project Site Plan -- Preferred Project

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn



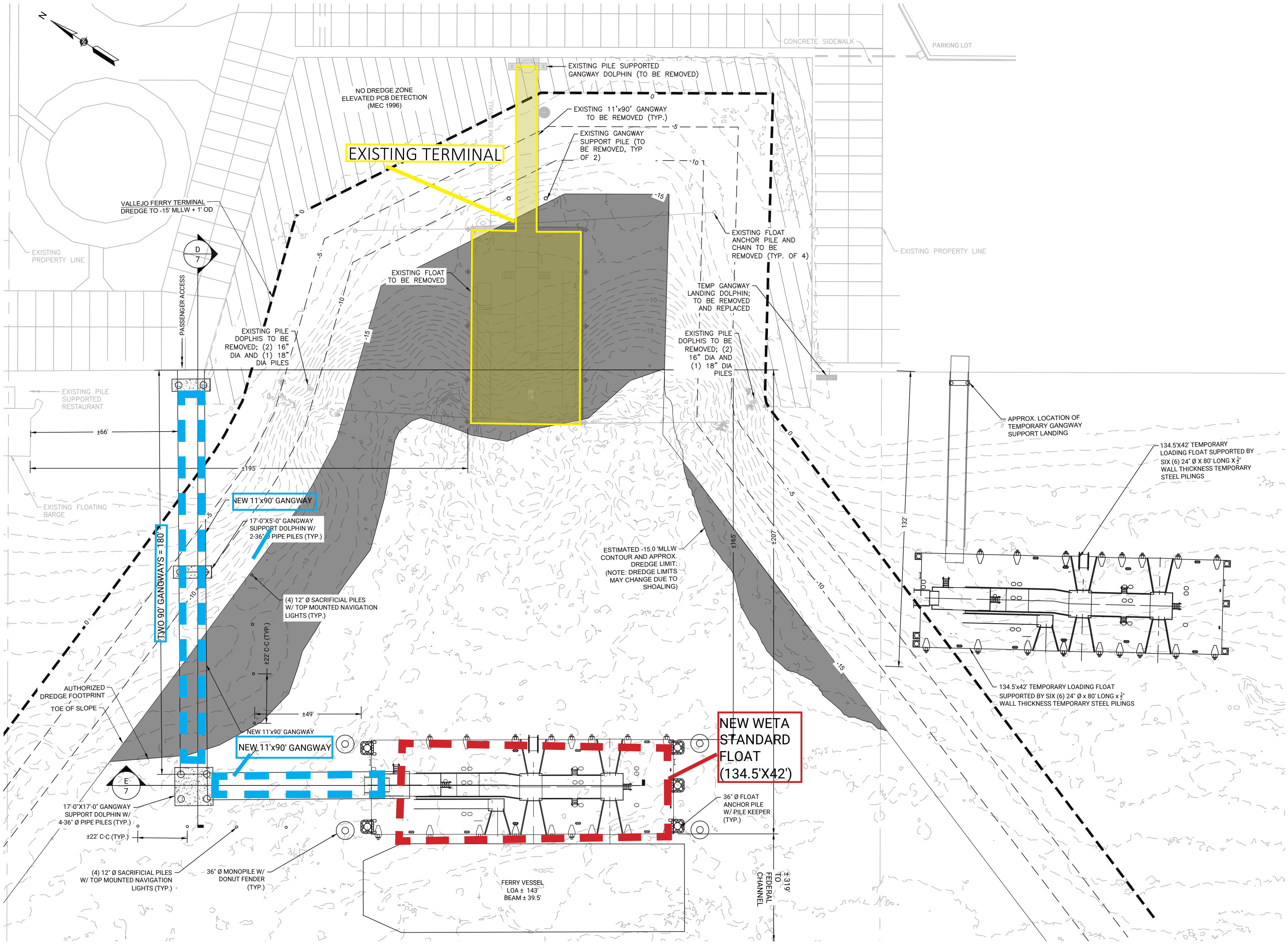
Source: Foth, 2023

Figure 5B: Project Site Plan -- Configuration Option 1

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn



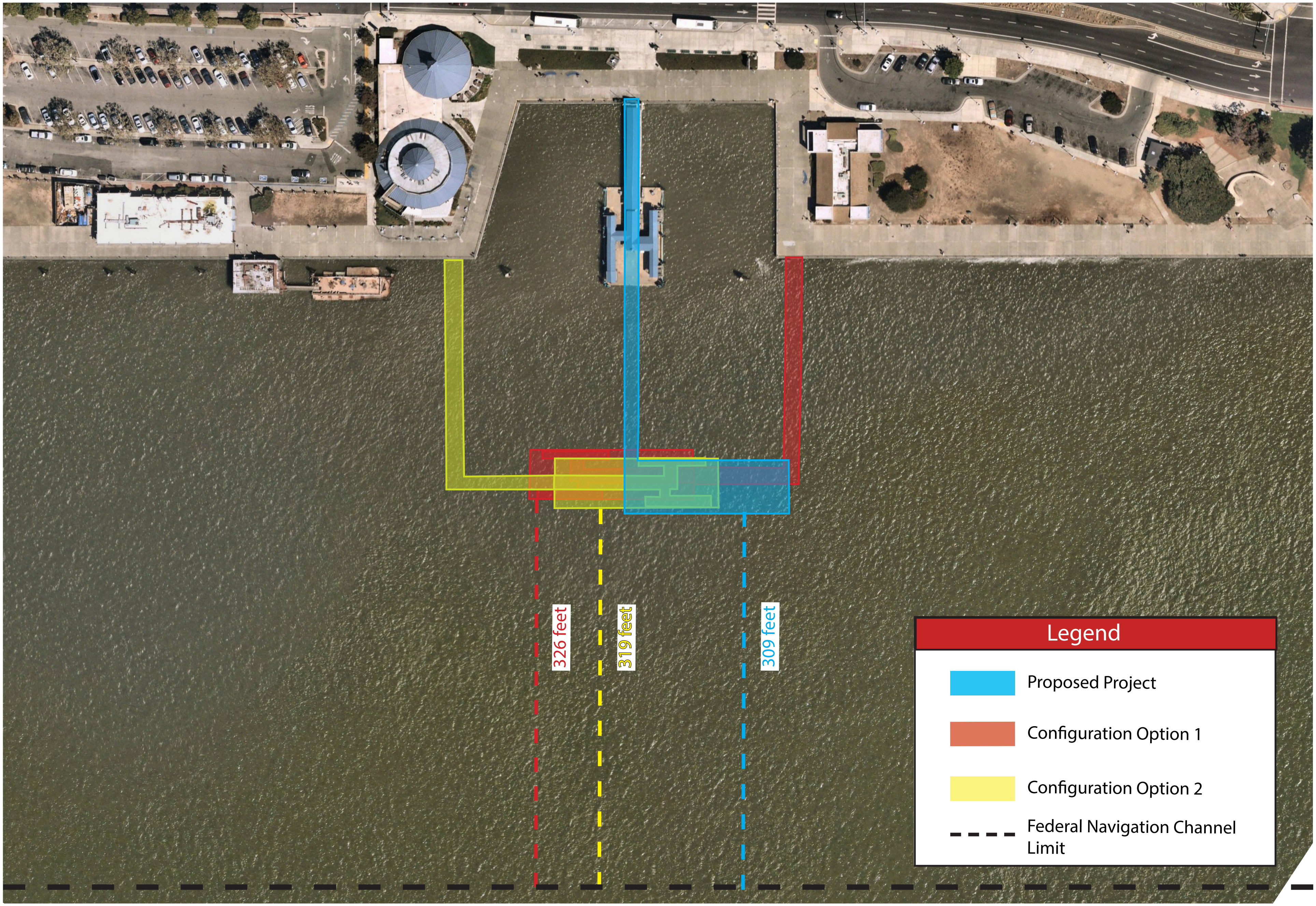
Source: Foth, 2023

Figure 5C: Project Site Plan -- Configuration Option 2

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn



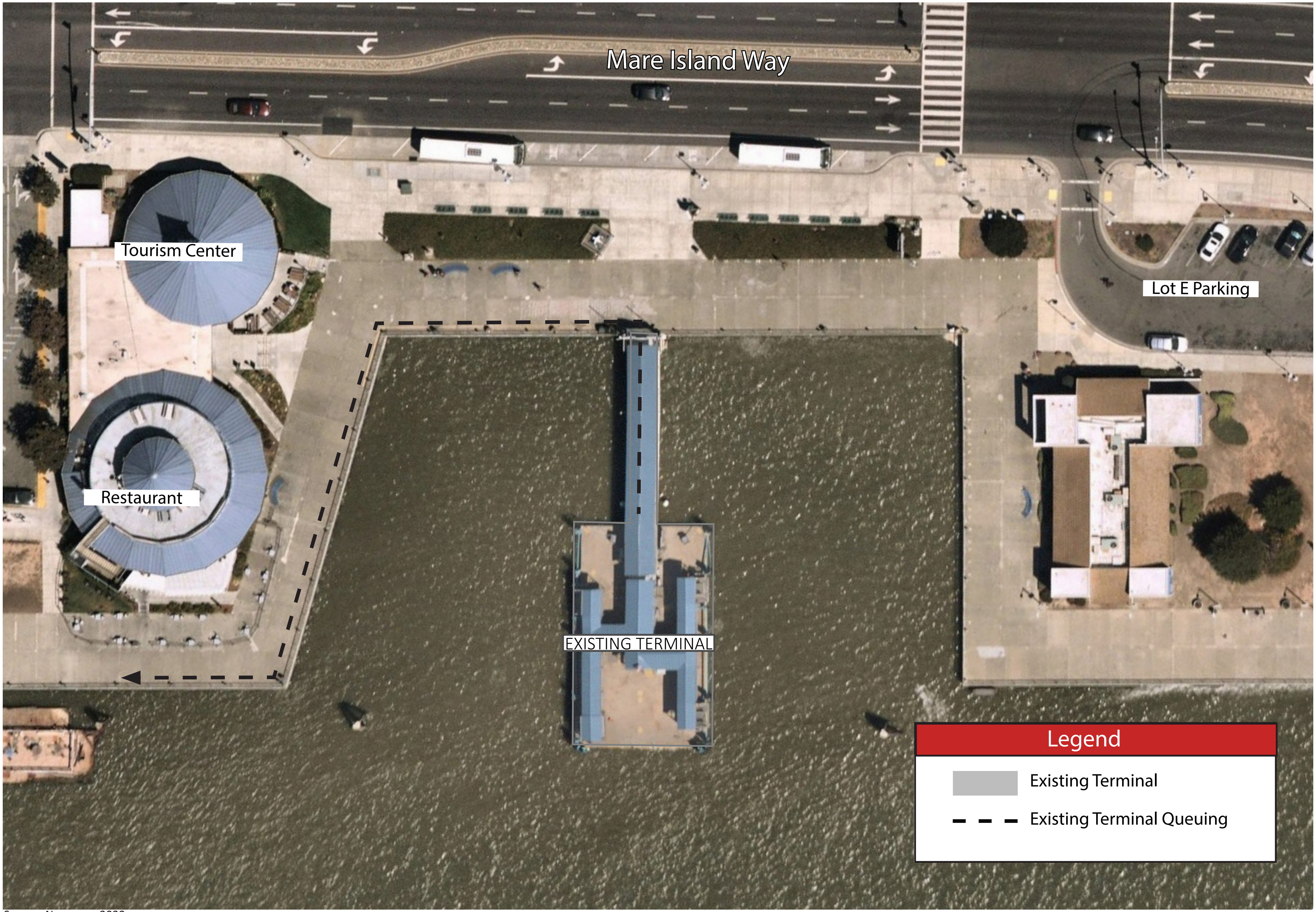
Source: Nearmap, 2023

Figure 6: Project Configurations

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn



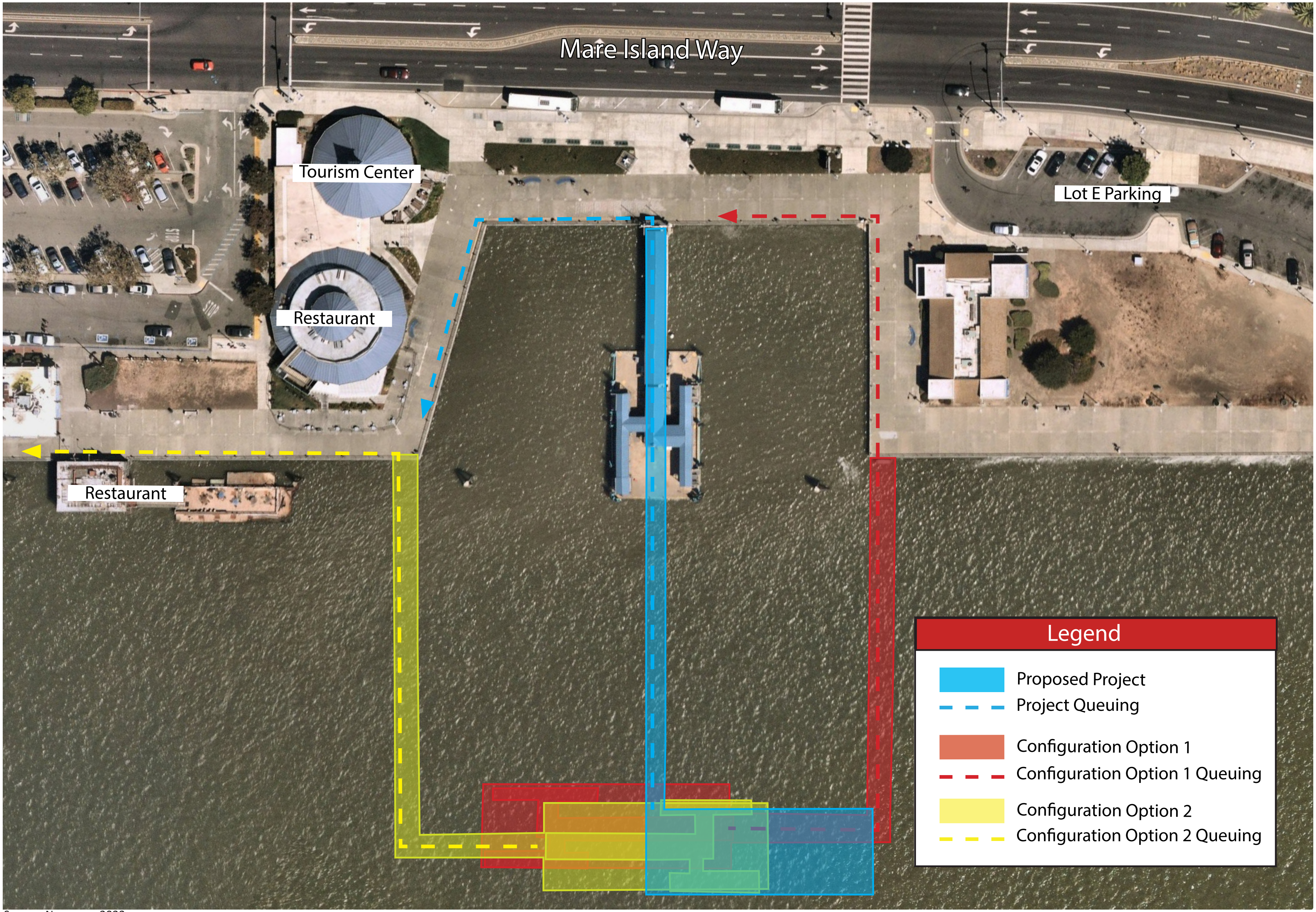
Source: Nearmap, 2023

Figure 7: Existing Ferry Terminal Queuing

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn



Source: Nearmap, 2023

Figure 8: Project Queuing

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn

Source: Google Earth Pro, 2023

Figure 9: Existing Ferry Route

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn

Steel dolphins in basin area on either side of terminal to be removed.

Existing temporary terminal support dolphin and piles to be removed pending Alternative chosen.

Existing Vallejo Ferry Terminal gangway and float will be removed.

View facing south; See other steel solphin to be removed on northern side of float.

Source: Kimley-Horn, 2023

Figure 10: Components To Be Removed

WETA Vallejo Ferry Terminal Reconfiguration Project

Kimley»Horn

Source: Foth, 2023

Figure 11: Project Staging Area

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn

3.0 INITIAL STUDY CHECKLIST

NOTE: The following is a sample form that may be tailored to satisfy individual agencies' needs and project circumstances. It may be used to meet the requirements for an initial study when the criteria set forth in CEQA Guidelines have been met. Substantial evidence of potential impacts that are not listed on this form must also be considered. The sample questions in this form are intended to encourage thoughtful assessment of impacts, and do not necessarily represent thresholds of significance.

1. Project title:

Vallejo Ferry Terminal Reconfiguration Project

2. Lead agency name and address:

San Francisco Bay Area Water Emergency Transportation Authority (WETA)
Pier 9, Suite 111
The Embarcadero
San Francisco, CA 94111

3. Contact person and phone number:

Chad Mason, Project Manager/Senior Planner
415.364.1745

4. Project location:

289 Mare Island Way, on the east shore of Mare Island Strait in the City of Vallejo, California.

5. Project sponsor's name and address:

WETA
Pier 9, Suite 111
The Embarcadero
San Francisco, CA 94111

6. General plan designation:

Parks, Recreation, and Open Space

7. Zoning:

Waterfront Mixed-Use

8. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

The proposed project seeks to reconfigure the existing Vallejo Ferry Terminal and replace the existing components along the eastern shore of Mare Island Strait. The proposed terminal would include landings, a new extended fixed pier and gangway to extend beyond the current basin, passenger float, ramping system, and piles, in a reformatted configuration. The new passenger float would be a WETA standard float and would accommodate two vessels at a time for passenger loading and unloading. The float would be configured to run parallel with the flow of Mare Island Strait. A temporary terminal to assist with ferry operations during project construction will be utilized. See attached **Figure 1** through **Figure 11** for project location, plans, and details.

9. Surrounding land uses and setting: Briefly describe the project's surroundings:

The project site is located in an existing basin on the eastern shore of Mare Island Strait. The upland area surrounding the site consists of the Vallejo Tourism Information Center, surface parking, and various mixed use commercial operations. The Vallejo transit center is located directly across Mare Island Way. A concrete sidewalk runs parallel to the shoreline around the project site providing access to and along the waterfront.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

- San Francisco Bay Conservation and Development Commission
- Regional Water Quality Control Board
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- National Marine Fisheries Service
- City of Vallejo
- California Department of Fish and Wildlife
- California State Lands Commission
- Metropolitan Transportation Commission (San Francisco Bay Trail)

A preliminary consultation meeting with the San Francisco Bay Conservation and Development Commission took place on January 26, 2024. On coordination between WETA and the City of Vallejo has taken place regarding the project as well. The City of Vallejo was contacted during the preparation of the historical resources report regarding building permits in the surrounding area.

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

The Confederated Villages of Lisjan Nation responded on February 29, 2024, requesting a copy of the Cultural Report. WETA provided the Confederated Villages of Lisjan Nation with a copy of the Report. No further correspondence from the Confederated Villages of Lisjan Nation was received. Updated AB 52 letters, with an updated project description were sent on March 21, 2024. A request for tribal consultation from the Yocha Dehe Wintun Nation on the project was received. Per request for a tribal consultation from the representatives of Yocha Dehe Wintun Nation, a consultation meeting between the Yocha Dehe Wintun Nation tribe and WETA took place on May 6, 2024. Tribal representatives requested the addition of Mitigation Measure MM TCR-1 regarding Tribal Cultural Resources Awareness Training to this document.

NOTE: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal *cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.*

4.0 ENVIRONMENTAL ANALYSIS

The environmental factors checked below would be potentially affected by this project, involving impacts identified as "Potentially Significant Unless Mitigation Incorporated" as indicated by the checklist on the following pages. No environmental factors were identified as “Potentially Significant Impact.”

At the time of publication of this document, there is no information suggesting the existence of any constraints for the proposed project. However, as the project progresses, if unforeseen conditions emerge, there are the other two configuration options (Configuration Option 1 and Configuration Option 2) available, which are not the preferred configurations. If either of these configurations are pursued, they would result in similar impacts as of the proposed project and would be mitigated by applying the same mitigation measures.

	Aesthetics		Agricultural Resources		Air Quality
X	Biological Resources	X	Cultural Resources		Energy
X	Geology/Soils		Greenhouse Gas Emissions		Hazards & Hazardous Materials
	Hydrology/Water Quality		Land Use/Planning		Mineral Resources
X	Noise		Population/Housing		Public Services
	Recreation	X	Transportation/Traffic	X	Tribal Cultural Resources
	Utilities/Service Systems		Wildfire	X	Mandatory Findings of Significance

Determination on the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	
I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.	**X**
I find that the proposed project MAY have a significant effect on the environment and an ENVIRONMENTAL IMPACT REPORT is required.	
I find that the proposed project MAY have a potentially significant or a potentially significant unless mitigated impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.	
I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.	

________________________________ ____________________________

Signature *Date*

4.1 Aesthetics

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?			X	
a) Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
b) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			X	
c) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

Setting

Local

The City of Vallejo provides an urban context within a coastal and mountainous backdrop that typifies many cities in the San Francisco Bay Area. Vallejo is oriented along the eastern edge of the San Francisco/San Pablo Bay and to the southwest of Lynch Canyon, a portion of Fairfield in Solano County. The City is relatively flat and low-lying, with gradual elevation increases occurring towards the eastern portions of the City. Vallejo is a predominately built-out environment, with the majority of natural open space areas limited to the City edges. The City's proximity to San Francisco Bay, combined with the gradual topographic changes from the coastal edge to the mountain ranges, provide a wide range of natural hillside and Bay views from various areas. Long-range views within the City are generally expansive because of the flat terrain throughout the City. However, due to the flat terrain, existing mature trees and buildings often block views.

Project Site

The project site is located along the eastern shore of Mare Island Strait, which connects the Napa River to the San Pablo Bay in the western part of the City. Over the past 50 years, the waterfront area along the Strait has undergone a transition from predominantly heavy industrial uses to a mix of residential, recreational, commercial, and light industrial uses. The project site is accessible via Mare Island Way and is bound by Mare Island way to the northeast and Mare Island Strait to the southwest. The site is also bordered to the north, east, and south by a portion of the San Francisco Bay Trail.

In general, the project site can be characterized by its surroundings, particularly by the Vallejo tourism center building to the northwest, Mare Island way to the northeast, an existing vacant commercial structure to the southeast, and Mare Island Strait to the southwest. Views of Mare Island Strait are expansive, as discussed in more detail below.

Visual Character

As shown in **Figure 4 – Existing Site Photos**, the project site consists of an existing ferry terminal (including a float, fixed pier, and gangway), as well as surrounding elements such as piles, signage, and railing. **Figures 5A** through **5C** show the proposed locations of the ferry terminal fixed pier, gangway, and passenger float in comparison to the footprint of the existing terminal. The existing terminal is accessible by a gate on the northeastern side of the ferry terminal basin, along a portion of the San Francisco Bay Trail. Berthed vessels are frequently visible in this location from the Bay Trail and Mare Island Way.

Views

Due to the relatively flat topography of the project site and limited development in the immediate vicinity, expansive background views are visible throughout the project site. The ferry terminal basin and surrounding Bay Trail offer expansive views of Mare Island Strait. The project site, along with public vantage points within the vicinity, include background views to the south, southeast, and northeast of Crockett Hills, Mare Island, and the Mayacamas Mountains.

a) Have a substantial adverse effect on a scenic vista?

Less than Significant Impact. Under CEQA, a scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the public. A vista is a view from a particular location or combination of locations and a scenic vista combines an aesthetically pleasing aspect, often natural, to the vista. Examples of scenic vistas can include mountain ranges, valleys, ridgelines, water bodies, or visually important trees, rock outcroppings, or historic buildings. While a scenic vista may be formally designated, they can be informal public views. Changes in the viewshed are typically discussed in terms of foreground, middle ground, and background views. An adverse effect to a scenic vista may result from a degradation of an existing vista or the loss of access to an existing viewpoint.

The Vallejo General Plan does not designate official scenic view corridors or vistas. The project is not located on a highway or route that is designated or eligible for designation as a scenic highway. The project would introduce new visual elements to the project site, but the changes to the visual environment would be consistent with existing uses and roadway infrastructure in the project area and would not be considered a substantial alteration. The proposed project would not significantly impact any scenic vista. Several proposed project activities would include refurbishment or replacement, improving the overall character and quality of the existing ferry terminal.

The proposed project does not include any elements that would be elevated or would significantly block any views of Mare Island Strait. The current ferry terminal features a covered fixed pier and gangway as well as a float within the ferry terminal basin, while the proposed project will utilize a covered fixed pier and gangway that extends further into Mare Island Strait. These project features would not significantly alter the character of the surrounding landscape and would be consistent with the existing visual environment of Mare Island Strait and uses along the shore. Thus, the proposed project would not result in a substantial alteration to the existing visual character of the site or its surroundings. Impacts would be less than significant, and no mitigation is required.

b) Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?

Less than Significant Impact. The project site is not located within a scenic highway. There are two highway segments eligible for scenic highway designation in the City of Vallejo, a segment of Route 101 and a segment of Route 37. The project site is not visible from these segments.

Thus, there are no trees, rock outcroppings, or historical buildings on the project site that would alter the viewshed from the perspective of viewers from the freeway. Therefore, the proposed project would not substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway. Impacts would be less than significant, and no mitigation is required.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less than Significant Impact. The project site is located within an urbanized area and is surrounded by a mix of commercial uses in the project vicinity. Project implementation would result in ferry terminal improvements such as reduced dredging events, more efficient passenger queuing and loading, and safer vessel docking and berthing. Improvements would occur within the existing right-of-way as well as within the Federal Navigation Channel limit and would not occur within adjacent parcels. The proposed terminal design is similar to the existing ferry terminal, and includes landings, a covered fixed pier and gangway, and a passenger float, which would lay close to the water. The proposed terminal would extend into Mare Island Strait as a linear visual element. The proposed project would pose a more prominent feature due to its placement further into the water channel, however these project features would not significantly alter the character of the surrounding landscape. Uses within Mare Island Strait and along the shoreline are primarily maritime or relevant to the boating uses of the channel, and the proposed project would be consistent with these uses and the existing visual environment. Therefore, the proposed project would not degrade existing visual character or existing views of Mare Island Strait and its environs.

Ferry vessels will be docked at the terminal for certain periods of time (five to seven minutes during most arrivals/departures) throughout the day, blocking a minor portion of views immediately adjacent to the project site. However, the presence of a vessel along the waterfront is consistent with other uses within the existing visual character of the project site. Numerous vessels are present in the Marina Bay Yacht Harbor to the east of the project site and large freight vessels frequently enter and leave the harbor to the west of the project site. A WETA vessel would be consistent with these existing uses and would not substantially alter the visual character of the area.

The proposed uses of the project align with the existing uses of the ferry terminal in place. Thus, the proposed project would be consistent with the type of existing development in the project area. The project sponsor would also adhere to BCDC Public Access Design Guidelines and ABAG Bay Trail Plan Design Guidelines. The purpose of the BCDC Public Access Design Guidelines is to provide the San Francisco Bay region with a design resource for development projects along the shoreline of San Francisco Bay. These guidelines provide suggestions for site planning, as well as recommendations for designing and developing attractive and usable public access areas. In addition, the Bay Plan Design Guidelines include the minimum width, surface type, slope, and grading for proposed segments of the Bay Trail. The proposed project would comply with these guidelines to minimize visual impacts along the shoreline. For these reasons, the project would not conflict with applicable zoning and regulations governing scenic quality. Impacts would be less than significant, and no mitigation is required.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less than Significant Impact. There is a potential for the implementation of the proposed project to introduce new sources of light and glare into the project area during construction and operation. Contributions to light and glare impacts would be temporary and short-term during construction and only occur during this period of time. The project would include reconfiguring an existing ferry terminal to alter direction of vessel berthing, which could introduce a new light source in the area for the life of the project. Ferry terminal access gate doors may include reflective elements such as glass; however, incorporation of such reflective materials would be minor and would not introduce a new impact. Glare could potentially be created when the vessel is docked due to on board lighting or the reflection of light off of vessel surfaces; however, this would be a temporary impact. In addition, only a portion of the vessel would be visible to motorists on Mare Island Way; therefore, most of the reflective surfaces would not create a major source of glare in this area. The light from the terminal and parking area would not significantly add to the nighttime lighting that is already present at the existing ferry terminal site. The proposed project would not add a substantial new lighting element. As such, any additional light from the ferry terminal would be consistent with the existing light sources and would not significantly increase lighting. The proposed project would conform to Vallejo standards for outdoor lighting that establish requirements for light illumination, the use of light shields, and lighting that is directed downward to minimize the effects of spillage, and potential for glare. Impacts would be less than significant, and no mitigation is required.

4.2 Agriculture and Forestry Resources

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				**X**
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				**X**
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				**X**
d) Result in the loss of forest land or conversion of forest land to non-forest use?				**X**
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				**X**

Setting

The project site is in an urbanized area characterized by commercial and industrial land uses. According to the Natural Resource Conservation Service Web Soil Survey, the soil type present at the project site is

Bay mud, silty clays, and Made land.[1] Further, the project site and surrounding area is situated atop urban land that does not support agricultural practices.

a) *Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?*

No Impact. As described above, the project site is characterized by Bay mud, silty clays, and Made land, and there is no prime farmland or farmland of statewide importance. The proposed project would not change the existing land use at the project site and would result in limited ground disturbing activities. The majority of project activities would occur within Mare Island Strait and ferry terminal basin area. Therefore, the proposed project would not convert prime farmland or farmland of statewide importance to nonagricultural uses. There would be no impact, and no mitigation is required.

b) *Conflict with existing zoning for agricultural use, or a Williamson Act contract?*

Or,

c) *Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?*

No Impact. The project site is zoned as Waterfront Mixed-Use. The project site does not conflict with existing zoning for agriculture or contain a Williamson Act Contract. Further, the project site is not zoned for forest land, timberland, or timberland production, nor contain any of these uses. Therefore, the proposed project would not conflict with existing zoning for agriculture, forest land, or timberland or conflict with a Williamson Act contract. There would be no impact, and no mitigation is required.

d) *Result in the loss of forest land or conversion of forest land to non-forest use?*

Or,

e) *Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?*

No Impact. As identified above, the project site is not zoned for forest land, timberland, or timberland production, nor contain any of these uses. Further, there is no Farmland on or adjacent to the project site that would have the potential to be converted to non-agricultural uses. Therefore, the proposed project would not result in the loss or conversion of forest land. There would be no impact, and no mitigation is required.

[1] United States Department of Agriculture Natural Resources Conservation Service. *Web Soil Survey*. Available at: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed November 27, 2023.

4.3 Air Quality

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?				X

Setting

This section describes effects on air quality conditions in the proposed Vallejo Ferry Terminal Reconfiguration project area. The current condition of air quality was used as the baseline against which to compare potential impacts of the project.

Climate and Meteorology

The California Air Resources Board (CARB) divides the State into 15 air basins that share similar meteorological and topographical features. The project is located within the San Francisco Bay Area Air Basin (Basin). This Basin comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern portion of Sonoma County, and the southwestern portion of Solano County. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. These factors along with applicable regulations are discussed below. The Bay Area Air Quality Management District (BAAQMD) is responsible for local control and monitoring of criteria air pollutants throughout the Basin.

Climate, or the average weather condition, affects air quality in several ways. Wind patterns can remove or add air pollutants emitted by stationary or mobile sources. Inversion, a condition where warm air traps cooler air underneath it, can hold pollutants near the ground by limiting upward mixing (dilution). Topography also affects the local climate, as valleys often trap emissions by limiting lateral dispersal.

The inversions typical of winter, called radiation inversions, are formed as heat quickly radiates from the earth's surface after sunset, causing the air in contact with it to rapidly cool. Radiation inversions are strongest on clear, low-wind, cold winter nights, allowing the build-up of such pollutants as carbon monoxide and particulate matter. When wind speeds are low, there is little mechanical turbulence to mix the air, resulting in a layer of warm air over a layer of cooler air next to the ground. During radiation inversions downwind transport is slow, the mixing depths are shallow, and turbulence is minimal, all factors which contribute to ozone formation.

The frequency of hot, sunny days during the summer months in the Basin is another important factor that affects air pollution potential. It is at the higher temperatures that ozone is formed. In the presence of ultraviolet sunlight and warm temperatures, reactive organic gases and oxides of nitrogen react to form secondary photochemical pollutants, including ozone.

The climate is dominated by the location and strength of a semi-permanent, subtropical high-pressure cell. In the summer, the Pacific cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below the surface because of the northwesterly flow produces a band of cold water off the coast which results in condensation and the presence of fog and stratus clouds along the coast. In the winter, the high-pressure cell weakens and shifts southward, resulting in increased wind flow offshore, the absence of upwelling, and the occurrence of storms.

The Basin is characterized by moderately wet winters (November through March) and dry summers. The rainfall in the mountains reaches 40 inches while the valley sees less than 16 inches. Generally, coastal temperatures can be 35 degrees Fahrenheit cooler than temperatures 15 to 20 miles inland. At night, this contrast usually decreases to less than 10 degrees Fahrenheit. In the winter, the relationship of minimum and maximum temperatures is reversed.

The project site is located in the City of Vallejo and Solano County; on the northeastern perimeter of the San Francisco Bay. The City of Vallejo has a generally mild climate, with average temperature ranging from 48 degrees Fahrenheit and 70 degrees Fahrenheit. The annual rainfall is approximately 18 inches in the City, primarily between October and April. The regulatory section below discusses the various buffer zones around sources of air pollution sufficient to avoid adverse health and nuisance impacts on nearby receptors.

Air Pollutants of Primary Concern

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state laws. These regulated air pollutants are known as “criteria air pollutants” and are categorized into primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxide (NO_X), sulfur dioxide (SO_2), coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead are primary air pollutants. Of these, CO, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ are criteria pollutants. ROG and NO_X are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. For example, the criteria pollutant ozone (O_3) is formed by a chemical reaction between ROG and NO_X in the presence of sunlight. O_3 and nitrogen dioxide (NO_2) are the principal secondary pollutants. Sources and health effects commonly associated with criteria pollutants are summarized in Table 7: Air Contaminants and Associated Public Health Concerns.

Ozone, or smog, is not emitted directly into the environment, but is formed in the atmosphere by complex chemical reactions between ROG and NO_X in the presence of sunlight. Ozone formation is greatest on warm, windless, sunny days. The main sources of NO_X and ROG, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) the evaporation of solvents, paints, and fuels, and biogenic sources. Automobiles are the single largest source of ozone precursors in the Basin. Tailpipe emissions of ROG are highest during cold starts, hard acceleration, stop-and-go conditions, and slow speeds. They decline as speeds increase up to about 50 miles per hour (mph), then increase again at high speeds and high engine loads. ROG emissions associated with evaporation of unburned fuel depend on vehicle and ambient temperature cycles. Nitrogen oxide emissions exhibit a different curve; emissions decrease as the vehicle approaches 30 mph and then begin to increase with increasing speeds.

Ozone levels usually build up during the day and peak in the afternoon hours. Short-term exposure can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, it can aggravate existing respiratory diseases such as asthma, bronchitis and emphysema. Chronic exposure to high ozone levels can permanently damage lung tissue. Ozone can also damage plants and trees, and materials such as rubber and fabrics.

Table 7: Air Contaminants and Associated Public Health Concerns

Pollutant	Major Man-Made Sources	Human Health Effects
Particulate Matter (PM_{10} and $PM_{2.5}$)	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; asthma; chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility.
Ozone (O_3)	Formed by a chemical reaction between reactive organic gases/volatile organic compounds (ROG or VOC)[1] and nitrogen oxides (NO_X) in the presence of sunlight. Motor vehicle exhaust industrial emissions, gasoline storage and transport, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
Sulfur Dioxide (SO_2)	A colorless gas formed when fuel containing sulfur is burned and when gasoline is extracted from oil. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO_2)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone. Contributes to global warming and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Lead (Pb)	Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead	Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues

Pollutant	Major Man-Made Sources	Human Health Effects
	emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Due to the phase out of leaded gasoline, metals processing is the major source of lead emissions to the air today. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.	and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children, resulting in learning deficits and lowered IQ.
[1] Volatile Organic Compounds (VOCs or Reactive Organic Gases [ROG]) are hydrocarbons/organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including ROGs and VOCs. Both ROGs and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation).		
Source: California Air Pollution Control Officers Association (CAPCOA), *Health Effects*, capcoa.org/health-effects/, accessed December 2023.		

Toxic Air Contaminants

Toxic air contaminants (TACs) are airborne substances that can cause short-term (acute) or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes more than 200 compounds, including particulate emissions from diesel-fueled engines.

The California Air Resources Board (CARB) identified diesel particulate matter (DPM) as a toxic air contaminant. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases produced when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. DPM includes the particle-phase constituents in diesel exhaust. The chemical composition and particle sizes of DPM vary between different engine types (heavy-duty, light-duty), engine operating conditions (idle, accelerate, decelerate), fuel formulations (high/low sulfur fuel), and the year of the engine. Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

Ambient Air Quality

CARB monitors ambient air quality at approximately 250 air monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations ten feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. Existing levels of ambient air quality, historical trends, and projections near the project site are documented by measurements made by the Bay Area Air Quality Management District (BAAAQMD)'s air pollution regulatory agency that maintains air quality monitoring stations, which process ambient air quality measurements.

Ozone (O_3) and particulate matter (PM_{10} and $PM_{2.5}$) are pollutants of concern in the BAAQMD. The closest air monitoring station to the project site that monitors ambient concentrations of these pollutants is the Vallejo Monitoring Station (located approximately 1.4 miles northeast of the project site). Local air quality data from 2020 to 2022 is provided in Table 8: Ambient Air Quality Data lists the monitored maximum concentrations and number of exceedances of federal or state air quality standards for each year. Particulate matter ($PM_{2.5}$) was exceeded in 2020 at the closest monitoring station.

Table 8: Ambient Air Quality Data

Pollutant	Vallejo [1]		
	2020	2021	2022
Ozone (O_3)			
1-hour Maximum Concentration (ppm)	0.096	0.099	0.066
8-hour Maximum Concentration (ppm)	0.077	0.072	0.058
Number of Days Standard Exceeded			
CAAQS 1-hour (>0.09 ppm)	1	1	0
NAAQS 8-hour (>0.070 ppm)	1	1	0
Nitrogen Dioxide (NO_2)			
1-hour Maximum Concentration (ppm)	48.5	40.5	44.2
Number of Days Standard Exceeded			
NAAQS 1-hour (>100 ppm)	0	0	0
CAAQS 1-hour (>0.18 ppm)	0	0	0
Particulate Matter Less Than 2.5 Microns ($PM_{2.5}$)			
National 24-hour Maximum Concentration	152.7	32.0	31.0
State 24-hour Maximum Concentration	153.2	32.0	31.0
Number of Days Standard Exceeded			
NAAQS 24-hour (>150 μg/m^3)	12	0	0
CAAQS 24-hour (>50 μg/m^3)	12	0	0
Particulate Matter Less Than 10 Microns (PM_{10})			
National 24-hour Maximum Concentration	--	--	--
State 24-hour Maximum Concentration	--	--	--
Number of Days Standard Exceeded			
NAAQS 24-hour (>150 μg/m^3)	--	--	--
CAAQS 24-hour (>50 μg/m^3)	--	--	--

NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; ppm = parts per million; μg/m^3 = micrograms per cubic meter; NM = not measured

[1] Measurements taken at the Vallejo Monitoring Station located at 304 Tuolumne Street, Vallejo, California 94590 (CARB# 43380).

Source: All pollutant measurements are from the CARB Aerometric Data Analysis and Management system database (arb.ca.gov/adam).

Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive receptors in proximity to localized sources of toxics are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. As shown in **Figure 12: Sensitive Receptors**, sensitive receptors near the project site include a multi-family residential community approximately 545 feet southeast and the Vallejo John F. Kennedy Library approximately 615 feet east. Table 9: Sensitive Receptors, lists the distances and locations of nearby sensitive receptors.

Table 9: Sensitive Receptors

Receptor Description	Distance and Direction from the Project Site
Multi-family residential community	545 feet southeast
Vallejo John F. Kennedy Library	615 feet east
Pathways Charter School	2,155 feet east
1. Distances are measured from the project site boundary to the property line. Source: Google Earth, 2023.	

Source: ESRI, 2023

Figure 12: Sensitive Receptors

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn

Regulatory Framework

Federal

Federal Clean Air Act

Air quality is federally protected by the Federal Clean Air Act (FCAA) and its amendments. Under the FCAA, the U.S. Environmental Protection Agency (EPA) developed the primary and secondary National Ambient Air Quality Standards (NAAQS) for the criteria air pollutants including ozone, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and lead. Depending on whether the standards are met or exceeded, the local air basin is classified as in "attainment" or "nonattainment." Some areas are unclassified, which means no monitoring data are available. Unclassified areas are considered to be in attainment. Proposed projects in or near nonattainment areas could be subject to more stringent air-permitting requirements. The FCAA requires that each state prepare a State Implementation Plan (SIP) to demonstrate how it will attain the NAAQS within the federally imposed deadlines.

The EPA has designated enforcement of air pollution control regulations to the individual states. Applicable federal standards are summarized in Table 10: State and Federal Ambient Air Quality Standards.

California Air Resources Board

CARB administers California's air quality policy. The California Ambient Air Quality Standards (CAAQS) were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in Table 10, are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates. In general, the Bay Area experiences low concentrations of most pollutants when compared to federal standards, except for O_3 and PM, for which standards are exceeded periodically. With respect to federal standards, the Bay Area's attainment status for 8-hour ozone is classified as "marginal nonattainment" and "nonattainment" for $PM_{2.5.}$ The region is also considered to be in nonattainment with the CAAQS for PM_{10} and $PM_{2.5}$. Area sources generate the majority of these airborne particulate emissions. The Basin is considered in attainment or unclassified with respect to the CO, NO_2 and SO_2 NAAQS and CAAQS.

The California Clean Air Act (CCAA), which was approved in 1988, requires that each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with CAAQS. These AQMPs also serve as the basis for the preparation of the SIP for meeting federal clean air standards for the State of California. Like the EPA, CARB also designates areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events such as wildfires, volcanoes, etc. are not considered violations of a State standard, and are not used as a basis for designating areas as nonattainment. The applicable State standards are summarized in Table 10.

Table 10: State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	State Standards[1]		Federal Standards[2]	
		Concentration	Attainment Status	Concentration[3]	Attainment Status
Ozone (O_3)	8 Hour	0.070 ppm (137 $\mu g/m^3$)	N[9]	0.070 ppm	N[4]
	1 Hour	0.09 ppm (180 $\mu g/m^3$)	N	NA	N/A[5]
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	A	9 ppm (10 mg/m^3)	A[6]
	1 Hour	20 ppm (23 mg/m^3)	A	35 ppm (40 mg/m^3)	A
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm (339 $\mu g/m^3$)	A	0.10 ppm[11]	U
	Annual Arithmetic Mean	0.030 ppm (57 $\mu g/m^3$)	-	0.053 ppm (100 $\mu g/m^3$)	A
Sulfur Dioxide[12] (SO_2)	24 Hour	0.04 ppm (105 $\mu g/m^3$)	A	0.14 ppm (365 $\mu g/m^3$)	A
	1 Hour	0.25 ppm (655 $\mu g/m^3$)	A	0.075 ppm (196 $\mu g/m^3$)	A
	Annual Arithmetic Mean	NA	-	0.03 ppm (80 $\mu g/m^3$)	A
Particulate Matter (PM_{10})	24-Hour	50 $\mu g/m^3$	N	150 $\mu g/m^3$	U
	Annual Arithmetic Mean	20 $\mu g/m^3$	N[7]	NA	-
Fine Particulate Matter ($PM_{2.5}$) [15]	24-Hour	NA	-	35 $\mu g/m^3$	U/A
	Annual Arithmetic Mean	12 $\mu g/m^3$	N[7]	12 $\mu g/m^3$	N
Sulfates (SO_{4-2})	24 Hour	25 $\mu g/m^3$	A	NA	-
Lead (Pb)[13, 14]	30-Day Average	1.5 $\mu g/m^3$	-	NA	A
	Calendar Quarter	NA	-	1.5 $\mu g/m^3$	A
	Rolling 3-Month Average	NA	-	0.15 $\mu g/m^3$	-
Hydrogen Sulfide (H_2S)	1 Hour	0.03 ppm (0.15 $\mu g/m^3$)	U	NA	-
Vinyl Chloride (C_2H_3Cl)	24 Hour	0.01 ppm (26 $\mu g/m^3$)	-	NA	-
Visibility Reducing Particles[8]	8 Hour (10:00 to 18:00 PST)	-	U	-	-

A = attainment; N = nonattainment; U = unclassified; N/A = not applicable or no applicable standard; ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter; – = not indicated or no information available.

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. In particular, measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the state standard.
2. National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.070 ppm (70 ppb) or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 $\mu g/m_3$. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than 35 $\mu g/m^3$.
   Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM_{10} is met if the 3-year average falls below the standard at every site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.
3. National air quality standards are set by the EPA at levels determined to be protective of public health with an adequate margin of safety.

4. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. EPA will make recommendations on attainment designations by October 1, 2016, and issue final designations October 1, 2017. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the ozone level in the area.
5. The national 1-hour ozone standard was revoked by U.S. EPA on June 15, 2005.
6. In April 1998, the Bay Area was redesignated to attainment for the national 8-hour carbon monoxide standard.
7 In June 2002, CARB established new annual standards for $PM_{2.5}$ and PM_{10}.
8 Statewide VRP Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.
9. The 8-hour CA ozone standard was approved by the Air Resources Board on April 28, 2005 and became effective on May 17, 2006.
10. On January 9, 2013, EPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ national standard. This EPA rule suspends key SIP requirements as long as monitoring data continues to show that the Bay Area attains the standard. Despite this EPA action, the Bay Area will continue to be designated as “nonattainment” for the national 24-hour $PM_{2.5}$ standard until such time as the Air District submits a “redesignation request” and a “maintenance plan” to EPA, and EPA approves the proposed redesignation.
11. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100ppm (effective January 22, 2010). The US Environmental Protection Agency (EPA) expects to make a designation for the Bay Area by the end of 2017.
12. On June 2, 2010, the U.S. EPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO_2 NAAQS however must continue to be used until one year following U.S. EPA initial designations of the new 1-hour SO_2 NAAQS.
13. CARB has identified lead and vinyl chloride as ‘toxic air contaminants’ with no threshold level of exposure below which there are no adverse health effects determined.
14. National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.
15. In December 2012, EPA strengthened the annual $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS) from 15.0 to 12.0 micrograms per cubic meter (µg/m^3). In December 2014, EPA issued final area designations for the 2012 primary annual $PM_{2.5}$ NAAQS. Areas designated “unclassifiable/attainment” must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.

Source: Bay Area Air Quality Management District, *Air Quality Standards and Attainment Status*, 2017. http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status.

Regional

Bay Area Air Quality Management District

The BAAQMD is the regional agency with jurisdiction over the nine-county region located in the Basin. The Association of Bay Area Governments (ABAG), Metropolitan Transportation Commission (MTC), county transportation agencies, cities and counties, and various nongovernmental organizations also join in the efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs.

Clean Air Plan

Air quality plans developed to meet federal requirements are referred to as State Implementation Plans. The federal and state Clean Air Acts require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM_{10} standard). The BAAQMD is responsible for developing a Clean Air Plan, which guides the region’s air quality planning efforts to attain the CAAQS. The BAAQMD adopted the *2017 Clean Air Plan: Spare the Air, Cool the Climate* (2017 Clean Air Plan) on April 19, 2019, by the BAAQMD.

BAAQMD periodically develops air quality plans that outline the regional strategy to improve air quality and protect the climate. The most recent plan, 2017 Clean Air Plan, includes a wide range of control measures designed to reduce emissions of air pollutants and greenhouse gases (GHGs), including the following examples that may be relevant to this project: reduce emissions of toxic air contaminants by adopting more stringent limits and methods for evaluating toxic risks; implement pricing measures to reduce travel demand; accelerate the widespread adoption of electric vehicles; promote the use of clean fuels; promote energy efficiency in both new and existing buildings; and promote the switch from natural gas to electricity for space and water heating in Bay Area buildings.

The 2017 Clean Air Plan provides a regional strategy to protect public health and protect the climate. To protect public health, the plan describes how the BAAQMD will continue progress toward attaining all state and federal air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities. To protect the climate, the 2017 Clean Air Plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious GHG reduction targets for 2030 and 2050 and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets. The 2017 Clean Air Plan contains district-wide control measures to reduce ozone precursor emissions (i.e., ROG and NO_X), particulate matter, TACs, and greenhouse gas emissions. The Bay Area 2017 Clean Air Plan updates the Bay Area 2010 Clean Air Plan in accordance with the requirements of the California Clean Air Act to implement “all feasible measures” to reduce ozone; provides a control strategy to reduce ozone, PM, TACs, and greenhouse gases in a single, integrated plan; reviews progress in improving air quality in recent years; and establishes emission control measures to be adopted or implemented in both the short term and through 2050.

The 2017 Clean Air Plan includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as particulate matter, ozone, and toxic air contaminants; to reduce emissions of methane and other “super-GHGs” that are potent climate pollutants in the near-term; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

The following BAAQMD rules would limit emissions of air pollutants from construction and operation of the project:

- Regulation 6, Rule 3 – Wood-Burning Devices. The purpose of this rule is to limit emissions of particulate matter and visible emissions from wood-burning devices used for primary heat, supplemental heat or ambiance.

- Regulation 8, Rule 3 – Architectural Coatings. This rule governs the manufacture, distribution, and sale of architectural coatings and limits the reactive organic gases content in paints and paint solvents. Although this rule does not directly apply to the project, it does dictate the ROG content of paint available for use during the construction.

- Regulation 8, Rule 15 – Emulsified and Liquid Asphalts. This rule dictates the reactive organic gases content of asphalt available for use during construction through regulating the sale and use of asphalt and limits the ROG content in asphalt. Although this rule does not directly apply to the project, it does dictate the ROG content of asphalt for use during the construction.

- Regulation 9, Rule 8 – Organic Compounds. This rule limits the emissions of nitrogen oxides and carbon monoxide from stationary internal combustion engines with an output rated by the manufacturer at more than 50 brake horsepower.

BAAQMD prepared an Ozone Attainment Demonstration Plan to satisfy the federal 1-hour ozone planning requirement because of the Air Basin’s nonattainment for federal and State ozone standards. The U.S.

EPA revoked the 1-hour ozone standard and adopted an 8-hour ozone standard. The BAAQMD will address the new federal 8-hour ozone planning requirements once they are established.

Local

City of Vallejo Propel Vallejo General Plan 2040

The Vallejo General Plan includes the following policies intended to control or reduce air pollution impacts:

Policy CP – 1.12: Clean Air. Protect the community from harmful levels of air pollution.

- **Action CP-1.12A**: Convert the City fleet of street sweepers and other large-scale equipment from fossil fuel to alternative fuel types, and work with service providers to convert refuse and recycling trucks to alternative fuels, in conformance with Bay Area Air Quality Management District (BAAQMD) requirements for fleets.
- **Action CP-1.12B:** Update City regulations to set BAAQMD-recommended limits for particulate emissions from construction, demolition, debris hauling, and utility maintenance.
- **Action CP-1.12C:** Provide information regarding advances in air-quality protection measures to schools, homeowners, and operators of "sensitive receptors" such as senior and childcare facilities.
- **Action CP-1.12D:** Periodically review and update City regulations to comply with changes in State law and BAAQMD Guidelines pertaining to coal and wood-burning devices.
- **Action CP-1.12E:** Periodically review the Building Code for consistency with the latest California Green Building Standards Code, and assess the need for updates to require new construction and remodels to employ best practices and materials to reduce emissions, both during and after construction.
- **Action CP-1.12F:** Update City regulations to prohibit grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour, or require the use of water trucks to wet soil.

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact. BAAQMD's most recently adopted plan, the 2017 Clean Air Plan, in the Basin outlines how the San Francisco area will attain air quality standards, reduce population exposure and protect public health, and reduce GHG emissions. BAAQMD has not established a quantitative threshold of significance for project-level consistency with an air quality plan. However, per BAAQMD guidelines, if a project is consistent with Criterion 1 through Criterion 3 (see analysis below), the project would not conflict with or obstruct the implementation of the applicable air plan.[2]

[2] BAAQMD, *CEQA Air Quality Guidelines*, 2017.

Criterion 1: Does the Project support the primary goals of the Air Quality Plan?

As described below, construction air quality emissions generated by the proposed project would not exceed the BAAQMD's emissions thresholds. Operations of the project would not change from the existing use and would not add any new mobile or stationary emitters in the project vicinity. Since the proposed project would not exceed the BAAQMD construction thresholds and would not result in any new operational emissions, the proposed project would not be considered by the BAAQMD to be a substantial emitter of criteria air pollutants, and would not contribute to any non-attainment areas in the Basin.

A project would be consistent with the 2017 Clean Air Plan if it would not exceed the growth assumptions in the plan. The project would not generate additional population growth or jobs in the City. Therefore, the project would not conflict with the growth assumptions anticipated in the 2017 Clean Air Plan.

As discussed in the Vallejo Ferry Terminal Reconfiguration Project Greenhouse Gas Emissions Assessment (Kimley-Horn 2023), the project would be consistent with the City's Climate Action Plan (CAP) and would not increase GHG emissions. Therefore, the project would not conflict with the third goal of reducing GHG emissions and protecting the climate.

Criterion 2: Does the Project include applicable control measures from the Air Quality Plan?

The project is consistent with the 2017 Clean Air Plan policies that are applicable to the project site. As shown below, projects are considered consistent with the 2017 Clean Air Plan if they incorporate all applicable and feasible control measures from the 2017 Clean Air Plan and would not disrupt or hinder implementation of any 2017 Clean Air Plan control measures.

As discussed in Table 11: Project Consistency with Applicable Clean Air Plan Control Measures, the project would comply with City, State, and regional requirements.

Table 11: Project Consistency with Applicable Clean Air Plan Control Measures

Control Measure	Project Consistency
Stationary Source Control Measures	
SS21: New Source Review of Toxic Air Contaminants	**Not Applicable**. The project would not include uses that would generate new sources of TACs.
SS25: Coatings, Solvents, Lubricants, Sealants and Adhesives	**Consistent**. The project would comply with Regulation 8, Rule 3: Architectural Coatings, which would dictate the ROG content of paint available for use during construction.
SS26: Surface Prep and Cleaning Solvent	
SS31: General Particulate Matter Emissions Limitation	**Consistent**. This control measure is implemented by the BAAQMD through Regulation 6, Rule 1. This Rule Limits the quantity of particulate matter in the atmosphere by controlling emission rates, concentration, visible emissions and opacity. The project would be required to comply with applicable BAAQMD rules.
SS36: Particulate Matter from Trackout	**Consistent**. Mud and dirt that may be tracked out onto the nearby public roads during construction activities would be removed promptly by the contractor based on BAAQMD's requirements.
SS38: Fugitive Dust	**Consistent**. Material stockpiling and track out during site preparation activities would be required to utilize best management practices, such as watering

Control Measure	Project Consistency
	exposed surfaces twice a day, covering haul trucks, keeping vehicle speeds on unpaved roads under 15 mph, to minimize the creation of fugitive dust.
SS40: Odors	**Consistent**. The project would comply with BAAQMD Regulation 7 to strengthen odor standards and enhance enforceability.
Transportation Control Measures	
TR21: Commercial Harbor Craft	**Consistent**. The project would comply with the CARB harbor craft air toxic control measure and the CARB commercial harbor craft regulations.
TR22: Construction, Freight and Farming Equipment	**Consistent**. The project would comply through implementation of the BAAQMD standard condition, which requires construction equipment to be properly maintained.
Waste Management Control Measures	
WA1: Landfills WA3: Green Waste Diversion WA4: Recycling and Waste Reduction	**Consistent**. The waste service provider for the project would be required to meet the AB 341 and SB 939, 1374, and 1383 requirements that require waste service providers to divert and recycle waste. Per Cal Green requirements the project would recycle construction waste.
Source: BAAQMD, Clean Air Plan, 2017 and Kimley-Horn & Associates, 2023.	

As discussed above, the project would not exceed the assumptions in the Clean Air Plan and impacts would be less than significant.

Criterion 3: Does the Project hinder or disrupt the implementation of any Air Quality Control Measures?

The project proposes to construct an extended ferry terminal with a new reconfigured fixed pier, gangway, passenger float, and piles. The project would not increase the regional population growth or generate any additional permanent jobs. Further, Table 11 outlines the project's consistency with the applicable 2017 Clean Air Plan policies. Therefore, the project would not hinder or disrupt the implementation of any 2017 Clean Air Plan Control Measures. Impacts would be less than significant, and no mitigation is required.

b) *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?*

Less than Significant Impact.

Construction Emissions

Project construction activities would generate short-term emissions of criteria air pollutants. The criteria pollutants of primary concern within the project area include ozone-precursor pollutants (i.e., ROG and NO_x) and PM_{10} and $PM_{2.5}$. Construction-generated emissions are short term and temporary, lasting only while construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the BAAQMD's thresholds of significance.

Construction results in the temporary generation of emissions during demolition, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities, as well as weather conditions and the appropriate application of water for dust suppression.

The duration of construction activities associated with the project are estimated to last approximately five months, beginning in August 2026 and concluding in December 2026 The project's construction-related emissions were calculated using the BAAQMD-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. Project demolition is anticipated to begin in Summer 2026 and last approximately two and a half months. Project construction is anticipated to begin in October 2026 and last approximately two and a half months. To be conservative, earlier dates were utilized in modeling and use the construction year 2025. Both demolition and construction phases include additional equipment (cranes, pile driver, and tugboats) to account for waterside demolition and construction. Construction equipment would not differ based on any configuration. Thus, construction emissions shown below are representative of the proposed project. See Appendix B: Air Quality Assessment for additional information regarding the construction assumptions used in this analysis. The project's predicted maximum daily construction-related emissions are summarized in Table 12: Construction-Related Emissions.

Table 12: Construction-Related Emissions

Construction Year	Pollutant (maximum pounds per day)[1]					
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_x)	Exhaust		Fugitive Dust	
			Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
2025	3.17	37.68	1.11	1.04	0.28	0.06
Maximum Daily Construction	**3.17**	**37.68**	**1.11**	**1.04**	**0.28**	**0.06**
BAAQMD Significance Threshold[2,3]	*54*	*54*	*82*	*54*	*N/A*	*N/A*
Exceed BAAQMD Threshold?	**No**	**No**	**No**	**No**	**N/A**	**N/A**

1. Emissions were calculated using CalEEMod and EMFAC. Emissions include compliance with the BAAQMD's Basic Construction Mitigation Measures Recommended for All Projects. These measures include the following: water exposed surfaces two times daily; cover haul trucks; clean track outs with wet powered vacuum street sweepers; limit speeds on unpaved roads to 15 miles per hour; limit idle times to 5 minutes; properly maintain mobile and other construction equipment; and post a publicly visible sign with contact information to register dust complaints and take corrective action within 48 hours.
2. Bay Area Air Quality Management District, California Environmental Quality Act Air Quality Guidelines, updated April 2023.
3. BMPs = Best Management Practices. The BAAQMD recommends the implementation of all Basic Construction Mitigation Measures, whether or not construction-related emissions exceed applicable significance thresholds. Implementation of Basic Construction Mitigation measures are considered to mitigate fugitive dust emissions to be less than significant.

Source: Refer to the CalEEMod outputs provided in Appendix B, *Air Quality Assessment*.

Fugitive Dust Emissions. Fugitive dust emissions are associated with land clearing, ground excavation, demolition, and truck travel on unpaved roadways. Dust emissions also vary substantially from day to day, depending on the level of activity, the specific operations, and weather conditions. Fugitive dust emissions may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the project vicinity. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. The BAAQMD recommends the implementation of all Basic Construction Control Measures, whether or not construction-related emissions exceed applicable significance. The project would implement the BAAQMD Basic Construction Control Measures to control dust at the project site during all phases of construction.

Construction Equipment and Worker Vehicle Exhaust. Exhaust emission factors for typical diesel-powered heavy equipment are based on the CalEEMod program defaults. Variables factored into estimating the total construction emissions include: level of activity, length of construction period, number of pieces/types of equipment in use, site characteristics, weather conditions, number of construction personnel, and the amount of materials to be transported onsite or offsite. Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on site as the equipment is used, and emissions from trucks transporting materials and workers to and from the site. Emitted pollutants would include ROG, NO_X, PM_{10}, and $PM_{2.5}$. The BAAQMD recommends the implementation of all Basic Construction Control Measures, whether or not construction-related emissions exceed applicable significance thresholds. As detailed in Table 12, project construction emissions would implement the BAAQMD Basic Control Measures and would be below BAAQMD thresholds. Thus, construction emissions would result in a less than significant impact.

ROG Emissions. In addition to gaseous and particulate emissions, construction equipment and construction worker trips would result in ROG emissions, which are O_3 precursors. In accordance with the methodology prescribed by the BAAQMD, the ROG emissions associated with paving have been quantified with CalEEMod. The highest concentration of ROG emissions would be generated from demolition beginning in Summer 2026 and lasting approximately two months.

Summary. As shown in Table 12, all criteria pollutant emissions would remain below their respective thresholds. BAAQMD considers fugitive dust emissions to be potentially significant without implementation of the Construction Control Measures which help control fugitive dust. NOX emissions are primarily generated by engine combustion in construction equipment, haul trucks, and employee commuting, requiring the use of newer construction equipment with better emissions controls would reduce construction-related NOX emissions. With implementation of BAAQMD's Basic Construction Control Measures, the proposed project's construction would not worsen ambient air quality, create additional violations of federal and state standards, or delay the Basin's goal for meeting attainment standards. Impacts would be less than significant, and no mitigation is required.

Operational Emissions

As mentioned previously, the project would construct an extended ferry terminal with a new reconfigured fixed pier, gangway, passenger float, and piles. The project does not propose any new sources of air pollutants and would provide improved terminal operations and reduced dredging impacts. The project would not generate any additional traffic or population growth. Therefore, the operation of the project would not generate any new criteria pollutant emissions. There would be no impact, and no mitigation is required.

FTA NEPA Conformity Analysis

As shown in Table 13: Project General Conformity Emissions, the project's emissions would not exceed the General Conformity de minimis thresholds in the SFBAAB. As mentioned previously, the project's operational emissions are not included as the project would not generate any new operational emissions.

Table 13: Project General Conformity Emissions

Construction Year	Pollutant (tons per year)[1]					
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_x)	Carbon Monoxide (CO)	Coarse Particles ($PM_{2.5}$)	Fine Particles (PM_{10})	Sulfur Dioxide (SO_2)
2025	0.15	1.90	1.00	0.05	0.06	0.00
General Conformity Threshold [2]	*100*	*100*	*100*	*N/A*	*100*	*100*
Exceed BAAQMD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

1. Emissions were calculated using CalEEMod and EMFAC. Emissions include compliance with the BAAQMD's Basic Construction Mitigation Measures Recommended for All Projects. These measures include the following: water exposed surfaces two times daily; cover haul trucks; clean track outs with wet powered vacuum street sweepers; limit speeds on unpaved roads to 15 miles per hour; limit idle times to 5 minutes; properly maintain mobile and other construction equipment; and post a publicly visible sign with contact information to register dust complaints and take corrective action within 48 hours.
2. United States Environmental Protection Agency, *De Minimis Tables*, 2023.

Source: Refer to the CalEEMod outputs provided in Appendix B, *Air Quality Assessment*.

Cumulative Short-Term Emissions

The SFBAAB is designated nonattainment for O_3, PM_{10}, and $PM_{2.5}$ for State standards and nonattainment for O_3 and $PM_{2.5}$ for Federal standards. As discussed above, the project's construction-related emissions by themselves would not have the potential to exceed the BAAQMD significance thresholds for criteria pollutants.

Since these thresholds indicate whether an individual project's emissions have the potential to affect cumulative regional air quality, it can be expected that the project-related construction emissions would not be cumulatively considerable. The BAAQMD recommends Basic Construction Control Measures for all projects whether or not construction-related emissions exceed the thresholds of significance. Compliance with BAAQMD construction-related mitigation requirements is considered to reduce cumulative impacts at a Basin-wide level. As a result, construction emissions associated with the project would not result in a cumulatively considerable contribution to significant cumulative air quality impacts. Impacts would be less than significant, and no mitigation is required.

Cumulative Long-Term Impacts

The BAAQMD has not established separate significance thresholds for cumulative operational emissions. The nature of air emissions is largely a cumulative impact. As a result, no single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. The BAAQMD developed the operational thresholds of significance based on the level above which a project's individual emissions would result in a cumulatively considerable contribution to the Basin's existing air quality conditions. Therefore, a project that exceeds the BAAQMD operational thresholds would also be a cumulatively considerable contribution to a significant cumulative impact.

As described above, the project would not generate any new operational emissions. As a result, operational emissions associated with the project would not result in a cumulatively considerable contribution to significant cumulative air quality impacts. Impacts would be less than significant, and no mitigation is required.

c) *Expose sensitive receptors to substantial pollutant concentrations?*

Less than Significant Impact. Sensitive land uses are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. Sensitive receptors in the area include residential uses along Mare Island Way.

Toxic Air Contaminants
Construction equipment and associated heavy-duty truck traffic generate diesel exhaust, which is a known toxic air contaminant (TACs). Diesel exhaust from construction equipment operating at the site can pose a health risk to nearby sensitive receptors. The closest sensitive receptors to the project site are the residences along Mare Island Way, to the southeast of the project site. The BAAQMD provides guidance for evaluating impacts from TACs in its CEQA Air Quality Guidelines document. As noted therein, an incremental cancer risk of greater than 10 cases per million at the Maximally Exposed Individual (MEI) will result in a significant impact. The BAAQMD considers exposure to annual $PM_{2.5}$ concentrations that exceed 0.3 $\mu g/m^3$ from a single source to be significant. The BAAQMD significance threshold for non-cancer hazards is 1.0.

Stationary sources within a 1,000-foot radius of the project site were identified using BAAQMD's Stationary Source Screening Analysis Tools and consultation with the BAAQMD. There were no other stationary sources located within 1,000 feet of the proposed project site.

Construction-Related Diesel Particulate Matter
Project construction would generate diesel particulate matter (DPM) emissions from the use of off-road diesel equipment required for construction activities. For construction activity, DPM is the primary toxic air contaminant of concern. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they would not stay on the site for long durations. Diesel exhaust from construction equipment operating at the site poses a health risk to nearby sensitive receptors.

The amount to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they would not stay on the site for long durations.

Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. The use of diesel-powered construction equipment would be episodic and would occur in various phases throughout the project site. Additionally, construction activities would limit idling to no more than five minutes (per State standards), which would further reduce nearby sensitive receptors' exposure to temporary and variable DPM emissions. Furthermore, even during the most intense year of construction, emissions of DPM would be generated from different locations on the project site rather than in a single location because different types of construction activities (e.g., demolition and building construction) would not occur at the same place at the same time.

$PM_{2.5}$ construction emissions rates in grams per second were calculated from the total annual mitigated on-site exhaust emissions reported in CalEEMod total during construction. It should be noted that although construction would span over several years, the modeling conservatively uses the year with the highest emission for each phase. Annual emissions were converted to grams per second and these emissions rates were input into AERMOD.

As noted above, maximum (worst case) $PM_{2.5}$ exhaust construction emissions over the entire construction period were used in AERMOD to approximate construction DPM emissions. Risk levels were calculated based on the California Office of Environmental Health Hazard Assessment (OEHHA) guidance document, Air Toxics Hot Spots Program Risk Assessment Guidelines (February 2015). Results of this assessment are summarized in Table 14: Construction Risk.

Table 14: Construction Risk

Exposure Scenario	Pollutant Concentration (μg/m³)	Maximum Cancer Risk (Risk per Million)	Chronic Noncancer Hazard
Construction (Worker)	0.148	4.62	0.592
Construction (Resident)	0.032	9.94	0.120
Threshold	*0.3*	*10 in one million*	*1.0*
Threshold Exceeded	**No**	**No**	**No**
Refer to Appendix B: Air Quality Assessment.			

Results of this assessment indicate that the maximum unmitigated concentration of $PM_{2.5}$ during construction would be 0.032 μg/m³ for residences, which would not exceed the BAAQMD threshold of 0.3 μg/m³. The pollutant concentrations for workers would be 0.148 μg/m³ which is also below the BAAQMD threshold. The highest calculated carcinogenic risk from project construction, would be 9.94 per million for residences and 4.62 per one million for workers, which would not exceed the BAAQMD threshold of 10 in one million. Non-cancer hazards for DPM would be below BAAQMD threshold, with a chronic hazard index computed at 0.592. Chronic hazards would be below the BAAQMD significance threshold of 1.0. As described above, worst-case construction risk levels based on AERMOD and conservative assumptions would be below the BAAQMD's thresholds. Therefore, impacts would be less than significant, and no mitigation is required.

Mobile Sources
The project would not place sensitive receptors within 1,000-feet of a major roadway (mobile TAC source). A major roadway is defined by BAAQMD as any road that has more than 10,000 daily trips. Additionally, the project would not affect existing vehicle distribution and travel speeds or generate any additional trips. Thus, the project does not involve the increase of transit trips or routes and would not generate increased emissions from expanded service. Impacts would be less than significant, and no mitigation is required.

Carbon Monoxide Hotspots
The primary mobile-source criteria pollutant of local concern is carbon monoxide. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Transport of this criteria pollutant is extremely limited; CO disperses rapidly with distance from the source under normal meteorological conditions. Under certain meteorological conditions, however, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Areas of high CO concentrations, or “hot spots,” are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. CO concentration modeling is therefore typically conducted for intersections that are projected to operate at unacceptable levels of service during peak commute hours.

The SFBAAB is designated as in attainment for carbon monoxide (CO). Emissions and ambient concentrations of CO have decreased dramatically in the SFBAAB with the introduction of the catalytic converter in 1975. No exceedances of the CAAQS or NAAQS for CO have been recorded at nearby monitoring stations since 1991. As a result, the BAAQMD screening criteria notes that CO impacts may be determined to be less than significant if a project would not increase traffic volumes at local intersections to more than 44,000 vehicles per hour, or 24,000 vehicles per hour for locations in heavily urban areas, where “urban canyons” formed by buildings tend to reduce air circulation.

As mentioned previously, the project would not generate any additional trips or impact existing vehicle distribution. Therefore, the project would not involve intersections with more than 24,000 or 44,000 vehicles per hour. As a result, the project would not have the potential to create a CO hotspot. Impacts would be less than significant, and no mitigation is required.

d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?

No Impact.

Construction
Construction activities associated with the project may generate detectable odors from heavy duty equipment (i.e., diesel exhaust), as well as from architectural coatings and asphalt off-gassing. Odors generated from the referenced sources are common in the man-made environment and are not known to be substantially offensive to adjacent receptors. Any construction-related odors would be short-term in nature and cease upon project completion. As a result, impacts to existing adjacent land uses from construction-related odors would be short-term in duration. There would be no impact, and no mitigation is required.

Operational

BAAQMD has established odor screening thresholds for land uses that have the potential to generate substantial odor complaints, including wastewater treatment plants, landfills or transfer stations, composting facilities, confined animal facilities, food manufacturing, and chemical plants. BAAQMD's thresholds for odors are qualitative based on BAAQMD's Regulation 7, Odorous Substances. This rule places general limitations on odorous substances and specific emission limitations on certain odorous compounds. The project would not include any land use that has the potential to generate substantial odor nor add any additional sources of odorous substances. There would be no impact, and no mitigation is required.

4.4 Biological Resources

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?			X	
c) Have a substantial adverse effect on state or federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?		X		
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?		X		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

Setting

A Biological Resources Technical Report (BRTR) (Appendix C) was prepared by WRA in February 2024. The BRTR describes the existing conditions related to biological resources within the vicinity of the project site, provides regulatory and environmental setting for the project, and discusses potential biological resource impacts that could result under implementation of the proposed project. Mitigation measures are also provided where potentially significant impacts were identified.

A WRA biologist visited the project area to map vegetation, aquatic features, and other land cover types; document plant and wildlife species present; and evaluate on-site habitat for the potential to support special-status species as defined by CEQA.[3]

Terrestrial and Aquatic Resources

In most instances, communities are characterized and mapped based on distinct shifts in plant assemblage (vegetation) and follow the California Natural Community List and A Manual of California Vegetation, Online Edition. These resources cannot anticipate every component of every potential vegetation assemblage in California, and so in some cases, it is necessary to identify other appropriate vegetative classifications based on best professional judgment of WRA biologists. When undescribed variants are used, it is noted in the description. Vegetation alliances (natural communities) with a CDFW Rank of 1 through 3 (globally critically imperiled [S1/G1], imperiled [S2/G2], or vulnerable [S3/G3]), were evaluated as sensitive as part of this evaluation.

The project area largely consists of developed infrastructure such as gangways, paved walkways, and roads associated with the current ferry system and adjacent segment of the Bay Trail. Vegetation within the developed areas consists of maintained lawns and ornamental plantings. This community is not considered sensitive by Solano County, CDFW, or any other regulatory entity.

All waters within the project area are subtidal or intertidal and are part of Mare Island Strait of the Napa River. Open water comprises the majority of the project area and is mapped as all areas below the mean high water (MHW) elevation. Open waters potentially support several habitat types for special-status species, discussed further below. Open waters are considered sensitive under CEQA.

[3] WRA, *WETA Vallejo Ferry Terminal Reconfiguration Project Biological Resources Technical Report*, 2023.

Special Status Species

Special Status Plants

Based upon a review of the resource databases listed in Section 3.0, 71 special-status plant species have been documented in the vicinity of the proposed project area. All these species have no potential or are unlikely to occur within the proposed project area for one or more of the following:

- Hydrologic conditions (e.g., tidal, riverine) necessary to support the special-status plant species are not present in the proposed project area;
- Edaphic (soil) conditions (e.g., volcanic tuff, serpentine) necessary to support the special-status plant species are not present in the proposed project area;
- Topographic conditions (e.g., north-facing slope, montane) necessary to support the special-status plant species are not present in the proposed project area;
- Unique pH conditions (e.g., alkali scalds, acidic bogs) necessary to support the special-status plant species are not present in the proposed project area;
- Associated natural communities (e.g., interior chaparral, tidal marsh) necessary to support the special-status plant species are not present in the proposed project area;
- The proposed project area is geographically isolated (e.g., below elevation, coastal environ) from the documented range of the special-status plant species;
- The historical landscape and/or habitat(s) of the proposed project area were not suitable habitat prior to land/type conversion (e.g., reclaimed shoreline) to support the special-status plant species;
- Land use history and contemporary management (e.g., grading, development) has degraded the localized habitat necessary to support the special-status plant species.

The entirety of the proposed project area is either developed land, subject to substantial historic soil disturbance, or is open water. Within the open water areas, the presence of a vertical seawall prevents suitable intertidal and transition zone habitats from forming to support wetland plant species. These conditions are not suitable for special-status plant species.

Special Status Wildlife

Based upon a review of the resource databases listed in Section 3.0, 65 special-status wildlife species have been documented in the vicinity of the proposed project area. Of these, most have no potential or are unlikely to occur in the proposed project area based on a lack of habitat features. The following formally listed species were determined to have a moderate or high potential to occur within the project vicinity based on habitat present and previous known locations in the CNDDB and IpaC records: California Central Valley steelhead DPS, Central Coast Steelhead DPS, southern DPS of North American green sturgeon, Sacramento River winter-run Chinook Salmon ESU, Central Valley spring-run Chinook Salmon ESU, longfin smelt (Spirinchus thaleichthys), and Delta smelt (Hypomesus transpacificus). Other special status wildlife with moderate to high potential to occur in the project area include: Central Valley fall/late fall-run Chinook Salmon ESU, White sturgeon (Acipenser transmontanus), Pacific lamprey (Entosphenus tridentatus), River lamprey (Lampetra ayres), Sacramento splittail (Pogonichthys macrolepidotus), and marine mammals.

Critical Habitat and Essential Fish Habitat

Critical Habitat

"Critical habitat" is defined in Section 3(5)(A) of the federal Endangered Species Act, and designated by USFWS and NMFS, as habitat (lands or waters) that contain physical or biological features considered essential to the species' conservation within the species' range, as well as habitat determined to be essential to the species conservation outside of the current range of that species. A review of the background literature showed that the project site is located within or adjacent to critical habitat for two special-status fish species:

- Central California Coast DPS Steelhead
- Southern DPS green sturgeon
- SRWR Critical Habitat

Because the project is within a bay or estuary, the extent of critical habitat is defined up to the high tide line (HTL). In addition, Delta smelt critical habitat is present near the project vicinity but ends at the Carquinez Bridge approximately 3 miles southeast of the project site.

Essential Fish Habitat

A review of the background literature revealed that the project site is located within EFH for three fisheries management plans: Coastal Pelagic, Pacific Groundfish and Pacific Salmon.

- The Coastal Pelagic Fisheries Management Plan (PFMC 2021) is designed to protect habitat for migratory pelagic species such as Pacific sardine (Sardinops sagax), Pacific mackerel (Scomber japonicus), northern anchovy (Engraulis mordax), market squid (Doryteuthis opalescens), jack mackerel (Trachurus symmetricus) and various species of krill or euphausiids.
- The Groundfish Fisheries Management Plan is designed to protect habitat for approximately 80 species of fish, including various species of flatfish, rockfish, groundfish, and several species of sharks and skates.
- The Pacific Salmon Fisheries Management Plan is designed to protect habitat for commercially important salmonid species specifically Chinook and Coho salmon occur within the project area. While Coho salmon are extirpated from San Francisco Bay and its tributaries, Chinook Salmon would be seasonally present within waters surrounding the project site.

Similar to critical habitat discussed above, waters of the project vicinity would be considered EFH up to the high tide line.

Jurisdictional Waters

The project area was evaluated for the presence of wetlands and other aquatic resources according to literature review. Areas meeting these indicators were mapped as aquatic resources and categorized using the vegetation community classification methods described above.

In tidal areas, the upper extent of the U.S. Army Corps of Engineers (Corps)/Regional Water Quality Control Board (RWQCB) jurisdiction is mapped up to the high tide line (HTL). The high tide line in the project vicinity was determined based on the elevation of the highest predicted tides at the closest National Oceanic and Atmospheric Administration (NOAA) tide station (Davis Point, 9415141).

BCDC's jurisdictional boundaries include (a) BCDC's "Bay Jurisdiction", which in this location includes all tidally influenced areas below the elevation of mean high water (MHW), and (b) BCDC's "Shoreline Band" jurisdiction, which includes areas of the shoreline within 100 feet of MHW. The Davis Point NOAA tide station is used to determine the locations of these limits.

Wildlife Corridors and Habitat Linkages

Wildlife movement between suitable habitat areas can occur via open space areas lacking substantial barriers. The terms "landscape linkage" and "wildlife corridor" are often used when referring to these areas. Above all, wildlife corridors must link two areas of core habitat and should not direct wildlife to developed areas or areas that are otherwise void of core habitat.

The aquatic portions of the project area function as a movement corridor for fish, including for the various special-status species discussed above. Salmonids for example will migrate through waters of the project area typically in late-spring or early summer when migrating to the Pacific Ocean as smolts/juveniles. Adults then migrate through the project area when returning to natal streams in late-fall or early winter. In the case of more regional species such as Delta or longfin smelt, they spawn in the Sacramento Delta and Suisun Bay, but make localized seasonal migrations to areas within San Francisco Bay. As such, the project area is situated between two core habitat areas (i.e., the Bay/ocean and freshwater spawning grounds) making it a migratory corridor. The project area does not provide a migratory corridor for species other than fish, because it does not provide for substantial connectivity between two core habitat areas for other classes of plants or wildlife.

No eelgrass beds have been mapped within the project area. Additionally, the project area is routinely dredged so any plants that have a chance to establish would be destroyed in this effort. The entire shoreline of the project area is hardened by a seawall. As such, the project area does not function as a nursery site for fish species. The upland areas of the site are highly developed and do not contain rookery habitats for other species such as egrets, herons, or marine mammals.

Regulatory Framework

Federal

Waters of the United States, Including Wetlands

The Corps regulates "Waters of the United States" under Section 404 of the Clean Water Act (CWA). Waters of the United States are defined in the Code of Federal Regulations (CFR) as including the territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, such as tributaries, lakes and ponds, impoundments of waters of the U.S., and wetlands that are hydrologically connected with these navigable features (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the ***U.S. Army Corps of Engineers Wetlands Delineation Manual*** (Corps Manual; Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Unvegetated waters including lakes, rivers, and streams may also be subject to Section 404 jurisdiction and are characterized by an ordinary high water mark (OHWM) identified based on field indicators such as the lack of vegetation, sorting of sediments, and other indicators of flowing or standing water. The placement of fill material into Waters of the United States generally requires a permit from the Corps under Section 404 of the CWA.

The Corps also regulates construction in navigable waterways of the U.S. through Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 U.S. Code [USC] 403). Section 10 of the RHA requires Corps approval and a permit for excavation or fill, or alteration or modification of the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor or refuge, or enclosure within the limits of any breakwater, or of the channel of any navigable water of the United States. Section 10 requirements apply only to navigable waters themselves, and are not applicable to tributaries, adjacent wetlands, and similar aquatic features not capable of supporting interstate commerce.

Special Protections for Nesting Birds and Bats

The Federal Bald and Golden Eagle Protection Act provides relatively broad protections to both of North America's eagle species (bald eagle [*Haliaeetus leucocephalus*] and golden eagle [*Aquila chrysaetos*]) that in some regards are similar to those provided by the ESA. In addition to regulations for special-status species, most native birds in the United States, including non-status species, have baseline legal protections under the Migratory Bird Treaty Act of 1918 and CFGC, i.e., sections 3503, 3503.5 and 3513. Under these laws/codes, the intentional harm or collection of adult birds as well as the intentional collection or destruction of active nests, eggs, and young is illegal. For bat species, the Western Bat Working Group (WBWG) designates conservation status for species of bats, and those with a high or medium-high priority are typically given special consideration under CEQA.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act provides for conservation and management of fishery resources in the U.S., administered by NMFS. This Act establishes a national program intended to prevent overfishing, rebuild overfished stocks, ensure conservation, and facilitate long-term protection through the establishment of Essential Fish Habitat (EFH). EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries, which may include the water column, certain bottom types, vegetation (e.g., eelgrass (*Zostera* spp.)), or complex structures such as oyster beds. Any federal agency that authorizes, funds, or undertakes action that may adversely affect EFH is required to consult with NMFS.

Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) was enacted in 1972 and protects all marine mammals within the territorial boundaries of the United States from take. The definition of "take" in the MMPA is the same as that under the FESA. The law is administered by the NMFS, who may issue permits for incidental take and importation of marine mammals in certain circumstances.

Endangered Species Act

Specific species of plants, fish, and wildlife species may be designated as threatened or endangered by the federal Endangered Species Act (ESA). The ESA (16 USC 1531 et seq.) is implemented by the USFWS and the National Marine Fisheries Service (NMFS). The USFWS and NMFS maintain lists of endangered and threatened plant and animal species (referred to as "listed species"). "Proposed" or "candidate" species are those that are being considered for listing and are not protected until they are formally listed as threatened or endangered. Under the ESA, authorization must be obtained from the USFWS or NMFS prior to take of any listed species. "Take" under the ESA is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Take under the ESA includes direct injury or mortality to individuals, disruptions in normal behavioral patterns resulting from factors such as noise and visual disturbance and impacts to habitat for listed species. Actions that may result in take of an ESA-listed species may obtain a permit under ESA Section 10, or via the interagency consultation described in ESA Section 7. Federal-listed plant species are only protected when take occurs on federal land.

The ESA also provides for designation of critical habitat, which are specific geographic areas containing physical or biological features "essential to the conservation of the species." Protections afforded to designated critical habitat apply only to actions that are funded, permitted, or carried out by federal agencies. Critical habitat designations do not affect activities by private landowners if there is no other federal agency involvement.

State

Sensitive Natural Communities

Sensitive natural communities include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" (CDFW 2023a) and keeps records of their occurrences in its California Natural Diversity Database (CNDDB; CDFW 2023b). Natural communities are ranked 1 through 5 in the CNDDB based on NatureServe's (2020) methodology, with those communities ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (California Code of Regulations [CCR] Title 14, Div. 6, Chap. 3, Appendix G). In addition, this general class includes oak woodlands that are protected by local ordinances under the Oak Woodlands Protection Act and Section 21083.4 of California Public Resources Code (CPRC).

Waters of the State, Including Wetlands

The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The SWRCB and nine RWQCB protect waters within this broad regulatory scope through many different regulatory programs. Waters of the State in the context of a CEQA Biological Resources evaluation include wetlands and other surface waters protected by the ***State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*** (SWRCB 2019). The SWRCB and RWQCB issue permits for the discharge of fill material into surface waters through the State Water Quality Certification Program, which fulfills requirements of Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a Clean Water Act permit are also required to obtain a Water Quality Certification. If a project does not require a federal permit but does involve discharge of dredge or fill material into surface waters of the State, the SWRCB and RWQCB may issue a permit in the form of Waste Discharge Requirements.

Sections 1600-1616 of California Fish and Game Code

Streams and lakes, as habitat for fish and wildlife species, are regulated by CDFW under Sections 1600-1616 of California Fish and Game Code (CFGC). Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term "stream," which includes creeks and rivers, is defined in the CCR as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). The term "stream" can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). Riparian vegetation has been defined as "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

San Francisco Bay and Shoreline

Enacted in 1965, the McAteer-Petris Act (California Government Code Section 66600 *et seq*.) established the San Francisco Bay Conservation and Development Commission (BCDC) as a state agency charged with preparing a plan for the long-term use of the Bay. BCDC has several areas of jurisdiction, including San Francisco Bay (including sloughs and marshlands lying between mean high tide and 5 feet above mean sea level) and a shoreline band consisting of all territory located between the shoreline of the Bay and a line 100 feet landward of and parallel with the shoreline (California Government Code 66610). Any person or governmental agency wishing to place fill, to extract materials, or to make any substantial change in use of any water, land, or structure within BCDC jurisdiction must secure a permit from BCDC.

California Endangered Species Act

The California endangered Species Act (CESA) (CFGC 2050 et seq.) prohibits the take of any plant and animal species that the CFGC determines to be an endangered or threatened species in California. CESA regulations include take protection for threatened and endangered plants on private lands, as well as extending this protection to candidate species that are proposed for listing as threatened or endangered under CESA. The definition of a "take" under CESA ("hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") only applies to direct impact to individuals, and does not extend to habitat impacts or harassment. CDFW may issue an Incidental Take Permit under CESA to authorize take if it is incidental to otherwise lawful activity and if specific criteria are met. Take of these species is also authorized if the geographic area is covered by a Natural Community Conservation Plan (NCCP), as long as the NCCP covers that activity.

Fully Protected Species and Designated Rare Plant Species

This category includes specific plant and wildlife species that are designated in the CFGC as protected even if not listed under CESA or ESA. Fully Protected Species includes specific lists of birds, mammals, reptiles, amphibians, and fish designated in CFGC. Fully protected species may not be taken or possessed at any time. No licenses or permits may be issued for take of fully protected species, except for necessary scientific research and conservation purposes. The definition of "take" is the same under the California Fish and Game Code and the CESA. By law, CDFW may not issue an Incidental Take Permit for Fully Protected Species. Under the California Native Plant Protection Act (NPPA), CDFW has listed 64 "rare" or "endangered" plant species, and prevents "take", with few exceptions, of these species. CDFW may authorize take of species protected by the NPPA through the Incidental Take Permit process, or under a NCCP.

Species of Special Concern, Movement Corridors, and Other Special-status Species under CEQA

To address additional species protections afforded under CEQA, CDFW has developed a list of special species as "a general term that refers to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status." This list includes lists developed by other organizations, including for example, the Audubon Watch List Species, the Bureau of Land Management Sensitive Species, and USFWS Birds of Special Concern. Plant species on the California Native Plant Society (CNPS) Rare Plant Inventory (Inventory; CNPS 2023a) with California Rare Plant Ranks (Rank) of 1 and 2, as well as some with a Rank of 3 or 4, are also considered special-status plant species and must be considered under CEQA. Some Rank 3 and Rank 4 species are typically only afforded protection under CEQA when such species are particularly unique to the locale (e.g., range limit, low abundance/low frequency, limited habitat) or are otherwise considered locally rare. Additionally, any species listed as sensitive within local plans, policies and ordinances are likewise considered sensitive. Movement and migratory corridors for native wildlife (including aquatic corridors) as well as wildlife nursery sites are given special consideration under CEQA.

Local

City of Vallejo General Plan 2040

The General Plan contains policies and actions pertaining to the following biological resources categories that are relevant to the project area:

Policy NBE-1.1: Natural Resources. Protect and enhance hillsides, waterways, wetlands, occurrences of special-status species and sensitive natural communities, and aquatic and important wildlife habitat through land use decisions that avoid and mitigate potential environmental impacts on these resources to the extent feasible.

- **Action NBE-1.1B**: Continue participation in regional programs, including the Solano Multispecies HCP/NCCP.
- **Action NBE-1.1F**: Conduct surveys, assess project impacts, determine protective measures for sensitive resources.
- **Action NBE-1.1G**: No net loss in aquatic feature acreage or habitat value

Policy NBE-1.2: Sensitive Resources. Ensure that adverse impacts on sensitive biological resources, including special-status species, sensitive natural communities, and wetlands are avoided and mitigated to the greatest extent feasible as development takes place.

- **Action NBE-1.2C**: Nesting bird protection
- **Action NBE-1.2D**: Continue requiring environmental review for development project to achieve no net loss of sensitive habitat acreage, value, and functions.

Policy NBE-1.3: Interpretive Facilities. Encourage the development of facilities that provide education about local environmental resources and ecosystems.

Policy NBE-1.4: Waterway Restoration. Restore riparian corridors and waterways throughout the city.

Policy NBE-1.6: Open Space. Conserve and enhance natural open space areas in and adjacent to Vallejo and its waterfront.

Solano Multispecies Habitat Conservation Plan

The Solano Habitat Conservation Plan (HCP) establishes a framework for complying with State and Federal endangered species regulations while accommodating future urban growth, development of infrastructure, and ongoing operations and maintenance activities associated with flood control, irrigation facilities, and other public infrastructure undertaken by or under the permitting authority/control of the Plan Participants within Solano County. The project area for this proposed project is already developed and occurs within the Impaired Open Water Habitats projected for the Solano Multispecies HCP.

a) *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

Potentially Significant Unless Mitigation Incorporated.

Construction

San Francisco Bay is one of the busiest ports in the world with more than 7,000 container ships per year entering the Bay. One consequence of such a robust trade network is the introduction of non-native species which are often carried in ballast water of vessels or on ship hulls. If introduced non-native species establish in a new environment and cause harm to native species and habitats, they are considered “invasive species”. Introductions of invasive species to San Francisco Bay includes both fish and invertebrate species, which cause a variety of impacts to native fauna. Invasive species have a variety of deleterious effects from competing with or consuming native species, to decreasing pelagic productivity. As a result of this impact and considering the danger that invasive species pose to native species and ecosystems, the U.S. Court of Appeals for the Ninth Circuit ruled that the U.S. Environmental Protection Agency must regulate ship discharges, including ballast water discharges containing invasive species, that pollute U.S. waters under the Clean Water Act. Further, Congress passed the Vessel Incidental Discharge Act, combining laws that regulate vessel discharge to help prevent the introduction of harmful species.

Within aquatic environments, barges and boats used for construction are expected to be based in San Francisco Bay; therefore, vessels used to implement the project are not expected to introduce novel invasive species to San Francisco Bay. In addition, the reconfigured ferry terminal would be utilized by existing ferry vessels within WETA’s fleet that operate exclusively within San Francisco Bay; however, the new structures installed by the project have potential to introduce novel invasive species to the area or contribute to the spread of existing invasive species within San Francisco Bay; therefore, the potential introduction of invasive species during construction and operations is a potentially significant impact to special-status fish and marine mammals. With implementation of **Mitigation Measure MM BIO-1**, potential impacts resulting from the introduction of invasive species would be less-than-significant.

In-water construction would require the use of specialized mechanical equipment including vibratory or impact pile driving hammers, tugboats, cranes, floating barges, and dredging equipment. These larger pieces of equipment require generators or compressors to run equipment, which use a variety of petroleum and plant-based fuels or lubricants. If spilled, these fuels and lubricants can be toxic to aquatic ecosystems. Similarly, debris from construction or demolition of in-water structures may itself be contaminated with toxic lubricants or preservatives. Introduction of such materials could cause degradation to the aquatic environment, including special-status fish and marine mammals, which is a potentially significant impact under CEQA.

In addition, some elements of the proposed project may also require cast-in-place concrete for above-water structures, such the caps to the dolphins which would connect the fixed pier and gangways. When implemented over water, cast-in-place concrete can result in unintentional spilling of concrete into the water column. The introduction of raw concrete into the water column can result in changes to pH levels that can adversely affect fish. At sufficiently high concentrations, raw concrete can lead to fish mortality; however, the amount of concrete that would be cast-in-place over the water within the project area is not anticipated to be sufficient to result in significant impacts to fish, particularly given the volume of water present in the work area. Further, no cast-in-place concrete is proposed within the water column.

With implementation of **Mitigation Measures MM BIO-2** through **MM BIO-5**, potential impacts from spills and debris would be less-than-significant.

Turbidity

Natural fluctuations in turbidity occur daily within the greater San Francisco Bay. The naturally occurring light weight sediments that dominate the Bay and Sacramento-San Joaquin Delta are easily mobilized during strong summer winds and storm related high flows, causing extreme spikes in turbidity, which can vary by several hundred nephelometric turbidity units (NTUs) even within a single day. Elevated turbidity can impair gill function in fish, reduce oxygen availability in the water column, decrease physiological capabilities, and increase stress in fish. While turbidity can impact sensitive life stages of fish (i.e., eggs or larval fish), elevated turbidity alone does not represent a uniform impact to fish species. Delta smelt distribution has been positively correlated with higher turbidity, which can help increase foraging efficiency and decrease predation threats. Species present within the Bay and Delta are tolerant of these naturally occurring frequent large fluctuations in turbidity.

In-water work necessary to implement the proposed project, such as pile removal, pile installation, and dredging, are expected to mobilize sediments which may contribute to increased water turbidity. Turbidity from pile removal and driving is likely to be limited to a small area (approximately 150 to 200 feet of each pile) and typically dissipates within one hour or is swept away and diluted by tidal exchange. Thus, turbidity from pile driving activities is expected to be less than significant; however, turbidity associated with mechanical dredging typically spreads further due to the volume of bottom substrates disturbed. Studies of turbidity in San Francisco Bay showed that turbidity may spreads up to 600 feet from the point of disturbance, but diminishes to background levels within one tidal cycle for singular events. The actual distance suspended sediment caused by the project would move is dependent upon multiple factors (i.e., tide, river outflows, wind condition, etc.) but the previous studies provide a guide under which we can determine potential effects.

Turbidity caused by the proposed project may result in areas such as the shallow water habitat between the existing ferry terminal and the seawall to be temporarily unsuitable for fish.

Recent sediment characterization sampling and analysis testing within the project area found no elevated levels of metal or chemicals known to be harmful to aquatic ecosystems with the exception of Arsenic, which slightly exceeded background levels for San Francisco Bay.[4] However, this recent testing did not assess any samples around the proposed temporary ferry terminal location where additional dredging may be required as part of project. Previous testing of nearshore sediments within the existing ferry terminal basin were found to contain elevated levels of polychlorinated biphenyls (PCBs); therefore, the sediments under the proposed temporary ferry terminal location have potential to contain excess levels of PCBs or other toxins. As such, dredging within this area has potential to expose aquatic species to toxins, which could result in significant impact. These impacts are considered potentially significant to special-status fish and marine mammals under CEQA. With implementation of **Mitigation Measure MM BIO-6**, below, impacts resulting from the release of toxic materials during dredging would be less-than-significant.

[4] FOTH, *Sediment Characterization Sampling and Analysis Results Vallejo Ferry Terminal* (2023).

Special-Status Fish

Seven formally listed species, as well as five other special-status fish species are known to occur within the Mare Island Strait of the Napa River. Formally listed species include Central California Coast steelhead, Central Valley steelhead, Spring-run Chinook, Winter-run Chinook, Southern Distinct Population Segment green sturgeon, longfin smelt, and Delta smelt. Special-status species which have not been formally listed include Fall/late-Fall run Chinook salmon, Pacific lamprey, river lamprey, Sacramento splittail and white sturgeon. All of these species make seasonal migrations through the project area and spend some portion of the year in the project area vicinity; however, no spawning habitats are known for any of these species within the project area.

The special-status fish species listed above have potential to occur in association with the open water portion of the project area. Many of the species are only present seasonally when salinity conditions are appropriate or during migration periods. Species that are expected to be seasonally present include all of the salmonids (all species of steelhead and Chinook salmon), lamprey, and smelts. Other species may forage within the waters of the project area year-round including green and white sturgeon, as well as Sacramento splittail.

Impacts to fish may occur in a variety of ways from a single construction related activity. For example, an impact or vibratory hammer would be needed to set and drive structural components such as piles to support project structures. Pile driving causes in-water sounds which can affect fish both physically and behaviorally. Construction equipment for such work may require the use of hydraulically operated mechanical equipment which has potential to introduce toxic substances (i.e., fuel or hydraulic fluid) to the aquatic environment. Construction operations in general also have the potential to introduce debris and refuse associated with work to surrounding waters. Equipment and materials for such work are also highly specialized and may need to be brought in from other locations. The relocation of equipment may introduce non-native species of fish, or invertebrates, to the work area if proper procedures are not followed for decontamination. Most of these potential impacts affect a variety of species and are therefore discussed above and mitigated to a level that is less than significant by **Mitigation Measures MM BIO-1** through **MM BIO-7**.

Underwater Noise and Pile Driving

Pile driving produces underwater noise, which manifests as pressure waves in the aquatic environment. The louder the noise, the more pressure is present in the waves. High pressure sound waves in the aquatic environment can result in damage to fishes' internal organs. There are two primary styles in pile driving, vibratory and impact hammer driving. These styles of pile driving have different potentials for effect and are described below.

Vibratory pile driving uses hydraulicly powered, oscillating counterbalance weights to vibrate an object (i.e., pile) at high speed. The vibration mobilizes the earth beneath and around the pile causing the surrounding earth to liquify. Once mobilized, the weight of the hammer pushes the pile downward. Vibratory hammers do not "strike" a pile and as such have lower peak sound pressure than impact hammers, but also require more prolonged use as they drive piles slower. Even with prolonged use, vibratory hammers do not approach the peak or cumulative sound exposure thresholds that would cause injury or death to fish. Because of the low level of effect, resource agencies generally agree that vibratory pile driving results in reduced adverse effects on fish and is therefore the preferred driving methodology. This reduced level of effect is also why agencies have not identified any peak or cumulative injury thresholds for vibratory pile driving to fish. With the lower level of effect, use of a vibratory hammer is often employed as an avoidance and minimization measure (AMM) to reduce the overall number of strikes necessary to drive piles on a project. For this project, removing any existing piles, or initially placing and driving new piles will be preferentially performed with a vibratory hammer to decrease the proposed project's acoustic effect on the aquatic environment.

The limiting factors to driving with a vibratory hammer are seating depth and pile size. Small diameter piles (e.g., 18–24-inch steel pipe piles) or sheetpiles may be able to be fully driven using a vibratory hammer when substrates are soft (i.e., silty and low in clay); however, the presence of geotechnical conditions such as clay hardpans, especially when driving large diameter steel pipe piles to moderate depths, a vibratory hammer may not have sufficient energy to install the pile fully. Once a vibratory hammer reaches refusal, an impact hammer is often necessary to complete the installation to drive piles to specified depths for structural integrity. Additionally, vibratory pile driving is often not able to achieve engineering criteria required to support design structural loads, and impact driving is necessary in these cases for "final seating" of the pile.

An impact hammer operates by using a sliding hammer head to strike a pile, causing the downward force of the head to drive the pile, similarly to the way a handheld hammer strikes and drives a nail. This method creates a pulse of sound that propagates through the pile, spreading outward into the aquatic environment. Peak, cumulative and RMS sound pressure levels all have different thresholds and types of effect; the "peak" is the highest value of the measured sound and may cause injury to fish exposed to instantaneous peak levels at or above 206 dB. Driving piles requires multiple strikes from the hammer, therefore there is also a cumulative effect of all strikes. In this case, cumulative exposure can cause injuries to fish at slightly lower decibel levels depending on the size of the fish. For fish less than 2 grams, the cumulative sound exposure level is 183 dB, while fish over 2 grams have a threshold of 187 dB. The distance at which these thresholds are reached vary based on the size and type of pile, number of strikes required, as well as the depth of water, and hammer size.

The project expects to be able to perform all pile driving using a vibratory hammer; however, use of an impact hammer may be necessary to complete pile installation.

Because most fish species are likely to be absent except during migratory periods, working during the recommended in-water work window would reduce impacts to most species; however, adherence to this window alone would not be sufficient to reduce effects of pile driving to all special-status species of fish as some may occur year-round; therefore, pile driving may have significant impacts to fish unless mitigation measures are incorporated.

To reduce potential impacts to fish to a less-than-significant level, in addition to **Mitigation Measures MM BIO-1** through **MM BIO-6**, **Mitigation Measure MM BIO-7** would make impacts to fish from in water construction less than significant.

Shading

Overwater structures can alter underwater light conditions and result in a decrease in photosynthesis of diatoms, benthic algae, eelgrass, and other aquatic organisms. Light conditions under the existing passenger float and fixed pier and gangway system are such that no light can penetrate the surface at any point. While the proposed project would expand shading over what are currently open waters, the benthic communities which would be shaded are also currently dredged and maintained to provide ferry terminal access and berthing. Both existing and proposed shaded areas are therefore already frequently disturbed to facilitate safe berthing of ferries. As such, no aquatic vegetation is present that would be affected by the change in shade conditions. The expansion of overwater shading that would result from the proposed project would not result in prolonged shading of any primary producers. In addition, the purpose of the proposed project is to reduce the frequency with which maintenance dredging is required in the area, which would reduce the rate of disturbance to the benthos, likely resulting in net benefits to primary producers within the project area over time. Therefore, overwater shading on primary producers and benthic communities would be less than significant.

The proposed project may dredge material from within the existing ferry terminal basin and adjacent to the proposed temporary ferry terminal location to ensure vessels required to implement the project are able to access the project area. Dredging has the potential to entrain fish during the process of collecting bottom sediments. Life stages which are immobile, such as eggs and larvae, are most susceptible to dredging and are more likely to be entrained due to their inability to self-relocate; however, as stated above, there are no spawning beds for any species present within the project area as it does not include freshwater streams or substrates required for any of the anadromous species. In addition, through implementation of Mitigation Measure BIO-2, in-water work would be limited to occur between August 1 and November 30 when most species are absent. If fish are present, they are fully mobile juveniles or adults which are able to avoid areas of disturbance associated with dredging. Further, dredging would be limited to using clamshell or mechanical dredging which is far less likely to entrain fish than suction or hopper dredging. Clamshell dredging is often used as the preferred alternative due to the lower likelihood of entrainment.

The combination of adherence to in-water work windows (**Mitigation Measure MM BIO-2**) and the use of mechanical dredging methods would reduce the potential for entrainment of special-status fish species during dredging to a level that is less than significant; therefore, implementation of **Mitigation Measures MM BIO-1** through **MM BIO-6** would reduce effects of dredging on fish to less than significant levels.

<u>Critical Habitat</u>
Critical habitat within this portion of San Pablo Bay is present for Sacramento River winter-run Chinook salmon, Central California Coast steelhead, and southern DPS green sturgeon. For all three species, the project area functions as an estuarine corridor, the primary function being to promote movement of species from freshwater spawning areas to the Pacific Ocean and back.

The project would not create an aquatic trap, or barrier that might impede fish movement. The project would be permeable to water and fish movement such that a fish may move around these objects easily, without risk of being trapped. As such, the new structures proposed by the project do not represent a significant barrier that would cause a cessation to movement or significant delay for migrating fish; therefore, impacts would be less than significant. Other potential impacts to critical habitat for these species are mitigated through the implementation of **Mitigation Measures MM BIO-1** through **MM BIO-7.**

Special Status Bird Species

The proposed project has the potential to impact native nesting birds. No special-status birds are likely to nest within the fully developed shoreline or on the existing ferry terminal due to the highly modified and developed nature of the active ferry terminal. These features do not contain specialized habitats such as salt marsh or sandy shoals which might support special-status nesting birds found in the vicinity; however, non-special-status nesting birds protected by the Migratory Bird treaty Act as well as the California Fish and Game Code may nest on or near these structures and be affected by construction related activities if construction occurs during the nesting season.

Non-special-status birds may nest on buildings, structures, or within limited landscaped vegetation within the project area between February 1 and August 31. Project activities during this time may directly remove or destroy active nests or may indirectly cause nest abandonment through audible, vibratory, and/or visual disturbances. Loss of active nests due to activities of the project would be considered a significant impact under CEQA. Implementation of **Mitigation Measure MM BIO-8** would reduce potential impacts to nesting birds to a less-than-significant level.

Marine Mammals

Similar to fish, marine mammals can be injured if sounds produced by construction-related activities surpass certain tolerances. Injury to marine mammals from noise relates primarily to hearing damage or loss, and the thresholds for injury differ from those established for fish. The NMFS thresholds for Post-Traumatic Stress (PTS) onset of pinnipeds vary by group and by the type of sound (peak vs cumulative; impulsive vs non-impulsive). The marine mammals most likely to occur in the project area are harbor seals and California sea lions. Based on the hydroacoustic analysis performed by Illingworth and Rodkin for the proposed project, even small steel piles have the potential to exceed onset PTS thresholds noted for these mammals at relatively short distances. Without incorporation of mitigation measures, sounds produced from pile driving would be expected to cause behavioral changes and could result in the onset of PTS for marine mammals. These impacts would be considered significant under CEQA. With implementation of **Mitigation Measure MM BIO-7** and **Mitigation Measure MM BIO-9**, impacts to marine mammals would be less than significant.

The proposed project occurs within the Mare Island Strait in an area that already supports existing ferry traffic as well as larger ships that utilize Mare Island Dry Docks on the opposite side of the river, adjacent to the project area.

The proposed project would not result in an overall increase in vessel traffic within the Napa River. WETA would continue to operate the new structure as a ferry terminal servicing its ferry route in a manner similar to the current operations with a similar number of ferries per day, thus maintaining baseline conditions. Therefore, implementation of the project would not result in significant impacts to marine mammals from ship traffic compared to the existing condition.

With implementation of **Mitigation Measures MM BIO-1** through **MM BIO-9**, impacts would be less than significant.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

Less than Significant Impact. The proposed project is located within Essential Fish Habitat (EFH) for three fisheries management plans: Coastal Pelagic, Pacific Groundfish and Pacific Salmon. EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries, which may include the water column, certain bottom types (e.g., rocky reefs), vegetation (e.g., eelgrass beds), or complex structures such as oyster beds. Most benthic substrates consist of silt and mudflat within the project vicinity. These areas are typically low-productivity areas which are more commonly traversed by migratory species. The absence of any reefs, freshwater streams, eelgrass beds, or similar complex habitat features make this area important primarily as a migratory corridor, allowing EFH species to move from place to place. The proposed project is not anticipated to have a significant impact on migratory corridors; no long-term impacts to this habitat (including habitat created by the presents of pilings- submerged vegetation or aquatic organisms can attach to pilings) is expected as a result of the project. Impacts would be less than significant and no mitigation is required.

c) Have a substantial adverse effect on state or federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Potentially Significant Unless Mitigation Incorporated. No federally or state-defined wetlands occur within the project site and thus no impacts to wetlands would occur. However, the nature of the project means that it will need to affect open waters of San Francisco Bay. As described above, the project would expand overwater cover by approximately 2,565 to 3,780 square feet. However, as discussed above, shading effects resulting from the proposed project are expected to be less-than-significant.

In addition, installation of piles in aquatic areas does not have a substantial adverse effect on the continued water resources function of a water body, as demonstrated by the fact that the Corps does not regulate piles as fill under the Clean Water Act (see 33CFR328.3); therefore, the installation of piles themselves is a less-than-significant impact. Potential impacts to aquatic resources from the installation of piles are associated with the overwater structures that they support. Therefore, with implementation of **Mitigation Measures MM BIO-1** through **MM BIO-6**, impacts to aquatic resources would be less-than-significant.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Potentially Significant Unless Mitigation Incorporated. During construction activities, temporary disturbance to local species may occur, but would not substantially degrade the quality or use of the marine communities in the vicinity. As noted above, special-status fish are known to migrate through the waters of the project vicinity when making seasonal movements between core habitat areas (e.g., natal streams or the Pacific Ocean). Maintaining the ability of these species to migrate between core habitat areas is necessary for the continuation of these species and maintenance of the wildlife corridor which connects them.

The project vicinity does not support rookery sites, or colonial nesting sites for species such as monarch butterflies, egrets, herons, or marine mammals therefore no such nursery sites will be affected. No eelgrass beds occur within the project vicinity which could have functioned as a nursery site for fish species which can spawn and rear within eelgrass. The proposed project lies along the migratory route for salmonids when moving from natal streams in the Central Valley, and the Pacific Ocean, as such it also functions as a migratory corridor for fish. If construction were to occur at times of year when larval fish were present, or when migratory events for fish were occurring, construction activities may have the potential to impact such events, which would be considered a significant impact under CEQA. However, **Mitigation Measure MM BIO-2** will restrict any in water work to a period between August 1 and November 30, which is outside the period when salmonids or other anadromous species typically migrate to the ocean, or when they return to natal streams. Thus, implementation of **Mitigation Measure MM BIO-2** reduces impacts to migratory corridors to less-than-significant levels. Further, by timing in-water construction activities later in the summer and fall, this is outside of the time when larval or fry life-stages of fish are present; therefore, with implementation of **Mitigation Measure MM BIO-2**, all in-water construction would occur outside of the times when sensitive life stages are present. Implementing additional **Mitigation Measures MM BIO-1** through **MM BIO-9** (excluding **Mitigation Measure MM BIO-8** for nesting Birds) also reduces the potential impacts to fish during critical periods by maintaining habitat quality such that, when fish do return, there are not toxic conditions present that might deleteriously affect them.

Additionally, the proposed project would not create an aquatic net, trap, or barrier that might impede fish movement. The proposed project would be permeable to water and fish movement such that a fish may move around these objects easily, without risk of being trapped behind an impermeable barrier. As such the new structures do not represent a significant barrier that would cause a cessation to movement, disorientation, or significant delay for migrating fish. Any immediate effects to migration or natal sites from construction are largely avoided through the use of the in-water work window, while all remaining mitigation measures reduce potential indirect effects that might alter habitat suitability later in time. As such, with implementation of **Mitigation Measures MM BIO-1** through **MM BIO-7** and **MM BIO 9**, impacts to aquatic resources would be less-than-significant.

e) *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

No Impact. The proposed project is located in the City of Vallejo. City of Vallejo General Plan Policies NBE-1.1, NBE-1.2, NBE-1.3, NBE-1.4, and NBE-1.6 are directly and indirectly related to biological resources in the project area. The project is consistent with these local policies and ordinances both through design and through mitigation measures to protect environmental resources described above and required as part of the project. Therefore, the function of any local policies or ordinances would not be affected. There would be no impact, and no mitigation is required.

f) *Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

No Impact. Currently the only Habitat Conservation Plan (HCP) which overlaps with the project area is the Solano Multispecies HCP. This HCP is overseen by the Solano County Water Agency. The project area for this proposed project is already developed and occurs within the Impaired Open Water Habitats projected for the Solano Multispecies HCP. Napa River is also not one of the proposed aquatic areas or drainages ranked as a priority for conservation. Lastly, the majority of the Solano HCP focuses on uplands and streams, less so than open waters of the Bay; therefore, the project occurs in an area that is projected as part of the urban expansion boundary and does not conflict with the provisions of the Solano HCP as it largely covers developed open waters which are not marked for conservation within the project area. Therefore, there would be no conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. There would be no impact, and no mitigation is required.

Mitigation Measures

MM BIO-1 **Invasive Species Management.**

- Any in-water fill materials shall be new and not salvaged from areas outside of San Francisco Bay.
- Any pumps that may be needed during construction shall be cleaned and dried for at least 72 hours prior to being used on the project.

MM BIO-2 **In-Water Work Window.** All in-water work, including dredging, pile driving, and similar activities which require placing materials below the water's surface, shall be completed between August 1 and November 30. Work may occur above the waterline year-round, including use of necessary in-water support vessels, so long as spill prevention measures are employed as described below. This in-water work window may be modified and extended if regulatory agencies determine during the permitting process that work outside of this window may occur without significant risk to fish.

MM BIO-3 **Spill Prevention and Control.** A spill prevention and control plan shall be developed and implemented for the proposed project throughout all phases of construction. This plan shall, at minimum, include the following parameters to reduce potential effects from spills to less than significant levels:

- Identification of any hazardous materials used by the project.
- Storage locations and procedures for such materials.
- Spill prevention practices as well as BMPs employed for various activities.
- Requirements to inspect equipment daily such that it is maintained free of leaks.
- Spill kit location, cleanup, and notification procedures.

MM BIO-4 **Environmental Awareness Training.** A project-specific environmental awareness training for construction personnel shall be conducted by a qualified biologist before commencement of construction activities and as needed when new personnel begin work on the proposed project. The training shall inform all construction personnel about the presence of sensitive habitat types; potential for occurrence of special-status fish and wildlife species; the need to avoid damage to suitable habitat and species harm, injury, or mortality; measures to avoid and minimize impacts to species and associated habitats; the conditions of relevant regulatory permits, and the possible penalties for not complying with these requirements. The training may consist of a pre-recorded presentation to be played for new personnel, a script prepared by the biologist and given by construction personnel trained by the biologist, or training administered by on-site biological monitors. The training shall include:

- Applicable State and federal laws, environmental regulations, permit conditions, and penalties for non-compliance.

- A physical description of special-status species with potential to occur on or in the vicinity of the proposed project site, avoidance and mitigation measures, and protocol for encountering such species including communication chain.
- BMPs enacted for habitat protection and their location within the project area, including the implementation of any Spill or Leak Prevention Programs.
- Contractors shall be required to sign documentation stating that they have read, agree to, and understand the required avoidance measures. If they do not understand, they shall withhold their signature until the designated biologist addresses their question. The contractor may not begin work until they have signed the documentation.
- Field identification of any project area boundaries, egress points and routes to be used for work. Work shall not be conducted outside of the project area.

A record of this training shall be maintained on the site during all project work and shall be made available to agencies upon request.

MM BIO-5 **Debris.** The project shall employ debris, dust, and garbage control measures to ensure disturbances to any upland areas and overwater work does not result in significant increases in turbidity or the placement of debris within tidal waters. These control measures shall include the following:

- A work skiff or similar craft may be used to corral any debris which accidentally falls into waters during demolition. Debris shall be retrieved immediately and shall not be allowed to drift away from the worksite.
- Where cast-in-place concrete is required in over-water areas, the contractor shall use water-tight forms and catchments that shall prevent concrete from falling into the water. Cast-in-place forms shall remain in place until concrete has completely cured and shall be removed using means that minimize dust and freshly cured concrete from falling into the water.
- Within upland areas, any disturbed soils shall be managed to prevent dust or silt laden runoff from becoming airborne or otherwise introduced to the aquatic environment.
- All personal construction-related refuse shall be collected in sealed containers and removed regularly.

MM BIO-6 **Dredging.**

- Prior to the dredge event, WETA will apply for a Tier 1 Testing Exclusion Request from the Dredge Material Management Office (DMMO) based on the results of the 2023 Sampling Analysis Results (SAR). Per the previous suitability determination issued by the DMMO, it is anticipated that the material would be suitable for upland placement at Cullinan Ranch Restoration Project or the Montezuma Wetlands Reuse Project sites.
    - Materials shall only be dredged and disposed of in accordance with procedures approved by the DMMO.
    - If concentrations are too high for beneficial reuse in upland restoration, or other standard dredge material disposal method, materials may be hauled to an approved hazardous waste disposal facility.
- Dredging shall be limited to the specified areas, depths, and quantities.

- No overflow or decant water shall be discharged from any barge at any time.
- During transportation from the dredging site to the disposal site, no dredged material shall be permitted to overflow, leak, or spill from barges, bins or dump scows.

MM BIO-7 **Pile Driving.** Prior to initiation of construction, WETA shall consult with regulatory agencies with jurisdiction over the project activities, such as CDFW, NMFS, BCDC, and USFWS to obtain any necessary permits and shall follow all requirements of those permits. If permit requirements conflict with requirements below, the permit requirements shall take precedence.

The following measures shall be implemented during the driving of all piles to reduce any effects from pile driving to less than significant levels:

- In water work shall be limited August 1 – November 30 as indicated in Mitigation Measure MM BIO-2 unless otherwise approved by regulatory agencies.
- Any wildlife encountered within the work area shall be allowed to leave the area unharmed.

The following measures shall also be included for times when work involves driving steel piles.

- To the extent possible, pile driving of steel piles shall be conducted with a vibratory hammer.
- If use of an impact hammer is necessary, the following additional measures shall be employed:
  - A bubble curtain shall be deployed around each steel pile during installation.
  - Use of a slow start (gradually increasing energy and frequency) at the start of driving, or after a cessation of driving for more than 1 hour.
  - Underwater sound monitoring shall be performed during pile driving activities. Sound monitoring shall be completed for a minimum of 5% of each pile size and type utilized during construction to verify consistency with sound measurements of similar pile types and sizes documented for other projects. If sound measurements exceed those taken from similar pile types and sizes for other projects, additional sound attenuation measures, enhanced bubble curtains, or limiting pile strikes shall be implemented, and sound measurements shall be tested again to achieve sound levels similar to other projects.

MM BIO-8 **Nesting Birds.** If construction is initiated outside of the nesting season, between September 1 and January 31, birds are unlikely to be nesting and work would not result in significant impacts to nesting birds; however, should work be initiated during the nesting season (February 1 to August 31), a pre-construction nesting bird survey shall be conducted by a qualified biologist no more than 14 days prior to the start of construction activities. The survey shall cover all areas within 500 feet of planned construction activities. Should an active nest be identified, a high visibility "No disturbance" buffer shall be established by the qualified biologist within the upland areas. Work within aquatic areas shall be provided a map outlining the buffer but due to the need to maintain an open, navigable waterway, buoys, signs, or similar temporary structures shall not be placed in the water to denote the buffer. The buffer distance shall be based upon the species and location of the nest, potential for construction noise, vibration, visual disturbance, or other disruptive metrics to reach and affect nesting.

The buffer shall be maintained until it can be verified by a qualified biologist that the nestlings have fledged, or the nest has failed. Should construction activities cease for 14 or more consecutive days during the nesting season (February 1 – August 31), an additional nesting bird survey shall be conducted prior to resuming construction.

MM BIO-9 **Marine Mammals.** In addition to implementation of Mitigation Measure MM BIO-7: Pile Driving, the project shall implement the following measures to reduce impacts to marine mammals from in-water construction.

- During all construction work where materials are being actively placed below the water line, a marine mammal monitor shall be present to observe and document marine mammal presence.
- During pile driving, if a marine mammal is within the buffer distance identified in by the hydroacoustic analysis performed by Illingworth and Rodkin for the proposed project, or within distances approved by NMFS based on future updated construction drawings and contractor input, the marine mammal monitor shall inform the construction crew and work shall temporarily halt until the animal has passed outside of the disturbance buffer.

4.5 Cultural Resources

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to in § 15064.5?			X	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?			X	
c) Disturb any human remains, including those interred outside of dedicated cemeteries?			X	

Setting

A Cultural Report (Appendix D) was prepared by ESA in December 2023. The Report describes the existing conditions related to cultural and tribal resources within the vicinity of the project site, provides regulatory and environmental setting for the project, and discusses potential resource impacts that could result under implementation of the proposed project.

Prehistoric and Ethnographic Setting

Well before the arrival of European settlers, the area where the City of Vallejo currently stands was inhabited by the Coast Miwok and several Patwin tribes, including the Suisun and Karkin. The Patwin tribes comprised a band of Southern Wintun people who have inhabited portions of Northern California for centuries.[5] The Coast Miwok are one of four linguistically related indigenous groups who spoke one of the Miwok languages within the Utian linguistic family. The Miwok typically subsisted through hunting and gathering and lived in relatively small, interconnected bands without centralized political authority. During the warmer months, Coast Miwok traveled to the Northern California coasts to hunt salmon and other seafood.[6] Archaeological evidence indicates that the Wintun people arrived in the Northern California region by the year 500. Like the Coast Miwok, the southern Patwin tribes were hunting and gathering groups that inhabited territory along the northeast portion of the San Pablo Bay in what is present-day Solano County.[7] Three confirmed Native American sites are located on Sulphur Springs Mountain, near

[5] James J. Rawls and Walton Bean, *California: An Interpretive History,* 9th ed (San Francisco: McGraw Hill, 2008), 18; "Time to Learn About Vallejo." Available at: https://www.visitvallejo.com/about-vallejo/history. Accessed August 25, 2023.
[6] Alfred L. Kroeber, *Handbook of the Indians of California* (Washington, DC: Bureau of Ethnology Bulletin, no 78), Available at: http://www.yosemite.ca.us/library/kroeber/miwok.html; "Coast Miwok at Point Reyes," National Park Service. Available at: Coast Miwok at Point Reyes - Point Reyes National Seashore (U.S. National Park Service) (nps.gov). Accessed August 25, 2023.
[7] Victor Golla, *California Indian Languages* (Berkeley: University of California Press, 2011), 205; "California Indians and Their Reservations: P," San Diego State University Library and Information Access. Accessed August 25, 2023, https://web.archive.org/web/20100726212453/http://infodome.sdsu.edu/research/guides/calindians/calinddictty.shtml#w.

Vallejo's Blue Rock Springs Park.[8]

Historic Setting

The arrival of Spanish settlers to the region irrevocably disrupted indigenous communities throughout California. The cumulative impact of Spanish colonization by the mid-1800s decimated tribal unity and destroyed many natural resources essential for indigenous people's survival. The Spanish colony of Mexico declared war against Spain in 1810, and Mexico won its independence in 1821. By the end of April 1822, all of California had come under Mexican governance. In 1835, General Mariano Guadalupe Vallejo traveled to the east San Francisco Bay region to establish land grants on behalf of the Mexican government. When Alta California became an American territory after the Treaty of Guadalupe-Hidalgo in 1848, General Vallejo lobbied to ensure that one of his land parcels become a new state capitol. After a state-wide referendum was held in late 1850, the California State Legislature accepted his proposal, but instead determined that the new city would be called Vallejo in honor of the Mexican general.[9] In 1852, Vallejo became the first permanent seat of California's state government. After only eleven days in town, the new state legislature decamped to Sacramento to finish out the session and eventually permanently move. One Vallejo resident, John B. Frisbie, was instrumental in the development of the town. Frisbie was the son-in-law of General Vallejo and had been granted power of attorney for the former land grant. Frisbie helped establish Vallejo's first city government and lobbied diligently in Washington, D.C., which resulted in the city's incorporation in 1867.[10]

Vallejo Waterfront and Ferry Service

The shoreline along Mare Island Strait at the mouth of the Napa River has played an important role in the local history of water transportation and recreation as well as the nation's maritime history. On the west side of the strait (outside the APE) is Mare Island, and it was purchased by the United States Navy in 1853 to establish the first naval installation on the West Coast.[11] A ferry service between the City of Vallejo to the east and Mare Island was established shortly thereafter.[12] Dr. Robert Semple created a ferry service from Vallejo across the Carquinez Strait to Martinez to serve the influx of settlers who arrived in the region during the Gold Rush. In 1867, the California Pacific Railroad was established to build a fast and reliable route from San Francisco to the state capitol. Subsequently, passengers could travel by steamboat from San Francisco to a ferry terminal in South Vallejo, where they would then travel by rail to Sacramento. During the peak of ferry transportation, riders for the Pony Express also used the ferries at Vallejo to travel between Sacramento and Benicia. The Southern Pacific Golden Gate Ferries bought out several existing steamship lines and oversaw the operation of most ferry services between Vallejo and San Francisco until about 1937.

A passenger ferry service between the Vallejo mainland and Mare Island was first established in 1854 to transport laborers to the shipyard. In 1973, the Mare Island Ferry Company and the U.S. Navy entered into a contract under which the Navy was "responsible for maintaining the [channel and] floating docks the ferry uses on each side of the strait[, including both] the ferry's private docks and the docks owned by the shipyards. In exchange, the ferry provided regular service for shipyard employees as well as 24-hour-

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[8] "History," City of Vallejo." Available at: https://www.cityofvallejo.net/our_city/about_vallejo/history. Accessed August 25, 2023.

[9] "Vallejo—Our History," Vallejo Naval & Historical Museum. Available at: https://vallejomuseum.net/vallejo-history/. Accessed August 25, 2023.

[10] Visit Vallejo, "Time to Learn About Vallejo." Available at: https://www.visitvallejo.com/about-vallejo/history. Accessed August 25, 2023.

[11] "Mare Island Naval Shipyard," Naval History and Heritage Command. Available at: https://www.history.navy.mil/browse-by-topic/organization-and-administration/historic-bases/mare-island.html. Accessed August 28, 2023,

[12] Richard Abrams, "Ferry Slips into History," *Sacramento Bee,* August 30, 1936, B1–B2.

a-day availability during emergencies."[13] In 1986, the Navy terminated the contract, removed two of the floating docks, and did not repair the third,[14] which, along with all of the steel dolphins, is extant and currently serves as an outdoor dining area for the Bay Hibachi Express adjacent to the proposed project site.

In 1986, intercity/intercounty ferry service returned to the Vallejo waterfront after a 34-year hiatus. That year, the privately owned tour boat operator, Red & White Fleet, launched a commute ferry service to bring commuters from Vallejo into San Francisco and visitors from San Francisco to Vallejo. Additionally, the City of Vallejo began construction on a $1.2 million ferry terminal with state and local redevelopment funds to support the growing ferry service. In 1988, Red & White Fleet suspended its service, and the City of Vallejo took over public ferry transit to San Francisco. In 1989, Crowley Maritime completed construction on the 4,500-square-foot terminal and ferry dock.

<u>Known Resources</u>
A cultural resources literature search was conducted in June 2023 at the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) at California State University, Sonoma. The records search was conducted to determine if prehistoric or historic cultural resources had been previously recorded on the project site, the extent to which the project site had been previously surveyed, and the number and type of cultural resources within a 0.5-mile radius of the project area.

The results of the records search indicated that no previously recorded archaeological resources are in the immediate vicinity of the proposed project. Two pre-contact Native American shell mounds (CA-SOL-17 and CA-SOL-248) are within the records search radius. These resources are located on Mare Island, on the opposite bank of the Mare Island Channel from the proposed project site, and would not be impacted by the project. In addition, several historic-era archaeological features have been identified on Mare Island, including red brick manholes (P-48-000440); a subterranean, vaulted red brick tunnel (P-49-000807); a foundation (P-48-000833); and a historic-era artifact concentration (P-48-000889). None of these resources would be impacted by the project.

There are three previously recorded architectural resources located within and in the immediate vicinity of the proposed project site that are not on file at CHRIS. These are the vacant building at 285 Mare Island Way (adjacent to the project site) and the two restaurant buildings at 295 and 295A Mare Island Way. All three buildings were evaluated under California Register criteria only to support the 2005 Vallejo Station Project and the Waterfront Project Environmental Impact Report.[15]

a) *Cause a substantial adverse change in the significance of a historical resource pursuant to in § 15064.5?*

Less than Significant Impact. As described above, implementation of the proposed project would include reconfiguration of the existing Vallejo Ferry Terminal and would be limited to the project site. Additionally, the vacant building at 285 Mare Island Way and the two restaurant buildings at

[13] Richard Abrams, "Ferry Slips into History."
[14] Harry Jupiter, "After a Million Rides, the Mare Island Ferry Leaves Anger in Wake," *San Francisco Examiner,* August 30, 1986, 2.
[15] The environmental impact report identified 285 Mare Island Way as "Building 3, Marina Vista Dental Building," 295 Mare Island Way as "Building 1, Wharf Restaurant," and 295A Mare Island Way as "Building 2, Accessory Building." EIP Associates, *The Vallejo Station Project and the Waterfront Project Revised Draft Environmental Impact Report (SCH No. 2000052073),* prepared for the City of Vallejo and Redevelopment Agency of the City of Vallejo, June 2005, on file at the City of Vallejo.

295 and 295A Mare Island Way are architectural resources within the vicinity of the project site, but are not on file at CHRIS and are recommended not eligible for individual listing.

Construction and operation activities would not extend beyond the identified project boundaries and would not result in any changes and/or alterations to any of the individual buildings within the proposed project vicinity. As such, project implementation would not result in any changes in the significance of a historical resource. Impacts would be less than significant, and no mitigation is required.

b) *Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?*

Potentially Significant Unless Mitigation Incorporated. The results of the NWIC records search, conducted in August 2022, did not yield any information regarding known archaeological sites within the immediate vicinity of project site. Two pre-contact Native American shellmounds (CA-SOL-17 and CA-SOL-248) were found within the records search radius, as well as historic-era archaeological features including red brick manholes (P-48-000440); a subterranean, vaulted red brick tunnel (P-49-000807); a foundation (P-48-000833); and a historic-era artifact concentration (P-48-000889).These resources and features are all located on Mare Island, on the opposite bank of the Mare Island Channel from the proposed project site, and would not be impacted by the project.

Project construction activities would involve disturbance associated with new and replacement terminal structures, including the terminal bridge, fixed pier, gangway, and terminal float. Though no known resources have been identified within the project site and surrounding area, the possibility remains that archaeological materials could be encountered during construction-related ground disturbing activities. As such, the project could result in a potentially significant impact. Nonetheless, implementation of **Mitigation Measure MM CUL-1,** impacts would be less than significant.

c) *Disturb any human remains, including those interred outside of dedicated cemeteries?*

Potentially Significant Unless Mitigation Incorporated. Based on documentary research, no evidence suggests that any prehistoric or historic-era marked or unmarked human interments are present within or in the immediate vicinity of the project site. However, the location of grave sites and Native American remains can occur outside of identified cemeteries or burial sites. Therefore, there is a possibility that unmarked, previously unknown Native American or other graves could be present within the project site and could be uncovered by project-related construction activities.

California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Sections 7050.5 and PRC Section 5097. These statutes require that, if human remains are discovered during any construction activities, potentially damaging ground-disturbing activities in the area of the remains shall be halted immediately, and the Alameda County coroner and Native American Heritage Commission (NAHC) shall be notified immediately, in accordance with to PRC Section 5097.98 and Section 7050.5 of California's Health and Safety Code. If the remains are determined by NAHC to be Native American, the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains.

Following the coroner's findings, the archaeologist, the NAHC-designated Most Likely Descendant, and the landowner shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in PRC Section 5097.94.

Compliance with California Health and Safety Code Sections 7050.5 and PRC Section 5097 would provide an opportunity to avoid or minimize the disturbance of human remains, and to appropriately treat any remains that are discovered. Nonetheless, future ground disturbing activities during grading and construction activities could encounter buried human remains that were not identified during the cultural resource report conducted for the proposed project. This could result in damage to unknown, buried human remains and mitigation would be required. With implementation of **Mitigation Measure MM CUL-2**, impacts would be less than significant.

Mitigation Measures

MM CUL-1 Mitigate Potential Disturbance for Significant Archeological Resources Identified During Construction. In the event that unanticipated cultural or tribal cultural resources are encountered during the course of grading or construction, the project operator/contractor shall cease any ground disturbing activities within 100 feet of the find. Cultural and/or tribal cultural resources may include prehistoric archaeological materials such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock, as well as historic materials such as glass, metal, wood, brick, or structural remnants. A qualified archeologist approved by WETA shall first determine whether a previously unidentified archeological resource uncovered during construction is a "unique archaeological resource" under 36 CFR 800, CEQA Guideline 15064.5, and Public Resources Code Section 21083.2. If the archeological resource is determined to be a "unique archaeological resource," the archaeologist shall formulate a mitigation plan that satisfies the requirements of 36 CFR 800, CEQA Section 15064.5, and/or Public Resources Code Section 21083.2. Work in the vicinity of the find may resume at the completion of a mitigation plan or recovery of the resource.

If the archeologist determines that the archaeological resource is not a unique archaeological resource, work will resume, and the archaeologist may record the site and submit the recordation form to the California Historic Resources Information System Northwest Information Center.

The archeologist shall prepare a report of the results of any study prepared as part of a mitigation plan, following accepted professional practice. Copies of the report shall be submitted to the City and to the California Historic Resources Information System Northwest Information Center.

MM CUL-2 Mitigate Potential Disturbance for Human Remains Identified During Construction. If human remains are uncovered during ground disturbing activities, the project proponent shall immediately halt work and contact the Solano County Coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines. The City of Vallejo Police Department and City of Vallejo Planning Department shall be contacted immediately after contact or attempted contact with the County Coroner. All construction activities on the project site shall cease. If the County coroner determines that the remains are Native American, the Native American Heritage Commission shall be notified, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by AB 2641). No further construction activity shall occur until consultation is complete with the most likely descendent, the Coroner and the County Planning Department staff. Authorization to resume construction shall only be given by the County after concurrence with the most likely descendent and shall include implementation of all appropriate measures to protect any possible burial sites or human remains.

4.6 Energy

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
a) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			X	

<u>Setting</u>

Applicable Plans, Policies, and Regulations

The following is a description of State and local environmental laws and policies that are relevant to the CEQA review process. See also Chapter 4.3 (Air Quality), Chapter 4.8 (Greenhouse Gas Emissions), and Chapter 4.17 (Transportation), for other policies related to energy use. See Chapter 4.19 (Utilities and Service Systems) for policies related to water consumption.

Federal

Federal Energy Policy and Conservation Act and Corporate Average Fuel Standards

In 1975, Congress enacted the Federal Energy Policy and Conservation Act, which established the first fuel economy standards, known as the Corporate Average Fuel Economy standards, for on-road motor vehicles in the United States. Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States. Pursuant to the act, the National Highway Traffic Safety Administration (NHTSA) is responsible for establishing additional vehicle standards. In 2012, new Corporate Average Fuel Economy (CAFE) standards for passenger cars and light trucks were approved for model years 2017 through 2021 (77 FR 62624–63200). In 2020, NHTSA and the U.S. Environmental Protection Agency (EPA) finalized amendments to the CAFE standards for model years 2021 through 2026 under the Safer Affordable Fuel-Efficient Vehicles Rule. Those amendments reduced the requirement for annual increases in efficiency from approximately 5 percent (as established in 2012) to approximately 1.5 percent. The Safer Affordable Fuel-Efficient Vehicles Rule also revoked California's authority to set its own GHG emissions standards and set zero-emission vehicle mandates for the state. However, in December 2021, NHTSA and EPA again revised the CAFE standards and GHG emissions standards for passenger cars and light trucks for model years 2023–2026, and reinstated California's authority to set its own standards. The final standards will achieve significant reductions in energy consumption and GHG emissions within the transportation sector.

Energy Independence and Security Act of 2007

Signed into law in December 2007, the Energy Independence and Security Act was passed to increase the production of clean renewable fuels; increase the efficiency of products, buildings, and vehicles; improve the energy performance of the federal government; and increase U.S. energy security, develop renewable fuel production, and improve vehicle fuel economy. The Energy Independence and Security Act included the first increase in fuel economy standards for passenger cars since 1975, and also included a new energy grant program for use by local governments in implemented energy-efficiency initiatives, as well as a variety of green building incentives and programs.

State

California's Energy Efficiency Standards for Residential and Non-Residential Buildings (Title 24)

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the California Energy Commission) in June 1977 and are updated every three years (Title 24, Part 6, of the California Code of Regulations). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods.

On August 11, 2021, the CEC adopted the 2022 Energy Code. In December, it was approved by the California Building Standards Commission for inclusion into the California Building Standards Code. Among other updates like strengthened ventilation standards for gas cooking appliances, the 2022 Energy Code includes updated standards in three major areas:

- New electric heat pump requirements for residential uses, schools, offices, banks, libraries, retail, and grocery stores.
- The promotion of electric-ready requirements for new homes including the addition of circuitry for electric appliances, battery storage panels, and dedicated infrastructure to allow for the conversion from natural gas to electricity.
- The expansion of solar photovoltaic and battery storage standards to additional land uses including high-rise multifamily residences, hotels and motels, tenant spaces, offices, (including medical offices and clinics), retail and grocery stores, restaurants, schools, and civic uses (including theaters auditoriums, and convention centers).

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development. CALGreen standards require new residential and commercial buildings to comply with mandatory measures under five topical areas: planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality. CALGreen also provides voluntary measures (CALGreen Tier 1 and Tier 2) that local governments may adopt which encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code was adopted in 2022 and went into effect January 1, 2023. Projects whose permit applications are applied for on or after January 1, 2023, must comply with the 2022 Energy Code.[16]

[16] California Energy Commission, 2022 *Building Energy Efficiency Standards*, https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency, accessed June 2023

California Public Utilities Commission Energy Efficiency Strategic Plan

The California Public Utilities Commission (CPUC) prepared an Energy Efficiency Strategic Plan in 2011 with the goal of promoting energy efficiency and a reduction in greenhouse gases. AB 1109, adopted in 2007, also serves as a framework for lighting efficiency. This bill requires the State Energy Resources Conservation and Development Commission to adopt minimum energy efficiency standards as a means to reduce average Statewide electrical energy consumption by not less than 50 percent from the 2007 levels for indoor residential lighting and not less than 25 percent from the 2007 levels for indoor commercial and outdoor lighting by 2018. According to the Energy Efficiency Strategic Plan, lighting comprises approximately one-fourth of California's electricity use while non-residential sector exterior lighting (parking lot, area, walkway, and security lighting) usage comprises 1.4 percent of California's total electricity use, much of which occurs during limited occupancy periods.

California Energy Commission Integrated Energy Policy Report

In 2002, the State legislature adopted SB 1389, which requires the CEC to develop an Integrated Energy Policy Report (IEPR) every two years. SB 1389 requires the CEC to conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices, and use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the State's economy, and protect public health and safety.

The CEC adopted the 2022 Integrated Energy Policy Report Update (2022 IEPR Update) in February 2023. The 2022 IEPR Update provides an update to the forecast developed in the 2021 Integrated Energy Policy Report, specifically the results of the CEC's assessments of a variety of energy issues facing California, many of which will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining reliability and controlling costs. The year of 2022 saw an increase in electricity consumption, fueled in part by California's efforts to decarbonize the transportation and building sectors by switching from fossil fuels to electricity. The year of 2022 was also unprecedented as the State continues to face the impacts and repercussions of challenging events, including the continued effects of extreme summer weather and drought conditions. In addition to these events, the 2022 IEPR Update covers a broad range of topics, including equity and environmental justice, the California Energy Planning Library, the California Energy Demand Forecast, energy reliability, western electricity integration, the role of hydrogen in California's clean energy future, high gasoline prices, and transitioning from fossil gas and advancing distributed energy resources. Overall, the 2022 IEPR Update identifies actions the State and others that would strengthen energy resiliency, reduce GHG emissions that cause climate change, improve air quality, and contribute to a more equitable future.

Renewable Portfolio Standard

In 2002, California established its Renewable Portfolio Standard program with the goal of increasing the annual percentage of renewable energy in the State's electricity mix by the equivalent of at least 1 percent of sales, with an aggregate total of 20 percent by 2017. The California Public Utilities Commission subsequently accelerated that goal to 2010 for retail sellers of electricity (Public Utilities Code Section 399.15(b)(1)). Then-Governor Schwarzenegger signed Executive Order S-14-08 in 2008, increasing the target to 33 percent renewable energy by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directs the California Air Resources Board under its AB 32 authority to enact regulations to help the State meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020. In

September 2010, the California Air Resources Board adopted its Renewable Electricity Standard regulations, which require all of the State's load-serving entities to meet this target. In October 2015, then-Governor Brown signed into legislation Senate Bill 350, which requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030. Signed in 2018, SB 100 revised the goal of the program to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045. Under the bill, the State cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

California Air Resources Board (CARB)

CARB's Advanced Clean Car Program

The Advanced Clean Cars emissions-control program was approved by CARB in 2012. The program requires a greater number of zero-emission vehicle models for years 2015 through 2025 to control smog, soot, and GHG emissions. This program includes the Low-Emissions Vehicle (LEV) regulations to reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles; and the Zero-Emissions Vehicle (ZEV) regulations to require manufactures to produce an increasing number of pure ZEV's (meaning battery and fuel cell electric vehicles) with the provision to produce plug-in hybrid electric vehicles (PHEV) between 2018 and 2025

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

In 2004, CARB adopted an Airborne Toxic Control Measure (ATCM) to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to diesel particulate matter emissions (Title 13 California Code of Regulations [CCR] Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles

In addition to limiting exhaust from idling trucks, in 2008, CARB approved the Truck and Bus regulation to reduce nitrous oxides (NO_x) and particulate matter (PM) with diameters of 10 and 2.5 micrometers or less (PM_{10} and $PM_{2.5}$, respectively) emissions from existing diesel vehicles operating in California (13 CCR Section 2025). The phased regulation aims to reduce emissions by requiring installation of diesel soot filters and encouraging the retirement, replacement, or retrofit of older engines with newer emission-controlled models. The phasing of this regulation has full implementation by 2023.

CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower (hp) such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007, aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models (13 CCR Section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

While the goals of these measures are primarily to reduce public health impacts from diesel emissions, compliance with the regulation has shown an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines.

Local

City of Vallejo General Plan 2040

The City of Vallejo General Plan lists the following goals and policies related to energy consumption:

Policy NBE-1.15: Energy Efficiency. Support measures to reduce energy consumption and increase energy efficiency in residential, commercial, industrial, and public buildings.

- **Action NBE-1.15A**: Connect businesses and residents with voluntary programs that provide free or low-cost energy efficiency audits, retrofit installations, rebates, financing and contractors.
- **Action NBE-1.15C**: Consider creating a Residential Energy Conservation Ordinance (RECO) and Commercial Energy Conservation Ordinance (CECO) to require point-of-sale energy audits and retrofits for all buildings that do not meet minimum energy efficiency requirements.

City of Vallejo Municipal Code

Municipal Code Section 12.32.010 adopts the 2022 California Building Standards Code California Code of Regulations Title 24.

City of Vallejo Climate Action Plan

The City of Vallejo Climate Action Plan lists the following goal related to energy consumption:

E-2 Building Standards: Require all new development to meet the minimum California Title 24 and California Green Building Standard Code requirements, as amended, and encourage new development to exceed the minimum requirements.

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact.

Construction

The energy consumption associated with construction of the proposed project includes primarily diesel fuel consumption from on-road hauling trips and off-road construction diesel equipment, and gasoline consumption from on-road worker commute and vendor trips. Temporary electric power for as-necessary lighting and electronic equipment (such as computers inside temporary construction trailers, and heating, ventilation, and air conditioning) would be powered by a generator. The amount of electricity used during construction would be minimal; typical demand would stem from the use of electrically powered hand tools and several construction trailers by managerial staff during the hours of construction activities. The majority of the energy used during construction would be from diesel use.

There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in the region or State. In addition, some incidental energy conservation would occur during construction through compliance with State requirements that equipment not in use for more than five minutes be turned off. Project construction equipment would also be required to comply with the latest EPA and CARB engine emissions standards. These engines use highly efficient combustion engines to minimize unnecessary fuel consumption. Additionally, use of construction fuel would cease once the project is fully developed. As such, as shown in Table 15: Project Energy Consumption During Construction**,** project construction would have a nominal effect on the local and regional energy supplies. Therefore, it is expected that construction fuel consumption associated with the project would not be inefficient, wasteful, or unnecessary. The project would not substantially affect existing energy or fuel supplies, or resources and new capacity would not be required. Therefore, the impacts would be less than significant, and no mitigation is required.

Table 15: Project Energy Consumption During Construction

Source	Project Construction Usage	Solano County Annual Energy Consumption	Percentage Increase Countywide
Diesel Use	**Gallons**		
On-Road Construction Trips [1]	13,377	47,393,420	0.0282%
Off-Road Construction Equipment [2]	16,158	47,393,420	0.0341%
Construction Diesel Total	***29,535***	**47,393,420**	***0.0623%***
Gasoline	**Gallons**		
On-Road Construction Trips [1]	473	163,746,024	0.0003%

1. On-road mobile source fuel use based on vehicle miles traveled (VMT) from CalEEMod and fleet-average fuel consumption in gallons per mile from EMFAC2021 in Solano County for construction year 2025.
2. Off-road mobile source fuel usage based on a fuel usage rate of 0.05 gallons of diesel per horsepower (hp)-hour from USEPA.

Abbreviations:
CalEEMod: California Emission Estimation Model; EMFAC: Emission Factor Model 2021;
Sources: Energy Calculations in *Appendix E*

Operation

The operational energy usage from the proposed project would not be anticipated to change the current energy usage from the existing setting. The project would reconfigure the existing ferry terminal to reduce or eliminate maintenance dredging and increase operational safety in support of continued ferry service. Therefore, the project would not require additional energy usage or be wasteful, inefficient, or unnecessary in its energy usage. Thus, operational energy usage would have no impact, and no mitigation is required.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less than Significant Impact. The project would be required to comply with existing regulations, including applicable measures from the City's General Plan, Climate Action Plan, and Municipal Code, or would be directly affected by the outcomes (any vehicle trips and energy consumption would be less carbon intensive due to statewide compliance with future low carbon fuel standard amendments and increasingly stringent Renewable Portfolio Standards). As mentioned previously, the project would not substantially impact energy consumption during construction and would not require any additional energy usage during operations. As such, the project would not conflict with any other state-level regulations pertaining to energy. The project would comply with existing State energy standards and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Impacts would be less than significant, and no mitigation is required.

4.7 Geology and Soils

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X	
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	

<u>Setting</u>

The City of Vallejo is within the San Francisco Bay Area, which is located within the Coast Ranges Geomorphic Province. The geology of the San Francisco Bay Area is dominated by the Franciscan Complex, a mixed assemblage of different bedrock types that are layered and have been deformed by tectonic activity. This tectonic activity, which occurred 65 to 165 million years ago during the Cretaceous and Jurassic geologic time periods, folded and faulted the bedrock, creating the regional topography characterized by northwest-trending ridges and valleys on each side of San Francisco Bay. The San Francisco Bay itself and shorelines occupy a basin bounded by faults in the hills and mountains to the east and west. Late Pleistocene and Holocene sediments (less than one million years old) were deposited in the basin as it subsided. The project site is underlain by made land, with sediment in the waters of Mare Island Strait consisting of silt and clays like soft mud.[17]

Seismicity

The San Francisco Bay Area is in a seismically active region near the boundary between two major tectonic plates, the Pacific Plate to the southwest and the North American Plate to the northeast. These two plates move relative to each other in a predominantly lateral manner, with the San Andreas Fault Zone at the junction. The Pacific Plate, on the west side of the fault zone, is moving north relative to the North American Plate on the east. Since approximately 23 million years ago, about 200 miles of right-lateral slip has occurred along the San Andreas Fault Zone to accommodate the relative movement between these two plates.

The major regional active (historic) faults considered likely to produce damaging earthquakes felt in San Francisco are the San Andreas, San Gregorio, Hayward, and Calaveras faults. The nearest earthquake fault to the project site that is zoned as active by the State of California Geological survey and mapped by the CDOC is the West Napa Fault, located approximately 4.5 miles northwest of the project site. The nearest quaternary fault line to the project site is located approximately 0.1-mile to the west. There are no Alquist-Priolo Earthquake Fault Hazard Zones on or near the site.

A review of historic earthquake activity from 1800 to 2005 indicates that thirteen earthquakes of magnitude M 6.0 or greater have occurred in Bay Area during this time frame. The two most consequential were the earthquakes of April 18, 1906, and October 17, 1989. The U.S. Geological Survey's 2007 Working Group on California Earthquake Probabilities estimated that there is a 63 percent probability that one or more MW 6.7 or greater earthquakes will occur in the Bay Area in the next 30 years. The probability of a

[17] U.S. Army Corps of Engineers, *Mare Island shipyard Maintenance Dredging* (2008). Available at: https://www.spn.usace.army.mil/Missions/Regulatory/Public-Notices/Article/2303094/spn-2008-00311-mare-island-shipyard-maintenance-dredging/#:~:text=The%20recently%2Ddeposited%20bottom%20sediments,during%20a%20period%20of%20growth. Accessed November 22, 2023.

MW 6.7 or greater earthquake occurring along individual faults was estimated to be 31 percent on the Hayward fault and 21 percent along the San Andreas Fault.[18]

According to information published by ABAG, a magnitude 6.9 earthquake on the Hayward fault is predicted to result in a Modified Mercalli Intensity of X, which is defined as very violent ground shaking that can result in extreme damage.[19]

Geologic Hazards

Soils at the project site exhibit moderate to high liquefaction and expansive soil characteristics. The Bay Mud deposits, in particular, are generally weak, compressible, and highly liquefiable. Combined with shallow groundwater, the combination of these factors makes the project site susceptible to soil instability due to settlement, lurching, lateral spreading, subsidence, and shoreline slope failures. However, the project site is flat; and existing conditions at the terminal have posed no landslide or erosion hazards.

City of Vallejo Propel Vallejo General Plan 2040 lists the following goals and policies related to geology and soils:

Policy NBE-5.3: Health and Safety Codes. Enforce development regulations and building code requirements to protect residents, businesses, and employees from flooding, liquefaction, earthquakes, fires, and other hazards.

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less than Significant Impact. Fault rupture can occur along or immediately adjacent to faults during an earthquake. Fault rupture is characterized by ground cracks and displacement which would endanger life and property. Damage is typically limited to areas close to the moving fault. While the project site is located in an area that would be susceptible to very strong ground shaking and lies along the West Napa Fault, the project site is not located within an Alquist-Priolo Earthquake Fault Zone (CDOC, 2023).

The proposed project does not propose the construction of any habitable structures and proposed uses would be consistent with existing uses on the project site. Although the project is not anticipated to be substantially affected by seismic activity, the project would comply with General Plan Nature and Built Environment Element Policy NBE-5.3 which requires enforcement of development regulations and building code requirements to protect from natural disaster.

[18] U.S. Geological Survey, *2007 Working Group on Earthquake Probabilities, The Uniform California Earthquake Rupture Forecast, Version 2 (UCERF 2), U.S. USGS Open File Report 2007-1437* (2008). Available at: http://earthquake.usgs.gov/regional/nca/ucerf/. Accessed November 22, 2023.

[19] Association of Bay Area Governments, *ABAG Earthquake Program* (June 2004), ABAG Earthquake Shaking Scenario, North and South Hayward Earthquake—Magnitude 6.9.

Compliance with General Plan policies and plan check criteria, and other applicable sections of the California Building Code (CBC), would ensure all needed structural designs and other measures would be incorporated to the proposed project prior to the issuance a building permit. Conformance with all applicable building standards as listed and conformance to the design and review process would ensure minimal impacts associated with ground shaking. Impacts would be less than significant, and no mitigation is required.

ii. Strong seismic ground shaking?

Less than Significant Impact. The project site could experience strong seismic groundshaking as a result of an earthquake on the West Napa fault or other regional faults. The design of the project elements will be required to meet applicable County codes and the CBC requirements pertaining to seismic safety. This will address pile design and installation for the passenger landing, fixed pier, gangway, and float. All construction plans and related geotechnical plans and studies would be reviewed by County further ensuring compliance with all building standards. No new occupied structures will be constructed as part of the project; therefore, risks to people and property would not be substantial. Impacts would be less than significant, and no mitigation is required.

iii. Seismic-related ground failure, including liquefaction?

Potentially Significant Unless Mitigation Incorporated. Liquefaction generally occurs as a “quicksand” type of ground failure caused by strong ground shaking. The primary factors influencing liquefaction potential include groundwater, soil type, relative density of the sandy soils, confining pressure, and the intensity and duration of ground shaking. Per Map NBE-3 (Liquefaction Potential) of the Vallejo General Plan the liquefaction potential is very high surrounding the proposed project site (City of Vallejo 2016). The project site is underlain by made land, as well underwater sediment consisting of Bay mud and loose clayey silt within Mare Island Strait.

Other than parking lot improvements, landscaping, and enhancement to the Bay Trail amenities, no new structures would be placed on the fill materials at the landside portion of the project site. Therefore, liquefaction or other ground failure would not be a hazard for landside features.

A pile-supported fixed pier and gangway would be installed from the walkway surrounding the existing ferry terminal basin. Approximately 23 to 25 new piles would be installed, consisting of fixed pier supporting piles, guide piles at the floats, and fender piles for the terminal float and fixed pier and gangway platform. The piles would be designed and installed to a depth sufficient to withstand potential ground failure conditions. No occupied structures would be constructed on the pile system that could be damaged by liquefaction or other ground failure.

Although the project is not anticipated to be substantially affected by liquefaction, the project would comply with General Plan Nature and Built Environment Element Policy NBE-5.4 which requires site specific, design-level, geotechnical investigations be undertaken for any development in areas where potentially serious geologic risks exist. Implementation of **Mitigation Measure MM GEO-1** would ensure these requirements are met, and compliance with General Plan policies and other applicable sections of the CBC would be incorporated to the proposed project prior to the issuance a building permit. Conformance with all applicable building standards as listed and conformance to the design and review process would ensure impacts associated with liquefaction would be minimal. Impacts would be less than significant, and no mitigation is required.

iv. *Landslides?*

No Impact. Landslides are mass movements of the ground that include rock falls, relatively shallow slumping and sliding of soil, and deeper rotational or transitional movement of soil or rock. The project site is relatively flat and is not located in an area mapped as an earthquake-induced landslide hazard area (CDOC, 2023). Therefore, there would be no impact, and no mitigation is required.

b) *Result in substantial soil erosion or the loss of topsoil?*

Less than Significant Impact. Other than minor improvements associated with installation of the terminal access point and utilities within the Bay Trail walkway, there would be no other above-grade soil disturbance to implement the project that would result in soil erosion. This area is covered by concrete sidewalks. There is no topsoil at the project site, and there would be no impact related to topsoil loss. The amount of erosion, if any, caused by trail work would not be substantial. The construction contractor will be required to implement a stormwater pollution prevention plan (SWPPP) that identifies erosion control measures. Further, the existing ferry vessel route would not be significantly altered with implementation of the proposed project and would not generate greater amounts of sediment transport along the shoreline than the existing use. Impacts would be less than significant, and no mitigation is required.

c) *Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?*

Less than Significant Impact. The proposed project does not entail significant grading or earthwork that would cause on- or off-site landslides as a result of project implementation. Liquefiable soils and soils exhibiting other characteristics that could make them unstable are present at the project site, but this would not present a hazard because no new landside structures would be placed on those soils. The fixed pier, gangway, and float would be supported on piles to a depth appropriate to withstand liquefaction, weak or compressible soils, or subsidence. The design of the project elements will be required to meet applicable City standards and CBC requirements pertaining to liquefaction, weak or compressible soils, or subsidence. The specific geotechnical features that would be needed to ensure installation and design of these features meets all applicable safety standards would be determined in the site-specific geotechnical report, which must be completed prior to building permit issuance. Impacts would be less than significant, and no mitigation is required.

d) *Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?*

Less than Significant Impact. The proposed new terminal would reconfigure the existing ferry terminal and would consist of a pile-supported fixed pier and gangway leading to a passenger float. The fixed pier and gangway would connect the existing walkway around the ferry terminal basin to the new float. The piles to support the fixed pier and gangway would not be affected by expansive soil properties because they would be continually saturated (i.e., they would not experience drying and wetting conditions that cause soil to shrink and swell). Further, project compliance with the CBC, which provides specifications related to soil compaction and stability, would ensure that project implementation would not result in on- or off-site adverse geologic conditions such as landslide, lateral spreading, subsidence, liquefaction, shrink-swell potential, or collapse such that risks to life or property would occur. Impacts would be less than significant, and no mitigation is required.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. No wastewater systems or septic tanks are proposed as part of the project. There are existing restroom facilities in the Vallejo tourism center building, which are connected to the City of Vallejo wastewater system. The restrooms would be available to ferry passengers. No alternative wastewater systems are proposed. There would be no impact, and no mitigation is required.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant Impact. Paleontological resources are typically found in geologic strata that was deposited during the Pleistocene Epoch which includes the time between 2.6 million years ago until approximately 11,700 years ago. The Holocene Epoch began about 11,700 years ago and consists of younger sedimentary deposits and fossils that are considered less likely to be found. Because the project site has been previously developed with ferry uses and depth of excavation would be consistent with previous site improvements and frequent dredging events, it is unlikely that grading and excavation would inadvertently unearth unknown paleontological resources.

Project construction would involve earthmoving activities associated with installation of new piles that would disturb Bay Mud and other geologically young deposits that are submerged. These activities would be limited to individual, discrete, borings beneath the water and would not involve excavation beyond a dredge event prior to demolition. Although the sediment disturbed by pile removal and installation could contain invertebrate remains of shelled animals, the resources are ubiquitous throughout the Bay Area and are not considered unique or significant paleontological resources. In addition, past dredging and filling activities within the surrounding area of Mare Island Strait would likely have destroyed or compromised the integrity of fossils if they were present. Impacts would be less than significant, and no mitigation is required.

Mitigation Measures

MM GEO-1 **Design Level Geotechnical Investigation.** Prior to approval of any improvement plans, WETA or the construction contractor shall retain licensed geotechnical engineer to prepare a design-level geotechnical investigation. The design level geotechnical investigation shall include additional subsurface exploration and soil sampling, laboratory testing, and engineering evaluation of conditions on-site. The final report shall present geotechnical engineering conclusions and specific recommendations for site preparation, pile design and installation to achieve compliance with the CBC which would reduce risk associated with seismic hazards such as lateral spreading, subsidence, liquefaction, or collapse. The project plans and specifications shall incorporate all recommendations contained in the geotechnical investigation.

4.8 Greenhouse Gas Emissions

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

Setting

This section describes impacts related to greenhouse gas emissions in the proposed Vallejo Ferry Terminal Reconfiguration project area. A Greenhouse Gas Emissions Assessment for the project was completed by Kimley-Horn in December 2023 (Appendix F).

Greenhouse Gases and Climate Change

Certain gases in the earth's atmosphere classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

The primary GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Examples of fluorinated gases include chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3); however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of GHGs exceeding natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the Earth's climate, known as global climate change or global warming.

GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants (TACs), which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of a GHG molecule is dependent on multiple variables and cannot be pinpointed, more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms of carbon sequestration. Of the total annual human-caused CO_2 emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remains stored in the atmosphere (Intergovernmental Panel on Climate Change, 2013).

Regulatory Framework

Federal

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 (December 2007), among other key measures, requires the following, which would aid in the reduction of national GHG emissions:

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

U.S. Environmental Protection Agency Endangerment Finding

The U.S. Environmental Protection Agency's (EPA) authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Federal Clean Air Act (FCAA) and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, the EPA finalized an endangerment finding in December 2009. Based on scientific evidence, it found that six GHGs (CO2, CH4, N2O, HFCs, PFCs, and SF6) constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing FCAA and the EPA's assessment of the scientific evidence that form the basis for the EPA's regulatory actions.

Federal Vehicle Standards

In response to the U.S. Supreme Court ruling discussed above, Executive Order 13432 was issued in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012 to 2016.

In 2010, an Executive Memorandum was issued directing the Department of Transportation, Department of Energy, U.S. EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the U.S. EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon (mpg) if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021. On January 12, 2017, the U.S. EPA finalized its decision to maintain the current GHG emissions standards for model years 2022–2025 cars and light trucks.

On April 2, 2018, the Administrator signed the Mid-term Evaluation Final Determination which finds that the model year 2022-2025 GHG standards are not appropriate in light of the record before U.S. EPA and, therefore, should be revised. [20]

On March 31, 2022, the NHTSA finalized their Corporate Average Fuel Economy (CAFE) standards for model years 2024 to 2026. The final rule requires an industry-wide fuel average of approximately 49 miles per gallon (mpg) for passenger cars and light trucks in model year 2026 by increasing fuel efficiency by 8 percent annually for model years 2024 and 2025 and 10 percent for model year 2026.[21] The NHTSA estimates that final standards will reduce GHG emissions by approximately 605 million MT of CO_2, 730 thousand MT of CH_4, and 17 thousand MT of N_2O.[22] On September 19, 2019, under the Safer, Affordable, Fuel-Efficient (SAFE) Vehicles Rule, the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHSTA) and the U.S. EPA issued the final "One National Program Rule." The rule states that federal law preempts state and local laws regarding tailpipe GHG emissions standards, zero emissions vehicle mandates, and fuel economy for automobiles and light duty trucks. The rule revokes California's Clean Air Act waiver and preempts California's Advanced Clean Car Regulations.[23,24]

On September 20, 2019, a lawsuit was filed by California and a coalition of 22 other states, and the cities of Los Angeles, New York and Washington, D.C., in the United States District Court for the District of Columbia (Case 1:19-cv-02826) challenging the SAFE Rule and arguing that U.S. EPA lacks the legal authority to withdraw the California waiver. In April 2021, the U.S. EPA announced it would reconsider its previous withdrawal and grant California permission to set more stringent climate requirements for cars

[20] U.S. Environmental Protection Agency, *Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emissions Standards for Model Years 2022-2025,* https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas, accessed December 2023.

[21] NHTSA, *Corporate Average Fuel Economy*, https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy#40466, accessed December 2023.

[22] NHTSA, *Technical Support Document: Final Rulemaking for Model Years 2024-2026 Light-Duty Vehicle Corporate Average Fuel Economy Standards*, March 2022. https://www.nhtsa.gov/sites/nhtsa.gov/files/2022-04/Final-TSD_CAFE-MY-2024-2026.pdf, accessed December 2023.

[23] U.S. Department of Transportation and U.S. EPA, *One National Program Rule on Federal Preemption of State Fuel Economy Standards,* 2019, https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100XI4W.pdf, accessed December 2023.

[24] Southern California Association of Governments. *Final Federal Safer, Affordable, Fuel-Efficient Vehicles Rule Part I (Supplemental Report),* 2019, accessed December 2023.

and SUVs. On March 9, 2022, the U.S. EPA restored California's 2013 waiver to full force, including both its GHG standards and zero-emissions vehicles sales requirements.

State of California

California Air Resources Board

The California Air Resources Board (CARB) is responsible for the coordination and oversight of State and local air pollution control programs in California. Various statewide and local initiatives to reduce California's contribution to GHG emissions have raised awareness about climate change and its potential for severe long-term adverse environmental, social, and economic effects. California is a significant emitter of CO_2e in the world and produced 381 million gross metric tons (MMT) of CO_2e in 2021.[25] The transportation sector is the State's largest emitter of GHGs, followed by industrial operations such as manufacturing and oil and gas extraction.

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation, such as the landmark AB 32 California Global Warming Solutions Act of 2006, was specifically enacted to address GHG emissions. Other legislation, such as Title 24 building efficiency standards and Title 20 appliance energy standards, were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major legislation related to GHG emissions reduction.

Regional

Bay Area Air Quality Management District Thresholds

The Bay Area Air Quality Management District (BAAQMD) is the primary agency responsible for addressing air quality concerns in the San Francisco Bay Area, including the City of Vallejo. BAAQMD also recommends methods for analyzing project-related GHGs in CEQA analyses as well as multiple GHG reduction measures for land use development projects. BAAQMD released its *Justification Report CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans* (BAAQMD Justification Report) in April 2022. BAAQMD Justification Report presents updates to the CEQA GHG thresholds from the 2017 CEQA Guidelines, which were not consistent with the statewide GHG target established by SB 32. The GHG thresholds of significance were updated to consider newer state reduction targets (e.g., SB 32) and plans for eventual carbon neutrality by 2045 (e.g., Executive Order B-55-18 and SB 1279), as well as evolving case law. The BAAQMD Justification Report (and thus the GHG thresholds) was adopted by the Board of Directors on April 20, 2022. In summary, the updated thresholds emphasize:

- Avoiding wasting electricity and developing fossil fuel infrastructure (i.e., natural gas plumbing or appliances) in new buildings that will be in place for decades and thus conflict with carbon neutrality by 2045.
- Compliance with California Green Building Standards Code (CALGreen) Tier 2 EV requirements and per capita VMT reductions consistent with SB 743.
- Consistency with a qualified GHG reduction strategy (also known as a Climate Action Plan).

[25] California Air Resources Board, *Current California GHG Emissions Inventory Data, 2000-2020 GHG inventory (2022 Edition)*, https://ww2.arb.ca.gov/ghg-inventory-data, accessed December 2023.

Clean Air Plan

Air quality plans developed to meet federal requirements are referred to as State Implementation Plans. The federal and state Clean Air Acts require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM_{10} standard). The *2017 Clean Air Plan: Spare the Air, Cool the Climate* (2017 Clean Air Plan) was adopted on April 19, 2019, by BAAQMD.

The 2017 Clean Air Plan provides a regional strategy to protect public health and protect the climate. To protect public health, the plan describes how BAAQMD will continue progress toward attaining all state and federal air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities. To protect the climate, the 2017 Clean Air Plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious greenhouse gas (GHG) reduction targets for 2030 and 2050 and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets.

The 2017 Clean Air Plan includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as particulate matter, ozone, and toxic air contaminants; to reduce emissions of methane and other "super-GHGs" that are potent climate pollutants in the near-term; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

Local

City of Vallejo Municipal Code

The City's Municipal Code includes the following regulations that would reduce GHG emissions from future development:

- Green Building Code Adoption (Chapter 12.50.010)
- Water Efficient Landscape Requirements (Chapter 16.504.09)
- Construction and Demolition Debris Recycling Ordinance (Chapter 7.53)

City of Vallejo General Plan 2040

The City of Vallejo General Plan includes resource conservation measures that promote water conservation, energy efficiency, and solid waste reduction. The General Plan includes the following GHG reduction policies, which are applicable to the project.

Policy EET – 4.2: Responsible Development. Favor residential commercial, and industrial development that can mitigate or avoid environmental impacts.

- **Action EET - 4.2C:** Assess how the City's procurement policies and employee commute modes and patterns could contribute to greenhouse gas reductions and offer programs to mitigate potential impacts.

Policy MTC – 1.1: Regional Transit Connections. Enhance regional transit services for residents, employees, and visitors.

- **Action MTC - 1.1A:** Work with regional transportation agencies to coordinate regional transit planning activities, including increased frequency of bus, ferry, and rail service, timed connections, and tourism support.

Policy MTC – 1.2: Transit Ridership. Increase regional transit and ferry ridership to and from Vallejo, particularly by commuters and visitors.

- **Action MTC - 1.2A:** Participate in and contribute to regional programs to improve commute alternatives and efficiency.

City of Vallejo Climate Action Plan

The City of Vallejo's Climate Action Plan (CAP) was first published in August 2012. The CAP identifies policies that would achieve the state-recommended GHG reduction target of 15 percent below 2008 levels by 2020. The CAP provides goals and associated measures, also referred to as reduction measures, in the sectors of energy use, transportation, land use, water, solid waste, and off-road equipment. The CAP includes the following GHG reduction policies, which are applicable to the project.

Transportation Demand Management (TDM): Reduce and consolidate the number of single-occupancy vehicle trips to and from Vallejo by providing attractive alternatives and by requiring co-beneficial land use decisions.

Off-road Equipment (OR): Reduce GHG emissions from off-road equipment in Vallejo.

- **OR-7: Construction Equipment**. Reduce emissions from heavy-duty construction equipment by limiting idling and utilizing cleaner, fuels, equipment, and vehicles.

a) *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Less than Significant Impact.

Construction Greenhouse Gas Emissions

Project construction would result in minor increases in GHG emissions from construction equipment operating on-site and emissions from construction workers' personal vehicle travelling to and from the project construction site. Construction-related GHG emissions vary depending on the level of activity, length of the construction period, specific construction operations, types of equipment, and number of construction workers. Neither the City of Vallejo nor BAAQMD have an adopted threshold of significance for construction-related GHG emissions; however, BAAQMD recommends quantifying emissions and disclosing that GHG emissions would occur during construction. Based on CalEEMod outputs prepared for the proposed project (refer to Appendix F), project construction would generate 308 $MTCO_2e$ for the total construction period (5 months). Because project construction would be a temporary condition (a total of 5 months) and would not result in a permanent increase in emissions that would interfere with the implementation of the State's GHG reduction goals (established by AB 32, SB 32, AB 1279, etc.), the temporary increase in emissions would be less than significant. Impacts would be less than significant and no mitigation is required.

Operational Greenhouse Gas Emissions

As mentioned previously, the project would construct an extended ferry terminal with a new reconfigured fixed pier, gangway, passenger float, and piles. The project does not propose any new sources of GHG emissions and would provide improved terminal operations and reduced dredging impacts. The project would not generate any additional traffic and population growth. Therefore, the operation of the project would not generate any new GHG emissions. Impacts would be less than significant, and no mitigation is required.

b) *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

Less than Significant Impact.

BAAQMD Project Design Elements

As mentioned previously, the Vallejo CAP would not be applicable as it does not analyze the 2030 GHG targets established by SB 32. Thus, the project is evaluated against the BAAQMD Project Design Elements listed above in Section 4.1.

According to the BAAQMD a cumulatively considerable impact would occur if a project includes any natural gas appliances or plumbing, or a project results in any wasteful, inefficient, or unnecessary energy usage. The project would replace the existing ferry terminal with an extended ferry terminal that consists of a new reconfigured fixed pier, gangway, passenger float, and piles. The project would not include any natural gas appliances or plumbing. Further, as mentioned in Section 4.6 Energy of the project's Initial Study, the project would not permanently increase energy usage requirements in the County and would not be wasteful, inefficient, or unnecessary with its energy demands. Thus, the project would be consistent with both project design elements.

The BAAQMD also requires projects to achieve a VMT reduction and comply with electric vehicle requirements listed in the most recent version of CalGreen Tier 2 to show a less than cumulatively significant impact. The project would replace an existing ferry terminal and would not result in additional trips to the project vicinity or increase VMT. Further, the project would not be subject to parking requirements as it is replacing an existing ferry terminal. Thus, the BAAQMD Project Design Elements would not be applicable to the project.

As demonstrated above, the project would be consistent with the applicable BAAQMD Project Design Elements and would, therefore, be consistent with the BAAQMD GHG thresholds. Thus, the project would have a less than cumulatively considerable impact to global climate change. Impacts would be less than significant, and no mitigation is required.

City of Vallejo CAP

The project would be consistent with all applicable measures in the Vallejo CAP. The project would improve the efficiency of an alternative form of transportation which would promote the usage of an alternative form of commute. Further, as mentioned in the *Vallejo Ferry Terminal Reconfiguration Project Air Quality Assessment*, the project would also implement the BAAQMD's basic control measures and would adhere to the BAAQMD idling requirements for heavy-duty construction equipment. The project would not impede any of the other measures outlined in the Vallejo CAP. Thus, the project would not conflict with the Vallejo CAP. Impacts would be less than significant and no mitigation is required.

2022 CARB Scoping Plan

As previously noted, the 2022 Scoping Plan sets a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels by 2045 in accordance with AB 1279. The transportation, electricity, and industrial sectors are the largest GHG contributors in the State. The 2022 Scoping Plan plans to achieve the AB 1279 targets primarily through zero-emission transportation (e.g., electrifying cars, buses, trains, and trucks). Additional GHG reductions are achieved through decarbonizing the electricity and industrial sectors.

The project would implement the Best Management Practices (BMPs) included in the *Air Quality Assessment* during construction. For example, a few of the construction measures include enforcing idling time restrictions on construction vehicles, use of added exhaust muffling and filtering devices, replant vegetation in disturbed areas as quickly as possible, and posting a publicly visible sign with the telephone number and person at the lead agency to contact regarding dust complaints.

The project would not produce any new operational GHG emissions and would improve ferry terminal operations. Thus, the project would not impede the State's progress towards carbon neutrality by 2045 under the 2022 Scoping Plan. The project would be required to comply with applicable current and future regulatory requirements promulgated through the 2022 Scoping Plan. Impacts would be less than significant, and no mitigation is required.

Plan Bay Area

The project would be consistent with the overall goals of Plan Bay Area 2050 to provide housing, healthy and safe communities, and climate protection with an overall goal to reduce VMT. As noted above, the project would develop the project site consistent with the General Plan Land Use Designation and the Vallejo Climate Action Plan. The project would add some not add any additional employment, trips related to employees that work directly at the project site. The project would provide improved operations of an alternative form of transportation. Thus, implementation of the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would be less than significant, and no mitigation is required.

Summary

As discussed above, implementation of the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The project would improve the efficiency of a ferry terminal and would not result in operational GHG emissions. Further, the project would adhere to the applicable BAAQMD Project Design Element requirements and would not impede the implementation of any plans listed above. Thus, this impact would be less than significant, and no mitigation is required.

<u>Cumulative Impacts</u>

Cumulative Setting

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately one day), GHGs have much longer atmospheric lifetimes of one year to several thousand years that allow them to be dispersed around the globe.

Cumulative Impacts

It is generally the case that an individual project of the project's size and nature is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. The additive effect of project-related GHG emissions would not result in a reasonably foreseeable cumulatively considerable contribution to global climate change. In addition, the project as well as other cumulative related projects, would be subject to all applicable regulatory requirements, which would further reduce GHG emissions. As discussed in the GHG-2 discussion above, the project would be consistent with the Vallejo CAP and the State's goals of reducing GHG levels. Thus, the project would not conflict with any GHG reduction plan. Therefore, the project's cumulative contribution of GHG emissions would be less than significant and the project's cumulative GHG impacts would also be less than cumulatively considerable. Impacts would be less than significant, and no mitigation is required.

4.9 Hazards and Hazardous Materials

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			X	

Setting

Hazardous Material Use

Hazardous materials are routinely used, stored, and transported in the City of Vallejo and are associated with industrial and commercial/retail businesses, as well as in educational facilities, hospitals, and households. Hazardous materials use is generally in proportion to the mix and types of land uses in an area. According to the Vallejo General Plan, approximately 2713 percent of the acreage within the City of Vallejo consists of commercial and industrial land uses. Commercial uses in Vallejo include local-serving retail businesses located along mixed-use corridors and region-serving businesses located in the Downtown and Waterfront areas. Vallejo's industrial past is reflected in the large amount of land dedicated to commercial and industrial uses. Within the City limits are multiple manufacturing, assembly, and warehousing businesses, research and development facilities, and naval shipyards.

The hazardous materials that are found in the City of Vallejo may be stored in small quantities in buildings and structures, in aboveground storage tanks (ASTs), underground storage tanks (USTs), drums, and other types of containers. Typically, USTs are used by businesses, such as gasoline stations. Oil refineries handle, store, and process large quantities of flammable materials and acutely toxic substances. Processing, transportation, and transfer operations are the primary activities that have the potential for posing a human health and environmental risk of hazardous materials releases.

Project Site

The proposed terminal site is located along the eastern bank of Mare Island Strait; approximately 0.2 mile west of the Vallejo downtown core. The proposed project would be at the site of the existing ferry terminal, within the ferry terminal basin off of Mare Island Way. Additional uses along Mare Island Strait include WETASWETA's North Bay Operations and Maintenance Facility, various shipyards, the Vallejo Marina, the Barbara Kondylis Waterfront Green, and industrial yards.

Sediment Quality

As described above, the project area is characterized by industrial and commercial uses. The project site is located along Mare Island Strait, which was historically a site for a U.S. Naval shipyard. As such, the potential for industrial contaminants to be present in the Bay sediment within the channel of water is high. Mare Island Strait is not identified as a toxic hot spot for any hazardous materials by the State Water Resources Control Board (SWRCB).

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant Impact. The project site would not accommodate hazardous materials, and fueling and maintenance of vessels would occur off site. Operation of the proposed project would be limited to the docking, loading and unloading of vessels. The existing ferry route would not be significantly altered beyond berthing procedures and the ferry route would not involve the routine transport of hazardous materials from the project site to the Downtown San Francisco Ferry Terminal. The proposed project would not involve the disposal of hazardous materials at the project site. Therefore, impacts would be less than significant, and no mitigation is required.

b) *Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

Less than Significant Impact. The proposed project would involve installation of a new fixed pier, gangway, float, and piles to replace the existing terminal components. The existing fixed pier, gangway, and float would be removed, but no building or structures would be demolished. In general, ground disturbing activities would be minimal. The proposed project would require a dredge event before construction of the proposed project, removal of approximately 16 existing piles as well as the placement of approximately 23 to 25 new piles.

The dredge event as well as the removal of existing piles could result in the disturbance of sediments in the project area. However, the dredge event would be consistent with the existing biennial dredging that currently takes place within the ferry terminal basin, and would not introduce new hazardous materials through the dredging to the sediment in Mare Island Strait. Further, increased turbidity is not a typical concern when installing or removing piles. In general, pile removal and installation of new features have little effect on bottom sediment disturbance and, therefore, it is unlikely that the proposed project would have cause a significant hazard to the public or the environment through the mobilization of contaminated sediment. Dredging activities will be required to meet the water quality performance standards required by the USFWS and the RWCB before approval from BCDC and USACE. The proposed project would incorporate conditions regarding disturbance of sediment and introduction of hazardous materials to ensure water quality is maintained. Impacts related to sediment disturbance would be less than significant.

In addition, Kimley-Horn and Associates, Inc. reviewed information from Department of Toxic Substances Control (DTSC)'s Envirostor website and the State Water Resources Control Board's Geotracker website to obtain an understanding of any releases of regulated substances or petroleum products that occurred on or near the project site. The searches did not identify any open hazardous release sites within areas of project improvements that would have an adverse environmental impact.[26][27] The closest is a completed and closed LUST Cleanup site at 400 Santa Clara Street. This Cleanup site has been closed as of 1996 and therefore would not result in the release of a hazardous material due to the project. Project operations would not require use of hazardous materials. Therefore, project implementation would not create significant hazard

[26] California, State of, *State Water Resources Control Board*. Available at: http://geotracker.waterboards.ca.gov/

[27] California, State of, *Department of Toxic Substances Control, DTSC's Envirostor Tool*. Available at: http://www.envirostor.dtsc.ca.gov/public/ Accessed: September 28, 2023.

through upset or accident conditions involving release of hazardous materials. Impacts would be less than significant, and no mitigation is required.

c) *Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

Less than Significant Impact. There are two schools within 0.25 mile of the project site – Immersive Learning Center, located .22 miles to the east on Georgia Street, and Pathways Charter School, located .25 miles to the east on Georgia Street. As discussed above, the project is not associated with the routine transport or use of hazardous materials. Project construction would result in limited dust and emissions from equipment operations, however, would not be of the scale to impact surrounding schools. Therefore, the proposed project would not emit hazardous emissions or handle hazardous materials, substances, or waste within one-quarter mile of a school. Impacts would be less than significant, and no mitigation is required.

d) *Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

No Impact. Government Code Section 65962.5 refers to the Hazardous Waste and Substances Site List, commonly known as the Cortese List. The Cortese list contains hazardous waste and substance sites including public drinking water wells with detectable levels of contamination, sites with known underground storage tanks (USTs) having a reportable release, solid waste disposal facilities from which there is a known migration, hazardous substance sites selected for remedial action, historic Cortese sites, and sites with known toxic material identified through the abandoned site assessment program. The project site is not included on the hazardous sites list compiled pursuant to California Government Code Section 65962.5.[28] Therefore, the project would have no impact, and no mitigation is required.

e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?*

No Impact. The project site is not located within two miles of a public airport or private airstrip. The project site is located approximately 7.5 miles south of Napa County Airport, the closest airport. The project site is not located within the safety zones for the airport as shown in the Napa County Airport Land Use Compatibility Plan. Further, the proposed project would not construct structures that would be occupied by residents or workers. Therefore, the proposed project would not result in a safety hazard or excessive noise for people in the project area. There would be no impact, and no mitigation is required.

f) *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

[28] California Department of Toxic Substances Control, DTSC's Hazardous Waste and Substances Site List - Site Cleanup (Cortese List) (2022). Retrieved from https://dtsc.ca.gov/dtscs-cortese-list/. Accessed September 28, 2023

Less than Significant Impact. Implementation of the project would not impair or physically interfere with an adopted emergency response or evacuation plan. The City of Vallejo Emergency Operations Plan (EOP) was prepared by the City of Vallejo to outline policies and procedures and assign responsibilities to ensure the effective management of emergency operations. The EOP outlines the overall organizational and operational concepts in relation to response and recovery and includes the roles and responsibilities of the various committees and agencies during an emergency, and the activation and execution procedures of the emergency response system.

No revisions to the EOP would be required as a result of the proposed project. Ferry service would be maintained during construction of the proposed project with the use of a temporary terminal that has been previously utilized. During construction of the project, there may be a need for temporary lane closures along project roadways. However, traffic lanes in each direction would remain open and if necessary, detours would be provided to maintain vehicular access. Therefore, impacts would be less than significant, and no mitigation is required.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less than Significant Impact. CAL FIRE identifies Fire Hazard Severity Zones (FHSZ) and designates State or Local Responsibility Areas (SRA/LRA) within the state of California. New developments located in Very High Fire Hazard Severity Zones (VHFHSZ) are required to comply with exterior wildfire design and construction codes as well as vegetation clearance and other wildland fire safety practices for structures. The project site is mapped as a non-VHFHSZ. The project site is not located within or adjacent to a VHFHSZ. See Section 4.20 Wildfire.

The proposed project would reconfigure an existing ferry terminal in Vallejo. The proposed project would not include structures that would expose residents or workers to hazards associated with wildland fires. Further, the proposed project is not located in a VHFHSZ. Therefore, impacts would be less than significant, and no mitigation is required.

4.10 Hydrology and Water Quality

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. Result in substantial erosion or siltation on- or off-site?			X	
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?				X
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?				X
iv. Impede or redirect flood flows?				X
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			X	

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			X	

Setting

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

The project site is located in the eastern portion of the North Bay of the San Francisco Bay Estuary, also known as the San Pablo Bay. The San Pablo Bay Watershed is approximately 900 square miles and is the drainage area of the major creeks and streams that flow into San Pablo Bay. The watershed is part of the San Francisco Bay-Delta Estuary, which drains more than 40 percent of California's surface area. The San Pablo Bay Watershed is among the richest ecosystems in the West and has the largest untouched expanse of tidal wetlands in California. The Estuary is influenced by both freshwater and marine water. The Estuary receives freshwater inflow from a combination of natural creeks, human-made stormwater drainage facilities, and direct surface runoff. The project site lies adjacent to Mare Island Strait, which connects the mouth of the Napa River to the north to the Carquinez Strait and the San Pablo Bay to the south. Mare Island Strait has a projected average depth of 30 feet and an approximate depth of 60 feet at the mouth of the ferry terminal basin.[29] Sediment from the shoreline of Vallejo and Mare Island is carried by the tidal current and movement of ships in the strait to shoals and sandbars, causing siltation of the channels that periodically may require dredging.

Regulatory Framework

Federal

Clean Water Act

The Clean Water Act (CWA) (33 U.S.C. Section 1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the Waters of the U.S. The CWA establishes the basic structure for regulating discharges of pollutants into the "Waters of the U.S." and has given the U.S. Environmental Protection

[29] National Oceanic and Atmospheric Administration, Mare Island Strait BookletChart. Available at: https://www.charts.noaa.gov/BookletChart/18655_BookletChart.pdf. Accessed December 15, 2023.

Agency (U.S. EPA) the authority to implement pollution control programs. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402).

Clean Water Act Section 404

Section 404 of the CWA (33 U.S.C. 1251 et seq.) requires a permit from the Corps for the discharge of dredged or fill material into "Waters of the U.S.," which include rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3(c)(1)). The limits of non-tidal waters extend to the Ordinary High Water Mark (OHWM) or to the limit of adjacent wetlands. The U.S. EPA also has authority over certain wetlands and may veto a Corps permit under CWA Section 404(c). In the event maintenance dredging is needed, those activities would be regulated under Sections 401 and 404.

State

Porter-Cologne Water Quality Control Act

SWRCB regulates water quality through the Porter-Cologne Water Quality Act of 1969, which contains a complete framework for the regulation of waste discharges to both surface waters and groundwater of the State. Under Subchapter 15, wastes that cannot be discharged directly or indirectly to waters of the state (and therefore must be discharged to land for treatment, storage, or disposal) are classified to determine specifically where such wastes may be discharged. This classification requirement would apply to dredged material or fill, if any, that would be disposed of in an upland environment.

Regional and Local

RWQCB Water Quality Control Plan

Regional authority for planning, permitting, and enforcement in California is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. As previously stated, the City of Vallejo is within the jurisdiction of the San Francisco Bay RWQCB (Region 2).

The San Francisco Bay RWQCB addresses region-wide water quality issues through the creation of the Water Quality Control Plan for San Francisco Bay Basin (Basin Plan). This Basin Plan designates beneficial uses of the State waters within Region 2; describes the water quality that must be maintained to support such uses; and provides programs, projects, and other actions necessary to achieve the standards established in the Basin Plan. The Water Quality Control Policy for the Enclosed Bays and Estuaries of California, as adopted by the SWRCB in 1995, also provides water quality principles and guidelines to prevent water quality degradation and protect the beneficial uses of waters of enclosed bays and estuaries.

San Francisco Bay Conservation and Development Commission

BCDC is responsible for implementing the McAteer-Petris Act (PRC Sections 66600 et seq.). The Act directs BCDC to exercise its authority to issue or deny permit applications for placing fill, extracting minerals, or changing the use of any land, water, or structure within the area of its jurisdiction (San Francisco Bay waters and a 100-foot-wide shoreline band inland from the high tide line). BCDC also carries out determinations of consistency with the Federal Coastal Zone Protection Act for federally sponsored projects. It also specifies no creosote-treated wood pilings or other structures may be placed in any area subject to tidal action.

a) *Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?*

Less than Significant Impact. The applicable water quality standards for the portion of the Bay where the proposed project is situated are set forth in the Basin Plan, which is administered by the San Francisco RWQCB. The major waterside construction activities would include replacement of existing terminal structures as well as removal and installation of new piles. During construction activities, installation of piles could mobilize underwater sediments into the water column. Any activity involving the use of construction products and heavy equipment could also result in the incidental release of construction materials (e.g., sawdust, metal fragments, concrete), or the accidental spill of construction materials (e.g., paints and solvents) or substances commonly used in construction equipment (e.g., fuels, oil, grease). Compliance with applicable water quality regulations would reduce the potential for waterside activities to violate water quality standards. Additionally, implementation of Construction Best Management Practices (BMPs) for maintenance of water quality, including use of silt curtains, working at low tide, and containing and collecting solid debris, would further reduce potential impacts to water quality. With compliance of BMPs for underwater construction, impacts would be less than significant, and no mitigation is required. The following BMPs would be implemented for this project:

1. Seasonal work period: All work will be limited to the environmental work window between August 1 and November 30 each year.
2. Containment of Contaminants: Debris, soil, silt, bark, rubbish, creosote-treated wood, raw concrete or washings, asphalt, paint or coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic life, resulting from project related activities, shall be prevented from contaminating the soil or entering the channel.
3. Staging Equipment, Operating Equipment, and Materials Leak. Staging and storage areas for equipment, materials, fuels, lubricants, and solvents shall be located at least 150 feet away from the channel. Stationary equipment such as motors, pumps, generators, compressors, and welders located within or adjacent to the channel shall be positioned over drip-pans, or similar. Any equipment or vehicles driven and/or operated within or adjacent to the channel shall be inspected and maintained daily to prevent leads of deleterious materials into the channel. Vehicles and equipment shall be moved at least 150 feet away from the channel prior to refueling and/or lubrication.
4. Work Area. Buoys shall be used to identify the agreed limits of disturbance within the Mare Island Strait. All buoys shall be completely removed from the project site and properly disposed of upon completion of project activities.
5. Work Site Access. Access to the work site shall be via existing roads and access ramps.
6. Pile Driving – Equipment. Permittee shall install piles using a vibratory hammer only.
7. Noise and Vibration Reduction. If SPL and SEL thresholds may be exceeded, the Contractor shall furnish, install, operate, and maintain a sound attenuation system to reduce noise generated by

impact driving piles into the river. A design of the attenuation system shall be submitted to the relevant agencies for written approval 14 days prior to initiation of construction (i.e., isolation casings, confined bubble curtain, unconfined bubble curtain, wood pile cushions). The system must be operating prior to beginning pile driving activity at any given in-river pile location, or at piles within a reasonable dispersal distance of the water where it is feasible for injurious sound levels to reach the water. If the attenuation system fails, pile driving shall immediately stop and may not resume at the location until the system is put back into operation.

8. Soft Start Pile Driving. The initial strikes of all in-water piles, or piles that occur within a distance in which injurious sound levels to aquatic species could reach the water shall occur at less than full impact force for a period of 15 seconds followed by 30 seconds of no activity. This action shall be repeated two additional times and impact shall be gradually brought up to full force blows to allow aquatic species adequate time to leave the project area.
9. A biological monitor shall be assigned to the project to conduct biological surveys and/or monitor work. The monitor shall be present during all pile driving activities.
10. An educational training session shall be held for all persons employed on the project prior to performing the work.
11. No Dumping. Permittee and all contractors, subcontractors, and employees shall not dump any litter or construction debris within the river, or where it may pass into the river.
12. The Contractor shall pick up all debris and waste daily.
13. Water containing mud, silt, or other pollutants from equipment washing or other activities shall not be allowed to enter a lake, river, or river.
14. Toxic Materials. Any hazardous or toxic materials that could be deleterious to aquatic life and that could be washed into the river or its tributaries shall be contained in water-tight containers or removed from the project area.
15. Spill Containment. All activities shall have absorbent materials designated for spill containment and cleanup activities on site for use in an accidental spill. Prior to entering the work site, all field personnel shall know the location of spill kits and be trained in their appropriate use.
16. Contractor shall submit a Solid Debris Management Plan which at a minimum includes the following: source and type of expected debris, debris retrieval method, disposal method and site, schedule of disposal operations, debris containment method, if floatable debris is involved.

During landside activities, including rerouting utility connections and removal/replacement of the bridge structure, spills from construction products and leaks from the equipment have the potential to enter stormwater that flows across the site toward the Bay. Stormwater runoff would be controlled through best management practices outlined in Title 24, Part 11, of the CALGreen Code, which would be required through project implementation. Impacts would be less than significant, and no mitigation is required.

b) *Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?*

Less than Significant Impact. The project involves replacement and upgrades to the existing Vallejo Ferry Terminal within Mare Island Strait in the San Francisco Bay. No groundwater is expected to be encountered during construction activities because construction activities would largely take place along the shoreline of the strait, rather than landside. The project site is currently developed with landside impervious surfaces. Refurbishment of the existing Vallejo Ferry Terminal would not substantially alter impervious surfaces because most of the project structures would be located within the water. Therefore, the project would not interfere with nor adversely affect groundwater supplies or recharge. Impacts would be less than significant, and no mitigation is required.

c) *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:*

i. *Result in substantial erosion or siltation on- or off-site?*

Less than Significant Impact. As previously discussed, project construction activities involving reconfiguration and replacement of structures and installation of piles would primarily occur within the shoreline (waterside) portion of the project. Landside components include minor utility modifications, the bridge structure, and installation of new piles to support it. Installation of landside components and construction are not anticipated to result in a significant temporary or permanent modification the shoreline such that it could be susceptible to erosion or cause siltation. Further, the project would comply with BMPs set forth in Title 24 of the CALGreen code intended to reduce or eliminate the potential for project-related impacts such as erosion or siltation that would otherwise degrade local water quality. As such, the project would not substantively alter the existing drainage pattern on land. Impacts would be less than significant, and no mitigation is required.

Project operations would not change from the existing uses of the ferry terminal, and implementation of the proposed project would reduce the need for frequent dredging events that mobilize underwater sediments into the water column. Dredging frequency is reduce by extending the ferry terminal to a position located out of the basin and closer to the main channel of the river. With the gangway and float located closer to the main current of the river, sedimentation associated with the ferry activity would be carried downstream in the current rather than settle in the basin. Implementation of the project would significantly reduce the siltation around the terminal and reduce the frequency for regular dredging. The duration between dredge events will likely increase to at least 20 years, thus reducing the need for scheduled disrupting activities. As a result, no impacts to water quality would occur as a result of project operation. Impacts would be less than significant, and no mitigation is required.

ii. *Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?*

No Impact. Project implementation would include reconfiguration and replacement to structures at the existing ferry terminal in addition to minor utility modifications and updates. Structures to be replaced are located primarily on-site waterside, within Mare Island Strait and existing ferry terminal basin. No new permanent impermeable surfaces would be introduced within the project site such that increased surface water/runoff would result during a rain or storm event. No increase in- on or off-site flooding is anticipated. There would be no impact and no mitigation is required.

iii. *Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*

No Impact. As described above, project implementation would not result in new, permanent impermeable surfaces that would change stormwater peak flows, volumes, or result in changes in stormwater quality compared to existing conditions. Replacement and reconfiguration of terminal structures and installation of piles would occur within Mare Island Strait and existing ferry terminal basin and would not contribute flows to a stormwater drainage system. There would be no impact and no mitigation would be required.

iv. *Impede or redirect flood flows?*

No Impact. As described above, the landside of the project site is located in a special flood hazard area (Zone AE), or areas with a 1 percent annual chance of flooding. The shoreside is located within the existing Vallejo Ferry Terminal basin along Mare Island Strait. Upgrades and replacement of existing terminal structures would have no effect on tidal flooding that could redirect or impede flood flows landside of the terminal because the project would not introduce new structure differing from the existing terminal, and not involve placement of fill or create barriers to flow. There would be no impact and no mitigation is required.

d) *In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?*

Less than Significant Impact. See criterion (c-iv) for discussion regarding flood hazards. Portions of San Francisco Bay are susceptible to tsunami hazard. However, the proposed project would not involve any occupancy of permanent structures that could be damaged by tsunami. The terminal structure, although modified and reconfigured as part of the project, could be subject to flooding by tsunami. Tsunami-induced flooding at the site could damage the terminal features or a vessel temporarily moored there as part of regular service, but people would not be exposed to any risk because evacuation procedures implemented by WETA and the City of Vallejo would ensure populations at risk would not be present. Seiche historically has not resulted in substantial flooding or damage in the San Francisco Bay Area. Given that marine elements can be readily replaced and that landside elements are above the predicted inundation level, potential risks related to release of pollutants is low. Impacts would be less than significant, and no mitigation is required.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant Impact. Implementation of the project would not involve the use of groundwater. Earthmoving activities associated with project construction would consist of installation of new piles to support replacement of terminal structures and would occur within Mare Island Strait or existing ferry terminal basin. Project construction activities would implement both land side and in-water BMPs intended to reduce water quality impacts (e.g., erosion and siltation control) consistent with the requirements of the San Francisco RWQCB. The project does not propose or require any amendments to a water quality plan. Therefore, the project would not conflict with or obstruct a water quality control plan or groundwater management plan. Impacts would be less than significant, and no mitigation is required.

4.11 Land Use and Planning

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?			X	
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?			X	

Setting

The project site is located on Mare Island Strait adjacent to the Downtown-Waterfront neighborhood, which is in the western part of the City. This area is bound by Interstate 80 (I-80) to the west, the San Pablo Bay to the east, the Carquinez Strait to the south, and CA-37 to the north. Mixed-use commercial and office buildings characterize the Waterfront area.

City of Vallejo General Plan land use designations at the project site include Parks, Recreation, and Open Space. Adjacent land use designations include Public Facilities and Institutions as well as the Downtown/Waterfront Mixed Use District overlay. The Downtown/Waterfront Mixed Use District is envisioned by the City of Vallejo General Plan as a vibrant, pedestrian-oriented district that would seamlessly integrate downtown with the waterfront area, providing easy access to a mix of uses and creating a destination for people to visit from other parts of the region.

The majority of the project site falls within the Waterfront Planned Development Master Plan area, which aims to revitalize the Vallejo Waterfront and create a pedestrian and transit-friendly neighborhood with high density commercial, office, and residential units. The proposed project site is currently zoned as Waterfront Mixed-Use, a zoning district that "intended to create and establish regulations for a waterfront mixed-use district that will allow waterfront shopping and services, and other activities." The project site is not within a Port Priority Use Area, as designated by the San Francisco Bay Area Seaport Plan.

Additional Applicable Plans

BCDC Bay Plan and Public Access Design Guidelines

BCDC has jurisdictional authority over the Bay, the 100-foot-wide shoreline band surrounding the Bay, salt ponds, managed wetlands, and certain waterways as defined in the San Francisco Bay Plan. BCDC has permitting authority for development within the 100-foot shoreline band and is also responsible for issuing Bay filling and dredging permits. The grounds on which development applications are approved or denied are outlined in the San Francisco Bay Plan.

The San Francisco Bay Plan was completed and adopted by BCDC in 1968 and submitted to the California State Legislature in 1969. The Legislature acted upon BCDC's recommendations in the Bay Plan and revised the McAteer-Petris Act by designating BCDC as the agency responsible for maintaining and carrying out the provisions of the Act and the Bay Plan for the protection of the Bay and its natural resources, as well as the development of the Bay and shoreline. The McAteer-Petris Act directs BCDC to exercise its authority to issue or deny permit applications for placing fill, extracting materials, or changing the use of any land, water, or structure within the area of its jurisdiction.

The latest amendment to the Bay Plan was adopted in October 2019 (Resolution 11-08), which added policies acknowledging and incorporating social justice and social equity. It also implemented further policies pertaining to safety of fills and protection of habitat. The purpose of the BCDC Public Access Design Guidelines for the San Francisco Bay is to provide the Bay region with a design resource for development projects along the shoreline of the Bay. These guidelines provide suggestions for site planning, as well as recommendations for designing and developing attractive and usable public access areas. The guidelines are not legally enforceable standards, but are an advisory set of design principles aimed at enhancing shoreline access while providing for the protection of Bay resources, regional livability, and local economic prosperity.

The guidelines are general in scope due to the varied conditions of the shoreline and the numerous uses that occur along the Bay. They are applicable to all development projects within BCDC's jurisdiction and are intended to complement the guidelines and design standards of the local municipalities within the region. Although the Public Access Design Guidelines are advisory, they have been adopted by BCDC and are based on San Francisco Bay Plan policies. The guidelines also reflect past recommendations of BCDC's Design Review Board and formal decisions of the BCDC.[30]

ABAG Bay Trail Plan

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

The Bay Trail Plan is envisioned to be a continuous 500-mile public corridor along the Bay Area's shoreline containing recreational, environmental education, and nonmotorized transportation opportunities, 310 miles of which are complete (approximately 60 percent of the ultimate length). When complete, it would cross all counties and major toll bridges in the Bay Area. The Bay Trail Plan contains five categories of policies to guide selections of the trail route and implementation of the trail system: trail alignment, trail design, environmental protection, transportation access, and implementation policies. Bay Trail policies

[30] San Francisco Bay Conservation and Development Commission, *San Francisco Bay Plan*. Available at: https://www.bcdc.ca.gov/plans/sfbay_plan.html. Accessed November 27, 2023.

and design guidelines are intended to complement, rather than supplant the adopted regulations and guidelines of local management agencies. Policies relevant to the proposed project include: ensuring a continuous trail around the Bay, locating the trail close to the shoreline, and providing easy access to trail users, safe trails, and trail-related amenities.

The Vallejo sections of the Bay Trail run along the shoreline wherever physically feasible. Segments to fill gaps between trail sections in Vallejo are currently being planned, as well as an extension of the trail through South Vallejo. The Bay Trail, in the vicinity of the project site, extends around the ferry terminal basin, extending up and down Mare Island Strait shoreline from the Mare Island Bridge to the southern end of Independence Park.[31]

a) Physically divide an established community?

Less than Significant Impact. The proposed project would not divide an established community. The project site is located in an area that is characterized by mixed-use commercial buildings and ferry terminal uses. The project site is currently developed with an existing ferry terminal, including a fixed pier, gangway, and float structure in the ferry basin area. Although the proposed project would replace the existing ferry terminal with a new larger, reconfigured ferry terminal, and would potentially make minor improvements to the surrounding area, implementation of the proposed project would not significantly alter existing or permitted uses and would replace the existing use with a similar use. In addition, while the ferry basin area is physically separated from the downtown neighborhood to the west and residential neighborhoods to the north and south along Mare Island Way, pedestrian, bicycle, and vehicular connections are available. The proposed project would not alter these connections or create new barriers. There would be no impact, and no mitigation is required.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less than Significant Impact. The key planning documents that are directly related to, or that establish a framework for the development of the proposed project include the City of Vallejo General Plan and Zoning Ordinance, the Vallejo Waterfront Planned Development Master Plan, the San Francisco Bay Conservation and Development Commission (BCDC) Plan, and the Association of Bay Area Governments (ABAG) Bay Trail Plan.

No General Plan land use or zoning designation change is expected as a result of the proposed project. As such, the proposed project would be consistent with existing land use designations and zoning. One of the Nature and Built Environment goals of the Vallejo General Plan (NBE-4.2) is to activate waterfront open spaces adjacent to downtown Vallejo. While the proposed project would reconfigure a ferry terminal to help bring visitors to this area and thus continue to provide access to the City, no changes in the existing ferry service provided would occur as a result of project implementation. As stated in Policies MTC-1 and -2, the General Plan supports the use of the ferry terminal in its existing location and seeks to enhance service and increase ridership. Providing fast

[31] Association of Bay Area Governments, *San Francisco Bay Trail Plan*. Available at: https://abag.ca.gov/our-work/projects/san-francisco-bay-trail. Accessed November 27, 2023.

and efficient transit to San Francisco via the reconfigured ferry terminal would provide a focus for transit-oriented development and support use of the waterfront open spaces, all of which would support the goals and policies of the General Plan. Further, the proposed project would also conserve, protect, and enhance natural and cultural resources along Mare Island Strait. In compliance with Policy NBE-4.1, the proposed project would protect these natural areas and minimize adverse effects. As such, the proposed project would be generally consistent with the General Plan, resulting in less-than-significant impacts.

Within the BCDC Plan, Transportation Policy 5 states that ferry terminals should be sited at locations that are near navigable channels, which would not rapidly fill with sediment, and would not significantly impact tidal marches, tidal flats, or other valuable wildlife habitat. The proposed project would require minor dredging for installation of the passenger float and significantly less ongoing maintenance dredging in an area that currently undergoes frequent dredging for ferry terminal operations. Implementation of a reconfigured ferry terminal is consistent with the current use of the site and therefore, would not impact these areas. As such, the project site would be navigable, and the proposed project would be consistent with Transportation Policy 5. Review and approval from BCDC and its Design Review Board is required for development and/or improvements to property within the 100-foot shoreline band. The proposed terminal access point would extend into Mare Island Strait from this 100-foot shoreline band. All public access provided through BCDC's permit process would be planned, designed, constructed, and maintained on the basis of the outlined objectives. The following public access objectives will help the proposed project achieve the BCDC goal of providing maximum feasible public access: make public access usable; provide, maintain, and enhance visual access to the shoreline; maintain the visual quality of the shoreline and adjacent developments; provide connections and continuity along the shoreline; take advantage of the Bay setting; and ensure that public access is compatible with wildlife through siting, design, and management strategies.[32] Development of the proposed project would be consistent with the objectives of the BCDC Public Access Design Guidelines. The existing terminal access gate along the Bay Trail would remain in its existing location with implementation of the proposed project. The proposed passenger queuing areas and terminal access gate placement would reduce conflicts with pedestrian users of the Bay Trail by providing a separate area adjacent to the existing Bay Trail for these activities to occur. As such, the proposed project would further the goals of the BCDC Design Guidelines by continuing to provide shoreline access. In addition, most BCDC public access permits include requirements for signage intended to help the public find and use the public access. BCDC provides a guide, the Public Access Signage Guidelines, to develop a comprehensive sign program for required public access areas. WETA would be required to comply with the Public Access Signage Guidelines. As such, the proposed project would result in less-than-significant impacts regarding consistency with the BCDC Public Access Design Guidelines.

Development of the proposed project includes reconfiguring an existing ferry terminal that would extend from existing Bay Trail system, which currently travels along the shoreline around the ferry terminal basin. The proposed project would include new paving, signage, and potentially a new access point for the terminal including queuing. As such, the proposed project would be required

[32] San Francisco Bay Conservation and Development Commission, *Shoreline Spaces: Public Access Design Guidelines for the San Francisco Bay* (April 2005). Available at: https://bcdc.ca.gov/planning/reports/ShorelineSpacesPublicAccessDesignGuidelinesForSFBay_Apr2005.pdf. Accessed November 27, 2023.

to adhere to the ABAG Bay Trail Plan and Design Guidelines. The Bay Trail Plan mandates that the Bay Trail provide connections to existing park and recreation facilities, create links to existing and proposed transportation facilities, and be planned in a way to avoid adverse effects on environmentally sensitive areas. The proposed project would continue to serve as a source of public transportation to and from other regions of the Bay Area and enhance community connections within the Downtown-Waterfront area. Further, any proposed project work that would potentially occur in the right of way of the Bay Trail would adhere to the Bay Trail Plan policies and the plans would be reviewed by the Bay Trail Advisory Committee to ensure compliance. In addition, the proposed project would comply with the Bay Trail Design Guidelines, resulting in less-than-significant impacts regarding consistency with the ABAG Bay Trail Plan and Design Guidelines.

As a result, the proposed project would not result in any conflicts with existing land use policies adopted for the purpose of avoiding or mitigation an environmental effect. Therefore, impacts would be less than significant, and no mitigation is required.

4.12 Mineral Resources

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

Setting

According to the Resources Element of the Solano County General Plan, mineral resources in the County largely consist of mercury, sand and gravel, clay, stone products, calcium, and sulfur.[33] Figure RS-4 of the Solano County General Plan shows no mineral resource zones (MRZs) of significance are within or immediately adjacent to the proposed project site. The nearest mineral extraction site is the Lake Herman Quarry in Vallejo, approximately 4.5 miles west of the proposed project site.

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. The proposed project would be located along the shoreline on the eastern side of Mare Island Strait, and is not located in an MRZ of significance. The proposed project would include only minor ground-disturbing activities along this shoreline area. As described in the setting, mineral production in Solano County has historically been limited to mercury, sand and gravel, clay, stone products, calcium, and sulfur, none of which are present in significant quantities at the project site. The proposed project would not result in the loss of a known mineral resource. There would be no impact, and no mitigation is required.

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. The Surface Mining and Reclamation Act of 1975 (SMARA) requires classification of land into MRZs according to the known or inferred mineral potential of the area. Under SMARA, areas are categorized into MRZs as follows:

[33] Solano County, *Solano County General Plan (November 2008)*. Available at: https://www.solanocounty.com/depts/rm/planning/general_plan.asp. Accessed November 21, 2023.

MRZ-1 Areas where the available geologic information indicates no significant mineral deposits or a minimal likelihood of significant mineral deposits.

MRZ-2 Areas where the available geologic information indicates that there are significant mineral deposits or that there is a likelihood of significant mineral deposits. However, the significance of the deposit is undetermined.

MRZ-3 Areas where the available geologic information indicates that mineral deposits are inferred to exist; however, the significance of the deposit is undetermined.

MRZ-4 Areas where there is not enough information available to determine the presence or absence of mineral deposits.

In 2013, the California Geological Survey (CGS) published an updated Mineral Lands Classification Maps within the County of Solano that covered the project site. The proposed project site is designated by CGS as MRZ-1, where little likelihood for the presence of significant mineral resources exists. Therefore, the proposed project would not result in the loss of availability of a locally-important mineral resource recovery site. There would be no impact, and no mitigation is required.

4.13 Noise

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
b) Generation of excessive groundborne vibration or groundborne noise levels?			X	
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			X	

Setting

The City of Vallejo is impacted by various noise sources. Mobile sources of noise, particularly cars and trucks, are the most common and significant sources of noise in most communities. Other sources of noise are the various land uses (e.g., residential, commercial, institutional, and recreational and parks activities) throughout the City that generate stationary-source noise. An Acoustical Assessment (Appendix G) was prepared for the project in addition to a Hydroacoustic Impact Assessment by Illingworth & Rodkin (Appendix H) in January 2023.

Noise Measurements

To determine ambient noise levels in the project area, four 10-minute noise measurements were taken using a Larson Davis SoundExpert® LxT Sound Level Meter between 9:33 a.m. and 10:45 a.m. on December 5, 2023; refer to Appendix G for existing noise measurement data and **Figure 13: Noise Measurement Locations**. Noise Measurement 1 (NM-1) was taken to represent the ambient noise level in the existing residential neighborhood on Maine Street southeast of the project site, while NM-2 was taken to represent the ambient noise level at the southeast edge of the project site. NM- 3 was taken to represent the ambient noise level at the northeast edge of the project site, while NM-4 was taken to represent the existing public facilities on Georgia Street northeast of the project site. The primary noise sources during all four measurements were traffic on Mare Island Way, Maine Street, and Georgia Street and operational noise from existing ferry operations. Table 16: Noise Measurements, provides the ambient noise levels measured at these locations.

Table 16: Noise Measurements

Site No.	Location	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)	Time
NM-1	101-201 Maine Street	61.6	45.1	46.8	9:33 a.m.
NM-2	285 Mare Island Way	59.4	49.8	70.5	10:13 a.m.
NM-3	289 Mare Island Way	61.4	47.9	75.3	9:58 a.m.
NM-4	155 Georgia Street	58.2	44.1	70.5	10:35 a.m.
Source: Noise Measurements taken by Kimley-Horn on December 5, 2023.					

Existing Mobile Noise

There is existing mobile noise from surrounding roadways: Mare Island Way, Georgia Street, and Maine Street. Further, mobile noise is generated by the ferries operating at the existing ferry terminal.

Existing Stationary Noise

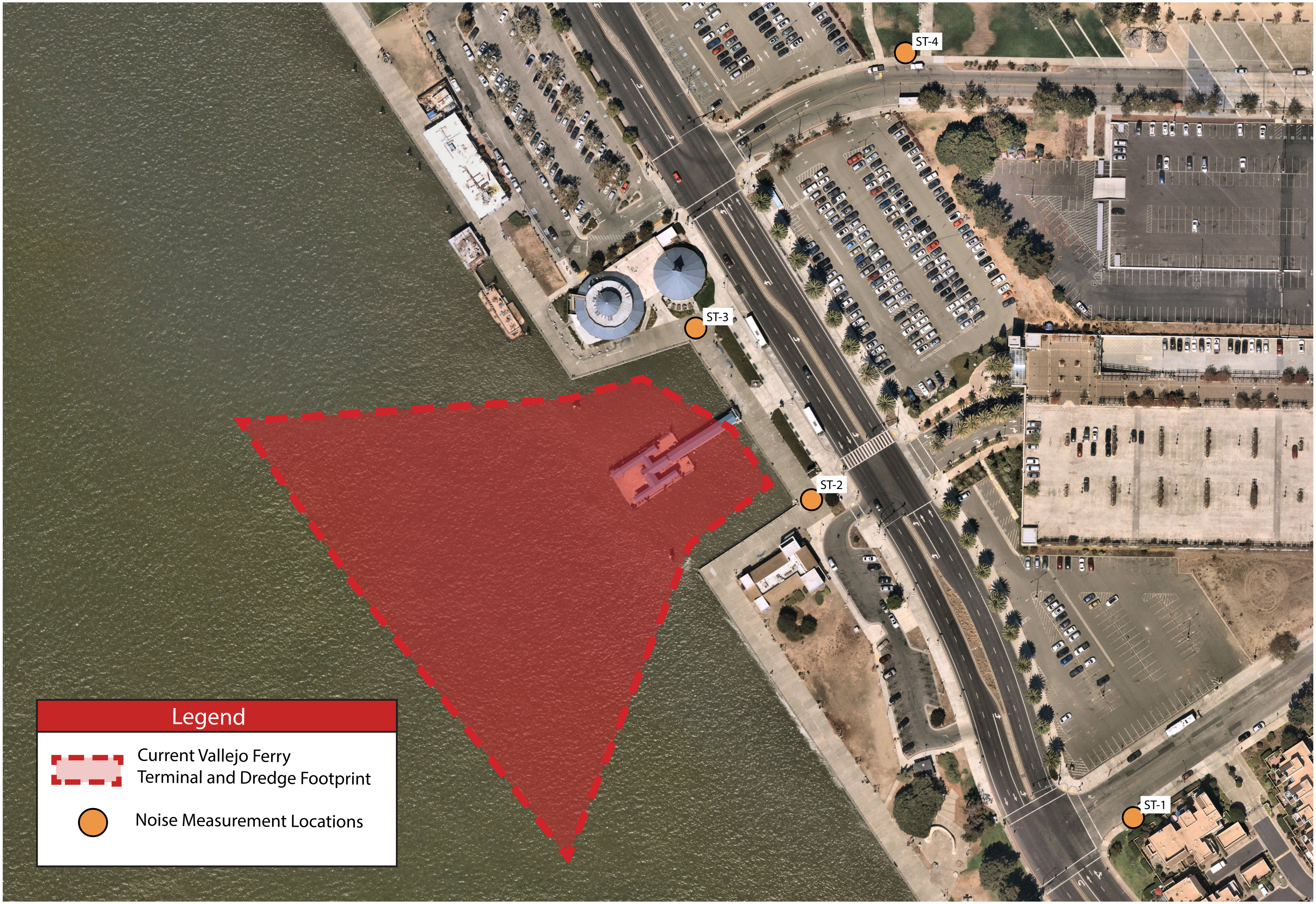
The primary sources of stationary noise in the project vicinity are those associated with the operations of the existing ferry terminal, nearby residential uses to the southeast of the site, and existing commercial northwest and east of the project site. The noise associated with these sources may represent a single-event noise occurrence, short-term noise, or long-term/continuous noise.

Sensitive Receptors

Noise exposure standards and guidelines for various types of land uses reflect the varying noise sensitivities associated with each of these uses. Residences, hospitals, schools, guest lodging, libraries, and churches are treated as the most sensitive to noise intrusion and therefore have more stringent noise exposure targets than do other uses, such as manufacturing or agricultural uses that are not subject to impacts such as sleep disturbance. As shown in Table 17: Sensitive Receptors and **Figure 12: Sensitive Receptors**, sensitive receptors near the project site include a multi-family residential community approximately 545 feet southeast and the Vallejo John F. Kennedy Library approximately 615 feet east. The nearest school is the Pathways Charter School approximately 2,155 feet east. These distances are from the project site to the sensitive receptor property line.

Table 17: Sensitive Receptors

Receptor Description	Distance and Direction from the Project Site
Multi-family residential community	545 feet southeast
Vallejo John F. Kennedy Library	615 feet east
Pathways Charter School	2,155 feet east
1. Distances are measured from the Project site boundary to the property line. Source: Google Earth, 2023.	



Source: ESRI, 2023

Figure 13: Noise Measurement Locations

WETA Vallejo Ferry Terminal Reconfiguration Project

N Not to scale Kimley»Horn

Acoustic Fundamentals

Sound and Environmental Noise

Acoustics is the science of sound. Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a medium (e.g. air) to human (or animal) ear. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second, or hertz (Hz).

Noise is defined as loud, unexpected, or annoying sound. The fundamental acoustics model consists of a noise source, receptor, and the propagation path between the two. The loudness of the noise source, obstructions, or atmospheric factors affecting the propagation path, determine the perceived sound level and noise characteristics at the receptor. Acoustics deal primarily with the propagation and control of sound. A typical noise environment consists of ambient noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this ambient noise is the sound from individual local sources. These sources can vary from an occasional aircraft or train passing by to continuous noise from traffic on a major highway. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a large range of numbers. To avoid this, the decibel (dB) scale was devised. The dB scale uses the hearing threshold of 20 micropascals (µPa) as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The dB scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels correspond closely to human perception of relative loudness. Table 18: Typical Noise Levels provides typical noise levels.

Table 78: Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	– 110 –	Rock Band
Jet fly-over at 1,000 feet		
	– 100 –	
Gas lawnmower at 3 feet		
	– 90 –	
Diesel truck at 50 feet at 50 miles per hour		Food blender at 3 feet
	– 80 –	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	– 70 –	Vacuum cleaner at 10 feet
Commercial area		Normal Speech at 3 feet
Heavy traffic at 300 feet	– 60 –	
		Large business office
Quiet urban daytime	– 50 –	Dishwasher in next room

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Quiet urban nighttime	– 40 –	Theater, large conference room (background)
Quiet suburban nighttime		
	– 30 –	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	– 20 –	
		Broadcast/recording studio
	– 10 –	
Lowest threshold of human hearing	– 0 –	Lowest threshold of human hearing
Source: California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.		

Noise Descriptors

The dB scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The equivalent noise level (L_{eq}) is the average noise level averaged over the measurement period, while the day-night noise level (L_{dn}) and Community Equivalent Noise Level (CNEL) are measures of energy average during a 24-hour period, with dB weighted sound levels from 7:00 p.m. to 7:00 a.m. Most commonly, environmental sounds are described in terms of L_{eq} that has the same acoustical energy as the summation of all the time-varying events. Each is applicable to this analysis and defined Table 19: Definitions of Acoustical Terms.

Table 19: Definitions of Acoustical Terms

Term	Definitions
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in µPa (or 20 micronewtons per square meter), where 1 pascals is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in dB as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g. 20 µPa). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level (dBA)	The sound pressure level in dB as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.

Term	Definitions
Equivalent Noise Level (L_{eq})	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
Maximum Noise Level (L_{max}) Minimum Noise Level (L_{min})	The maximum and minimum dBA during the measurement period.
Exceeded Noise Levels (L_1, L_{10}, L_{50}, L_{90})	The dBA values that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day-Night Noise Level (L_{dn})	A 24-hour average L_{eq} with a 10 dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity at nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
Community Noise Equivalent Level (CNEL)	A 24-hour average Leq with a 5 dBA weighting during the hours of 7:00 a.m. to 10:00 a.m. and a 10 dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

The A-weighted decibel (dBA) sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be used. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source.

A-Weighted Decibels

The perceived loudness of sounds is dependent on many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by dBA values. There is a strong correlation between dBA and the way the human ear perceives sound. For this reason, the dBA has become the standard tool of environmental noise assessment. All noise levels reported in this document are in terms of dBA, but are expressed as dB, unless otherwise noted.

Addition of Decibels

The dB scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic dB is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than one source under the same conditions. Under the dB scale, three sources of equal loudness together would produce an increase of 5 dBA.

Sound Propagation and Attenuation

Sound spreads (propagates uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics. No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. For line sources, an overall attenuation rate of 3 dB per doubling of distance is assumed.

Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA. The way older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA, the following relationships should be noted:

- Except in carefully controlled laboratory experiments, a 1-dBA change cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A minimum 5-dBA change is required before any noticeable change in community response would be expected. A 5-dBA increase is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Effects of Noise on People

Hearing Loss. While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise. The Occupational Safety and Health Administration has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over 8 hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Annoyance. Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. A noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance[34].

Groundborne Vibration

Sources of groundborne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g. factory machinery) or transient (e.g. explosions). Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Table 20: Human Reaction and Damage to Buildings for Continuous or Frequent Vibration, displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

[34] Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, August 1992.

Table 20: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration

Maximum PPV (in/sec)	Vibration Annoyance Potential Criteria	Vibration Damage Potential Threshold Criteria	FTA Vibration Damage Criteria
0.008	-	Extremely fragile historic buildings, ruins, ancient monuments	-
0.01	Barely Perceptible	-	-
0.04	Distinctly Perceptible	-	-
0.1	Strongly Perceptible	Fragile buildings	-
0.12	-	-	Buildings extremely susceptible to vibration damage
0.2	-	-	Non-engineered timber and masonry buildings
0.25	-	Historic and some old buildings	-
0.3	-	Older residential structures	Engineered concrete and masonry (no plaster)
0.4	Severe	-	-
0.5	-	New residential structures, Modern industrial/commercial buildings	Reinforced-concrete, steel, or timber (no plaster)
PPV = peak particle velocity; in/sec = inches per second; FTA = Federal Transit Administration			
Source: California Department of Transportation, Transportation and Construction Vibration Guidance Manual, 2020 and Federal Transit Administration; Transit Noise and Vibration Assessment Manual, 2018.			

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment. For the purposes of this analysis, a PPV descriptor with units of inches per second (in/sec) is used to evaluate construction-generated vibration for building damage and human complaints.

Regulatory Setting

To limit population exposure to physically or psychologically damaging as well as intrusive noise levels, the Federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise.

State of California

California Government Code

California Government Code Section 65302(f) mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of "normally acceptable", "conditionally acceptable", "normally unacceptable", and "clearly unacceptable" noise levels for various land use types. Single-family homes are "normally acceptable" in exterior noise environments up to 60 CNEL and "conditionally acceptable" up to 70 CNEL. Multiple-family residential uses are "normally acceptable" up to 65 CNEL and "conditionally acceptable" up to 70 CNEL. Schools, libraries, and churches are "normally acceptable" up to 70 CNEL, as are office buildings and business, commercial, and professional uses.

Title 24 – Building Code

The State's noise insulation standards are codified in the California Code of Regulations, Title 24: Part 1, Building Standards Administrative Code, and Part 2, California Building Code. These noise standards are applied to new construction in California for interior noise compatibility from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are located near major transportation noise sources, and where such noise sources create an exterior noise level of 65 dBA CNEL or higher. Acoustical studies that accompany building plans must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new multi-family residential buildings, the acceptable interior noise limit for new construction is 45 dBA CNEL.

Local

City of Vallejo General Plan 2040

The Vallejo General Plan (General Plan) identifies goals, policies, and implementations in the Noise Element. The Noise Element provides a basis for comprehensive local programs to regulate environmental noise and protect citizens from excessive exposure. Table 21: California Land-Use Compatibility Guidelines for Community Noise Environments highlights five land-use categories and the outdoor noise compatibility guidelines.

Table 21: California Land-Use Compatibility Guidelines for Community Noise Environments

Land-Use Category	Exterior Noise Exposure (DNL), in dBA			
	Normally Acceptable[1]	**Conditionally Acceptable[2]**	**Normally Unacceptable[3]**	**Clearly Unacceptable[4]**
Residential – Low Density Single-Family, Duplex, Mobile Homes	Up to 60	>55 to 70	>70 to 75	<75
Residential – Multiple Family	Up to 65	>60 to 70	>70 to 75	<75
Transient Lodging, Motels, Hotels	Up to 65	>60 to 70	>70 to 80	<80
Schools, Libraries, Churches, Hospitals, Nursing Homes	Up to 70	-	>70 to 80	<80
Auditoriums, Concert Halls, Amphitheaters	-	>50 to 70	-	<65
Sports Arena, Outdoor Spectator Sports	-	>50 to 75	-	<70
Playgrounds, Neighborhood Parks	Up to 70	>68 to 75	-	<73
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Up to 75	>70 to 80	-	<80
Office Buildings, Businesses, Commercial, and Professional	Up to 70	>68 to 78	>75 to 85	-
Industrial, Manufacturing, Utilities, Agricultural	Up to 75	>70 to 80	>75 to 85	-

Source: City of Vallejo, 2017.
1. Normally Acceptable – Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction. There are no special noise insulation requirements.
2. Conditionally Acceptable – New construction should be undertaken only after a detailed analysis of the noise reduction requirement is conducted and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice
3. Normally Unacceptable – New construction or development should generally be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
4. Clearly Unacceptable –New construction or development generally should not be undertaken.

Project relevant General Plan goals and policies related to noise are listed below:

Policy NBE-5.13: Noise Control. Ensure that noise does not affect quality of life in the community.

- **Action NBE-5.13C**: Update City regulations to restrict the allowable hours to between 7 AM and 7 PM on weekdays for construction, demolition, maintenance, and loading/unloading activities that may impact noise-sensitive land uses.

Policy NBE-5.14: Vibration Control. Ensure that vibration does not affect quality of life in the community.

- **Action NBE-5.14A**: Update City regulations to establish quantified vibration level limits similar to commonly used guidelines found in the Federal Transit Administration document "Transit Noise and Vibration Impact Assessment" (2006).

<u>Policy NBE-5.15</u>: Noise Compatibility Standards. Apply the General Plan noise and land use compatibility standards to all new residential, commercial, and mixed-use development and redevelopment.

- **Action NBE-5.15E**: When approving new development, limit project-related noise increases to the following for permanent stationary and transportation-related noise sources:
  - No more than 10 dB in non-residential areas;
  - No more than 5 dB in residential areas where the with-project noise level is less than the maximum "normally acceptable" level in the Noise and Land Use Compatibility figure; and
  - No more than 3 dB where the with-project noise level exceeds the "normally acceptable" level in the Noise and Land Use Compatibility figure.
- **Action NBE-5.15F**: Require acoustical studies with appropriate mitigation measures for projects that are likely to be exposed to noise levels that exceed the "normally acceptable" standard and for any other projects that are likely to generate noise in excess of these standards.

City of Vallejo Municipal Code

The Vallejo Municipal Code, Section 16.502.09 establishes the exterior noise standards applicable to certain uses and facilities. <u>Table 22: Vallejo Maximum Noise Level by Noise Zone</u> shows the maximum exterior noise standard allowed by the City's Municipal Code.

Table 22: Vallejo Maximum Noise Level by Noise Zone

Noise Zone Districts	Maximum Noise Level in dBA (level not to exceeded more than 30 minutes in any hour)		Maximum Noise Level in dBA (level not to be exceeded more than 5 minutes in any hour)
	Measured at Property Line or District Boundary	**Measured at Any Boundary of a Residential Zone**	**Between 10 PM and 7 AM, Measured at any Boundary of a Residential Zone**
Single-Unit Residential	60	60	-
Multiple-Unit Residential	65	65	-
Commercial and Mixed-Use, Medical, Office	70	60	50 or Ambient Level
Light Industrial	75	65	50 or Ambient Level
General Industrial	75	65	50 or Ambient Level
Public Facilities and Community Use	65	60	50 or Ambient Level
Open Space and Recreational Districts	65	60	50 or Ambient Level
Source: City of Vallejo Municipal Code, 2023.			

The standard exterior noise limits listed in <u>Table 22</u>, would be adjusted by five decibels for noise that contains a stead pure tone, such as a screech or hum, or impulsive sound, such as hammering or riveting, or contains music or speech, as described below.

- Any type of noise, other than construction and related activities between 7 AM and 10 PM would allow for a plus 5 dBA adjustment;
- Any noise of unusual impulsive character (e.g., hammering or drilling) would have an exterior noise limit reduction of 5 dBA;
- Any noise of unusual periodic character (e.g., screeching or hammering) would have an exterior noise limit reduction of 5 dBA.

According to Vallejo Municipal Code, Section 16.502.09.D, construction hours in a residential or mixed-use zoning district are limited to the hours of 7 AM to 7 PM, when noise levels are exceeding the limits shown in Table 23: Maximum Noise Level for Temporary Construction Activity.

Table 23: Maximum Noise Level for Temporary Construction Activity

Time	Rural Residential (RR), Residential Low Density (RLD)	Residential Medium Density (RMD), Residential High Density (RHD), Neighborhood Mixed-Use (NMX), Neighborhood Commercial (NC)	Commercial (Including medical and office) and Industrial
Mobile Construction Equipment – nonscheduled, intermittent, and short term for less than 15 days			
Weekdays 7 AM to 6 PM	75 dBA	80 dBA	85 dBA
Saturdays 9 AM to 6 PM	60 dBA	65 dBA	70 dBA
Sundays and Legal Holidays	None	None	None
Stationary Construction Equipment			
Weekdays 7 AM to 6 PM	60 dBA	65 dBA	70 dBA
Saturdays 9 AM to 6 PM	60 dBA	65 dBA	70 dBA
Sundays and Legal Holidays	None	None	None
Source: City of Vallejo Municipal Code, 2023.			

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Potentially Significant Unless Mitigation Incorporated.

Construction

Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g. land clearing, grading, excavation, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. During construction, exterior noise levels could affect the residential neighborhoods surrounding the construction site. Project construction would occur approximately 545 feet from existing multi-family residences to the southeast of the project site, along Maine Street. However, construction activities would occur throughout the project site and would not be concentrated at a single point near sensitive receptors. Noise levels typically attenuate (or drop off) at a rate of 6 dB per doubling of distance from point sources, such as industrial machinery. During construction, exterior noise levels have a low potential to affect the residential neighborhoods near the construction site.

The project would require Bay fill removal (existing piles) and placement for installation of pilings for the new float, donut fenders, and fixed pier support. It is estimated that approximately 116 to 126 square feet of 17 to 18 pilings would be installed. Further, the existing steel dolphins within the basin and terminal area would be removed. Overwater construction would include the installation of all of the approach sections, concrete dolphins, and utility installation. Installation of concrete dolphins would require barges, a concrete mixer, a concrete pump, a concrete vibrator, and a crane.

Demolition of the existing facility would be required prior to installation of any new waterside terminal components. The demolition work includes removal of the piles, fixed pier, gangway, and float. This work would be conducted from barges, one for materials storage and one outfitted with demolition equipment (crane and clamshell bucket or vibratory impact pile driver for pulling of piles and a crane for gangway removal). Diesel power tugboats would bring the barges to the project site, where the barges would be anchored. Pile driving would be limited to the environmental work window of August 1 through November 30. Piles would be removed by either pulling the pile or cutting the piles off below the mud line. The in-water demolition work would include the removal of the existing piles, pile dolphins, and floats.

Landside construction activities include minor demolition and building construction. Construction equipment would include a small backhoe and bulldozer/bobcat, haul trucks, material delivery trucks, a crane, and delivery and support trucks. Operating cycles for these types of construction equipment may involve one or two minutes of full-power operation followed by three to four minutes at lower power settings. Other primary sources of noise would be shorter-duration incidents, such as dropping large pieces of equipment or the hydraulic movement of machinery lifts, which would last less than one minute. It should be noted that only a limited amount of equipment can operate near a given location at a particular time.

It should be noted that the majority of construction would take place on barges above the water rather than on land. The noise levels shown below assume that construction equipment is located at the closest point to sensitive receptors and do not account for any attenuating structures or surfaces. Typical noise levels associated with individual construction equipment are listed in Table 24: Typical Construction Noise Levels. As shown in Table 24, construction equipment noise levels at the closest sensitive receptor, located 545 feet away, would not reach levels exceeding 65 dBA L_{eq} except for impact pile driving equipment. At the closest commercial receptor, located approximately 50 feet away, all construction equipment would exceed the 70 dBA L_{eq} construction noise standard. Thus, implementation of **Mitigation Measure MM NOI-1** would be required to reduce noise levels below the construction standards in Section 16.502.09D of the Vallejo Municipal Code. Implementation of **MM NOI-1** would require the project to use noise reduction technology on construction equipment, construct temporary sound barriers at the project property line, and prohibit the idling of stationary equipment. Noise levels associated with construction would collectively reduce by 20 to 30 decibels with the implementation of **MM NOI-1**. With this reduction, construction equipment noise levels would adhere to the Vallejo Municipal Code Construction Standards except for pile driving equipment noise at the nearest commercial receptors. However, as mentioned previously, pile driving would operate from barges above the water rather than at the closest point to sensitive receptors. In reality, pile driving equipment would be located approximately 150 feet away from the nearest commercial uses and would produce a noise level of 91 dBA L_{eq} at this distance. With implementation of **MM NOI-1**, noise levels associated with pile driving at the nearest commercial uses would be below the construction equipment noise standards listed in Section 16.502.09D of the Vallejo Municipal Code. Thus, with the implementation of **MM NOI-1**, impacts would be less than significant.

Table 24: Typical Construction Noise Levels

Equipment	Typical Noise Level (dBA) at 50 feet from Source[1]	Noise Level (dBa) at 545 feet from Source
Air Compressor	80	59
Backhoe	80	59
Concrete Mixer	85	64
Concrete Pump	82	61
Concrete Vibrator	76	55
Crane, Mobile	83	62
Dozer	85	64
Generator	82	61
Impact Wrench	85	64
Loader	80	59
Pile Driving (Impact)	101	80
Pneumatic Tool	85	64
Pump	77	56
Saw	83	55
Shovel	82	61
Truck	84	63

1. Calculated using the inverse square law formula for sound attenuation: $dBA_2 = dBA_1 + 20Log(d_1/d_2)$
Where: dBA_2 = estimated noise level at receptor; dBA_1 = reference noise level; d_1 = reference distance; d_2 = receptor location distance
Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

Construction Traffic Noise

Construction noise may be generated by large trucks moving materials to and from the project site. Large trucks would be necessary to deliver building materials as well as remove demolition materials. During the demolition phase of the project, approximately 5,674 square feet of materials would be removed. Based on the California Emissions Estimator Model (CalEEMod) default assumptions for this project, as analyzed in *Air Quality Assessment - Vallejo Ferry Terminal Reconfiguration Project* (Kimley-Horn, 2023), the project would generate the highest number of daily trips during the demolition phase. The model estimates that the project would generate up to 21 worker trips per day during demolition. Because of the logarithmic nature of noise levels, a doubling of the traffic volume (assuming that the speed and vehicle mix do not also change) would result in a noise level increase of 3 dBA. Mare Island Way (between Marin Street and Maine Street) has an average daily trip volume of 13,241 vehicles and Mare Island way (between Maine Street and Florida Street) has an average daily trip volume of 12,778 vehicles[35]. Therefore, the project's 21 demolition worker trips would not double the existing traffic volume. Construction related traffic noise would not be perceptible. Impacts would be less than significant.

California establishes noise limits for vehicles licensed to operate on public roads using a pass-by test procedure. Pass-by noise refers to the noise level produced by an individual vehicle as it travels past a fixed location. The pass-by procedure measures the total noise emissions of a moving vehicle with a microphone. When the vehicle reaches the microphone, the vehicle is at full throttle acceleration at an engine speed calculated for its displacement.

For heavy trucks, the State pass-by standard is consistent with the federal limit of 80 dB. The State pass-by standard for light trucks and passenger cars (less than 4.5 tons gross vehicle rating) is also 80 dB at 15 meters from the centerline. According to the FHWA, dump trucks typically generate noise levels of 77 dBA and flatbed trucks typically generate noise levels of 74 dBA, at a distance of 50 feet from the truck[36].

Operations

Traffic Noise
Implementation of the project would not generate increased traffic volumes on nearby roadway segments. The project would not result in uses that would increase traffic volumes over existing levels on surrounding roadway segments given that the project proposes the same operational uses as the existing facilities. Therefore, there would not be any new operational traffic noise impacts.

Stationary Noise Sources
Implementation of the project would not create new sources of noise in the project vicinity from the terminal, the passenger queuing and waiting area, parking and circulation, other area improvements (San Francisco Bay Trail improvements), and the ferry route. The project would reconfigure the existing ferry terminal to reduce or eliminate maintenance dredging and increase operational safety in support of continued ferry service. The project would not generate any additional sources of stationary noise sources differing from the existing ferry terminal. Therefore, the proposed project would not result in changes to the existing uses that would create any new operational sources of noise.

Overall, noise impacts associated with construction, traffic, and operation of the ferry terminal would remain less than significant. As stated previously, the project would not generate additional daily trips or result in any new sources of stationary noise during operation. Project operations would be the same as the existing ferry terminal. Therefore, impacts would be less than significant.

b) *Generation of excessive groundborne vibration or groundborne noise levels?*

[35] City of Vallejo, *City of Vallejo, CA Traffic Counts – Updated 2007/2008 Average Daily Traffic Volumes*, 2008. Available at https://www.cityofvallejo.net/our_city/departments_divisions/public_works_department/engineering_division/traffic_engineering.
[36] Federal Highway Administration, *Roadway Construction Noise Model*, 2006.

Less than Significant Impact.

Construction

Increases in groundborne vibration levels attributable to the project would be primarily associated with construction-related activities. Construction on the project site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Groundborne vibrations from construction activities rarely reach levels that damage structures.

Table 25: Typical Construction Equipment Vibration Levels, lists vibration levels at 25 feet for typical construction equipment. Groundborne vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. As indicated in Table 25, based on FTA data, vibration velocities from typical heavy construction equipment operations that would be used during project construction range from 0.003 to 1.518 in/sec PPV at 25 feet from the source of activity. The nearest building structure is approximately 50 feet from the edge of the active construction zone and approximately 150 feet from the closest pile driving location.

Table 25: Typical Construction Equipment Vibration Levels

Equipment	Peak Particle Velocity at 25 Feet (in/sec)	Peak Particle Velocity at 50 Feet (in/sec) 1	Peak Particle Velocity at 150 Feet (in/sec) [1]
Pile Driver (impact)	1.518	-	0.1033
Large Bulldozer	0.089	0.0315	0.0061
Loaded Trucks	0.076	0.0269	0.0052
Small Bulldozer/Tractors	0.003	0.0011	0.0002

1. Calculated using the following formula: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$, where: PPV_{equip} = the peak particle velocity in in/sec of the equipment adjusted for the distance; PPV_{ref} = the reference vibration level in in/sec from Table 7-4 of the Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018; D = the distance from the equipment to the receiver.

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

As shown in Table 25, the highest vibration levels are achieved with the large bulldozer operations at the receptors located approximately 50 feet away and the impact pile driver operations at receptors located approximately 150 feet away. Large bulldozer operations are expected to take place during demolition and building construction. Pile driving operations are only expected to take place during demolition of the existing facility, which would take place approximately 150 feet away from the nearest building structure over water. At these distances, construction equipment vibration velocities would not exceed the FTA's 0.20 PPV threshold. In general, other construction activities would occur throughout the project site and would not be concentrated at the point closest to the nearest building structure. Furthermore, construction activity would mostly occur over water and, therefore, these estimates are conservative. Thus, impacts would be less than significant, and no mitigation is required.

Operations

The project would not generate any new or additional groundborne vibration that could be felt at surrounding uses. The proposed project includes the reconfiguration of an existing ferry terminal, including the relocation and expansion of an existing fixed pier and gangway, and installation of a new passenger float. The project proposes the same operational uses as the existing facilities that are currently used for standard WETA ferry operations. Therefore, there would be no change in operational groundborne vibration as a result of the project. Furthermore, project operations would not involve railroads or substantial heavy truck operations, and therefore would not result in vibration impacts at surrounding uses. As a result, impacts would be less than significant, and no mitigation is required.

c) *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

Less than Significant Impact. The nearest airports to the project site are the Napa County Airport located approximately 7.4 miles north of the project. The project is not within 2.0 miles of a public airport or within an airport influence zone. Additionally, there are no private airstrips located within the project vicinity. The project site is located well outside the noise impact area of the Napa County Airport, the nearest airport to the project site. Therefore, the project would not expose people working in or visiting the project area to excessive airport- or airstrip-related noise levels. Impacts would be less than significant, and no mitigation is required.

Mitigation Measures

MM NOI-1 **Construction Noise Logistics Plan**. Prior to Grading Permit issuance, the Applicant shall demonstrate, to the satisfaction of the City of Vallejo Director of Public Works or City Engineer that the project complies with the following measures:

- Construct solid plywood fences around ground level construction sites, resulting in a decibel reduction of 5-15 dBA.
- Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment. This would provide at least a 10 dBA reduction to individual equipment noise.[37]
- Equip Pile Drivers with pile driver shrouds.

[37] United States Environmental Protection Agency, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, 1971.

- Prohibit unnecessary idling of internal combustion engines.
- Locate stationary noise-generating equipment such as air compressors or portable power generators as far as possible from the project property line. Construct temporary noise barriers to screen stationary noise-generating equipment in the construction area.
- Utilize "quiet" air compressors and other stationary noise sources where technology exists.
- Notify all adjacent business, residences, and other noise-sensitive land uses of the construction schedule, in writing, and provide a written schedule of "noisy" construction activities to the adjacent land uses and nearby residences.
- If complaints are received or excessive noise levels cannot be reduced using the measures above, erect a temporary noise control blanket barrier along surrounding building facades that face the construction sites.
- Designate a "disturbance coordinator" who shall be responsible for responding to any complaints about construction noise. The disturbance coordinator shall determine the cause of the noise complaint (e.g., bad muffler, etc.) and shall require that reasonable measures be implemented to correct the problem. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

Cumulative Impacts

Noise by definition is a localized phenomenon, and drastically reduces as distance from the source increases. Cumulative noise impacts involve development of the project in combination with ambient growth and other related development projects. As noise levels decrease as distance from the source increases, only projects in the nearby area could combine with the project to potentially result in cumulative noise impacts.

Cumulative Construction Noise

The project would contribute to other proximate construction noise impacts if construction activities were conducted concurrently. However, based on the City of Vallejo Development Project Website, there are no nearby projects that would construct concurrently with the project.[38] Further, construction activities at other planned and approved projects would be required to take place during daytime hours, and the City and project applicants would be required to evaluate construction noise impacts and implement mitigation, if necessary, to minimize noise impacts. Therefore, project construction would not contribute to cumulative impacts and impacts in this regard are not cumulatively considerable. As such, the project

[38] City of Vallejo, *Development Projects*, 2023. Accessed at https://www.cityofvallejo.net/our_city/departments_divisions/planning_development_services/economic_development_department/development_projects.

would not result in a cumulatively considerable construction noise impact. Impacts would be less than significant, and no mitigation is required.

Cumulative Operational Noise

Cumulative noise impacts describe how much noise levels are projected to increase over existing conditions with the development of the project and other foreseeable projects. Cumulative operational noise impacts would be less than significant given that the proposed project uses would be the same as the existing uses. Thus operational noise impacts would not be cumulatively significant, and no mitigation is required.

Stationary Noise

As mentioned previously, the project would not add any new stationary noise sources to the project vicinity. Given that the proposed project would not change from existing conditions, cumulative noise impacts would remain less than significant. Thus, cumulative operational noise impacts from related projects, in conjunction with project-specific noise impacts, would not be cumulatively significant and no mitigation is required.

Traffic Noise

There would be no cumulative increase in traffic noise levels as a result of project operations. The project would not generate any new permanent operational trips given that the proposed uses would remain the same as the existing uses. Therefore, the proposed project would not increase traffic volumes when compared to the existing ferry terminal. Thus, cumulative traffic noise levels impacts would be less than significant, and no mitigation is required.

4.14 Population and Housing

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

Setting

Population

The City of Vallejo is located in the nine-county San Francisco Bay Area in Solano County. For the purposes of this section, U.S. Census and Department of Finance data has been used for existing 2020 population statistics, while future data is analyzed using Vallejo General Plan estimates.

The current population in the city of Vallejo is approximately 123,564 residents. By 2040, the population is forecasted to grow to approximately 131,000 residents, an increase of over 11%. In 2020, Vallejo accounted for approximately 28.5% of the population of Solano County. Table 26: Current (2020) and Future (2040) Population summarizes the current and future population within the City of Richmond, Contra Costa County, and the Bay Area.

Table 26: Current (2020) and Future (2040) Population

	2015		2020	Growth (2015-2020)	2040	Growth (2015-2040)
City of Vallejo	118,100		126,090	5,464 (4.6%)	131,800	13,700 (11.6%)
Solano County	427,300		448,747	21,447 (5%)	511,600	84,300 (19.7%)
Bay Area	7,416,400		7,765,640	349,247 (4.7%)	9,299,100	1,837,700 (24.6%)
Sources: Vallejo General Plan Draft EIR (2014), U.S. Census (2020), California Department of Finance (2023)						

Housing

According to the 2020 U.S. Census, there are 46,006 households in the City of Vallejo. The project site is located along Mare Island Strait in the Downtown/Waterfront District, which includes no housing directly adjacent to the project site. The nearest residential housing sites around the project area are the condominiums and apartments along Maine Street off of Mare Island Way, approximately 545 feet to the southeast, and the apartments along Capitol Street, approximately 0.2 miles to the north.

However, the Waterfront Planned Development Master Plan include a potential mixed-use development in the Northern Waterfront and Central Waterfront area, directly adjacent to the proposed project site. This plan proposes up to a total of 731 new housing units in the Downtown/Waterfront District. As such, housing could be developed within the immediate vicinity of the proposed project in the future.

Employment

According to data published by the California Employment Development Department (EDD), Vallejo's labor force has decreased in recent years; On an annual average basis (seasonally unadjusted) Vallejo's labor force decreased from 56,300 to 54,400 between 2019 and 2023, a decrease of approximately 3 percent. This decrease appropriately coincides with a corresponding rise in unemployment. Unemployment in Vallejo increased from an annual average of 4 percent in 2019 to 5.3 percent in 2023. Vallejo is home to a variety of large employers, including Kaiser Permanente, Six Flags Discovery Kingdom, Sutter Health, the United States Department of Agriculture Forest Service, and the city of Vallejo. The Vallejo ferry terminal area includes operations such as the Vallejo Tourism Information Center building and associated businesses, as well as surrounding restaurants. Total buildout in the Downtown/Waterfront District under the Waterfront Planned Development Master Plan would add up to 161,000 sf of retail and office uses, 200,000 sf of hotel uses, 176,140 sf of public open spaces, 1,646 parking spaces in garages, and 731 residential units.

The proposed project site is located along the eastern bank of Mare Island Strait, at the site of the existing Vallejo ferry terminal. No WETA jobs would be directly impacted by implementation of the proposed project.

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact. The proposed project does not include any residential uses that would directly generate new residents and increase the population within Vallejo or Solano County. The proposed project also would not result in intensification of land uses, or the addition of structures or uses that would differ from the current General Plan, or that would require new employees or uses that would increase demand for permanent employees.

The proposed components at the Vallejo Ferry Terminal include a fixed pier, gangway, passenger float, and piles within the existing ferry terminal basin vicinity. Other project components include an access gate with informational signage. No new structures are proposed. Passengers would pay for their fares with Clipper cards or on board the vessels; therefore, manned ticketing booths on land are not proposed as part of the project. A designated outdoor queuing area adjacent to the proposed terminal entry gate is also proposed. Ferry service would not increase or decrease as a direct result of implementation of the proposed project. The reconfiguration and associated improvements are to address existing operations at the ferry terminal and would not lead to any unplanned population growth. The improvements would not directly or indirectly result in substantial unplanned population growth in an area, either directly or indirectly. There would be no impact, and no mitigation is required.

b) *Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?*

No Impact. The proposed project would not require the relocation or displacement of substantial numbers of people from the adjacent businesses. As such, the need for replacement housing would not be required. Further, no housing is located at, or immediately adjacent to, the project site. The proposed project would result in no impact to the displacement of a substantial number of people. While housing may be constructed in the vicinity as a result of the General Plan and associated city planning documents, implementation of the proposed project would have no impact on the displacement of existing housing. There would be no impact, and no mitigation is required.

4.15 Public Services

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i) Fire protection?				X
ii) Police protection?				X
iii) Schools?				X
iv) Parks?				X
v) Other public facilities?				X

Setting

Fire Protection

The Vallejo Fire Department (VFD) provides fire fighting and prevention services to the incorporated area of the City. VFD is responsible for emergency medical services, fire suppression, mitigation of disasters, and rescue activities. Firefighters inspect commercial and waterfront facilities on an annual basis. In addition to emergency work, VFD members provide a wide range of services to the Richmond community, including tours of fire stations and apparatus and fire and life safety presentations and trainings. There are seven VFD stations in the City.[39] Fire Station 21 at 1220 Marin Street is located approximately 0.62 miles northeast of the proposed project site; the primary Emergency Operations Center (EOC) is also located at this station to provide service in emergency situations. Personnel are assigned to all seven stations throughout the City and serve approximately 123,564 people living in Vallejo as well as surrounding areas with mutual aid agreements in emergencies. The Vallejo Fire Department (VFD) currently meets response time goals in much of the city, where incidents are generally clustered in

[39] City of Vallejo, *Fire Department*. Available at: https://www.cityofvallejo.net/our_city/departments_divisions/fire_department. Accessed November 21, 2023

proximity to higher call-volume fire stations. Current staffing and equipment levels are able to provide an adequate number of firefighters for smaller fires and common medical or rescue situations.[40]

VFD has a staff of 99 sworn personnel. They have a personnel-to-population-ratio of approximately 0.8 personnel to 1,000 residents. Development impact fees are collected during the planning process for new development projects to ensure that RFD has adequate equipment and infrastructure to serve the developing areas of the City. VFD has seven fire companies (six engines and one ladder truck) spread out over seven fire stations throughout the city. The ladder truck is stationed at Station 21. All fire stations, with the exception of Station 21 house an engine company and three firefighters on each shift. Station 21 operates with a truck company, three fire fighters and a 110-foot ladder truck on each shift. The Battalion chief's office is located at Station 21.

Police Protection

The Vallejo Police Department (VPD) provides police protection services to the City of Vallejo. Services provided include response to emergency and non-emergency calls for assistance, routine patrol, traffic enforcement, investigation of crimes, parking control services, community problem-solving, and code enforcement. In addition, VPD provides a range of community service programs, including youth mentoring programs, task forces, community coalitions, human trafficking awareness programs, high school programs, and local business forums. As of 2021, VPD operates with 119 sworn officers and 61 civilian personnel. VPD maintains approximately 0.96 officers for every 1,000 residents. [41]

VPD operates out of the Vallejo Police Station, located at 111 Amador Street, approximately 1 mile east of the proposed project site. The police station provides office space for administrative and operational staff, in addition to four holding cells with audio/video surveillance that is monitored by the department dispatch center. VPD is organized into eight Units providing field operations and support services which include: Records; Communications and Dispatch; Patrol; Detectives; Traffic; Management Support; Community Services Section; and Code Enforcement. VPD's Community Services Section (CSS) operates out of a separate facility located at 2 Florida Street and addresses quality of life crimes in the city and provides assistance and support to Neighborhood Watch groups as well as public education and outreach services in the community.

On average, VPD officers respond to over 150 calls for service each day. In 2021, the VPD responded to 57,914 calls for service. The City of Vallejo does not have an established response time goal. Instead, incoming calls are prioritized and responded to according to level of urgency. Priority 1 calls involve people at risk of immediate danger, injury, or loss of life, and Priority 2 calls require an immediate response to prevent a situation from escalating to a Priority 1. Response times for lower priority service requests can vary considerably depending upon the time of day, day of week, and call volume.

Schools

The proposed project is within the VCUSD. The Vallejo City Unified School District is a medium-sized TK-12 school district serving approximately 10,000 students. CVUSD serves students with 15 elementary schools [K-8 schools (including 1 K-8 dependent charter school)], one middle school serving grades 6-8, three high schools, one adult school, seven child development centers, and non-traditional school which

[40] City of Vallejo, *Vallejo General Plan 2040*. Accessed November 21, 2023.
[41] Vallejo Police Department, *Our Mission,* https://www.vallejopd.net/. *Accessed November 21, 2023.*

provides support to families who choose an independent study/home study option. [42] The nearest school to the proposed project site is Pathway Charter School located approximately 0.25 miles.

Parks

Parks within Vallejo are managed by the Greater Vallejo Recreation District (GVRD). The City of Vallejo contains over 1,400 acres of parks and open space including local, regional, and state resources. GVRD manages 407 acres of public park space including 20 neighborhood parks, 10 community parks, 6 special-purpose parks, an Olympic-size swimming pool, and 4 community centers. GVRD maintains over 1,000 acres of public land and offers programs that benefit over 120,000 Vallejo residents of all ages each year.

There are several parks within the project vicinity, including Barbara Kondylis Waterfront Green 0.12 mile to the northwest, Marina Vista Memorial Park 0.15 mile to the north, and Martin Luther King Jr. Park located approximately 0.10 mile to the east. The Bay Trail lies immediately adjacent to the proposed project site, surrounding the ferry terminal.

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

i. Fire protection?

No Impact. As described in Section 4.14 Population and Housing, the proposed project would not result in an increase of residents or employees within the City. There would be no increased need for fire protection resulting from the improvements to the ferry terminal and the project would not require the provision of new or physically altered fire protection facilities. The proposed project would not include additional residential units, or people within the County.

The proposed improvements would not result in an intensification of land use, or the addition of structures or uses that would differ from the current use or that would increase the number of residents that could increase demand for emergency services. Accordingly, the proposed project would not require the expansion or development of a new fire station or any other fire infrastructure, the construction of which could result in impacts to the environment. There would be no impact, and no mitigation is required.

ii. Police protection?

No Impact. As described above, the proposed project would not result in substantial population or employment growth within the City. The proposed project includes the reconfiguration of the existing ferry terminal. These improvements would not result in intensification of land use, or the addition of structures or uses that would differ from the current use or that would increase the number of residents that could increase demand for law enforcement services. Implementation of the proposed project is not expected to result in adverse impacts to VPD service levels, response times, or service ratio levels that

[42] Vallejo City Unified School District, *About Us*. Available at: https://www.vcusd.org/Domain/6. Accessed November 21, 2023.

would necessitate the construction of new facilities or expansion of existing facilities. There would be no impact, and no mitigation is required.

iii. *Schools?*

No Impact. As described in Section 4.14 Population and Housing, the proposed project would not result in a permanent increase of residents or employees within the City. The proposed project would not result in intensification of land use, or the addition of structures or uses that would differ from the current ferry terminal uses or that would increase the number of residents that could increase demand for school services. Accordingly, the proposed project would not require the expansion or development of a school or any other education related infrastructure, the construction of which could result in impacts to the environment. There would be no impact, and no mitigation is required.

iv. *Parks?*

No Impact. The project would not alter or impede any existing or future park plans, as the project would not result in intensification of land use, or the addition of structures or uses that would differ from the current ferry terminal uses or that would increase the number of residents that could increase demand for parks. Accordingly, the proposed project would not require the expansion or development of any park, the construction of which could result in impacts to the environment. See Section 4.16 Recreation for a discussion of recreational uses in the area. There would be no impact, and no mitigation is required.

v. *Other public facilities?*

No Impact. Other public facilities in the area such as health care, production, commercial, retail, residential, etc. would not be adversely impacted. Reconfiguration of the access point to the ferry terminal would result in less than significant impacts to the San Francisco Bay Trail. Further, any proposed project work that would potentially occur in the right of way of the Bay Trail would adhere to the Bay Trail Plan policies and the plans would be reviewed by the Bay Trail Advisory Committee to ensure compliance. See Section 4.16 Recreation. The proposed project would not differ from the existing uses at the ferry terminal. The proposed project would not include additional residential units, or people within the County, and would not result in intensification of land use or the addition of structures or uses that would differ from the current ferry terminal uses or that would increase the number of residents that could increase demand for other public services. Accordingly, the proposed project would not require the expansion or development of any of these resources, the construction of which could result in impacts to the environment. There would be no impact, and no mitigation is required.

4.16 Recreation

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X	
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			X	

<u>Setting</u>

According to the Greater Vallejo Recreation District (GVRD), Vallejo contains over 1,400 acres of parks and open space including local, regional, and state resources. GVRD manages 407 acres of public park space including 20 neighborhood parks, 10 community parks, 6 special-purpose parks, an Olympic-size swimming pool, and 4 community centers. GVRD maintains over 1,000 acres of public land and in addition to these parkland resources, Vallejo has a network of trails and greenways; joint-use, private and community facilities; and a variety of recreational programs and services.

There are several parks within the project vicinity, including Barbara Kondylis Waterfront Green 0.12 mile to the northwest, Marina Vista Memorial Park 0.15 mile to the north, and Martin Luther King Jr. Park located approximately 0.10 mile to the east. The Bay Trail lies immediately adjacent to the proposed project site, surrounding the ferry terminal.

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less than Significant Impact. The proposed project would be located along the eastern bank of Mare Island Strait, immediately adjacent to a portion of the Bay Trail and in the vicinity of other surrounding parks. The proposed project does not include any residential units or any other type of use that would increase the population, or park and recreation facility demand in the area, or include any other type of use that would directly increase the use of park and recreation facilities. The proposed project would not result in an intensification of land uses, or the addition of structures or uses that would differ from the current ferry terminal uses. The proposed project would have the same uses as the existing facilities, and would not add additional use to recreational facilities as a result of project implementation. Therefore, impacts would be less than significant, and no mitigation is required.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Less than Significant Impact. The proposed project consists of a reconfiguration of an existing ferry terminal and does not include new or expanded City of Vallejo park facilities. The project would also not result in a substantial increase in the transient or permanent population at the project site or the in the City of Vallejo requiring the construction or expansion of recreational facilities. The proposed project access point will connect to a portion of the San Francisco Bay Trail, which may include improvements as part of the project such as installation of educational and directional signage, queuing markers, relocation of trash receptacles, and other amenities under the jurisdiction of BCDC. Because the existing use of the proposed project site is consistent with the proposed modifications, no adverse effects as a result of recreational facility impacts would occur. Any proposed project work that would potentially occur in the right of way of the Bay Trail would adhere to the Bay Trail Plan policies and the plans would be reviewed by the Bay Trail Advisory Committee and BCDC to ensure compliance. The proposed passenger queuing areas and the terminal access gate placement would reduce conflicts with pedestrian users of the Bay Trail by providing a separate area adjacent to the existing Bay Trail for these activities to occur. Impacts would be less than significant, and no mitigation is required.

4.17 Transportation

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?			X	
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?			X	
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?		X		
d) Result in inadequate emergency access?		X		

Setting

A Transportation and Circulation Report (Appendix I) was prepared by Fehr & Peers in October 2023. The Report describes the existing conditions related to transportation resources within the vicinity of the project site, provides regulatory and environmental setting for the project, and discusses potential traffic impacts that could result under implementation of the proposed project.

Roadway Network

Regional and local roadways serving the project site are described below.

Regional Access

- I-80 is an east-west freeway directly east of the project site extending southwest to Berkeley and San Francisco via the Carquinez Bridge, and northeast through Fairfield and Sacramento, into Nevada and beyond. I-80 is oriented in the north-south direction through the study area and is accessible from the project site via interchanges at SR-29, Magazine Street, Curtola Parkway, Benicia Road, Georgia Street, Springs Road, and Tennessee Street. In the study area, I-80 provides three lanes in each direction and has a posted speed limit of 65 miles per hour (mph).
- I-780 is an east-west freeway directly east of the project site that connects from I-680, north of the Benicia-Martinez Bridge, to I-80 in Vallejo. The freeway terminates at the I-80/I-780 interchange,

connecting to Curtola Parkway at the Lemon Street intersection. I-780 is accessible from the project site via Curtola Parkway. In Vallejo, I-780 consists of two lanes in each direction with a posted speed limit of 65 mph.

- SR-29 is a north-south principal arterial/state route directly east of the project site extending from I-80 in the south, to SR-37, through American Canyon until its intersection and transition with SR-12. SR-29 runs through the western part of the City of Vallejo where the roadway is also known as Sonoma Boulevard. SR-29 can be accessed from the project site via Curtola Parkway, Maine Street, Georgia Street, and Tennessee Street. In the project vicinity, Sonoma Boulevard is a two-lane roadway with left-turn pockets at major intersections and a posted speed limit of 30 mph.

- SR-37 is an east west freeway/two-lane divided highway north of the project site. In the project vicinity, SR-37 is a freeway with a northeast-southwest orientation. SR-37 extends from its interchange with I-80 through Vallejo west to its interchange with US-101. SR-37 is accessible from the project site via its interchanges at Railroad Avenue and Walnut Avenue on Mare Island, Wilson Avenue, and SR-29. In Vallejo, SR-37 consists of two lanes in each direction with a posted speed limit of 65 mph.

Local Access

- Curtola Parkway is an east-west arterial street south of the project site. Curtola Parkway extends west from the I-780 terminus to the Maine Street and Mare Island Way intersection where the roadway transitions into Mare Island Way. Curtola Parkway provides two travel lanes in each direction. The posted speed limit is 40 mph from I-780 to the Sonoma Boulevard (SR-29) intersection, where it lowers to 35 mph.

- Mare Island Way is a north-south arterial road that runs along the eastern boundary of the project site extending from the Maine Street and Curtola Parkway intersection to the Hichborn Street and Wilson Avenue intersection, where the roadway transitions to Wilson Avenue. In the project vicinity, Mare Island Way provides two travel lanes in either direction and the posted speed limit is 35 mph.

- Georgia Street is an east-west arterial street that extends from the intersection of Ascot Parkway to the intersection of Mare Island Way bordering the project site. Georgia Street connects to I-80 via its interchange and intersects with Sonoma Boulevard (SR-29). In the project vicinity, Georgia Street provides one lane of travel in each direction with a posted speed limit of 25 mph.

- Tennessee Street is an east-west arterial street directly north of the project site extending from the intersection of Columbus Parkway to the Mare Island Road and Mare Island Causeway intersection, where the roadway transitions to Mare Island Causeway. The roadway connects to I-80 via its interchange and intersects with Sonoma Boulevard (SR-29). In the project vicinity, Tennessee Street provides two travel lanes in each direction with a posted speed limit of 30 mph.

- Mare Island Causeway is an east-west arterial road directly north of the project site and extends from the Mare Island Way and Tennessee Street intersection to the Nimitz Avenue and G Street intersection, where the roadway transitions into G Street. Besides SR-37, Mare Island Causeway serves as the only connection from Vallejo to Mare Island. In the project vicinity, this road provides one lane of travel in each direction with a posted speed limit of 30 mph.

- Maine Street is an east-west collector street just south of the project site extending from its transition to Benicia Road at the Solano Avenue and Amador Street intersection to Curtola Parkway. In the project vicinity, Maine Street provides two travel lanes in each direction with a posted speed limit of 25 mph.

- Florida Street is an east-west collector street north of the project site extending from the Solano Avenue and 14th Street intersection to Mare Island Way. In the project vicinity, this road provides one lane of travel in each direction with a posted speed limit of 25 mph.

Transit System

Transit service providers in the project vicinity include Solano County Transit (SolTrans), VINE Transit, Amtrak, and the San Francisco Bay Ferry. SolTrans provides local and intercity bus service, while VINE Transit and Amtrak provide regional intercity bus service. San Francisco Bay Ferry provides access to the San Francisco Bay Area through specific terminals. Existing transit services near the project site are shown in **Figure 14: Existing Transit Services** and described below.

Bus Services

SolTrans serves as the primary bus service provider in Vallejo providing both local and regional options. Regional lines R, Y, and 82 along with local lines 1, 2, 3, 4, 5, 6, 7A, 7B, and 8 operate within the project vicinity. All Soltrans routes stop at either the Vallejo Ferry Terminal, or the Vallejo Transit Center (approximately 0.2-mile walking distance from the Vallejo Ferry Terminal). VINE Transit service lines 11 and 11X also stop at either the Vallejo Ferry Terminal, or Vallejo Transit Center, and provide regional access to American Canyon. Amtrak provides a connecting bus service (route 7) from the Martinez Amtrak Station to Cal Poly Humboldt Campus that stops at the Vallejo Transit Center. Table 27: SolTrans, VINE Transit, and Amtrak Routes in the Project Vicinity summarizes the characteristics of the SolTrans, VINE Transit, and Amtrak routes operating in the project area.

Table 27: SolTrans, VINE Transit, and Amtrak Routes in the Project Vicinity

Agency	Route	Type	Termini	Closest Stop	Hours of Operation[1]	Peak Frequency
SolTrans	Y	Intercity/ Commuter	Vallejo Transit Center to Walnut Creek BART	Vallejo Ferry Terminal	Monday to Friday: 4:30 AM to 10:30 PM Weekend: 6:15 AM to 9:00 PM	Monday to Friday: 60 minutes Weekend: 60-90 minutes

Agency	Route	Type	Termini	Closest Stop	Hours of Operation[1]	Peak Frequency
SolTrans	R	Intercity/ Commuter	Suisun/Fairfield Amtrak Station to El Cerrito del Norte BART	Vallejo Transit Center	Monday to Friday: 4:30 AM to 11:00 PM[2] Weekend: 7:00 AM to 10:00 PM[2]	60 minutes
SolTrans	82	Intercity/ Commuter	Fairfield Transportation Center to San Francisco Ferry Terminal	Vallejo Transit Center	Monday to Friday: 4:45 AM to 11:30 PM	2 buses per peak period
SolTrans	1	Local	Vallejo Transit Center to Rancho Square	Vallejo Transit Center	Monday to Friday: 6:45 AM to 9:15 PM Weekend: 8:30 AM to 7:15 PM	60 minutes
SolTrans	2	Local	Vallejo Transit Center to Gateway & Fairgrounds	Vallejo Transit Center	Monday to Friday: 7:00 AM to 9:45 PM Saturday: 9:00 AM to 6:45 PM	60 minutes
SolTrans	3	Local	Vallejo Transit Center to Fulton & Old Glen Cove	Vallejo Transit Center	Monday to Friday: 7:30 AM to 8:15 PM Saturday: 8:45 AM to 6:15 PM	30 minutes
SolTrans	4	Local	Vallejo Transit Center to Sereno Transit Center	Vallejo Transit Center	Monday to Friday: 7:00 AM to 9:00 PM Saturday: 8:30 AM to 6:30 PM	60 minutes
SolTrans	5	Local	Vallejo Transit Center to Gateway & Fairgrounds	Vallejo Ferry Terminal	Monday to Friday: 6:45 AM to 8:00 PM Saturday: 8:30 AM to 6:00 PM	60 minutes
SolTrans	6	Local	Vallejo Transit Center to Georgia & Rosewood Hogan MS	Vallejo Transit Center	Monday to Friday: 7:00 AM to 8:00 PM Saturday: 8:30 AM to 6:15 PM	60 minutes

Agency	Route	Type	Termini	Closest Stop	Hours of Operation[1]	Peak Frequency
SolTrans	7A	Local	Vallejo Transit Center to Gateway Plaza	Vallejo Transit Center	Monday to Friday: 6:45 AM to 9:00 PM Weekend: 8:45 AM to 7:15 PM	60 minutes
SolTrans	7B	Local	Vallejo Transit Center to Gateway Plaza	Vallejo Transit Center	Monday to Friday: 6:45 AM to 9:00 PM Weekend: 8:45 AM to 6:45 PM	60 minutes
SolTrans	8	Local	Vallejo Transit Center to Georgia & Rosewood Hogan MS	Vallejo Transit Center	Monday to Friday: 6:30 AM to 8:45 PM Saturday: 9:00 AM to 6:45 PM	60 minutes
VINE	11	Intercity/ Commuter	Vallejo Ferry Terminal to Redwood Park & Ride	Vallejo Ferry Terminal	Monday to Friday: 6:30 AM to 9:30 PM Weekend: 7:45 AM to 9:30 PM	60 minutes
VINE	11X	Intercity/ Commuter	Vallejo Ferry Terminal to Redwood Park & Ride	Vallejo Ferry Terminal	Monday to Friday: 6:15 AM to 7:30 PM	2 buses in AM peak period 3 buses in PM peak period
Amtrak	Route 7 NB	Intercity	Martinez Amtrak Station to Cal Poly Humboldt Campus	Vallejo Transit Center	Monday to Sunday: 10:45 AM to 8:00 PM	4 buses per day
Amtrak	Route 7 SB	Intercity	Cal Poly Humboldt Campus to Martinez Amtrak Station	Vallejo Transit Center	Monday to Sunday: 7:00 AM to 4:45 PM	3 buses per day

Table Notes
1. Time rounded to 15 minutes.
2. Limited service offered within this time.
Source: SolTrans, VINE Transit, and Amtrak, accessed July 2023.

San Francisco Bay Ferry

The San Francisco Bay Ferry provides medium distance, cross-bay ferry service at various ferry terminals around the San Francisco Bay Area. The Vallejo Route provides 30-minute service during peak frequency with 60-minute travel times expected. The Vallejo Ferry Terminal is approximately 0.2 miles walking distance from the Vallejo Transit Center.

Pedestrian Network

Pedestrian facilities such as sidewalks, multi-use paved trails, and unpaved recreational trails are provided in the City of Vallejo. Continuous sidewalks are provided in developed areas of the city. Pedestrian activity is concentrated primarily in the downtown area, particularly near the Vallejo Ferry Terminal, Vallejo Transit Center, and the denser, gridded portions of Georgia Street, Virginia Street, Capitol Street, and Sonoma Boulevard. According to the Solano County Active Transportation Plan, in 2020 there were 515 existing miles of sidewalk, with 727 miles of potential sidewalk throughout the city.

Much of the denser, grid-like portion of the downtown area has existing pedestrian facilities. However, some sidewalk gaps exist within the project vicinity as highlighted in the Solano County Active Transportation Plan. North of the project site, sidewalks are generally provided although minor gaps exist in the residential neighborhoods, such as on portions of Trinity Street and Kentucky Street. The main two roads used to access the Vallejo Ferry Terminal – Mare Island Way and Georgia Street – present continuous sidewalks in both sides of the road.

Protected (signalized) crossings are provided at intersections along significant roads, such as Mare Island Way, and Sonoma Boulevard. The Vallejo Transit Center serves nearly all bus lines in the area and is a significant destination for ferry users. The Vallejo Transit Center is 0.2 miles walking distance from the Vallejo Ferry Terminal via the protected crossing at the Mare Island Way/City of Vallejo Parking Garage Entrance intersection and the marked crossing on Santa Clara Street directly in front of the Vallejo Transit Center.

Bicycle Network

Bikeway planning and design in California typically relies on guidelines and design standards established by California Department of Transportation (Caltrans) in the *Highway Design Manual* (Chapter 1000: Bikeway Planning and Design). Caltrans provides examples for four distinct types of bikeway facilities, as described below and shown in the accompanying figures. Class 1 bicycle paths are provided along the Vallejo waterfront parallel to Mare Island Way. Class 2 facilities are provided on Mare Island Way between Georgia Street and Maine Street, and further along the road between Florida Street and Wilson Avenue. These facilities are also provided on Georgia Street between Sonoma Boulevard and Monterey Street. Sonoma Boulevard also has an existing Class 2 bikeway lasting between Georgia Street and Florida Street.

The Solano County Active Transportation Plan and Vallejo General Plan propose the following bicycle projects in the project vicinity:

- Class I facilities
  - San Francisco Bay Trail at Sacramento Street
  - Mare Island Causeway between Tennessee Street and Azuar Drive
- Class II facilities
  - Mare Island Way between Florida Street and Curtola Parkway
  - Wilson Avenue/Sacramento Street between San Francisco Bay Trail to Mare Island Way
- Class III facilities
  - Georgia Street between Sonoma Boulevard and Mare Island Way
  - Tennessee Street between Humboldt Street and Mare Island Way
  - Sacramento Street between Tennessee Street and Maine Street
  - Solano Avenue from Springs Road to Vallejo waterfront

  - Maine Street between Marin Street and Mare Island Way
- Class IV facilities
  - Sonoma Boulevard (SR-29) between I-80 and SR-37

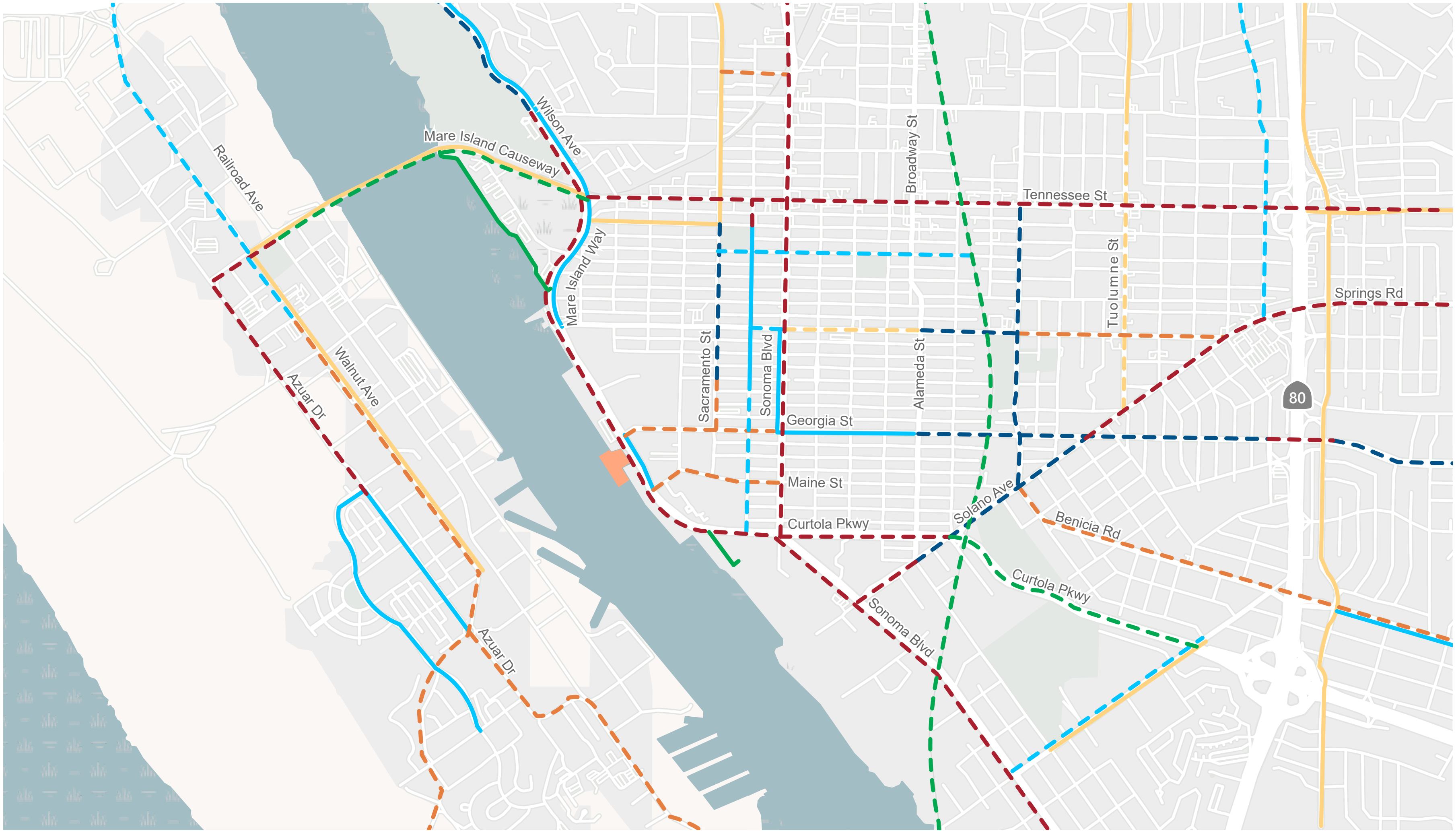
Figure 15. Existing and Planned Bicycle Network illustrates the existing and proposed bicycle facilities in the project vicinity.

Source: Fehr and Peers, 2023

Figure 14: Existing Transit Services
WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn



Project Site

Existing

- Class I Multi-Use Path
- Class II Bicycle Lane
- Class III Bicycle Route

Proposed

- Class I Multi-Use Path
- Class IV Separated Bikeway
- Class II Bicycle Lane
- Class II Buffered Bicycle Lane
- Class III Bicycle Boulevard
- Class III Bicycle Route

Source: Fehr and Peers, 2023

Figure 15: Existing and Planned Bicycle Network

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn

Regulatory Framework

Federal Regulations

Americans with Disabilities Act of 1990

The Americans with Disabilities Act of 1990 (revised 2010) is a landmark civil rights law that prohibits discrimination based upon disability. Titles I, II, III, and V of the act have been codified in Title 42 of the United States Code, beginning at Section 12101. Title III prohibits discrimination on the basis of disability in “places of public accommodation” (businesses and non-profit agencies that serve the public) and “commercial facilities” (other businesses). The regulation includes Appendix 4.13-A to Part 36 (Standards for Accessible Design), which establishes minimum standards for ensuring accessibility for persons with a disability when designing and constructing a new facility or altering an existing facility, including roadways, parking lots, and sidewalks. Examples of key guidelines include detectable warnings for pedestrians when entering traffic where there is no curb, a clear zone of 48 inches for the pedestrian travel way, and a vibration-free zone for pedestrians.

State Regulations

California Department of Transportation

Caltrans has authority over the State highway system, including freeways, interchanges, and arterial routes. Caltrans operates and maintains State highways in Vallejo. In the study area, Caltrans maintains control of Intestate 80 (I-80), Interstate 780 (I-780), State Route 29 (SR-29), including the ramp terminal intersection at I-780/I-80/Curtola Parkway, and State Route 37 (SR-37). Caltrans issued the VMT-Focused Transportation Impact Study Guide (TISG) in May 2020, providing the process by which Caltrans will review and assess VMT impacts of land development projects. The TISG generally aligns with the guidance in the OPR Technical Advisory.

Caltrans also issued the Transportation Analysis Framework (TAF) in September 2020, which details methodology for calculating induced travel demand for capacity increasing transportation projects on the State Highway System. Caltrans also issued the Transportation Analysis Under CEQA (TAC) guidance in September 2020 which describes significance determinations for capacity increasing projects on the State Highway System.

Caltrans also issued Traffic Safety Bulletin 20-02-R1: Interim Local Development Intergovernmental Review Safety Review Practitioner Guidance in December 2020, describing the methods with which Caltrans will assess the safety impacts of projects on the Caltrans owned and operated network. This guidance states that Caltrans will provide its safety assessment to lead agencies for inclusion in environmental documents.

Finally, Caltrans has adopted procedures to oversee construction activities on and around its facilities. The Caltrans Construction Manual (Caltrans, 2020b) describes best practices for construction activities, including personnel and equipment safety requirements, temporary traffic control, signage, and other requirements aimed at reducing construction-related hazards and constructing projects safely and efficiently. Any work proposed on Caltrans facilities would be required to abide by these requirements.

State Transportation Improvement Program

The California Transportation Commission administers transportation programming, which is the public decision-making process that sets priorities and funds projects that have been envisioned in long-range transportation plans. The California Transportation Commission commits expected revenues for transportation projects over a multi-year period. The State Transportation Improvement Program is a multi-year capital improvement program for transportation projects both on and off the State highway system. The State Transportation Improvement Program is funded with revenues from the State Highway Account and other funding sources. State Transportation Improvement Program programming typically occurs every 2 years.

California Transportation Plan 2050

The California Transportation Plan 2050 was adopted in 2021. The plan, which is overseen by Caltrans, serves as a blueprint for California's transportation system, as defined by goals, policies, and strategies to meet the State's future mobility needs. The goals defined in the plan are related to safety, climate, equity, accessibility, quality of life and public health, economy, environment, and infrastructure. Each goal is tied to performance measures. In turn, members from regional and metropolitan planning agencies report these performance measures to Caltrans.

Senate Bill 375 (SB 375)

Senate Bill (SB) 375 provides guidance regarding curbing emissions from cars and light trucks. There are four major components to SB 375. First, SB 375 requires regional greenhouse gas emission targets. These targets must be updated every 8 years in conjunction with the revision schedule of the housing and transportation elements of local general plans. Second, Metropolitan Planning Organizations are required to create a Sustainable Communities Strategy (SCS) that provides a plan for meeting regional targets. Third, SB 375 requires housing elements and transportation plans to be synchronized on 8-year schedules. Finally, Metropolitan Planning Organizations must use transportation and air emissions modeling techniques that are consistent with the guidelines prepared by the California Transportation Commission.

Complete Streets (AB 1358)

Assembly Bill 1358, also known as the California Complete Streets Act of 2008, requires cities and counties to include "complete street" policies in their general plans. These policies address the safe accommodation of all users, including bicyclists, pedestrians, motorists, public transit vehicles and riders, children, the elderly, and persons with disabilities. These policies can apply to new streets, as well as the redesign of corridors.

Senate Bill 743 (SB 743)

Passed in 2013, California Senate Bill (SB) 743 changes the focus of transportation impact analysis in CEQA from measuring impacts to drivers, to measuring the impact of driving. The change is being made by replacing Level of Service (LOS) as a performance metric with a vehicle miles traveled (VMT) approach. This shift in transportation impact focus is intended to better align transportation impact analysis and mitigation outcomes with the State's goals to reduce greenhouse gas (GHG) emissions, encourage infill development, and improve public health through development of multimodal transportation networks. LOS or other delay metrics may still be used to evaluate the impact of projects on drivers as part of land use entitlement review and impact fee programs.

In December 2018, the Natural Resources Agency finalized updates to Section 15064.3 of the CEQA Guidelines, including the incorporation of SB 743 modifications. The Guidelines' changes were approved by the Office of Administrative Law and as of July 1, 2020 are now in effect statewide.

To help aid lead agencies with SB 743 implementation, the Governor's Office of Planning and Research (OPR) produced the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018) that provides guidance about the variety of implementation questions they face with respect to shifting to a VMT metric. Key guidance from this document includes:

- VMT is the most appropriate metric to evaluate a project's transportation impact.
- OPR recommends tour- and trip-based travel models to estimate VMT, but ultimately defers to local agencies to determine the appropriate tools.
- OPR recommends measuring VMT for residential and office projects on a "per rate" basis.
- OPR recommends that, for residential and office projects, a per capita or per employee VMT that is fifteen percent below that of existing development may be a reasonable threshold. In other words, an office project that generates VMT per employee that is more than 85 percent of the regional VMT per employee could result in a significant impact. OPR notes that this threshold is supported by evidence that connects this level of reduction to the State's emissions goals.
- For roadway infrastructure projects, projects that increase roadway capacity should be analyzed for their potential to increase VMT; projects that decrease roadway capacity will generally reduce VMT and would therefore be expected to have a less than significant effect on transportation.
- Transit and active transportation projects generally reduce VMT and therefore are presumed to cause a less-than-significant impact on transportation. The Technical Advisory states that this presumption may apply to all passenger rail projects, bus and bus rapid transit projects, and bicycle and pedestrian infrastructure projects. However, it can be presumed to apply to ferry terminal projects as well.
- Lead agencies have the discretion to set or apply their own significance thresholds.

Regional Regulations

San Francisco Bay Area Water Emergency Transportation Authority

The San Francisco Bay Area Water Emergency Transportation Authority (WETA) is a regional public transit agency tasked with operating and expanding ferry service on the San Francisco Bay and with coordinating the water transit response to regional emergencies. WETA owns and operates the San Francisco Bay Ferry service between the Vallejo Ferry Terminal and San Francisco. WETA is developing a Business Plan for the San Francisco Bay Area ferry system in 2050, which will present the specific strategies and actions required to achieve their 2050 Service Vision, including the level of service and extent of WETA ferry operations and emergency response.

Metropolitan Transportation Commission

Metropolitan Transportation Commission (MTC) is the regional transportation planning, coordinating, and financing agency for the nine-county Bay Area, including Solano County. It is the federally designated metropolitan planning organization (MPO) for the Bay Area region. MTC is responsible for preparing the Regional Transportation Plan (RTP), a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle, and pedestrian facilities. The RTP is a 20-year plan that is updated every 3 years to reflect new planning priorities and changing projections of future growth and travel demand. The long-range plan must be based upon a realistic forecast of future revenues, and the transportation projects taken must help improve regional air quality. MTC also screens requests from local agencies for State and federal grants for transportation projects to determine compatibility with the RTP.

Plan Bay Area 2050

Plan Bay Area 2050 is a long-range integrated transportation and land-use/housing strategy through the year 2050 for the San Francisco Bay Area. On October 21, 2021, the Association of Bay Area Governments (ABAG) Executive Board and the Metropolitan Transportation Commission (MTC) jointly approved the plan. Plan Bay Area 2050 connects the elements of housing, the economy, transportation, and the environment through 35 strategies that will make the Bay Area more equitable for all residents and more resilient in the face of unexpected challenges. In the short-term, the plan's Implementation Plan identifies more than 80 specific actions for MTC, ABAG, and partner organizations to take over the next five years to make headway on each of the 35 strategies. Plan Bay Area is the nine-county region's long-range plan designed to meet the requirements of Senate Bill 375, described above.

Bay Area Air Quality Management District

The Bay Area Air Quality Management District is the regional agency with the authority to develop and enforce regulations for the control of air pollution throughout the Bay Area. The Clean Air Plan is the district's plan for reducing the emissions of air pollutants that combine to produce ozone. The Bay Area Air Quality Management District has published guidelines for the purpose of evaluating the air quality impact of projects and plans. One criterion calls for plans, including general plans, to demonstrate reasonable efforts to implement the transportation control measures included in the Clean Air Plan that identify local governments as the implementing agencies.

On-road motor vehicles are the largest source of air pollution in the Bay Area. To address the impact of vehicles, the California Clean Air Act requires air districts to adopt, implement, and enforce transportation control measures.

Solano Transportation Authority

The Solano Transportation Authority (STA) was created in 1990 and has jurisdiction for Solano County to manage the county's federal, state, and regional transportation funds. In the role of Solano County's Congestion Management Agency, STA partners with the Metropolitan Transportation Commission and Caltrans District 4. STA provides countywide planning and program prioritization, funding, operating, and maintaining transportation programs and services.

STA maintains the County Congestion Management Program (CMP). The most recently published CMP update is the 2021 CMP. The next update to the CMP will occur in 2023. The CMP requires that the transportation system within the County be monitored biennially for compliance with LOS standards. Each jurisdiction is responsible for monitoring the LOS on segments or intersections within its jurisdiction. The LOS standard for the County CMP facilities has been set at LOS E for all roadways except for those already operating at LOS F when the first CMP was prepared (County of Solano 2013). The CMP transportation system includes all of the state routes in the County and other Routes of Regional Significance. A comprehensive list of these routes is available in the CMP.

In addition to LOS, the CMP considers other performance measures to measure the effectiveness of the multimodal transportation system. These performance measures include intercity transit ridership, bicycle and pedestrian counts, multimodal commute patterns, and travel time reliability.

Local Regulations

City of Vallejo General Plan 2040

The City of Vallejo General Plan 2040 (2017) is a policy document divided into individual elements for topics including mobility, transportation, and connectivity. The Plan is a comprehensive general plan that serves as the City's primary guide for long-term development. The mobility, transportation, and connectivity (MTC) section of the General Plan addresses three goals that represent the priorities of the City: Regional Transportation Hub, Mobile Community, and Interconnected Community.

Policy MTC-1.1: Regional Transit Connections. Enhance regional transit service for residents, employees and visitors.

- **Action MTC-1.1A**: Work with regional transportation agencies to coordinate regional transit planning activities, including increased frequency of bus, ferry, and rail service, timed connections, and tourism support.

- **Action MTC-1.1C**: Coordinate with private investors and regional transportation agencies to investigate the feasibility of water transport connecting downtown Vallejo/Vallejo Ferry Terminal with Napa.

- **Action MTC-1.1D**: Study the feasibility of a visitor rail connection between the Vallejo Ferry Terminal and the Napa Valley in coordination with private investors.

Policy MTC-1.3: First/Last Mile Connections. Provide enhancements to the local transit network that make it easier and more convenient to use regional transit.

- **Action MTC-1.3A**: Pursue One Bay Area grants and other funding to better connect regional transit and the local bicycle and pedestrian network, including through physical infrastructure, wayfinding signage, and real-time information displays.

Policy MTC-1.4: Regional Transportation Planning: Ensure that Vallejo is well connected to road, rail, air and maritime systems in support of both mobility and local economic development.

- **Action MTC-1.4A**: Continue to coordinate with State and regional agencies on the planning and implementation of regional transportation systems.

- **Action MTC-1.4F**: Continue to study the feasibility of a visitor rail connection between the **Vallejo Ferry Terminal and Napa Valley in coordination with private investors.**

- **Action MTC-1.4G**: Work with shoreline land owners to develop services to the maritime industry and water based transportation.

Policy MTC-2.4: Citywide Mobility. Maintain a transportation network that provides mobility for all ages and abilities and for all areas of the community.

- **Action MTC-2.4B**: Consult with regional transportation agencies on projects that utilize the multi-modal transportation network to ensure a safe and efficient transportation system.

Policy MTC-2.8: Transportation Demand Management. Decrease dependence on single-occupant vehicles by increasing the attractiveness of other modes of transportation.

- **Action MTC-2.8A**: Coordinate with employers and transit agencies to encourage and promote the use of shuttles, carpools, vanpools, transit passes, variable work hours, telecommuting, and other methods to reduce vehicle miles travelled (VMT).

Policy MTC-3.1: Coordinated Transportation Planning. Ensure that improvements to the transportation network support a land use pattern that connects the community and facilitates travel among Vallejo's neighborhoods.

- **Action MTC-3.1D**: Extend Capitol Street so that it connects Santa Clara Street to Mare Island Way, improving circulation and strengthening multi-modal connections between downtown and the waterfront, including the Ferry Terminal.

Policy MTC-3.5: Walkability. Promote a well-designed, interconnected, pedestrian-friendly environment in the Downtown/Waterfront District.

- **Action MTC-3.5A**: Continue to improve the pedestrian realm connecting downtown with the waterfront and along the waterfront on both sides of Mare Island Strait, consistent with the Waterfront Planned Development Master Plan and the Mare Island Specific Plan.

Policy MTC-3.6: Wayfinding. Emphasize pedestrian access in the Downtown/Waterfront circulation system.

- **Action MTC-3.6A**: Enhance and expand the wayfinding and branded signage program for the Downtown/Waterfront District to direct residents and visitors to key destinations, transit, and parking.

Policy MTC-10: Boating. Support recreational boating in Vallejo and foster the development of commercial boating activities, including dinner cruises and water taxis.

- **Action MTC-3.10A**: Operate the Municipal Marina in a financially viable manner.

- **Action MTC-3.10B**: Seek funding for marina operations and maintenance, including needed dredging within the existing harbor.

Policy MTC-3.11: Cross-Strait Connections. Facilitate connections across Mare Island Strait.

- **Action MTC-3.11A**: Explore the feasibility of water shuttles connecting the Downtown/Waterfront District and points on Mare Island.

City of Vallejo VMT Guidelines

The City of Vallejo has adopted VMT analysis methodology, metrics, and significance thresholds for use in CEQA impact analysis (City of Vallejo CEQA Transportation Impact Analysis Guidelines, October 2020). This document requires assessing home-based VMT per resident for residential uses, home-based-work VMT per employee for employment uses, and project-specific metrics for other use types. It states that a land use project which generates VMT per resident or VMT per employee at a rate higher than the citywide average would be considered a significant impact under CEQA.

The Vallejo Guidelines address only land use projects. Because the ferry terminal reconfiguration project is not a land use project, but rather a transportation infrastructure project, the Vallejo Guidelines do not provide direction for the VMT impact analysis of the project. Therefore, the OPR *Technical Advisory*, discussed above under State Regulations, has been used to develop the threshold of significance with respect to VMT for this analysis.

a) *Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?*

Less than Significant Impact. The project reconfigures the Ferry Terminal water-side infrastructure by relocating and expanding the existing fixed pier and gangway and installing a new passenger float. While temporary pedestrian and bicycle detours along Mare Island Way in the immediate vicinity of the terminal may be needed during construction, under project operations, no changes to pedestrian or bicycle facilities are planned. Similarly, no changes to bus operations, including service changes or bus stop location changes, are proposed. No changes to parking lot supply or pricing that would affect those who drive to the terminal are proposed as part of the project. Thus, the project would not obstruct City of Vallejo transit, roadway, bicycle and pedestrian facilities.

The City of Vallejo General Plan 2040 contains three overarching goals: Regional Transportation Hub, Mobile Community, and Interconnected Community. Supporting policies and actions are listed in the regulatory setting. By ensuring the continued efficiency and effectiveness of the Vallejo Ferry Terminal, the project is consistent with the General Plan goals, policies and actions, and does not present conflicts with the General Plan. Therefore, impacts would be less than significant, and no mitigation is required.

b) *Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?*

Less than Significant Impact. Transit and active transportation projects generally reduce VMT and therefore are presumed to cause a less-than-significant impact on transportation. The Technical Advisory states that this presumption may apply to all passenger rail projects, bus and bus rapid transit projects, and bicycle and pedestrian infrastructure projects. However, it can be presumed to apply to ferry terminal projects as well.

The project proposes changes to the water-side berth configuration of the ferry terminal. It does not increase the berth capacity to serve more vessels at one time, nor does it propose an increase in ferry service frequency. It also does not increase the land-side vehicle parking capacity serving those who drive to take the ferry, nor does it propose land-side bus service increases. For these reasons, the project is not expected to increase vehicle miles of travel associated with the Vallejo Ferry Terminal under operating conditions. In addition, because the project is a transit project, the Technical Advisory on Evaluating Transportation Impacts in CEQA supports a finding of a less than significant impact on VMT. Therefore, the impact of the project under operating conditions is less than significant.

During project construction, additional construction employee trips and trucks delivering materials and hauling away debris will increase vehicle miles of travel generated at the project site. This would be a temporary impact. Therefore, impacts would be less than significant, and no mitigation is required.

c) *Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

Potentially Significant Unless Mitigation Incorporated. The project does not propose any changes to the roadway, pedestrian, bicycle, and transit facilities and services serving the Vallejo Ferry Terminal site. Therefore, under project operating conditions, no geometric design features will be affected, and no new uses will be introduced to the transportation network serving the site. Impacts would be less than significant, and no mitigation is required.

During project construction, it may be necessary to use traffic control plans to detour vehicles, bicyclists, pedestrians and buses around construction activities. With implementation of Mitigation **Measure MM TRANS-1**, the lead contractor will submit to the satisfaction of the City of Vallejo a Construction Traffic Control Plan to ensure and maintain circulation around project construction. Implementation of **Mitigation Measure MM TRANS-1** would reduce impacts to less than significant.

d) Result in inadequate emergency access?

Potentially Significant Unless Mitigation Incorporated. The project does not propose any changes to the roadway network serving the Vallejo Ferry Terminal site. Therefore, under project operating conditions, emergency vehicle access to the site as well as circulation near the site would not be affected. Impacts would be less than significant, and no mitigation is required.

During project construction, it may be necessary to use traffic control plans to detour vehicles around construction activities. As previously noted, it is expected that with implementation of **Mitigation Measure MM TRANS-1**, a Construction Traffic Control Plan will be developed for the construction periods requiring partial or full closure of roadways. Implementation of **Mitigation Measure MM TRANS-1** would reduce impacts to less than significant.

Mitigation Measures

MM TRANS-1 Construction Traffic Control Plan. Prior to construction, the project operator shall:

1. Prepare and submit a Construction Traffic Control Plan to City of Vallejo for approval. The Construction Traffic Control Plan must be prepared in accordance with the California Department of Transportation Manual on Uniform Traffic Control Devices and but not be limited to, the following issues:

    a. Timing of deliveries of heavy equipment and building materials. To the extent feasible, restrict deliveries and vendor vehicle arrivals and departures during either the AM and PM peak periods;

    b. Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic;

    c. Ensuring access for emergency vehicles to the project sites;

    d. Maintaining access to San Francisco Bay Trail;

    e. Consult with the City to develop coordinated plans that would address construction-related vehicle routing and detours adjacent to the construction area for the duration of construction overlap with neighboring projects. Key coordination meetings would be held jointly between applicants and contractors of other projects for which the City determines impacts could overlap.

2. Obtain all necessary encroachment permits for the work within the road right-of-way or use of oversized/overweight vehicles that will utilize City-maintained roads.

4.18 Tribal Cultural Resources

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?		X		
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?		X		

Setting

Assembly Bill (AB) 52, signed by Governor Edmund G. Brown, Jr., in September 2014, established a new class of resources under CEQA: "tribal cultural resources." AB 52, as provided in Public Resource Code Sections 21080.3.1, 21080.3.2, and 21082.3, requires that lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation once the lead agency determines that the application for the project is complete, prior to the issuance of a Notice of Preparation of an EIR or notice of intent to adopt a negative declaration or mitigated negative declaration.

The Native American Heritage Commission (NAHC) was contacted to request a Sacred Lands File search for known cultural resources within or near the project site. The results of the search returned by the NAHC on February 2, 2024, indicated that no SLF listed resources were known within the project area. The response letter also provided a listing of Native American contacts that might have knowledge about the project area and the presence or absence of any properties of religious or cultural significance not listed in the SLF. For this reason, letters to each of the listed tribal contacts were sent on February 14, 2024, and an updated notice was sent on March 21, 2024, which reflected some changes to the project description. The purpose of the letters is for information scoping purposes only, and do not constitute formal consultation. The following tribes were contacted for consultation under AB 52:

- Cachil Dehe Band of Wintun Indians of the Colusa Indian Community
- Muwekma Ohlone Indian Tribe of the SF Bay Area
- Cortina Rancheria - Kletsel Dehe Band of Wintun Indians
- Guidiville Rancheria of California
- Yocha Dehe Wintun Nation
- The Confederated Villages of Lisjan Nation

The Confederated Villages of Lisjan Nation responded on February 29, 2024, requesting a copy of the Cultural Report. WETA provided the Cultural Report to the Tribe and no further communication has occurred as of the date of this report. A tribal consultation with representatives from the Yocha Dehe Wintun Nation was held on May 6, 2024. Tribal representatives requested the addition of Mitigation Measure MM TCR-1 regarding Tribal Cultural Resources Awareness Training to this document.

a) *Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: i) Listed or eligible for listing in the California:*

   i. *Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?*

b) *Or,*

   i. *A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?*

Potentially Significant Unless Mitigation Incorporated. Project construction activities would involve dredging activities as well as disturbance associated with replacement terminal structures, including the terminal fixed pier, gangway, and terminal float. As described above, the NAHC response received on February 2, 2024, did not return Native American cultural resources in the project vicinity. Therefore, the potential to adversely affect tribal cultural resources within the project area is minimal. Nonetheless, though no known resources have been identified within the project site and surrounding area, the possibility remains that archaeological materials could be encountered during construction-related ground disturbing activities. As such, the project could result in a potentially significant impact. Mitigation Measure TCR-1 requires that the prior to construction all personnel involved in the project construction are required to attend a cultural and tribal cultural resources training program. The intent of the program is to educate construction personnel on regulations, avoidance protocols and legal consequences regarding the discovery of sensitive cultural resources or tribal cultural resources during the construction process. The education component minimizes potential impacts to tribal cultural resources because construction workers have been trained in how to respond if previously undiscovered tribal cultural resources are observed or located during construction. Implementation of **Mitigation Measures MM TCR-1**, **MM CUL-1** and **MM CUL-2** would reduce impacts to less than significant.

Mitigation Measures

MM TCR-1 **Cultural and Tribal Cultural Resources Awareness Training.** The project operator/contractor shall provide a cultural resources and tribal cultural resources sensitivity and awareness training program for all personnel involved in project construction, including field consultants and construction workers. The training program will be developed in coordination with a Secretary of the Interior-qualified archaeologist. The agency will invite consulting Native American tribal representatives to participate. The training program will include relevant information regarding sensitive cultural resources and tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The training program will also describe appropriate avoidance and minimization measures for resources that have the potential to be located in the project area and will outline what to do and who to contact if any potential cultural resources or tribal cultural resources are encountered. The training program will emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans.

4.19 Utilities and Service Systems

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			X	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X	
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			X	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X	

Setting

Water Supply

Water supply in the City of Vallejo, including the project site, is provided by the Vallejo Water Department. This water system serves approximately 121,000 people through more than 38,000 service connections within Vallejo.[43] The City of Vallejo's primary sources of water are the Solano Project (Lake Berryessa), State Water Project (SWP)/Vallejo Permit Water (California Bay Delta), and Lakes Frey and Madigan. The City also receives a small amount of water from the City of Fairfield to augment service to the Lakes System.[44] The City's water demand has historically been primarily attributed to residential use, with roughly 62 percent of all water produced serving residential demands. In 2015, 49 percent of water produced serviced single family residences and 13 percent served multi-family homes. Commercial demands (which includes institutional and industrial demands) is the next largest water user, at 17 percent in 2015. The remaining water use in 2015 included irrigation demand (9 percent of water produced), other demands such as public facilities and fire hydrants (3 percent), and water loss (9 percent).

Wastewater Treatment

The project area is within the Vallejo Flood and Wastewater District (VFWWD), which operates a wastewater treatment plant (WWTP). The Vallejo WWTP has a dry weather capacity of 15.5 mgd and a wet weather capacity of 60 mgd. As of 2015 VSFCD's dry weather flow was approximately 10 mgd and has been decreasing due to low flow fixtures and a reduction of inflow and infiltration into the collection system. Treatment consists of conventional secondary treatment with trickling filters, short-term aeration, chlorination, and dechlorination before treated effluent is discharged to the Carquinez Strait.[45]

Solid Waste

Solid Waste services in the City are provided by Recology and service within the City is mandatory. Recology also offers recycling service for multi-family units, debris box service, and garbage and recycling collection for commercial businesses. Recology provides residential curbside pickup that includes household hazardous waste, yard waste, recycling, waste, and used oil and filters. Commercial business and multi-tenant dwelling services also are provided. The Recology Hay Landfill is located in Vacaville, California. It has a permitted throughput capacity of 2,400 tons per day. Its remaining permitted capacity is 30,433,000 cubic yards. It has an estimated "cease operation date" of January 1, 2077.[46] The Potrero Hills Landfill is located in Suisun City, California. It has a permitted throughput capacity of 4,330 tons per day. Its remaining permitted capacity is 13,872,000 cubic yards. It has an estimated "cease operation date" of February 14, 2048.[47]

Energy

Energy resources consist of electricity and natural gas. Pacific Gas and Electric (PG&E) is the primary electricity and natural gas supplier in Solano County (including the City of Vallejo) and provides electricity and natural gas to approximately 16 million people throughout a 70,000-square-mile service area in northern and central California. PG&E has 106,681 circuit miles of electric distribution lines and 18,466 circuit miles of interconnected transmission lines, with 5.5 million electric customer accounts.

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[43] City of Vallejo, *Water Department*. Available at: https://www.cityofvallejo.net/our_city/departments_divisions/water_department/water_billing#:~:text=The%20City%20of%20Vallejo%20provides,more%20than%2038%2C000%20service%20connections. Accessed November 22, 2023.
[44] City of Vallejo, *2015 Urban Water Management Plan*. Accessed November 22, 2023.
[45] Vallejo Flood and Wastewater District, *Wastewater*. Available at: https://www.vallejowastewater.org/31/Wastewater. Accessed November 22, 2023.
[46] CalRecycle. *Recology Hay Road*. Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1184?siteID=3582. Accessed November 22, 2023.
[47] CalRecycle. *Portero Hills Landfill.* Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1194?siteID=3591. Accessed November 22, 2023.

PG&E has 42,141 miles of natural gas distribution pipelines and 6,438 miles of transportation pipelines. PG&E has 4.5 million natural gas customer accounts. Natural gas is obtained from gas fields in northern California and other sources outside its service area.[48]

Stormwater

There are existing storm drains that serve the project area along Mare Island Way. The project area contains a substantial amount of impervious surface cover in the form of concrete and asphalt surrounding the ferry terminal.

a) *Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?*

Less than Significant Impact. The proposed project would include reconfiguration of an existing ferry terminal to replace the existing fixed pier, gangway, passenger float, and piles. No new structures would be added to the area as a result of the proposed project. The proposed project would not include additional residential units, or people to the County such that new or expanded utilities would be required. No additional demand for water, wastewater, storm water drainage, electric power, natural gas, or telecommunications facilities will be created by the proposed project. The improvements associated with the proposed project are intended to reduce recurring maintenance costs associated with the existing terminal.

Passengers would be allowed to use restrooms within the existing Vallejo Tourism Center building. Restrooms onboard the WETA fleet are serviced by existing sewage and water connections in the ferry terminal basin, which may require relocation within the basin. Nonetheless, water used and wastewater generated onboard by the existing WETA fleet would not change as a result of implementation of the project, as the project would not directly cause a permanent increase in ridership or employees. Therefore, these impacts are less than significant.

Electricity and natural gas are provided to the project site by PG&E. The proposed project may reroute the electrical utility wiring along the concrete basin wall. Light fixtures could be placed along the proposed fixed pier, gangway; however, the electricity demand of these lights would be consistent with existing uses of the ferry terminal. The proposed project would not require the expansion of existing or construction of new energy production or transmission facilities. Impacts would be less than significant, and no mitigation is required.

b) *Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?*

Less than Significant Impact. Water supply in the City of Vallejo, including the project site, is provided by the Vallejo Water Department. The proposed project will not result in intensification of land use, or the addition of structures or uses that would differ from the current General Plan. The proposed project would not include additional residential units, or people to the County such that new demand for water would occur, or such that new or expanded water infrastructure would be

[48] Pacific Gas and Electric, *Company Profile*. Available at: https://www.pge.com/en/about/company-information/company-profile.html. Accessed November 22, 2023.

required. Therefore, the proposed project has sufficient water supplies to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.

It should be noted that limited volumes of water may be necessary during construction related activities for watering of soils for dust control, washing vehicles, mixing materials, etc. This use, however, would be temporary in nature for construction related activities only, and would not be in substantial volumes. Thus, the proposed project would not result in substantial use of water from the existing supplies during normal, dry, or multiple dry years. The project water demand would be served through existing entitlements and resources. Impacts would be less than significant, and no mitigation is required.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less than Significant Impact. The project area is within the VFWD, which operates the Vallejo WWTP. The Vallejo WWTP has a dry weather capacity of 15.5 mgd and a wet weather capacity of 60 mgd. As previously stated, the proposed project would not result in intensification of land use, or the addition of structures or uses that would differ from the current General Plan. No additional demand for wastewater treatment, or other water treatment facilities would be needed or are proposed as part of the project. The proposed project would not increase the service capacity of any existing wastewater connection lines. Thus, the proposed project would not result in any new sources of wastewater generation, nor does it propose any improvements that would result in increased treatment demand for the wastewater treatment provider that new capacity would be needed. Impacts would be less than significant, and mitigation is not required.

No new structures would be added as a result of the proposed project. Passenger waiting areas would be located in a designated outdoor queuing area adjacent to the proposed terminal entry. Passengers currently are and will continue to be allowed to use the restrooms within the Vallejo Tourism Center building during business hours. Restrooms onboard the WETA fleet are serviced by existing sewage and water connections in the ferry terminal basin. The proposed project is consistent with the existing use of the ferry terminal, and demand is not expected to increase as a direct result of project implementation. Therefore, wastewater generated onboard by the existing WETA fleet and around the ferry terminal area would not change as a result of implementation of the project, as the project would not directly cause a permanent increase in ridership or employees. Impacts would be less than significant, and no mitigation is required.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Or,

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant Impact. The proposed project would generate solid waste as a result of construction and site clearing activities, consisting of the following debris: existing steel float, steel piles, fixed pier and gangway, bridge structure, bridge structure steel support system (H-Pile and steel beams), and miscellaneous electrical/mechanical conduit attached to the existing elements. These materials would be disposed of or recycled by Recology Vallejo, which utilizes the Recology Hay Landfill in Vacaville or the Portero Hills Landfill in Suisun. The proposed project would be in accordance with Section 5.408 of the CALGreen Code to salvage and reuse a minimum 65 percent of nonhazardous construction/demolition debris and/or implement a Construction Waste Management Plan (CWMP). Further, the City of Vallejo requires construction and demolition projects to comply with a construction and demolition (C&D) debris recycling ordinance to salvage and/or recycle 50% of debris and 75% of concrete and asphalt. Materials removed from the project site would be removed via a support barge in the Vallejo Ferry Terminal basin area. The proposed project also would be required to meet all local, State, and federal requirements related to solid waste disposal. Thus, the proposed project would not interfere with regulations related to solid waste or generate waste in excess of the capacity of local infrastructure. Impacts would be less than significant, and no mitigation is required.

4.20 Wildfire

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?			X	
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?			X	
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?			X	
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?			X	

Setting

The proposed project site is located within an urban area and is predominately surrounded by commercial uses and Mare Island Strait. According to the California Department of Forestry and Fire Protection, the project site is within a Local Responsibility Area (LRA) and is not located in a very high or high wildfire hazard severity zone.[49] The nearest Very High Fire Hazard Severity Zone is approximately 12 miles northeast of the project site. The City has also adopted an Emergency Operations Plan, which includes standard operating procedures for hazards, including urban/wildland interface fires. The Plan identifies

[49] Cal Fire, *State Responsibility Area Fire Hazard Severity Zones*. Available at: https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones/fire-hazard-severity-zones-maps-2022. Accessed November 22, 2023.

the responsibilities of City personnel and coordination with other agencies to ensure the safety of Vallejo citizens in the event of a fire, geologic, or other hazardous occurrence.[50]

a) *Substantially impair an adopted emergency response plan or emergency evacuation plan?*

Less than Significant Impact. There are adopted emergency response or evacuation plans by both the City and Solano County for the project area. Given that the proposed project will be similar to that of the existing ferry terminal, the proposed project would not interfere or impair with the Emergency Management Plan of the City of Vallejo or the Solano County Emergency Operations Plan.

As mentioned in the Project Description, the proposed project would help increase operational safety in support of continued ferry service between the cities of San Francisco and Vallejo. The proposed project would improve operational safety of an alternative mode of transit in the case of emergency wildfire events when roads, bridges, and/or tunnels are congested or unavailable. The proposed project would continue to provide an additional evacuation route in the event of an emergency. The project would not substantially impair an adopted emergency response plan or emergency evacuation plan. Impacts would be less than significant, and no mitigation is required.

b) *Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?*

Less than Significant Impact. The risk of wildfire is related to a variety of parameters, including fuel loading (vegetation), fire weather (winds, temperatures, humidity levels and fuel moisture contents) and topography (degree of slope). Steep slopes contribute to fire hazard by intensifying the effects of wind and making fire suppression difficult. The project is not located on a steep slope and would not have a significant impact in this regard. Fuels such as grass are highly flammable because they have a high surface area to mass ratio and require less heat to reach the ignition point. The proposed project would adhere to the City's landscaping maintenance requirements in Section 16.504.08 of the Vallejo Municipal Code. Reconfiguration and improvements associated with the proposed project are primarily within the existing Ferry Terminal. These improvements would not increase risk of wildfire. Impacts would be less than significant, and no mitigation is required.

c) *Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

Less than Significant Impact. The proposed project includes standard infrastructure improvements associated with reconfiguration. The project site is located in a Local Responsibility Area and is not located in a very high or high wildfire hazard severity zone and is predominantly surrounded by commercial and recreational uses that are not prone to wildfire. The proposed project does not include the need for construction of use of roadways, fuel breaks, emergency water sources, power lines, or other utilities that could exacerbate fire risk, and it would not result in temporary or long-term impacts in this regard. The proposed project would reroute existing electrical utility lines along

[50] City of Vallejo, *2015 Emergency Operations Plan*. Available at: https://www.vallejopipes.com/common/pages/DisplayFile.aspx?itemId=229720. Accessed November 22, 2023.

the concrete basin wall. However, the proposed project is consistent with the existing use of the ferry terminal. Therefore, impacts would be less than significant, and no mitigation is required.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less than Significant Impact. The proposed project site is not in a Very High Fire Hazard Severity Zones (VHFHSZ) nor located directly to steep slopes or hillsides. The proposed project would not create drainage changes and would not increase stormwater running off the site. The proposed project site would not expose people to downstream flooding or landslides as a result of runoff.

No permanent landside structures would be constructed or modified as a result of the project. Landside improvements would be minor and would be limited to installation of hardscaping and striping around the ferry terminal basin, along the existing paved portion of the San Francisco Bay Trail. These improvements would have no effect on landside drainage patterns, and, therefore, would have little on- or off-site flooding risk. Therefore, impacts would be less than significant, and no mitigation is required.

4.21 Mandatory Findings of Significance

ENVIRONMENTAL IMPACTS Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Does the project:				
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X		
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?		X		
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		X		

a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Potentially Significant Unless Mitigation Incorporated. Implementation of **Mitigation Measures MM BIO-1** through **MM BIO-9**, identified in Section 4.4, "Biological Resources," of this Initial Study would ensure that the project would not substantially affect fish or wildlife species during construction with regard to underwater noise, would not result in the spread of invasive marine species, and would not result in adverse effects on jurisdictional wetlands and/or water. Implementation of **Mitigation Measures MM CUL-1**, **MM CUL-2 and MM TCR-1**, identified in Sections 4.5, "Cultural Resources," and 4.18, "Tribal Cultural Resources," respectively, would prevent the project from significantly affecting previously undiscovered archaeological and/or tribal cultural resources.

Therefore, with implementation of **Mitigation Measures MM BIO-1** through **MM BIO-9**, **MM CUL-1**, and **MM CUL-2**, the project would have reduced potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. With implementation of the aforementioned Mitigation Measures, impacts would be less than significant.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Potentially Significant Unless Mitigation Incorporated. As presented throughout this environmental checklist, the project would result in less-than-significant impacts or impacts that are mitigated to less-than-significant levels. The potential effects to fish and wildlife species, sensitive communities, and jurisdictional wetlands shall be avoided through **Mitigation Measures MM BIO-1** through **MM BIO-9**. The potential for unknown archaeological materials or tribal cultural resources to be disturbed is addressed through implementation of **Mitigation Measures MM CUL-1**, **MM CUL-2 and MM TCR-1**. Traffic control and Circulation would be addressed through implementation of **Mitigation Measure MM TRANS-1.** Finally, noise impacts would be appropriately addressed through implementation of **Mitigation Measure MM NOI-1**. Therefore, the project would not result in significant construction or operational environmental impacts, and the project would not contribute to significant cumulative impacts. With implementation of the aforementioned Mitigation Measures, impacts would be less than significant.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Potentially Significant Unless Mitigation Incorporated. Potential adverse effects to human beings would occur due to project-related construction impacts related to liquefaction, noise, and transportation. However, through implementation of **Mitigation Measures MM GEO-1**, the project would ensure design level geotechnical investigation is carried out and a geotechnical engineer is engaged for monitoring of construction activities. Further, potential noise generated during project construction would be reduced to less-than-significant levels by implementation of **Mitigation Measure MM NOI-1**, as previously discussed. Additionally, a Construction Traffic Control Plan would be prepared and implemented through **Mitigation Measure MM TRANS-1**. Therefore, with implementation of the aforementioned Mitigation Measures, impacts would be less than significant.

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Appendix A1

Blue & Gold Captains Feedback

APPENDIX A-1
BLUE & GOLD FLEET FERRY CAPTAINS FEEDBACK

Summary of Pro/Con Comments on the Configuration Options

Configuration Options	PROS	CONS
Preferred Configuration (Figure 5-A) – This configuration extends the existing ferry terminal outside of the basin and further offshore and adds extra length to the passenger access gangway leading to the terminal. The access point would remain in its current location	• Simple landing on either port or starboard side • Only need to maintain and clean one float • Possibility of using inshore face • Platform is set back further from the channel and vessel traffic • More room for ticketing and queueing due to extended gangway • Easier landing due to prevailing westwind	• Possibility to use inshore face in the future would be for berthing only and not loading
Configuration Option 1 (Figure 5-B) – This configuration relocates the existing ferry terminal outside of the basin, with an access point at the southwest corner of the basin	• Location of sacrificial piles • Cost efficient • Allows for landing on either side • Only need to clean and maintain one float	• Pedestrian access far from terminal and parking garage • Limited accessibility • Concerns regarding backing into slip, especially if fighting current or using a single engine • Only option is starboard side to dock unless backing in • Inner berth not as easily accessible as outer • Concern about construction involving downtime of existing facility and service interruptions
Configuration Option 2 (Figure 5-C) – This configuration also relocates the existing ferry terminal outside of the basin with an access point at the northwest corner of the basin	• Preserves accessibility • Cost efficient • Allows use of temporary float • Allows for landing on either side • Doesn't cause much disruption to adjacent businesses • Terminal could stay in service during dredge operations • Closer handicap access	• Designed for bow in docking, vessels may need to land stern in • Heavy current would make • maneuverability difficult

	• Better queueing alignment possibilities • Further from the street which avoids queuing and traffic issues • Only need to clean and maintain one float	

According to Blue & Gold Fleet's feedback, either extending the existing ferry terminal outside the basin while maintaining the same access point (Figure 5-A) or relocating it outside the basin with an access point at the northwest corner (Figure 5-C) would be more effective. Additionally, the current orientation of the temporary terminal was identified to work effectively for these two options.

As a next step, these configurations were presented to the public to determine a preferred option. Details of the outreach process and the outcomes are provided in Appendix A-2.

Appendix A2

Public Outreach Report

Vallejo Ferry Terminal Reconfiguration Project

Final Public Outreach Summary

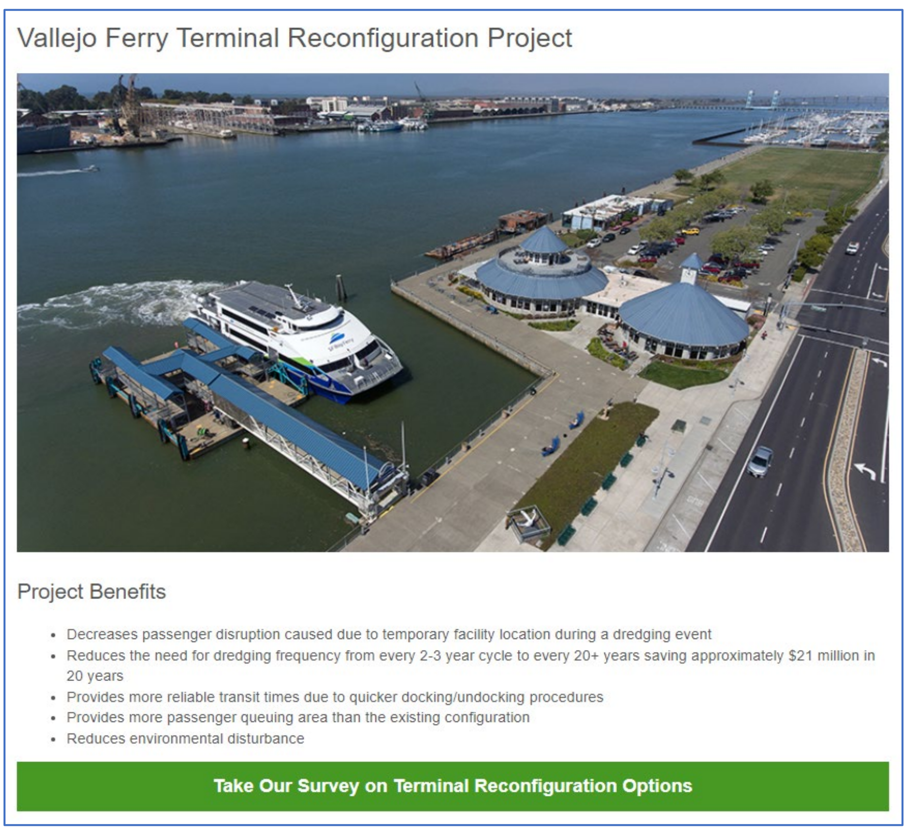
March 2024

OVERVIEW

Kimley-Horn's Public Engagement Plan for WETA's Vallejo Ferry Terminal Reconfiguration Project focused on three project design alternatives that were shared with the public to gain their input on a preferred alternative. The objective was to conduct outreach in-person and online to ensure ferry riders and the community had been consulted and that their input was included in WETA's decision-making process to identify which project to move forward to construction. Outreach included pop-up and tabling events at the Vallejo Ferry Terminal and onboard the ferries to spread awareness about the project and to better connect with those most directly impacted. Ultimately, a preferred configuration was selected from the alternatives based on the responses received, henceforth being referred to as the "proposed project" in associated documents.

DIGITAL ENGAGEMENT

A ***project webpage*** on the WETA website was developed for the public to learn about the proposed project improvements. The webpage featured project information, an on-line survey, promoted in-person events, and shared design alternatives. A weblink (URL), https://weta.sanfranciscobayferry.com/current-projects/vallejo-ferry-terminal-reconfiguration-project, was provided on all printed collateral, social media content and infographics.



A brief ***online survey*** went live on September 6 and remained open for nearly eight weeks, closing October 31, 2023. The online survey was promoted through WETA's various communication channels, including their webpage and e-newsletters. The City of Vallejo also published information in the Vallejo Weekly to help spread the word about the project, online survey and pop-up opportunities.

A ***postcard*** featuring a customized QR code (pictured below) linking to the project webpage were developed and distributed during in-person events. The postcard featured boxes for people to write in which reconfiguration alternative they preferred and turn into Kimley-Horn or WETA team members. The postcard and other collateral were updated before the second round of in-person events to include a "No Preference" option in addition to the three design alternatives.

IN-PERSON ENGAGEMENT

In-person engagement consisted of two outreach events within a five-week period near the Vallejo Ferry Terminal and on board the ferry. Kimley-Horn staffed an information table with posterboards and multilingual fact sheets, with knowledgeable staff to answer questions and gather input.

The first pop-up focused on targeting weekday commuters and special event attendees (planned to coincide with the San Francisco Giants' last day game of the season.) The second round of outreach built off experiences from the first outreach event, and targeted weekend ferry riders, farmer's market attendees, and visitors to the Vallejo waterfront during San Francisco's Fleet Week. The following is an account of the two in-person outreach events.

Wednesday, September 13, 2023

Vallejo Ferry Terminal

8:00 am - 8:20 am

Kimley-Horn staff arrived at the Vallejo Ferry Terminal prior to the boarding of the 8:15 a.m. ferry to Downtown San Francisco and passed out **~110** postcards to those in line, asking for their feedback and request to visit the website and take the survey during their trip.

9:00 am - 9:35 am

Kimley-Horn staff arrived at the Vallejo Ferry Terminal prior to the boarding of the 9:30 a.m. ferry, passing out about **~80** postcards, also asking those more receptive to scan the QR code on the postcard to take the survey right then and hand the postcard back. More time was spent to engage in conversation with passengers, conversing with approximately two dozen people as they waited to board the ferry.

Onboard SF Bay Ferry Fleet

11:00 am – 12:00 pm

Joined by WETA staff member Arthi Krubanandh, Kimley-Horn staff members boarded the 11:00 a.m. ferry from the Vallejo Ferry Terminal to Downtown San Francisco, setting up a posterboard of project alternatives in a designated area on the ferry to talk with riders, take questions and get their feedback on alternatives.

3:40 pm – 4:40 pm

Joined by WETA staff member Arthi Krubanandh, Kimley-Horn staff members boarded the 3:40 p.m. return trip from Downtown San Francisco to Vallejo, passing out **~40** postcards as passengers boarded the ferry and while staffing the pop-up area. There were many return riders and people who received the postcard on their trip into the city from Vallejo. The end-of-day crowd was less receptive to engage with the most interest happening during morning trips.

We collected information from riders in the following ways:

a. Received postcards back with a preferred alternative selected
b. Collected verbal responses while walking around the customer queue lines and onboard the ferry
c. Gathered responses at the posterboard station on ferries
d. Collected survey responses online via the QR code

Table 1: Pop-Up Event 1 Results

	Alternative 1	Alternative 2	Alternative 3	No Preference
Postcards Received	0	0	8	0
Verbal comments	2	2	3	14
Posterboard selections	3	7	17	
Survey responses	5	6	9	4
Notable comments received	▪ Furthest from the more popular parking areas ▪ Furthest from the	▪ Closest to parking areas ▪ Uncertainties about how queuing would work and if it would create	▪ Most like the existing location ▪ Closest to street/pedestrian crossing areas ▪ Wouldn't "waste" space in	▪ If there is no cost or timing difference, then no preference

	coffee shop & restaurants	crowded conditions	the middle of the basin area	

Questions and comments from this pop-up related to the proposed project included:

- How much is this going to cost?
- Who is paying for it?
- Confirmation that reducing maintenance costs and passenger inconvenience during dredging activities was important.

Questions and comments NOT directly related to the proposed project included:

- The ticketing process is not convenient or friendly:
    - Not being able to buy a ticket or reload Clipper cards inside the tourism building is disappointing/frustrating.
    - Request for better signage so customers don't have to walk back across to the transit center to reload Clipper cards.
    - Some had difficulties using the mobile ticketing app (for the first time).
    - Will ticketing be the same with implementation of the proposed project?
- Requests for maintenance of the existing covered gangway.
- Several requests for more/better security, too many car break-ins are deterring more use of the ferry *("You can reconfigure the terminal and make it as nice as you want but if people don't feel safe, they won't take the ferry").*
- Requests for more organized queuing procedures.

Saturday, October 7, 2023

Vallejo Farmers Market

9:00 am - 12:00 pm

Kimley-Horn staff set up an information table at the Farmers Market in Downtown Vallejo, utilizing posterboards and postcards to engage with members of the public. The team spoke with 19 people, and due to the small crowd, the team moved to the terminal where the environment was busiest.

Vallejo Ferry Terminal

10:00 am - 10:20 am

Kimley-Horn staff arrived at the Vallejo Ferry Terminal prior to the boarding of the 10:15 a.m. ferry to Downtown San Francisco and passed out ~**70** postcards to customers, asking for their feedback and request to visit the website and take the survey during their trip.

10:45 am - 11:40 am

Kimley-Horn staff stationed at the Vallejo Ferry Terminal prior to the boarding of the 11:00 a.m. ferry to Downtown San Francisco, passing out about **~50** postcards, also asking those more receptive to scan the QR code on the postcard to take the survey right then and hand the postcard back. Staff remained at the terminal for the boarding of the 11:30 a.m. ferry to Downtown San Francisco, passing out an additional ~**50** postcards during this time.

Onboard SF Bay Ferry Fleet

12:45 pm – 3:00 pm

Joined by WETA staff member Arthi Krubanandh, Kimley-Horn staff boarded the waterfront tours hosted by the WETA team during Vallejo Waterfront Weekend at 12:45 p.m. from the Vallejo Ferry Terminal. Staff stationed a posterboard of project alternatives in a designated area on the ferry to talk with riders, take questions and get their feedback on alternatives, and passed out about **~50** postcards. Staff remained on the ferry for the 1:30 and 2:45 waterfront tours, staffing the posterboard station and passing out an additional **~50** and **~30** postcards on each tour, respectively.

We collected information from riders in the following ways:

a. Collected verbal responses while walking around the customer queue lines and onboard the ferry
b. Gathered responses at the posterboard station during the tours
c. Collected survey responses online via the QR code

Table 2: Pop-Up Event 2 Results

	Alternative 1	Alternative 2	Alternative 3	No Preference	Against
Verbal comment	0	2	1	4	1
Posterboard selection	3	5	10	5	0
Online survey response *(since date of event 2)*	3	5	17	3	1
Notable comments received	- Furthest from the popular parking areas	- Seem as if it would be less disruptive during construction - Some uncertainty about if it	- Most similar to existing terminal structure - Closest to street / pedestrian	- As long as there is no cost or timing difference, no preference	- Fine how it is, no need to create more costs

		would crowd the populous areas - Concerns regarding how far down the shoreline the queue line would get at peak commute times - Ferry workers seem most keen on this choice due to berthing/ docking placement	crossing areas - Closest to drop off zone for ferry terminal - Seems risky because of how close the gangway is to the float (could strong current push ferry into it?)	- Excited about the project, hope it starts sooner than later - It's a win-win for Vallejo - Pretty dope!	

SURVEY RESULTS

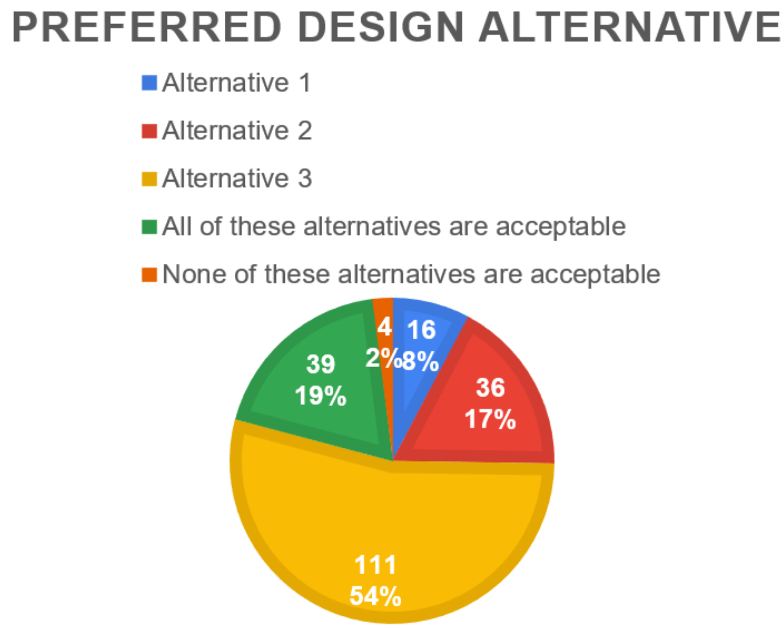
The in-person and online engagement resulted in upwards of 600 postcards being distributed and a total of 206 online surveys being completed.

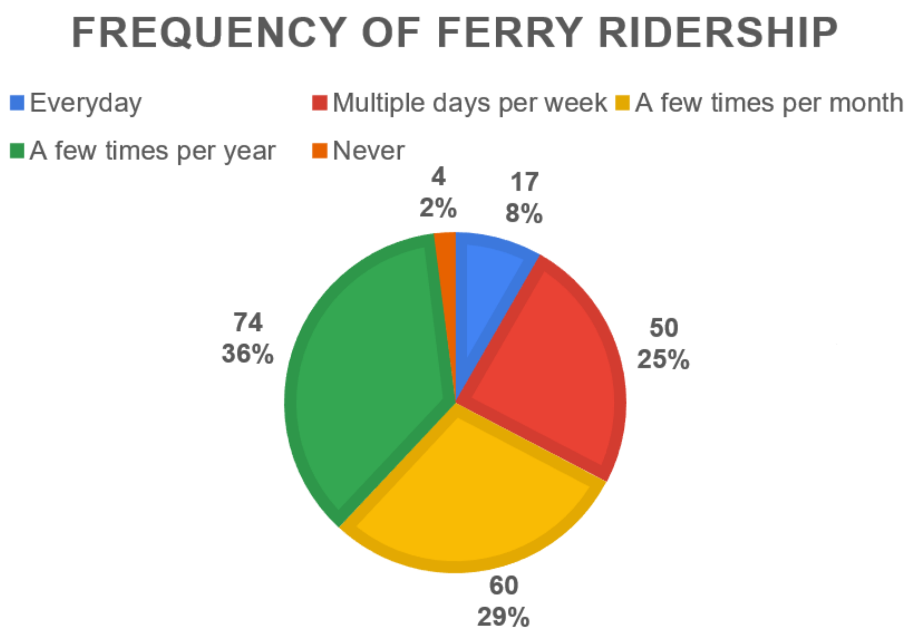
Table 3: Received Survey Responses

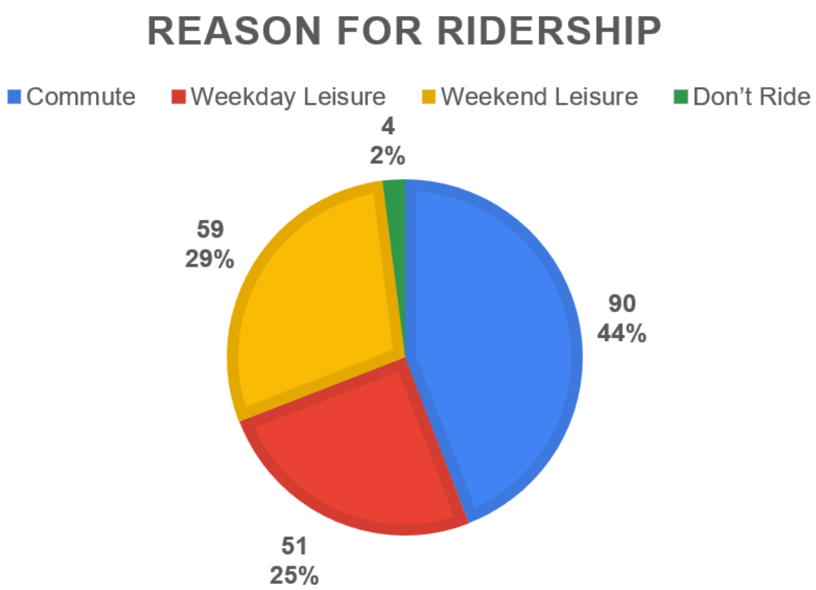
Preferred Design Alternative	Responses									
	# of People that Prefer this Alternative	Frequency of Ridership					Reason for Ridership			
		Everyday	Multiple days per week	A few times per month	A few times per year	Never	Commute	Weekday Leisure	Weekend Leisure	Don’t Ride
1	16	1	9	3	3		11	3	2	-
2	36	2	10	14	10	-	16	8	12	-
3	111	9	27	28	43	3	49	25	32	3
All	39	5	3	14	16	1	14	14	10	1
None	4	-	1	1	2	-	-	1	3	-
Total	**206**	17	50	60	74	4	90	51	59	4

The online survey revealed that among all the proposed alternatives for the Vallejo Ferry Terminal Reconfiguration Project, the most selected alternative was #3 - the extension of the gangway straight out from the existing spot in the middle of the ferry terminal basin.

The majority of survey participants also mentioned that they typically ride the ferry either a few times a month or several times a week. The primary reason for ridership amongst survey respondents was for commute purposes.







Key Themes

Several comments received were related to placement of the queue area, and its relation to surrounding existing features such as parking lots and local amenities. Comments relating to queueing, views, and environmental topics that could potentially be relevant to further analysis were extracted and analyzed for applicability as shown below, along with the alternative selected and survey responses.

Relevant Comments

- Builds off what is existing, doesn't impede on citizens walking path of the pier. Allows for a ferry to arrive and depart easily. Keeps congestion to a minimum with expansion from existing gate. Still allows a view for customers at local businesses and citizens walking.
    - *Alternative 3; A few times per month; I ride mostly for leisure activities on weekends*
- <u>Aesthetically I think it will look better</u>
    - *Alternative 3; A few times per year; I ride mostly for leisure activities on weekends*
- This alternative lends the queue area to be closer to the ferry building. I believe that this could help the businesses at the building and give people a better Vallejo aesthetic. It also allows for a driver, spouse, etc., to park in the lot and visit the coffee shop or restaurant. The queue could also branch in 2 directions that are more aesthetically appealing from this waterfront area.

Alternatively, option one would give people less time to visit these businesses and would lead a driver to drop off from the other lot and not visit the ferry terminal businesses.

Option three would provide nearly the same experience as present, and many people are delivered to the bus zone, running directly to the ferry and not having to pass the businesses.

  - *Alternative 2; A few times per month; I commute to work/school via ferry*

- Adding to my previous comments: Be certain to consult with the Napa Vine Trail about their construction plans in addition to the Bay Water Trail and the Bay Trail -Contact Solano TAG- Also ask boaters.
  - *Alternative 3*

Preferred Configuration Designation

The three alternatives were presented to the public to gather their feedback on a preferred configuration. Public input was collected through extensive outreach efforts, both in-person and online, ensuring that ferry riders and the community had the opportunity to contribute to WETA's decision-making process. Survey responses from outreach events and public distribution of materials resulted in a majority support for Alternative 3. Alternative 3 has since been designated as the preferred configuration for the ferry terminal. In the associated environmental study and other relevant documents surrounding this project, any reference or naming of the “proposed project” shall refer to this preferred configuration, with former Alternative 1 and Alternative 2 being referred to as "Configuration Option 1" and " Configuration Option 2,” respectively.

APPENDIX A – RESPONSES AND COMMENTS FROM ONLINE SURVEY

See attached Excel file for all responses to the survey questions. Below are the open-ended responses received regarding the preferred alternative.

Why is this/are these your preferred alternatives?
Easy access from the parking garage.
More room and away from restaurant.
This alternative lends the queue area to be closer to the ferry building. I believe that this could help the businesses at the building and give people a better Vallejo aesthetic. It also allows for a driver, spouse, etc, to park in the lot and visit the coffee shop or restaurant. The queue could also branch in 2 directions that are more aesthetically appealing from this waterfront area. Alternatively, option one would give people less time to visit these businesses and would lead a driver to drop off from the other lot and not visit the ferry terminal businesses. Option three would provide nearly the same experience as present, and many people are delivered to the bus zone, running directly to the ferry and not having to pass the businesses.
Any of it works, all the distances are the same to crosswalks, pick up area, to the ferry, etc. It doesn't matter as long as you me here to there in good timing as you always have. If anything, I would love a shorter walk, but it doesn't look like an option here. Cheers and good luck!
A is the most direct access point from the crosswalk/parking garage.
Straight line from parking garage crosswalk, less chance for injury at crosswalk by taking shortcuts towards alternative ferry access points. Basically, Alternative 1 is the most pedestrian friendly option.
They get there tickets and straight way to get on
As long it is safe
It looks like the most streamlined path that makes use of existing infrastructure. It splits the distance between folks approaching from the north or the south.
Easy access to get on from the building
Can't see much difference
I like the shape
No experience
Most direct, deeper water
Works better with tides and currents
Seems most practical
Safe crosswalk directly in front of the pedestrian access.
When getting in the feet this will be a better spot where people can stand in line. The other options make it harder for people when the line extended

Closer to the coffee shop
Because it is just an extension of the current system which worked fine for crowding near ferry building and dental office. The other two options may lead to crowding since they are closer to existing buildings for the lines to form on the busiest days.
Alternative 3 leaves the best access from the river to the existing slips. It also uses the existing covered gangway and will not impinge on the currently-unimpeded boardwalk on the north and south sides of the slips.
Shortest walk to town. But would prefer something like Alternative 3 where a gangway leads left AND right, to ensure quick walk from either direction.
Aesthetically I think it will look better
Less congestion for the ferry building, which can get busy at times. Working under the assumption that the building that is currently vacant remains so.
Closest to the original which is near a drop-off point. If I am running late, alternative 1 is inconvenient because we have to walk further. 2 and 3 are both acceptable because they are closer to the parking lot/drop-off area in front of the terminal.
Potentially less disruptive to nearby businesses to keep the pier in the center where it currently is instead of moving it closer to mare island brewing or the building opposite.
Gangway is closest to Ferry Building. Ferry Building might sell tickets, since it was built for that!
Alternative 2 makes the most sense to me because it doesn't extend too far out into the narrow waterway but still puts the dock in significantly deeper water.
Use existing dock
The alternative is closest to the retail and service industries in the area.
keeps the walking path from ticket office and Mare Island Brewing clear
The straight gangway in Alternative 3 is ideal for smooth foot traffic; Alternative 1 is my second choice as it would allow passengers to begin to line up away from the restaurants, freeing up space for people who are walking/running casually (with children or animals) and still being close enough for passengers to visit and support the nearby restaurants.
Uses existing infrastructure. Somewhat models the configuration in SF at the Ferry Terminal
Aligns better with the Georgia Street commercial corridor and closer to coffee in the morning to prevent sprinting to the gate, please work on making un-used sidewalk space into more secured bike parking or habitat restoration. Would love some trees, benches or canopy extension in queing area.
Uses what’s already there and does not block pedestrian walkways
Exit is close to car pickup and the cross walk to the parking lot
These are all acceptable if it means that the disruption from during dredging and low-tide events. Posibilities that would consider infilling the space for a ferry plaza similar to the plaza in front of the ferry docks in San Francisco may be desirable for the area.
appears to allow the longest queue that is covered from the elements
They don't impact passenger differently.

It keeps everything as much the same as now as possible and uses that indented space, which will not be used by anything else in the future.
Point of entry to ferry is similar distance from any parking area.
Less conglomeration
#2 and #3 are best because they are more like the pedestrian traffic pattern curently followed.
All are similar.
I like it.
Closer to the side I commute from
It's right in the center.
It utilizes the existing pier and it is the least disruptive to the other businesses and potential businesses on either side.
Alternative 2 would make it easier to patronize small local businesses.
Closer to ferry terminal parking and the building it self
Keep it at the current entrance gate/gangway. Because: Design 1 is problematic as construction may begin soon at the old dental building and it is too far from Ferry building. Design 2 interferes with the Ferry Building /Taproom and the other restaurants etc . too crowded being that close to ferry building (except on low ridership boats) If possible to build a public kayak launch also, then do so just north of the Ferry building.
adding to my previous comments: Be certain to consult with the Napa Vine Trail about their construction plans in addition to the Bay Water Trail and the Bay Trail -Contact Solano TAG- Also ask boaters.
More convenient to the restaurants and parking
I like the idea of using the existing pier so that there's no impact to adjacent businesses.
Makes use of the existing pier that is gated, has ticket scanners and covered walkways and fuel hose. No need to redo the whole process. Plus, you can see the line while you're in the coffee shop.
Looks good
It uses the existing boarding platform
Design, cost, durability days needed ... not just 1, 2, or 3 !!
Makes the cafe and restaurant more accessible and attractive to riders.
The positioning of the pier is not as important as accessibility to all riders, especially those with disabilities.
To utilize the existing infrastructure and seems less intrusive in the channel. Although my view is that it should remain where it is instead of being out in the channel. Dredging is the required maintenance for this just like paving is for maintaining a road There's a ton of money being made off toll roads and they continue to create more toll roads which I also disagree with so that should be used for maintenance not reconfiguring and jutting out into the channel which can impact waterway travel
Close to current businesses, less walking on pier

No, I'd like the parking area to be safe to park at first! I will not ride the ferry, and I will not recommend riding the ferry in Vallejo until you fix the parking crime issue… This is very long overdue!
It uses some of the existing infrastructure in place.
Keeps lines for the ferry at arms length from adjacent business. The "float" section is great, the extension beyond the bulkhead into deeper water is great, the fixed pier will hopefully be designed NOT to create a barrier that could cause silt buildup
The float faces north to south instead of south to north for easier docking/pushoff to and from SF. Also, more queueing on the pier to allow for more walking space on waterfront during peak times.
Utilizes existing structure
You already have the structure and there is protection from rain and wind
I like the redesign of all of them!
It appears to be the most efficient
Easiest access to ferry and allows for smaller crafts to dock in old terminal
Closest to main ferry buildings and looks less disruptive in construction than Alternative 3.
Move line further away from heavy pedestrian traffic area
The way the silt flows down the river it makes the most sense. Otherwise, isn't dredging going to be even more of a problem?
I like how it uses the existing walk way and in the middle and doesn't disrupt the normal activities around the ferry building.
Seems to be the best option in terms of ample space for lining up
May be the least costly due to existing float.
2 I like the best, but all work
A secured parking lot
This would be the best alternative to avoid traffic on all sides. Also I think it would be great if some of the money would be invested in cleaning the area and overall giving the ferry terminal a long time overdue makeover. There should be nice areas for individuals to hang out. Maybe even some new benches and tables. A dog park in the large grass area would be fantastic and it would attract more people into the area which would greatly benefit the local businesses and hopefully attract tourist. This particular area of Vallejo has so much potential but the city needs to pit in more effort.
It makes use of an already existing structure and does not clutter the waterfront with additional piers or gangways.
It uses the space already accessed and doesn't interfere with the Mair island brewery as much as alternative 2
Ease of access
I like that it has no additional adds to the surrounding dock.
Seems direct with less turning of the boat. I think it may be less disruptive to fishermen, but not totally sure.

Please dredge the area so other ships can dock aa well.
Maintains central entry to Vallejo; utilizes existing infrastructure; doesn't disrupt waterfront restaurants.
complete use of area
As long as I can ride the ferry I don't care how I board it and if it saves money I'm all for it
Cost
They all look good
Looks nicely balanced
I have a slight preference for NOT #1 (red) because it's the longest walk from the coffee shop, but whatever, I'll adapt.
Prefer that design
Alternativa 1
Seems to be the most direction approach without having to open up already existing safety barricades.
One time regular commuter one should take note that the security issues within the public garage across the ferry terminal needs serious addressing. Inhibits many to even use the garage & likely City losing a lot of revenue when facility is underused.
Keeps existing pathway.
Whichever has the quickest departure from Vallejo. Departure time more important than return/arrival time
It's most similar to the usual configuration
It seems like the most accommodating option and doesn't impact businesses in the ferry building and leaves the walkway open on the other side by the old dentist office.
It is the most obvious and closest entry point from the street, easier for those who get dropped off. #1 is too far from the ferry building.
It uses what is already in place.
Either way works
I prefer #3 to keep the area by the coffee shop less congested but anyone is fine
So many reasons why it should be where it is- it's the grand entrance, that people can see easily. It makes sense for the line to start there.
Logical for existing ferry facilities
Most closely similar to the existing dock.
Parking is very important
Foot traffic should be pushed out onto Mare Island way.
I think all options are viable. However, I prefer queuing up in a line that wraps around near the ferry building and Mare Island Brewing Co.
Works with existing traffic patterns and prevents congestion near restaurant.
Would love to see the layout kept familiar for everyone.
Closer to businesses where people might wait before starting to queue

Maintains easy access to both north and south lots from end of walkway
Looks nicer.
Diversity of pick up points
Seems like faster way to get to work.
Closest to the Ferry building.
This seems to be the most cost effective and blocks less of the current facilities for use if needed.
Similar to how it is now, easiest for line up.
I like the centered option for its entrance / exit.
Better access to businesses in the ferry building while waiting for the boat.
Ferry building view
It keeps the ferry entrance in the same location as it is currently
Practical and it doesn't disrupt the flow of falling in line.
More central
Uses security gate and clipper card stations already in place. Moves foot traffic away from ferry building and empty building.
Works with an already existing fixed pier; will hopefully save money.
Send like best configuration for access to the parking lot
It’s easier to have the exit and entrance the same
The entrance stays the same.
There isn't an obvious, huge difference in passenger experience between these three designs. I'd imagine there may be an operational benefit to Alternative 2 & 3 vs 1, but I don't know enough about operating a ferry to say that.
Provides the same access point as the original one. Possibly less cost for setup.
Alternative 3 utilizes existing infrastructure and would incorporate an already-known and established system in terms of passenger queuing (lining up) areas. Alternative 1 puts the queuing area too far south of the terminal building. Alternative 2 would (likely) heavily cluster passengers while queuing in an area with lots of pedestrian traffic (walkers, bicycles, children, pets, the brewery, etc.), especially during peak demand times.
Same entrance and exit as before
Least amount of change
I'm fine with 1 or 2. They are closer to the dropoff zone, the coffee / food and the intersection that people are arriving from. 3 doesn't make sense. There's noting over there and it will take longer to get to. PS I'd love to ride the ferry for leisure, but it's difficult to do so because the last ferry from SF is so early.
Less obstruction, more room for navigation.
It keeps the entrance in the same location
I like Option 3 the best, but I see advantages to all the configurations.
Less people will be confused when the change happens.

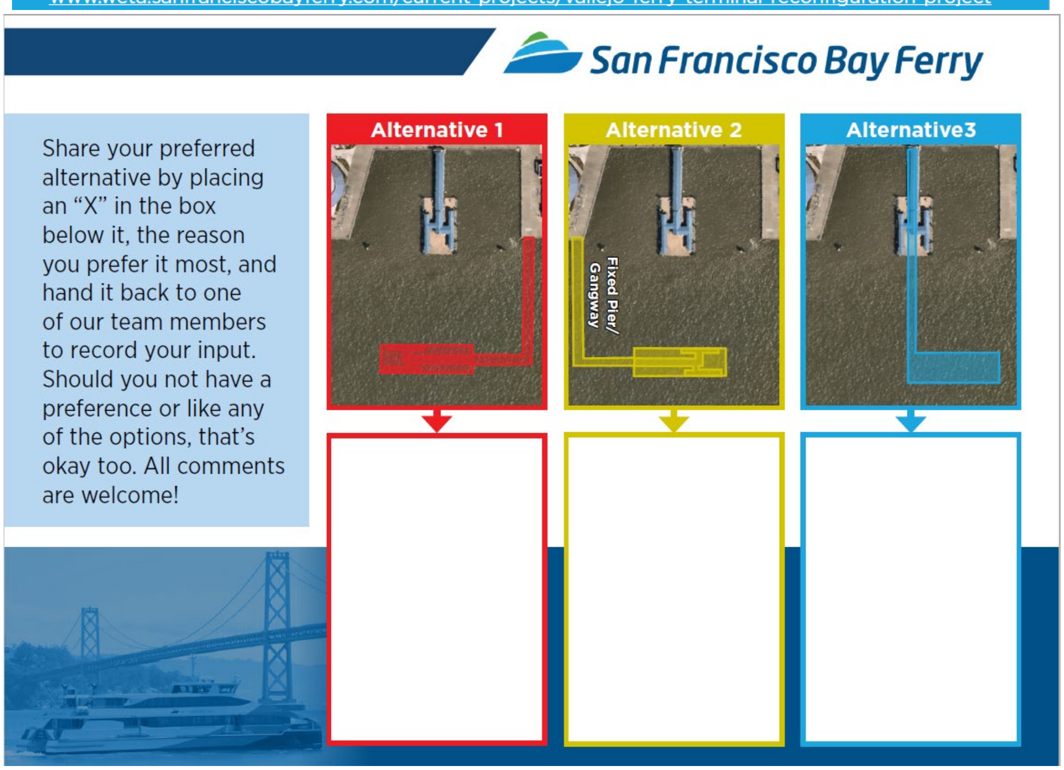
Seems to be fastest and cheapest option and diversifies pickup points.
It keeps it mostly the same and gives more roof cover when queuing
Unless there is another use for the berthing area, #3 is my favorite but all are acceptible
Seems like it would make the most sense to use the existing gangway
I like the location of alternative 3 the best because it's a good distance from the ferry building without being too far away. I think alternative 2 looks good, but it may get crowded with passengers lining up close to the ferry building. I am wondering if alternative 2 will conflict with the brewery and restaurant if the pier entrance is at that corner. Alternative 1 may be too far away and is my least favorite alternative.
Quicker access to multiple ferries.
Maintains current lineup strategy. Better flexibility for ride drop-off pickup.
It makes use of an existing structure and is conveniently accessible to Mare Island Brewing, the coffee place, and the ticket office without potential causing blocked access to those businesses with the lines that tend to build up. We use the ferry to meet family who live in SF.
Keeps the line from mingling with anything happening in the area.
Looks like the least expensive. Otherwise Alternative 1 is ok too.
Status quo, current arrangement works well
its fine how it is, no reason to create more costs. besides general maint. and upkeep keep it the way it is
Less walking from the ferry terminal
More centralized wrt parking lots.
it continues to use the existing pier
Closer to the ferry bldg.
Queueing direction and distance would be retained. Seems like a cleaner, more straightforward design. An upgraded entrance gate to the gangway would be great as well.
They each appear to be the same in terms of convenience/accessibility and space. I don't have knowledge or understanding of what other factors need to be considered.
Keeps seawall area to the north more open, which could benefit future use of that seawall as a landing for smaller, shallow-draft ferries or tour boats. That use existed previously.
connects to existing fixed pier/gangway.
Alternative 3 will provide the least disruption to riders. Most riders park across the street or are dropped off at the curb directly in front of the current gangway location. Having a centralized location makes the most sense if the majority of riders are entering from this area anyway. Also in instances where a rider may be running late, the centralized location is the shortest distance from Mary Island Way. Riders will have a better chance of making the ferry last minute if they don't have to run to either side of the inlet area.
Straight walk from the parking garage. Same entrance we’ve always used.
Seems to be the most efficient as it modifies the existing access point.

It is the closest configuration to current design and seems best to accommodate passenger lines. - alt. 2 would be my 2nd preference since it is very close to the terminal bldg. - alt. 1 is to far away from the terminal bldg.
Less construction needed
closer to the parking area
Closest to the parking lot
Builds off of what is existing, doesn't impede on citizens walking path of the pier. Allows for a ferry to arrive and depart easily. Keeps congestion to a minimum with expansion from existing gate. Still allows a view for customers at local business and citizens walking.
Keeps the entrance from shore the same and would create less queueing in front of local businesses.
it looks cooler and probably makes the most sense due to ticket office location

APPENDIX B – OUTREACH COLLATERAL

Postcards

Postcard 1



Postcard 2 (Revised with No Preferred Alternative)

San Francisco Bay Ferry

CALLING ALL FERRY RIDERS – WE NEED YOUR INPUT!

WETA is working on a project to reconfigure the existing Vallejo Ferry Terminal. The project will reduce annual maintenance costs and impacts on the environment, increase operational safety, and improve the overall rider experience.

An environmental study is underway, and we're asking for feedback on three alternatives, each with different access points around the perimeter of the basin (see figure on the back):

- *Alternative 1 and 2 propose access from outside of the basin (southwest and northwest corners respectively) with a "dog-leg" design providing pedestrian access to the ferry.*
- *Alternative 3 proposes extended pedestrian access from the existing ferry terminal access point.*
- *Each option will provide more passenger queuing area, improve operational safety, and reduce commute times.*

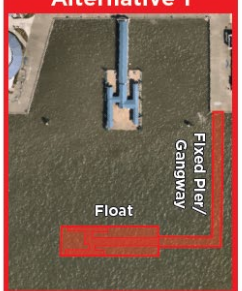
Scan me!

Sign up for the upcoming virtual public meeting or share your input by scanning the QR code. For more information, visit
weta.sanfranciscobayferry.com/current-projects/vallejo-ferry-terminal-reconfiguration-project

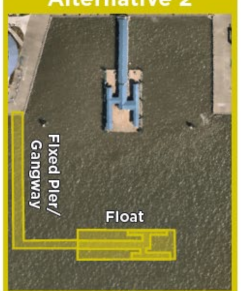
San Francisco Bay Ferry

Share your preferred alternative by placing an "X" in the box below it, the reason you prefer it most, and hand it back to one of our team members to record your input. Should you not have a preference or like any of the options, that's okay too. All comments are welcome!

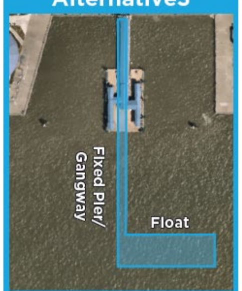
Alternative 1



Alternative 2

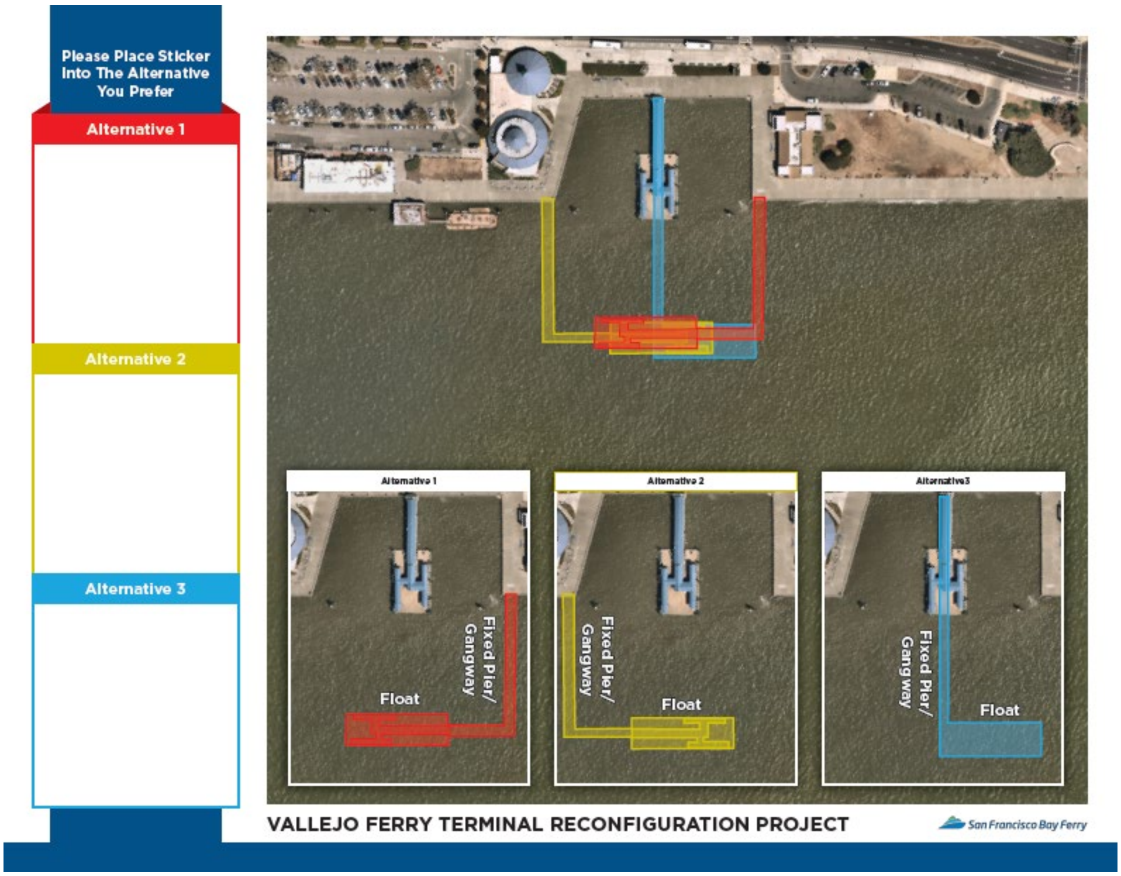


Alternative3



No Preferred Option

Posterboards



Appendix B

Air Quality Assessment

Air Quality Assessment
Vallejo Ferry Terminal Reconfiguration Project
City of Vallejo, California

Prepared by:

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Expect More. Experience Better.

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December 2023

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LIST OF ABBREVIATED TERMS

AQMP	air quality management plan
AB	Assembly Bill
ADT	average daily traffic
BAAQMD	Bay Area Air Quality Management District
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAAQS	California Ambient Air Quality Standards
CCAA	California Clean Air Act
CalEEMod	California Emissions Estimator Model
CEQA	California Environmental Quality Act
CO	carbon monoxide
cy	cubic yards
DPM	diesel particulate matter
EPA	Environmental Protection Agency
FCAA	Federal Clean Air Act
H_2S	hydrogen sulfide
Pb	Lead
LST	local significance threshold
$\mu g/m^3$	micrograms per cubic meter
mg/m^3	milligrams per cubic meter
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
NO_x	nitrogen oxide
O_3	Ozone
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
ROG	reactive organic gases
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SRA	source receptor area
SF	square foot
SO_{4-2}	Sulfates
SO_2	sulfur dioxide
TAC	toxic air contaminant
C_2H_3Cl	vinyl chloride
VOC	volatile organic compound

1 INTRODUCTION

This report describes effects on air quality conditions in the proposed Vallejo Ferry Terminal Reconfiguration Project (Project) area. The current condition of air quality was used as the baseline against which to compare potential impacts of the Project. The purpose of this Air Quality Assessment is to evaluate potential air quality impacts resulting from implementation of the Project.

1.1 PROJECT LOCATION

The Project site is located at 289 Mare Island Way in the City of Vallejo (City), Solano County, California. The Project includes the existing Vallejo Ferry Terminal, which consists of a steel float structure, aluminum gangway, and covering. The Project site is accessible by vehicle via Mare Island Way, and by ferry. See Figure 1: Regional Location and Figure 2: Vicinity Map.

Additional uses in this area along the Mare Island Strait include the Vallejo Tourism Information Center and commercial retail uses to the east and northeast, Independence Park to the southeast, Barbara Kondylis Waterfront Green to the northwest, a currently vacant office building to the south, and parking areas surrounding the site. Parking is currently provided to the east within waterfront parking lots on the eastern side of Mare Island Way, across the street from terminal site. The existing parking lots and garage areas adjacent to the proposed Project site accommodate Vallejo Ferry Terminal and Transit Center passengers and employees, guests and employees of the Tourism Information Center building and surrounding restaurants, and public users.

1.2 PROJECT DESCRIPTION

The proposed Project would be located on the eastern shore of the Mare Strait, within the footprint of the existing ferry terminal and basin area. The proposed terminal would remove and replace 5,322 square feet (sf) of existing gangway, passenger float, and piles with a new reconfigured gangway, passenger float, and piles. The new Water Emergency Transportation Authority (WETA) Standard float would be approximately 134.5 feet by 42 feet and would accommodate both sides of the float for passenger loading and unloading. No new structures are proposed. Passenger waiting areas would be located along a portion of the San Francisco Bay Trail in a designated outdoor queuing area adjacent to the proposed gangway entry gate. Figure 3: Project Site Plan -- Preferred Project, Figure 4: Project Site Plan -- Configuration Option 1, and Figure 5: Project Site Plan -- Configuration Option 2 depict the overall site plan of each alternative for the proposed Project.

The Project site is zoned as Waterfront Mixed-Use and is located in an urban area with a mix of uses including recreational, commercial, office, and medium to high density residential uses. The surrounding project site is designated under the Parks, Recreation, and Open Space land use, and is zoned Waterfront Mixed-Use.

Construction is anticipated to begin in Summer 2025 with an anticipated completion date of late Winter 2025. Construction methods would include demolition of the existing piles, gangway, and float, site preparation, ground improvements, utility installation or reconfiguration, Bay fill removal (existing piles), and placement for installation of pilings for the new float and donut fenders, and fixed pier support.

The proposed Project would not result in any changes to the existing operational uses of the Project site. The proposed Project would result in the reconfiguration of the existing ferry terminal. Therefore, the proposed facilities would have the same uses that are currently used for standard WETA ferry operations that transport passengers to San Francisco Bay ferry terminals.

Source: ESRI, 2023

Figure 1: Regional Map

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn

Source: Nearmap, 2023

Figure 2: Vicinity Map

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

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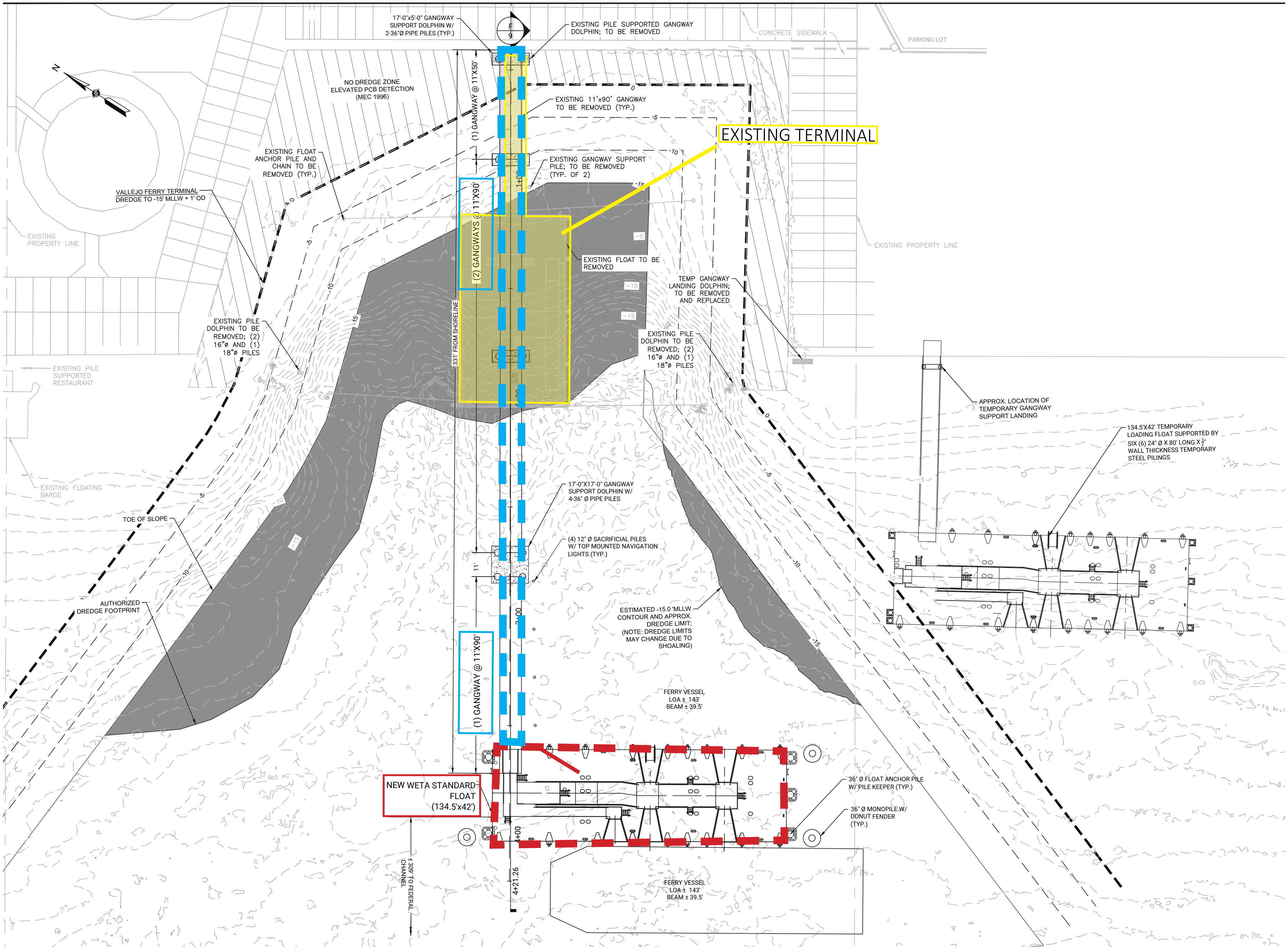

Source: Foth, 2023

Figure 3: Project Site Plan -- Preferred Project

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

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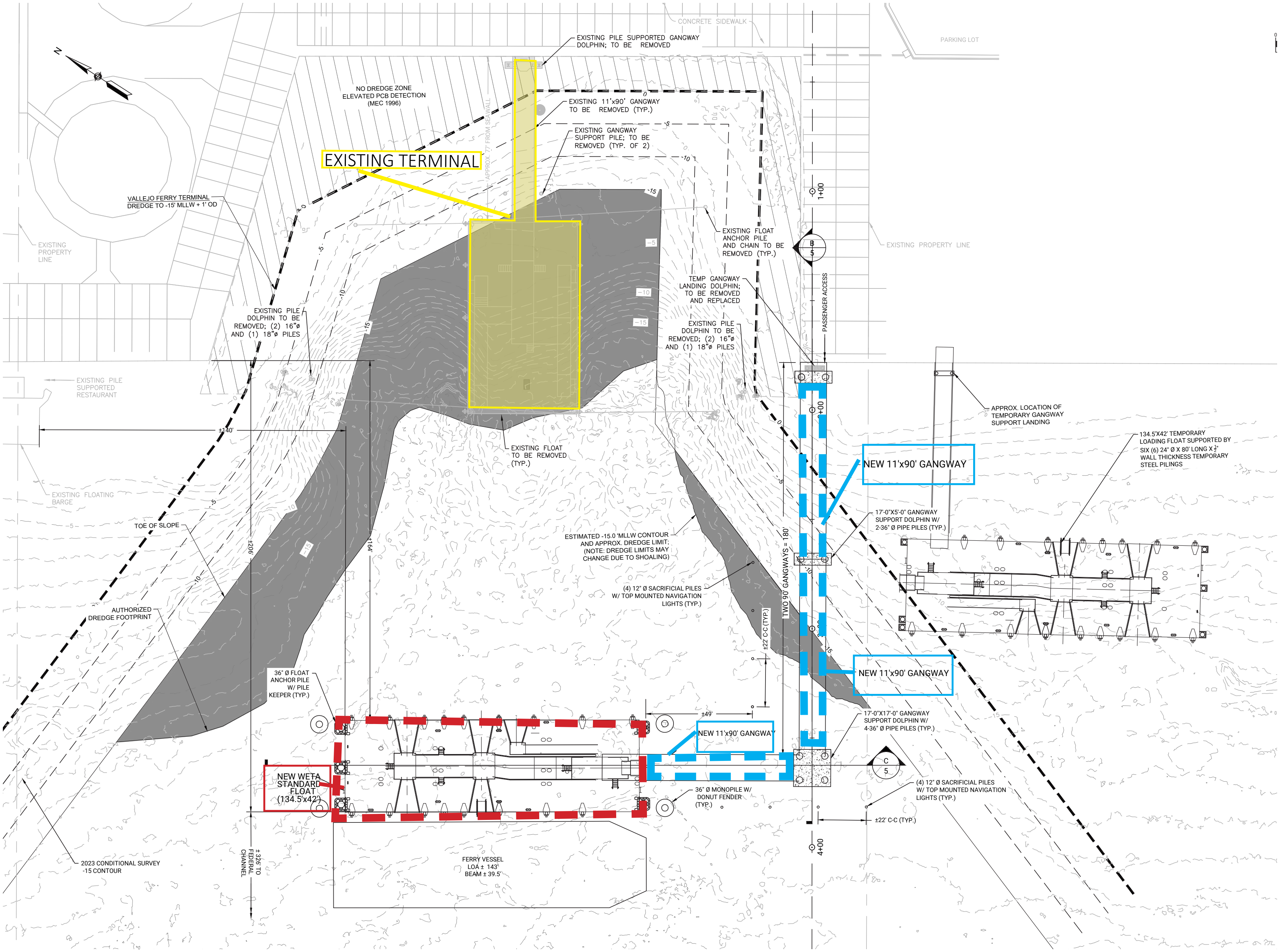

Source: Foth, 2023

Figure 4: Project Site Plan -- Configuration Option 1

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

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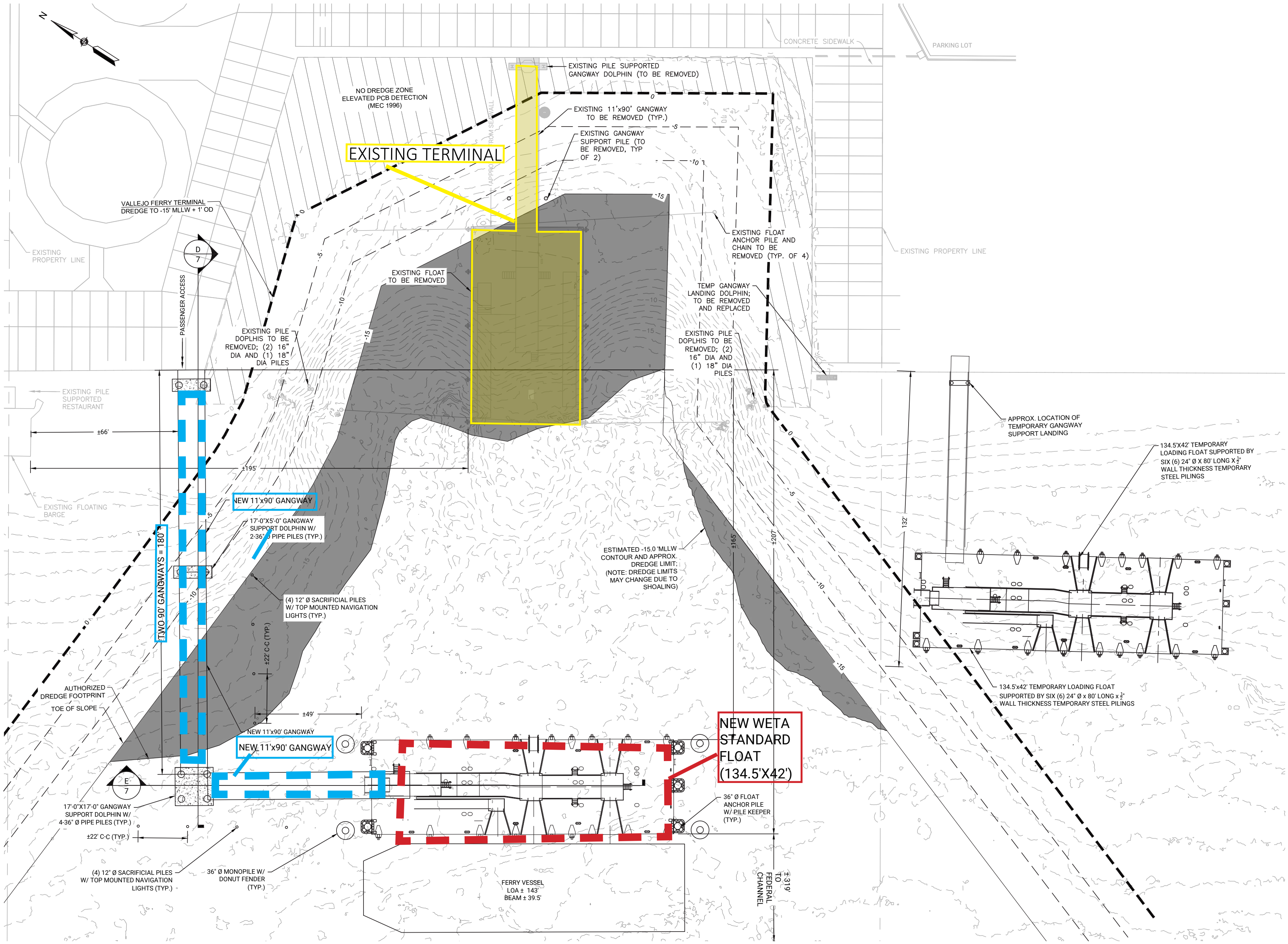

Source: Foth, 2023

Figure 5: Project Site Plan -- Configuration Option 2

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn

2 ENVIRONMENTAL SETTING

2.1 CLIMATE AND METEOROLOGY

The California Air Resources Board (CARB) divides the State into 15 air basins that share similar meteorological and topographical features. The Project is located within the San Francisco Bay Area Air Basin (Basin). This Basin comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern portion of Sonoma County, and the southwestern portion of Solano County. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. These factors along with applicable regulations are discussed below. The Bay Area Air Quality Management District (BAAQMD) is responsible for local control and monitoring of criteria air pollutants throughout the Basin.

Climate, or the average weather condition, affects air quality in several ways. Wind patterns can remove or add air pollutants emitted by stationary or mobile sources. Inversion, a condition where warm air traps cooler air underneath it, can hold pollutants near the ground by limiting upward mixing (dilution). Topography also affects the local climate, as valleys often trap emissions by limiting lateral dispersal.

The inversions typical of winter, called radiation inversions, are formed as heat quickly radiates from the earth's surface after sunset, causing the air in contact with it to rapidly cool. Radiation inversions are strongest on clear, low-wind, cold winter nights, allowing the build-up of such pollutants as carbon monoxide and particulate matter. When wind speeds are low, there is little mechanical turbulence to mix the air, resulting in a layer of warm air over a layer of cooler air next to the ground. During radiation inversions downwind transport is slow, the mixing depths are shallow, and turbulence is minimal, all factors which contribute to ozone formation.

The frequency of hot, sunny days during the summer months in the Basin is another important factor that affects air pollution potential. It is at the higher temperatures that ozone is formed. In the presence of ultraviolet sunlight and warm temperatures, reactive organic gases and oxides of nitrogen react to form secondary photochemical pollutants, including ozone.

The climate is dominated by the location and strength of a semi-permanent, subtropical high-pressure cell. In the summer, the Pacific cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below the surface because of the northwesterly flow produces a band of cold water off the coast which results in condensation and the presence of fog and stratus clouds along the coast. In the winter, the high-pressure cell weakens and shifts southward, resulting in increased wind flow offshore, the absence of upwelling, and the occurrence of storms.

The Basin is characterized by moderately wet winters (November through March) and dry summers. The rainfall in the mountains reaches 40 inches while the valley sees less than 16 inches. Generally, coastal temperatures can be 35 degrees Fahrenheit cooler than temperatures 15 to 20 miles inland. At night, this contrast usually decreases to less than 10 degrees Fahrenheit. In the winter, the relationship of minimum and maximum temperatures is reversed.

The Project site is located in the City of Vallejo and Solano County; on the northeastern perimeter of the San Francisco Bay. The City of Vallejo has a generally mild climate, with average temperature ranging from 48 degrees Fahrenheit and 70 degrees Fahrenheit. The annual rainfall is approximately 18 inches in the City, primarily between October and April. The regulatory section below discusses the various buffer zones around sources of air pollution sufficient to avoid adverse health and nuisance impacts on nearby receptors.

2.2 AIR POLLUTANTS OF PRIMARY CONCERN

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state laws. These regulated air pollutants are known as “criteria air pollutants” and are categorized into primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxide (NO_X), sulfur dioxide (SO_2), coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead are primary air pollutants. Of these, CO, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ are criteria pollutants. ROG and NO_X are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. For example, the criteria pollutant ozone (O_3) is formed by a chemical reaction between ROG and NO_X in the presence of sunlight. O_3 and nitrogen dioxide (NO_2) are the principal secondary pollutants. Sources and health effects commonly associated with criteria pollutants are summarized in Table 1: Air Contaminants and Associated Public Health Concerns.

Ozone, or smog, is not emitted directly into the environment, but is formed in the atmosphere by complex chemical reactions between ROG and NO_X in the presence of sunlight. Ozone formation is greatest on warm, windless, sunny days. The main sources of NO_X and ROG, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) the evaporation of solvents, paints, and fuels, and biogenic sources. Automobiles are the single largest source of ozone precursors in the Basin. Tailpipe emissions of ROG are highest during cold starts, hard acceleration, stop-and-go conditions, and slow speeds. They decline as speeds increase up to about 50 miles per hour (mph), then increase again at high speeds and high engine loads. ROG emissions associated with evaporation of unburned fuel depend on vehicle and ambient temperature cycles. Nitrogen oxide emissions exhibit a different curve; emissions decrease as the vehicle approaches 30 mph and then begin to increase with increasing speeds.

Ozone levels usually build up during the day and peak in the afternoon hours. Short-term exposure can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, it can aggravate existing respiratory diseases such as asthma, bronchitis and emphysema. Chronic exposure to high ozone levels can permanently damage lung tissue. Ozone can also damage plants and trees, and materials such as rubber and fabrics.

Table 1: Air Contaminants and Associated Public Health Concerns

Pollutant	Major Man-Made Sources	Human Health Effects
Particulate Matter (PM_{10} and $PM_{2.5}$)	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; asthma; chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility.
Ozone (O_3)	Formed by a chemical reaction between reactive organic gases/volatile organic compounds (ROG or VOC)[1] and nitrogen oxides (NO_X) in the presence of sunlight. Motor vehicle exhaust industrial emissions, gasoline storage and transport, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
Sulfur Dioxide (SO_2)	A colorless gas formed when fuel containing sulfur is burned and when gasoline is extracted from oil. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO_2)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone. Contributes to global warming and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Lead (Pb)	Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Due to the phase out of leaded gasoline, metals processing is the major source of lead emissions to the air today. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.	Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children, resulting in learning deficits and lowered IQ.

[1] Volatile Organic Compounds (VOCs or Reactive Organic Gases [ROG]) are hydrocarbons/organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including ROGs and VOCs. Both ROGs and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation).

Source: California Air Pollution Control Officers Association (CAPCOA), *Health Effects*, capcoa.org/health-effects/, accessed December 2023.

Toxic Air Contaminants

Toxic air contaminants (TACs) are airborne substances that can cause short-term (acute) or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes more than 200 compounds, including particulate emissions from diesel-fueled engines.

The California Air Resources Board (CARB) identified diesel particulate matter (DPM) as a toxic air contaminant. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases produced when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. DPM includes the particle-phase constituents in diesel exhaust. The chemical composition and particle sizes of DPM vary between different engine types (heavy-duty, light-duty), engine operating conditions (idle, accelerate, decelerate), fuel formulations (high/low sulfur fuel), and the year of the engine. Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

2.3 AMBIENT AIR QUALITY

CARB monitors ambient air quality at approximately 250 air monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations ten feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. Existing levels of ambient air quality, historical trends, and projections near the Project site are documented by measurements made by the Bay Area Air Quality Management District (BAAQMD)'s air pollution regulatory agency that maintains air quality monitoring stations, which process ambient air quality measurements.

Ozone (O_3) and particulate matter (PM_{10} and $PM_{2.5}$) are pollutants of concern in the BAAQMD. The closest air monitoring station to the Project site that monitors ambient concentrations of these pollutants is the Vallejo Monitoring Station (located approximately 1.4 miles northeast of the Project site). Local air quality data from 2020 to 2022 is provided in Table 2: Ambient Air Quality Data lists the monitored maximum concentrations and number of exceedances of federal or state air quality standards for each year. Particulate matter ($PM_{2.5}$) was exceeded in 2020 at the closest monitoring station.

Table 2: Ambient Air Quality Data

Pollutant	Vallejo [1]		
	2020	2021	2022
Ozone (O_3)			
1-hour Maximum Concentration (ppm)	0.096	0.099	0.066
8-hour Maximum Concentration (ppm)	0.077	0.072	0.058
Number of Days Standard Exceeded			
CAAQS 1-hour (>0.09 ppm)	1	1	0
NAAQS 8-hour (>0.070 ppm)	1	1	0
Nitrogen Dioxide (NO_2)			
1-hour Maximum Concentration (ppm)	48.5	40.5	44.2
Number of Days Standard Exceeded			
NAAQS 1-hour (>100 ppm)	0	0	0
CAAQS 1-hour (>0.18 ppm)	0	0	0
Particulate Matter Less Than 2.5 Microns ($PM_{2.5}$)			
National 24-hour Maximum Concentration	152.7	32.0	31.0
State 24-hour Maximum Concentration	153.2	32.0	31.0
Number of Days Standard Exceeded			
NAAQS 24-hour (>150 μg/m³)	12	0	0
CAAQS 24-hour (>50 μg/m³)	12	0	0
Particulate Matter Less Than 10 Microns (PM_{10})			
National 24-hour Maximum Concentration	--	--	--
State 24-hour Maximum Concentration	--	--	--
Number of Days Standard Exceeded			
NAAQS 24-hour (>150 μg/m³)	--	--	--
CAAQS 24-hour (>50 μg/m³)	--	--	--

NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; ppm = parts per million; μg/m³ = micrograms per cubic meter; NM = not measured
[1] Measurements taken at the Vallejo Monitoring Station located at 304 Tuolumne Street, Vallejo, California 94590 (CARB# 43380).
Source: All pollutant measurements are from the CARB Aerometric Data Analysis and Management system database (arb.ca.gov/adam).

2.4 SENSITIVE RECEPTORS

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive receptors in proximity to localized sources of toxics are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. As shown in Figure 6: Sensitive Receptors, sensitive receptors near the Project site include a multi-family residential community approximately 545 feet southeast and the Vallejo John F. Kennedy Library approximately 615 feet east. Table 3: Sensitive Receptors, lists the distances and locations of nearby sensitive receptors.

Table 3: Sensitive Receptors

Receptor Description	Distance and Direction from the Project Site
Multi-family residential community	545 feet southeast
Vallejo John F. Kennedy Library	615 feet east
Pathways Charter School	2,155 feet east

1. Distances are measured from the Project site boundary to the property line.
Source: Google Earth, 2023.

Source: ESRI, 2023

Figure 6: Sensitive Receptors

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn

3 REGULATORY SETTING

3.1 FEDERAL

Federal Clean Air Act

Air quality is federally protected by the Federal Clean Air Act (FCAA) and its amendments. Under the FCAA, the U.S. Environmental Protection Agency (EPA) developed the primary and secondary National Ambient Air Quality Standards (NAAQS) for the criteria air pollutants including ozone, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and lead. Depending on whether the standards are met or exceeded, the local air basin is classified as in "attainment" or "nonattainment." Some areas are unclassified, which means no monitoring data are available. Unclassified areas are considered to be in attainment. Proposed projects in or near nonattainment areas could be subject to more stringent air-permitting requirements. The FCAA requires that each state prepare a State Implementation Plan (SIP) to demonstrate how it will attain the NAAQS within the federally imposed deadlines.

The EPA has designated enforcement of air pollution control regulations to the individual states. Applicable federal standards are summarized in Table 4: State and Federal Ambient Air Quality Standards.

California Air Resources Board

CARB administers California's air quality policy. The California Ambient Air Quality Standards (CAAQS) were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in Table 4, are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates. In general, the Bay Area experiences low concentrations of most pollutants when compared to federal standards, except for O_3 and PM, for which standards are exceeded periodically. With respect to federal standards, the Bay Area's attainment status for 8-hour ozone is classified as "marginal nonattainment" and "nonattainment" for $PM_{2.5.}$ The region is also considered to be in nonattainment with the CAAQS for PM_{10} and $PM_{2.5}$. Area sources generate the majority of these airborne particulate emissions. The Basin is considered in attainment or unclassified with respect to the CO, NO_2 and SO_2 NAAQS and CAAQS.

The California Clean Air Act (CCAA), which was approved in 1988, requires that each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with CAAQS. These AQMPs also serve as the basis for the preparation of the SIP for meeting federal clean air standards for the State of California. Like the EPA, CARB also designates areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events such as wildfires, volcanoes, etc. are not considered violations of a State standard, and are not used as a basis for designating areas as nonattainment. The applicable State standards are summarized in Table 4.

Table 4: State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	State Standards[1]		Federal Standards[2]	
		Concentration	Attainment Status	Concentration[3]	Attainment Status
Ozone (O_3)	8 Hour	0.070 ppm (137 μg/m³)	N[9]	0.070 ppm	N[4]
	1 Hour	0.09 ppm (180 μg/m³)	N	NA	N/A[5]
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m³)	A	9 ppm (10 mg/m³)	A[6]
	1 Hour	20 ppm (23 mg/m³)	A	35 ppm (40 mg/m³)	A
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm (339 μg/m³)	A	0.10 ppm[11]	U
	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)	-	0.053 ppm (100 μg/m³)	A
Sulfur Dioxide[12] (SO_2)	24 Hour	0.04 ppm (105 μg/m³)	A	0.14 ppm (365 μg/m³)	A
	1 Hour	0.25 ppm (655 μg/m³)	A	0.075 ppm (196 μg/m³)	A
	Annual Arithmetic Mean	NA	-	0.03 ppm (80 μg/m³)	A
Particulate Matter (PM_{10})	24-Hour	50 μg/m³	N	150 μg/m³	U
	Annual Arithmetic Mean	20 μg/m³	N[7]	NA	-
Fine Particulate Matter ($PM_{2.5}$) [15]	24-Hour	NA	-	35 μg/m³	U/A
	Annual Arithmetic Mean	12 μg/m³	N[7]	12 μg/m³	N
Sulfates (SO_{4-2})	24 Hour	25 μg/m³	A	NA	-
Lead (Pb)[13, 14]	30-Day Average	1.5 μg/m³	-	NA	A
	Calendar Quarter	NA	-	1.5 μg/m³	A
	Rolling 3-Month Average	NA	-	0.15 μg/m³	-
Hydrogen Sulfide (H_2S)	1 Hour	0.03 ppm (0.15 μg/m³)	U	NA	-
Vinyl Chloride (C_2H_3Cl)	24 Hour	0.01 ppm (26 μg/m³)	-	NA	-
Visibility Reducing Particles[8]	8 Hour (10:00 to 18:00 PST)	-	U	-	-

A = attainment; N = nonattainment; U = unclassified; N/A = not applicable or no applicable standard; ppm = parts per million; μg/m³ = micrograms per cubic meter; mg/m³ = milligrams per cubic meter; – = not indicated or no information available.

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. In particular, measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the state standard.
2. National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.070 ppm (70 ppb) or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 $\mu g/m_3$. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than 35 μg/m³.
   Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM_{10} is met if the 3-year average falls below the standard at every site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.
3. National air quality standards are set by the EPA at levels determined to be protective of public health with an adequate margin of safety.

4. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. EPA will make recommendations on attainment designations by October 1, 2016, and issue final designations October 1, 2017. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the ozone level in the area.
5. The national 1-hour ozone standard was revoked by U.S. EPA on June 15, 2005.
6. In April 1998, the Bay Area was redesignated to attainment for the national 8-hour carbon monoxide standard.
7. In June 2002, CARB established new annual standards for $PM_{2.5}$ and PM_{10}.
8. Statewide VRP Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.
9. The 8-hour CA ozone standard was approved by the Air Resources Board on April 28, 2005 and became effective on May 17, 2006.
10. On January 9, 2013, EPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ national standard. This EPA rule suspends key SIP requirements as long as monitoring data continues to show that the Bay Area attains the standard. Despite this EPA action, the Bay Area will continue to be designated as "nonattainment" for the national 24-hour $PM_{2.5}$ standard until such time as the Air District submits a "redesignation request" and a "maintenance plan" to EPA, and EPA approves the proposed redesignation.
11. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100ppm (effective January 22, 2010). The US Environmental Protection Agency (EPA) expects to make a designation for the Bay Area by the end of 2017.
12. On June 2, 2010, the U.S. EPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99^{th} percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO_2 NAAQS however must continue to be used until one year following U.S. EPA initial designations of the new 1-hour SO_2 NAAQS.
13. CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure below which there are no adverse health effects determined.
14. National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.
15. In December 2012, EPA strengthened the annual $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS) from 15.0 to 12.0 micrograms per cubic meter (μg/m^3). In December 2014, EPA issued final area designations for the 2012 primary annual $PM_{2.5}$ NAAQS. Areas designated "unclassifiable/attainment" must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.

Source: Bay Area Air Quality Management District, *Air Quality Standards and Attainment Status*, 2017 http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status.

3.2 REGIONAL

Bay Area Air Quality Management District

The BAAQMD is the regional agency with jurisdiction over the nine-county region located in the Basin. The Association of Bay Area Governments (ABAG), Metropolitan Transportation Commission (MTC), county transportation agencies, cities and counties, and various nongovernmental organizations also join in the efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs.

Clean Air Plan

Air quality plans developed to meet federal requirements are referred to as State Implementation Plans. The federal and state Clean Air Acts require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM_{10} standard). The BAAQMD is responsible for developing a Clean Air Plan, which guides the region's air quality planning efforts to attain the CAAQS. The BAAQMD adopted the *2017 Clean Air Plan: Spare the Air, Cool the Climate* (2017 Clean Air Plan) on April 19, 2019, by the BAAQMD.

BAAQMD periodically develops air quality plans that outline the regional strategy to improve air quality and protect the climate. The most recent plan, 2017 Clean Air Plan, includes a wide range of control measures designed to reduce emissions of air pollutants and greenhouse gases (GHGs), including the following examples that may be relevant to this Project: reduce emissions of toxic air contaminants by adopting more stringent limits and methods for evaluating toxic risks; implement pricing measures to reduce travel demand; accelerate the widespread adoption of electric vehicles; promote the use of clean fuels; promote energy efficiency in both new and existing buildings; and promote the switch from natural gas to electricity for space and water heating in Bay Area buildings.

The 2017 Clean Air Plan provides a regional strategy to protect public health and protect the climate. To protect public health, the plan describes how the BAAQMD will continue progress toward attaining all state and federal air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities. To protect the climate, the 2017 Clean Air Plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious GHG reduction targets for 2030 and 2050 and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets. The 2017 Clean Air Plan contains district-wide control measures to reduce ozone precursor emissions (i.e., ROG and NO_X), particulate matter, TACs, and greenhouse gas emissions. The Bay Area 2017 Clean Air Plan updates the Bay Area 2010 Clean Air Plan in accordance with the requirements of the California Clean Air Act to implement "all feasible measures" to reduce ozone; provides a control strategy to reduce ozone, PM, TACs, and greenhouse gases in a single, integrated plan; reviews progress in improving air quality in recent years; and establishes emission control measures to be adopted or implemented in both the short term and through 2050.

The 2017 Clean Air Plan includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as particulate matter, ozone, and toxic air contaminants; to reduce emissions of methane and other "super-GHGs" that are potent climate pollutants in the near-term; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

The following BAAQMD rules would limit emissions of air pollutants from construction and operation of the Project:

- Regulation 6, Rule 3 – Wood-Burning Devices. The purpose of this rule is to limit emissions of particulate matter and visible emissions from wood-burning devices used for primary heat, supplemental heat or ambiance.

- Regulation 8, Rule 3 – Architectural Coatings. This rule governs the manufacture, distribution, and sale of architectural coatings and limits the reactive organic gases content in paints and paint solvents. Although this rule does not directly apply to the Project, it does dictate the ROG content of paint available for use during the construction.

- Regulation 8, Rule 15 – Emulsified and Liquid Asphalts. This rule dictates the reactive organic gases content of asphalt available for use during construction through regulating the sale and use of asphalt and limits the ROG content in asphalt. Although this rule does not directly apply to the project, it does dictate the ROG content of asphalt for use during the construction.

- Regulation 9, Rule 8 – Organic Compounds. This rule limits the emissions of nitrogen oxides and carbon monoxide from stationary internal combustion engines with an output rated by the manufacturer at more than 50 brake horsepower.

BAAQMD prepared an Ozone Attainment Demonstration Plan to satisfy the federal 1-hour ozone planning requirement because of the Air Basin's nonattainment for federal and State ozone standards. The U.S. EPA revoked the 1-hour ozone standard and adopted an 8-hour ozone standard. The BAAQMD will address the new federal 8-hour ozone planning requirements once they are established.

3.3 LOCAL

City of Vallejo General Plan

The Vallejo General Plan includes the following policies intended to control or reduce air pollution impacts:

Policy CP – 1.12: Clean Air. Protect the community from harmful levels of air pollution.

Action CP-1.12A: Convert the City fleet of street sweepers and other large-scale equipment from fossil fuel to alternative fuel types, and work with service providers to convert refuse and recycling trucks to alternative fuels, in conformance with Bay Area Air Quality Management District (BAAQMD) requirements for fleets.

Action CP-1.12B: Update City regulations to set BAAQMD-recommended limits for particulate emissions from construction, demolition, debris hauling, and utility maintenance.

Action CP-1.12C: Provide information regarding advances in air-quality protection measures to schools, home owners, and operators of "sensitive receptors" such as senior and child care facilities.

Action CP-1.12D: Periodically review and update City regulations to comply with changes in State law and BAAQMD Guidelines pertaining to coal and wood-burning devices.

Action CP-1.12E: Periodically review the Building Code for consistency with the latest California Green Building Standards Code, and assess the need for updates to require new construction and remodels to employ best practices and materials to reduce emissions, both during and after construction.

Action CP-1.12F: Update City regulations to prohibit grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour, or require the use of water trucks to wet soil.

4 SIGNIFICANCE CRITERIA AND METHODOLOGY

4.1 AIR QUALITY THRESHOLDS

State CEQA Guidelines Appendix G

Based upon the criteria derived from California Environmental Quality Act (CEQA) Guidelines Appendix G, a project normally would have a significant effect on the environment if it would:

AQ-1 Conflict with or obstruct implementation of the applicable air quality plan?

AQ-2 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

AQ-3 Expose sensitive receptors to substantial pollutant concentrations?

AQ-4 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Air Quality Thresholds

Under CEQA, BAAQMD is an expert commenting agency on air quality within its jurisdiction or impacting its jurisdiction. Under the FCAA, BAAQMD has adopted federal attainment plans for O_3 and $PM_{2.5}$. BAAQMD reviews projects to ensure that they would not: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any Federal attainment plan.

The BAAQMD Thresholds of Significance Justification (2022) establishes thresholds based on substantial evidence within the BAAQMD 2022 CEQA Air Quality Guidelines. The thresholds have been developed by BAAQMD to attain State and federal ambient air quality standards, which are set at levels protective of human health. Therefore, projects below these thresholds would not violate an air quality standard and would not make a cumulatively considerable contribution to an existing or projected cumulative air quality violation in the Air Basin.

The BAAQMD's CEQA Air Quality Guidelines provides significance thresholds for both construction and operations of project. Ultimately the lead agency determines the thresholds of significance for impacts. However, if a project proposes development in excess of the established thresholds, as outlined below, a significant air quality impact may occur.

Table 5: Bay Area Air Quality Management District Emissions Thresholds

Criteria Air Pollutants and Precursors (Regional)	Construction-Related	Operational-Related	
	Average Daily Emissions (pounds/day)	Average Daily Emission (pounds/day)	Annual Average Emission (tons/year)
Reactive Organic Gases (ROG)	54	54	10
Nitrogen Oxides (NO_X)	54	54	10
Coarse Particulates (PM_{10})	82 (exhaust)	82	15
Fine Particulates ($PM_{2.5}$)	54 (exhaust)	54	10
PM_{10} / $PM_{2.5}$ (fugitive dust)	Best Management Practices	None	
Local CO	None	9.0 ppm (8-hour average) 20.0 ppm (1-hour average)	
Source: Bay Area Air Quality Management District, *2022 CEQA Air Quality Guidelines*, 2022.			

Projects that require federal funding or approval in nonattainment areas are required to show comply with the Federal Transit Administration's (FTA) National Environmental Policy Act (NEPA) requirements. The proposed Project is located in the San Francisco Bay Area Air Basin (SFBAAB), which is federally designated as nonattainment for ozone and $PM_{2.5}$. Conformity is outlined in 40 Code of Federal Regulations Part 51 Subpart W, which requires any project that is located in an area where any criteria air pollutant is nonattainment to show that the total Project-related emissions of that particular criteria air pollutant is less than the *de minimis* levels provided in Table 6: SFBAAB *De Minimis* Thresholds. Only construction-related emissions are analyzed as the Project is not anticipated to generate any new operational emissions.

Table 6: SFBAAB *De Minimis* Thresholds

Criteria Air Pollutants and Precursors (Regional)	Attainment Statues	De Minimis Threshold (tons per year)
Ozone (O_3)	Marginal Nonattainment	
VOCs		100
Nitrogen Oxides (NO_X)		100
Carbon Monoxide (CO)	Attainment	100
Coarse Particulates (PM_{10})	Unclassified	None
Fine Particulates ($PM_{2.5}$)	Moderate Nonattainment	100
Sulfur Dioxide (SO_2)	Attainment	100
Source: United States Environmental Protection Agency, *De Minimis Tables,* 2023.		

4.2 METHODOLOGY

This air quality impact analysis considers construction impacts associated with the Project. Where criteria air pollutant quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod). CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. Air quality impacts were assessed according to methodologies recommended by CARB and the BAAQMD.

Construction equipment, trucks, worker vehicles, and ground-disturbing activities associated with Project construction would generate emissions of criteria air pollutants and precursors. Air quality impacts were assessed according to CARB and BAAQMD recommended methodologies. Daily regional construction emissions are estimated by assuming construction occurs at the earliest feasible date (i.e., a conservative estimate of construction activities) and applying off-road, fugitive dust, and on-road emissions factors in CalEEMod. The Project Alternative 3 was modeled in CalEEMod to provide the most conservative estimate as it is the largest of the three proposed terminal alternatives and would require the highest amount of construction equipment to complete.

As mentioned previously, the Project would construct an extended ferry terminal with a new reconfigured gangway, passenger float, and piles. The Project does not propose any new sources of air pollutants and would provide improved terminal operations and reduced dredging impacts. Thus, operational emissions would not change from existing conditions and the Project would have no impact on existing operational emissions.

5 POTENTIAL IMPACTS AND MITIGATION

5.1 AIR QUALITY ANALYSIS

Threshold AQ-1: Would the Project conflict with or obstruct implementation of the applicable air quality plan?

BAAQMD's most recently adopted plan, the 2017 Clean Air Plan, in the Basin outlines how the San Francisco area will attain air quality standards, reduce population exposure and protect public health, and reduce GHG emissions. BAAQMD has not established a quantitative threshold of significance for project-level consistency with an air quality plan. However, per BAAQMD guidelines, if a project is consistent with Criterion 1 through Criterion 3 (see analysis below), the Project would not conflict with or obstruct the implementation of the applicable air plan.[1]

Criterion 1: Does the Project support the primary goals of the Air Quality Plan?

As described below, construction air quality emissions generated by the proposed Project would not exceed the BAAQMD's emissions thresholds. Operations of the Project would not change from the existing use and would not add any new mobile or stationary emitters in the Project vicinity. Since the proposed Project would not exceed the BAAQMD construction thresholds and would not result in any new operational emissions, the proposed Project would not be considered by the BAAQMD to be a substantial emitter of criteria air pollutants, and would not contribute to any non-attainment areas in the Basin.

A project would be consistent with the 2017 Clean Air Plan if it would not exceed the growth assumptions in the plan. The Project would not generate additional population growth or jobs in the City. Therefore, the Project would not conflict with the growth assumptions anticipated in the 2017 Clean Air Plan.

As discussed in the Vallejo Ferry Terminal Reconfiguration Project Greenhouse Gas Emissions Assessment (Kimley-Horn 2023), the Project would be consistent with the City's Climate Action Plan (CAP) and would not increase GHG emissions. Therefore, the Project would not conflict with the third goal of reducing GHG emissions and protecting the climate.

Criterion 2: Does the Project include applicable control measures from the Air Quality Plan?

The Project is consistent with the 2017 Clean Air Plan policies that are applicable to the Project site. As shown below, projects are considered consistent with the 2017 Clean Air Plan if they incorporate all applicable and feasible control measures from the 2017 Clean Air Plan and would not disrupt or hinder implementation of any 2017 Clean Air Plan control measures.

As discussed in Table 7: Project Consistency with Applicable Clean Air Plan Control Measures, the Project would comply with City, State, and regional requirements.

[1] BAAQMD, *CEQA Air Quality Guidelines*, 2017.

Table 7: Project Consistency with Applicable Clean Air Plan Control Measures

Control Measure	Project Consistency
Stationary Source Control Measures	
SS21: New Source Review of Toxic Air Contaminants	**Not Applicable**. The Project would not include uses that would generate new sources of TACs.
SS25: Coatings, Solvents, Lubricants, Sealants and Adhesives SS26: Surface Prep and Cleaning Solvent	**Consistent**. The Project would comply with Regulation 8, Rule 3: Architectural Coatings, which would dictate the ROG content of paint available for use during construction.
SS31: General Particulate Matter Emissions Limitation	**Consistent**. This control measure is implemented by the BAAQMD through Regulation 6, Rule 1. This Rule Limits the quantity of particulate matter in the atmosphere by controlling emission rates, concentration, visible emissions and opacity. The Project would be required to comply with applicable BAAQMD rules.
SS36: Particulate Matter from Trackout	**Consistent**. Mud and dirt that may be tracked out onto the nearby public roads during construction activities would be removed promptly by the contractor based on BAAQMD's requirements.
SS38: Fugitive Dust	**Consistent**. Material stockpiling and track out during site preparation activities would be required to utilize best management practices, such as watering exposed surfaces twice a day, covering haul trucks, keeping vehicle speeds on unpaved roads under 15 mph, to minimize the creation of fugitive dust.
SS40: Odors	**Consistent**. The Project would comply with BAAQMD Regulation 7 to strengthen odor standards and enhance enforceability.
Transportation Control Measures	
TR21: Commercial Harbor Craft	**Consistent**. The Project would comply with the CARB harbor craft air toxic control measure and the CARB commercial harbor craft regulations.
TR22: Construction, Freight and Farming Equipment	**Consistent**. The Project would comply through implementation of the BAAQMD standard condition, which requires construction equipment to be properly maintained.
Waste Management Control Measures	
WA1: Landfills WA3: Green Waste Diversion WA4: Recycling and Waste Reduction	**Consistent**. The waste service provider for the Project would be required to meet the AB 341 and SB 939, 1374, and 1383 requirements that require waste service providers to divert and recycle waste. Per Cal Green requirements the Project would recycle construction waste.
Source: BAAQMD, Clean Air Plan, 2017 and Kimley-Horn & Associates, 2023.	

As discussed above, the Project would not exceed the assumptions in the Clean Air Plan and impacts would be less than significant.

Criterion 3: Does the Project hinder or disrupt the implementation of any Air Quality Control Measures?

The Project proposes to construct an extended ferry terminal with a new reconfigured gangway, passenger float, and piles. The Project would not increase the regional population growth or generate any additional permanent jobs. Further, Table 7 outlines the Project's consistency with the applicable 2017 Clean Air Plan policies. Therefore, the Project would not hinder or disrupt the implementation of any 2017 Clean Air Plan Control Measures and impacts would be considered less than significant.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

Threshold AQ-2: Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Construction Emissions

Project construction activities would generate short-term emissions of criteria air pollutants. The criteria pollutants of primary concern within the Project area include ozone-precursor pollutants (i.e., ROG and NO_x) and PM_{10} and $PM_{2.5}$. Construction-generated emissions are short term and temporary, lasting only while construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the BAAQMD's thresholds of significance.

Construction results in the temporary generation of emissions during demolition, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities, as well as weather conditions and the appropriate application of water.

The duration of construction activities associated with the Project are estimated to last approximately five months, beginning in August 2025 and concluding in December 2025. The Project's construction-related emissions were calculated using the BAAQMD-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. Project demolition is anticipated to begin in August 2025 and last approximately two and a half months. Project construction is anticipated to begin in October 2025 and last approximately two and a half months. Both construction phases include additional equipment (cranes, pile driver, and tugboats) to account for waterside demolition and construction. Construction equipment would not differ between the three Project alternatives. Thus, construction emissions shown below are representative of all three alternatives. See Appendix A: Air Quality Data for additional information regarding the construction assumptions used in this analysis. The Project's predicted maximum daily construction-related emissions are summarized in Table 8: Construction-Related Emissions.

Table 8: Construction-Related Emissions

Construction Year	Pollutant (maximum pounds per day)[1]					
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_x)	Exhaust		Fugitive Dust	
			Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
2025	3.17	37.68	1.11	1.04	0.28	0.06
Maximum Daily Construction	**3.17**	**37.68**	**1.11**	**1.04**	**0.28**	**0.06**
BAAQMD Significance Threshold[2,3]	*54*	*54*	*82*	*54*	*N/A*	*N/A*
Exceed BAAQMD Threshold?	**No**	**No**	**No**	**No**	**N/A**	**N/A**

1. Emissions were calculated using CalEEMod and EMFAC. Emissions include compliance with the BAAQMD's Basic Construction Mitigation Measures Recommended for All Projects. These measures include the following: water exposed surfaces two times daily; cover haul trucks; clean track outs with wet powered vacuum street sweepers; limit speeds on unpaved roads to 15 miles per hour; limit idle times to 5 minutes; properly maintain mobile and other construction equipment; and post a publicly visible sign with contact information to register dust complaints and take corrective action within 48 hours.
2. Bay Area Air Quality Management District, California Environmental Quality Act Air Quality Guidelines, updated April 2023.

Construction Year	Pollutant (maximum pounds per day)[1]					
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_x)	Exhaust		Fugitive Dust	
			Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
3. BMPs = Best Management Practices. The BAAQMD recommends the implementation of all Basic Construction Mitigation Measures, whether or not construction-related emissions exceed applicable significance thresholds. Implementation of Basic Construction Mitigation measures are considered to mitigate fugitive dust emissions to be less than significant. Source: Refer to the CalEEMod outputs provided in Appendix A, *Air Quality Modeling Data*.						

Fugitive Dust Emissions. Fugitive dust emissions are associated with land clearing, ground excavation, demolition, and truck travel on unpaved roadways. Dust emissions also vary substantially from day to day, depending on the level of activity, the specific operations, and weather conditions. Fugitive dust emissions may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the Project vicinity. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. The BAAQMD recommends the implementation of all Basic Construction Control Measures, whether or not construction-related emissions exceed applicable significance. The Project would implement the BAAQMD Basic Construction Control Measures to control dust at the Project site during all phases of construction.

Construction Equipment and Worker Vehicle Exhaust. Exhaust emission factors for typical diesel-powered heavy equipment are based on the CalEEMod program defaults. Variables factored into estimating the total construction emissions include: level of activity, length of construction period, number of pieces/types of equipment in use, site characteristics, weather conditions, number of construction personnel, and the amount of materials to be transported onsite or offsite. Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the Project site, emissions produced on site as the equipment is used, and emissions from trucks transporting materials and workers to and from the site. Emitted pollutants would include ROG, NO_X, PM_{10}, and $PM_{2.5}$. The BAAQMD recommends the implementation of all Basic Construction Control Measures, whether or not construction-related emissions exceed applicable significance thresholds. As detailed in Table 8, Project construction emissions would implement the BAAQMD Basic Control Measures and would be below BAAQMD thresholds. Thus, construction emissions would result in a less than significant impact.

ROG Emissions. In addition to gaseous and particulate emissions, construction equipment and construction worker trips would result in ROG emissions, which are O_3 precursors. In accordance with the methodology prescribed by the BAAQMD, the ROG emissions associated with paving have been quantified with CalEEMod. The highest concentration of ROG emissions would be generated from demolition beginning in Summer 2025 and lasting approximately two months.

Summary. As shown in Table 8, all criteria pollutant emissions would remain below their respective thresholds. BAAQMD considers fugitive dust emissions to be potentially significant without implementation of the Construction Control Measures which help control fugitive dust. NOX emissions are primarily generated by engine combustion in construction equipment, haul trucks, and employee commuting, requiring the use of newer construction equipment with better emissions controls would reduce construction-related NOX emissions. With implementation of BAAQMD's Basic Construction

Control Measures, the proposed Project's construction would not worsen ambient air quality, create additional violations of federal and state standards, or delay the Basin's goal for meeting attainment standards. Impacts would be less than significant.

Operational Emissions

As mentioned previously, the Project would construct an extended ferry terminal with a new reconfigured gangway, passenger float, and piles. The Project does not propose any new sources of air pollutants and would provide improved terminal operations and reduced dredging impacts. The Project would not generate any additional traffic or population growth. Therefore, the operation of the Project would not generate any new criteria pollutant emissions and no operational air quality impacts would occur.

FTA NEPA Conformity Analysis

As shown in Table 9: Project General Conformity Emissions, the Project's emissions would not exceed the General Conformity de minimis thresholds in the SFBAAB. As mentioned previously, the Project's operational emissions are not included as the Project would not generate any new operational emissions.

Table 9: Project General Conformity Emissions

Construction Year	Pollutant (tons per year)[1]					
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_x)	Carbon Monoxide (CO)	Coarse Particles ($PM_{2.5}$)	Fine Particles (PM_{10})	Sulfur Dioxide (SO_2)
2025	0.15	1.90	1.00	0.05	0.06	0.00
General Conformity Threshold [2]	*100*	*100*	*100*	*N/A*	*100*	*100*
Exceed BAAQMD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

1. Emissions were calculated using CalEEMod and EMFAC. Emissions include compliance with the BAAQMD's Basic Construction Mitigation Measures Recommended for All Projects. These measures include the following: water exposed surfaces two times daily; cover haul trucks; clean track outs with wet powered vacuum street sweepers; limit speeds on unpaved roads to 15 miles per hour; limit idle times to 5 minutes; properly maintain mobile and other construction equipment; and post a publicly visible sign with contact information to register dust complaints and take corrective action within 48 hours.
2. United States Environmental Protection Agency, *De Minimis Tables*, 2023.

Source: Refer to the CalEEMod outputs provided in Appendix A, *Air Quality Modeling Data*.

Cumulative Short-Term Emissions

The SFBAAB is designated nonattainment for O_3, PM_{10}, and $PM_{2.5}$ for State standards and nonattainment for O_3 and $PM_{2.5}$ for Federal standards. As discussed above, the Project's construction-related emissions by themselves would not have the potential to exceed the BAAQMD significance thresholds for criteria pollutants.

Since these thresholds indicate whether an individual project's emissions have the potential to affect cumulative regional air quality, it can be expected that the Project-related construction emissions would not be cumulatively considerable. The BAAQMD recommends Basic Construction Control Measures for all projects whether or not construction-related emissions exceed the thresholds of significance. Compliance with BAAQMD construction-related mitigation requirements are considered to reduce cumulative impacts at a Basin-wide level. As a result, construction emissions associated with the Project would not result in a cumulatively considerable contribution to significant cumulative air quality impacts.

Cumulative Long-Term Impacts

The BAAQMD has not established separate significance thresholds for cumulative operational emissions. The nature of air emissions is largely a cumulative impact. As a result, no single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. The BAAQMD developed the operational thresholds of significance based on the level above which a project's individual emissions would result in a cumulatively considerable contribution to the Basin's existing air quality conditions. Therefore, a project that exceeds the BAAQMD operational thresholds would also be a cumulatively considerable contribution to a significant cumulative impact.

As described above, the Project would not generate any new operational emissions. As a result, operational emissions associated with the Project would not result in a cumulatively considerable contribution to significant cumulative air quality impacts.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact

Threshold AQ-3: Would the Project expose sensitive receptors to substantial pollutant concentrations?

Sensitive land uses are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. Sensitive receptors in the area include residential uses along Mare Island Way.

Toxic Air Contaminants

Construction equipment and associated heavy-duty truck traffic generate diesel exhaust, which is a known toxic air contaminants (TACs). Diesel exhaust from construction equipment operating at the site poses a health risk to nearby sensitive receptors. The closest sensitive receptor to the Project site are the residences along Mare Island Way, to the southeast of the Project site. The BAAQMD provides guidance for evaluating impacts from TACs in its CEQA Air Quality Guidelines document. As noted therein, an incremental cancer risk of greater than 10 cases per million at the Maximally Exposed Individual (MEI) will result in a significant impact. The BAAQMD considers exposure to annual $PM_{2.5}$ concentrations that exceed 0.3 $\mu g/m^3$ from a single source to be significant. The BAAQMD significance threshold for non-cancer hazards is 1.0.

Stationary sources within a 1,000-foot radius of the Project site were identified using BAAQMD's Stationary Source Screening Analysis Tools and consultation with the BAAQMD. There were no other stationary sources located within 1,000 feet of the proposed Project site.

Construction-Related Diesel Particulate Matter

Project construction would generate diesel particulate matter (DPM) emissions from the use of off-road diesel equipment required for construction activities. For construction activity, DPM is the primary toxic air contaminant of concern. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they would not stay on the site for long durations. Diesel exhaust from construction equipment operating at the site poses a health risk to nearby sensitive receptors.

The amount to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they would not stay on the site for long durations.

Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. The use of diesel-powered construction equipment would be episodic and would occur in various phases throughout the Project site. Additionally, construction activities would limit idling to no more than five minutes (per State standards), which would further reduce nearby sensitive receptors' exposure to temporary and variable DPM emissions. Furthermore, even during the most intense year of construction, emissions of DPM would be generated from different locations on the Project site rather than in a single location because different types of construction activities (e.g., demolition and building construction) would not occur at the same place at the same time.

$PM_{2.5}$ construction emissions rates in grams per second were calculated from the total annual mitigated on-site exhaust emissions reported in CalEEMod total during construction. It should be noted that although construction would span over several years, the modeling conservatively uses the year with the highest emission for each phase. Annual emissions were converted to grams per second and these emissions rates were input into AERMOD.

As noted above, maximum (worst case) $PM_{2.5}$ exhaust construction emissions over the entire construction period were used in AERMOD to approximate construction DPM emissions. Risk levels were calculated based on the California Office of Environmental Health Hazard Assessment (OEHHA) guidance document, Air Toxics Hot Spots Program Risk Assessment Guidelines (February 2015). Results of this assessment are summarized in Table 10: Construction Risk.

Table 10: Construction Risk

Exposure Scenario	Pollutant Concentration (µg/m³)	Maximum Cancer Risk (Risk per Million)	Chronic Noncancer Hazard
Construction (Worker)	0.148	4.62	0.592
Construction (Resident)	0.032	9.94	0.120
Threshold	*0.3*	*10 in one million*	*1.0*
Threshold Exceeded	**No**	**No**	**No**
Refer to Appendix A: Modeling Data.			

Results of this assessment indicate that the maximum unmitigated concentration of $PM_{2.5}$ during construction would be 0.032 μg/m^3 for residences, which would not exceed the BAAQMD threshold of 0.3 μg/m^3. The pollutant concentrations for workers would be 0.148 μg/m^3 which is also below the BAAQMD threshold. The highest calculated carcinogenic risk from Project construction, would be 9.94 per million for residences and 4.62 per one million for workers, which would not exceed the BAAQMD threshold of 10 in one million. Non-cancer hazards for DPM would be below BAAQMD threshold, with a chronic hazard index computed at 0.592. Chronic hazards would be below the BAAQMD significance threshold of 1.0. As described above, worst-case construction risk levels based on AERMOD and conservative assumptions would be below the BAAQMD's thresholds. Therefore, construction risk levels would be less than significant.

Mobile Sources

The Project would not place sensitive receptors within 1,000-feet of a major roadway (mobile TAC source). A major roadway is defined by BAAQMD as any road that has more than 10,000 daily trips. Additionally, the Project would not affect existing vehicle distribution and travel speeds or generate any additional trips. Thus, the Project does not involve the increase of transit trips or routes and would not generate increased emissions from expanded service.

Carbon Monoxide Hotspots

The primary mobile-source criteria pollutant of local concern is carbon monoxide. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Transport of this criteria pollutant is extremely limited; CO disperses rapidly with distance from the source under normal meteorological conditions. Under certain meteorological conditions, however, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. CO concentration modeling is therefore typically conducted for intersections that are projected to operate at unacceptable levels of service during peak commute hours.

The SFBAAB is designated as in attainment for carbon monoxide (CO). Emissions and ambient concentrations of CO have decreased dramatically in the SFBAAB with the introduction of the catalytic converter in 1975. No exceedances of the CAAQS or NAAQS for CO have been recorded at nearby monitoring stations since 1991. As a result, the BAAQMD screening criteria notes that CO impacts may be determined to be less than significant if a project would not increase traffic volumes at local intersections to more than 44,000 vehicles per hour, or 24,000 vehicles per hour for locations in heavily urban areas, where "urban canyons" formed by buildings tend to reduce air circulation.

As mentioned previously, the Project would not generate any additional trips or impact existing vehicle distribution. Therefore, the Project would not involve intersections with more than 24,000 or 44,000 vehicles per hour. As a result, the Project would not have the potential to create a CO hotspot and impacts would be less than significant.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

Threshold AQ-4: Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Construction

Construction activities associated with the Project may generate detectable odors from heavy duty equipment (i.e., diesel exhaust), as well as from architectural coatings and asphalt off-gassing. Odors generated from the referenced sources are common in the man-made environment and are not known to be substantially offensive to adjacent receptors. Any construction-related odors would be short-term in nature and cease upon Project completion. As a result, impacts to existing adjacent land uses from construction-related odors would be short-term in duration and therefore would be less than significant.

Operational

BAAQMD has established odor screening thresholds for land uses that have the potential to generate substantial odor complaints, including wastewater treatment plants, landfills or transfer stations, composting facilities, confined animal facilities, food manufacturing, and chemical plants. BAAQMD's thresholds for odors are qualitative based on BAAQMD's Regulation 7, Odorous Substances. This rule places general limitations on odorous substances and specific emission limitations on certain odorous compounds. The Project would not include any land use that has the potential to generate substantial odor nor add any additional sources of odorous substances. Thus, impacts would be less than significant.

Mitigation Measures: No mitigation is required.

Level of Significance: No impact.

5.2 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

Cumulative Setting

The cumulative setting for air quality includes the City and the Air Basin. The Air Basin is designated as a nonattainment area for state standards of ozone, PM_{10}, and $PM_{2.5}$ and federal standards of ozone and $PM_{2.5,}$ attainment and serious maintenance for federal PM_{10} standards, and is designated as unclassified or attainment for all other pollutants. Cumulative growth in population and vehicle use could inhibit efforts to improve regional air quality and attain the ambient air quality standards.

Cumulative Impacts and Mitigation Measures

The BAAQMD CEQA Air Quality Guidelines do not include separate significance thresholds for cumulative operational or construction emissions. However, with respect to regional air pollution, the development of the Project would result in population growth that is consistent with ABAG projections and the City General Plan. Therefore, the Project would be consistent with the 2017 Clean Air Plan that uses ABAG population forecasts.

As described in threshold AQ-1 above, the Project would also be consistent with the appropriate 2017 Clean Air Plan control measures, which are provided to reduce air quality emissions for the entire Bay Area region. Additionally, the discussion in threshold AQ-2 addresses cumulative impacts and demonstrates that the Project would not exceed the applicable BAAQMD thresholds for construction or operations. The BAAQMD CEQA Air Quality Guidelines note that the nature of air emissions is largely a cumulative impact. As a result, no single project is sufficient in size by itself to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. As mentioned on pages 2-10, 2-12, and 2-14 of the BAAQMD CEQA Guidelines (2022), if the project emissions of criteria air pollutants or its precursors are below the BAAQMD Thresholds of Significance, the project would result in a less than significant cumulative impact.

Consistency with the 2017 Clean Air Plan control measures would ensure that the Project would not make a cumulatively considerable contribution to air quality impacts in the Basin. In addition, in the discussion above in AQ-3 and AQ-4 the Project would not exceed the applicable BAAQMD thresholds for exposure of sensitive receptors to substantial pollutant concentrations after mitigation nor for other emissions (such as those leading to odors) adversely affecting a substantial number of people. Therefore, impacts would be less than significant and less than cumulatively considerable.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

6 REFERENCES

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16. United States Environmental Protection Agency, *De Minimis Tables*, 2023.
17. United States Environmental Protection Agency, *National Ambient Air Quality Standards Table*, 2016.
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Appendix A

Air Quality Modeling Data

WETA Vallejo Detailed Report

Table of Contents

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	WETA Vallejo
Construction Start Date	8/4/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	34.8
Location	38.100147099068124, -122.26264310763507
County	Solano-San Francisco
City	Vallejo
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	823
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	9.10	1000sqft	0.21	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.92	1.61	14.2	15.5	0.03	0.54	0.28	0.82	0.50	0.06	0.56	—	3,608	3,608	0.14	0.05	1.02	3,627
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.91	1.60	14.3	15.4	0.03	0.54	0.28	0.82	0.50	0.06	0.56	—	3,593	3,593	0.14	0.05	0.03	3,611
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.44	0.37	3.43	3.79	0.01	0.13	0.04	0.18	0.12	0.01	0.13	—	878	878	0.04	0.01	0.06	882
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.08	0.07	0.63	0.69	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	145	145	0.01	< 0.005	0.01	146

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2025	1.92	1.61	14.2	15.5	0.03	0.54	0.28	0.82	0.50	0.06	0.56	—	3,608	3,608	0.14	0.05	1.02	3,627
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.91	1.60	14.3	15.4	0.03	0.54	0.28	0.82	0.50	0.06	0.56	—	3,593	3,593	0.14	0.05	0.03	3,611
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.44	0.37	3.43	3.79	0.01	0.13	0.04	0.18	0.12	0.01	0.13	—	878	878	0.04	0.01	0.06	882
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.08	0.07	0.63	0.69	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	145	145	0.01	< 0.005	0.01	146

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.81	1.52	14.1	14.6	0.03	0.54	—	0.54	0.49	—	0.49	—	3,320	3,320	0.13	0.03	—	3,332
Demolition	—	—	—	—	—	—	0.07	0.07	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.81	1.52	14.1	14.6	0.03	0.54	—	0.54	0.49	—	0.49	—	3,320	3,320	0.13	0.03	—	3,332

Demolitio	—	—	—	—	—	—	0.07	0.07	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.22	2.08	2.16	< 0.005	0.08	—	0.08	0.07	—	0.07	—	491	491	0.02	< 0.005	—	493
Demolitio n	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.38	0.39	< 0.005	0.01	—	0.01	0.01	—	0.01	—	81.3	81.3	< 0.005	< 0.005	—	81.6
Demolitio n	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.06	0.91	0.00	0.00	0.19	0.19	0.00	0.04	0.04	—	201	201	< 0.005	0.01	0.83	205
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.11	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	86.1	86.1	< 0.005	0.01	0.19	90.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	0.81	0.00	0.00	0.19	0.19	0.00	0.04	0.04	—	186	186	0.01	0.01	0.02	189
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.11	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	86.1	86.1	< 0.005	0.01	< 0.005	90.3

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.9	27.9	< 0.005	< 0.005	0.05	28.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.7	12.7	< 0.005	< 0.005	0.01	13.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.62	4.62	< 0.005	< 0.005	0.01	4.68
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.11	2.11	< 0.005	< 0.005	< 0.005	2.21

3.3. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.90	8.80	10.1	0.02	0.37	—	0.37	0.34	—	0.34	—	2,295	2,295	0.09	0.02	—	2,303
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.33	1.52	< 0.005	0.06	—	0.06	0.05	—	0.05	—	346	346	0.01	< 0.005	—	347
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.02	0.24	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	—	57.3	57.3	< 0.005	< 0.005	—	57.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetatio	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	8/1/2025	10/15/2025	5.00	54.0	—
Building Construction	Building Construction	10/16/2025	12/31/2025	5.00	55.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	6.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	1.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Cranes	Diesel	Average	3.00	6.00	367	0.29
Demolition	Excavators	Diesel	Average	1.00	6.00	36.0	0.38
Demolition	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Building Construction	Cranes	Diesel	Average	3.00	4.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	22.5	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	1.22	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.00	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	263	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	0.21	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	13.9	annual days of extreme heat
Extreme Precipitation	5.10	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	10.1	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	1	1	3
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	13.6
AQ-PM	39.2
AQ-DPM	75.4
Drinking Water	24.0
Lead Risk Housing	78.3
Pesticides	32.3
Toxic Releases	63.4
Traffic	10.0
Effect Indicators	—
CleanUp Sites	64.4
Groundwater	93.0
Haz Waste Facilities/Generators	81.0
Impaired Water Bodies	51.2
Solid Waste	43.9
Sensitive Population	—
Asthma	99.8
Cardio-vascular	91.6

Low Birth Weights	99.2
Socioeconomic Factor Indicators	—
Education	72.5
Housing	95.2
Linguistic	49.1
Poverty	97.4
Unemployment	99.1

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	1.090722443
Employed	2.284101116
Median HI	0.128320287
Education	—
Bachelor's or higher	26.30565892
High school enrollment	100
Preschool enrollment	16.65597331
Transportation	—
Auto Access	0.397792891
Active commuting	89.25959194
Social	—
2-parent households	0.641601437
Voting	31.59245477
Neighborhood	—
Alcohol availability	23.58526883

Park access	81.35506224
Retail density	74.04080585
Supermarket access	16.64314128
Tree canopy	51.99538047
Housing	—
Homeownership	3.849608623
Housing habitability	6.377518286
Low-inc homeowner severe housing cost burden	3.336327473
Low-inc renter severe housing cost burden	17.56704735
Uncrowded housing	51.79006801
Health Outcomes	—
Insured adults	49.23649429
Arthritis	1.4
Asthma ER Admissions	0.2
High Blood Pressure	1.5
Cancer (excluding skin)	22.7
Asthma	3.8
Coronary Heart Disease	1.7
Chronic Obstructive Pulmonary Disease	1.1
Diagnosed Diabetes	0.9
Life Expectancy at Birth	30.6
Cognitively Disabled	3.1
Physically Disabled	47.8
Heart Attack ER Admissions	2.0
Mental Health Not Good	14.3
Chronic Kidney Disease	2.1
Obesity	8.0

Pedestrian Injuries	88.6
Physical Health Not Good	5.8
Stroke	0.9
Health Risk Behaviors	—
Binge Drinking	98.2
Current Smoker	11.7
No Leisure Time for Physical Activity	6.8
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	44.7
Children	4.0
Elderly	20.2
English Speaking	38.4
Foreign-born	38.0
Outdoor Workers	8.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	9.4
Traffic Density	6.4
Traffic Access	87.4
Other Indices	—
Hardship	95.4
Other Decision Support	—
2016 Voting	11.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	94.0

Healthy Places Index Score for Project Location (b)	0.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Per Construction Questionnaire
Construction: Off-Road Equipment	Additional Equipment added for waterside demolition and construction

Model Output: OFFROAD2021 (v1.0.5) Emissions Inventory
Region Type: Sub-Area
Region: Contra Costa (SF)
Calendar Year: 2025
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Ye	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd	NH3_tpd	Fuel Consumptio	Total_Activ	Total_Population	Horsepower_Hours_hhpy
Contra Costa (SF)	2025	Commercial Harbor Craf	Aggregate	Aggregate	Diesel	0.005242344	0.006343236	0.007548975	0.023017957	0.095441893	13.39199	0.00232926	0.002227	0	0	450713.6823	27884.07	26.49999999	8700617.859

	g/hph HC	ROG	TOG	CO	Nox	CO2	PM10	PM2_5	Sox	NH3	Fuel_gphr
2025	0.199513059	0.241410792	0.287298791	0.876017105	3.632326308	509.67232	0.088646984	0.0847465	0	0	17153255.39

Project Tugboats	2	
HP	731	
Hours per Day	2	
Days per Year	109	
1 pound =	453.5924	grams

Emissions Source	ROG	NOX	CO	SO2	PM10	PM2.5	CO2	metric tons/yr	PM10 tons/yr
Project Tug Boats	1.56	23.42	5.65	0.00	0.57	0.55	3,286	162	0.031
	0.08	1.28	0.31	0.00	0.03	0.03			

Based on emission rates obtained from CARB OFFROAD Version 1.0.3.
Number of forklifts per SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Business Survey Results, June 2014.

CONSTRUCTION (UNMITIGATED)

AERMOD Location
564630.26 m E
4217165.70 m N

Construction Duration	Number of Months
2025	4
109	

	2025		**Days**	**Vendor**	**Hauling**	**Vendor**	**Hauling**
Demolition	8/1/2025	10/15/2025	54	0	1	0	65
Building Construction	10/16/2025	12/31/2025	55	0	0	0	0

On-Site Construction PM10 Exhaust (tons/yr)

Year	**Phase**	**Unmitigated**
2025	Demo	1.27E-02
2025	Building	9.26E-03
	Total 2026	**2.19E-02**

Off-Site Construction PM10 Exhaust (tons/yr)

Year	**Phase**	**Unmitigated**
2025	Demo	4.37E-05
2025	Building	0.00E+00
	Total 2026	**4.37E-05**

Construction
Group: ONSITE

PM2.5 Exhaust Onsite

Year	**Tons/Year**	**g/s**	**Weighted Average On-Site Rate**	**AERMOD Unitized Rate (g/s)**
2025	2.19E-02	0.006335	**6.33E-03**	1

Group: OFFSITE

	Trips		**Miles**		**Weighted**
Year	**Vendor**	**Hauling**	**Vendor**	**Hauling**	**Trip length**
2025	0	65	**8.4**	**20**	20.00

PM2.5 Exhaust Off-Site

	Tons/Year	**g/s**	**g/s per mile**	**Weighted Average Off-Site Rate**
2025	4.37E-05	0.000013	6.30734E-07	6.31E-07

Group: OFFSITE

Roadway	**Speed**	**Length (meters)**	**Length (Miles)**	**Emissions (g/sec per mile)**	**Emission Rate (g/sec)**	**AERMOD Unitized Rate (g/s)**
Mare Island Way	**35**	**721.2**	0.45	6.31E-07	2.83E-07	**1.00**

Group: TUGBOATS

	Emission Rate (g/sec)	**AERMOD Unitized Rate (g/s)**
60 mins (Idle)	**2.15E-03**	**1**
180 mins (running)	**6.45E-03**	**1**

CONSTRUCTION RISK (UNMITIGATED)

CONSTRUCTION RISK (UNMITIGATED)

Unmitigated			
Onsite	Offsite	Tugboat Idl	Tugboat
6.33E-03	2.83E-07	2.15E-03	6.45E-03

Discrete Receptor ID	X	Y	X, Y	Concentration (AVERAGE CONC) [ug/m^3] at 1 g/s Onsite	Offsite	Tugboat (Idle)	Tugboat	Concentration (AVERAGE CONC) [ug/m^3] Onsite	Offsite	Tugboat (Idle)	Tugboat	Unmitigated Total
1 UCART1	563957.3	4216840.29	563957.32, 4216840.29	0.0895	0.08217	0.08542	0.0756	5.67E-04	2.32E-08	1.84E-04	4.88E-04	1.24E-03
2 UCART1	563992.3	4216840.29	563992.32, 4216840.29	0.0997	0.08892	0.09606	0.08536	6.32E-04	2.51E-08	2.07E-04	5.51E-04	6.32E-04
3 UCART1	564027.3	4216840.29	564027.32, 4216840.29	0.10895	0.09616	0.1069	0.09521	6.90E-04	2.72E-08	2.30E-04	6.14E-04	6.90E-04
4 UCART1	564062.3	4216840.29	564062.32, 4216840.29	0.11917	0.10371	0.11801	0.10484	7.55E-04	2.93E-08	2.54E-04	6.77E-04	7.55E-04
5 UCART1	564097.3	4216840.29	564097.32, 4216840.29	0.13112	0.11201	0.13116	0.11623	8.31E-04	3.17E-08	2.82E-04	7.50E-04	8.31E-04
6 UCART1	564132.3	4216840.29	564132.32, 4216840.29	0.14536	0.12123	0.1472	0.13023	9.21E-04	3.43E-08	3.17E-04	8.40E-04	9.21E-04
7 UCART1	564167.3	4216840.29	564167.32, 4216840.29	0.16281	0.13136	0.16739	0.14828	1.03E-03	3.71E-08	3.60E-04	9.57E-04	1.03E-03
8 UCART1	564202.3	4216840.29	564202.32, 4216840.29	0.18393	0.14248	0.19203	0.17051	1.17E-03	4.03E-08	4.13E-04	1.10E-03	1.17E-03
9 UCART1	564237.3	4216840.29	564237.32, 4216840.29	0.20987	0.15468	0.22484	0.20118	1.33E-03	4.37E-08	4.84E-04	1.30E-03	1.33E-03
10 UCART1	564272.3	4216840.29	564272.32, 4216840.29	0.23979	0.16754	0.25702	0.23013	1.52E-03	4.74E-08	5.53E-04	1.49E-03	1.52E-03
11 UCART1	564307.3	4216840.29	564307.32, 4216840.29	0.27604	0.18228	0.29628	0.26787	1.75E-03	5.15E-08	6.37E-04	1.73E-03	1.75E-03
12 UCART1	563957.3	4216875.29	563957.32, 4216875.29	0.09169	0.08386	0.08615	0.07644	5.81E-04	2.37E-08	1.85E-04	4.93E-04	5.81E-04
13 UCART1	563992.3	4216875.29	563992.32, 4216875.29	0.10199	0.09095	0.09726	0.0863	6.46E-04	2.57E-08	2.09E-04	5.57E-04	6.46E-04
14 UCART1	564027.3	4216875.29	564027.32, 4216875.29	0.11159	0.09856	0.10837	0.09602	7.07E-04	2.79E-08	2.33E-04	6.20E-04	7.07E-04
15 UCART1	564062.3	4216875.29	564062.32, 4216875.29	0.12233	0.10668	0.12	0.10588	7.75E-04	3.02E-08	2.58E-04	6.83E-04	7.75E-04
16 UCART1	564097.3	4216875.29	564097.32, 4216875.29	0.13493	0.11571	0.13387	0.11766	8.55E-04	3.27E-08	2.88E-04	7.59E-04	8.55E-04
17 UCART1	564132.3	4216875.29	564132.32, 4216875.29	0.15069	0.12574	0.15257	0.13444	9.55E-04	3.55E-08	3.28E-04	8.68E-04	9.55E-04
18 UCART1	564167.3	4216875.29	564167.32, 4216875.29	0.16925	0.13658	0.17651	0.15605	1.07E-03	3.86E-08	3.80E-04	1.01E-03	1.07E-03
19 UCART1	564202.3	4216875.29	564202.32, 4216875.29	0.19059	0.14823	0.19991	0.17594	1.21E-03	4.19E-08	4.30E-04	1.14E-03	1.21E-03
20 UCART1	564237.3	4216875.29	564237.32, 4216875.29	0.2172	0.16151	0.23044	0.20198	1.38E-03	4.57E-08	4.96E-04	1.30E-03	1.38E-03
21 UCART1	564272.3	4216875.29	564272.32, 4216875.29	0.25207	0.17773	0.27292	0.23911	1.60E-03	5.02E-08	5.87E-04	1.54E-03	1.60E-03
22 UCART1	564307.3	4216875.29	564307.32, 4216875.29	0.29473	0.19592	0.32429	0.28477	1.87E-03	5.54E-08	6.98E-04	1.84E-03	1.87E-03
23 UCART1	563957.3	4216910.29	563957.32, 4216910.29	0.09362	0.08543	0.08644	0.07716	5.93E-04	2.41E-08	1.86E-04	4.98E-04	5.93E-04
24 UCART1	563992.3	4216910.29	563992.32, 4216910.29	0.10396	0.09267	0.09715	0.08626	6.59E-04	2.62E-08	2.09E-04	5.57E-04	6.59E-04
25 UCART1	564027.3	4216910.29	564027.32, 4216910.29	0.11388	0.10062	0.10842	0.09576	7.21E-04	2.84E-08	2.33E-04	6.18E-04	7.21E-04
26 UCART1	564062.3	4216910.29	564062.32, 4216910.29	0.12525	0.1094	0.12091	0.10616	7.93E-04	3.09E-08	2.60E-04	6.85E-04	7.93E-04
27 UCART1	564097.3	4216910.29	564097.32, 4216910.29	0.13887	0.11931	0.1365	0.11935	8.80E-04	3.37E-08	2.94E-04	7.70E-04	8.80E-04
28 UCART1	564132.3	4216910.29	564132.32, 4216910.29	0.15577	0.13005	0.15986	0.14018	9.87E-04	3.68E-08	3.44E-04	9.05E-04	9.87E-04
29 UCART1	564167.3	4216910.29	564167.32, 4216910.29	0.17422	0.14152	0.17943	0.15646	1.10E-03	4.00E-08	3.86E-04	1.01E-03	1.10E-03
30 UCART1	564202.3	4216910.29	564202.32, 4216910.29	0.19823	0.15557	0.20814	0.18061	1.26E-03	4.40E-08	4.48E-04	1.17E-03	1.26E-03
31 UCART1	564237.3	4216910.29	564237.32, 4216910.29	0.22749	0.1713	0.2419	0.20824	1.44E-03	4.84E-08	5.20E-04	1.34E-03	1.44E-03
32 UCART1	564272.3	4216910.29	564272.32, 4216910.29	0.26262	0.18871	0.28108	0.23931	1.66E-03	5.33E-08	6.05E-04	1.54E-03	1.66E-03
33 UCART1	564307.3	4216910.29	564307.32, 4216910.29	0.30932	0.20851	0.33811	0.2869	1.96E-03	5.89E-08	7.27E-04	1.85E-03	1.96E-03
34 UCART1	564902.3	4216910.29	564902.32, 4216910.29	1.67143	10.0597	1.52531	2.47675	1.06E-02	2.84E-06	3.28E-03	1.60E-02	1.06E-02
35 UCART1	564937.3	4216910.29	564937.32, 4216910.29	1.58772	5.29103	1.35974	1.95983	1.01E-02	1.50E-06	2.92E-03	1.26E-02	1.01E-02
36 UCART1	564972.3	4216910.29	564972.32, 4216910.29	1.45994	3.3241	1.19221	1.57345	9.25E-03	9.40E-07	2.56E-03	1.02E-02	9.25E-03
37 UCART1	565007.3	4216910.29	565007.32, 4216910.29	1.31691	2.31243	1.02826	1.2694	8.34E-03	6.54E-07	2.21E-03	8.19E-03	8.34E-03
38 UCART1	565042.3	4216910.29	565042.32, 4216910.29	1.1814	1.76529	0.8837	1.03852	7.48E-03	4.99E-07	1.90E-03	6.70E-03	7.48E-03
39 UCART1	565077.3	4216910.29	565077.32, 4216910.29	1.0448	1.41634	0.77418	0.87884	6.62E-03	4.00E-07	1.67E-03	5.67E-03	6.62E-03
40 UCART1	565112.3	4216910.29	565112.32, 4216910.29	0.91724	1.1718	0.68346	0.75574	5.81E-03	3.31E-07	1.47E-03	4.88E-03	5.81E-03
41 UCART1	565147.3	4216910.29	565147.32, 4216910.29	0.80132	0.96761	0.60707	0.6575	5.08E-03	2.73E-07	1.31E-03	4.24E-03	5.08E-03
42 UCART1	565182.3	4216910.29	565182.32, 4216910.29	0.70203	0.82603	0.53881	0.57355	4.45E-03	2.33E-07	1.16E-03	3.70E-03	4.45E-03
43 UCART1	563957.3	4216945.29	563957.32, 4216945.29	0.09525	0.08692	0.08653	0.07784	6.03E-04	2.46E-08	1.86E-04	5.02E-04	6.03E-04
44 UCART1	563992.3	4216945.29	563992.32, 4216945.29	0.10567	0.09422	0.09632	0.08592	6.69E-04	2.66E-08	2.07E-04	5.54E-04	6.69E-04
45 UCART1	564027.3	4216945.29	564027.32, 4216945.29	0.11591	0.10247	0.10749	0.0951	7.34E-04	2.90E-08	2.31E-04	6.14E-04	7.34E-04
46 UCART1	564062.3	4216945.29	564062.32, 4216945.29	0.12799	0.11196	0.12113	0.10631	8.11E-04	3.16E-08	2.61E-04	6.86E-04	8.11E-04
47 UCART1	564097.3	4216945.29	564097.32, 4216945.29	0.14315	0.12273	0.1408	0.12289	9.07E-04	3.47E-08	3.03E-04	7.93E-04	9.07E-04
48 UCART1	564132.3	4216945.29	564132.32, 4216945.29	0.16028	0.13442	0.16294	0.14149	1.02E-03	3.80E-08	3.50E-04	9.13E-04	1.02E-03
49 UCART1	564167.3	4216945.29	564167.32, 4216945.29	0.18044	0.1479	0.18321	0.15753	1.14E-03	4.18E-08	3.94E-04	1.02E-03	1.14E-03
50 UCART1	564202.3	4216945.29	564202.32, 4216945.29	0.20446	0.16299	0.20842	0.17736	1.30E-03	4.61E-08	4.48E-04	1.14E-03	1.30E-03
51 UCART1	564237.3	4216945.29	564237.32, 4216945.29	0.23502	0.18003	0.24387	0.20558	1.49E-03	5.09E-08	5.25E-04	1.33E-03	1.49E-03
52 UCART1	564272.3	4216945.29	564272.32, 4216945.29	0.27443	0.19944	0.29151	0.24372	1.74E-03	5.64E-08	6.27E-04	1.57E-03	1.74E-03
53 UCART1	564307.3	4216945.29	564307.32, 4216945.29	0.3272	0.22169	0.36092	0.30038	2.07E-03	6.27E-08	7.76E-04	1.94E-03	2.07E-03
54 UCART1	564902.3	4216945.29	564902.32, 4216945.29	2.13464	8.25778	1.72141	2.11377	1.35E-02	2.33E-06	3.70E-03	1.36E-02	1.35E-02
55 UCART1	564937.3	4216945.29	564937.32, 4216945.29	1.91391	4.5504	1.47013	1.68336	1.21E-02	1.29E-06	3.16E-03	1.09E-02	1.21E-02
56 UCART1	564972.3	4216945.29	564972.32, 4216945.29	1.68082	2.95518	1.23565	1.34589	1.06E-02	8.35E-07	2.66E-03	8.69E-03	1.06E-02
57 UCART1	565007.3	4216945.29	565007.32, 4216945.29	1.46363	2.16224	1.04203	1.09729	9.27E-03	6.11E-07	2.24E-03	7.08E-03	9.27E-03
58 UCART1	565042.3	4216945.29	565042.32, 4216945.29	1.26024	1.681	0.89295	0.91909	7.98E-03	4.75E-07	1.92E-03	5.93E-03	7.98E-03
59 UCART1	565077.3	4216945.29	565077.32, 4216945.29	1.08285	1.36214	0.77535	0.78485	6.86E-03	3.85E-07	1.67E-03	5.06E-03	6.86E-03
60 UCART1	565112.3	4216945.29	565112.32, 4216945.29	0.9311	1.13146	0.67902	0.67832	5.90E-03	3.20E-07	1.46E-03	4.38E-03	5.90E-03
61 UCART1	565147.3	4216945.29	565147.32, 4216945.29	0.80389	0.95607	0.59835	0.59118	5.09E-03	2.70E-07	1.29E-03	3.81E-03	5.09E-03
62 UCART1	565182.3	4216945.29	565182.32, 4216945.29	0.69842	0.81772	0.53103	0.5197	4.42E-03	2.31E-07	1.14E-03	3.35E-03	4.42E-03
63 UCART1	563957.3	4216980.29	563957.32, 4216980.29	0.09711	0.08834	0.08672	0.07855	6.15E-04	2.50E-08	1.87E-04	5.07E-04	6.15E-04
64 UCART1	563992.3	4216980.29	563992.32, 4216980.29	0.1066	0.09577	0.0958	0.08601	6.75E-04	2.71E-08	2.06E-04	5.55E-04	6.75E-04
65 UCART1	564027.3	4216980.29	564027.32, 4216980.29	0.11783	0.10434	0.10683	0.095	7.46E-04	2.95E-08	2.30E-04	6.13E-04	7.46E-04
66 UCART1	564062.3	4216980.29	564062.32, 4216980.29	0.13054	0.11445	0.12118	0.10661	8.27E-04	3.23E-08	2.61E-04	6.88E-04	8.27E-04
67 UCART1	564097.3	4216980.29	564097.32, 4216980.29	0.14669	0.12599	0.14378	0.12494	9.29E-04	3.56E-08	3.09E-04	8.06E-04	9.29E-04
68 UCART1	564132.3	4216980.29	564132.32, 4216980.29	0.16404	0.13821	0.16372	0.14102	1.04E-03	3.91E-08	3.52E-04	9.10E-04	1.04E-03
69 UCART1	564167.3	4216980.29	564167.32, 4216980.29	0.18589	0.15303	0.18884	0.16107	1.18E-03	4.33E-08	4.06E-04	1.04E-03	1.18E-03
70 UCART1	564202.3	4216980.29	564202.32, 4216980.29	0.21198	0.16995	0.21462	0.18092	1.34E-03	4.80E-08	4.62E-04	1.17E-03	1.34E-03
71 UCART1	564237.3	4216980.29	564237.32, 4216980.29	0.244	0.18889	0.24959	0.2077	1.55E-03	5.34E-08	5.37E-04	1.34E-03	1.55E-03
72 UCART1	564272.3	4216980.29	564272.32, 4216980.29	0.28762	0.21055	0.30479	0.25093	1.82E-03	5.95E-08	6.56E-04	1.62E-03	1.82E-03
73 UCART1	564307.3	4216980.29	564307.32, 4216980.29	0.34382	0.23556	0.37994	0.30964	2.18E-03	6.66E-08	8.17E-04	2.00E-03	2.18E-03
74 UCART1	564762.3	4216980.29	564762.32, 4216980.29	3.26062	5.77139	3.38465	5.20788	2.07E-02	1.63E-06	7.28E-03	3.36E-02	2.07E-02
75 UCART1	564797.3	4216980.29	564797.32, 4216980.29	3.41611	13.0786	3.07433	3.79011	2.16E-02	3.70E-06	6.61E-03	2.45E-02	2.16E-02
76 UCART1	564832.3	4216980.29	564832.32, 4216980.29	3.30634	20.9561	2.65061	2.85786	2.09E-02	5.92E-06	5.70E-03	1.84E-02	2.10E-02
77 UCART1	564867.3	4216980.29	564867.32, 4216980.29	2.99431	9.92086	2.21806	2.20765	1.90E-02	2.80E-06	4.77E-03	1.42E-02	1.90E-02
78 UCART1	564902.3	4216980.29	564902.32, 4216980.29	2.59109	5.39776	1.83472	1.74219	1.64E-02	1.53E-06	3.95E-03	1.12E-02	1.64E-02
79 UCART1	564937.3	4216980.29	564937.32, 4216980.29	2.18649	3.43854	1.50071	1.38417	1.39E-02	9.72E-07	3.23E-03	8.93E-03	1.39E-02
80 UCART1	564972.3	4216980.29	564972.32, 4216980.29	1.83881	2.46233	1.23354	1.11963	1.16E-02	6.96E-07	2.65E-03	7.23E-03	1.16E-02
81 UCART1	565007.3	4216980.29	565007.32, 4216980.29	1.53577	1.89601	1.03838	0.9349	9.73E-03	5.36E-07	2.23E-03	6.03E-03	9.73E-03
82 UCART1	565042.3	4216980.29	565042.32, 4216980.29	1.28667	1.51935	0.88582	0.7936	8.15E-03	4.29E-07	1.91E-03	5.12E-03	8.15E-03
83 UCART1	565077.3	4216980.29	565077.32, 4216980.29	1.0852	1.24961	0.76384	0.68192	6.87E-03	3.53E-07	1.64E-03	4.40E-03	6.87E-03
84 UCART1	565112.3	4216980.29	565112.32, 4216980.29	0.92388	1.04894	0.66666	0.59348	5.85E-03	2.96E-07	1.43E-03	3.83E-03	5.85E-03
85 UCART1	565147.3	4216980.29	565147.32, 4216980.29	0.79406	0.89282	0.58624	0.5206	5.03E-03	2.52E-07	1.26E-03	3.36E-03	5.03E-03
86 UCART1	565182.3	4216980.29	565182.32, 4216980.29	0.68918	0.76899	0.51967	0.46044	4.37E-03	2.17E-07	1.12E-03	2.97E-03	4.37E-03
87 UCART1	563957.3	4217015.29	563957.32, 4217015.29	0.09874	0.08966	0.08713	0.07919	6.26E-04	2.53E-08	1.87E-04	5.11E-04	6.26E-04
88 UCART1	563992.3	4217015.29	563992.32, 4217015.29	0.10877	0.0974	0.09639	0.08682	6.89E-04	2.75E-08	2.07E-04	5.60E-04	6.89E-04
89 UCART1	564027.3	4217015.29	564027.32, 4217015.29	0.11968	0.1063	0.10728	0.09569	7.58E-04	3.00E-08	2.31E-04	6.17E-04	7.58E-04
90 UCART1	564062.3	4217015.29	564062.32, 4217015.29	0.13267	0.11672	0.12095	0.10665	8.40E-04	3.30E-08	2.60E-04	6.88E-04	8.40E-04
91 UCART1	564097.3	4217015.29	564097.32, 4217015.29	0.14859	0.12916	0.13923	0.12108	9.41E-04	3.65E-08	2.99E-04	7.81E-04	9.41E-04
92 UCART1	564132.3	4217015.29	564132.32, 4217015.29	0.16828	0.14272	0.1671	0.14286	1.07E-03	4.03E-08	3.59E-04	9.22E-04	1.07E-03
93 UCART1	564167.3	4217015.29	564167.32, 4217015.29	0.19028	0.15791	0.18993	0.16052	1.21E-03	4.46E-08	4.09E-04	1.04E-03	1.21E-03
94 UCART1	564202.3	4217015.29	564202.32, 4217015.29	0.21839	0.17614	0.22156	0.18485	1.38E-03	4.98E-08	4.77E-04	1.19E-03	1.38E-03
95 UCART1	564237.3	4217015.29	564237.32, 4217015.29	0.25406	0.19781	0.26028	0.21405	1.61E-03	5.59E-08	5.60E-04	1.38E-03	1.61E-03
96 UCART1	564272.3	4217015.29	564272.32, 4217015.29	0.29992	0.222	0.31869	0.25801	1.90E-03	6.27E-08	6.86E-04	1.66E-03	1.90E-03
97 UCART1	564307.3	4217015.29	564307.32, 4217015.29	0.35974	0.25022	0.39249	0.31286	2.28E-03	7.07E-08	8.44E-04	2.02E-03	2.28E-03
98 UCART1	564762.3	4217015.29	564762.32, 4217015.29	5.39395	10.3892	4.42428	3.99221	3.42E-02	2.94E-06	9.52E-03	2.58E-02	3.42E-02
99 UCART1	564797.3	4217015.29	564797.32, 4217015.29	5.12519	16.2976	3.63303	2.96259	3.25E-02	4.61E-06	7.81E-03	1.91E-02	3.25E-02
100 UCART1	564832.3	4217015.29	564832.32, 4217015.29	4.43717	11.0711	2.90149	2.25631	2.81E-02	3.13E-06	6.24E-03	1.46E-02	2.81E-02
101 UCART1	564867.3	4217015.29	564867.32, 4217015.29	3.63334	6.17248	2.3027	1.75489	2.30E-02	1.74E-06	4.95E-03	1.13E-02	2.30E-02
102 UCART1	564902.3	4217015.29	564902.32, 4217015.29	2.90747	3.98598	1.83981	1.39466	1.84E-02	1.13E-06	3.96E-03	9.00E-03	1.84E-02
103 UCART1	564937.3	4217015.29	564937.32, 4217015.29	2.3489	2.78674	1.4708	1.11668	1.49E-02	7.88E-07	3.16E-03	7.21E-03	1.49E-02
104 UCART1	564972.3	4217015.29	564972.32, 4217015.29	1.89161	2.1097	1.21178	0.92591	1.20E-02	5.96E-07	2.61E-03	5.97E-03	1.20E-02
105 UCART1	565007.3	4217015.29	565007.32, 4217015.29	1.54275	1.67176	1.01798	0.78353	9.77E-03	4.73E-07	2.19E-03	5.06E-03	9.77E-03
106 UCART1	565042.3	4217015.29	565042.32, 4217015.29	1.27474	1.3614	0.86583	0.67119	8.08E-03	3.85E-07	1.86E-03	4.33E-03	8.08E-03
107 UCART1	565077.3	4217015.29	565077.32, 4217015.29	1.06813	1.13215	0.74496	0.58139	6.77E-03	3.20E-07	1.60E-03	3.75E-03	6.77E-03
108 UCART1	565112.3	4217015.29	565112.32, 4217015.29	0.90768	0.95797	0.64882	0.50954	5.75E-03	2.71E-07	1.40E-03	3.29E-03	5.75E-03
109 UCART1	565147.3	4217015.29	565147.32, 4217015.29	0.78051	0.82059	0.56984	0.45013	4.94E-03	2.32E-07	1.23E-03	2.90E-03	4.94E-03
110 UCART1	565182.3	4217015.29	565182.32, 4217015.29	0.67825	0.71011	0.50408	0.40038	4.30E-03	2.01E-07	1.08E-03	2.58E-03	4.30E-03
111 UCART1	563957.3	4217050.29	563957.32, 4217050.29	0.09942	0.09082	0.08755	0.07951	6.30E-04	2.57E-08	1.88E-04	5.13E-04	6.30E-04
112 UCART1	563992.3	4217050.29	563992.32, 4217050.29	0.10989	0.09883	0.09691	0.08719	6.96E-04	2.79E-08	2.08E-04	5.63E-04	6.96E-04
113 UCART1	564027.3	4217050.29	564027.32, 4217050.29	0.12114	0.1081	0.10805	0.0962	7.67E-04	3.06E-08	2.32E-04	6.21E-04	7.67E-04
114 UCART1	564062.3	4217050.29	564062.32, 4217050.29	0.13445	0.11892	0.12147	0.10691	8.52E-04	3.36E-08	2.61E-04	6.90E-04	8.52E-04
115 UCART1	564097.3	4217050.29	564097.32, 4217050.29	0.15066	0.1319	0.13902	0.12059	9.54E-04	3.73E-08	2.99E-04	7.78E-04	9.54E-04
116 UCART1	564132.3	4217050.29	564132.32, 4217050.29	0.17067	0.14664	0.16212	0.13824	1.08E-03	4.14E-08	3.49E-04	8.92E-04	1.08E-03
117 UCART1	564167.3	4217050.29	564167.32, 4217050.29	0.19495	0.16365	0.192	0.16073	1.23E-03	4.63E-08	4.13E-04	1.04E-03	1.24E-03
118 UCART1	564202.3	4217050.29	564202.32, 4217050.29	0.22388	0.18293	0.22434	0.18505	1.42E-03	5.17E-08	4.83E-04	1.19E-03	1.42E-03
119 UCART1	564237.3	4217050.29	564237.32, 4217050.29	0.2615	0.20633	0.2671	0.21674	1.66E-03	5.83E-08	5.75E-04	1.40E-03	1.66E-03
120 UCART1	564762.3	4217050.29	564762.32, 4217050.29	8.8113	15.6857	5.08101	2.97439	5.58E-02	4.43E-06	1.09E-02	1.92E-02	5.58E-02
121 UCART1	564797.3	4217050.29	564797.32, 4217050.29	7.10025	13.5928	3.83931	2.25003	4.50E-02	3.84E-06	8.26E-03	1.45E-02	4.50E-02
122 UCART1	564832.3	4217050.29	564832.32, 4217050.29	5.39439	7.45451	2.9301	1.74469	3.42E-02	2.11E-06	6.30E-03	1.13E-02	3.42E-02
123 UCART1	564867.3	4217050.29	564867.32, 4217050.29	4.00273	4.68753	2.25737	1.36883	2.54E-02	1.32E-06	4.86E-03	8.83E-03	2.54E-02
124 UCART1	564902.3	4217050.29	564902.32, 4217050.29	3.06013	3.2057	1.76421	1.09145	1.94E-02	9.06E-07	3.79E-03	7.04E-03	1.94E-02
125 UCART1	564937.3	4217050.29	564937.32, 4217050.29	2.35964	2.37636	1.41675	0.8951	1.49E-02	6.72E-07	3.05E-03	5.78E-03	1.49E-02
126 UCART1	564972.3	4217050.29	564972.32, 4217050.29	1.86917	1.85435	1.17073	0.75508	1.18E-02	5.24E-07	2.52E-03	4.87E-03	1.18E-02

127	UCART1	565007.3	4217050.29	565007.32, 4217050.29	1.51181	1.49156	0.98243	0.64603	9.58E-03	4.22E-07	2.11E-03	4.17E-03	9.58E-03
128	UCART1	565042.3	4217050.29	565042.32, 4217050.29	1.24559	1.22716	0.83492	0.55909	7.89E-03	3.47E-07	1.80E-03	3.61E-03	7.89E-03
129	UCART1	565077.3	4217050.29	565077.32, 4217050.29	1.04221	1.02669	0.71647	0.488	6.60E-03	2.90E-07	1.54E-03	3.15E-03	6.60E-03
130	UCART1	565112.3	4217050.29	565112.32, 4217050.29	0.88517	0.87245	0.622	0.43046	5.61E-03	2.47E-07	1.34E-03	2.78E-03	5.61E-03
131	UCART1	565147.3	4217050.29	565147.32, 4217050.29	0.76131	0.7505	0.54535	0.38308	4.82E-03	2.12E-07	1.17E-03	2.47E-03	4.82E-03
132	UCART1	565182.3	4217050.29	565182.32, 4217050.29	0.6617	0.65201	0.48212	0.34341	4.19E-03	1.84E-07	1.04E-03	2.22E-03	4.19E-03
133	UCART1	563957.3	4217085.29	563957.32, 4217085.29	0.09965	0.09186	0.08823	0.07964	6.31E-04	2.60E-08	1.90E-04	5.14E-04	6.31E-04
134	UCART1	563992.3	4217085.29	563992.32, 4217085.29	0.11064	0.1001	0.09768	0.08729	7.01E-04	2.83E-08	2.10E-04	5.63E-04	7.01E-04
135	UCART1	564027.3	4217085.29	564027.32, 4217085.29	0.12214	0.10973	0.10907	0.09639	7.74E-04	3.10E-08	2.35E-04	6.22E-04	7.74E-04
136	UCART1	564062.3	4217085.29	564062.32, 4217085.29	0.13611	0.12136	0.12408	0.10803	8.62E-04	3.43E-08	2.67E-04	6.97E-04	8.62E-04
137	UCART1	564097.3	4217085.29	564097.32, 4217085.29	0.15297	0.13466	0.14268	0.12221	9.69E-04	3.81E-08	3.07E-04	7.89E-04	9.69E-04
138	UCART1	564132.3	4217085.29	564132.32, 4217085.29	0.1735	0.15005	0.16772	0.14083	1.10E-03	4.24E-08	3.61E-04	9.09E-04	1.10E-03
139	UCART1	564167.3	4217085.29	564167.32, 4217085.29	0.19801	0.16831	0.19546	0.16165	1.25E-03	4.76E-08	4.20E-04	1.04E-03	1.25E-03
140	UCART1	564202.3	4217085.29	564202.32, 4217085.29	0.22859	0.19	0.22811	0.18555	1.45E-03	5.37E-08	4.91E-04	1.20E-03	1.45E-03
141	UCART1	564237.3	4217085.29	564237.32, 4217085.29	0.26752	0.21549	0.27114	0.21684	1.69E-03	6.09E-08	5.83E-04	1.40E-03	1.69E-03
142	UCART1	564657.3	4217085.29	564657.32, 4217085.29	17.7504	2.68551	14.2571	5.96269	1.12E-01	7.59E-07	3.07E-02	3.85E-02	1.12E-01
143	UCART1	564692.3	4217085.29	564692.32, 4217085.29	20.7886	4.79247	10.2771	3.93813	1.32E-01	1.35E-06	2.21E-02	2.54E-02	1.32E-01
144	UCART1	564727.3	4217085.29	564727.32, 4217085.29	17.7989	10.2513	7.10723	2.83662	1.13E-01	2.90E-06	1.53E-02	1.83E-02	1.13E-01
145	UCART1	564762.3	4217085.29	564762.32, 4217085.29	12.574	22.2974	5.03737	2.14004	7.97E-02	6.30E-06	1.08E-02	1.38E-02	7.97E-02
146	UCART1	564797.3	4217085.29	564797.32, 4217085.29	8.44588	10.0287	3.68045	1.65775	5.35E-02	2.83E-06	7.92E-03	1.07E-02	5.35E-02
147	UCART1	564832.3	4217085.29	564832.32, 4217085.29	5.73122	5.83445	2.75532	1.30395	3.63E-02	1.65E-06	5.93E-03	8.41E-03	3.63E-02
148	UCART1	564867.3	4217085.29	564867.32, 4217085.29	4.03734	3.88027	2.12385	1.05041	2.56E-02	1.10E-06	4.57E-03	6.78E-03	2.56E-02
149	UCART1	564902.3	4217085.29	564902.32, 4217085.29	2.99883	2.75031	1.65529	0.85048	1.90E-02	7.77E-07	3.56E-03	5.49E-03	1.90E-02
150	UCART1	564937.3	4217085.29	564937.32, 4217085.29	2.28433	2.0893	1.33316	0.71054	1.45E-02	5.91E-07	2.87E-03	4.59E-03	1.45E-02
151	UCART1	564972.3	4217085.29	564972.32, 4217085.29	1.79797	1.6505	1.09872	0.60609	1.14E-02	4.67E-07	2.36E-03	3.91E-03	1.14E-02
152	UCART1	565007.3	4217085.29	565007.32, 4217085.29	1.44955	1.33827	0.91964	0.52381	9.18E-03	3.78E-07	1.98E-03	3.38E-03	9.18E-03
153	UCART1	565042.3	4217085.29	565042.32, 4217085.29	1.19149	1.1069	0.77965	0.45749	7.55E-03	3.13E-07	1.68E-03	2.95E-03	7.55E-03
154	UCART1	565077.3	4217085.29	565077.32, 4217085.29	0.9957	0.93079	0.66878	0.40343	6.31E-03	2.63E-07	1.44E-03	2.60E-03	6.31E-03
155	UCART1	565112.3	4217085.29	565112.32, 4217085.29	0.84447	0.7939	0.58032	0.35917	5.35E-03	2.24E-07	1.25E-03	2.32E-03	5.35E-03
156	UCART1	565147.3	4217085.29	565147.32, 4217085.29	0.72482	0.68473	0.50821	0.3221	4.59E-03	1.94E-07	1.09E-03	2.08E-03	4.59E-03
157	UCART1	565182.3	4217085.29	565182.32, 4217085.29	0.62915	0.59665	0.44935	0.29112	3.99E-03	1.69E-07	9.67E-04	1.88E-03	3.99E-03
158	UCART1	563957.3	4217120.29	563957.32, 4217120.29	0.10057	0.09289	0.0896	0.07986	6.37E-04	2.63E-08	1.93E-04	5.15E-04	6.37E-04
159	UCART1	563992.3	4217120.29	563992.32, 4217120.29	0.11115	0.10138	0.09925	0.08754	7.04E-04	2.87E-08	2.13E-04	5.65E-04	7.04E-04
160	UCART1	564027.3	4217120.29	564027.32, 4217120.29	0.12266	0.11117	0.11023	0.0962	7.77E-04	3.14E-08	2.37E-04	6.21E-04	7.77E-04
161	UCART1	564062.3	4217120.29	564062.32, 4217120.29	0.13657	0.12295	0.12443	0.10711	8.65E-04	3.48E-08	2.68E-04	6.91E-04	8.65E-04
162	UCART1	564097.3	4217120.29	564097.32, 4217120.29	0.15413	0.13701	0.14495	0.12233	9.76E-04	3.87E-08	3.12E-04	7.89E-04	9.76E-04
163	UCART1	564132.3	4217120.29	564132.32, 4217120.29	0.17482	0.15311	0.17059	0.14126	1.11E-03	4.33E-08	3.67E-04	9.12E-04	1.11E-03
164	UCART1	564692.3	4217120.29	564692.32, 4217120.29	47.8099	7.26564	9.40865	2.51211	3.03E-01	2.05E-06	2.02E-02	1.62E-02	3.03E-01
165	UCART1	564727.3	4217120.29	564727.32, 4217120.29	25.5069	10.1036	6.18772	1.88976	1.62E-01	2.86E-06	1.33E-02	1.22E-02	1.62E-01
166	UCART1	564762.3	4217120.29	564762.32, 4217120.29	13.7185	14.9784	4.29803	1.45608	8.69E-02	4.23E-06	9.25E-03	9.40E-03	8.69E-02
167	UCART1	564797.3	4217120.29	564797.32, 4217120.29	8.15627	7.39241	3.12168	1.15324	5.17E-02	2.09E-06	6.71E-03	7.44E-03	5.17E-02
168	UCART1	564832.3	4217120.29	564832.32, 4217120.29	5.3195	4.54172	2.33716	0.92852	3.37E-02	1.28E-06	5.03E-03	5.99E-03	3.37E-02
169	UCART1	564867.3	4217120.29	564867.32, 4217120.29	3.73805	3.18769	1.82386	0.77393	2.37E-02	9.01E-07	3.92E-03	4.99E-03	2.37E-02
170	UCART1	564902.3	4217120.29	564902.32, 4217120.29	2.74859	2.36592	1.45128	0.6517	1.74E-02	6.69E-07	3.12E-03	4.21E-03	1.74E-02
171	UCART1	564937.3	4217120.29	564937.32, 4217120.29	2.08446	1.83457	1.17191	0.55286	1.32E-02	5.19E-07	2.52E-03	3.57E-03	1.32E-02
172	UCART1	564972.3	4217120.29	564972.32, 4217120.29	1.63282	1.46031	0.96541	0.47644	1.03E-02	4.13E-07	2.08E-03	3.07E-03	1.03E-02
173	UCART1	565007.3	4217120.29	565007.32, 4217120.29	1.31238	1.19125	0.80887	0.41611	8.31E-03	3.37E-07	1.74E-03	2.69E-03	8.31E-03
174	UCART1	565042.3	4217120.29	565042.32, 4217120.29	1.07779	0.99107	0.68805	0.36783	6.83E-03	2.80E-07	1.48E-03	2.37E-03	6.83E-03
175	UCART1	565077.3	4217120.29	565077.32, 4217120.29	0.90064	0.83744	0.59262	0.32824	5.71E-03	2.37E-07	1.27E-03	2.12E-03	5.71E-03
176	UCART1	565112.3	4217120.29	565112.32, 4217120.29	0.76548	0.71845	0.51744	0.29615	4.85E-03	2.03E-07	1.11E-03	1.91E-03	4.85E-03
177	UCART1	565147.3	4217120.29	565147.32, 4217120.29	0.65705	0.62162	0.45471	0.26814	4.16E-03	1.76E-07	9.78E-04	1.73E-03	4.16E-03
178	UCART1	565182.3	4217120.29	565182.32, 4217120.29	0.57082	0.54362	0.40368	0.24469	3.62E-03	1.54E-07	8.68E-04	1.58E-03	3.62E-03
179	UCART1	563957.3	4217155.29	563957.32, 4217155.29	0.1013	0.09376	0.09078	0.0797	6.42E-04	2.65E-08	1.95E-04	5.14E-04	6.42E-04
180	UCART1	563992.3	4217155.29	563992.32, 4217155.29	0.1112	0.10245	0.10046	0.08725	7.04E-04	2.90E-08	2.16E-04	5.63E-04	7.04E-04
181	UCART1	564027.3	4217155.29	564027.32, 4217155.29	0.12272	0.11248	0.11147	0.09575	7.77E-04	3.18E-08	2.40E-04	6.18E-04	7.77E-04
182	UCART1	564062.3	4217155.29	564062.32, 4217155.29	0.13652	0.12444	0.12511	0.1061	8.65E-04	3.52E-08	2.69E-04	6.85E-04	8.65E-04
183	UCART1	564097.3	4217155.29	564097.32, 4217155.29	0.15375	0.13914	0.14376	0.1199	9.74E-04	3.93E-08	3.09E-04	7.74E-04	9.74E-04
184	UCART1	564132.3	4217155.29	564132.32, 4217155.29	0.17505	0.15592	0.17093	0.13972	1.11E-03	4.41E-08	3.68E-04	9.02E-04	1.11E-03
185	UCART1	564692.3	4217155.29	564692.32, 4217155.29	51.7546	11.8716	5.79096	1.51966	3.28E-01	3.36E-06	1.25E-02	9.81E-03	3.28E-01
186	UCART1	564727.3	4217155.29	564727.32, 4217155.29	20.7489	20.0709	4.05696	1.20578	1.31E-01	5.67E-06	8.73E-03	7.78E-03	1.31E-01
187	UCART1	564762.3	4217155.29	564762.32, 4217155.29	10.3285	9.34392	2.90105	0.94429	6.54E-02	2.64E-06	6.24E-03	6.09E-03	6.54E-02
188	UCART1	564797.3	4217155.29	564797.32, 4217155.29	6.20758	5.35908	2.18782	0.77542	3.93E-02	1.51E-06	4.71E-03	5.00E-03	3.93E-02
189	UCART1	564832.3	4217155.29	564832.32, 4217155.29	4.15797	3.64096	1.71899	0.65824	2.63E-02	1.03E-06	3.70E-03	4.25E-03	2.63E-02
190	UCART1	564867.3	4217155.29	564867.32, 4217155.29	2.96337	2.66327	1.38017	0.56518	1.88E-02	7.53E-07	2.97E-03	3.65E-03	1.88E-02
191	UCART1	564902.3	4217155.29	564902.32, 4217155.29	2.20447	2.0308	1.12552	0.48837	1.40E-02	5.74E-07	2.42E-03	3.15E-03	1.40E-02
192	UCART1	564937.3	4217155.29	564937.32, 4217155.29	1.69203	1.5935	0.92878	0.42369	1.07E-02	4.50E-07	2.00E-03	2.73E-03	1.07E-02
193	UCART1	564972.3	4217155.29	564972.32, 4217155.29	1.3369	1.28215	0.77784	0.37118	8.47E-03	3.62E-07	1.67E-03	2.40E-03	8.47E-03
194	UCART1	565007.3	4217155.29	565007.32, 4217155.29	1.08134	1.05222	0.66004	0.32825	6.85E-03	2.97E-07	1.42E-03	2.12E-03	6.85E-03
195	UCART1	565042.3	4217155.29	565042.32, 4217155.29	0.89335	0.87915	0.56774	0.29347	5.66E-03	2.48E-07	1.22E-03	1.89E-03	5.66E-03
196	UCART1	565077.3	4217155.29	565077.32, 4217155.29	0.75046	0.74501	0.49362	0.26452	4.75E-03	2.11E-07	1.06E-03	1.71E-03	4.75E-03
197	UCART1	565112.3	4217155.29	565112.32, 4217155.29	0.64128	0.641	0.43452	0.24084	4.06E-03	1.81E-07	9.35E-04	1.55E-03	4.06E-03
198	UCART1	565147.3	4217155.29	565147.32, 4217155.29	0.5568	0.55954	0.38742	0.22162	3.53E-03	1.58E-07	8.33E-04	1.43E-03	3.53E-03
199	UCART1	565182.3	4217155.29	565182.32, 4217155.29	0.48738	0.49207	0.34736	0.20454	3.09E-03	1.39E-07	7.47E-04	1.32E-03	3.09E-03
200	UCART1	563957.3	4217190.29	563957.32, 4217190.29	0.10094	0.09444	0.09146	0.0791	6.39E-04	2.67E-08	1.97E-04	5.10E-04	6.39E-04
201	UCART1	563992.3	4217190.29	563992.32, 4217190.29	0.11078	0.10331	0.10109	0.08649	7.02E-04	2.92E-08	2.17E-04	5.58E-04	7.02E-04
202	UCART1	564027.3	4217190.29	564027.32, 4217190.29	0.12234	0.11368	0.11245	0.09509	7.75E-04	3.21E-08	2.42E-04	6.14E-04	7.75E-04
203	UCART1	564062.3	4217190.29	564062.32, 4217190.29	0.13606	0.12597	0.12599	0.10521	8.62E-04	3.56E-08	2.71E-04	6.79E-04	8.62E-04
204	UCART1	564097.3	4217190.29	564097.32, 4217190.29	0.153	0.14096	0.14375	0.1183	9.69E-04	3.98E-08	3.09E-04	7.63E-04	9.69E-04
205	UCART1	564692.3	4217190.29	564692.32, 4217190.29	23.1542	15.1537	2.71501	0.93473	1.47E-01	4.28E-06	5.84E-03	6.03E-03	1.47E-01
206	UCART1	564727.3	4217190.29	564727.32, 4217190.29	10.521	13.1374	2.11131	0.78408	6.66E-02	3.71E-06	4.54E-03	5.06E-03	6.67E-02
207	UCART1	564762.3	4217190.29	564762.32, 4217190.29	5.78899	6.59863	1.63592	0.64012	3.67E-02	1.87E-06	3.52E-03	4.13E-03	3.67E-02
208	UCART1	564797.3	4217190.29	564797.32, 4217190.29	3.74859	4.18813	1.33053	0.54772	2.37E-02	1.18E-06	2.86E-03	3.53E-03	2.37E-02
209	UCART1	564832.3	4217190.29	564832.32, 4217190.29	2.65819	2.9631	1.10663	0.47787	1.68E-02	8.38E-07	2.38E-03	3.08E-03	1.68E-02
210	UCART1	564867.3	4217190.29	564867.32, 4217190.29	1.98377	2.23132	0.93285	0.42097	1.26E-02	6.31E-07	2.01E-03	2.72E-03	1.26E-02
211	UCART1	564902.3	4217190.29	564902.32, 4217190.29	1.53037	1.73547	0.79181	0.37161	9.69E-03	4.91E-07	1.70E-03	2.40E-03	9.70E-03
212	UCART1	564937.3	4217190.29	564937.32, 4217190.29	1.20858	1.3776	0.67533	0.32803	7.66E-03	3.89E-07	1.45E-03	2.12E-03	7.66E-03
213	UCART1	564972.3	4217190.29	564972.32, 4217190.29	0.97801	1.11731	0.58131	0.29149	6.20E-03	3.16E-07	1.25E-03	1.88E-03	6.20E-03
214	UCART1	565007.3	4217190.29	565007.32, 4217190.29	0.80696	0.92177	0.50458	0.26072	5.11E-03	2.61E-07	1.09E-03	1.68E-03	5.11E-03
215	UCART1	565042.3	4217190.29	565042.32, 4217190.29	0.67884	0.7738	0.44275	0.2357	4.30E-03	2.19E-07	9.52E-04	1.52E-03	4.30E-03
216	UCART1	565077.3	4217190.29	565077.32, 4217190.29	0.58013	0.65903	0.39207	0.21488	3.68E-03	1.86E-07	8.43E-04	1.39E-03	3.68E-03
217	UCART1	565112.3	4217190.29	565112.32, 4217190.29	0.50432	0.57063	0.35116	0.19801	3.19E-03	1.61E-07	7.55E-04	1.28E-03	3.19E-03
218	UCART1	565147.3	4217190.29	565147.32, 4217190.29	0.44506	0.5015	0.31801	0.18433	2.82E-03	1.42E-07	6.84E-04	1.19E-03	2.82E-03
219	UCART1	565182.3	4217190.29	565182.32, 4217190.29	0.39463	0.44315	0.28867	0.17166	2.50E-03	1.25E-07	6.21E-04	1.11E-03	2.50E-03
220	UCART1	563957.3	4217225.29	563957.32, 4217225.29	0.10029	0.095	0.09174	0.07835	6.35E-04	2.69E-08	1.97E-04	5.06E-04	6.35E-04
221	UCART1	563992.3	4217225.29	563992.32, 4217225.29	0.10997	0.10397	0.1011	0.08547	6.97E-04	2.94E-08	2.17E-04	5.52E-04	6.97E-04
222	UCART1	564027.3	4217225.29	564027.32, 4217225.29	0.12142	0.11462	0.11244	0.09399	7.69E-04	3.24E-08	2.42E-04	6.07E-04	7.69E-04
223	UCART1	564062.3	4217225.29	564062.32, 4217225.29	0.1351	0.12737	0.12618	0.10423	8.56E-04	3.60E-08	2.71E-04	6.73E-04	8.56E-04
224	UCART1	564097.3	4217225.29	564097.32, 4217225.29	0.15223	0.14242	0.14504	0.11819	9.64E-04	4.03E-08	3.12E-04	7.63E-04	9.64E-04
225	UCART1	564552.3	4217225.29	564552.32, 4217225.29	5.59324	2.0794	3.96949	1.19519	3.54E-02	5.88E-07	8.54E-03	7.71E-03	3.54E-02
226	UCART1	564587.3	4217225.29	564587.32, 4217225.29	12.5594	3.32701	3.33827	1.02088	7.96E-02	9.40E-07	7.18E-03	6.59E-03	7.96E-02
227	UCART1	564622.3	4217225.29	564622.32, 4217225.29	21.6037	6.49905	2.54908	0.87326	1.37E-01	1.84E-06	5.48E-03	5.64E-03	1.37E-01
228	UCART1	564657.3	4217225.29	564657.32, 4217225.29	14.3864	11.7685	1.92777	0.75207	9.11E-02	3.33E-06	4.15E-03	4.85E-03	9.11E-02
229	UCART1	564692.3	4217225.29	564692.32, 4217225.29	7.50117	18.058	1.49051	0.64699	4.75E-02	5.10E-06	3.21E-03	4.18E-03	4.75E-02
230	UCART1	564727.3	4217225.29	564727.32, 4217225.29	4.4796	8.44845	1.18837	0.55519	2.84E-02	2.39E-06	2.56E-03	3.58E-03	2.84E-02
231	UCART1	564762.3	4217225.29	564762.32, 4217225.29	2.90512	4.96016	0.96403	0.47121	1.84E-02	1.40E-06	2.07E-03	3.04E-03	1.84E-02
232	UCART1	564797.3	4217225.29	564797.32, 4217225.29	2.06401	3.35876	0.81754	0.4124	1.31E-02	9.49E-07	1.76E-03	2.66E-03	1.31E-02
233	UCART1	564832.3	4217225.29	564832.32, 4217225.29	1.56267	2.45242	0.70778	0.36627	9.90E-03	6.93E-07	1.52E-03	2.36E-03	9.90E-03
234	UCART1	564867.3	4217225.29	564867.32, 4217225.29	1.23333	1.87359	0.61952	0.32775	7.81E-03	5.30E-07	1.33E-03	2.12E-03	7.81E-03
235	UCART1	564902.3	4217225.29	564902.32, 4217225.29	0.9935	1.48315	0.54354	0.29291	6.29E-03	4.19E-07	1.17E-03	1.89E-03	6.29E-03
236	UCART1	564937.3	4217225.29	564937.32, 4217225.29	0.81311	1.18564	0.47828	0.26185	5.15E-03	3.35E-07	1.03E-03	1.69E-03	5.15E-03
237	UCART1	564972.3	4217225.29	564972.32, 4217225.29	0.67842	0.96903	0.42335	0.23529	4.30E-03	2.74E-07	9.11E-04	1.52E-03	4.30E-03
238	UCART1	565007.3	4217225.29	565007.32, 4217225.29	0.57483	0.80461	0.37665	0.21248	3.64E-03	2.27E-07	8.10E-04	1.37E-03	3.64E-03
239	UCART1	565042.3	4217225.29	565042.32, 4217225.29	0.49416	0.67823	0.33729	0.19342	3.13E-03	1.92E-07	7.26E-04	1.25E-03	3.13E-03
240	UCART1	565077.3	4217225.29	565077.32, 4217225.29	0.43313	0.58279	0.30545	0.17845	2.74E-03	1.65E-07	6.57E-04	1.15E-03	2.74E-03
241	UCART1	565112.3	4217225.29	565112.32, 4217225.29	0.38458	0.5079	0.27866	0.166	2.44E-03	1.44E-07	5.99E-04	1.07E-03	2.44E-03
242	UCART1	565147.3	4217225.29	565147.32, 4217225.29	0.34407	0.44691	0.25525	0.15503	2.18E-03	1.26E-07	5.49E-04	1.00E-03	2.18E-03
243	UCART1	565182.3	4217225.29	565182.32, 4217225.29	0.30948	0.39622	0.23447	0.1451	1.96E-03	1.12E-07	5.04E-04	9.36E-04	1.96E-03
244	UCART1	564552.3	4217260.29	564552.32, 4217260.29	3.65352	2.7167	2.10203	0.76387	2.31E-02	7.68E-07	4.52E-03	4.93E-03	2.31E-02
245	UCART1	564587.3	4217260.29	564587.32, 4217260.29	5.344	4.87213	1.84066	0.69331	3.39E-02	1.38E-06	3.96E-03	4.47E-03	3.39E-02
246	UCART1	564622.3	4217260.29	564622.32, 4217260.29	6.17629	12.851	1.55877	0.62287	3.91E-02	3.63E-06	3.35E-03	4.02E-03	3.91E-02
247	UCART1	564657.3	4217260.29	564657.32, 4217260.29	5.10786	16.3104	1.27358	0.55405	3.24E-02	4.61E-06	2.74E-03	3.58E-03	3.24E-02
248	UCART1	564692.3	4217260.29	564692.32, 4217260.29	3.53769	10.6664	1.0143	0.48628	2.24E-02	3.01E-06	2.18E-03	3.14E-03	2.24E-02
249	UCART1	564727.3	4217260.29	564727.32, 4217260.29	2.42641	5.92158	0.81252	0.424	1.54E-02	1.67E-06	1.75E-03	2.74E-03	1.54E-02
250	UCART1	564762.3	4217260.29	564762.32, 4217260.29	1.72765	3.8177	0.6667	0.36981	1.09E-02	1.08E-06	1.43E-03	2.39E-03	1.09E-02
251	UCART1	564797.3	4217260.29	564797.32, 4217260.29	1.28973	2.70011	0.56813	0.32823	8.17E-03	7.63E-07	1.22E-03	2.12E-03	8.17E-03
252	UCART1	564832.3	4217260.29	564832.32, 4217260.29	1.01431	2.02045	0.49637	0.29482	6.43E-03	5.71E-07	1.07E-03	1.90E-03	6.43E-03
253	UCART1	564867.3	4217260.29	564867.32, 4217260.29	0.82728	1.57005	0.44068	0.26687	5.24E-03	4.44E-07	9.48E-04	1.72E-03	5.24E-03
254	UCART1	564902.3	4217260.29	564902.32, 4217260.29	0.68395	1.24652	0.39284	0.24083	4.33E-03	3.52E-07	8.45E-04	1.55E-03	4.33E-03
255	UCART1	564937.3	4217260.29	564937.32, 4217260.29	0.5728	1.01526	0.35162	0.2172	3.63E-03	2.87E-07	7.56E-04	1.40E-03	3.63E-03
256	UCART1	564972.3	4217260.29	564972.32, 4217260.29	0.48885	0.83799	0.31718	0.19709	3.10E-03	2.37E-07	6.82E-04	1.27E-03	3.10E-03
257	UCART1	565007.3	4217260.29	565007.32, 4217260.29	0.4225	0.70189	0.28736	0.17946	2.68E-03	1.98E-07	6.18E-04	1.16E-03	2.68E-03
258	UCART1	565042.3	4217260.29	565042.32, 4217260.29	0.36997	0.59641	0.26174	0.16444	2.34E-03	1.69E-07	5.63E-04	1.06E-03	2.34E-03
259	UCART1	565077.3	4217260.29	565077.32, 4217260.29	0.32969	0.51556	0.24054	0.15246	2.09E-03	1.46E-07	5.17E-04	9.84E-04	2.09E-03
260	UCART1	565112.3	4217260.29	565112.32, 4217260.29	0.29615	0.45035	0.22186	0.14203	1.88E-03	1.27E-07	4.77E-04	9.17E-04	1.88E-03
261	UCART1	565147.3	4217260.29	565147.32, 4217260.29	0.2673	0.39647	0.20503	0.13266	1.69E-03	1.12E-07	4.41E-04	8.56E-04	1.69E-03
262	UCART1	565182.3	4217260.29	565182.32, 4217260.29	0.24328	0.35263	0.19033	0.1246	1.54E-03	9.97E-08	4.09E-04	8.04E-04	1.54E-03
263	UCART1	564552.3	4217295.29	564552.32, 4217295.29	2.35576	3.77348	1.30026	0.5448	1.49E-02	1.07E-06	2.80E-03	3.52E-03	1.49E-02
264	UCART1	564587.3	4217295.29	564587.32, 4217295.29	2.83886	8.2294	1.177	0.50924	1.80E-02	2.33E-06	2.53E-03	3.29E-03	1.80E-02
265	UCART1	564622.3	4217295.29	564622.32, 4217295.29	2.93098	16.1861	1.04193	0.46893	1.86E-02	4.58E-06	2.24E-03	3.03E-03	1.86E-02

266	UCART1	564657.3	4217295.29	564657.32, 4217295.29	2.58836	13.9616	0.89554	0.42525	1.64E-02	3.95E-06	1.93E-03	2.74E-03	1.64E-02
267	UCART1	564692.3	4217295.29	564692.32, 4217295.29	2.0769	7.10193	0.74849	0.38193	1.32E-02	2.01E-06	1.61E-03	2.46E-03	1.32E-02
268	UCART1	564727.3	4217295.29	564727.32, 4217295.29	1.60679	4.39951	0.62224	0.34281	1.02E-02	1.24E-06	1.34E-03	2.21E-03	1.02E-02
269	UCART1	564762.3	4217295.29	564762.32, 4217295.29	1.23227	2.99994	0.51791	0.30523	7.81E-03	8.48E-07	1.11E-03	1.97E-03	7.81E-03
270	UCART1	564797.3	4217295.29	564797.32, 4217295.29	0.9377	2.17095	0.43806	0.27155	5.94E-03	6.14E-07	9.42E-04	1.75E-03	5.94E-03
271	UCART1	564832.3	4217295.29	564832.32, 4217295.29	0.75632	1.65637	0.38312	0.24634	4.79E-03	4.68E-07	8.24E-04	1.59E-03	4.79E-03
272	UCART1	564867.3	4217295.29	564867.32, 4217295.29	0.623	1.30606	0.34087	0.22483	3.95E-03	3.69E-07	7.33E-04	1.45E-03	3.95E-03
273	UCART1	564902.3	4217295.29	564902.32, 4217295.29	0.52001	1.0501	0.30493	0.20432	3.29E-03	2.97E-07	6.56E-04	1.32E-03	3.29E-03
274	UCART1	564937.3	4217295.29	564937.32, 4217295.29	0.44029	0.8632	0.27468	0.18569	2.79E-03	2.44E-07	5.91E-04	1.20E-03	2.79E-03
275	UCART1	564972.3	4217295.29	564972.32, 4217295.29	0.38013	0.7202	0.24989	0.16983	2.41E-03	2.04E-07	5.38E-04	1.10E-03	2.41E-03
276	UCART1	565007.3	4217295.29	565007.32, 4217295.29	0.33211	0.60943	0.22861	0.15579	2.10E-03	1.72E-07	4.92E-04	1.01E-03	2.10E-03
277	UCART1	565042.3	4217295.29	565042.32, 4217295.29	0.2945	0.52324	0.2106	0.14385	1.87E-03	1.48E-07	4.53E-04	9.28E-04	1.87E-03
278	UCART1	565077.3	4217295.29	565077.32, 4217295.29	0.26319	0.45388	0.19465	0.13324	1.67E-03	1.28E-07	4.19E-04	8.60E-04	1.67E-03
279	UCART1	565112.3	4217295.29	565112.32, 4217295.29	0.23759	0.39795	0.18076	0.12419	1.51E-03	1.12E-07	3.89E-04	8.01E-04	1.51E-03
280	UCART1	565147.3	4217295.29	565147.32, 4217295.29	0.21559	0.35147	0.16825	0.11612	1.37E-03	9.93E-08	3.62E-04	7.49E-04	1.37E-03
281	UCART1	565182.3	4217295.29	565182.32, 4217295.29	0.19759	0.31365	0.15739	0.1093	1.25E-03	8.87E-08	3.39E-04	7.05E-04	1.25E-03
282	UCART1	564552.3	4217330.29	564552.32, 4217330.29	1.57477	5.81628	0.88306	0.4132	9.98E-03	1.64E-06	1.90E-03	2.67E-03	9.98E-03
283	UCART1	564587.3	4217330.29	564587.32, 4217330.29	1.72595	14.1665	0.81583	0.39191	1.09E-02	4.00E-06	1.75E-03	2.53E-03	1.09E-02
284	UCART1	564622.3	4217330.29	564622.32, 4217330.29	1.71661	19.4341	0.74049	0.36631	1.09E-02	5.49E-06	1.59E-03	2.36E-03	1.09E-02
285	UCART1	564657.3	4217330.29	564657.32, 4217330.29	1.55753	8.63934	0.65447	0.33575	9.87E-03	2.44E-06	1.41E-03	2.17E-03	9.87E-03
286	UCART1	564692.3	4217330.29	564692.32, 4217330.29	1.34744	5.01705	0.57183	0.30815	8.54E-03	1.42E-06	1.23E-03	1.99E-03	8.54E-03
287	UCART1	564727.3	4217330.29	564727.32, 4217330.29	1.1295	3.32424	0.49533	0.28357	7.16E-03	9.40E-07	1.07E-03	1.83E-03	7.16E-03
288	UCART1	564762.3	4217330.29	564762.32, 4217330.29	0.92228	2.35541	0.42284	0.25768	5.84E-03	6.66E-07	9.10E-04	1.66E-03	5.84E-03
289	UCART2	564797.3	4217330.29	564797.32, 4217330.29	0.73442	1.74338	0.35981	0.23154	4.65E-03	4.93E-07	7.74E-04	1.49E-03	4.65E-03
290	UCART3	564832.3	4217330.29	564832.32, 4217330.29	0.61311	1.35839	0.31724	0.21327	3.88E-03	3.84E-07	6.82E-04	1.38E-03	3.88E-03
291	UCART4	564867.3	4217330.29	564867.32, 4217330.29	0.51197	1.08455	0.28164	0.19543	3.24E-03	3.07E-07	6.06E-04	1.26E-03	3.24E-03
292	UCART5	564902.3	4217330.29	564902.32, 4217330.29	0.42165	0.88007	0.25033	0.17718	2.67E-03	2.49E-07	5.38E-04	1.14E-03	2.67E-03
293	UCART6	564937.3	4217330.29	564937.32, 4217330.29	0.36059	0.72948	0.22616	0.16223	2.28E-03	2.06E-07	4.86E-04	1.05E-03	2.28E-03
294	UCART7	564972.3	4217330.29	564972.32, 4217330.29	0.31499	0.61638	0.20682	0.14967	2.00E-03	1.74E-07	4.45E-04	9.66E-04	2.00E-03
295	UCART8	565007.3	4217330.29	565007.32, 4217330.29	0.27826	0.52788	0.19038	0.13848	1.76E-03	1.49E-07	4.10E-04	8.94E-04	1.76E-03
296	UCART9	565042.3	4217330.29	565042.32, 4217330.29	0.24822	0.45729	0.1762	0.12851	1.57E-03	1.29E-07	3.79E-04	8.29E-04	1.57E-03
297	UCART10	565077.3	4217330.29	565077.32, 4217330.29	0.22212	0.39887	0.16341	0.11922	1.41E-03	1.13E-07	3.52E-04	7.69E-04	1.41E-03
298	UCART11	565112.3	4217330.29	565112.32, 4217330.29	0.20084	0.35149	0.15231	0.11118	1.27E-03	9.93E-08	3.28E-04	7.17E-04	1.27E-03
299	UCART12	565147.3	4217330.29	565147.32, 4217330.29	0.18249	0.31172	0.14232	0.10399	1.16E-03	8.81E-08	3.06E-04	6.71E-04	1.16E-03
300	UCART13	565182.3	4217330.29	565182.32, 4217330.29	0.16763	0.2791	0.13369	0.09795	1.06E-03	7.89E-08	2.88E-04	6.32E-04	1.06E-03
301	UCART14	564552.3	4217365.29	564552.32, 4217365.29	1.10077	11.0156	0.63875	0.32643	6.97E-03	3.11E-06	1.37E-03	2.11E-03	6.98E-03
302	UCART15	564587.3	4217365.29	564587.32, 4217365.29	1.14929	18.4273	0.59687	0.31168	7.28E-03	5.21E-06	1.28E-03	2.01E-03	7.29E-03
303	UCART16	564622.3	4217365.29	564622.32, 4217365.29	1.1272	10.9035	0.5504	0.29403	7.14E-03	3.08E-06	1.18E-03	1.90E-03	7.14E-03
304	UCART17	564657.3	4217365.29	564657.32, 4217365.29	1.04569	5.78942	0.49834	0.2732	6.62E-03	1.64E-06	1.07E-03	1.76E-03	6.63E-03
305	UCART18	564692.3	4217365.29	564692.32, 4217365.29	0.94216	3.62587	0.44879	0.25446	5.97E-03	1.02E-06	9.65E-04	1.64E-03	5.97E-03
306	UCART19	564727.3	4217365.29	564727.32, 4217365.29	0.82807	2.5042	0.40111	0.23786	5.25E-03	7.08E-07	8.63E-04	1.53E-03	5.25E-03
307	UCART20	564762.3	4217365.29	564762.32, 4217365.29	0.70991	1.83181	0.35282	0.22042	4.50E-03	5.18E-07	7.59E-04	1.42E-03	4.50E-03
308	UCART21	564797.3	4217365.29	564797.32, 4217365.29	0.60182	1.3964	0.30808	0.20275	3.81E-03	3.95E-07	6.63E-04	1.31E-03	3.81E-03
309	UCART22	564832.3	4217365.29	564832.32, 4217365.29	0.49979	1.09763	0.26916	0.18533	3.17E-03	3.10E-07	5.79E-04	1.20E-03	3.17E-03
310	UCART23	564867.3	4217365.29	564867.32, 4217365.29	0.41	0.88352	0.23658	0.16864	2.60E-03	2.50E-07	5.09E-04	1.09E-03	2.60E-03
311	UCART24	564902.3	4217365.29	564902.32, 4217365.29	0.35245	0.7319	0.21286	0.15579	2.23E-03	2.07E-07	4.58E-04	1.01E-03	2.23E-03
312	UCART25	564937.3	4217365.29	564937.32, 4217365.29	0.30566	0.61294	0.19308	0.14387	1.94E-03	1.73E-07	4.15E-04	9.28E-04	1.94E-03
313	UCART26	564972.3	4217365.29	564972.32, 4217365.29	0.27061	0.52476	0.17743	0.13392	1.71E-03	1.48E-07	3.82E-04	8.64E-04	1.71E-03
314	UCART27	565007.3	4217365.29	565007.32, 4217365.29	0.24261	0.45542	0.16432	0.12514	1.54E-03	1.29E-07	3.53E-04	8.08E-04	1.54E-03
315	UCART28	565042.3	4217365.29	565042.32, 4217365.29	0.21843	0.39854	0.15269	0.11691	1.38E-03	1.13E-07	3.28E-04	7.54E-04	1.38E-03
316	UCART29	565077.3	4217365.29	565077.32, 4217365.29	0.19608	0.35013	0.14192	0.10882	1.24E-03	9.90E-08	3.05E-04	7.02E-04	1.24E-03
317	UCART30	565112.3	4217365.29	565112.32, 4217365.29	0.1769	0.30962	0.13235	0.10143	1.12E-03	8.75E-08	2.85E-04	6.55E-04	1.12E-03
318	UCART31	565147.3	4217365.29	565147.32, 4217365.29	0.16046	0.27554	0.12379	0.09476	1.02E-03	7.79E-08	2.66E-04	6.11E-04	1.02E-03
319	UCART32	565182.3	4217365.29	565182.32, 4217365.29	0.1472	0.24745	0.11644	0.08918	9.32E-04	6.99E-08	2.50E-04	5.75E-04	9.33E-04
320	UCART33	564552.3	4217400.29	564552.32, 4217400.29	0.80333	12.6181	0.48444	0.26595	5.09E-03	3.57E-06	1.04E-03	1.72E-03	5.09E-03
321	UCART34	564587.3	4217400.29	564587.32, 4217400.29	0.81658	14.3002	0.45478	0.2543	5.17E-03	4.04E-06	9.78E-04	1.64E-03	5.18E-03
322	UCART35	564622.3	4217400.29	564622.32, 4217400.29	0.79636	6.77629	0.42342	0.24111	5.04E-03	1.92E-06	9.11E-04	1.56E-03	5.05E-03
323	UCART36	564657.3	4217400.29	564657.32, 4217400.29	0.75252	3.95595	0.39167	0.22724	4.77E-03	1.12E-06	8.42E-04	1.47E-03	4.77E-03
324	UCART37	564692.3	4217400.29	564692.32, 4217400.29	0.69855	2.61925	0.36279	0.2155	4.43E-03	7.40E-07	7.80E-04	1.39E-03	4.43E-03
325	UCART38	564727.3	4217400.29	564727.32, 4217400.29	0.63083	1.86684	0.33012	0.20263	4.00E-03	5.28E-07	7.10E-04	1.31E-03	4.00E-03
326	UCART39	564762.3	4217400.29	564762.32, 4217400.29	0.55945	1.40688	0.29773	0.19036	3.54E-03	3.98E-07	6.40E-04	1.23E-03	3.54E-03
327	UCART40	564797.3	4217400.29	564797.32, 4217400.29	0.48908	1.10004	0.26529	0.17743	3.10E-03	3.11E-07	5.71E-04	1.14E-03	3.10E-03
328	UCART41	564832.3	4217400.29	564832.32, 4217400.29	0.41818	0.88188	0.23387	0.1634	2.65E-03	2.49E-07	5.03E-04	1.05E-03	2.65E-03
329	UCART42	564867.3	4217400.29	564867.32, 4217400.29	0.34339	0.71763	0.20491	0.14857	2.18E-03	2.03E-07	4.41E-04	9.59E-04	2.18E-03
330	UCART43	564902.3	4217400.29	564902.32, 4217400.29	0.30101	0.60105	0.18549	0.13862	1.91E-03	1.70E-07	3.99E-04	8.95E-04	1.91E-03
331	UCART44	564937.3	4217400.29	564937.32, 4217400.29	0.26484	0.51169	0.16901	0.12912	1.68E-03	1.45E-07	3.64E-04	8.33E-04	1.68E-03
332	UCART45	564972.3	4217400.29	564972.32, 4217400.29	0.2363	0.44266	0.15565	0.12081	1.50E-03	1.25E-07	3.35E-04	7.80E-04	1.50E-03
333	UCART46	565007.3	4217400.29	565007.32, 4217400.29	0.21392	0.38839	0.1447	0.11363	1.36E-03	1.10E-07	3.11E-04	7.33E-04	1.36E-03
334	UCART47	565042.3	4217400.29	565042.32, 4217400.29	0.19374	0.34271	0.13475	0.10661	1.23E-03	9.69E-08	2.90E-04	6.88E-04	1.23E-03
335	UCART48	565077.3	4217400.29	565077.32, 4217400.29	0.17447	0.30297	0.12539	0.09949	1.11E-03	8.56E-08	2.70E-04	6.42E-04	1.11E-03
336	UCART49	565112.3	4217400.29	565112.32, 4217400.29	0.15779	0.26946	0.11708	0.09293	1.00E-03	7.62E-08	2.52E-04	6.00E-04	1.00E-03
337	UCART50	565147.3	4217400.29	565147.32, 4217400.29	0.14315	0.24084	0.1096	0.08688	9.07E-04	6.81E-08	2.36E-04	5.61E-04	9.07E-04
338	UCART51	565182.3	4217400.29	565182.32, 4217400.29	0.13179	0.21764	0.10336	0.08194	8.35E-04	6.15E-08	2.22E-04	5.29E-04	8.35E-04
339	UCART52	564447.3	4217435.29	564447.32, 4217435.29	0.50047	2.13733	0.41057	0.23881	3.17E-03	6.04E-07	8.83E-04	1.54E-03	3.17E-03
340	UCART53	564482.3	4217435.29	564482.32, 4217435.29	0.55146	4.58028	0.41221	0.23651	3.49E-03	1.29E-06	8.87E-04	1.53E-03	3.49E-03
341	UCART54	564517.3	4217435.29	564517.32, 4217435.29	0.58889	8.22733	0.40004	0.23008	3.73E-03	2.33E-06	8.60E-04	1.48E-03	3.73E-03
342	UCART55	564552.3	4217435.29	564552.32, 4217435.29	0.60846	20.0558	0.38012	0.22148	3.85E-03	5.67E-06	8.18E-04	1.43E-03	3.86E-03
343	UCART56	564587.3	4217435.29	564587.32, 4217435.29	0.60902	7.93904	0.35758	0.21173	3.86E-03	2.24E-06	7.69E-04	1.37E-03	3.86E-03
344	UCART57	564622.3	4217435.29	564622.32, 4217435.29	0.59275	4.22544	0.33471	0.20117	3.75E-03	1.19E-06	7.20E-04	1.30E-03	3.76E-03
345	UCART58	564657.3	4217435.29	564657.32, 4217435.29	0.56889	2.65835	0.316	0.19245	3.60E-03	7.51E-07	6.80E-04	1.24E-03	3.60E-03
346	UCART59	564692.3	4217435.29	564692.32, 4217435.29	0.53735	1.85121	0.29754	0.18431	3.40E-03	5.23E-07	6.40E-04	1.19E-03	3.40E-03
347	UCART60	564727.3	4217435.29	564727.32, 4217435.29	0.4958	1.37091	0.27541	0.17476	3.14E-03	3.87E-07	5.92E-04	1.13E-03	3.14E-03
348	UCART61	564762.3	4217435.29	564762.32, 4217435.29	0.45042	1.06595	0.25325	0.16577	2.85E-03	3.01E-07	5.45E-04	1.07E-03	2.85E-03
349	UCART62	564797.3	4217435.29	564797.32, 4217435.29	0.40289	0.85472	0.22949	0.15584	2.55E-03	2.42E-07	4.94E-04	1.01E-03	2.55E-03
350	UCART63	564832.3	4217435.29	564832.32, 4217435.29	0.35631	0.70235	0.20633	0.14571	2.26E-03	1.99E-07	4.44E-04	9.40E-04	2.26E-03
351	UCART64	564867.3	4217435.29	564867.32, 4217435.29	0.29907	0.58401	0.18246	0.13366	1.89E-03	1.65E-07	3.92E-04	8.63E-04	1.89E-03
352	UCART65	564902.3	4217435.29	564902.32, 4217435.29	0.26053	0.48902	0.16421	0.12425	1.65E-03	1.38E-07	3.53E-04	8.02E-04	1.65E-03
353	UCART66	564937.3	4217435.29	564937.32, 4217435.29	0.23177	0.42202	0.15011	0.11651	1.47E-03	1.19E-07	3.23E-04	7.52E-04	1.47E-03
354	UCART67	564972.3	4217435.29	564972.32, 4217435.29	0.20761	0.36834	0.13825	0.10931	1.32E-03	1.04E-07	2.97E-04	7.05E-04	1.32E-03
355	UCART68	565007.3	4217435.29	565007.32, 4217435.29	0.18622	0.32337	0.12771	0.10223	1.18E-03	9.14E-08	2.75E-04	6.60E-04	1.18E-03
356	UCART69	565042.3	4217435.29	565042.32, 4217435.29	0.16699	0.28508	0.11822	0.09527	1.06E-03	8.06E-08	2.54E-04	6.15E-04	1.06E-03
357	UCART70	565077.3	4217435.29	565077.32, 4217435.29	0.15253	0.25537	0.11084	0.08977	9.66E-04	7.22E-08	2.38E-04	5.79E-04	9.66E-04
358	UCART71	565112.3	4217435.29	565112.32, 4217435.29	0.13966	0.22992	0.10415	0.08456	8.85E-04	6.50E-08	2.24E-04	5.46E-04	8.85E-04
359	UCART72	565147.3	4217435.29	565147.32, 4217435.29	0.12731	0.2071	0.0978	0.07936	8.06E-04	5.85E-08	2.10E-04	5.12E-04	8.07E-04
360	UCART73	565182.3	4217435.29	565182.32, 4217435.29	0.1183	0.18904	0.0927	0.07534	7.49E-04	5.34E-08	1.99E-04	4.86E-04	7.49E-04
361	UCART74	564447.3	4217470.29	564447.32, 4217470.29	0.41955	2.5745	0.33651	0.20354	2.66E-03	7.28E-07	7.24E-04	1.31E-03	2.66E-03
362	UCART75	564482.3	4217470.29	564482.32, 4217470.29	0.44891	7.88584	0.33365	0.20071	2.84E-03	2.23E-06	7.18E-04	1.30E-03	2.85E-03
363	UCART76	564517.3	4217470.29	564517.32, 4217470.29	0.46776	12.3368	0.32185	0.19479	2.96E-03	3.49E-06	6.92E-04	1.26E-03	2.97E-03
364	UCART77	564552.3	4217470.29	564552.32, 4217470.29	0.4744	9.10649	0.30464	0.18683	3.01E-03	2.57E-06	6.55E-04	1.21E-03	3.01E-03
365	UCART78	564587.3	4217470.29	564587.32, 4217470.29	0.47207	4.29174	0.28862	0.17936	2.99E-03	1.21E-06	6.21E-04	1.16E-03	2.99E-03
366	UCART79	564622.3	4217470.29	564622.32, 4217470.29	0.46051	2.53864	0.27226	0.17122	2.92E-03	7.18E-07	5.86E-04	1.10E-03	2.92E-03
367	UCART80	564657.3	4217470.29	564657.32, 4217470.29	0.44464	1.72268	0.25859	0.16429	2.82E-03	4.87E-07	5.56E-04	1.06E-03	2.82E-03
368	UCART81	564692.3	4217470.29	564692.32, 4217470.29	0.42525	1.27256	0.24657	0.1586	2.69E-03	3.60E-07	5.30E-04	1.02E-03	2.69E-03
369	UCART82	564727.3	4217470.29	564727.32, 4217470.29	0.39938	0.98684	0.23209	0.15197	2.53E-03	2.79E-07	4.99E-04	9.81E-04	2.53E-03
370	UCART83	564762.3	4217470.29	564762.32, 4217470.29	0.36979	0.79494	0.2171	0.14553	2.34E-03	2.25E-07	4.67E-04	9.39E-04	2.34E-03
371	UCART84	564797.3	4217470.29	564797.32, 4217470.29	0.33717	0.6557	0.20006	0.13805	2.14E-03	1.85E-07	4.30E-04	8.91E-04	2.14E-03
372	UCART85	564832.3	4217470.29	564832.32, 4217470.29	0.30195	0.55065	0.18196	0.12974	1.91E-03	1.56E-07	3.91E-04	8.37E-04	1.91E-03
373	UCART86	564867.3	4217470.29	564867.32, 4217470.29	0.25731	0.46719	0.16271	0.11997	1.63E-03	1.32E-07	3.50E-04	7.74E-04	1.63E-03
374	UCART87	564902.3	4217470.29	564902.32, 4217470.29	0.22649	0.39127	0.14613	0.11137	1.43E-03	1.11E-07	3.14E-04	7.19E-04	1.43E-03
375	UCART88	564937.3	4217470.29	564937.32, 4217470.29	0.20278	0.34161	0.13371	0.10476	1.28E-03	9.66E-08	2.88E-04	6.76E-04	1.28E-03
376	UCART89	564972.3	4217470.29	564972.32, 4217470.29	0.18195	0.30076	0.12293	0.09836	1.15E-03	8.50E-08	2.64E-04	6.35E-04	1.15E-03
377	UCART90	565007.3	4217470.29	565007.32, 4217470.29	0.16118	0.26345	0.11232	0.09106	1.02E-03	7.45E-08	2.42E-04	5.88E-04	1.02E-03
378	UCART91	565042.3	4217470.29	565042.32, 4217470.29	0.14282	0.232	0.1036	0.08445	9.05E-04	6.56E-08	2.23E-04	5.45E-04	9.05E-04
379	UCART92	565077.3	4217470.29	565077.32, 4217470.29	0.13108	0.20973	0.09761	0.08	8.30E-04	5.93E-08	2.10E-04	5.16E-04	8.30E-04
380	UCART93	565112.3	4217470.29	565112.32, 4217470.29	0.1224	0.19254	0.09271	0.07637	7.75E-04	5.44E-08	1.99E-04	4.93E-04	7.75E-04
381	UCART94	565147.3	4217470.29	565147.32, 4217470.29	0.11451	0.17729	0.08823	0.07292	7.25E-04	5.01E-08	1.90E-04	4.71E-04	7.25E-04
382	UCART95	565182.3	4217470.29	565182.32, 4217470.29	0.10684	0.16318	0.08391	0.06947	6.77E-04	4.61E-08	1.80E-04	4.48E-04	6.77E-04
383	UCART96	564447.3	4217505.29	564447.32, 4217505.29	0.35322	2.60707	0.28001	0.17578	2.24E-03	7.37E-07	6.02E-04	1.13E-03	2.24E-03
384	UCART97	564482.3	4217505.29	564482.32, 4217505.29	0.36985	3.50304	0.2749	0.17251	2.34E-03	9.90E-07	5.91E-04	1.11E-03	2.34E-03
385	UCART98	564517.3	4217505.29	564517.32, 4217505.29	0.37859	8.75539	0.26362	0.16681	2.40E-03	2.47E-06	5.67E-04	1.08E-03	2.40E-03
386	UCART99	564552.3	4217505.29	564552.32, 4217505.29	0.38034	3.6248	0.25004	0.16016	2.41E-03	1.02E-06	5.38E-04	1.03E-03	2.41E-03
387	UCART100	564587.3	4217505.29	564587.32, 4217505.29	0.37804	2.13777	0.23892	0.15465	2.39E-03	6.04E-07	5.14E-04	9.98E-04	2.40E-03
388	UCART101	564622.3	4217505.29	564622.32, 4217505.29	0.3698	1.45859	0.22688	0.14828	2.34E-03	4.12E-07	4.88E-04	9.57E-04	2.34E-03
389	UCART102	564657.3	4217505.29	564657.32, 4217505.29	0.35704	1.07942	0.21415	0.14126	2.26E-03	3.05E-07	4.61E-04	9.12E-04	2.26E-03
390	UCART103	564692.3	4217505.29	564692.32, 4217505.29	0.34016	0.84823	0.20358	0.13558	2.15E-03	2.40E-07	4.38E-04	8.75E-04	2.16E-03
391	UCART104	564727.3	4217505.29	564727.32, 4217505.29	0.32437	0.69433	0.19446	0.13116	2.05E-03	1.96E-07	4.18E-04	8.46E-04	2.06E-03
392	UCART105	564762.3	4217505.29	564762.32, 4217505.29	0.30449	0.58192	0.18417	0.12639	1.93E-03	1.64E-07	3.96E-04	8.16E-04	1.93E-03
393	UCART106	564797.3	4217505.29	564797.32, 4217505.29	0.27417	0.49381	0.17099	0.11994	1.74E-03	1.40E-07	3.68E-04	7.74E-04	1.74E-03
394	UCART107	564832.3	4217505.29	564832.32, 4217505.29	0.24638	0.42633	0.15823	0.11393	1.56E-03	1.21E-07	3.40E-04	7.35E-04	1.56E-03
395	UCART108	564867.3	4217505.29	564867.32, 4217505.29	0.22044	0.3586	0.14398	0.10683	1.40E-03	1.01E-07	3.10E-04	6.89E-04	1.40E-03
396	UCART109	564902.3	4217505.29	564902.32, 4217505.29	0.19653	0.30781	0.1294	0.09908	1.24E-03	8.70E-08	2.78E-04	6.39E-04	1.25E-03
397	UCART110	564937.3	4217505.29	564937.32, 4217505.29	0.17467	0.26902	0.11717	0.09228	1.11E-03	7.60E-08	2.52E-04	5.95E-04	1.11E-03
398	UCART111	564972.3	4217505.29	564972.32, 4217505.29	0.1544	0.23702	0.10704	0.0861	9.78E-04	6.70E-08	2.30E-04	5.56E-04	9.78E-04
399	UCART112	565007.3	4217505.29	565007.32, 4217505.29	0.13713	0.21005	0.09905	0.08066	8.69E-04	5.94E-08	2.13E-04	5.21E-04	8.69E-04
400	UCART113	565042.3	4217505.29	565042.32, 4217505.29	0.12378	0.18836	0.09249	0.07584	7.84E-04	5.32E-08	1.99E-04	4.89E-04	7.84E-04
401	UCART114	565077.3	4217505.29	565077.32, 4217505.29	0.11531	0.17312	0.08768	0.07247	7.30E-04	4.89E-08	1.89E-04	4.68E-04	7.31E-04
402	UCART115	565112.3	4217505.29	565112.32, 4217505.29	0.11019	0.16278	0.08413	0.07024	6.98E-04	4.60E-08	1.81E-04	4.53E-04	6.98E-04
403	UCART116	565147.3	4217505.29	565147.32, 4217505.29	0.10383	0.15167	0.08034	0.0674	6.58E-04	4.29E-08	1.73E-04	4.35E-04	6.58E-04
404	UCART117	565182.3	4217505.29	565182.32, 4217505.29	0.09753	0.1411	0.07669	0.06449	6.18E-04	3.99E-08	1.65E-04	4.16E-04	6.18E-04

CONSTRUCTION RISK (UNMITIGATED)

405	UCART118	564342.3	4217540.29	564342.32, 4217540.29	0.24723	0.45634	0.22696	0.15292	1.57E-03	1.29E-07	4.88E-04	9.87E-04	1.57E-03
406	UCART119	564377.3	4217540.29	564377.32, 4217540.29	0.2679	0.62657	0.23683	0.15644	1.70E-03	1.77E-07	5.09E-04	1.01E-03	1.70E-03
407	UCART120	564412.3	4217540.29	564412.32, 4217540.29	0.28606	0.95306	0.2402	0.15662	1.81E-03	2.69E-07	5.17E-04	1.01E-03	1.81E-03
408	UCART121	564447.3	4217540.29	564447.32, 4217540.29	0.29953	1.73374	0.23637	0.15356	1.90E-03	4.90E-07	5.08E-04	9.91E-04	1.90E-03
409	UCART122	564482.3	4217540.29	564482.32, 4217540.29	0.30846	2.99378	0.2299	0.14985	1.95E-03	8.46E-07	4.95E-04	9.67E-04	1.95E-03
410	UCART123	564517.3	4217540.29	564517.32, 4217540.29	0.31294	2.16514	0.22099	0.14522	1.98E-03	6.12E-07	4.75E-04	9.37E-04	1.98E-03
411	UCART124	564552.3	4217540.29	564552.32, 4217540.29	0.31383	1.49538	0.21174	0.14051	1.99E-03	4.23E-07	4.55E-04	9.07E-04	1.99E-03
412	UCART125	564587.3	4217540.29	564587.32, 4217540.29	0.3108	1.11298	0.20208	0.1354	1.97E-03	3.15E-07	4.35E-04	8.74E-04	1.97E-03
413	UCART126	564622.3	4217540.29	564622.32, 4217540.29	0.30408	0.86875	0.19189	0.1297	1.93E-03	2.46E-07	4.13E-04	8.37E-04	1.93E-03
414	UCART127	564657.3	4217540.29	564657.32, 4217540.29	0.2817	0.69357	0.17826	0.12169	1.78E-03	1.96E-07	3.83E-04	7.85E-04	1.78E-03
415	UCART128	564692.3	4217540.29	564692.32, 4217540.29	0.25693	0.54956	0.16674	0.11494	1.63E-03	1.55E-07	3.59E-04	7.42E-04	1.63E-03
416	UCART129	564727.3	4217540.29	564727.32, 4217540.29	0.24728	0.47292	0.16045	0.11149	1.57E-03	1.34E-07	3.45E-04	7.19E-04	1.57E-03
417	UCART130	564762.3	4217540.29	564762.32, 4217540.29	0.23447	0.41082	0.15331	0.10782	1.49E-03	1.16E-07	3.30E-04	6.96E-04	1.49E-03
418	UCART131	564797.3	4217540.29	564797.32, 4217540.29	0.21472	0.35132	0.14277	0.10212	1.36E-03	9.93E-08	3.07E-04	6.59E-04	1.36E-03
419	UCART132	564832.3	4217540.29	564832.32, 4217540.29	0.20017	0.30973	0.13405	0.09781	1.27E-03	8.75E-08	2.88E-04	6.31E-04	1.27E-03
420	UCART133	564867.3	4217540.29	564867.32, 4217540.29	0.18647	0.2755	0.12498	0.09344	1.18E-03	7.79E-08	2.69E-04	6.03E-04	1.18E-03
421	UCART134	564902.3	4217540.29	564902.32, 4217540.29	0.16998	0.2429	0.11424	0.08776	1.08E-03	6.87E-08	2.46E-04	5.66E-04	1.08E-03
422	UCART135	564937.3	4217540.29	564937.32, 4217540.29	0.1498	0.21172	0.10349	0.08161	9.49E-04	5.98E-08	2.23E-04	5.27E-04	9.49E-04
423	UCART136	564972.3	4217540.29	564972.32, 4217540.29	0.13096	0.18671	0.0947	0.07599	8.30E-04	5.28E-08	2.04E-04	4.90E-04	8.30E-04
424	UCART137	565007.3	4217540.29	565007.32, 4217540.29	0.11835	0.16948	0.08852	0.07193	7.50E-04	4.79E-08	1.90E-04	4.64E-04	7.50E-04
425	UCART138	565042.3	4217540.29	565042.32, 4217540.29	0.11012	0.15687	0.0839	0.06902	6.98E-04	4.43E-08	1.80E-04	4.45E-04	6.98E-04
426	UCART139	565077.3	4217540.29	565077.32, 4217540.29	0.1044	0.14711	0.08016	0.06681	6.61E-04	4.16E-08	1.72E-04	4.31E-04	6.61E-04
427	UCART140	565112.3	4217540.29	565112.32, 4217540.29	0.1001	0.13936	0.077	0.06495	6.34E-04	3.94E-08	1.66E-04	4.19E-04	6.34E-04
428	UCART141	565147.3	4217540.29	565147.32, 4217540.29	0.09407	0.12991	0.07348	0.06225	5.96E-04	3.67E-08	1.58E-04	4.02E-04	5.96E-04
429	UCART142	565182.3	4217540.29	565182.32, 4217540.29	0.08913	0.12213	0.07044	0.05992	5.65E-04	3.45E-08	1.52E-04	3.87E-04	5.65E-04
430	UCART143	564342.3	4217575.29	564342.32, 4217575.29	0.22189	0.41274	0.20096	0.13768	1.41E-03	1.17E-07	4.32E-04	8.88E-04	1.41E-03
431	UCART144	564377.3	4217575.29	564377.32, 4217575.29	0.23633	0.53803	0.20672	0.13964	1.50E-03	1.52E-07	4.45E-04	9.01E-04	1.50E-03
432	UCART145	564412.3	4217575.29	564412.32, 4217575.29	0.24827	0.73146	0.20716	0.13883	1.57E-03	2.07E-07	4.46E-04	8.96E-04	1.57E-03
433	UCART146	564447.3	4217575.29	564447.32, 4217575.29	0.25614	0.99332	0.20191	0.13535	1.62E-03	2.81E-07	4.34E-04	8.73E-04	1.62E-03
434	UCART147	564482.3	4217575.29	564482.32, 4217575.29	0.26092	1.15035	0.19556	0.13176	1.65E-03	3.25E-07	4.21E-04	8.50E-04	1.65E-03
435	UCART148	564517.3	4217575.29	564517.32, 4217575.29	0.26354	1.05236	0.18887	0.12818	1.67E-03	2.97E-07	4.06E-04	8.27E-04	1.67E-03
436	UCART149	564552.3	4217575.29	564552.32, 4217575.29	0.26323	0.8729	0.18102	0.12397	1.67E-03	2.47E-07	3.89E-04	8.00E-04	1.67E-03
437	UCART150	564587.3	4217575.29	564587.32, 4217575.29	0.26004	0.7162	0.17242	0.11917	1.65E-03	2.02E-07	3.71E-04	7.69E-04	1.65E-03
438	UCART151	564622.3	4217575.29	564622.32, 4217575.29	0.25228	0.59444	0.1629	0.11356	1.60E-03	1.68E-07	3.50E-04	7.33E-04	1.60E-03
439	UCART152	564657.3	4217575.29	564657.32, 4217575.29	0.22881	0.49949	0.15207	0.10693	1.45E-03	1.41E-07	3.27E-04	6.90E-04	1.45E-03
440	UCART153	564692.3	4217575.29	564692.32, 4217575.29	0.20939	0.39552	0.14156	0.10055	1.33E-03	1.12E-07	3.05E-04	6.49E-04	1.33E-03
441	UCART154	564727.3	4217575.29	564727.32, 4217575.29	0.20401	0.35156	0.13705	0.09785	1.29E-03	9.94E-08	2.95E-04	6.31E-04	1.29E-03
442	UCART155	564762.3	4217575.29	564762.32, 4217575.29	0.1956	0.31338	0.13186	0.09495	1.24E-03	8.86E-08	2.84E-04	6.13E-04	1.24E-03
443	UCART156	564797.3	4217575.29	564797.32, 4217575.29	0.18087	0.27331	0.12367	0.0902	1.15E-03	7.73E-08	2.66E-04	5.82E-04	1.15E-03
444	UCART157	564832.3	4217575.29	564832.32, 4217575.29	0.16966	0.24448	0.11684	0.08649	1.07E-03	6.91E-08	2.51E-04	5.58E-04	1.07E-03
445	UCART158	564867.3	4217575.29	564867.32, 4217575.29	0.15795	0.21791	0.10903	0.08232	1.00E-03	6.16E-08	2.35E-04	5.31E-04	1.00E-03
446	UCART159	564902.3	4217575.29	564902.32, 4217575.29	0.14456	0.19311	0.10056	0.07776	9.16E-04	5.46E-08	2.16E-04	5.02E-04	9.16E-04
447	UCART160	564937.3	4217575.29	564937.32, 4217575.29	0.12927	0.17133	0.09213	0.07283	8.19E-04	4.84E-08	1.98E-04	4.70E-04	8.19E-04
448	UCART161	564972.3	4217575.29	564972.32, 4217575.29	0.11443	0.15337	0.08477	0.06811	7.25E-04	4.34E-08	1.82E-04	4.40E-04	7.25E-04
449	UCART162	565007.3	4217575.29	565007.32, 4217575.29	0.10594	0.14262	0.08035	0.06549	6.71E-04	4.03E-08	1.73E-04	4.23E-04	6.71E-04
450	UCART163	565042.3	4217575.29	565042.32, 4217575.29	0.10069	0.1352	0.07716	0.06385	6.38E-04	3.82E-08	1.66E-04	4.12E-04	6.38E-04
451	UCART164	565077.3	4217575.29	565077.32, 4217575.29	0.09555	0.12766	0.0739	0.06199	6.05E-04	3.61E-08	1.59E-04	4.00E-04	6.05E-04
452	UCART165	565112.3	4217575.29	565112.32, 4217575.29	0.09011	0.11969	0.07056	0.05969	5.71E-04	3.38E-08	1.52E-04	3.85E-04	5.71E-04
453	UCART166	565147.3	4217575.29	565147.32, 4217575.29	0.0852	0.11237	0.0675	0.05744	5.40E-04	3.18E-08	1.45E-04	3.71E-04	5.40E-04
454	UCART167	565182.3	4217575.29	565182.32, 4217575.29	0.08137	0.1066	0.06489	0.05559	5.15E-04	3.01E-08	1.40E-04	3.59E-04	5.15E-04

Worker Risk (Unmitigated)

Construction

	On-Site	Off-Site	Tugboat (Idle)	Tugboat
Emissions Rate (g/s):	6.33E-03	2.83E-07	2.15E-03	6.45E-03

Discrete Receptor ID					Concentration [µg/m^3] at 1 g/s				Construction				
		X	Y	X, Y	On-Site	Off-Site	Tugboat (Idle)	Tugboat	On-Site	Off-Site	Tugboat (Idle)	Tugboat	Total
1	UCART1	563957.32	4216840.29	563957.32, 4216840.29	0.0895	0.08217	0.08542	0.0756	5.67E-04	2.32E-08	1.84E-04	4.88E-04	1.24E-03
2	UCART1	563992.32	4216840.29	563992.32, 4216840.29	0.0997	0.08892	0.09606	0.08536	6.32E-04	2.41E-08	2.07E-04	5.51E-04	1.39E-03
3	UCART1	564027.32	4216840.29	564027.32, 4216840.29	0.10895	0.09616	0.1069	0.09521	6.90E-04	2.69E-08	2.30E-04	6.14E-04	1.53E-03
4	UCART1	564062.32	4216840.29	564062.32, 4216840.29	0.11917	0.10371	0.11801	0.10484	7.55E-04	2.96E-08	2.54E-04	6.77E-04	1.69E-03
5	UCART1	564097.32	4216840.29	564097.32, 4216840.29	0.13112	0.11201	0.13116	0.11623	8.31E-04	3.29E-08	2.82E-04	7.50E-04	1.86E-03
6	UCART1	564132.32	4216840.29	564132.32, 4216840.29	0.14536	0.12123	0.1472	0.13023	9.21E-04	3.68E-08	3.17E-04	8.40E-04	2.08E-03
7	UCART1	564167.32	4216840.29	564167.32, 4216840.29	0.16281	0.13136	0.16739	0.14828	1.03E-03	4.19E-08	3.60E-04	9.57E-04	2.35E-03
8	UCART1	564202.32	4216840.29	564202.32, 4216840.29	0.18393	0.14248	0.19203	0.17051	1.17E-03	4.82E-08	4.13E-04	1.10E-03	2.68E-03
9	UCART1	564237.32	4216840.29	564237.32, 4216840.29	0.20987	0.15468	0.22484	0.20118	1.33E-03	5.69E-08	4.84E-04	1.30E-03	3.11E-03
10	UCART1	564272.32	4216840.29	564272.32, 4216840.29	0.23979	0.16754	0.25702	0.23013	1.52E-03	6.50E-08	5.53E-04	1.49E-03	3.56E-03
11	UCART1	564307.32	4216840.29	564307.32, 4216840.29	0.27604	0.18228	0.29628	0.26787	1.75E-03	7.57E-08	6.37E-04	1.73E-03	4.11E-03
12	UCART1	563957.32	4216875.29	563957.32, 4216875.29	0.09169	0.08386	0.08615	0.07644	5.81E-04	2.16E-08	1.85E-04	4.93E-04	1.26E-03
13	UCART1	563992.32	4216875.29	563992.32, 4216875.29	0.10199	0.09095	0.09726	0.0863	6.46E-04	2.44E-08	2.09E-04	5.57E-04	1.41E-03
14	UCART1	564027.32	4216875.29	564027.32, 4216875.29	0.11159	0.09856	0.10837	0.09602	7.07E-04	2.71E-08	2.33E-04	6.20E-04	1.56E-03
15	UCART1	564062.32	4216875.29	564062.32, 4216875.29	0.12233	0.10668	0.12	0.10588	7.75E-04	2.99E-08	2.58E-04	6.83E-04	1.72E-03
16	UCART1	564097.32	4216875.29	564097.32, 4216875.29	0.13493	0.11571	0.13387	0.11766	8.55E-04	3.33E-08	2.88E-04	7.59E-04	1.90E-03
17	UCART1	564132.32	4216875.29	564132.32, 4216875.29	0.15069	0.12574	0.15257	0.13444	9.55E-04	3.80E-08	3.28E-04	8.68E-04	2.15E-03
18	UCART1	564167.32	4216875.29	564167.32, 4216875.29	0.16925	0.13658	0.17651	0.15605	1.07E-03	4.41E-08	3.80E-04	1.01E-03	2.46E-03
19	UCART1	564202.32	4216875.29	564202.32, 4216875.29	0.19059	0.14823	0.19991	0.17594	1.21E-03	4.97E-08	4.30E-04	1.14E-03	2.77E-03
20	UCART1	564237.32	4216875.29	564237.32, 4216875.29	0.2172	0.16151	0.23044	0.20198	1.38E-03	5.71E-08	4.96E-04	1.30E-03	3.18E-03
21	UCART1	564272.32	4216875.29	564272.32, 4216875.29	0.25207	0.17773	0.27292	0.23911	1.60E-03	6.76E-08	5.87E-04	1.54E-03	3.73E-03
22	UCART1	564307.32	4216875.29	564307.32, 4216875.29	0.29473	0.19592	0.32429	0.28477	1.87E-03	8.05E-08	6.98E-04	1.84E-03	4.40E-03
23	UCART1	563957.32	4216910.29	563957.32, 4216910.29	0.09362	0.08543	0.08644	0.07716	5.93E-04	2.18E-08	1.86E-04	4.98E-04	1.28E-03
24	UCART1	563992.32	4216910.29	563992.32, 4216910.29	0.10396	0.09267	0.09715	0.08626	6.59E-04	2.44E-08	2.09E-04	5.57E-04	1.42E-03
25	UCART1	564027.32	4216910.29	564027.32, 4216910.29	0.11388	0.10062	0.10842	0.09576	7.21E-04	2.71E-08	2.33E-04	6.18E-04	1.57E-03
26	UCART1	564062.32	4216910.29	564062.32, 4216910.29	0.12525	0.1094	0.12091	0.10616	7.93E-04	3.00E-08	2.60E-04	6.85E-04	1.74E-03
27	UCART1	564097.32	4216910.29	564097.32, 4216910.29	0.13887	0.11931	0.1365	0.11935	8.80E-04	3.37E-08	2.94E-04	7.70E-04	1.94E-03
28	UCART1	564132.32	4216910.29	564132.32, 4216910.29	0.15577	0.13005	0.15986	0.14018	9.87E-04	3.96E-08	3.44E-04	9.05E-04	2.24E-03
29	UCART1	564167.32	4216910.29	564167.32, 4216910.29	0.17422	0.14152	0.17943	0.15646	1.10E-03	4.42E-08	3.86E-04	1.01E-03	2.50E-03
30	UCART1	564202.32	4216910.29	564202.32, 4216910.29	0.19823	0.15557	0.20814	0.18061	1.26E-03	5.10E-08	4.48E-04	1.17E-03	2.87E-03
31	UCART1	564237.32	4216910.29	564237.32, 4216910.29	0.22749	0.1713	0.2419	0.20824	1.44E-03	5.89E-08	5.20E-04	1.34E-03	3.31E-03
32	UCART1	564272.32	4216910.29	564272.32, 4216910.29	0.26262	0.18871	0.28108	0.23931	1.66E-03	6.76E-08	6.05E-04	1.54E-03	3.81E-03
33	UCART2	564307.32	4216910.29	564307.32, 4216910.29	0.30932	0.20851	0.33811	0.2869	1.96E-03	8.11E-08	7.27E-04	1.85E-03	4.54E-03
34	UCART3	564902.32	4216910.29	564902.32, 4216910.29	1.67143	10.05974	1.52531	2.47675	1.06E-02	7.00E-07	3.28E-03	1.60E-02	2.99E-02
35	UCART4	564937.32	4216910.29	564937.32, 4216910.29	1.58772	5.29103	1.35974	1.95983	1.01E-02	5.54E-07	2.92E-03	1.26E-02	2.56E-02
36	UCART5	564972.32	4216910.29	564972.32, 4216910.29	1.45994	3.3241	1.19221	1.57345	9.25E-03	4.45E-07	2.56E-03	1.02E-02	2.20E-02
37	UCART6	565007.32	4216910.29	565007.32, 4216910.29	1.31691	2.31243	1.02826	1.2694	8.34E-03	3.59E-07	2.21E-03	8.19E-03	1.87E-02
38	UCART7	565042.32	4216910.29	565042.32, 4216910.29	1.1814	1.76529	0.8837	1.03852	7.48E-03	2.94E-07	1.90E-03	6.70E-03	1.61E-02
39	UCART8	565077.32	4216910.29	565077.32, 4216910.29	1.0448	1.41634	0.77418	0.87884	6.62E-03	2.48E-07	1.67E-03	5.67E-03	1.40E-02
40	UCART9	565112.32	4216910.29	565112.32, 4216910.29	0.91724	1.1718	0.68346	0.75574	5.81E-03	2.14E-07	1.47E-03	4.88E-03	1.22E-02
41	UCART10	565147.32	4216910.29	565147.32, 4216910.29	0.80132	0.96761	0.60707	0.6575	5.08E-03	1.86E-07	1.31E-03	4.24E-03	1.06E-02
42	UCART11	565182.32	4216910.29	565182.32, 4216910.29	0.70203	0.82603	0.53881	0.57355	4.45E-03	1.62E-07	1.16E-03	3.70E-03	9.31E-03
43	UCART12	563957.32	4216945.29	563957.32, 4216945.29	0.09525	0.08692	0.08653	0.07784	6.03E-04	2.20E-08	1.86E-04	5.02E-04	1.29E-03
44	UCART13	563992.32	4216945.29	563992.32, 4216945.29	0.10567	0.09422	0.09632	0.08592	6.69E-04	2.43E-08	2.07E-04	5.54E-04	1.43E-03
45	UCART14	564027.32	4216945.29	564027.32, 4216945.29	0.11591	0.10247	0.10749	0.0951	7.34E-04	2.69E-08	2.31E-04	6.14E-04	1.58E-03
46	UCART15	564062.32	4216945.29	564062.32, 4216945.29	0.12799	0.11196	0.12113	0.10631	8.11E-04	3.00E-08	2.61E-04	6.86E-04	1.76E-03
47	UCART16	564097.32	4216945.29	564097.32, 4216945.29	0.14315	0.12273	0.1408	0.12289	9.07E-04	3.47E-08	3.03E-04	7.93E-04	2.00E-03
48	UCART17	564132.32	4216945.29	564132.32, 4216945.29	0.16028	0.13442	0.16294	0.14149	1.02E-03	4.00E-08	3.50E-04	9.13E-04	2.28E-03
49	UCART18	564167.32	4216945.29	564167.32, 4216945.29	0.18044	0.1479	0.18321	0.15753	1.14E-03	4.45E-08	3.94E-04	1.02E-03	2.55E-03
50	UCART19	564202.32	4216945.29	564202.32, 4216945.29	0.20446	0.16299	0.20842	0.17736	1.30E-03	5.01E-08	4.48E-04	1.14E-03	2.89E-03
51	UCART20	564237.32	4216945.29	564237.32, 4216945.29	0.23502	0.18003	0.24387	0.20558	1.49E-03	5.81E-08	5.25E-04	1.33E-03	3.34E-03
52	UCART21	564272.32	4216945.29	564272.32, 4216945.29	0.27443	0.19944	0.29151	0.24372	1.74E-03	6.89E-08	6.27E-04	1.57E-03	3.94E-03
53	UCART22	564307.32	4216945.29	564307.32, 4216945.29	0.3272	0.22169	0.36092	0.30038	2.07E-03	8.49E-08	7.76E-04	1.94E-03	4.79E-03
54	UCART23	564902.32	4216945.29	564902.32, 4216945.29	2.13464	8.25778	1.72141	2.11377	1.35E-02	5.97E-07	3.70E-03	1.36E-02	3.09E-02
55	UCART24	564937.32	4216945.29	564937.32, 4216945.29	1.91391	4.5504	1.47013	1.68336	1.21E-02	4.76E-07	3.16E-03	1.09E-02	2.62E-02
56	UCART25	564972.32	4216945.29	564972.32, 4216945.29	1.68082	2.95518	1.23565	1.34589	1.06E-02	3.80E-07	2.66E-03	8.69E-03	2.20E-02
57	UCART26	565007.32	4216945.29	565007.32, 4216945.29	1.46363	2.16224	1.04203	1.09729	9.27E-03	3.10E-07	2.24E-03	7.08E-03	1.86E-02
58	UCART27	565042.32	4216945.29	565042.32, 4216945.29	1.26024	1.681	0.89295	0.91909	7.98E-03	2.60E-07	1.92E-03	5.93E-03	1.58E-02
59	UCART28	565077.32	4216945.29	565077.32, 4216945.29	1.08285	1.36214	0.77535	0.78485	6.86E-03	2.22E-07	1.67E-03	5.06E-03	1.36E-02
60	UCART29	565112.32	4216945.29	565112.32, 4216945.29	0.9311	1.13146	0.67902	0.67832	5.90E-03	1.92E-07	1.46E-03	4.38E-03	1.17E-02
61	UCART30	565147.32	4216945.29	565147.32, 4216945.29	0.80389	0.95607	0.59835	0.59118	5.09E-03	1.67E-07	1.29E-03	3.81E-03	1.02E-02
62	UCART31	565182.32	4216945.29	565182.32, 4216945.29	0.69842	0.81772	0.53103	0.5197	4.42E-03	1.47E-07	1.14E-03	3.35E-03	8.92E-03
63	UCART32	563957.32	4216980.29	563957.32, 4216980.29	0.09711	0.08834	0.08672	0.07855	6.15E-04	2.22E-08	1.87E-04	5.07E-04	1.31E-03
64	UCART33	563992.32	4216980.29	563992.32, 4216980.29	0.1066	0.09577	0.0958	0.08601	6.75E-04	2.43E-08	2.06E-04	5.55E-04	1.44E-03
65	UCART34	564027.32	4216980.29	564027.32, 4216980.29	0.11783	0.10434	0.10683	0.095	7.46E-04	2.69E-08	2.30E-04	6.13E-04	1.59E-03
66	UCART35	564062.32	4216980.29	564062.32, 4216980.29	0.13054	0.11445	0.12118	0.10661	8.27E-04	3.01E-08	2.61E-04	6.88E-04	1.78E-03
67	UCART36	564097.32	4216980.29	564097.32, 4216980.29	0.14669	0.12599	0.14378	0.12494	9.29E-04	3.53E-08	3.09E-04	8.06E-04	2.04E-03
68	UCART37	564132.32	4216980.29	564132.32, 4216980.29	0.16404	0.13821	0.16372	0.14102	1.04E-03	3.99E-08	3.52E-04	9.10E-04	2.30E-03
69	UCART38	564167.32	4216980.29	564167.32, 4216980.29	0.18589	0.15303	0.18884	0.16107	1.18E-03	4.55E-08	4.06E-04	1.04E-03	2.62E-03
70	UCART39	564202.32	4216980.29	564202.32, 4216980.29	0.21198	0.16995	0.21462	0.18092	1.34E-03	5.11E-08	4.62E-04	1.17E-03	2.97E-03
71	UCART40	564237.32	4216980.29	564237.32, 4216980.29	0.244	0.18889	0.24959	0.2077	1.55E-03	5.87E-08	5.37E-04	1.34E-03	3.42E-03
72	UCART41	564272.32	4216980.29	564272.32, 4216980.29	0.28762	0.21055	0.30479	0.25093	1.82E-03	7.09E-08	6.56E-04	1.62E-03	4.10E-03
73	UCART42	564307.32	4216980.29	564307.32, 4216980.29	0.34382	0.23556	0.37994	0.30964	2.18E-03	8.75E-08	8.17E-04	2.00E-03	4.99E-03
74	UCART43	564762.32	4216980.29	564762.32, 4216980.29	3.26062	5.77139	3.38465	5.20788	2.07E-02	1.47E-06	7.28E-03	3.36E-02	6.15E-02
75	UCART44	564797.32	4216980.29	564797.32, 4216980.29	3.41611	13.07863	3.07433	3.79011	2.16E-02	1.07E-06	6.61E-03	2.45E-02	5.27E-02
76	UCART45	564832.32	4216980.29	564832.32, 4216980.29	3.30634	20.95611	2.65061	2.85786	2.09E-02	8.08E-07	5.70E-03	1.84E-02	4.51E-02
77	UCART46	564867.32	4216980.29	564867.32, 4216980.29	2.99431	9.92086	2.21806	2.20765	1.90E-02	6.24E-07	4.77E-03	1.42E-02	3.80E-02
78	UCART47	564902.32	4216980.29	564902.32, 4216980.29	2.59109	5.39776	1.83472	1.74219	1.64E-02	4.92E-07	3.95E-03	1.12E-02	3.16E-02
79	UCART48	564937.32	4216980.29	564937.32, 4216980.29	2.18649	3.43854	1.50071	1.38417	1.39E-02	3.91E-07	3.23E-03	8.93E-03	2.60E-02
80	UCART49	564972.32	4216980.29	564972.32, 4216980.29	1.83881	2.46233	1.23354	1.11963	1.16E-02	3.16E-07	2.65E-03	7.23E-03	2.15E-02
81	UCART50	565007.32	4216980.29	565007.32, 4216980.29	1.53577	1.89601	1.03838	0.9349	9.73E-03	2.64E-07	2.23E-03	6.03E-03	1.80E-02
82	UCART51	565042.32	4216980.29	565042.32, 4216980.29	1.28667	1.51935	0.88582	0.7936	8.15E-03	2.24E-07	1.91E-03	5.12E-03	1.52E-02
83	UCART52	565077.32	4216980.29	565077.32, 4216980.29	1.0852	1.24961	0.76384	0.68192	6.87E-03	1.93E-07	1.64E-03	4.40E-03	1.29E-02
84	UCART53	565112.32	4216980.29	565112.32, 4216980.29	0.92388	1.04894	0.66666	0.59348	5.85E-03	1.68E-07	1.43E-03	3.83E-03	1.11E-02
85	UCART54	565147.32	4216980.29	565147.32, 4216980.29	0.79406	0.89282	0.58624	0.5206	5.03E-03	1.47E-07	1.26E-03	3.36E-03	9.65E-03
86	UCART55	565182.32	4216980.29	565182.32, 4216980.29	0.68918	0.76899	0.51967	0.46044	4.37E-03	1.30E-07	1.12E-03	2.97E-03	8.46E-03
87	UCART56	563957.32	4217015.29	563957.32, 4217015.29	0.09874	0.08966	0.08713	0.07919	6.26E-04	2.24E-08	1.87E-04	5.11E-04	1.32E-03
88	UCART57	563992.32	4217015.29	563992.32, 4217015.29	0.10877	0.0974	0.09639	0.08682	6.89E-04	2.45E-08	2.07E-04	5.60E-04	1.46E-03
89	UCART58	564027.32	4217015.29	564027.32, 4217015.29	0.11968	0.1063	0.10728	0.09569	7.58E-04	2.70E-08	2.31E-04	6.17E-04	1.61E-03
90	UCART59	564062.32	4217015.29	564062.32, 4217015.29	0.13267	0.11672	0.12095	0.10665	8.40E-04	3.01E-08	2.60E-04	6.88E-04	1.79E-03
91	UCART60	564097.32	4217015.29	564097.32, 4217015.29	0.14859	0.12916	0.13923	0.12108	9.41E-04	3.42E-08	2.99E-04	7.81E-04	2.02E-03
92	UCART61	564132.32	4217015.29	564132.32, 4217015.29	0.16828	0.14272	0.1671	0.14286	1.07E-03	4.04E-08	3.59E-04	9.22E-04	2.35E-03
93	UCART62	564167.32	4217015.29	564167.32, 4217015.29	0.19028	0.15791	0.18993	0.16052	1.21E-03	4.54E-08	4.09E-04	1.04E-03	2.65E-03
94	UCART63	564202.32	4217015.29	564202.32, 4217015.29	0.21839	0.17614	0.22156	0.18485	1.38E-03	5.22E-08	4.77E-04	1.19E-03	3.05E-03
95	UCART64	564237.32	4217015.29	564237.32, 4217015.29	0.25406	0.19781	0.26028	0.21405	1.61E-03	6.05E-08	5.60E-04	1.38E-03	3.55E-03
96	UCART65	564272.32	4217015.29	564272.32, 4217015.29	0.29992	0.222	0.31869	0.25801	1.90E-03	7.29E-08	6.86E-04	1.66E-03	4.25E-03
97	UCART66	564307.32	4217015.29	564307.32, 4217015.29	0.35974	0.25022	0.39249	0.31286	2.28E-03	8.84E-08	8.44E-04	2.02E-03	5.14E-03
98	UCART67	564762.32	4217015.29	564762.32, 4217015.29	5.39395	10.38917	4.42428	3.99221	3.42E-02	1.13E-06	9.52E-03	2.58E-02	6.94E-02
99	UCART68	564797.32	4217015.29	564797.32, 4217015.29	5.12519	16.29762	3.63303	2.96259	3.25E-02	8.37E-07	7.81E-03	1.91E-02	5.94E-02
100	UCART69	564832.32	4217015.29	564832.32, 4217015.29	4.43717	11.07111	2.90149	2.25631	2.81E-02	6.38E-07	6.24E-03	1.46E-02	4.89E-02
101	UCART70	564867.32	4217015.29	564867.32, 4217015.29	3.63334	6.17248	2.3027	1.75489	2.30E-02	4.96E-07	4.95E-03	1.13E-02	3.93E-02
102	UCART71	564902.32	4217015.29	564902.32, 4217015.29	2.90747	3.98598	1.83981	1.39466	1.84E-02	3.94E-07	3.96E-03	9.00E-03	3.14E-02
103	UCART72	564937.32	4217015.29	564937.32, 4217015.29	2.3489	2.78674	1.4708	1.11668	1.49E-02	3.16E-07	3.16E-03	7.21E-03	2.53E-02
104	UCART73	564972.32	4217015.29	564972.32, 4217015.29	1.89161	2.1097	1.21178	0.92591	1.20E-02	2.62E-07	2.61E-03	5.97E-03	2.06E-02
105	UCART74	565007.32	4217015.29	565007.32, 4217015.29	1.54275	1.67176	1.01798	0.78353	9.77E-03	2.21E-07	2.19E-03	5.06E-03	1.70E-02
106	UCART75	565042.32	4217015.29	565042.32, 4217015.29	1.27474	1.3614	0.86583	0.67119	8.08E-03	1.90E-07	1.86E-03	4.33E-03	1.43E-02
107	UCART76	565077.32	4217015.29	565077.32, 4217015.29	1.06813	1.13215	0.74496	0.58139	6.77E-03	1.64E-07	1.60E-03	3.75E-03	1.21E-02
108	UCART77	565112.32	4217015.29	565112.32, 4217015.29	0.90768	0.95797	0.64882	0.50954	5.75E-03	1.44E-07	1.40E-03	3.29E-03	1.04E-02
109	UCART78	565147.32	4217015.29	565147.32, 4217015.29	0.78051	0.82059	0.56984	0.45013	4.94E-03	1.27E-07	1.23E-03	2.90E-03	9.08E-03
110	UCART79	565182.32	4217015.29	565182.32, 4217015.29	0.67825	0.71011	0.50408	0.40038	4.30E-03	1.13E-07	1.08E-03	2.58E-03	7.96E-03
111	UCART80	563957.32	4217050.29	563957.32, 4217050.29	0.09942	0.09082	0.08755	0.07951	6.30E-04	2.25E-08	1.88E-04	5.13E-04	1.33E-03
112	UCART81	563992.32	4217050.29	563992.32, 4217050.29	0.10989	0.09883	0.09691	0.08719	6.96E-04	2.46E-08	2.08E-04	5.63E-04	1.47E-03
113	UCART82	564027.32	4217050.29	564027.32, 4217050.29	0.12114	0.1081	0.10805	0.0962	7.67E-04	2.72E-08	2.32E-04	6.21E-04	1.62E-03
114	UCART83	564062.32	4217050.29	564062.32, 4217050.29	0.13445	0.11892	0.12147	0.10691	8.52E-04	3.02E-08	2.61E-04	6.90E-04	1.80E-03
115	UCART84	564097.32	4217050.29	564097.32, 4217050.29	0.15066	0.1319	0.13902	0.12059	9.54E-04	3.41E-08	2.99E-04	7.78E-04	2.03E-03
116	UCART85	564132.32	4217050.29	564132.32, 4217050.29	0.17067	0.14664	0.16212	0.13824	1.08E-03	3.91E-08	3.49E-04	8.92E-04	2.32E-03
117	UCART86	564167.32	4217050.29	564167.32, 4217050.29	0.19495	0.16365	0.192	0.16073	1.23E-03	4.54E-08	4.13E-04	1.04E-03	2.69E-03
118	UCART87	564202.32	4217050.29	564202.32, 4217050.29	0.22388	0.18293	0.22434	0.18505	1.42E-03	5.23E-08	4.83E-04	1.19E-03	3.10E-03
119	UCART88	564237.32	4217050.29	564237.32, 4217050.29	0.2615	0.20633	0.2671	0.21674	1.66E-03	6.13E-08	5.75E-04	1.40E-03	3.63E-03
120	UCART89	564762.32	4217050.29	564762.32, 4217050.29	8.8113	15.6857	5.08101	2.97439	5.58E-02	8.41E-07	1.09E-02	1.92E-02	8.59E-02
121	UCART90	564797.32	4217050.29	564797.32, 4217050.29	7.10025	13.59277	3.83931	2.25003	4.50E-02	6.36E-07	8.26E-03	1.45E-02	6.78E-02
122	UCART91	564832.32	4217050.29	564832.32, 4217050.29	5.39439	7.45451	2.9301	1.74469	3.42E-02	4.93E-07	6.30E-03	1.13E-02	5.17E-02
123	UCART92	564867.32	4217050.29	564867.32, 4217050.29	4.00273	4.68753	2.25737	1.36883	2.54E-02	3.87E-07	4.86E-03	8.83E-03	3.90E-02
124	UCART93	564902.32	4217050.29	564902.32, 4217050.29	3.06013	3.2057	1.76421	1.09145	1.94E-02	3.09E-07	3.79E-03	7.04E-03	3.02E-02
125	UCART94	564937.32	4217050.29	564937.32, 4217050.29	2.35964	2.37636	1.41675	0.8951	1.49E-02	2.53E-07	3.05E-03	5.78E-03	2.38E-02
126	UCART95	564972.32	4217050.29	564972.32, 4217050.29	1.86917	1.85435	1.17073	0.75508	1.18E-02	2.13E-07	2.52E-03	4.87E-03	1.92E-02
127	UCART96	565007.32	4217050.29	565007.32, 4217050.29	1.51181	1.49156	0.98243	0.64603	9.58E-03	1.83E-07	2.11E-03	4.17E-03	1.59E-02
128	UCART97	565042.32	4217050.29	565042.32, 4217050.29	1.24559	1.22716	0.83492	0.55909	7.89E-03	1.58E-07	1.80E-03	3.61E-03	1.33E-02
129	UCART98	565077.32	4217050.29	565077.32, 4217050.29	1.04221	1.02669	0.71647	0.488	6.60E-03	1.38E-07	1.54E-03	3.15E-03	1.13E-02
130	UCART99	565112.32	4217050.29	565112.32, 4217050.29	0.88517	0.87245	0.622	0.43046	5.61E-03	1.22E-07	1.34E-03	2.78E-03	9.72E-03
131	UCART10	565147.32	4217050.29	565147.32, 4217050.29	0.76131	0.7505	0.54535	0.38308	4.82E-03	1.08E-07	1.17E-03	2.47E-03	8.47E-03
132	UCART10	565182.32	4217050.29	565182.32, 4217050.29	0.6617	0.65201	0.48212	0.34341	4.19E-03	9.71E-08	1.04E-03	2.22E-03	7.44E-03
133	UCART10	563957.32	4217085.29	563957.32, 4217085.29	0.09965	0.09186	0.08823	0.07964	6.31E-04	2.25E-08	1.90E-04	5.14E-04	1.34E-03
134	UCART10	563992.32	4217085.29	563992.32, 4217085.29	0.11064	0.1001	0.09768	0.08729	7.01E-04	2.47E-08	2.10E-04	5.63E-04	1.47E-03
135	UCART10	564027.32	4217085.29	564027.32, 4217085.29	0.12214	0.10973	0.10907	0.09639	7.74E-04	2.72E-08	2.35E-04	6.22E-04	1.63E-03
136	UCART10	564062.32	4217085.29	564062.32, 4217085.29	0.13611	0.12136	0.12408	0.10803	8.62E-04	3.05E-08	2.67E-04	6.97E-04	1.83E-03
137	UCART10	564097.32	4217085.29	564097.32, 4217085.29	0.15297	0.13466	0.14268	0.12221	9.69E-04	3.45E-08	3.07E-04	7.89E-04	2.06E-03
138	UCART10	564132.32	4217085.29	564132.32, 4217085.29	0.1735	0.15005	0.16772	0.14083	1.10E-03	3.98E-08	3.61E-04	9.09E-04	2.37E-03
139	UCART10	564167.32	4217085.29	564167.32, 4217085.29	0.19801	0.16831	0.19546	0.16165	1.25E-03	4.57E-08	4.20E-04	1.04E-03	2.72E-03
140	UCART10	564202.32	4217085.29	564202.32, 4217085.29	0.22859	0.19	0.22811	0.18555	1.45E-03	5.24E-08	4.91E-04	1.20E-03	3.14E-03
141	UCART11	564237.32	4217085.29	564237.32, 4217085.29	0.26752	0.21549	0.27114	0.21684	1.69E-03	6.13E-08	5.83E-04	1.40E-03	3.68E-03
142	UCART11	564657.32	4217085.29	564657.32, 4217085.29	17.75035	2.68551	14.25714	5.96269	1.12E-01	1.69E-06	3.07E-02	3.85E-02	1.82E-01
143	UCART11	564692.32	4217085.29	564692.32, 4217085.29	20.78858	4.79247	10.27713	3.93813	1.32E-01	1.11E-06	2.21E-02	2.54E-02	1.79E-01
144	UCART11	564727.32	4217085.29	564727.32, 4217085.29	17.79886	10.25126	7.10723	2.83662	1.13E-01	8.02E-07	1.53E-02	1.83E-02	1.46E-01
145	UCART11	564762.32	4217085.29	564762.32, 4217085.29	12.57399	22.29742	5.03737	2.14004	7.97E-02	6.05E-07	1.08E-02	1.38E-02	1.04E-01
146	UCART11	564797.32	4217085.29	564797.32, 4217085.29	8.44588	10.02873	3.68045	1.65775	5.35E-02	4.69E-07	7.92E-03	1.07E-02	7.21E-02
147	UCART11	564832.32	4217085.29	564832.32, 4217085.29	5.73122	5.83445	2.75532	1.30395	3.63E-02	3.69E-07	5.93E-03	8.41E-03	5.06E-02
148	UCART11	564867.32	4217085.29	564867.32, 4217085.29	4.03734	3.88027	2.12385	1.05041	2.56E-02	2.97E-07	4.57E-03	6.78E-03	3.69E-02
149	UCART11	564902.32	4217085.29	564902.32, 4217085.29	2.99883	2.75031	1.65529	0.85048	1.90E-02	2.40E-07	3.56E-03	5.49E-03	2.80E-02
150	UCART11	564937.32	4217085.29	564937.32, 4217085.29	2.28433	2.0893	1.33316	0.71054	1.45E-02	2.01E-07	2.87E-03	4.59E-03	2.19E-02
151	UCART12	564972.32	4217085.29	564972.32, 4217085.29	1.79797	1.6505	1.09872	0.60609	1.14E-02	1.71E-07	2.36E-03	3.91E-03	1.77E-02
152	UCART12	565007.32	4217085.29	565007.32, 4217085.29	1.44955	1.33827	0.91964	0.52381	9.18E-03	1.48E-07	1.98E-03	3.38E-03	1.45E-02
153	UCART12	565042.32	4217085.29	565042.32, 4217085.29	1.19149	1.1069	0.77965	0.45749	7.55E-03	1.29E-07	1.68E-03	2.95E-03	1.22E-02
154	UCART12	565077.32	4217085.29	565077.32, 4217085.29	0.9957	0.93079	0.66878	0.40343	6.31E-03	1.14E-07	1.44E-03	2.60E-03	1.03E-02
155	UCART12	565112.32	4217085.29	565112.32, 4217085.29	0.84447	0.7939	0.58032	0.35917	5.35E-03	1.02E-07	1.25E-03	2.32E-03	8.92E-03
156	UCART12	565147.32	4217085.29	565147.32, 4217085.29	0.72482	0.68473	0.50821	0.3221	4.59E-03	9.10E-08	1.09E-03	2.08E-03	7.76E-03
157	UCART12	565182.32	4217085.29	565182.32, 4217085.29	0.62915	0.59665	0.44935	0.29112	3.99E-03	8.23E-08	9.67E-04	1.88E-03	6.83E-03
158	UCART12	563957.32	4217120.29	563957.32, 4217120.29	0.10057	0.09289	0.0896	0.07986	6.37E-04	2.26E-08	1.93E-04	5.15E-04	1.35E-03
159	UCART12	563992.32	4217120.29	563992.32, 4217120.29	0.11115	0.10138	0.09925	0.08754	7.04E-04	2.47E-08	2.13E-04	5.65E-04	1.48E-03
160	UCART12	564027.32	4217120.29	564027.32, 4217120.29	0.12266	0.11117	0.11023	0.0962	7.77E-04	2.72E-08	2.37E-04	6.21E-04	1.63E-03
161	UCART13	564062.32	4217120.29	564062.32, 4217120.29	0.13657	0.12295	0.12443	0.10711	8.65E-04	3.03E-08	2.68E-04	6.91E-04	1.82E-03
162	UCART13	564097.32	4217120.29	564097.32, 4217120.29	0.15413	0.13701	0.14495	0.12233	9.76E-04	3.46E-08	3.12E-04	7.89E-04	2.08E-03
163	UCART13	564132.32	4217120.29	564132.32, 4217120.29	0.17482	0.15311	0.17059	0.14126	1.11E-03	3.99E-08	3.67E-04	9.12E-04	2.39E-03

164 UCART13	564692.32	4217120.29	564692.32, 4217120.29	47.80993	7.26564	9.40865	2.51211	3.03E-01	7.10E-07	2.02E-02	1.62E-02	3.39E-01
165 UCART13	564727.32	4217120.29	564727.32, 4217120.29	25.50689	10.10355	6.18772	1.88976	1.62E-01	5.34E-07	1.33E-02	1.22E-02	1.87E-01
166 UCART13	564762.32	4217120.29	564762.32, 4217120.29	13.71852	14.97836	4.29803	1.45608	8.69E-02	4.12E-07	9.25E-03	9.40E-03	1.06E-01
167 UCART13	564797.32	4217120.29	564797.32, 4217120.29	8.15627	7.39241	3.12168	1.15324	5.17E-02	3.26E-07	6.71E-03	7.44E-03	6.58E-02
168 UCART13	564832.32	4217120.29	564832.32, 4217120.29	5.3195	4.54172	2.33716	0.92852	3.37E-02	2.62E-07	5.03E-03	5.99E-03	4.47E-02
169 UCART13	564867.32	4217120.29	564867.32, 4217120.29	3.73805	3.18769	1.82386	0.77393	2.37E-02	2.19E-07	3.92E-03	4.99E-03	3.26E-02
170 UCART13	564902.32	4217120.29	564902.32, 4217120.29	2.74859	2.36592	1.45128	0.6517	1.74E-02	1.84E-07	3.12E-03	4.21E-03	2.47E-02
171 UCART14	564937.32	4217120.29	564937.32, 4217120.29	2.08446	1.83457	1.17191	0.55286	1.32E-02	1.56E-07	2.52E-03	3.57E-03	1.93E-02
172 UCART14	564972.32	4217120.29	564972.32, 4217120.29	1.63282	1.46031	0.96541	0.47644	1.03E-02	1.35E-07	2.08E-03	3.07E-03	1.55E-02
173 UCART14	565007.32	4217120.29	565007.32, 4217120.29	1.31238	1.19125	0.80887	0.41611	8.31E-03	1.18E-07	1.74E-03	2.69E-03	1.27E-02
174 UCART14	565042.32	4217120.29	565042.32, 4217120.29	1.07779	0.99107	0.68805	0.36783	6.83E-03	1.04E-07	1.48E-03	2.37E-03	1.07E-02
175 UCART14	565077.32	4217120.29	565077.32, 4217120.29	0.90064	0.83744	0.59262	0.32824	5.71E-03	9.28E-08	1.27E-03	2.12E-03	9.10E-03
176 UCART14	565112.32	4217120.29	565112.32, 4217120.29	0.76548	0.71845	0.51744	0.29615	4.85E-03	8.37E-08	1.11E-03	1.91E-03	7.87E-03
177 UCART14	565147.32	4217120.29	565147.32, 4217120.29	0.65705	0.62162	0.45471	0.26814	4.16E-03	7.58E-08	9.78E-04	1.73E-03	6.87E-03
178 UCART14	565182.32	4217120.29	565182.32, 4217120.29	0.57082	0.54362	0.40368	0.24469	3.62E-03	6.92E-08	8.68E-04	1.58E-03	6.06E-03
179 UCART14	563957.32	4217155.29	563957.32, 4217155.29	0.1013	0.09376	0.09078	0.0797	6.42E-04	2.25E-08	1.95E-04	5.14E-04	1.35E-03
180 UCART14	563992.32	4217155.29	563992.32, 4217155.29	0.1112	0.10245	0.10046	0.08725	7.04E-04	2.47E-08	2.16E-04	5.63E-04	1.48E-03
181 UCART15	564027.32	4217155.29	564027.32, 4217155.29	0.12272	0.11248	0.11147	0.09575	7.77E-04	2.71E-08	2.40E-04	6.18E-04	1.64E-03
182 UCART15	564062.32	4217155.29	564062.32, 4217155.29	0.13652	0.12444	0.12511	0.1061	8.65E-04	3.00E-08	2.69E-04	6.85E-04	1.82E-03
183 UCART15	564097.32	4217155.29	564097.32, 4217155.29	0.15375	0.13914	0.14376	0.1199	9.74E-04	3.39E-08	3.09E-04	7.74E-04	2.06E-03
184 UCART15	564132.32	4217155.29	564132.32, 4217155.29	0.17505	0.15592	0.17093	0.13972	1.11E-03	3.95E-08	3.68E-04	9.02E-04	2.38E-03
185 UCART15	564692.32	4217155.29	564692.32, 4217155.29	51.7546	11.87164	5.79096	1.51966	3.28E-01	4.30E-07	1.25E-02	9.81E-03	3.50E-01
186 UCART15	564727.32	4217155.29	564727.32, 4217155.29	20.74889	20.0709	4.05696	1.20578	1.31E-01	3.41E-07	8.73E-03	7.78E-03	1.48E-01
187 UCART15	564762.32	4217155.29	564762.32, 4217155.29	10.32847	9.34392	2.90105	0.94429	6.54E-02	2.67E-07	6.24E-03	6.09E-03	7.78E-02
188 UCART15	564797.32	4217155.29	564797.32, 4217155.29	6.20758	5.35908	2.18782	0.77542	3.93E-02	2.19E-07	4.71E-03	5.00E-03	4.90E-02
189 UCART15	564832.32	4217155.29	564832.32, 4217155.29	4.15797	3.64096	1.71899	0.65824	2.63E-02	1.86E-07	3.70E-03	4.25E-03	3.43E-02
190 UCART15	564867.32	4217155.29	564867.32, 4217155.29	2.96337	2.66327	1.38017	0.56518	1.88E-02	1.60E-07	2.97E-03	3.65E-03	2.54E-02
191 UCART16	564902.32	4217155.29	564902.32, 4217155.29	2.20447	2.0308	1.12552	0.48837	1.40E-02	1.38E-07	2.42E-03	3.15E-03	1.95E-02
192 UCART16	564937.32	4217155.29	564937.32, 4217155.29	1.69203	1.5935	0.92878	0.42369	1.07E-02	1.20E-07	2.00E-03	2.73E-03	1.55E-02
193 UCART16	564972.32	4217155.29	564972.32, 4217155.29	1.3369	1.28215	0.77784	0.37118	8.47E-03	1.05E-07	1.67E-03	2.40E-03	1.25E-02
194 UCART16	565007.32	4217155.29	565007.32, 4217155.29	1.08134	1.05222	0.66004	0.32825	6.85E-03	9.28E-08	1.42E-03	2.12E-03	1.04E-02
195 UCART16	565042.32	4217155.29	565042.32, 4217155.29	0.89335	0.87915	0.56774	0.29347	5.66E-03	8.30E-08	1.22E-03	1.89E-03	8.77E-03
196 UCART16	565077.32	4217155.29	565077.32, 4217155.29	0.75046	0.74501	0.49362	0.26452	4.75E-03	7.48E-08	1.06E-03	1.71E-03	7.52E-03
197 UCART16	565112.32	4217155.29	565112.32, 4217155.29	0.64128	0.641	0.43452	0.24084	4.06E-03	6.81E-08	9.35E-04	1.55E-03	6.55E-03
198 UCART16	565147.32	4217155.29	565147.32, 4217155.29	0.5568	0.55954	0.38742	0.22162	3.53E-03	6.26E-08	8.33E-04	1.43E-03	5.79E-03
199 UCART16	565182.32	4217155.29	565182.32, 4217155.29	0.48738	0.49207	0.34736	0.20454	3.09E-03	5.78E-08	7.47E-04	1.32E-03	5.15E-03
200 UCART16	563957.32	4217190.29	563957.32, 4217190.29	0.10094	0.09444	0.09146	0.0791	6.39E-04	2.24E-08	1.97E-04	5.10E-04	1.35E-03
201 UCART17	563992.32	4217190.29	563992.32, 4217190.29	0.11078	0.10331	0.10109	0.08649	7.02E-04	2.44E-08	2.17E-04	5.58E-04	1.48E-03
202 UCART17	564027.32	4217190.29	564027.32, 4217190.29	0.12234	0.11368	0.11245	0.09509	7.75E-04	2.69E-08	2.42E-04	6.14E-04	1.63E-03
203 UCART17	564062.32	4217190.29	564062.32, 4217190.29	0.13606	0.12597	0.12599	0.10521	8.62E-04	2.97E-08	2.71E-04	6.79E-04	1.81E-03
204 UCART17	564097.32	4217190.29	564097.32, 4217190.29	0.153	0.14096	0.14375	0.1183	9.69E-04	3.34E-08	3.09E-04	7.63E-04	2.04E-03
205 UCART17	564692.32	4217190.29	564692.32, 4217190.29	23.15421	15.15367	2.71501	0.93473	1.47E-01	2.64E-07	5.84E-03	6.03E-03	1.59E-01
206 UCART17	564727.32	4217190.29	564727.32, 4217190.29	10.52098	13.13737	2.11131	0.78408	6.66E-02	2.22E-07	4.54E-03	5.06E-03	7.63E-02
207 UCART17	564762.32	4217190.29	564762.32, 4217190.29	5.78899	6.59863	1.63592	0.64012	3.67E-02	1.81E-07	3.52E-03	4.13E-03	4.43E-02
208 UCART17	564797.32	4217190.29	564797.32, 4217190.29	3.74859	4.18813	1.33053	0.54772	2.37E-02	1.55E-07	2.86E-03	3.53E-03	3.01E-02
209 UCART17	564832.32	4217190.29	564832.32, 4217190.29	2.65819	2.9631	1.10663	0.47787	1.68E-02	1.35E-07	2.38E-03	3.08E-03	2.23E-02
210 UCART17	564867.32	4217190.29	564867.32, 4217190.29	1.98377	2.23132	0.93285	0.42097	1.26E-02	1.19E-07	2.01E-03	2.72E-03	1.73E-02
211 UCART18	564902.32	4217190.29	564902.32, 4217190.29	1.53037	1.73547	0.79181	0.37161	9.69E-03	1.05E-07	1.70E-03	2.40E-03	1.38E-02
212 UCART18	564937.32	4217190.29	564937.32, 4217190.29	1.20858	1.3776	0.67533	0.32803	7.66E-03	9.27E-08	1.45E-03	2.12E-03	1.12E-02
213 UCART18	564972.32	4217190.29	564972.32, 4217190.29	0.97801	1.11731	0.58131	0.29149	6.20E-03	8.24E-08	1.25E-03	1.88E-03	9.33E-03
214 UCART18	565007.32	4217190.29	565007.32, 4217190.29	0.80696	0.92177	0.50458	0.26072	5.11E-03	7.37E-08	1.09E-03	1.68E-03	7.88E-03
215 UCART18	565042.32	4217190.29	565042.32, 4217190.29	0.67884	0.7738	0.44275	0.2357	4.30E-03	6.66E-08	9.52E-04	1.52E-03	6.77E-03
216 UCART18	565077.32	4217190.29	565077.32, 4217190.29	0.58013	0.65903	0.39207	0.21488	3.68E-03	6.07E-08	8.43E-04	1.39E-03	5.91E-03
217 UCART18	565112.32	4217190.29	565112.32, 4217190.29	0.50432	0.57063	0.35116	0.19801	3.19E-03	5.60E-08	7.55E-04	1.28E-03	5.23E-03
218 UCART18	565147.32	4217190.29	565147.32, 4217190.29	0.44506	0.5015	0.31801	0.18433	2.82E-03	5.21E-08	6.84E-04	1.19E-03	4.69E-03
219 UCART18	565182.32	4217190.29	565182.32, 4217190.29	0.39463	0.44315	0.28867	0.17166	2.50E-03	4.85E-08	6.21E-04	1.11E-03	4.23E-03
220 UCART18	563957.32	4217225.29	563957.32, 4217225.29	0.10029	0.095	0.09174	0.07835	6.35E-04	2.21E-08	1.97E-04	5.06E-04	1.34E-03
221 UCART19	563992.32	4217225.29	563992.32, 4217225.29	0.10997	0.10397	0.1011	0.08547	6.97E-04	2.42E-08	2.17E-04	5.52E-04	1.47E-03
222 UCART19	564027.32	4217225.29	564027.32, 4217225.29	0.12142	0.11462	0.11244	0.09399	7.69E-04	2.66E-08	2.42E-04	6.07E-04	1.62E-03
223 UCART19	564062.32	4217225.29	564062.32, 4217225.29	0.1351	0.12737	0.12618	0.10423	8.56E-04	2.95E-08	2.71E-04	6.73E-04	1.80E-03
224 UCART19	564097.32	4217225.29	564097.32, 4217225.29	0.15223	0.14242	0.14504	0.11819	9.64E-04	3.34E-08	3.12E-04	7.63E-04	2.04E-03
225 UCART19	564552.32	4217225.29	564552.32, 4217225.29	5.59324	2.0794	3.96949	1.19519	3.54E-02	3.38E-07	8.54E-03	7.71E-03	5.17E-02
226 UCART19	564587.32	4217225.29	564587.32, 4217225.29	12.55935	3.32701	3.33827	1.02088	7.96E-02	2.89E-07	7.18E-03	6.59E-03	9.33E-02
227 UCART19	564622.32	4217225.29	564622.32, 4217225.29	21.6037	6.49905	2.54908	0.87326	1.37E-01	2.47E-07	5.48E-03	5.64E-03	1.48E-01
228 UCART19	564657.32	4217225.29	564657.32, 4217225.29	14.38644	11.76846	1.92777	0.75207	9.11E-02	2.13E-07	4.15E-03	4.85E-03	1.00E-01
229 UCART19	564692.32	4217225.29	564692.32, 4217225.29	7.50117	18.05798	1.49051	0.64699	4.75E-02	1.83E-07	3.21E-03	4.18E-03	5.49E-02
230 UCART19	564727.32	4217225.29	564727.32, 4217225.29	4.4796	8.44845	1.18837	0.55519	2.84E-02	1.57E-07	2.56E-03	3.58E-03	3.45E-02
231 UCART20	564762.32	4217225.29	564762.32, 4217225.29	2.90512	4.96016	0.96403	0.47121	1.84E-02	1.33E-07	2.07E-03	3.04E-03	2.35E-02
232 UCART20	564797.32	4217225.29	564797.32, 4217225.29	2.06401	3.35876	0.81754	0.4124	1.31E-02	1.17E-07	1.76E-03	2.66E-03	1.75E-02
233 UCART20	564832.32	4217225.29	564832.32, 4217225.29	1.56267	2.45242	0.70778	0.36627	9.90E-03	1.04E-07	1.52E-03	2.36E-03	1.38E-02
234 UCART20	564867.32	4217225.29	564867.32, 4217225.29	1.23333	1.87359	0.61952	0.32775	7.81E-03	9.26E-08	1.33E-03	2.12E-03	1.13E-02
235 UCART20	564902.32	4217225.29	564902.32, 4217225.29	0.9935	1.48315	0.54354	0.29291	6.29E-03	8.28E-08	1.17E-03	1.89E-03	9.35E-03
236 UCART20	564937.32	4217225.29	564937.32, 4217225.29	0.81311	1.18564	0.47828	0.26185	5.15E-03	7.40E-08	1.03E-03	1.69E-03	7.87E-03
237 UCART20	564972.32	4217225.29	564972.32, 4217225.29	0.67842	0.96903	0.42335	0.23529	4.30E-03	6.65E-08	9.11E-04	1.52E-03	6.73E-03
238 UCART20	565007.32	4217225.29	565007.32, 4217225.29	0.57483	0.80461	0.37665	0.21248	3.64E-03	6.01E-08	8.10E-04	1.37E-03	5.82E-03
239 UCART20	565042.32	4217225.29	565042.32, 4217225.29	0.49416	0.67823	0.33729	0.19342	3.13E-03	5.47E-08	7.26E-04	1.25E-03	5.10E-03
240 UCART20	565077.32	4217225.29	565077.32, 4217225.29	0.43313	0.58279	0.30545	0.17845	2.74E-03	5.04E-08	6.57E-04	1.15E-03	4.55E-03
241 UCART21	565112.32	4217225.29	565112.32, 4217225.29	0.38458	0.5079	0.27866	0.166	2.44E-03	4.69E-08	5.99E-04	1.07E-03	4.11E-03
242 UCART21	565147.32	4217225.29	565147.32, 4217225.29	0.34407	0.44691	0.25525	0.15503	2.18E-03	4.38E-08	5.49E-04	1.00E-03	3.73E-03
243 UCART21	565182.32	4217225.29	565182.32, 4217225.29	0.30948	0.39622	0.23447	0.1451	1.96E-03	4.10E-08	5.04E-04	9.36E-04	3.40E-03
244 UCART21	564552.32	4217260.29	564552.32, 4217260.29	3.65352	2.7167	2.10203	0.76387	2.31E-02	2.16E-07	4.52E-03	4.93E-03	3.26E-02
245 UCART21	564587.32	4217260.29	564587.32, 4217260.29	5.344	4.87213	1.84066	0.69331	3.39E-02	1.96E-07	3.96E-03	4.47E-03	4.23E-02
246 UCART21	564622.32	4217260.29	564622.32, 4217260.29	6.17629	12.85104	1.55877	0.62287	3.91E-02	1.76E-07	3.35E-03	4.02E-03	4.65E-02
247 UCART21	564657.32	4217260.29	564657.32, 4217260.29	5.10786	16.31035	1.27358	0.55405	3.24E-02	1.57E-07	2.74E-03	3.58E-03	3.87E-02
248 UCART21	564692.32	4217260.29	564692.32, 4217260.29	3.53769	10.66644	1.0143	0.48628	2.24E-02	1.37E-07	2.18E-03	3.14E-03	2.77E-02
249 UCART21	564727.32	4217260.29	564727.32, 4217260.29	2.42641	5.92158	0.81252	0.424	1.54E-02	1.20E-07	1.75E-03	2.74E-03	1.99E-02
250 UCART21	564762.32	4217260.29	564762.32, 4217260.29	1.72765	3.8177	0.6667	0.36981	1.09E-02	1.05E-07	1.43E-03	2.39E-03	1.48E-02
251 UCART22	564797.32	4217260.29	564797.32, 4217260.29	1.28973	2.70011	0.56813	0.32823	8.17E-03	9.28E-08	1.22E-03	2.12E-03	1.15E-02
252 UCART22	564832.32	4217260.29	564832.32, 4217260.29	1.01431	2.02045	0.49637	0.29482	6.43E-03	8.33E-08	1.07E-03	1.90E-03	9.40E-03
253 UCART22	564867.32	4217260.29	564867.32, 4217260.29	0.82728	1.57005	0.44068	0.26687	5.24E-03	7.54E-08	9.48E-04	1.72E-03	7.91E-03
254 UCART22	564902.32	4217260.29	564902.32, 4217260.29	0.68395	1.24652	0.39284	0.24083	4.33E-03	6.81E-08	8.45E-04	1.55E-03	6.73E-03
255 UCART22	564937.32	4217260.29	564937.32, 4217260.29	0.5728	1.01526	0.35162	0.2172	3.63E-03	6.14E-08	7.56E-04	1.40E-03	5.79E-03
256 UCART22	564972.32	4217260.29	564972.32, 4217260.29	0.48885	0.83799	0.31718	0.19709	3.10E-03	5.57E-08	6.82E-04	1.27E-03	5.05E-03
257 UCART22	565007.32	4217260.29	565007.32, 4217260.29	0.4225	0.70189	0.28736	0.17946	2.68E-03	5.07E-08	6.18E-04	1.16E-03	4.45E-03
258 UCART22	565042.32	4217260.29	565042.32, 4217260.29	0.36997	0.59641	0.26174	0.16444	2.34E-03	4.65E-08	5.63E-04	1.06E-03	3.97E-03
259 UCART22	565077.32	4217260.29	565077.32, 4217260.29	0.32969	0.51556	0.24054	0.15246	2.09E-03	4.31E-08	5.17E-04	9.84E-04	3.59E-03
260 UCART22	565112.32	4217260.29	565112.32, 4217260.29	0.29615	0.45035	0.22186	0.14203	1.88E-03	4.01E-08	4.77E-04	9.17E-04	3.27E-03
261 UCART23	565147.32	4217260.29	565147.32, 4217260.29	0.2673	0.39647	0.20503	0.13266	1.69E-03	3.75E-08	4.41E-04	8.56E-04	2.99E-03
262 UCART23	565182.32	4217260.29	565182.32, 4217260.29	0.24328	0.35263	0.19033	0.1246	1.54E-03	3.52E-08	4.09E-04	8.04E-04	2.75E-03
263 UCART23	564552.32	4217295.29	564552.32, 4217295.29	2.35576	3.77348	1.30026	0.5448	1.49E-02	1.54E-07	2.80E-03	3.52E-03	2.12E-02
264 UCART23	564587.32	4217295.29	564587.32, 4217295.29	2.83886	8.2294	1.177	0.50924	1.80E-02	1.44E-07	2.53E-03	3.29E-03	2.38E-02
265 UCART23	564622.32	4217295.29	564622.32, 4217295.29	2.93098	16.18611	1.04193	0.46893	1.86E-02	1.33E-07	2.24E-03	3.03E-03	2.38E-02
266 UCART23	564657.32	4217295.29	564657.32, 4217295.29	2.58836	13.96161	0.89554	0.42525	1.64E-02	1.20E-07	1.93E-03	2.74E-03	2.11E-02
267 UCART23	564692.32	4217295.29	564692.32, 4217295.29	2.0769	7.10193	0.74849	0.38193	1.32E-02	1.08E-07	1.61E-03	2.46E-03	1.72E-02
268 UCART23	564727.32	4217295.29	564727.32, 4217295.29	1.60679	4.39951	0.62224	0.34281	1.02E-02	9.69E-08	1.34E-03	2.21E-03	1.37E-02
269 UCART23	564762.32	4217295.29	564762.32, 4217295.29	1.23227	2.99994	0.51791	0.30523	7.81E-03	8.63E-08	1.11E-03	1.97E-03	1.09E-02
270 UCART23	564797.32	4217295.29	564797.32, 4217295.29	0.9377	2.17095	0.43806	0.27155	5.94E-03	7.68E-08	9.42E-04	1.75E-03	8.63E-03
271 UCART24	564832.32	4217295.29	564832.32, 4217295.29	0.75632	1.65637	0.38312	0.24634	4.79E-03	6.96E-08	8.24E-04	1.59E-03	7.21E-03
272 UCART24	564867.32	4217295.29	564867.32, 4217295.29	0.623	1.30606	0.34087	0.22483	3.95E-03	6.35E-08	7.33E-04	1.45E-03	6.13E-03
273 UCART24	564902.32	4217295.29	564902.32, 4217295.29	0.52001	1.0501	0.30493	0.20432	3.29E-03	5.78E-08	6.56E-04	1.32E-03	5.27E-03
274 UCART24	564937.32	4217295.29	564937.32, 4217295.29	0.44029	0.8632	0.27468	0.18569	2.79E-03	5.25E-08	5.91E-04	1.20E-03	4.58E-03
275 UCART24	564972.32	4217295.29	564972.32, 4217295.29	0.38013	0.7202	0.24989	0.16983	2.41E-03	4.80E-08	5.38E-04	1.10E-03	4.04E-03
276 UCART24	565007.32	4217295.29	565007.32, 4217295.29	0.33211	0.60943	0.22861	0.15579	2.10E-03	4.40E-08	4.92E-04	1.01E-03	3.60E-03
277 UCART24	565042.32	4217295.29	565042.32, 4217295.29	0.2945	0.52324	0.2106	0.14385	1.87E-03	4.07E-08	4.53E-04	9.28E-04	3.25E-03
278 UCART24	565077.32	4217295.29	565077.32, 4217295.29	0.26319	0.45388	0.19465	0.13324	1.67E-03	3.77E-08	4.19E-04	8.60E-04	2.95E-03
279 UCART24	565112.32	4217295.29	565112.32, 4217295.29	0.23759	0.39795	0.18076	0.12419	1.51E-03	3.51E-08	3.89E-04	8.01E-04	2.70E-03
280 UCART24	565147.32	4217295.29	565147.32, 4217295.29	0.21559	0.35147	0.16825	0.11612	1.37E-03	3.28E-08	3.62E-04	7.49E-04	2.48E-03
281 UCART25	565182.32	4217295.29	565182.32, 4217295.29	0.19759	0.31365	0.15739	0.1093	1.25E-03	3.09E-08	3.39E-04	7.05E-04	2.30E-03
282 UCART25	564552.32	4217330.29	564552.32, 4217330.29	1.57477	5.81628	0.88306	0.4132	9.98E-03	1.17E-07	1.90E-03	2.67E-03	1.45E-02
283 UCART25	564587.32	4217330.29	564587.32, 4217330.29	1.72595	14.16646	0.81583	0.39191	1.09E-02	1.11E-07	1.75E-03	2.53E-03	1.52E-02
284 UCART25	564622.32	4217330.29	564622.32, 4217330.29	1.71661	19.43413	0.74049	0.36631	1.09E-02	1.04E-07	1.59E-03	2.36E-03	1.48E-02
285 UCART25	564657.32	4217330.29	564657.32, 4217330.29	1.55753	8.63934	0.65447	0.33575	9.87E-03	9.49E-08	1.41E-03	2.17E-03	1.34E-02
286 UCART25	564692.32	4217330.29	564692.32, 4217330.29	1.34744	5.01705	0.57183	0.30815	8.54E-03	8.71E-08	1.23E-03	1.99E-03	1.18E-02
287 UCART25	564727.32	4217330.29	564727.32, 4217330.29	1.1295	3.32424	0.49533	0.28357	7.16E-03	8.02E-08	1.07E-03	1.83E-03	1.01E-02
288 UCART25	564762.32	4217330.29	564762.32, 4217330.29	0.92228	2.35541	0.42284	0.25768	5.84E-03	7.28E-08	9.10E-04	1.66E-03	8.41E-03
289 UCART25	564797.32	4217330.29	564797.32, 4217330.29	0.73442	1.74338	0.35981	0.23154	4.65E-03	6.54E-08	7.74E-04	1.49E-03	6.92E-03
290 UCART25	564832.32	4217330.29	564832.32, 4217330.29	0.61311	1.35839	0.31724	0.21327	3.88E-03	6.03E-08	6.82E-04	1.38E-03	5.94E-03
291 UCART26	564867.32	4217330.29	564867.32, 4217330.29	0.51197	1.08455	0.28164	0.19543	3.24E-03	5.52E-08	6.06E-04	1.26E-03	5.11E-03
292 UCART26	564902.32	4217330.29	564902.32, 4217330.29	0.42165	0.88007	0.25033	0.17718	2.67E-03	5.01E-08	5.38E-04	1.14E-03	4.35E-03
293 UCART26	564937.32	4217330.29	564937.32, 4217330.29	0.36059	0.72948	0.22616	0.16223	2.28E-03	4.59E-08	4.86E-04	1.05E-03	3.82E-03
294 UCART26	564972.32	4217330.29	564972.32, 4217330.29	0.31499	0.61638	0.20682	0.14967	2.00E-03	4.23E-08	4.45E-04	9.66E-04	3.41E-03
295 UCART26	565007.32	4217330.29	565007.32, 4217330.29	0.27826	0.52788	0.19038	0.13848	1.76E-03	3.91E-08	4.10E-04	8.94E-04	3.07E-03
296 UCART26	565042.32	4217330.29	565042.32, 4217330.29	0.24822	0.45729	0.1762	0.12851	1.57E-03	3.63E-08	3.79E-04	8.29E-04	2.78E-03
297 UCART26	565077.32	4217330.29	565077.32, 4217330.29	0.22212	0.39887	0.16341	0.11922	1.41E-03	3.37E-08	3.52E-04	7.69E-04	2.53E-03
298 UCART26	565112.32	4217330.29	565112.32, 4217330.29	0.20084	0.35149	0.15231	0.11118	1.27E-03	3.14E-08	3.28E-04	7.17E-04	2.32E-03
299 UCART26	565147.32	4217330.29	565147.32, 4217330.29	0.18249	0.31172	0.14232	0.10399	1.16E-03	2.94E-08	3.06E-04	6.71E-04	2.13E-03
300 UCART26	565182.32	4217330.29	565182.32, 4217330.29	0.16763	0.2791	0.13369	0.09795	1.06E-03	2.77E-08	2.88E-04	6.32E-04	1.98E-03
301 UCART27	564552.32	4217365.29	564552.32, 4217365.29	1.10077	11.01558	0.63875	0.32643	6.97E-03	9.23E-08	1.37E-03	2.11E-03	1.05E-02
302 UCART27	564587.32	4217365.29	564587.32, 4217365.29	1.14929	18.4273	0.59687	0.31168	7.28E-03	8.81E-08	1.28E-03	2.01E-03	1.06E-02
303 UCART27	564622.32	4217365.29	564622.32, 4217365.29	1.1272	10.90354	0.5504	0.29403	7.14E-03	8.31E-08	1.18E-03	1.90E-03	1.02E-02
304 UCART27	564657.32	4217365.29	564657.32, 4217365.29	1.04569	5.78942	0.49834	0.2732	6.62E-03	7.72E-08	1.07E-03	1.76E-03	9.46E-03
305 UCART27	564692.32	4217365.29	564692.32, 4217365.29	0.94216	3.62587	0.44879	0.25446	5.97E-03	7.19E-08	9.65E-04	1.64E-03	8.58E-03
306 UCART27	564727.32	4217365.29	564727.32, 4217365.29	0.82807	2.5042	0.40111	0.23786	5.25E-03	6.72E-08	8.63E-04	1.53E-03	7.64E-03
307 UCART27	564762.32	4217365.29	564762.32, 4217365.29	0.70991	1.83181	0.35282	0.22042	4.50E-03	6.23E-08	7.59E-04	1.42E-03	6.68E-03
308 UCART27	564797.32	4217365.29	564797.32, 4217365.29	0.60182	1.3964	0.30808	0.20275	3.81E-03	5.73E-08	6.63E-04	1.31E-03	5.78E-03
309 UCART27	564832.32	4217365.29	564832.32, 4217365.29	0.49979	1.09763	0.26916	0.18533	3.17E-03	5.24E-08	5.79E-04	1.20E-03	4.94E-03
310 UCART27	564867.32	4217365.29	564867.32, 4217365.29	0.41	0.88352	0.23658	0.16864	2.60E-03	4.77E-08	5.09E-04	1.09E-03	4.19E-03
311 UCART28	564902.32	4217365.29	564902.32, 4217365.29	0.35245	0.7319	0.21286	0.15579	2.23E-03	4.40E-08	4.58E-04	1.01E-03	3.70E-03
312 UCART28	564937.32	4217365.29	564937.32, 4217365.29	0.30566	0.61294	0.19308	0.14387	1.94E-03	4.07E-08	4.15E-04	9.28E-04	3.28E-03
313 UCART28	564972.32	4217365.29	564972.32, 4217365.29	0.27061	0.52476	0.17743	0.13392	1.71E-03	3.79E-08	3.82E-04	8.64E-04	2.96E-03
314 UCART28	565007.32	4217365.29	565007.32, 4217365.29	0.24261	0.45542	0.16432	0.12514	1.54E-03	3.54E-08	3.53E-04	8.08E-04	2.70E-03
315 UCART28	565042.32	4217365.29	565042.32, 4217365.29	0.21843	0.39854	0.15269	0.11691	1.38E-03	3.30E-08	3.28E-04	7.54E-04	2.47E-03
316 UCART28	565077.32	4217365.29	565077.32, 4217365.29	0.19608	0.35013	0.14192	0.10882	1.24E-03	3.08E-08	3.05E-04	7.02E-04	2.25E-03
317 UCART28	565112.32	4217365.29	565112.32, 4217365.29	0.1769	0.30962	0.13235	0.10143	1.12E-03	2.87E-08	2.85E-04	6.55E-04	2.06E-03
318 UCART28	565147.32	4217365.29	565147.32, 4217365.29	0.16046	0.27554	0.12379	0.09476	1.02E-03	2.68E-08	2.66E-04	6.11E-04	1.89E-03
319 UCART28	565182.32	4217365.29	565182.32, 4217365.29	0.1472	0.24745	0.11644	0.08918	9.32E-04	2.52E-08	2.50E-04	5.75E-04	1.76E-03
320 UCART28	564552.32	4217400.29	564552.32, 4217400.29	0.80333	12.61809	0.48444	0.26595	5.09E-03	7.52E-08	1.04E-03	1.72E-03	7.85E-03
321 UCART29	564587.32	4217400.29	564587.32, 4217400.29	0.81658	14.3002	0.45478	0.2543	5.17E-03	7.19E-08	9.78E-04	1.64E-03	7.79E-03
322 UCART29	564622.32	4217400.29	564622.32, 4217400.29	0.79636	6.77629	0.42342	0.24111	5.04E-03	6.82E-08	9.11E-04	1.56E-03	7.51E-03
323 UCART29	564657.32	4217400.29	564657.32, 4217400.29	0.75252	3.95595	0.39167	0.22724	4.77E-03	6.42E-08	8.42E-04	1.47E-03	7.08E-03
324 UCART29	564692.32	4217400.29	564692.32, 4217400.29	0.69855	2.61925	0.36279	0.2155	4.43E-03	6.09E-08	7.80E-04	1.39E-03	6.60E-03
325 UCART29	564727.32	4217400.29	564727.32, 4217400.29	0.63083	1.86684	0.33012	0.20263	4.00E-03	5.73E-08	7.10E-04	1.31E-03	6.01E-03
326 UCART29	564762.32	4217400.29	564762.32, 4217400.29	0.55945	1.40688	0.29773	0.19036	3.54E-03	5.38E-08	6.40E-04	1.23E-03	5.41E-03
327 UCART29	564797.32	4217400.29	564797.32, 4217400.29	0.48908	1.10004	0.26529	0.17743	3.10E-03	5.02E-08	5.71E-04	1.14E-03	4.81E-03
328 UCART29	564832.32	4217400.29	564832.32, 4217400.29	0.41818	0.88188	0.23387	0.1634	2.65E-03	4.62E-08	5.03E-04	1.05E-03	4.21E-03
329 UCART29	564867.32	4217400.29	564867.32, 4217400.29	0.34339	0.71763	0.20491	0.14857	2.18E-03	4.20E-08	4.41E-04	9.59E-04	3.57E-03
330 UCART29	564902.32	4217400.29	564902.32, 4217400.29	0.30101	0.60105	0.18549	0.13862	1.91E-03	3.92E-08	3.99E-04	8.95E-04	3.20E-03
331 UCART30	564937.32	4217400.29	564937.32, 4217400.29	0.26484	0.51169	0.16901	0.12912	1.68E-03	3.65E-08	3.64E-04	8.33E-04	2.87E-03
332 UCART30	564972.32	4217400.29	564972.32, 4217400.29	0.2363	0.44266	0.15565	0.12081	1.50E-03	3.41E-08	3.35E-04	7.80E-04	2.61E-03
333 UCART30	565007.32	4217400.29	565007.32, 4217400.29	0.21392	0.38839	0.1447	0.11363	1.36E-03	3.21E-08	3.11E-04	7.33E-04	2.40E-03
334 UCART30	565042.32	4217400.29	565042.32, 4217400.29	0.19374	0.34271	0.13475	0.10661	1.23E-03	3.01E-08	2.90E-04	6.88E-04	2.21E-03
335 UCART30	565077.32	4217400.29	565077.32, 4217400.29	0.17447	0.30297	0.12539	0.09949	1.11E-03	2.81E-08	2.70E-04	6.42E-04	2.02E-03
336 UCART30	565112.32	4217400.29	565112.32, 4217400.29	0.15779	0.26946	0.11708	0.09293	1.00E-03	2.63E-08	2.52E-04	6.00E-04	1.85E-03
337 UCART30	565147.32	4217400.29	565147.32, 4217400.29	0.14315	0.24084	0.1096	0.08688	9.07E-04	2.46E-08	2.36E-04	5.61E-04	1.70E-03
338 UCART30	565182.32	4217400.29	565182.32, 4217400.29	0.13179	0.21764	0.10336	0.08194	8.35E-04	2.32E-08	2.22E-04	5.29E-04	1.59E-03

339	UCART30	564447.32	4217435.29	564447.32, 4217435.29	0.50047	2.13733	0.41057	0.23881	3.17E-03	6.75E-08	8.83E-04	1.54E-03	5.59E-03
340	UCART30	564482.32	4217435.29	564482.32, 4217435.29	0.55146	4.58028	0.41221	0.23651	3.49E-03	6.69E-08	8.87E-04	1.53E-03	5.91E-03
341	UCART31	564517.32	4217435.29	564517.32, 4217435.29	0.58889	8.22733	0.40004	0.23008	3.73E-03	6.50E-08	8.60E-04	1.48E-03	6.08E-03
342	UCART31	564552.32	4217435.29	564552.32, 4217435.29	0.60846	20.05575	0.38012	0.22148	3.85E-03	6.26E-08	8.18E-04	1.43E-03	6.10E-03
343	UCART31	564587.32	4217435.29	564587.32, 4217435.29	0.60902	7.93904	0.35758	0.21173	3.86E-03	5.98E-08	7.69E-04	1.37E-03	5.99E-03
344	UCART31	564622.32	4217435.29	564622.32, 4217435.29	0.59275	4.22544	0.33471	0.20117	3.75E-03	5.69E-08	7.20E-04	1.30E-03	5.77E-03
345	UCART31	564657.32	4217435.29	564657.32, 4217435.29	0.56889	2.65835	0.316	0.19245	3.60E-03	5.44E-08	6.80E-04	1.24E-03	5.53E-03
346	UCART31	564692.32	4217435.29	564692.32, 4217435.29	0.53735	1.85121	0.29754	0.18431	3.40E-03	5.21E-08	6.40E-04	1.19E-03	5.23E-03
347	UCART31	564727.32	4217435.29	564727.32, 4217435.29	0.4958	1.37091	0.27541	0.17476	3.14E-03	4.94E-08	5.92E-04	1.13E-03	4.86E-03
348	UCART31	564762.32	4217435.29	564762.32, 4217435.29	0.45042	1.06595	0.25325	0.16577	2.85E-03	4.69E-08	5.45E-04	1.07E-03	4.47E-03
349	UCART31	564797.32	4217435.29	564797.32, 4217435.29	0.40289	0.85472	0.22949	0.15584	2.55E-03	4.40E-08	4.94E-04	1.01E-03	4.05E-03
350	UCART31	564832.32	4217435.29	564832.32, 4217435.29	0.35631	0.70235	0.20633	0.14571	2.26E-03	4.12E-08	4.44E-04	9.40E-04	3.64E-03
351	UCART32	564867.32	4217435.29	564867.32, 4217435.29	0.29907	0.58401	0.18246	0.13366	1.89E-03	3.78E-08	3.92E-04	8.63E-04	3.15E-03
352	UCART32	564902.32	4217435.29	564902.32, 4217435.29	0.26053	0.48902	0.16421	0.12425	1.65E-03	3.51E-08	3.53E-04	8.02E-04	2.81E-03
353	UCART32	564937.32	4217435.29	564937.32, 4217435.29	0.23177	0.42202	0.15011	0.11651	1.47E-03	3.29E-08	3.23E-04	7.52E-04	2.54E-03
354	UCART32	564972.32	4217435.29	564972.32, 4217435.29	0.20761	0.36834	0.13825	0.10931	1.32E-03	3.09E-08	2.97E-04	7.05E-04	2.32E-03
355	UCART32	565007.32	4217435.29	565007.32, 4217435.29	0.18622	0.32337	0.12771	0.10223	1.18E-03	2.89E-08	2.75E-04	6.60E-04	2.11E-03
356	UCART32	565042.32	4217435.29	565042.32, 4217435.29	0.16699	0.28508	0.11822	0.09527	1.06E-03	2.69E-08	2.54E-04	6.15E-04	1.93E-03
357	UCART32	565077.32	4217435.29	565077.32, 4217435.29	0.15253	0.25537	0.11084	0.08977	9.66E-04	2.54E-08	2.38E-04	5.79E-04	1.78E-03
358	UCART32	565112.32	4217435.29	565112.32, 4217435.29	0.13966	0.22992	0.10415	0.08456	8.85E-04	2.39E-08	2.24E-04	5.46E-04	1.65E-03
359	UCART32	565147.32	4217435.29	565147.32, 4217435.29	0.12731	0.2071	0.0978	0.07936	8.06E-04	2.24E-08	2.10E-04	5.12E-04	1.53E-03
360	UCART32	565182.32	4217435.29	565182.32, 4217435.29	0.1183	0.18904	0.0927	0.07534	7.49E-04	2.13E-08	1.99E-04	4.86E-04	1.44E-03
361	UCART33	564447.32	4217470.29	564447.32, 4217470.29	0.41955	2.5745	0.33651	0.20354	2.66E-03	5.75E-08	7.24E-04	1.31E-03	4.70E-03
362	UCART33	564482.32	4217470.29	564482.32, 4217470.29	0.44891	7.88584	0.33365	0.20071	2.84E-03	5.67E-08	7.18E-04	1.30E-03	4.86E-03
363	UCART33	564517.32	4217470.29	564517.32, 4217470.29	0.46776	12.33679	0.32185	0.19479	2.96E-03	5.51E-08	6.92E-04	1.26E-03	4.91E-03
364	UCART33	564552.32	4217470.29	564552.32, 4217470.29	0.4744	9.10649	0.30464	0.18683	3.01E-03	5.28E-08	6.55E-04	1.21E-03	4.87E-03
365	UCART33	564587.32	4217470.29	564587.32, 4217470.29	0.47207	4.29174	0.28862	0.17936	2.99E-03	5.07E-08	6.21E-04	1.16E-03	4.77E-03
366	UCART33	564622.32	4217470.29	564622.32, 4217470.29	0.46051	2.53864	0.27226	0.17122	2.92E-03	4.84E-08	5.86E-04	1.10E-03	4.61E-03
367	UCART33	564657.32	4217470.29	564657.32, 4217470.29	0.44464	1.72268	0.25859	0.16429	2.82E-03	4.64E-08	5.56E-04	1.06E-03	4.43E-03
368	UCART33	564692.32	4217470.29	564692.32, 4217470.29	0.42525	1.27256	0.24657	0.1586	2.69E-03	4.48E-08	5.30E-04	1.02E-03	4.25E-03
369	UCART33	564727.32	4217470.29	564727.32, 4217470.29	0.39938	0.98684	0.23209	0.15197	2.53E-03	4.30E-08	4.99E-04	9.81E-04	4.01E-03
370	UCART33	564762.32	4217470.29	564762.32, 4217470.29	0.36979	0.79494	0.2171	0.14553	2.34E-03	4.11E-08	4.67E-04	9.39E-04	3.75E-03
371	UCART34	564797.32	4217470.29	564797.32, 4217470.29	0.33717	0.6557	0.20006	0.13805	2.14E-03	3.90E-08	4.30E-04	8.91E-04	3.46E-03
372	UCART34	564832.32	4217470.29	564832.32, 4217470.29	0.30195	0.55065	0.18196	0.12974	1.91E-03	3.67E-08	3.91E-04	8.37E-04	3.14E-03
373	UCART34	564867.32	4217470.29	564867.32, 4217470.29	0.25731	0.46719	0.16271	0.11997	1.63E-03	3.39E-08	3.50E-04	7.74E-04	2.75E-03
374	UCART34	564902.32	4217470.29	564902.32, 4217470.29	0.22649	0.39127	0.14613	0.11137	1.43E-03	3.15E-08	3.14E-04	7.19E-04	2.47E-03
375	UCART34	564937.32	4217470.29	564937.32, 4217470.29	0.20278	0.34161	0.13371	0.10476	1.28E-03	2.96E-08	2.88E-04	6.76E-04	2.25E-03
376	UCART34	564972.32	4217470.29	564972.32, 4217470.29	0.18195	0.30076	0.12293	0.09836	1.15E-03	2.78E-08	2.64E-04	6.35E-04	2.05E-03
377	UCART34	565007.32	4217470.29	565007.32, 4217470.29	0.16118	0.26345	0.11232	0.09106	1.02E-03	2.57E-08	2.42E-04	5.88E-04	1.85E-03
378	UCART34	565042.32	4217470.29	565042.32, 4217470.29	0.14282	0.232	0.1036	0.08445	9.05E-04	2.39E-08	2.23E-04	5.45E-04	1.67E-03
379	UCART34	565077.32	4217470.29	565077.32, 4217470.29	0.13108	0.20973	0.09761	0.08	8.30E-04	2.26E-08	2.10E-04	5.16E-04	1.56E-03
380	UCART34	565112.32	4217470.29	565112.32, 4217470.29	0.1224	0.19254	0.09271	0.07637	7.75E-04	2.16E-08	1.99E-04	4.93E-04	1.47E-03
381	UCART35	565147.32	4217470.29	565147.32, 4217470.29	0.11451	0.17729	0.08823	0.07292	7.25E-04	2.06E-08	1.90E-04	4.71E-04	1.39E-03
382	UCART35	565182.32	4217470.29	565182.32, 4217470.29	0.10684	0.16318	0.08391	0.06947	6.77E-04	1.96E-08	1.80E-04	4.48E-04	1.31E-03
383	UCART35	564447.32	4217505.29	564447.32, 4217505.29	0.35322	2.60707	0.28001	0.17578	2.24E-03	4.97E-08	6.02E-04	1.13E-03	3.97E-03
384	UCART35	564482.32	4217505.29	564482.32, 4217505.29	0.36985	3.50304	0.2749	0.17251	2.34E-03	4.88E-08	5.91E-04	1.11E-03	4.05E-03
385	UCART35	564517.32	4217505.29	564517.32, 4217505.29	0.37859	8.75539	0.26362	0.16681	2.40E-03	4.71E-08	5.67E-04	1.08E-03	4.04E-03
386	UCART35	564552.32	4217505.29	564552.32, 4217505.29	0.38034	3.6248	0.25004	0.16016	2.41E-03	4.53E-08	5.38E-04	1.03E-03	3.98E-03
387	UCART35	564587.32	4217505.29	564587.32, 4217505.29	0.37804	2.13777	0.23892	0.15465	2.39E-03	4.37E-08	5.14E-04	9.98E-04	3.91E-03
388	UCART35	564622.32	4217505.29	564622.32, 4217505.29	0.3698	1.45859	0.22688	0.14828	2.34E-03	4.19E-08	4.88E-04	9.57E-04	3.79E-03
389	UCART35	564657.32	4217505.29	564657.32, 4217505.29	0.35704	1.07942	0.21415	0.14126	2.26E-03	3.99E-08	4.61E-04	9.12E-04	3.63E-03
390	UCART35	564692.32	4217505.29	564692.32, 4217505.29	0.34016	0.84823	0.20358	0.13558	2.15E-03	3.83E-08	4.38E-04	8.75E-04	3.47E-03
391	UCART36	564727.32	4217505.29	564727.32, 4217505.29	0.32437	0.69433	0.19446	0.13116	2.05E-03	3.71E-08	4.18E-04	8.46E-04	3.32E-03
392	UCART36	564762.32	4217505.29	564762.32, 4217505.29	0.30449	0.58192	0.18417	0.12639	1.93E-03	3.57E-08	3.96E-04	8.16E-04	3.14E-03
393	UCART36	564797.32	4217505.29	564797.32, 4217505.29	0.27417	0.49381	0.17099	0.11994	1.74E-03	3.39E-08	3.68E-04	7.74E-04	2.88E-03
394	UCART36	564832.32	4217505.29	564832.32, 4217505.29	0.24638	0.42633	0.15823	0.11393	1.56E-03	3.22E-08	3.40E-04	7.35E-04	2.64E-03
395	UCART36	564867.32	4217505.29	564867.32, 4217505.29	0.22044	0.3586	0.14398	0.10683	1.40E-03	3.02E-08	3.10E-04	6.89E-04	2.40E-03
396	UCART36	564902.32	4217505.29	564902.32, 4217505.29	0.19653	0.30781	0.1294	0.09908	1.24E-03	2.80E-08	2.78E-04	6.39E-04	2.16E-03
397	UCART36	564937.32	4217505.29	564937.32, 4217505.29	0.17467	0.26902	0.11717	0.09228	1.11E-03	2.61E-08	2.52E-04	5.95E-04	1.95E-03
398	UCART36	564972.32	4217505.29	564972.32, 4217505.29	0.1544	0.23702	0.10704	0.0861	9.78E-04	2.43E-08	2.30E-04	5.56E-04	1.76E-03
399	UCART36	565007.32	4217505.29	565007.32, 4217505.29	0.13713	0.21005	0.09905	0.08066	8.69E-04	2.28E-08	2.13E-04	5.21E-04	1.60E-03
400	UCART36	565042.32	4217505.29	565042.32, 4217505.29	0.12378	0.18836	0.09249	0.07584	7.84E-04	2.14E-08	1.99E-04	4.89E-04	1.47E-03
401	UCART37	565077.32	4217505.29	565077.32, 4217505.29	0.11531	0.17312	0.08768	0.07247	7.30E-04	2.05E-08	1.89E-04	4.68E-04	1.39E-03
402	UCART37	565112.32	4217505.29	565112.32, 4217505.29	0.11019	0.16278	0.08413	0.07024	6.98E-04	1.99E-08	1.81E-04	4.53E-04	1.33E-03
403	UCART37	565147.32	4217505.29	565147.32, 4217505.29	0.10383	0.15167	0.08034	0.0674	6.58E-04	1.91E-08	1.73E-04	4.35E-04	1.27E-03
404	UCART37	565182.32	4217505.29	565182.32, 4217505.29	0.09753	0.1411	0.07669	0.06449	6.18E-04	1.82E-08	1.65E-04	4.16E-04	1.20E-03
405	UCART37	564342.32	4217540.29	564342.32, 4217540.29	0.24723	0.45634	0.22696	0.15292	1.57E-03	4.32E-08	4.88E-04	9.87E-04	3.04E-03
406	UCART37	564377.32	4217540.29	564377.32, 4217540.29	0.2679	0.62657	0.23683	0.15644	1.70E-03	4.42E-08	5.09E-04	1.01E-03	3.22E-03
407	UCART37	564412.32	4217540.29	564412.32, 4217540.29	0.28606	0.95306	0.2402	0.15662	1.81E-03	4.43E-08	5.17E-04	1.01E-03	3.34E-03
408	UCART37	564447.32	4217540.29	564447.32, 4217540.29	0.29953	1.73374	0.23637	0.15356	1.90E-03	4.34E-08	5.08E-04	9.91E-04	3.40E-03
409	UCART37	564482.32	4217540.29	564482.32, 4217540.29	0.30846	2.99378	0.2299	0.14985	1.95E-03	4.24E-08	4.95E-04	9.67E-04	3.42E-03
410	UCART37	564517.32	4217540.29	564517.32, 4217540.29	0.31294	2.16514	0.22099	0.14522	1.98E-03	4.10E-08	4.75E-04	9.37E-04	3.39E-03
411	UCART38	564552.32	4217540.29	564552.32, 4217540.29	0.31383	1.49538	0.21174	0.14051	1.99E-03	3.97E-08	4.55E-04	9.07E-04	3.35E-03
412	UCART38	564587.32	4217540.29	564587.32, 4217540.29	0.3108	1.11298	0.20208	0.1354	1.97E-03	3.83E-08	4.35E-04	8.74E-04	3.28E-03
413	UCART38	564622.32	4217540.29	564622.32, 4217540.29	0.30408	0.86875	0.19189	0.1297	1.93E-03	3.67E-08	4.13E-04	8.37E-04	3.18E-03
414	UCART38	564657.32	4217540.29	564657.32, 4217540.29	0.2817	0.69357	0.17826	0.12169	1.78E-03	3.44E-08	3.83E-04	7.85E-04	2.95E-03
415	UCART38	564692.32	4217540.29	564692.32, 4217540.29	0.25693	0.54956	0.16674	0.11494	1.63E-03	3.25E-08	3.59E-04	7.42E-04	2.73E-03
416	UCART38	564727.32	4217540.29	564727.32, 4217540.29	0.24728	0.47292	0.16045	0.11149	1.57E-03	3.15E-08	3.45E-04	7.19E-04	2.63E-03
417	UCART38	564762.32	4217540.29	564762.32, 4217540.29	0.23447	0.41082	0.15331	0.10782	1.49E-03	3.05E-08	3.30E-04	6.96E-04	2.51E-03
418	UCART38	564797.32	4217540.29	564797.32, 4217540.29	0.21472	0.35132	0.14277	0.10212	1.36E-03	2.89E-08	3.07E-04	6.59E-04	2.33E-03
419	UCART38	564832.32	4217540.29	564832.32, 4217540.29	0.20017	0.30973	0.13405	0.09781	1.27E-03	2.76E-08	2.88E-04	6.31E-04	2.19E-03
420	UCART38	564867.32	4217540.29	564867.32, 4217540.29	0.18647	0.2755	0.12498	0.09344	1.18E-03	2.64E-08	2.69E-04	6.03E-04	2.05E-03
421	UCART39	564902.32	4217540.29	564902.32, 4217540.29	0.16998	0.2429	0.11424	0.08776	1.08E-03	2.48E-08	2.46E-04	5.66E-04	1.89E-03
422	UCART39	564937.32	4217540.29	564937.32, 4217540.29	0.1498	0.21172	0.10349	0.08161	9.49E-04	2.31E-08	2.23E-04	5.27E-04	1.70E-03
423	UCART39	564972.32	4217540.29	564972.32, 4217540.29	0.13096	0.18671	0.0947	0.07599	8.30E-04	2.15E-08	2.04E-04	4.90E-04	1.52E-03
424	UCART39	565007.32	4217540.29	565007.32, 4217540.29	0.11835	0.16948	0.08852	0.07193	7.50E-04	2.03E-08	1.90E-04	4.64E-04	1.40E-03
425	UCART39	565042.32	4217540.29	565042.32, 4217540.29	0.11012	0.15687	0.0839	0.06902	6.98E-04	1.95E-08	1.80E-04	4.45E-04	1.32E-03
426	UCART39	565077.32	4217540.29	565077.32, 4217540.29	0.1044	0.14711	0.08016	0.06681	6.61E-04	1.89E-08	1.72E-04	4.31E-04	1.26E-03
427	UCART39	565112.32	4217540.29	565112.32, 4217540.29	0.1001	0.13936	0.077	0.06495	6.34E-04	1.84E-08	1.66E-04	4.19E-04	1.22E-03
428	UCART39	565147.32	4217540.29	565147.32, 4217540.29	0.09407	0.12991	0.07348	0.06225	5.96E-04	1.76E-08	1.58E-04	4.02E-04	1.16E-03
429	UCART39	565182.32	4217540.29	565182.32, 4217540.29	0.08913	0.12213	0.07044	0.05992	5.65E-04	1.69E-08	1.52E-04	3.87E-04	1.10E-03
430	UCART39	564342.32	4217575.29	564342.32, 4217575.29	0.22189	0.41274	0.20096	0.13768	1.41E-03	3.89E-08	4.32E-04	8.88E-04	2.73E-03
431	UCART40	564377.32	4217575.29	564377.32, 4217575.29	0.23633	0.53803	0.20672	0.13964	1.50E-03	3.95E-08	4.45E-04	9.01E-04	2.84E-03
432	UCART40	564412.32	4217575.29	564412.32, 4217575.29	0.24827	0.73146	0.20716	0.13883	1.57E-03	3.92E-08	4.46E-04	8.96E-04	2.91E-03
433	UCART40	564447.32	4217575.29	564447.32, 4217575.29	0.25614	0.99332	0.20191	0.13535	1.62E-03	3.83E-08	4.34E-04	8.73E-04	2.93E-03
434	UCART40	564482.32	4217575.29	564482.32, 4217575.29	0.26092	1.15035	0.19556	0.13176	1.65E-03	3.72E-08	4.21E-04	8.50E-04	2.92E-03
435	UCART40	564517.32	4217575.29	564517.32, 4217575.29	0.26354	1.05236	0.18887	0.12818	1.67E-03	3.62E-08	4.06E-04	8.27E-04	2.90E-03
436	UCART40	564552.32	4217575.29	564552.32, 4217575.29	0.26323	0.8729	0.18102	0.12397	1.67E-03	3.50E-08	3.89E-04	8.00E-04	2.86E-03
437	UCART40	564587.32	4217575.29	564587.32, 4217575.29	0.26004	0.7162	0.17242	0.11917	1.65E-03	3.37E-08	3.71E-04	7.69E-04	2.79E-03
438	UCART40	564622.32	4217575.29	564622.32, 4217575.29	0.25228	0.59444	0.1629	0.11356	1.60E-03	3.21E-08	3.50E-04	7.33E-04	2.68E-03
439	UCART40	564657.32	4217575.29	564657.32, 4217575.29	0.22881	0.49949	0.15207	0.10693	1.45E-03	3.02E-08	3.27E-04	6.90E-04	2.47E-03
440	UCART40	564692.32	4217575.29	564692.32, 4217575.29	0.20939	0.39552	0.14156	0.10055	1.33E-03	2.84E-08	3.05E-04	6.49E-04	2.28E-03
441	UCART41	564727.32	4217575.29	564727.32, 4217575.29	0.20401	0.35156	0.13705	0.09785	1.29E-03	2.77E-08	2.95E-04	6.31E-04	2.22E-03
442	UCART41	564762.32	4217575.29	564762.32, 4217575.29	0.1956	0.31338	0.13186	0.09495	1.24E-03	2.68E-08	2.84E-04	6.13E-04	2.14E-03
443	UCART41	564797.32	4217575.29	564797.32, 4217575.29	0.18087	0.27331	0.12367	0.0902	1.15E-03	2.55E-08	2.66E-04	5.82E-04	1.99E-03
444	UCART41	564832.32	4217575.29	564832.32, 4217575.29	0.16966	0.24448	0.11684	0.08649	1.07E-03	2.44E-08	2.51E-04	5.58E-04	1.88E-03
445	UCART41	564867.32	4217575.29	564867.32, 4217575.29	0.15795	0.21791	0.10903	0.08232	1.00E-03	2.33E-08	2.35E-04	5.31E-04	1.77E-03
446	UCART41	564902.32	4217575.29	564902.32, 4217575.29	0.14456	0.19311	0.10056	0.07776	9.16E-04	2.20E-08	2.16E-04	5.02E-04	1.63E-03
447	UCART41	564937.32	4217575.29	564937.32, 4217575.29	0.12927	0.17133	0.09213	0.07283	8.19E-04	2.06E-08	1.98E-04	4.70E-04	1.49E-03
448	UCART41	564972.32	4217575.29	564972.32, 4217575.29	0.11443	0.15337	0.08477	0.06811	7.25E-04	1.93E-08	1.82E-04	4.40E-04	1.35E-03
449	UCART41	565007.32	4217575.29	565007.32, 4217575.29	0.10594	0.14262	0.08035	0.06549	6.71E-04	1.85E-08	1.73E-04	4.23E-04	1.27E-03
450	UCART41	565042.32	4217575.29	565042.32, 4217575.29	0.10069	0.1352	0.07716	0.06385	6.38E-04	1.80E-08	1.66E-04	4.12E-04	1.22E-03
451	UCART42	565077.32	4217575.29	565077.32, 4217575.29	0.09555	0.12766	0.0739	0.06199	6.05E-04	1.75E-08	1.59E-04	4.00E-04	1.16E-03
452	UCART42	565112.32	4217575.29	565112.32, 4217575.29	0.09011	0.11969	0.07056	0.05969	5.71E-04	1.69E-08	1.52E-04	3.85E-04	1.11E-03
453	UCART42	565147.32	4217575.29	565147.32, 4217575.29	0.0852	0.11237	0.0675	0.05744	5.40E-04	1.62E-08	1.45E-04	3.71E-04	1.06E-03
454	UCART42	565182.32	4217575.29	565182.32, 4217575.29	0.08137	0.1066	0.06489	0.05559	5.15E-04	1.57E-08	1.40E-04	3.59E-04	1.01E-03

Risk Summary

	Receptor	Concentration	Risk
Residential Construction			
Sheet Name:	Resi_ConsRisk!	Resi_ConsRisk!	Resi_ConsRisk!
Lookup Range:	E10:E463	E10:E463	E10:E463
Return Range:	A10:A463	O10:O463	AA10:AA463
Worker Construction			
Sheet Name:	Worker_Risk!	Worker_Risk!	Worker_Risk!
Lookup Range:	E9:E462	E9:E462	E9:E462
Return Range:	A9:A462	O9:O462	S9:S462

Residential Exposure									
Construction (Unmitigated)									
Location	**X**	**Y**	**X, Y**	**Rec #**	**Concentration**	**Construction Risk**	**Risk Per Million**	**Threhold**	
Residences to the Southea:	564797.32	4217015.29	564797.32, 4217015.29	99	0.032471981	9.94233E-06	9.942333197	1.00E-05	LTS
Worker Exposure									
Construction (Unmitigated)									
Location	**X**	**Y**	**X, Y**	**Rec #**	**Concentration**	**Construction Risk**	**Risk Per Million**	**Threhold**	
Worker to the Northwest	564622.32	4217225.29	564622.32, 4217225.29	227	0.1479751	4.61561E-06	4.61561E+00	1.00E-05	LTS

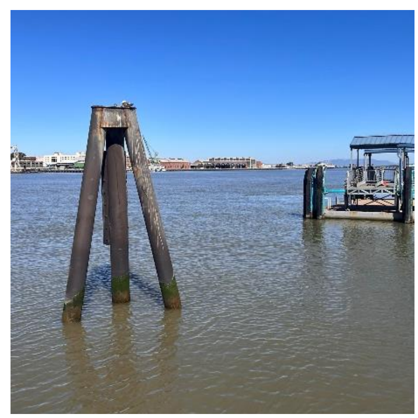
Appendix C

Biological Resources Technical Report

Biological Resources Technical Report

WETA Vallejo Ferry Terminal Reconfiguration Project

Vallejo, Solano County, California



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April 2024

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WRA#320406

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List of Acronyms and Abbreviations

AMM	Avoidance and Minimization Measure
APN	Accessor's Parcel Number
Bay Trail	San Francisco Bay Trail
BCC	USFWS Birds of Conservation Concern
BCDC	San Francisco Bay Conservation and Development Commission
BGEPA	Bald and Golden Eagle Protection Act
BRTR	Biological Resources Technical Report
Caltrans	California Department of Transportation
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CFP	California Fully Protected Species
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
CPRC	California Public Resources Code
CSRL	California Soils Resource Lab
CWA	Clean Water Act
dB	Decibels
DMMO	Dredged Material Management Office
EFH	Essential Fish Habitat
ESA	Federal Endangered Species Act
FE	Federal Endangered
FT	Federal Threatened
HCP	Habitat Conservation Plan
HTL	High tide line
Inventory	California Native Plant Society Rare Plant Inventory
MM	Mitigation Measure
MHW	Mean high water
MLLW	Mean lower low water
MMPA	Marine Mammal Protection Act
NCCP	Natural Community Conservation Plan
NETR	National Environmental Title Research
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
NPPA	California Native Plant Protection Act
NRCS	Natural Resource Conservation Service
OHWM	Ordinary High Water Mark
PTS	Post-Traumatic Stress
Rank	California Rare Plant Ranks
RHA	Rivers and Harbors Act
RMS	Root mean square
RWQCB	Regional Water Quality Control Board
SC	State Candidate

SEL	Sound exposure level
SFEI	San Francisco Estuary Institute
SSC	Species of Special Concern
ST	State Threatened
SWRCB	State Water Resources Control Board
USC	U.S. Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group
WETA	San Francisco Bay Area Water Emergency Transportation Authority
WRA	WRA, Inc.

1.0 INTRODUCTION

This Biological Resources Technical Report (BRTR) evaluates existing biological resources, potential impacts, and mitigation measures (if required) for the proposed San Francisco Bay Area Water Emergency Transportation Authority (WETA) Vallejo Ferry Terminal Reconfiguration Project (proposed Project) located in the City of Vallejo, Solano County, California (Appendix A – Figure 1). The proposed Project involves replacing an existing ferry terminal and associated gangway system with a new ferry terminal system to reduce the required frequency of dredging. Three proposed Project Alternatives are considered and assessed in this BRTR and are described below.

1.1 Overview and Purpose

WRA, Inc. (WRA) has prepared this BRTR to provide an assessment of biological resources within the proposed Project Area and immediate vicinity. The purpose of WRA's assessment was to develop and gather information on sensitive land cover types and special-status plant and wildlife species to support an evaluation of the proposed Project under the California Environmental Quality Act (CEQA). This report describes the results of the site visit, which assessed the proposed Project Area for (1) the presence of sensitive land cover types, special-status plant species, and special-status wildlife species, (2) the potential for the site to support special-status plant and wildlife species. Based on the results of the site assessment, potential impacts to sensitive land cover types and special-status species resulting from the proposed Project were evaluated. If the project has the potential to result in significant impacts to these biological resources, measures to avoid, minimize, or mitigate for those significant impacts are described.

A BRTR provides general information on the presence, or potential presence, of sensitive species and habitats. Additional focused studies (such as protocol level species surveys or a wetland delineation) may be required to support regulatory permit applications or to implement mitigation measures included in this report. This assessment is based on information available at the time of the study and on-site conditions that were observed on the dates the site was visited. Conclusions are based on currently available information used in combination with the professional judgement of the biologists completing this study.

1.2 Proposed Project Description

The proposed Project would remove and replace an existing gangway, passenger float, and piles associated with the WETA Vallejo Ferry Terminal with a new reconfigured gangway, passenger float, and piles.

1.2.1 Proposed Project Location and Setting

The proposed Project is located at 289 Mare Island Way in the City of Vallejo, Solano County, California (See Figure 1 –Location). The 10.06-acre Project Area includes all areas where the existing ferry terminal is located, where the proposed Project would occur, as well as all potential staging and access routes that may be utilized during proposed Project implementation and includes all or part of the following Assessor's Parcel Numbers (APNs):

- 0055-170-040
- 0055-170-050
- 0055-170-060

- 0055-170-400
- 0055-160-600

Specifically, the proposed Project Area includes a portion of Mare Island Strait within the Napa River, a section of the San Francisco Bay Trail (Bay Trail), and adjacent paved and developed areas. Immediately north of the proposed Project Area is a ferry ticket office building, operated by WETA, and the Mare Island Brewing Company. To the south is a vacant structure located at 285 Mare Island Way. To the east is Mare Island Way, a four-lane road that runs parallel to the Mare Island Strait. Representative photos of the proposed Project Area are provided in Appendix D.

According to the City of Vallejo General Plan 2040 (City of Vallejo 2017) the proposed Project Area and its vicinity is designated as Parks, Recreation, and Open Space and is zoned as Waterfront Mixed-Use (City of Vallejo 2023).

1.2.2 Purpose and Need

The purpose of the proposed Project is to reconfigure the location of WETA's Vallejo Ferry Terminal to reduce the need to perform maintenance dredging to keep the ferry terminal operational and to make ferry berthing safer and more efficient, reducing passenger queuing time and reducing costs associated with the ferry terminal's maintenance while upholding WETA standards. Currently, the basin in which the existing ferry terminal is located requires regular dredging (every two to three years) to remove build-up siltation caused by river currents from the Napa River. While depths in the Mare Island Strait remain relatively constant, the shape of the basin in which the ferry terminal is located functions as a sediment trap.

The proposed Project would extend the existing ferry terminal further away from shore and out of the existing basin to an area where sediment accumulation levels are relatively constant, thereby reducing or eliminating the need for future maintenance dredging. With implementation of the proposed Project, maintenance dredging may not be required for two or more decades following.

1.2.3 Proposed Project Alternatives

Three layouts were assessed for the relocation of the existing ferry terminal, which are as follows:

- Proposed Project (preferred configuration): This layout extends the existing ferry terminal further offshore and adds extra length to the passenger access gangway leading to the terminal.
- Configuration Option 1: This layout relocates the existing ferry terminal outside of the basin, with an access point at the southwest corner of the basin.
- Configuration Option 2: This layout relocates the existing ferry terminal outside of the basin with an access point at the northwest corner of the basin.

The analysis in this document is focused on the proposed Project which has a relatively larger footprint (9,630 square feet) than the Configuration options 1 & 2 (8,013 square feet). Due to the similarities between the configurations, the impact analysis provided herein also encompasses Configuration Options 1 & 2.

The proposed Project includes a four-section gangway extending from the existing ferry terminal access point and adds additional length to the passenger access gangways leading to the terminal. This action will provide more space for passenger queuing than the existing configuration, which will help to manage and organize lines during passenger loading and unloading. The proposed Project will provide vessel berthing on both sides of the ferry landing float. The float will provide berthing in a direction parallel to the current of Mare Island Strait for quicker docking procedures and greater efficiency overall.

The Project plans provided in Appendix B depict the layout of the proposed Project alongside the other configurations options of the ferry terminal. Configuration Options 1 and 2 propose access from outside of the basin in the southwest and northwest corners respectively and feature a three-section gangway "dog-leg" design to situate pedestrian access to the ferry; All three configurations were configured to use both sides of the float for loading and unloading during regular activities.

Table 1. Summary of Project Elements for the Proposed Project and Alternative Configuration Options

PROPOSED PROJECT ELEMENT	DIMENSION	QUANTITY		
		Proposed Project	*Configuration Option #1*	*Configuration Option #2*
Passenger Float	134.5 feet x 42 feet	1	1	1
Gangway	11 feet x 90 feet	3	3	3
	11 feet x 50 feet	1	0	0
Gangway Support Dolphin	17 feet x 5 feet with two, 36-inch-diameter pipe pilings	3	2	2
	17 feet x 17 feet with four, 36-inch-diameter pipe pilings	1	1	1
Navigation Light Piles	12-inch-diameter piling	4	8	8
Float Anchor Pile	36-inch-diameter piling encased in protective pile keeper	5	5	5
Monopile	36-inch-diameter piling with donut fender	3	4	4

1.2.4 Existing Ferry Terminal Demolition

Implementation of the proposed Project would involve the removal of all structures associated with the existing ferry terminal including:

- One gangway;
- Two gangway support pilings;
- One concrete pad and two associated piles which connecting the existing gangway to the shore;

- Two steel dolphins, each composed of two steel 16-inch-diameter pilings and one 18-inch diameter piling;
- One passenger float;
- Float anchor chains; and
- Four anchor piles used to support the existing passenger float.

Existing Structures to be removed by the proposed Project are also summarized in Table 2, below. Together, the structures that would be removed by the proposed Project amount to approximately 4,990 square feet of overwater structures within tidal waters of the Mare Island Strait of the Napa River. The proposed Project may also include the removal of existing pilings elsewhere within the Napa River to compensate for the new pilings the proposed Project will be adding.

Table 2. Existing Structures to be Removed by the Proposed Project

EXISTING STRUCTURES TO BE REMOVED	DIMENSION	MATERIAL	QUANTITY
Passenger Float	134.5 feet x 42 feet	Various	1
Gangway	11 feet x 90 feet	Steel	1
Gangway Support Dolphin	Approx. 17 x 3 feet concrete pad with two 24-inch-diameter pipe piles.	Steel	2
Float Anchor Piles	W18x211 H-piles	Steel	2
	W16x177 H-piles	Steel	2
Float Anchor Chains	1.25-inch stud link chain, 426 linear feet (total)	Steel	4
Monopiles	18-inch-diameter pipe pile*	Steel	2
	16-inch-diameter pipe pile*	Steel	4
	HP14x177 H-piles	Steel	4

*Each existing dolphin (pile cluster) is composed of one, 18-inch-diameter and two, 16-inch-diameter steel pipe piles.

1.2.5 Temporary Ferry Terminal Configuration

To allow WETA to continue to provide ferry service during construction, a temporary ferry terminal would be installed prior to implementation of the proposed Project. The temporary ferry terminal would be installed along the shoreline, approximately 300 to 400 feet south of the existing ferry terminal basin. The temporary ferry terminal would be the same or similar to the temporary ferry terminal constructed during past maintenance dredging efforts and would involve the temporary installation of one gangway, approximately 11 feet wide and 90 feet long, an approximately 5,649-square-foot passenger terminal, and six, 24-inch-diameter steel pilings.

1.2.6 Construction Methods

Construction is anticipated to take between four and six weeks and is scheduled to begin in Summer 2024. Implementation of the proposed Project is expected to require the operation of the following equipment within the Mare Island Strait of the Napa River:

- One barge for holding construction-related debris;
- One barge equipped with a crane, a clamshell bucket, a vibratory pile driver and an impact pile driver; and
- Tugboats.

In addition, the proposed Project is expected to require use of the following landside equipment for site preparation, minor demolition, ground improvements, and/or utility installation or reconfiguration:

- Small backhoe;
- Bulldozer/Bobcat;
- Crane; and
- Trucks for material delivery, hauling, and construction support.

All construction-related debris will be collected on a barge and disposed of in accordance with the Construction Waste Manage Plan prepared for the proposed Project, including components of the existing ferry terminal to be removed by the proposed Project. All noise-generating construction activities would be limited to between 7:00 AM and 6:00 PM and would primarily occur on weekdays, but may also occur on weekends.

ACCESS AND STAGING

Most proposed Project components would be fabricated off-site and brought on-site via a barge. As such, most construction equipment and materials would be anchored in the Mare Island Strait, with some limited access and staging occurring on land. Construction personnel would use a portion of Lot B, located on Mare Island Way approximately 0.1-mile northeast of the existing ferry terminal. Construction routes and staging areas would not impede local roadways. Implementation of the proposed Project may require occasional brief interruptions to the Bay Trail, such as for the installation of the new gangway access gate but would not result in any closures to this segment of the Bay Trail.

PILE REMOVAL AND INSTALLATION

During demolition of the existing ferry terminal and any compensatory pile removal that may be included in the proposed Project, existing piles would be removed by pulling the pile using a vibratory or impact hammer. All new piles would also be installed using a vibratory or impact hammer.

DREDGING

Implementation of the proposed Project may require an additional dredging episode to ensure vessels required to construct the proposed Project have sufficient access to the proposed Project Area. If needed, this additional dredging episode is expected to include the same dredging footprint as that dredged by WETA to keep the existing ferry terminal operational. In addition, the proposed Project may need to dredge the area where the temporary ferry terminal would be located. All dredging areas would be dredged to a depth of -15 feet mean lower low water (MLLW), consistent with WETA's past maintenance dredging episodes within the proposed Project Area. Dredging would be performed using a mechanical (i.e., clamshell) dredge.

2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the biological assessment, including applicable laws and regulations that were applied to the field investigations and analysis of potential proposed Project impacts. Table 1 shows the correlation between these regulations and each Biological Resources question in the Environmental Checklist Form (Appendix G) of the CEQA guidelines.

2.1 Federal and State Regulatory Setting

2.1.1 Vegetation and Aquatic Communities

CEQA provides protections for particular vegetation types defined as sensitive by the California Department of Fish and Wildlife (CDFW) and aquatic features protected by laws and regulations administered by the U.S Army Corps of Engineers (Corps), State Water Resources Control Board (SWRCB), and Regional Water Quality Control Boards (RWQCB). The laws and regulations that provide protection for these resources are summarized below.

Sensitive Natural Communities: Sensitive natural communities include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" (CDFW 2023a) and keeps records of their occurrences in its California Natural Diversity Database (CNDDB; CDFW 2023b). Natural communities are ranked 1 through 5 in the CNDDB based on NatureServe's (2020) methodology, with those communities ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (California Code of Regulations [CCR] Title 14, Div. 6, Chap. 3, Appendix G). In addition, this general class includes oak woodlands that are protected by local ordinances under the Oak Woodlands Protection Act and Section 21083.4 of California Public Resources Code (CPRC).

Waters of the United States, Including Wetlands: The Corps regulates "Waters of the United States" under Section 404 of the Clean Water Act (CWA). Waters of the United States are defined in the Code of Federal Regulations (CFR) as including the territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, such as tributaries, lakes and ponds, impoundments of waters of the U.S., and wetlands that are hydrologically connected with these navigable features (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Corps Manual; Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Unvegetated waters including lakes, rivers, and streams may also be subject to Section 404 jurisdiction and are characterized by an ordinary high water mark (OHWM) identified based on field indicators such as the lack of vegetation, sorting of sediments, and other indicators of flowing or standing water. The placement of fill material into Waters of the United States generally requires a permit from the Corps under Section 404 of the CWA.

The Corps also regulates construction in navigable waterways of the U.S. through Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 U.S. Code [USC] 403). Section 10 of the RHA requires Corps approval and a permit for excavation or fill, or alteration or modification of the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor or refuge, or enclosure within the limits of any breakwater, or of the channel of any navigable water of the United States. Section 10 requirements apply only to navigable waters themselves, and are not applicable to tributaries, adjacent wetlands, and similar aquatic features not capable of supporting interstate commerce.

Waters of the State, Including Wetlands: The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The SWRCB and nine RWQCB protect waters within this broad regulatory scope through many different regulatory programs. Waters of the State in the context of a CEQA Biological Resources evaluation include wetlands and other surface waters protected by the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (SWRCB 2019). The SWRCB and RWQCB issue permits for the discharge of fill material into surface waters through the State Water Quality Certification Program, which fulfills requirements of Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a Clean Water Act permit are also required to obtain a Water Quality Certification. If a project does not require a federal permit but does involve discharge of dredge or fill material into surface waters of the State, the SWRCB and RWQCB may issue a permit in the form of Waste Discharge Requirements.

Sections 1600-1616 of California Fish and Game Code: Streams and lakes, as habitat for fish and wildlife species, are regulated by CDFW under Sections 1600-1616 of California Fish and Game Code (CFGC). Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term "stream," which includes creeks and rivers, is defined in the CCR as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). The term "stream" can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). Riparian vegetation has been defined as "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

San Francisco Bay and Shoreline: Enacted in 1965, the McAteer-Petris Act (California Government Code Section 66600 *et seq*.) established the San Francisco Bay Conservation and Development Commission (BCDC) as a state agency charged with preparing a plan for the long-term use of the Bay. BCDC has several areas of jurisdiction, including San Francisco Bay (including sloughs and marshlands lying between mean high tide and 5 feet above mean sea level) and a shoreline band consisting of all territory located between the shoreline of the Bay and a line 100 feet landward of and parallel with the shoreline (California Government Code 66610). Any person or governmental agency wishing to place fill, to extract materials, or to make any substantial change in use of any water, land, or structure within BCDC jurisdiction must secure a permit from BCDC.

2.1.2 Special-status Species

Endangered and Threatened Plants, Fish, and Wildlife. Specific species of plants, fish, and wildlife species may be designated as threatened or endangered by the federal Endangered Species Act (ESA), or the California Endangered Species Act (CESA). Specific protections and permitting mechanisms for these species differ under each of these acts, and a species' designation under one law does not automatically provide protection under the other.

The ESA (16 USC 1531 et seq.) is implemented by the USFWS and the National Marine Fisheries Service (NMFS). The USFWS and NMFS maintain lists of endangered and threatened plant and animal species (referred to as "listed species"). "proposed" or "candidate" species are those that are being considered for listing and are not protected until they are formally listed as threatened or endangered. Under the ESA, authorization must be obtained from the USFWS or NMFS prior to take of any listed species. "Take" under the ESA is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Take under the ESA includes direct injury or mortality to individuals, disruptions in normal behavioral patterns resulting from factors such as noise and visual disturbance and impacts to habitat for listed species. Actions that may result in take of an ESA-listed species may obtain a permit under ESA Section 10, or via the interagency consultation described in ESA Section 7. Federal-listed plant species are only protected when take occurs on federal land.

The ESA also provides for designation of critical habitat, which are specific geographic areas containing physical or biological features "essential to the conservation of the species." Protections afforded to designated critical habitat apply only to actions that are funded, permitted, or carried out by federal agencies. Critical habitat designations do not affect activities by private landowners if there is no other federal agency involvement.

The CESA (CFGC 2050 et seq.) prohibits the take of any plant and animal species that the CFGC determines to be an endangered or threatened species in California. CESA regulations include take protection for threatened and endangered plants on private lands, as well as extending this protection to candidate species that are proposed for listing as threatened or endangered under CESA. The definition of a "take" under CESA ("hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") only applies to direct impact to individuals, and does not extend to habitat impacts or harassment. CDFW may issue an Incidental Take Permit under CESA to authorize take if it is incidental to otherwise lawful activity and if specific criteria are met. Take of these species is also authorized if the geographic area is covered by a Natural Community Conservation Plan (NCCP), as long as the NCCP covers that activity.

Fully Protected Species and Designated Rare Plant Species. This category includes specific plant and wildlife species that are designated in the CFGC as protected even if not listed under CESA or ESA. Fully Protected Species includes specific lists of birds, mammals, reptiles, amphibians, and fish designated in CFGC. Fully protected species may not be taken or possessed at any time. No licenses or permits may be issued for take of fully protected species, except for necessary scientific research and conservation purposes. The definition of "take" is the same under the California Fish and Game Code and the CESA. By law, CDFW may not issue an Incidental Take Permit for Fully Protected Species. Under the California Native Plant Protection Act (NPPA), CDFW has listed 64 “rare” or “endangered” plant species, and prevents “take”, with few exceptions, of these species. CDFW may authorize take of species protected by the NPPA through the Incidental Take Permit process, or under a NCCP.

Special Protections for Nesting Birds and Bats. The Federal Bald and Golden Eagle Protection Act provides relatively broad protections to both of North America’s eagle species (bald eagle [*Haliaeetus leucocephalus*] and golden eagle [*Aquila chrysaetos*]) that in some regards are similar to those provided by the ESA. In addition to regulations for special-status species, most native birds in the United States, including non-status species, have baseline legal protections under the Migratory Bird Treaty Act of 1918 and CFGC, i.e., sections 3503, 3503.5 and 3513. Under these laws/codes, the intentional harm or collection of adult birds as well as the intentional collection or destruction of active nests, eggs, and young is illegal. For bat species, the Western Bat Working Group (WBWG) designates conservation status for species of bats, and those with a high or medium-high priority are typically given special consideration under CEQA.

Essential Fish Habitat. The Magnuson-Stevens Fishery Conservation and Management Act provides for conservation and management of fishery resources in the U.S., administered by NMFS. This Act establishes a national program intended to prevent overfishing, rebuild overfished stocks, ensure conservation, and facilitate long-term protection through the establishment of Essential Fish Habitat (EFH). EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries, which may include the water column, certain bottom types, vegetation (e.g., eelgrass (*Zostera* spp.)), or complex structures such as oyster beds. Any federal agency that authorizes, funds, or undertakes action that may adversely affect EFH is required to consult with NMFS.

Marine Mammals. The Marine Mammal Protection Act (MMPA) was enacted in 1972 and protects all marine mammals within the territorial boundaries of the United States from take. The definition of "take" in the MMPA is the same as that under the FESA. The law is administered by the NMFS, who may issue permits for incidental take and importation of marine mammals in certain circumstances.

Species of Special Concern, Movement Corridors, and Other Special-status Species under CEQA. To address additional species protections afforded under CEQA, CDFW has developed a list of special species as “a general term that refers to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status.” This list includes lists developed by other organizations, including for example, the Audubon Watch List Species, the Bureau of Land Management Sensitive Species, and USFWS Birds of Special Concern. Plant species on the California Native Plant Society (CNPS) Rare Plant Inventory (Inventory; CNPS 2023a) with California Rare Plant Ranks (Rank) of 1 and 2, as well as some with a Rank of 3 or 4, are also considered special-status plant species and must be considered under CEQA. Some Rank 3 and Rank 4 species are typically only afforded protection under CEQA when such species are particularly unique to the locale (e.g., range limit, low abundance/low frequency, limited habitat) or are otherwise considered locally rare. Additionally, any species listed as sensitive within local plans, policies and ordinances are likewise considered sensitive. Movement and migratory corridors for native wildlife (including aquatic corridors) as well as wildlife nursery sites are given special consideration under CEQA.

2.2 Local Plans and Policies

City of Vallejo General Plan 2040. The General Plan contains policies pertaining to the following biological resources categories that are relevant to the proposed Project Area:

- Wetlands, streams, riparian, and aquatic areas
  - Action NBE-1.1F: Conduct surveys, assess project impacts, determine protective measures for sensitive resources.
  - Action NBE-1.1G: No net loss in aquatic feature acreage or habitat value
  - Action NBE-1.2D: Continue requiring environmental review for development project to achieve no net loss of sensitive habitat acreage, value, and functions.
- Wildlife Surveys
  - Action NBE-1.1F: Conduct surveys, assess project impacts, determine protective measures for sensitive resources
  - Action NBE-1.2C: Nesting bird protection
  - Action NBE-1.2D: Continue requiring environmental review for development project to achieve no net loss of sensitive habitat acreage, value, and functions
- Wildlife Corridors
  - Action NBE-1.1B: Continue participation in regional programs, including the Solano Multispecies HCP/NCCP

3.0 ASSESSMENT METHODOLOGY

On July 25, 2023, a WRA biologist visited the proposed Project Area to map vegetation, aquatic features, and other land cover types; document plant and wildlife species present; and evaluate on-site habitat for the potential to support special-status species as defined by CEQA. Prior to the site visit, WRA biologists reviewed literature resources and performed database searches to assess the potential for sensitive land cover types and special-status species, including:

- Soil Survey of Solano County, California (USDA 2023)
- Mare Island 7.5-minute U.S. Geological Survey (USGS) quadrangle (USGS 2023)
- Contemporary aerial photographs (Google Earth 2023)
- Historical aerial photographs (NETR 2023)
- National Wetlands Inventory (USFWS 2023a)
- California Aquatic Resources Inventory (SFEI 2023)
- CNDDB (CDFW 2023b)
- California Native Plant Society (CNPS) Inventory (CNPS 2023a)
- Consortium of California Herbaria (CCH1 2023, CCH2 2023)
- USFWS Information for Planning and Consultation (USFWS 2023b)
- eBird Online Database (eBird 2023)

- California Bird Species of Special Concern in California (Shuford and Gardali 2008)
- California Amphibian and Reptile Species of Special Concern (Thomson et al. 2016)
- A Field Guide to Western Reptiles and Amphibians (Stebbins 2003)
- A Manual of California Vegetation, Online Edition (CNPS 2023b)
- California Natural Community List (CDFW 2023a)
- Database searches (i.e., CNDDB, CNPS) for special-status species focused on the Mare Island, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, Petaluma Point, and Sears Point USGS 7.5-minute quadrangles.
- Bay wide eelgrass survey and assessment (BCDC 2020).

Following the remote assessment, WRA biologists completed a field review over the course of two hours to document: (1) land cover types (e.g., vegetation communities, aquatic resources), (2) existing conditions and to determine if such provide suitable habitat for any special-status plant or wildlife species, (3) if and what type of aquatic land cover types (e.g., wetlands) are present, and (4) if special-status species are present[1].

3.1 Aquatic Communities and Other Land Cover Types

During the site visit, WRA evaluated the species composition and area occupied by distinct vegetation communities, aquatic features, and other land cover types. Mapping of these classifications utilized a combination of aerial imagery and ground surveys.

3.1.1 Vegetation Communities

In most instances, communities are characterized and mapped based on distinct shifts in plant assemblage (vegetation) and follow the California Natural Community List (CDFW 2023a) and A Manual of California Vegetation, Online Edition (CNPS 2023b). These resources cannot anticipate every component of every potential vegetation assemblage in California, and so in some cases, it is necessary to identify other appropriate vegetative classifications based on best professional judgment of WRA biologists. When undescribed variants are used, it is noted in the description. Vegetation alliances (natural communities) with a CDFW Rank of 1 through 3 (globally critically imperiled [S1/G1], imperiled [S2/G2], or vulnerable [S3/G3]) (CDFW 2023a), were evaluated as sensitive as part of this evaluation.

3.1.2 Aquatic Features and Jurisdictional Boundaries

The proposed Project Area was reviewed for the presence of wetlands and other aquatic resources according to the methods described in the *Corps Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West* (Corps 2008), and *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* (Lichvar and McColley 2008). Areas meeting these indicators were mapped as aquatic resources and categorized using the vegetation community classification methods described above. Aquatic communities which are mapped in the NMFS

[1] Due to the timing of the assessment, it may or may not constitute protocol-level species surveys; see Section 5.2 if the site assessment would constitute a formal or protocol-level species survey.

EFH Mapper (NMFS 2023b) or otherwise meet criteria for designation as EFH are indicated as such in the community description below in Section **Error! Reference source not found.**. The p resence of riparian habitat was evaluated based on woody plant species meeting the definition of riparian provided in *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607, California Fish and Game Code* (CDFG 1994) and based on best professional judgement of biologists completing the field surveys.

ARMY CORPS AND REGIONAL WATER QUALITY CONTROL BOARD JURISDICTIONAL BOUNDARY

In tidal areas, the upper extent of the Corps/RWQCB jurisdiction is mapped up to the high tide line (HTL). The high tide line in the proposed Project Area was determined based on the elevation of the highest predicted tides at the closest National Oceanic and Atmospheric Administration (NOAA) tide station (Davis Point, 9415141). The HTL is shown on Figure 2 (Appendix A) and represents the limit to areas evaluated for this BRTR as aquatic habitats.

BCDC JURISDICTIONAL BOUNDARY

BCDC's jurisdictional boundaries include (a) BCDC's "Bay Jurisdiction", which in this location includes all tidally influenced areas below the elevation of mean high water (MHW), and (b) BCDC's "Shoreline Band" jurisdiction, which includes areas of the shoreline within 100 feet of MHW. The Davis Point NOAA tide station is used to determine the locations of these limits.

3.2 Special-status Species

3.2.1 General Assessment

Potential occurrence of special-status species in the proposed Project Area was evaluated by first determining which special-status species occur in the vicinity through a literature and database review as described above. Presence of suitable habitat for special-status species was evaluated during the site visit based on physical and biological conditions of the site as well as the professional expertise of the investigating biologists. The potential for each special-status species to occur in the proposed Project Area was then determined according to the following criteria:

- **No Potential.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- **Unlikely.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- **Moderate Potential.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species is observed on the site or has been recorded (i.e., CNDDB, other reports) on the site in the recent past.

If a more thorough assessment was deemed necessary, a targeted or protocol-level assessment or survey was conducted or recommended as a future study. If a special-status species was observed during the site visit, its presence was recorded and discussed below in Section 5.2. If designated critical habitat is present for a species, the extent of critical habitat present, and an evaluation of critical habitat elements is provided as part of the species discussions below.

3.3 Wildlife Corridors and Native Wildlife Nursery Sites

To account for potential impacts to wildlife movement/migratory corridors, biologists reviewed maps from the California Essential Connectivity Project (CalTrans 2010), and habitat connectivity data available through the CDFW Biogeographic Information and Observation System (CDFW 2020). Additionally, aerial imagery (Google Earth 2020) for the local area was referenced to assess if local core habitat areas were present within, or connected to the proposed Project Area. This assessment was refined based on observations of on-site physical and/or biological conditions, including topographic and vegetative factors that can facilitate wildlife movement, as well as on-site and off-site barriers to connectivity.

The potential presence of native wildlife nursery sites is evaluated as part of the site visit and discussion of individual wildlife species below. Examples of native wildlife nursery sites include nesting sites for native bird species (particularly colonial nesting sites), marine mammal pupping sites, and colonial roosting sites for other species (such as for monarch butterfly [*Danaus plexippus*]).

4.0 ECOLOGICAL SETTING

The approximately 10.06-acre proposed Project Area is located in the City of Vallejo, Solano County, California and contains a portion of the Mare Island Strait of the Napa River. A description of soils and topography, climate and hydrology, and land use is provided in the sections below.

4.1 Soils and Topography

The overall topography of the proposed Project Area is flat with elevations ranging from approximately 0 to 10 feet above sea level. According to the *Soil Survey of Solano County* (USDA 1977), the proposed Project Area is underlain by 1 soil mapping unit: Made Land. The parent soil series of this mapping unit is summarized below.

> **Made Land:** This series consists of mine spoil or earthy fill and is situated on toeslopes at elevations ranging from 0 to 2,500 feet (USDA 2023). These soils are not considered hydric. Made Land underlays all of the developed area within the proposed Project Area.

4.2 Climate and Hydrology

The proposed Project Area is located in the coastal region of Vallejo in Solano County. The average monthly maximum temperature in the area is 70 degrees Fahrenheit, while the average monthly minimum temperature is 45 degrees Fahrenheit. Predominantly, precipitation falls as rainfall between November and March with an annual average precipitation of 22 inches.

The local watershed is San Pablo Bay Estuaries (HUC 12: 180500020801) and the regional watershed is San Pablo Bay (HUC 8: 18050002). The proposed Project Area is located in the lower portion of the San Pablo Bay Estuaries on the Napa River watershed downstream from the Napa-Sonoma Marsh. There is one blue-line stream in the proposed Project Area: the Mare Island Strait of the Napa River (USGS 2023). The open water found within the proposed Project Area is classified as estuarine and marine deepwater (USFWS 2023) subtidal habitat (CARI; SFEI 2023). Detailed descriptions of aquatic resources are provided in Section 5.1 below.

4.3 Land Use

The majority of the proposed Project Area consists of tidal open water within the Mare Island Strait of the Napa River, and developed lands composed of paved areas used to support a segment of the Bay Trail. Existing vegetation is composed entirely of landscaped areas, devoid of any naturally vegetated areas or native plants. Detailed land cover type descriptions are included in Section 5.1 below. Surrounding land uses include roadways and parking structures and lots (Google Earth 2023). Historically, the proposed Project Area has included parking lots, roadways, and structures similar to the condition today (NETR 2023).

5.0 ASSESSMENT RESULTS

5.1 Land Cover

WRA observed two land cover types within the proposed Project Area: developed/landscaped and open water. Land cover types within the proposed Project Area are illustrated in Appendix A – Figure 2. The open water land cover type is considered sensitive while the developed/landscaped land cover type is not considered sensitive.

Table 3. Land Cover Types

COMMUNITY/LAND COVERS	SENSITIVE STATUS	RARITY RANKING	ACRES WITHIN PROPOSED PROJECT AREA
TERRESTRIAL / COMMUNITY LAND COVER			
Developed/Landscaped	None	None	5.75
AQUATIC RESOURCES			
Open Water	Yes	None	4.31

5.1.1 Terrestrial Land Cover

Developed Area (no vegetation alliance). CDFW Rank: None. The proposed Project Area largely consists of developed infrastructure such as gangways, paved walkways, and roads associated with the current ferry system and adjacent segment of the Bay Trail. Vegetation within the developed areas consists of maintained lawns and ornamental plantings. This community is not considered sensitive by Solano County, CDFW, or any other regulatory entity.

5.1.2 Aquatic Resources

Open Water (no vegetation alliance). CDFW Rank: None. All waters within the proposed Project Area are subtidal or intertidal and are part of the Mare Island Strait of the Napa River. Open water comprises the majority of the proposed Project Area (4.31 acres/43%) and is mapped as all areas below the mean high water (MHW) elevation. Open waters potentially support several habitat types for special-status species, discussed further below. Open waters are considered sensitive under CEQA.

5.2 Special-status Species

5.2.1 Special-status Plants

Based upon a review of the resource databases listed in Section 3.0, 71 special-status plant species have been documented in the vicinity of the proposed Project Area. All these species have no potential or are unlikely to occur within the proposed Project Area for one or more of the following:

- Hydrologic conditions (e.g., tidal, riverine) necessary to support the special-status plant species are not present in the proposed Project Area;
- Edaphic (soil) conditions (e.g., volcanic tuff, serpentine) necessary to support the special-status plant species are not present in the proposed Project Area;
- Topographic conditions (e.g., north-facing slope, montane) necessary to support the special-status plant species are not present in the proposed Project Area;
- Unique pH conditions (e.g., alkali scalds, acidic bogs) necessary to support the special-status plant species are not present in the proposed Project Area;
- Associated natural communities (e.g., interior chaparral, tidal marsh) necessary to support the special-status plant species are not present in the proposed Project Area;
- The proposed Project Area is geographically isolated (e.g., below elevation, coastal environ) from the documented range of the special-status plant species;
- The historical landscape and/or habitat(s) of the proposed Project Area were not suitable habitat prior to land/type conversion (e.g., reclaimed shoreline) to support the special-status plant species;
- Land use history and contemporary management (e.g., grading, development) has degraded the localized habitat necessary to support the special-status plant species.

The entirety of the proposed Project Area is either developed land, subject to substantial historic soil disturbance, or is open water. Within the open water areas, the presence of a vertical seawall prevents suitable intertidal and transition zone habitats from forming to support wetland plant species. These conditions are not suitable for special-status plant species.

5.2.2 Special-status Wildlife

Based upon a review of the resource databases listed in Section 3.0, 65 special-status wildlife species have been documented in the vicinity of the proposed Project Area. Of these, most have no potential or are unlikely to occur in the proposed Project Area based on a lack of habitat features such as:

- Vernal pools
- Tidal marsh areas
- Old growth redwood or fir forest
- Serpentine soils to support host plants

- Tall cliffs or rocky outcrops
- Sandy beaches or alkaline flats
- Presence of specific host plants
- Caves, mine shafts, or abandoned buildings

The absence of such habitat features eliminates components critical to the survival or movement of most special-status species found in the vicinity of the proposed Project. For instance, salt-marsh harvest mouse (*Reithrodontomys raviventris*) and California Ridgway's rail (*Rallus obsoletus*) are known to occur in the Napa-Sonoma Marsh, approximately 5 miles upstream of the proposed Project Area; however, suitable tidal marsh habitat is absent from both the proposed Project Area and its immediate vicinity, precluding tidal marsh species like these from occurring within the proposed Project Area. The developed nature of uplands within and surrounding the proposed Project Area also eliminates upland species-specific habitats such as: sandy beaches, wetlands, sand dunes or grasslands, which are required for other special-status species known to occur in the vicinity of the proposed Project, such as California least tern (*Sternula antillarum browni*) and California red-legged frog (*Rana draytonii*).

A total of nine special-status fish and marine mammal species have potential to occur within the proposed Project Area. These species are named in Table 4 and are discussed in greater detail below.

Table 4. Potential Special-Status Wildlife

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL HABITAT IN THE PROPOSED PROJECT AREA
FORMALLY LISTED WILDLIFE (FESA, CESA)			
Oncorhynchus mykiss irideus	Steelhead – central CA coast DPS	FT	**High Potential.** This species is known to spawn within the Napa River and its tributaries, so it would occur within the Mare Island Strait seasonally when migrating to and from spawning grounds upstream.
Oncorhynchus mykiss irideus	Steelhead – central valley DPS	FT	**Moderate Potential.** This species spawns within rivers in the central valley; however, adults and juveniles may stray into the Mare Island Strait when migrating to and from natal streams.
Oncorhynchus tshawytscha	Chinook salmon - Central Valley spring-run ESU	FT, ST	**Moderate Potential.** This species spawns within headwater streams in the Sacramento River; however, this species has been known to stray into the Mare Island Strait seasonally as it migrates to and from natal streams.
Oncorhynchus tshawytscha	Chinook salmon – Sacramento winter-run ESU	FE, SE, RP	**Moderate Potential.** This species spawns within the Sacramento River; however, this species may stray into the Mare Island Strait seasonally as it migrates to and from natal streams.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL HABITAT IN THE PROPOSED PROJECT AREA
Hypomesus transpacificus	Delta smelt	FT, SE, RP	**Moderate Potential.** This species is known to occur within the Mare Island Strait during extremely wet winters when individuals are able to move from Suisun Bay into the Napa River.
Acipenser medirostris	green sturgeon, southern Distinct Population Segment	FT, SSC	**High Potential.** This species is known to occur within the Napa River and has been observed within 0.25 mile of the proposed Project Area.
Spirinchus thaleichthys	longfin smelt	FC, ST, SSC, RP	**High Potential.** This species is known to occur within the Mare Island Strait and has been observed within 0.25 mile of the proposed Project Area.
OTHER SPECIAL-STATUS WILDLIFE (CEQA, OTHER)			
Fish			
Acipenser transmontanus	White sturgeon	SSC	**High Potential.** This species is known to occur within the Napa River and has been observed within 0.25 mile of the proposed Project Area.
Oncorhynchus tshawytscha	Chinook salmon - central valley fall/late fall-run ESU	SSC, RP	**High Potential.** This species is known to spawn within the Napa River and would be present within the Mare Island Strait when migrating to and from natal streams.
Entosphenus (=Lampetra) tridentatus	Pacific lamprey	SSC	**High Potential.** This species is known to spawn within the Napa River and would be present within the Mare Island Strait when migrating to and from natal streams
Lampetra ayresi	River lamprey	SSC	**High Potential.** This species is known to spawn within the Napa River and would be present within the Mare Island Strait when migrating to and from natal streams
Pogonichthys macrolepidotus	Sacramento splittail	SSC, RP	**High Potential.** This species is known to occur within the Mare Island Strait seasonally.
Marine Mammals			
Phoca vitulina	Harbor seal	MMPA	**Moderate Potential.** This species is known to occur in the vicinity of the Carquinez Strait and has the potential to enter the proposed Project Area.
Zalophus californianus	California sea lion	MMPA	**Moderate Potential.** This species is known to occur in the vicinity of the Carquinez Strait and has the potential to enter the proposed Project Area.

SPECIAL-STATUS FISH WITH POTENTIAL TO OCCUR IN THE PROPOSED PROJECT AREA

Steelhead - Central California Coast DPS (*Oncorhynchus mykiss irideus*), Federal Threatened. The Central California Coast DPS includes all naturally spawned populations of steelhead (and their progeny) in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin. Steelhead typically migrate to marine waters after spending two years in freshwater, though they may stay up to seven. They then reside in marine waters for two or three years prior to returning to their natal stream to spawn as 4-or 5-year-olds. Steelhead adults typically spawn between December and June. In California, females typically spawn two times before they die. Preferred spawning habitat for steelhead is in perennial streams with cool to cold water temperatures, high dissolved oxygen levels and fast flowing water. Abundant riffle areas (shallow areas with gravel or cobble substrate) for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding. Central California Coast DPS steelhead are documented to spawn within the Napa River and its tributaries (Koehler and Blank 2010). Juvenile steelhead must travel through the Mare Island Strait and through the proposed Project Area when migrating to the ocean. Adult steelhead must pass through the area when returning to spawning grounds. This species would only be present in the proposed Project Area seasonally during the migration period.

Steelhead - Central Valley DPS (*Oncorhynchus mykiss*), Federal Threatened. The Central Valley DPS includes all naturally spawned populations (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries, excluding San Francisco and San Pablo bays and their tributaries. Preferred spawning habitat for steelhead is in perennial streams with cool to cold water temperatures, high dissolved oxygen levels and fast flowing water. During the winter or early spring the spawning fish reach suitable gravel riffles (shallow areas with gravel or cobble substrate) in the upper sections of streams and dig their redds. Abundant riffle areas for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding. When steelhead spawn they nearly always return to the stream in which they were hatched. At that time they may weigh from two to twelve pounds or more. This DPS of steelhead only spawns and rears within inland rivers of the Central Valley; however, due to the close proximity of the proposed Project Area to San Pablo Bay this species could occur seasonally for short periods when individuals migrating to natal streams in the fall and winter, or when migrating to the ocean in spring stray into the Mare Island Strait.

Chinook salmon - Central Valley Spring-run ESU (*Oncorhynchus tshawytscha*), Federal Threatened, State Threatened. The Central Valley Spring-run ESU includes all naturally spawned spring-run populations from the Sacramento San Joaquin River mainstem and its tributaries. Chinook salmon are anadromous (adults migrate from a marine environment into the freshwater streams and rivers of their birth) and semelparous (spawn only once and then die). Spring-run chinook salmon enter the Sacramento River between February and June. They move upstream and enter tributary streams from February through July, peaking in May-June. These fish migrate into the headwaters, hold in pools until they spawn, starting as early as mid-August and ending in mid-October, peaking in September. They are fairly faithful to the home streams in which they were spawned, using visual and chemical cues to locate these streams. While migrating and holding in the river, spring chinook do not feed, relying instead on stored body fat reserves for maintenance and gonadal maturation. Eggs are laid in large depressions (redds) hollowed out in gravel beds. Some fish remain in the stream until the following October and emigrate as "yearlings", usually with the onset of storms starting in October through the following March, peaking in November-December. Large pools with cold water are essential over-summering habitat for this species.

Within the Mare Island Strait there are no spawning or freshwater rearing locations that are known to support this species. However, individuals may stray into the Mare Island Strait seasonally when migrating to natal streams in the spring, or when migrating to the ocean in late fall with the first rains.

Chinook salmon - Sacramento River Winter-run ESU (*Oncorhynchus tshawytscha*), Federal Endangered, State Endangered. The ESU includes all naturally spawned populations of winter-run chinook salmon in the Sacramento River and its tributaries in California, as well as two artificial propagation programs: winter run chinook from the Livingston Stone National Fish Hatchery, and winter run chinook in a captive broodstock program maintained at Livingston Stone hatchery and the University of California Bodega Marine Laboratory. Winter-run chinook salmon are unique because they spawn during summer months when air temperatures usually approach their yearly maximum. As a result, these salmon require stream reaches with cold water sources that will protect embryos and juveniles from the warm ambient conditions in summer. Winter-run chinook salmon are primarily restricted to the mainstem Sacramento River.

Within the Mare Island Strait there are no spawning or freshwater rearing locations that are known to support this species. However, individuals may stray into the Mare Island Strait seasonally when migrating to natal streams in the spring, or when migrating to the ocean in late fall with the first rains.

Delta smelt (*Hypomesus transpacificus*), Federal Endangered, State Threatened. Delta Smelt are a pelagic (live in the open water column away from the bottom) and euryhaline species (tolerant of a wide salinity range) found in brackish water. They are found only in the Sacramento-San Joaquin Estuary and as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River. They extend downstream as far as San Pablo Bay. During the late winter to early summer, delta smelt migrate to freshwater to spawn. Larvae hatch between 10 to 14 days, are planktonic (float with the water currents), and are washed downstream until they reach areas near the entrapment zone where salt and freshwater mix. Delta smelt are fast growing and short-lived with most of the growth within the first seven to nine months of life. Most smelt die after spawning in the early spring although a few survive to a second year. Delta smelt feed entirely on small crustaceans (zooplankton).

Delta smelt are largely restricted to the Sacramento Delta proper, as well as the eastern portions of Suisun Bay; however, during large storm events when freshwater extends through the Carquinez Strait and into the greater portions of San Pablo Bay this species may either be washed downstream or migrate into the Napa River where a small number of fish have been documented; however, in areas around the proposed Project Area this species is not known to spawn, rear or forage unless moving through the vicinity after being washed downstream during very intense winter storms which connect the Napa River with Suisun Bay creating suitable low salinity conditions.

Green sturgeon (*Acipenser medirostris*), Federal Threatened, CDFW Species of Special Concern. Green sturgeon is generally found in marine waters from the Bering Sea to Ensenada, Mexico; however, spawning populations have been found only in medium-sized rivers from the Sacramento-San Joaquin system north. Spawning occurs in the Sacramento River between March and June; it may extend slightly longer, into July, in the Klamath River. Water temperature during spawning is likely 50° to 70°F. Spawning occurs in deep, fast water. The fertilized eggs are slightly adhesive and hatch after four to 12 days. Larvae stay close to the bottom and appear to rear primarily in rivers well upstream of estuaries. Young sturgeon (8 inches) feed primarily on small crustaceans such as amphipods and opossum shrimp. As they develop, they take a wider variety of benthic invertebrates, including various species of clams, crabs, and shrimp. Larger green sturgeon diet includes fishes.

This species spawns only within the Sacramento and Feather Rivers; however, migrating individuals may pass through the proposed Project Area in route to the ocean, and juveniles may spend several years rearing within San Francisco Bay, thus foraging juveniles are considered present throughout the year. Additionally, individuals have been documented at nearby operations in the recent past (WRA 2022).

Longfin smelt (*Spirinchus thaleichthys*), Federal Candidate, State Threatened, CDFW Species of Special Concern. Longfin Smelt is a pelagic, estuarine fish that ranges from Monterey Bay northward to Hinchinbrook Island, Prince William Sound Alaska. As this species matures in the fall, adults found throughout the San Francisco Bay migrate to brackish or freshwater in Suisun Bay, Montezuma Slough, and the lower reaches of the Sacramento and San Joaquin Rivers. Spawning is believed to take place in freshwater. In April and May, juveniles are believed to migrate downstream to San Pablo Bay. Juveniles tend to inhabit the middle and lower portions of the water column. This species tends to be abundant near freshwater outflow, where higher-quality nursery habitat occurs and potential feeding opportunities are greater.

This species spawns within the Napa River and is often observed within the Mare Island Strait (WRA 2022). Longfin smelt must pass through the proposed Project Area on their way to the San Pablo Bay from their spawning grounds. They are considered seasonally present during the migration periods in winter and spring.

White sturgeon (*Acipenser transmontanus*), CDFW Species of Special Concern. This sturgeon is found in most estuaries along the Pacific coast and are known to the San Francisco Bay Estuary. Adults in the San Francisco Bay Estuary system spawn in the Sacramento River and are not known to enter freshwater or non-tidal reaches of Estuary streams. White sturgeon typically spawn in May through June. The diet consists of crustaceans, mollusks, and some fish. White sturgeon spawn only within large rivers of the Sacramento Valley and not within the Napa River or in the local vicinity. Juveniles, however, may be present and forage within the surrounding Bay waters year-round.

Chinook salmon - Central Valley Fall/late fall-run ESU (*Oncorhynchus tshawytscha*), NMFS Species of Concern, CDFG Species of Special Concern. The Central Valley Fall/late fall-run ESU includes all naturally spawned spring-run populations from the Sacramento San Joaquin River mainstem and its tributaries. Late-fall run Chinook salmon are morphologically similar to spring-run chinook. They are large salmonids, reaching 75-100 cm SL and weighing up to 9-10 kg or more. The great majority of late-fall Chinook salmon appear to spawn in the mainstem of the Sacramento River, which they enter from October through February. Spawning occurs in January, February and March, although it may extend into April in some years. Eggs are laid in large depressions (redds) hollowed out in gravel beds. The embryos hatch following a three- to four-month incubation period and the alevins (sac-fry) remain in the gravel for another two to three weeks. Once their yolk sac is absorbed, the fry emerge and begin feeding on aquatic insects. All fry have emerged by early June. The juveniles hold in the river for nearly a year before moving out to sea the following December through March. Once in the ocean, salmon are largely piscivorous and grow rapidly. The specific habitat requirements of late-fall chinook have not been determined, but they are presumably similar to other Chinook salmon runs and fall within the range of the physical and chemical characteristics of the Sacramento River above Red Bluff.

The Napa River is a natal stream for fall-run chinook salmon, while late-fall runs are limited to spawning within the main-stem of the Sacramento River or its more northern tributaries. There are no spawning or freshwater rearing streams within or immediately surrounding the proposed Project Area. This species would be expected to occur seasonally for short periods when migrating to natal streams in the fall as adults, or when migrating to the ocean in spring as juveniles or fry.

Pacific lamprey (*Entosphenus [=Lampetra] tridentatus*), Species of Special Concern. This anadromous lamprey is found along the entire California coast with regularity until becoming disjunct south of San Luis Obispo County with the exception of regular runs to the Santa Clara River (UCDAVIS 2016). With the exception of land-locked populations, this species spends the predatory phase of its life in the ocean, feeding off the bodily fluids of a variety of fish. This species is usually concentrated near the mouths of their spawning streams because its prey is most abundant in coastal areas (Moyle 2002). Adults move up into spawning streams between early March and late June. After hatching, ammocetes are washed downstream, where they burrow into soft substrates and filter feed. Five to seven years later, ammocetes undergo metamorphosis into the predatory phase of their life cycle and out-migrate to the ocean as adults.

The Napa River is a natal stream for this species (Calfish 2023). There are no spawning or freshwater rearing locations within or immediately surrounding the proposed Project Area. This species occurs seasonally for short periods when migrating to natal streams as adults or when migrating to the ocean as microphthalmia.

River lamprey (*Lampetra ayresi*), CDFW Species of Special Concern. River lampreys prey upon a variety of fishes in the 10-30 cm TL size range, but the most common prey seem to be herring and salmon. Unlike other species of lamprey in California, river lampreys typically attach to the back of the host fish, above the lateral line, where they feed on muscle tissue. Little is known about habitat requirements in California, but presumably, the adults need clean, gravelly riffles in permanent streams for spawning, while the ammocetes require sandy backwaters or stream edges in which to bury themselves, where water quality is continuously high, and temperatures do not exceed 25°C. Adults migrate back into fresh water in the fall and spawn during the winter or spring months in small tributary streams.

The Napa River is a natal stream for this species (CalFish 2023). There are no spawning or freshwater rearing locations within or immediately surrounding the proposed Project Area. This species occurs seasonally for short periods when migrating to natal streams as adults or when migrating to the ocean as microphthalmia.

Sacramento splittail (*Pogonichthys macrolepidotus*), CDFW Species of Special Concern. Splittail are primarily freshwater fish that have been found mostly in slow-moving sections of rivers and sloughs, and in the Delta and Suisun Marsh they seemed to congregate in dead-end sloughs (Moyle et al. 1982, Daniels and Moyle 1983). Splittail are benthic foragers that feed extensively on opossum shrimp (*Neomysis mercedis*); however, detrital material typically makes up a high percentage of their stomach contents. They will feed opportunistically on earthworms, clams, insect larvae, and other invertebrates. They are preyed upon by striped bass and other predatory fishes. Splittail apparently require flooded vegetation for spawning and as foraging areas for young, hence are found in habitat subject to periodic flooding during the breeding season (Caywood 1974).

The Napa River is a natal stream for this species (CalFish 2023). There are no spawning or freshwater rearing locations within or immediately surrounding the proposed Project Area. This species has also been documented within the Mare Island Strait (WRA 2022). This species may occur seasonally when foraging or moving between suitable habitats during high flow events in winter and spring when salinities are suitable.

SPECIAL-STATUS MARINE MAMMALS WITH POTENTIAL TO OCCUR

California sea lion (*Zalophus californianus*), MMPA. California sea lions are found from Vancouver Island, British Columbia to the southern tip of Baja California in Mexico. They breed mainly on offshore islands, ranging from southern California's Channel Islands south to Mexico, although a few pups have been born on Año Nuevo and the Farallon Islands on the central Californian coast (TMMC 2023). Sandy beaches are preferred for haul out sites, although in California they haul out on marina docks as well as jetties and buoys (TMMC 2023).

Pacific harbor seal (*Phoca vitulina richardsi*), MMPA. Harbor seals are fairly common, non-migratory pinnipeds inhabiting coastal and estuarine waters from Alaska to Baja California, Mexico. They are a year-round resident in the San Francisco Bay Area (Kopec 1999). They haul out on rocks, reefs, and beaches, and feed in marine, estuarine, and occasionally fresh waters (TMMC 2023). Harbor seals have been consistently observed hauled out on three adjacent inaccessible beach/inshore rock areas east of Point Conception in 2012 and 2013.

Pacific harbor seal and California sea lion are both commonly found throughout much of San Francisco Bay, though they are less common in areas with more freshwater influence, such the proposed Project Area and vicinity. Harbor Seals use open water for feeding and travelling, and terrestrial substrates such as beaches or small rocky islands adjacent to water for hauling out (resting). A haul-out site is generally considered a rookery if there are pups present at the site. Harbor seals in San Francisco Bay also tend strongly towards use of established haul-out areas, as opposed to hauling out in new areas (Kopec 1999). There are no beaches to haul out on and no known rookery sites within the proposed Project Area or in the immediate vicinity; however, both species may be present opportunistically when foraging for fish in waters of the proposed Project Area especially when adult salmonids migrate through the region in fall and winter or when following herring schools which return to San Francisco Bay in the winter.

5.3 Critical Habitat and Essential Fish Habitat

5.3.1 Critical Habitat

A review of the background literature showed that the proposed Project Area is located within or adjacent to critical habitat for two special-status fish species (NMFS 2023a):

- Central California Coast DPS Steelhead
- Southern DPS green sturgeon
- SRWR Critical Habitat

Because the proposed Project Area is within a bay or estuary, the extent of critical habitat is defined as being up to the high tide line (HTL; see Figure 2). Delta smelt critical habitat is present near the proposed Project Area but ends east of the Carquinez Bridge approximately 3 miles southeast of the proposed Project Area.

5.3.2 Essential Fish Habitat

A review of the background literature revealed that the proposed Project Area is located within EFH for three fisheries management plans: Coastal Pelagic, Pacific Groundfish and Pacific Salmon.

- The Coastal Pelagic Fisheries Management Plan (PFMC 2021) is designed to protect habitat for migratory pelagic species such as Pacific sardine (*Sardinops sagax*), Pacific mackerel (*Scomber japonicus*), northern anchovy (*Engraulis mordax*), market squid (*Doryteuthis opalescens*), jack mackerel (*Trachurus symmetricus*) and various species of krill or euphausiids.
- The Groundfish Fisheries Management Plan (PFMC 2022a) is designed to protect habitat for approximately 80 species of fish, including various species of flatfish, rockfish, groundfish, and several species of sharks and skates.
- The Pacific Salmon Fisheries Management Plan (PFMC 2022b) is designed to protect habitat for commercially important salmonid species specifically Chinook and Coho salmon occur within the Project Area. While Coho salmon are extirpated from San Francisco Bay and its tributaries (NMFS 2012), Chinook Salmon would be seasonally present within waters surrounding the proposed Project Area.

Similar to critical habitat discussed above, waters of the proposed Project Area would be considered EFH up to the high tide line shown in Figure 2 (Appendix A).

5.4 Movement Corridors and Native Wildlife Nursery Sites

Wildlife movement between suitable habitat areas can occur via open space areas lacking substantial barriers. The terms “landscape linkage” and “wildlife corridor” are often used when referring to these areas. The key to a functioning corridor or linkage is that it connects two larger habitat blocks, also referred to as core habitat areas (Beier and Loe 1992; Soulé and Terbough 1999). It is useful to think of a “landscape linkage” as being valuable in a regional planning context, a broad scale mapping of natural habitat that functions to join two larger habitat blocks. The term “wildlife corridor” is useful in the context of smaller, local area planning, where wildlife movement may be facilitated by specific local biological habitats or passages and/or may be restricted by barriers to movement. Above all, wildlife corridors must link two areas of core habitat and should not direct wildlife to developed areas or areas that are otherwise void of core habitat (Hilty et al. 2019).

The aquatic portions of the proposed Project Area function as a movement corridor for fish, including for the various special-status species discussed above. Salmonids for example will migrate through waters of the proposed Project Area typically in late-spring or early summer when migrating to the Pacific Ocean as smolts/juveniles. Adults then migrate through the proposed Project Area when returning to natal streams in late-fall or early winter. In the case of more regional species such as Delta or longfin smelt, they spawn in the Sacramento Delta and Suisun Bay, but make localized seasonal migrations to areas within San Francisco Bay. As such, the proposed Project Area is situated between two core habitat areas (i.e., the Bay/ocean and freshwater spawning grounds) making it a migratory corridor. The proposed Project Area does not provide a migratory corridor for species other than fish, because it does not provide for substantial connectivity between two core habitat areas for other classes of plants or wildlife.

No eelgrass beds have been mapped within the proposed Project Area. Additionally, the proposed Project Area is routinely dredged so any plants that have a chance to establish would be destroyed in this effort. The entire shoreline of the proposed Project Area is hardened by a seawall. As such, the proposed Project Area does not function as a nursery site for fish species. The upland areas of the site are highly developed and do not contain rookery habitats for other species such as egrets, herons, or marine mammals.

6.0 ANALYTICAL METHODOLOGY AND SIGNIFICANCE THRESHOLD CRITERIA

Pursuant to Appendix G, Section IV of the State CEQA Guidelines, a project would have a significant impact on biological resources if it would:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or U.S. Fish and Wildlife Service;
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or U.S. Fish and Wildlife Service;
3. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or,
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Because this report focuses on in-water elements of the proposed Project, the focus of the impacts and mitigation analysis is on Questions 1, 4, 5, and 6 above. Questions 2 and 3 have more bearing where projects occur on land. Elements of this proposed Project that would occur on land would affect areas that have been developed and historically disturbed, and so the potential biological resources impacts and mitigation is focused on open water areas. For the purposes of this analysis, a “substantial adverse effect” is generally interpreted to mean that a potential impact could directly or indirectly affect the resiliency or presence of a local biological community or species population. Potential impacts to natural processes that support biological communities and special-status species populations that can produce similar effects are also considered potentially significant. Impacts to individuals of a species or small areas of existing biological communities may be considered less than significant if those impacts are speculative, beneficial, de minimis, and/or would not affect the resiliency of a local population.

7.0 IMPACTS AND MITIGATION EVALUATION

Using the CEQA analysis methodology outlined in Section 6.2 above, the following section describes potential significant impacts to sensitive resources within the proposed Project Area as well as suggested mitigation measures which are expected to reduce impacts to less than significant.

7.1 Special-Status Species

This section analyzes the proposed Project's potential impacts and mitigation for special-status species in reference to the significance threshold outlined in CEQA Appendix G, Part IV (a):

> *Does the project have the potential to have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or U.S. Fish and Wildlife Service?*

Potential impacts and mitigation for potentially significant impacts are discussed below for groups of species with relatively similar effects including fish, birds and marine mammals. As discussed above, the proposed Project occurs entirely in tidal waters and in shoreline areas that are developed or have a history of substantial disturbance from slope stabilization. Aquatic communities of the proposed Project Area do not have the potential to support special-status species plants; therefore, the analysis below focuses only on species with the potential to be present in aquatic areas. Potential impacts and mitigation for eelgrass and EFH are discussed in Section 7.2 (sensitive habitats).

7.1.1 General In-Water Construction Impacts

Some potential proposed Project impacts to special-status species from in-water work are applicable to all aquatic special-status species. This section reviews these impacts. Subsequent sections review potential impacts that apply differentially to special-status fish, birds, and marine mammals.

POTENTIAL IMPACT BIO-1: POTENTIAL INTRODUCTION OF INVASIVE SPECIES

San Francisco Bay is one of the busiest ports in the world with more than 7,000 container ships per year entering the Bay (Choksi 2009). One consequence of such a robust trade network is the introduction of non-native species which are often carried in ballast water of vessels or on ship hulls. If introduced non-native species establish in a new environment and cause harm to native species and habitats, they are considered "invasive species". Introductions of invasive species to San Francisco Bay includes both fish and invertebrate species, which cause a variety of impacts to native fauna. Invasive species have a variety of deleterious effects from competing with or consuming native species (Moyle 2002), to decreasing pelagic productivity (Baumsteiger et al. 2017). As a result of this impact and considering the danger that invasive species pose to native species and ecosystems, the U.S. Court of Appeals for the Ninth Circuit ruled that the U.S. Environmental Protection Agency must regulate ship discharges, including ballast water discharges containing invasive species, that pollute U.S. waters under the Clean Water Act

(Choksi 2009). Further, Congress passed the Vessel Incidental Discharge Act, combining laws that regulate vessel discharge to help prevent the introduction of harmful species (Simmonds 2022).

Within aquatic environments, barges and boats used for construction are expected to be based in San Francisco Bay; therefore, vessels used to implement the proposed Project are not expected to introduce novel invasive species to San Francisco Bay. In addition, the reconfigured ferry terminal would be utilized by existing ferry vessels within WETA's fleet that operate exclusively within San Francisco Bay; however, the new structures installed by the proposed Project have potential to introduce novel invasive species to the area or contribute to the spread of existing invasive species within San Francisco Bay; therefore, the potential introduction of invasive species during construction and operations is a potentially significant impact to special-status fish and marine mammals. With implementation of Mitigation Measure BIO-1, potential impacts resulting from the introduction of invasive species would be less-than-significant.

MITIGATION MEASURE BIO-1: INVASIVE SPECIES MANAGEMENT

- Any in-water fill materials shall be new and not salvaged from areas outside of San Francisco Bay.
- Any pumps that may be needed during construction shall be cleaned and dried for at least 72 hours prior to being used on the proposed Project.

POTENTIAL IMPACT BIO-2: SPILLS AND DEBRIS

In-water construction would require the use of specialized mechanical equipment including vibratory or impact pile driving hammers, tugboats, cranes, floating barges, and dredging equipment. These larger pieces of equipment require generators or compressors to run equipment, which use a variety of petroleum and plant-based fuels or lubricants. If spilled, these fuels and lubricants can be toxic to aquatic ecosystems. Similarly, debris from construction or demolition of in-water structures may itself be contaminated with toxic lubricants or preservatives. Introduction of such materials could cause degradation to the aquatic environment, including special-status fish and marine mammals, which is a potentially significant impact under CEQA.

In addition, some elements of the proposed Project may also require cast-in-place concrete for above-water structures, such the caps to the dolphins which would connect the gangways. When implemented over water, cast-in-place concrete can result in unintentional spilling of concrete into the water column. The introduction of raw concrete into the water column can result in changes to pH levels that can adversely affect fish. At sufficiently high concentrations, raw concrete can lead to fish mortality; however, the amount of concrete that would be cast-in-place over the water within the proposed Project Area is not anticipated to be sufficient to result in significant impacts to fish, particularly given the volume of water present in the work area. Further, no cast-in-place concrete is proposed within the water column.

With implementation of Mitigation Measures BIO-2 through BIO-5, potential impacts from spills and debris would be less-than-significant.

MITIGATION MEASURE BIO-2: IN-WATER WORK WINDOW

All in-water work, including dredging, pile driving, and similar activities which require placing materials below the water's surface, shall be completed between August 1 and

November 30. Work may occur above the waterline year-round, including use of necessary in-water support vessels, so long as spill prevention measures are employed as described below. This in-water work window may be modified and extended if regulatory agencies determine during the permitting process that work outside of this window may occur without significant risk to fish.

MITIGATION MEASURE BIO-3: SPILL PREVENTION AND CONTROL

A spill prevention and control plan shall be developed and implemented for the proposed Project throughout all phases of construction. This plan shall, at minimum, include the following parameters to reduce potential effects from spills to less than significant levels:

- Identification of any hazardous materials used by the proposed Project.
- Storage locations and procedures for such materials.
- Spill prevention practices as well as BMPs employed for various activities.
- Requirements to inspect equipment daily such that it is maintained free of leaks.
- Spill kit location, cleanup, and notification procedures.

MITIGATION MEASURE BIO-4: ENVIRONMENTAL AWARENESS TRAINING

A proposed Project-specific environmental awareness training for construction personnel shall be conducted by a qualified biologist before commencement of construction activities and as needed when new personnel begin work on the proposed Project. The training shall inform all construction personnel about the presence of sensitive habitat types; potential for occurrence of special-status fish and wildlife species; the need to avoid damage to suitable habitat and species harm, injury, or mortality; measures to avoid and minimize impacts to species and associated habitats; the conditions of relevant regulatory permits, and the possible penalties for not complying with these requirements. The training may consist of a pre-recorded presentation to be played for new personnel, a script prepared by the biologist and given by construction personnel trained by the biologist, or training administered by on-site biological monitors. The training shall include:

- Applicable State and federal laws, environmental regulations, permit conditions, and penalties for non-compliance. A physical description of special-status species with potential to occur on or in the vicinity of the proposed Project Area, avoidance and mitigation measures, and protocol for encountering such species including communication chain.
- BMPs enacted for habitat protection and their location within the proposed Project Area, including the implementation of any Spill or Leak Prevention Programs.
- Contractors shall be required to sign documentation stating that they have read, agree to, and understand the required avoidance measures. If they do not understand, they shall withhold their signature until the designated biologist addresses their question. The contractor may not begin work until they have signed the documentation.

- Field identification of any proposed Project Area boundaries, egress points and routes to be used for work. Work shall not be conducted outside of the proposed Project Area.

A record of this training shall be maintained on the site during all proposed Project work and shall be made available to agencies upon request.

MITIGATION MEASURE BIO-5: DEBRIS

The proposed Project shall employ debris, dust, and garbage control measures to ensure disturbances to any upland areas and overwater work does not result in significant increases in turbidity or the placement of debris within tidal waters. These control measures shall include the following:

- A work skiff or similar craft may be used to corral any debris which accidentally falls into waters during demolition. Debris shall be retrieved immediately and shall not be allowed to drift away from the worksite.
- Where cast-in-place concrete is required in over-water areas, the contractor shall use water-tight forms and catchments that shall prevent concrete from falling into the water. Cast-in-place forms shall remain in place until concrete has completely cured and shall be removed using means that minimize dust and freshly cured concrete from falling into the water.
- Within upland areas, any disturbed soils shall be managed to prevent dust or silt laden runoff from becoming airborne or otherwise introduced to the aquatic environment.
- All personal construction-related refuse shall be collected in sealed containers and removed regularly.

POTENTIAL IMPACT BIO-3: DREDGING AND PILE-DRIVING RELATED TURBIDITY AND TOXIC MATERIALS

Natural fluctuations in turbidity occur daily within the greater San Francisco Bay. The naturally occurring light weight sediments that dominate the Bay and Sacramento-San Joquin Delta are easily mobilized during strong summer winds and storm related high flows, causing extreme spikes in turbidity, which can vary by several hundred nephelometric turbidity units (NTUs) even within a single day (O'Connor 1991). Elevated turbidity can impair gill function in fish, reduce oxygen availability in the water column, decrease physiological capabilities, and increase stress in fish (Heath 1995, Bash and Berman 2001). While turbidity can impact sensitive life stages of fish (i.e., eggs or larval fish), elevated turbidity alone does not represent a uniform impact to fish species. Delta smelt distribution has been positively correlated with higher turbidity, which can help increase foraging efficiency and decrease predation threats (Sommer and Mejia 2013). Species present within the Bay and Delta are tolerant of these naturally occurring frequent large fluctuations in turbidity.

In-water work necessary to implement the proposed Project, such as pile removal, pile installation, and dredging, are expected to mobilize sediments which may contribute to increased water turbidity. Turbidity from pile removal and driving is likely to be limited to a small area (approximately 150 to 200 feet of each pile) and typically dissipates within one hour or is swept away and diluted by tidal exchange (USFWS 2013). Thus, turbidity from pile driving activities is expected to be less than significant; however, turbidity associated with mechanical dredging typically spreads further due to the volume of bottom substrates disturbed. Studies of turbidity in San Francisco Bay showed that turbidity may spreads up to 600 feet from the point of disturbance but diminishes to background levels within one tidal cycle for singular events (Corps 2015). The actual distance suspended sediment caused by the proposed Project would move is dependent upon multiple factors (i.e., tide, river outflows, wind condition, etc.) but the previous studies provide a guide under which we can determine potential effects.

Turbidity caused by the proposed Project may result in areas such as the shallow water habitat between the existing ferry terminal and the seawall to be temporarily unsuitable for fish.

Recent sediment characterization sampling and analysis testing within the proposed Project Area found no elevated levels of metal or chemicals known to be harmful to aquatic ecosystems with the exception of Arsenic, which slightly exceeded background levels for San Francisco Bay (Foth 2023). However, this recent testing did not assess any samples around the proposed temporary ferry terminal location where additional dredging may be required as part of the proposed Project. Previous testing of nearshore sediments within the existing ferry terminal basin were found to contain elevated levels of polychlorinated biphenyls (PCBs) (MEC 1996); therefore, the sediments under the proposed temporary ferry terminal location have potential to contain excess levels of PCBs or other toxins. As such, dredging within this area has potential to expose aquatic species to toxins, which could result in significant impact. These impacts are considered potentially significant to special-status fish and marine mammals under CEQA. With implementation of Mitigation Measures BIO-6, below, impacts resulting from the release of toxic materials during dredging would be less-than-significant.

MITIGATION MEASURE BIO-6: DREDGING

- Prior to dredging, sediment testing shall be performed to determine whether elevated levels of any contaminant may be present within the dredging area. The results of this test shall be submitted to the Dredged Material Management Office (DMMO) for review of the sediment contents, and for approval of sediment disposal methods or reuse suitability.
    - Materials shall only be dredged and disposed of in accordance with procedures approved by the DMMO.
    - If concentrations are too high for beneficial reuse in upland restoration, or other standard dredge material disposal method, materials may be hauled to an approved hazardous waste disposal facility.
- Dredging shall be limited to the specified areas, depths, and quantities.
- No overflow or decant water shall be discharged from any barge at any time.
- During transportation from the dredging site to the disposal site, no dredged material shall be permitted to overflow, leak, or spill from barges, bins or dump scows.

With the implementation of Mitigation Measures BIO-2 through BIO-5, and Mitigation Measure BIO-6, effects from dredging will be less than significant with mitigation incorporated.

7.1.2 Special-Status Fish

Seven formally listed species, as well as five other special-status fish species are known to occur within the Mare Island Strait of the Napa River. Formally listed species include Central California Coast steelhead, Central Valley steelhead, Spring-run Chinook, Winter-run Chinook, Southern Distinct Population Segment green sturgeon, longfin smelt, and Delta smelt. Special-status species which have not been formally listed include Fall/late-Fall run Chinook salmon, Pacific lamprey, river lamprey, Sacramento splittail and white sturgeon. All of these species make seasonal migrations through the proposed Project Area and spend some portion of the year in the proposed Project Area vicinity; however, no spawning habitats are known for any of these species within the proposed Project Area.

The special-status fish species listed above have potential to occur in association with the open water portion of the proposed Project Area. Many of the species are only present seasonally when salinity conditions are appropriate or during migration periods. Species that are expected to be seasonally present include all of the salmonids (all species of steelhead and Chinook salmon), lamprey, and smelts. Other species may forage within the waters of the proposed Project Area year-round including green and white sturgeon, as well as Sacramento splittail.

Impacts to fish may occur in a variety of ways from a single construction related activity. For example, an impact or vibratory hammer would be needed to set and drive structural components such as piles to support proposed Project structures. Pile driving causes in-water sounds which can affect fish both physically and behaviorally. Construction equipment for such work may require the use of hydraulically operated mechanical equipment which has potential to introduce toxic substances (i.e., fuel or hydraulic fluid) to the aquatic environment. Construction operations in general also have the potential to introduce debris and refuse associated with work to surrounding waters. Equipment and materials for such work are also highly specialized and may need to be brought in from other locations. The relocation of equipment may introduce non-native species of fish, or invertebrates, to the work area if proper procedures are not followed for decontamination. Most of these potential impacts affect a variety of species and are therefore discussed above and mitigated to a level that is less than significant by Mitigation Measures BIO-1 through BIO-7. Additional potential impacts to special-status fish species resulting from pile driving and dredging activities are discussed in more detail below.

POTENTIAL IMPACT BIO-4: UNDERWATER NOISE AND PILE DRIVING IMPACTS TO SPECIAL-STATUS FISH

Pile driving produces underwater noise, which manifests as pressure waves in the aquatic environment. The louder the noise, the more pressure is present in the waves. High pressure sound waves in the aquatic environment can result in damage to fishes' internal organs. The NMFS has established thresholds based upon the size of the fishes under consideration for the onset of physical injury and adverse behavioral effects. Those thresholds, measured in decibels (dB), are listed below in Table 5 (NMFS 2018). Because Delta smelt and longfin smelt are known to occur within the proposed Project Area at certain times of the year, especially during their seasonal migrations and longfin smelt may also occur at times outside of winter migrations, the more conservative 183 dB sound exposure level (SEL) threshold is the effective criteria for hydroacoustic effects analysis for the proposed Project. Behavioral modification is based on the root mean square (RMS) and is considered standard for all species. The RMS of 150 dB represents the zone where fish may be affected behaviorally but not physically harmed; however, it should be noted that in busy ports and bays such as San Pablo Bay, background underwater noise is frequently measured at or above 150 dB under baseline conditions, therefore the baseline noise conditions are frequently at or above the standard thresholds for behavioral effects (Caltrans 2020).

Table 5. Fish Impact Criteria

EFFECT	METRIC	FISH MASS (GRAMS)	THRESHOLD
Onset of physical injury	Peak pressure	N/A	206 dB (re: 1 μPa)
	Accumulated SEL	≥ 2 g	187 dB (re: 1μPa^2•sec)
		< 2 g	183 dB (re: 1μPa^2•sec)
Adverse behavioral effects	RMS	N/A	150 dB (re: 1 μPa)

There are two primary styles in pile driving, vibratory and impact hammer driving. These styles of pile driving have different potentials for effect and are described below.

Vibratory Pile Driving

Vibratory pile driving uses hydraulicly powered, oscillating counterbalance weights to vibrate an object (i.e., pile) at high speed. The vibration mobilizes the earth beneath and around the pile causing the surrounding earth to liquify. Once mobilized, the weight of the hammer pushes the pile downward. Vibratory hammers do not "strike" a pile and as such have lower peak sound pressure than impact hammers, but also require more prolonged use as they drive piles slower. Even with prolonged use, vibratory hammers do not approach the peak or cumulative sound exposure thresholds that would cause injury or death to fish (Caltrans 2020). Because of the low level of effect, resource agencies generally agree that vibratory pile driving results in reduced adverse effects on fish and is therefore the preferred driving methodology. This reduced level of effect is also why agencies have not identified any peak or cumulative injury thresholds for vibratory pile driving to fish (Caltrans 2020). With the lower level of effect, use of a vibratory hammer is often employed as an avoidance and minimization measure (AMM) to reduce the overall number of strikes necessary to drive piles on a project. For this proposed Project, removing any existing piles, or initially placing and driving new piles will be preferentially performed with a vibratory hammer to decrease the proposed Project's acoustic effect on the aquatic environment.

The limiting factors to driving with a vibratory hammer are seating depth and pile size. Small diameter piles (e.g., 18–24-inch steel pipe piles) or sheetpiles may be able to be fully driven using a vibratory hammer when substrates are soft (i.e., silty and low in clay); however, the presence of geotechnical conditions such as clay hardpans, especially when driving large diameter steel pipe piles to moderate depths, a vibratory hammer may not have sufficient energy to install the pile fully (Caltrans 2020). Once a vibratory hammer reaches refusal, an impact hammer is often necessary to complete the installation to drive piles to specified depths for structural integrity. Additionally, vibratory pile driving is often not able to achieve engineering criteria required to support design structural loads, and impact driving is necessary in these cases for "final seating" of the pile.

Impact Hammer Pile Driving

An impact hammer operates by using a sliding hammer head to strike a pile, causing the downward force of the head to drive the pile, similarly to the way a handheld hammer strikes and drives a nail. This method creates a pulse of sound that propagates through the pile, spreading outward into the aquatic environment. As shown in **Error! Reference source not found.**, peak, cumulative and RMS sound pressure levels all have different thresholds and types of effect. The "peak" is the highest value of the measured sound and may cause injury to fish exposed to instantaneous peak levels at or above 206 dB. Driving piles requires multiple strikes from the hammer, therefore there is also a cumulative effect of all strikes. In this case, cumulative exposure can cause injuries to fish at slightly lower decibel levels depending on the size of the fish. For fish less than 2 grams, the cumulative sound exposure level is 183 dB, while fish over 2 grams have a threshold of 187 dB. The distance at which these thresholds are reached vary based on the size and type of pile, number of strikes required, as well as the depth of water, and hammer size.

The proposed Project expects to be able to perform most pile driving using a vibratory hammer as summarized in Table 6, below; however, use of an impact hammer may be necessary to complete pile installation. The proposed Project would require the removal of existing piles and the installation of new piles as summarized in Tables 1 and 2, above. A summary of Project pile driving activities, including the number of anticipated piles to be installed per day and the duration of pile driving, is provided in Table 6, below.

Table 6. Pile-driving Activities for the Proposed Project

NEW STRUCTURE	PILE TYPE	PILE LOCATION	DURATION/ESTIMATED BLOWS PER PILE[1]	PILES PER DAY
Gangway, Dolphin, New Standard WETA Float, Monopiles	36-inch steel pipe	In Water	120 minutes vibrate and 450 strikes	4
Monopiles (Marker Piles)	12-inch steel piles	In Water	120 minutes vibrate or 450 strikes	4

[1] Impact driving assumes about 15 minutes of driving with a total of about 450 strikes per pile.

The prediction of sound levels from pile-driving activities proposed for this Project relies on data collected from the vicinity of this site and other sites with similar conditions. These predicted values were compiled in a report prepared by Illingworth and Rodkin for the proposed Project (Illingworth and Rodkin 2024) and are provided in Table 7. The values in Table 7 represent sound levels measured at 10 meters (33 feet) from the piles for conditions similar to those that would be present during this Project.

Table 7. Reference Sound Measurements used for Acoustic Modeling

DRIVING METHOD	PILE TYPE	PILE SIZE (INCHES)	SOUND PRESSURE LEVEL (dB at 10 meters)						REFERENCE DATA
			UNATTENUATED			*ATTENUATED*[a]			
			PEAK	RMS	SEL	PEAK	RMS	SEL	
Impact	Steel pipe	12	199	179	169	194	174	164	Based on 14-in steel pipe levels in Caltrans 2020. Note there is a lack of representative data for 12-in steel piles.
Impact	Steel pipe	36	211	193	183	201	183	173	Caltrans 2020 as recommended by NMFS (see 88 FR 56595).
Vibratory	Steel pipe	12	171	155	155	<5 dB attenuation expected from vibrated piles			13-in steel piles measured at Mad River Slough, Arcata, CA due to lack of data for vibrated 12-in piles.
Vibratory	Steel pipe	36	200	168	168	<5 dB attenuation expected from vibrated piles			Anchorage Port Modernization Program – Test Pile Program (POA 2016)

[a] Attenuated condition assumes minimum 5-dB lower sounds for 12-inch piles. For 36-inch piles, a conservative estimate of 10-dB attenuation is assumed.

Table 7 summarizes the sound levels for unattenuated and attenuated piles at 10 meters (33 feet) which can be used to model effects for this Project. Sound attenuation levels include a 5 dB reduction for 12-inch piles, and a 10 dB reduction for 36-inch piles. The 10 dB reduction for 36-inch piles is based on measurements collected from the Project Area during previous work on the facility.

Pile driving measurements taken in 2015 for pile driving work on the current gangway recorded a range of noise levels during impact hammer driving of 36-inch steel piles. Sounds ranged between 172 to 205 dB peak, 149 to 183 dB RMS, and 139 to 171 dB SEL. All driving in 2015 utilized a bubble curtain. These levels indicate an attenuation of up to 30 dB provided by the bubble curtain when compared to unattenuated levels. To comply with NMFS recommendations for estimating bubble curtain performance, Illingworth and Rodkin (2024) applied a conservative 10 dB attenuation to avoid under predicting potential impacts.

Based on the information provided above, Illingworth and Rodkin (2024) calculated distances to various acoustic thresholds which are shown below in Table 8. Because sound propagation in the vicinity of the proposed Project is constrained by contours in the Mare Island Strait, sound is expected to only propagate up and down the channel for a certain distance. Therefore, Illingworth and Rodkin's assessment of distance for noise impact from this Project was limited to 3,280 meters north (upstream) and 5,600 meters south (downstream) under worst-case conditions.

Table 8. Distance to Adopted Fish Thresholds for All Piles

DRIVING METHOD	PILE TYPE	PILE SIZE (INCHES)	PILES PER DAY	STRIKES PER PILE or MINS OF VIBRATORY	ATTENUATION INCLUDED	DISTANCE TO FISH THRESHOLDS (meters)			
						PEAK 206 dB	RMS 150 dB	CUMULATIVE SEL 187 dB	CUMULATIVE SEL 183 dB
Impact	Steel pipe	12	4	450	No	-[1]	858	93	173
Impact	Steel pipe	12	4	450	Yes	-[1]	398	43	80
Impact	Steel pipe	36	4	450	No	22	3,280 / 5,600[3]	801	1,480
Impact	Steel pipe	36	4	450	Yes	-[1]	1,585	173	319
Vibratory	Steel pipe	12	4	120	No	-[2]	22	-[2]	-[2]
Vibratory	Steel pipe	36	4	120	No	-[2]	159	-[2]	-[2]

1. Threshold distance does not extend past 10 meters.
2. These impact criteria do not apply to vibratory driving.
3. These are the maximum distances upstream/downstream sound can travel from the Project.

As presented in Table 8, attenuated pile driving distances are substantially less than unattenuated driving when using an impact hammer. As such, if the Project were to drive piles with an impact hammer and no attenuation was used, effects could extend substantially further, causing disruptions to fish behavior, as well as potentially causing injury throughout much of the Mare Island Channel.

Implementation of Mitigation Measure BIO-2, above, requires all in-water work be limited to August 1 through November 30. By limiting pile driving to this work window, the proposed Project will minimize the possibility that fish are present when work occurs, thus most special-status fish species are not likely to be affected by work during this period. In addition, noise produced by the proposed Project which might behaviorally affect fish would not be likely to impede important stages of migrations as fish pass through the Mare Island Strait en route to natal streams or to the Pacific Ocean. During the in-water work window, more sensitive life stages (i.e., eggs, larvae, or very small juveniles) are also not present, further reducing effects on these sensitive life stages.

Because most fish species are likely to be absent except during migratory periods, working during the recommended in-water work window would reduce impacts to most species; however, adherence to this window alone would not be sufficient to reduce effects of pile driving to all special-status species of fish as some may occur year-round; therefore, pile driving may have significant impacts to fish unless mitigation measures are incorporated. To reduce potential impacts to fish to a less-than-significant level, in addition to Mitigation Measures BIO-1 through BIO-7, the following measures shall be implemented during any in-water work:

MITIGATION MEASURE BIO-7: PILE DRIVING

Prior to initiation of construction, WETA shall consult with regulatory agencies with jurisdiction over the proposed Project activities, such as CDFW, NMFS, and USFWS to obtain any necessary permits and shall follow all requirements of those permits. If permit requirements conflict with requirements below, the permit requirements shall take precedence.

The following measures shall be implemented during the driving of all piles to reduce any effects from pile driving to less than significant levels:

- In water work shall be limited August 1 – November 30 as indicated in Mitigation Measure BIO-2 unless otherwise approved by regulatory agencies.
- Any wildlife encountered within the work area shall be allowed to leave the area unharmed.

The following measures shall also be included for times when work involves driving steel piles.

- To the extent possible, pile driving of steel piles shall be conducted with a vibratory hammer.
- If use of an impact hammer is necessary, the following additional measures shall be employed:
  - A bubble curtain shall be deployed around each steel pile during installation.
  - Use of a slow start (gradually increasing energy and frequency) at the start of driving, or after a cessation of driving for more than 1 hour.
  - Underwater sound monitoring shall be performed during pile driving activities. Sound monitoring shall be completed for a minimum of 5% of each pile size and type utilized during construction to verify consistency with sound measurements of similar pile types and sizes documented for other projects. If sound measurements exceed those taken from similar pile types and sizes for other projects, additional sound attenuation measures, enhanced bubble curtains, or limiting pile strikes shall be implemented, and sound measurements shall be tested again to achieve sound levels similar to other projects.

With implementation of Mitigation Measures BIO-1 through BIO-8, impacts to fish from in water construction would be less than significant.

POTENTIAL IMPACT BIO-5: SHADING

Overwater structures can alter underwater light conditions and result in a decrease in photosynthesis of diatoms, benthic algae, eelgrass, and other aquatic organisms. This decrease in primary productivity can then lead to a decrease in prey items for fish at higher trophic levels (Nightingale and Simenstad 2001). Additionally, invertebrates, fish, and aquatic plant occurrences under such structures have been found to be limited when compared to unshaded and vegetated habitat (Nightingale and Simenstad 2001, Thayer et al. 1984).

Light conditions under the existing passenger float and gangway system are such that no light can penetrate the surface at any point. The proposed Project would increase the extent of overwater shading compared to the existing condition; the net increase in overwater shading varies among the three proposed Project Configurations as summarized in Table 9, below.

Table 9. Anticipated Shading Impacts of Each proposed Project layout configuration

	OVERWATER COVERAGE AREA (square feet)	NET DIFFERENCE FROM EXISTING (square feet)
Existing Structure	4,990	-
CONFIGURATIONS		
Proposed Project	9,645	+ 4,665 (+ 93%)
Configuration Option 1	8,013	+ 3,023 (+ 61%)
Configuration Option 2	8,014	+ 3,024 (+ 61%)

While all three proposed Project Configurations would expand shading over what are currently open waters, the benthic communities which would be shaded are also currently dredged and maintained to provide ferry terminal access and berthing. Both existing and proposed shaded areas are therefore already frequently disturbed to facilitate safe berthing of ferries. As such, no aquatic vegetation is present that would be affected by the change in shade conditions.

Further, waters of the Mare Island Strait are tidal, with currents regularly reaching 2.0 knots during the peak in tidal exchange (NOAA 2023). At these current speeds, we estimate that any primary producers which drift under the dock during tidal exchange would be temporarily shaded for approximately 30-60 seconds as waters pass beneath the dock. Therefore, the expansion of overwater shading that would result from the proposed Project would not result in prolonged shading of any primary producers. In addition, the purpose of the proposed Project is to reduce the frequency with which maintenance dredging is required in the area, which would reduce the rate of disturbance to the benthos, likely resulting in net benefits to primary producers within the proposed Project Area over time. Therefore, overwater shading on primary producers and benthic communities would be less than significant.

POTENTIAL IMPACT BIO-6: FISH ENTRAINMENT DURING DREDGING

The proposed Project may dredge material from within the existing ferry terminal basin and adjacent to the proposed temporary ferry terminal location to ensure vessels required to implement the proposed Project are able to access the proposed Project Area. Dredging has the potential to entrain fish during the process of collecting bottom sediments. Life stages which are immobile, such as eggs and larvae, are most susceptible to dredging and are more likely to be entrained due to their inability to self-relocate (Wenger et al. 2017); however, as stated above, there are no spawning beds for any species present within the proposed Project Area as it does not include freshwater streams or substrates required for any of the anadromous species. In addition, through implementation of Mitigation Measure BIO-2, in-water work would be limited to occur between August 1 and November 30 when most species are absent. If fish are present, they are fully mobile juveniles or adults which are able to avoid areas of disturbance associated with dredging. Further, dredging would be limited to using clamshell or mechanical dredging which is far less likely to entrain fish than suction or hopper dredging (Reine 1998). Clamshell dredging is often used as the preferred alternative due to the lower likelihood of entrainment.

The combination of adherence to in-water work windows (Mitigation Measure BIO-2) and the use of mechanical dredging methods would reduce the potential for entrainment of special-status fish species during dredging to a level that is less than significant; therefore, implementation of Mitigation Measures BIO-1 through BIO-6 would reduce effects of dredging on fish to less than significant levels.

CRITICAL HABITAT

Critical habitat within this portion of San Pablo Bay is present for Sacramento River winter-run Chinook salmon, Central California Coast steelhead, and southern DPS green sturgeon. For all three species, the proposed Project Area functions as an estuarine corridor, the primary function being to promote movement of species from freshwater spawning areas to the Pacific Ocean and back.

The proposed Project would not create an aquatic trap, or barrier that might impede fish movement. The proposed Project would be permeable to water and fish movement such that a fish may move around these objects easily, without risk of being trapped. As such, the new structures proposed by the proposed Project do not represent a significant barrier that would cause a cessation to movement or significant delay for migrating fish; therefore, impacts would be less than significant. Other potential impacts to critical habitat for these species are mitigated through the implementation of Mitigation Measures BIO-1 through BIO-9.

7.1.3 Special-Status Bird Species

The proposed Project has the potential to impact native nesting birds. No special-status birds are likely to nest within the fully developed shoreline or on the existing ferry terminal due to the highly modified and developed nature of the active ferry terminal. These features do not contain specialized habitats such as salt marsh or sandy shoals which might support special-status nesting birds found in the vicinity; however, non-special-status nesting birds protected by the Migratory Bird treaty Act as well as the California Fish and Game Code may nest on or near these structures and be affected by construction related activities if construction occurs during the nesting season. Non-special-status birds may vary in size and species from small passerines such as black phoebe (*Sayornis nigricans*) to larger and more charismatic raptors such as osprey (*Pandion haliaetus*). All such species could be affected similarly through noise, vibratory, or visual disturbance, and have similar nesting bird survey protocols to identify nesting locations; therefore, these species are addressed collectively below.

POTENTIAL IMPACT BIO-7: NESTING BIRDS

Non-special-status birds may nest on buildings, structures, or within limited landscaped vegetation within the proposed Project Area between February 1 and August 31. proposed Project activities during this time may directly remove or destroy active nests or may indirectly cause nest abandonment through audible, vibratory, and/or visual disturbances. Loss of active nests due to activities of the proposed Project would be considered a significant impact under CEQA.

To reduce potential impacts to nesting birds to a less-than-significant level, the following measures shall be implemented:

> ***MITIGATION MEASURE BIO-8: NESTING BIRDS***
>
> If construction is initiated outside of the nesting season, between September 1 and January 31, birds are unlikely to be nesting and work would not result in significant impacts to nesting birds; however, should work be initiated during the nesting season (February 1 to August 31), a pre-construction nesting bird survey shall be conducted by a qualified biologist no more than 14 days prior to the start of construction activities. The survey shall cover all areas within 500 feet of planned construction activities. Should an active nest be identified, a high visibility "No disturbance" buffer shall be established by the qualified biologist within the upland areas. Work within aquatic areas shall be provided a map outlining the buffer but due to the need to maintain an open, navigable waterway, buoys, signs, or similar temporary structures shall not be placed in the water to denote the buffer. The buffer distance shall be based upon the species and location of the nest, potential for construction noise, vibration, visual disturbance, or other disruptive metrics to reach and affect nesting.
>
> The buffer shall be maintained until it can be verified by a qualified biologist that the nestlings have fledged, or the nest has failed. Should construction activities cease for 14 or more consecutive days during the nesting season (February 1 – August 31), an additional nesting bird survey shall be conducted prior to resuming construction.

With implementation of Mitigation Measure BIO-9, impacts to nesting birds would be less than significant with mitigation incorporated.

7.1.4 Marine Mammals

Marine mammals are known to occur within San Pablo Bay and the Mare Island Channel including harbor seals (*Phoca vitulina*) and California sea lion (*Zalophus californianus*). Both species are known to occur in the vicinity of the Project Area primarily when migrating through the waters of the proposed Project Area or the adjacent Carquinez Strait during seasonal periods, often following returning salmon, or when foraging for other fish species. No islands or sandy beaches are present within the proposed Project Area or immediately adjacent that might support haul-outs, colony basking sites or breeding grounds for marine mammals. The shoreline surrounding the proposed Project is heavily developed with seawalls, making it unsuitable for use by basking or hauled-out marine mammals. Most commonly, marine mammals are observed in this area foraging or moving through open waters in route to other locations where haul-outs, rookeries or similar sites of aggregation are known. Given the lack of suitable haul-out locations, and no known colony locations, a small number of individual marine mammals may be present while moving through or foraging within the proposed Project Area. Potential impacts to marine mammals in addition to Impacts BIO-1 through BIO-4 (potential impacts which may affect all species) are discussed in more detail below.

POTENTIAL IMPACT BIO-8: NOISE IMPACTS TO MARINE MAMMALS

Similar to fish, marine mammals can be injured if sounds produced by construction-related activities surpass certain thresholds. Injury to marine mammals from noise relates primarily to hearing damage or loss, and the thresholds for injury differ from those established for fish. The

NMFS thresholds for Post-Traumatic Stress (PTS) onset of pinnipeds vary by group and by the type of sound (peak vs cumulative; impulsive vs non-impulsive). The values established by NMFS for injury to marine mammals from pile driving are provided in the table below. Different pile driving methods produce different types of sounds (impulsive sounds [i.e., impact hammers] versus non-impulsive sounds [i.e., vibratory hammers]), and so they have different potentials for effect (NMFS 2018).

The marine mammals most likely to occur in the proposed Project Area are harbor seals and California sea lions. The sound levels at which PTS onset begins are presented in Table 10, below.

Table 10. NMFS Threshold Criteria for Select Marine Mammals

SPECIES	UNDERWATER NOISE THRESHOLDS (dB)				
	VIBRATORY PILE-DRIVING DISTRUBANCE THRESHOLD (*LEVEL B HARASSMENT*)	IMPACT PILE-DRIVING DISTURBANCE THRESHOLD (*LEVEL B HAREASMENT*)	MARINE MAMMAL HEARING GROUP	PTS SEL_{cum} THRESHOLD PEAK – dB re 1 μPa SEL_{cum} – dB re 1 μPa^2-sec	
				IMPULSIVE (IMPACT PILE DRIVING)	NON-IMPULSIVE (VIBRATORY PILE DRIVING)
Pinnipeds	120 dB RMS	160 dB RMS	Phocid	218 dB Peak 185 dB SEL_{cum}	201 dB SEL_{cum}
			Otariid	232 dB Peak 203 dB SEL_{cum}	219 dB SEL_{cum}

To determine if pile driving has the potential to surpass these thresholds, NMFS has developed a calculator which allows biologists to model the distance at which thresholds for pinnipeds and other wildlife may be met or exceeded (NMFS 2022). Calculations require the same reference data which are presented above in Table 7. Based on the hydroacoustic analysis performed by Illingworth and Rodkin (2024) for the proposed Project, even small steel piles have the potential to exceed onset PTS thresholds noted for pinnipeds as shown in Table 11, below.

Table 11. Distance to the Adopted Marine Mammal Thresholds for Different Pile-Driving Activities

DRIVING METHOD	PILE TYPE	PILE SIZE (inches)	PILES PER DAY	STRIKES PER PILE or MINS OF VIBRATORY	ATTENUATION INCLUDED	Level A Injury Zone. Using SEL_{cum} Threshold (meters)		Level B Harassment Zone (meters)
						Phocid	Otariid	
Impact	Steel pipe	12	4	450	No	92	-[1]	185
Impact	Steel pipe	12	4	450	Yes	43	-[1]	86
Impact	Steel pipe	36	4	450	No	791	58	1,585
Impact	Steel pipe	36	4	450	Yes	170	12	342
Vibratory	Steel pipe	12	4	120	No	-[1]	-[1]	2,154

DRIVING METHOD	PILE TYPE	PILE SIZE (inches)	PILES PER DAY	STRIKES PER PILE or MINS OF VIBRATORY	ATTENUATION INCLUDED	Level A Injury Zone. Using SEL_{cum} Threshold (meters)		Level B Harassment Zone (meters)
						Phocid	Otariid	
Vibratory	Steel pipe	36	4	120	No	49	-[1]	3,280 / 5,600[3]
1. Threshold distance does not extend past 10 meters.								

Without incorporation of mitigation measures, sounds produced from pile driving could cause behavioral changes or may result in the onset of PTS for marine mammals. These impacts would be considered significant under CEQA.

MITIGATION MEASURE BIO-9: MARINE MAMMALS

In addition to implementation of Mitigation Measure BIO-8: Pile Driving, the project shall implement the following measures to reduce impacts to marine mammals from in-water construction.

- During all construction work where materials are being actively placed below the water line, a marine mammal monitor shall be present to observe and document marine mammal presence.
- During pile driving, if a marine mammal is within the buffer distance identified in by the hydroacoustic analysis performed by Illingworth and Rodkin for the proposed Project (see Table 12, above), or within distances approved by NMFS based on future updated construction drawings and contractor input, the marine mammal monitor shall inform the construction crew and work shall temporarily halt until the animal has passed outside of the disturbance buffer.

With implementation of Mitigation Measure BIO-8 and Mitigation Measure BIO-11, impacts to marine mammals would be less than significant with mitigation incorporated**.**

POTENTIAL IMPACT BIO-9: SHIP TRAFFIC IMPACTS TO MARINE MAMMALS

The proposed Project occurs within the Mare Island Strait of the Napa River in an area that already supports existing ferry traffic as well as larger ships that utilize the Mare Island Dry Docks on the opposite side of the river, adjacent to the proposed Project Area.

The proposed Project would not result in an overall increase in vessel traffic within the Napa River. WETA would continue to operate the new structure as a ferry terminal servicing its ferry route in a manner similar to the current operations with a similar number of ferries per day, thus maintaining baseline conditions. Therefore, implementation of the proposed Project would not result in significant impacts to marine mammals from ship traffic compared to the existing condition.

7.2 Sensitive Natural Communities and Land Cover Types

This section addresses the question:

b) Does the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or U.S. Fish and Wildlife Service;

The proposed Project Area is located within EFH for three fisheries management plans: Coastal Pelagic, Pacific Groundfish and Pacific Salmon. EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries, which may include the water column, certain bottom types (e.g., rocky reefs), vegetation (e.g., eelgrass beds), or complex structures such as oyster beds. Most benthic substrates consist of silt and mudflat within the proposed Project Area. These areas are typically low-productivity areas which are more commonly traversed by migratory species. The absence of any reefs, freshwater streams, eelgrass beds, or similar complex habitat features make this area important primarily as a migratory corridor, allowing EFH species to move from place to place. As discussed with regard to critical habitat (above) and in Section 7.4 (below), the proposed Project is not anticipated to have a significant impact on migratory corridors.

7.3 Aquatic Resources

This section analyzes the proposed Project's potential impacts and mitigation for wetlands and other areas presumed or determined to be within the jurisdiction of the Corps or BCDC in reference to the significance threshold outlined in CEQA Appendix G, Part IV (c):

c) Does the Project have the potential to have a substantial adverse effect on state or federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

The nature of the proposed Project means that it will need to affect open waters of San Francisco Bay. As described above, the proposed Project would expand overwater cover by approximately 2,565 to 3,780 square feet (see Table 8, above). However, as discussed above, shading effects resulting from the proposed Project are expected to be less-than-significant. In addition, in-water work would result in the following potentially significant impacts discussed above for special-status species:

- **Potential Impact BIO-1:** Potential Introduction of Invasive Species
- **Potential Impact BIO-2:** Spills and Debris
- **Potential Impact BIO-3:** Dredging and Pile-Driving Related Turbidity and Toxic Materials

These impacts are mitigated to a level of less than significant by Mitigation Measures BIO-1 through BIO-6. In addition, installation of piles in aquatic areas does not have a substantial adverse effect on the continued water resources function of a water body, as demonstrated by the fact that the Corps does not regulate piles as fill under the Clean Water Act (see *33CFR328.3*); therefore, the installation of piles themselves is a less-than-significant impact. Potential impacts to aquatic resources from the installation of piles are associated with the overwater structures that they support. Therefore, with implementation of Mitigation Measures BIO-1 through BIO-6, impacts to aquatic resources would be less-than-significant.

7.4 Wildlife Corridors and Native Wildlife Nursery Sites

This section analyzes the proposed Project's potential impacts and mitigation for habitat corridors and linkages in reference to the significance threshold outlined in CEQA Appendix G, Part IV (d):

> *d) Does the Project have the potential to interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;*

As noted above in Section 5.2.2, special-status fish are known to migrate through the waters of the proposed Project Area when making seasonal movements between core habitat areas (e.g., natal streams or the Pacific Ocean). Maintaining the ability of these species to migrate between core habitat areas is necessary for the continuation of these species and maintenance of the wildlife corridor which connects them.

The proposed Project Area does not support rookery sites, or colonial nesting sites for species such as monarch butterflies, egrets, herons, or marine mammals therefore no such nursery sites will be affected. No eelgrass beds occur within the proposed Project Area which could have functioned as a nursery site for fish species which can spawn and rear within eelgrass. The proposed Project Area lies along the migratory route for salmonids when moving from natal streams in the Central Valley, and the Pacific Ocean, as such it also functions as a migratory corridor for fish. If construction were to occur at times of year when larval fish were present, or when migratory events for fish were occurring, construction activities may have the potential to impact such events, which would be considered a significant impact under CEQA.

However, Mitigation Measure BIO-2 will restrict any in water work to a period between August 1 and November 30, which is outside the period when salmonids or other anadromous species typically migrate to the ocean, or when they return to natal streams. Thus, implementation of Mitigation Measure BIO-2 reduces impacts to migratory corridors to **less-than-significant levels**. Further, by timing in-water construction activities later in the summer and fall, this is outside of the time when larval or fry life-stages of fish are present; therefore, with implementation of Mitigation Measure BIO-2, all in-water construction would occur outside of the times when sensitive life stages are present. Implementing additional Mitigation Measures BIO-1 through BIO-10 (excluding Mitigation Measure BIO-9 for nesting Birds) also reduces the potential impacts to fish during critical periods by maintaining habitat quality such that, when fish do return, there are not toxic conditions present that might deleteriously affect them.

Additionally, the proposed Project would not create an aquatic net, trap, or barrier that might impede fish movement. The proposed Project would be permeable to water and fish movement such that a fish may move around these objects easily, without risk of being trapped behind an impermeable barrier. As such the new structures do not represent a significant barrier that would cause a cessation to movement, disorientation, or significant delay for migrating fish. Any immediate effects to migration or natal sites from construction are largely avoided through the use of the in-water work window, while all remaining mitigation measures reduce potential indirect effects that might alter habitat suitability later in time. As such implementation of Mitigation Measures BIO-1 through BIO-9 will reduce any effects to nursery sites or migratory corridors to less than significant levels.

7.5 Local Policies and Ordinances

This section analyzes the proposed Project's potential impacts and mitigation based on conflicts with local policies and ordinances in reference to the significance threshold outlined in CEQA Appendix G, Part IV (e):

> *e) Does the Project have the potential to conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;*

The proposed Project is located in the City of Vallejo. City of Vallejo General Plan Policies NBE-1.1, NBE-1.2, NBE-1.3, NBE-1.4, and NBE-1.6 are directly and indirectly related to biological resources in the proposed Project Area. The proposed Project is consistent with these local policies and ordinances both through design and through mitigation measures to protect environmental resources described above and required as part of the proposed Project; therefore, there is **no impact** to the function of any local policies or ordinances.

7.6 Habitat Conservation Plans

This section analyzes the proposed Project's potential impacts and mitigation based on conflicts with any adopted local, regional, and state habitat conservation plans in reference to the significance threshold outlined in CEQA Appendix G, Part IV (f):

> *f) Does the Project have the potential to conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*

Currently the only Habitat Conservation Plan (HCP) which overlaps with the proposed Project Area is the Solano Multispecies HCP. This HCP is overseen by the Solano County Water Agency (LSA 2012). The proposed Project Area for this proposed Project is already developed and occurs within the Impaired Open Water Habitats projected for the Solano Multispecies HCP. Napa River is also not one of the proposed aquatic areas or drainages ranked as a priority for conservation. Lastly, the majority of the Solano HCP focuses on uplands and streams, less so than open waters of the Bay; therefore, the proposed Project occurs in an area that is projected as part of the urban expansion boundary and does not conflict with the provisions of the Solano HCP as it largely covers developed open waters which are not marked for conservation within the proposed Project Area and there is **no impact** to the function of the Solano County Multispecies HCP.

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APPENDIX A. FIGURES

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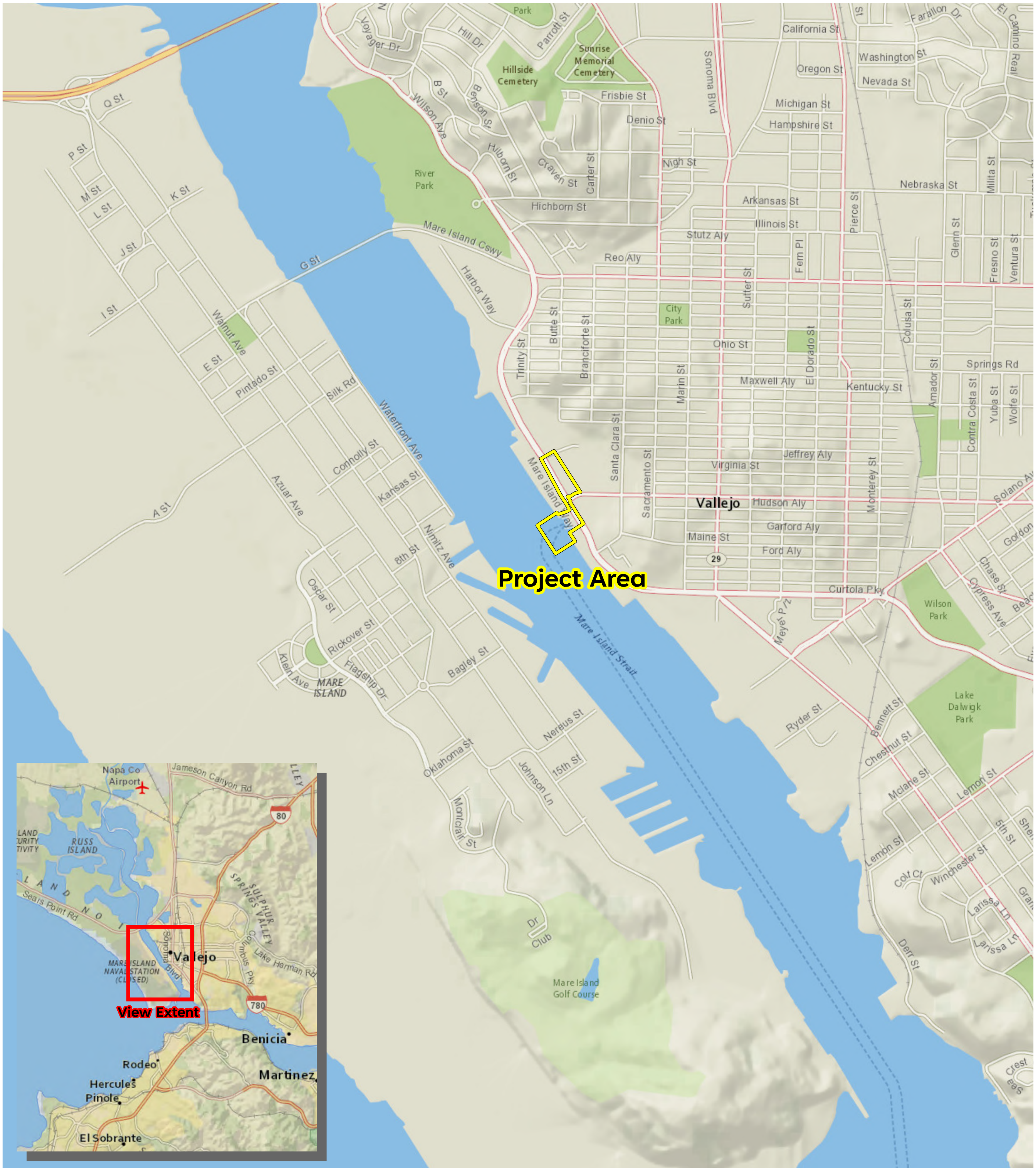

Sources: National Geographic, WRA | Prepared By: kobylarz, 12/29/2023

Figure 1. Project Area Vicinity

WETA Vallejo Ferry Terminal
Reconfiguration Project
Vallejo, Solano County, California

0 0.25 0.5 Miles

N

wra
Environmental Consultants

Path: L:\Acad 2000 Files\320000\320406\GIS\ArcMap\320406Base.aprx Layout Name: Fig 2 Land Cover Types

Sources: USDA NAIP Imagery 2022, Wildfire LiDAR 2018, WRA | Prepared By: njander, 1/22/2024

Figure 2. Land Cover Types within the Project Area

WETA Vallejo Ferry Terminal Reconfiguration Project
Vallejo, Solano County, California

0 100 200 Feet

N

wra Environmental Consultants

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APPENDIX B. PROPOSED PROJECT PLANS

SAN FRANCISCO BAY AREA
WATER EMERGENCY TRANSPORTATION AUTHORITY

VALLEJO FERRY TERMINAL
RECONFIGURATION OPTIONS

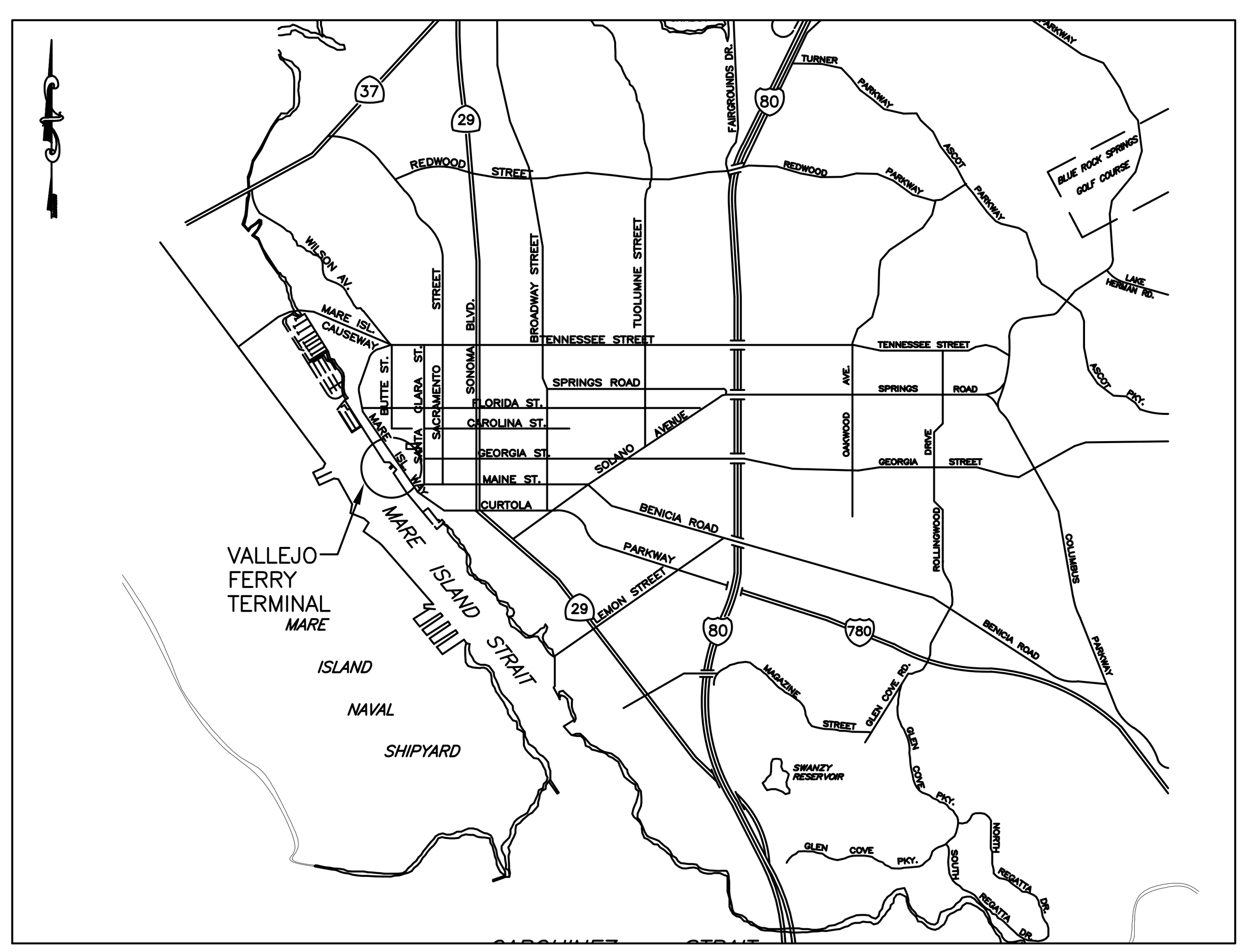
SAN FRANCISCO BAY AREA
WATER EMERGENCY TRANSPORTATION AUTHORITY

San Francisco Bay Ferry
WETA
WATER EMERGENCY TRANSPORTATION AUTHORITY

Prepared by:
Foth & Van Dyke, LLC

Foth

DRAWING INDEX



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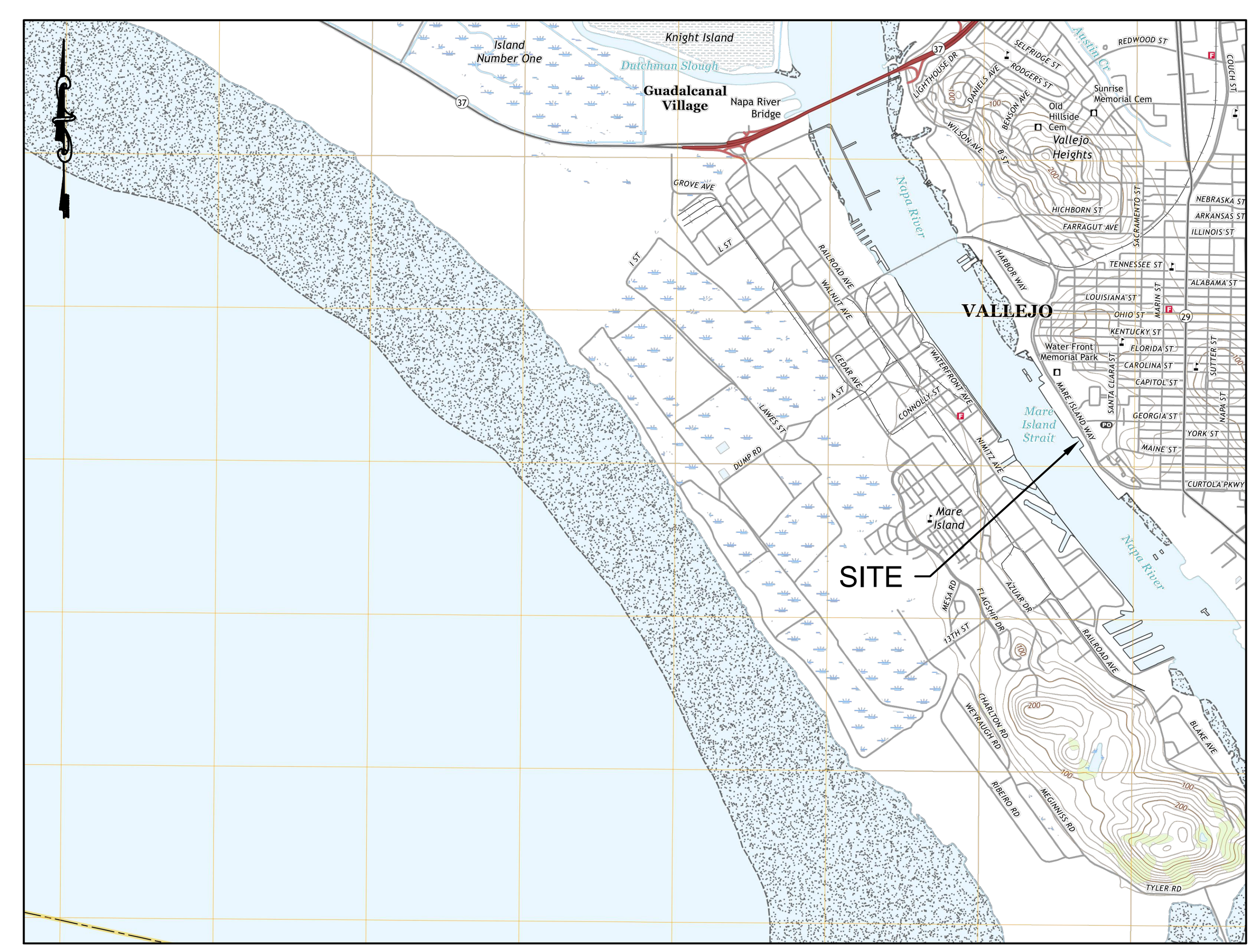

LOCATION MAP

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SHEET NUMBER
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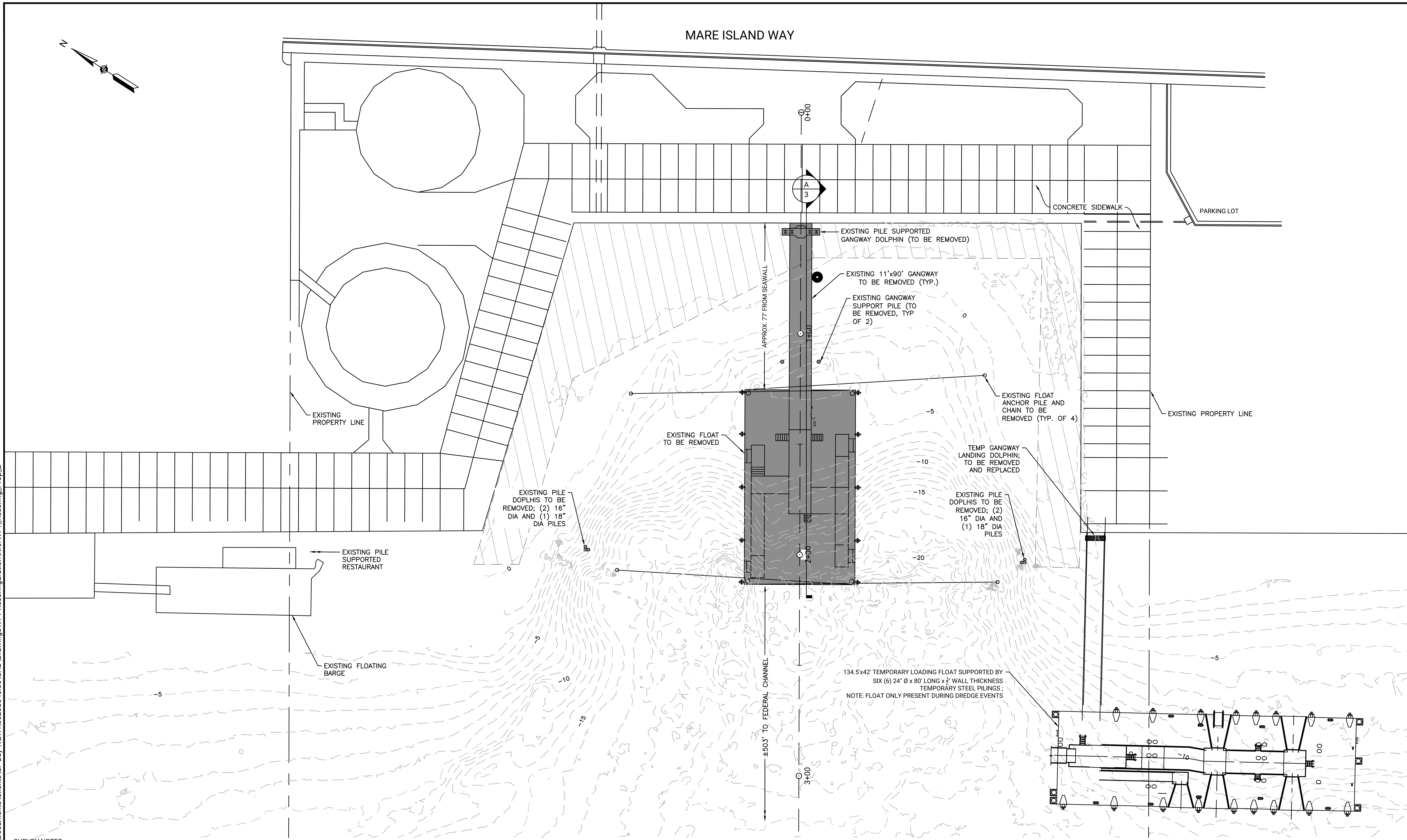

SURVEY NOTES:

1. THE BATHYMETRIC DATA SHOWN ON THIS PLAN WAS GATHERED ON JANUARY 9, 2023 BY BAY MARINE SERVICES (NOVATO, CA).
2. COORDINATES ARE BASED ON NAD 83 STATE PLANE ZONE III CALIFORNIA COORDINATE GRID.
3. SECTIONS AND CONTOURS ARE BASED ON 2X2 AVERAGE VALUE DATA SET.
4. BENCHMARK / RTK TIDES: TIDES ARE RECORDED USING RTK TIDES IN HYPACK. ELEVATIONS FROM ELLIPSOID TO ORTHOMETRIC NAVD88 USE GEOID 12A.
5. RTK CORRECTIONS FOR THIS SURVEY PROVIDED BY KEYNET - VRS (GEOID 12A).
6. BENCHMARK IS REFERENCED IN THE USACE RED BOOK AS THE VERTICAL CONTROL POINT FOR MARE ISLAND STRAIT AS MONUMENT GROTTO (EL. + 8.9' MLLW) REFERENCED TO NAVD88 DATUM AND WAS NOT INDEPENDENTLY VERIFIED.
7. THE INFORMATION ON THIS PLAN REPRESENTS THE RESULTS OF HYDROGRAPHIC SURVEYS PERFORMED ON THE DATES SHOWN AND CAN ONLY BE CONSIDERED AS INDICATING THE SEABED CONDITIONS AT THAT TIME. INTERPOLATED INFORMATION FROM BETWEEN RUNS IS NOT GUARANTEED. SHOALS, OBSTRUCTIONS, OR OTHER DIFFERING CONDITIONS MAY EXIST BETWEEN THESE RUNS. NO SURVEYS WERE CONDUCTED TO LOCATED CHANNEL LIMITS, EASEMENTS, PROPERTY LINES, UTILITIES, GEOTECHNICAL FEATURES, SHORELINES, STRUCTURES, HABITATS OR ANY OTHER FEATURES RELATING TO THE PROJECT SITE, NOR DOES FOTH WARRANT THE EXISTENCE OR LOCATION OF SAID FEATURES.
8. POSSESSION AND USE OF THE MATERIAL CONTAINED ON THESE DRAWINGS IS GRANTED ONLY IN CONNECTION WITH ITS USE AS IT RELATES TO THE TITLED PROJECT, ANY OTHER USE, DISCLOSURE, OR REPRODUCTION OF THE INFORMATION CONTAINED HEREIN, IS EXPRESSLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF FOTH & VAN DYKE AND ASSOCIATES, LLC.

VERTICAL DATUM

1. PROJECT ELEVATION BASED ON MLLW
2. PROJECT CONTROL POINT:

ELEVATION	DESCRIPTION
8.9' MLLW	MONUMENT GROTTO

HORIZONTAL DATUM

PROJECT COORDINATES ARE BASED ON THE CALIFORNIA STATE PLANE COORDINATE SYSTEM NAD 1983, ZONE 3

SURVEY NOTES:

SURVEY DATE:	01/09/2023
SURVEYOR:	K. TWEED, BAY MARINE SERVICES
TRANS./FATH:	RESON 8125H NOVATEL SPAN IMU
WEATHER COND:	CALM, CLEAR, 55°, MOSTLY CLOUDY
PROJECT DATUM:	MLLW
COOR. SYSTEM:	NAD 83 SP III
DATA REDUCTION:	AVERAGE
BENCHMARK:	"GROTTO" EL. 8.9' MLLW

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WETA
WATER EMERGENCY TRANSPORTATION AUTHORITY
San Francisco Bay Ferry

SAN FRANCISCO BAY AREA WETA

VALLEJO FERRY TERMINAL RECONFIGURATION OPTIONS

REVISIONS

NO	BY	DATE	DESCRIPTION
△			
△			
△			
△			
△			

DATE OF PREPARATION

	BY	DATE
SURVEYED		
DRAWN	CFF	11/29/21
DESIGNED	AIM	11/29/21
CHECKED		

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EXISTING CONDITIONS AND DEMOLITION SITE PLAN

ISSUANCE:

DRAFT

PROJECT NO: 20S045.00

SHEET NUMBER

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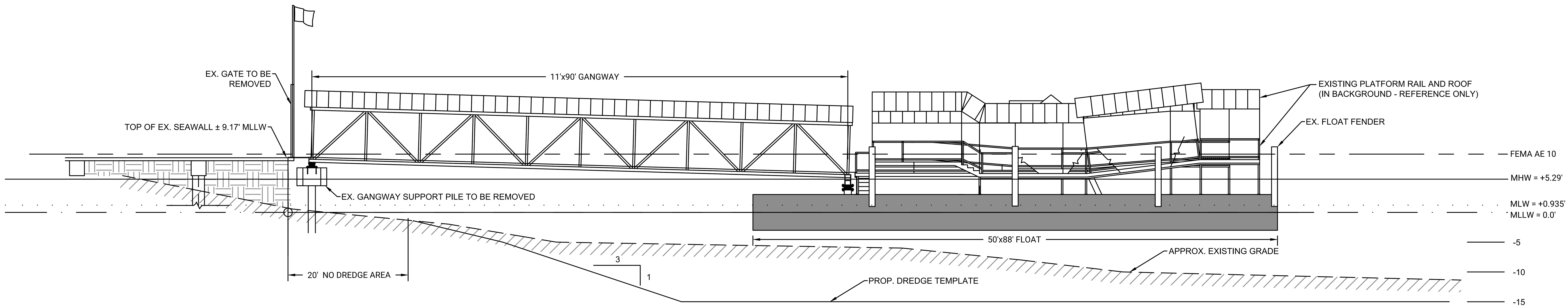

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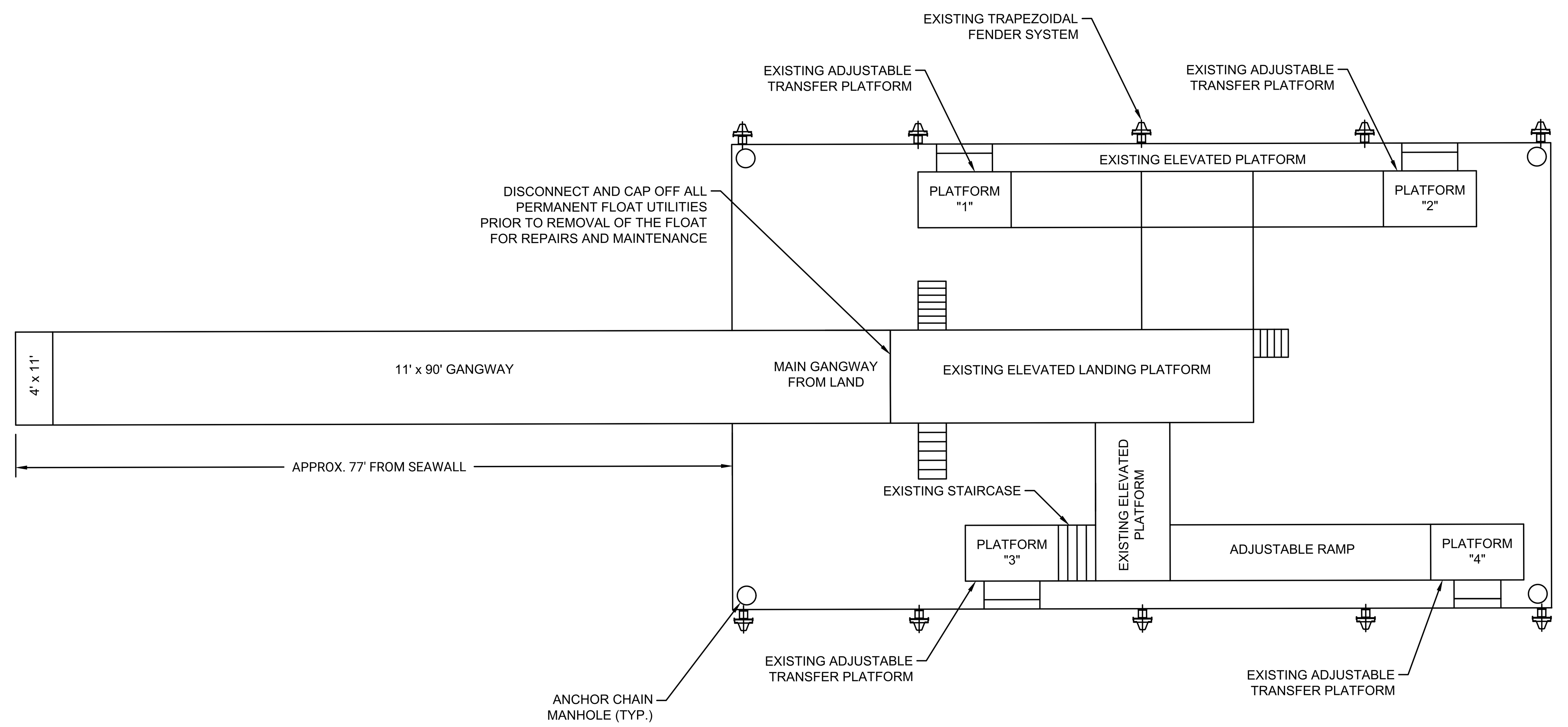

EXISTING LOADING FLOAT DETAILS
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(IN FEET)
1 INCH =10FEET

Foth

WETA
WATER EMERGENCY TRANSPORTATION AUTHORITY
San Francisco Bay Ferry

SAN FRANCISCO BAY AREA
WETA

VALLEJO FERRY TERMINAL
RECONFIGURATION OPTIONS

REVISIONS

NO	BY	DATE	DESCRIPTION
△			
△			
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DATE OF PREPARATION

	BY	DATE
SURVEYED		
DRAWN	CFF	9/22/21
DESIGNED	AIM	9/8/21
CHECKED		

SHEET TITLE:

EXISTING CONDITIONS SECTION & DETAILS

ISSUANCE:

DRAFT

PROJECT NO: 20S045.00

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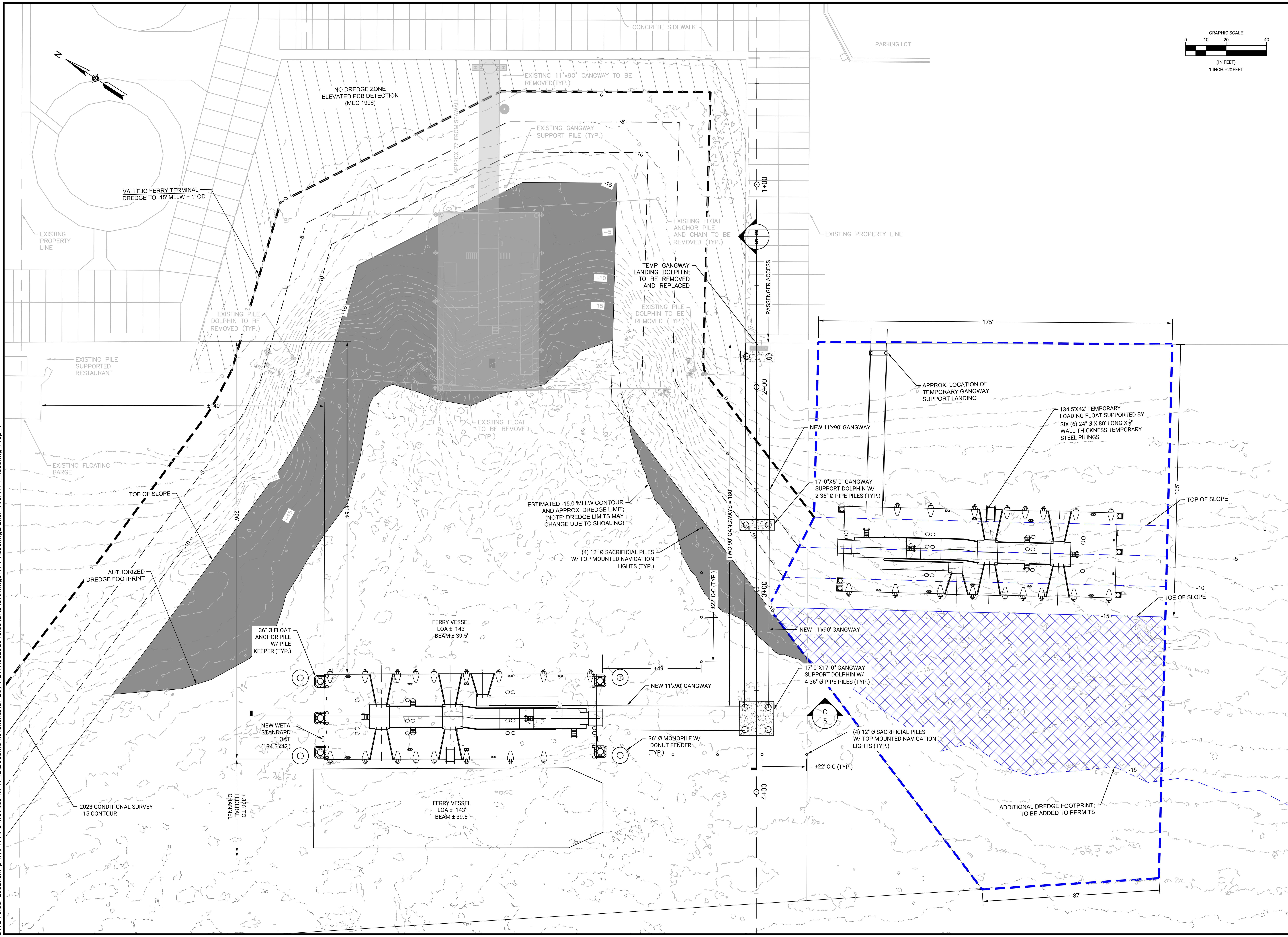

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WETA
WATER EMERGENCY TRANSPORTATION AUTHORITY
San Francisco Bay Ferry

SAN FRANCISCO BAY AREA
WETA

VALLEJO FERRY TERMINAL
RECONFIGURATION OPTIONS

REVISIONS

NO	BY	DATE	DESCRIPTION
1			
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DATE OF PREPARATION

	BY	DATE
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DRAWN	CFF	11/29/21
DESIGNED	AIM	11/29/21
CHECKED		

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ISSUANCE:

DRAFT

PROJECT NO: 20S045.00

SHEET NUMBER

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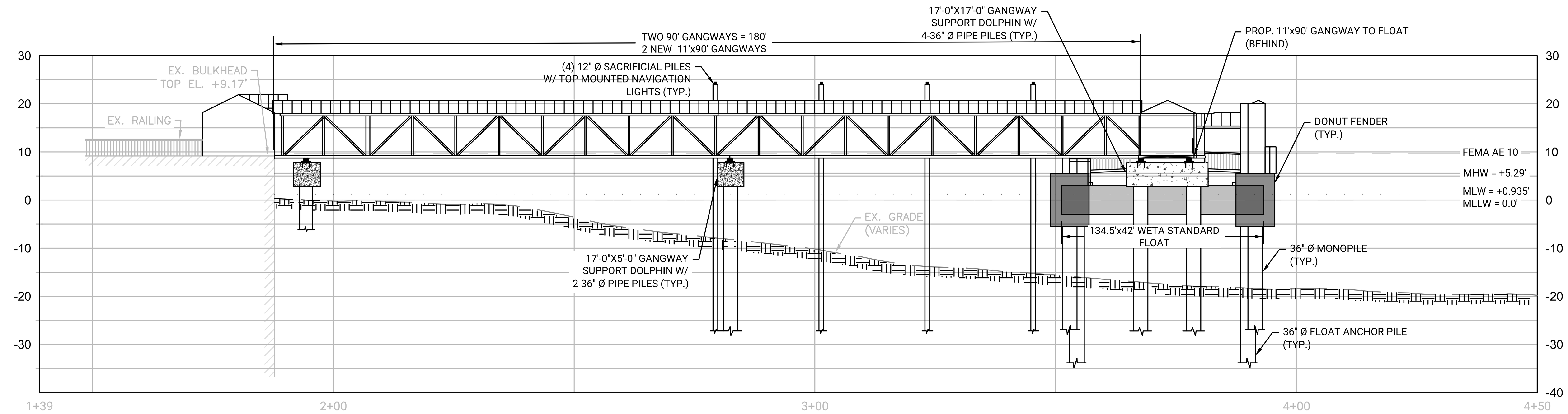

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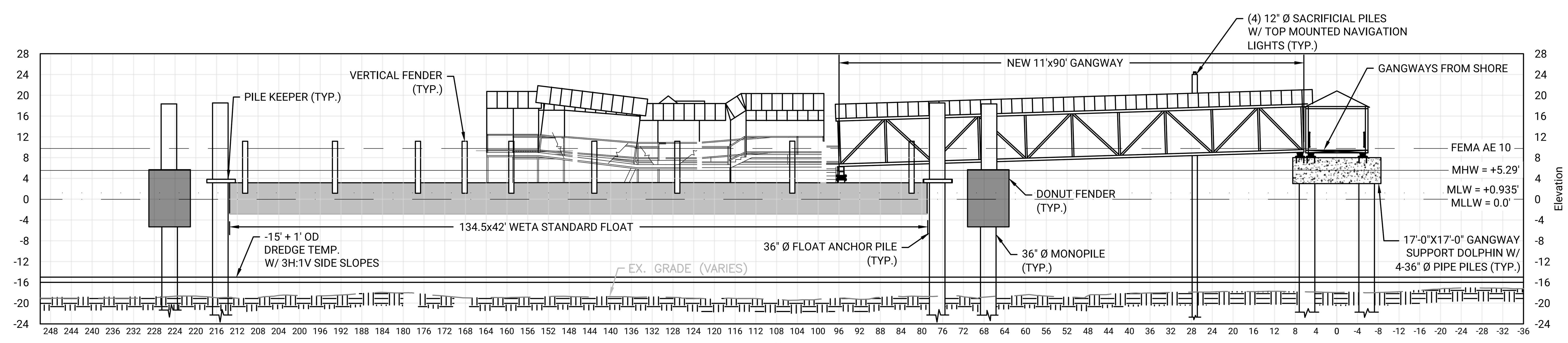

C
5
PROFILE I: OPTION 1
SCALE 1" = 15'

GRAPHIC SCALE
0 7.5 15 30
(IN FEET)
1 INCH = 15FEET

Foth

WETA
WATER EMERGENCY TRANSPORTATION AUTHORITY

San Francisco Bay Ferry

SAN FRANCISCO BAY AREA
WETA

VALLEJO FERRY TERMINAL
RECONFIGURATION OPTIONS

REVISIONS

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DATE OF PREPARATION

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DESIGNED	AIM	11/29/21
CHECKED		

SHEET TITLE:

OPTION 1: PROFILE VIEWS

ISSUANCE:

DRAFT

PROJECT NO: 20S045.00

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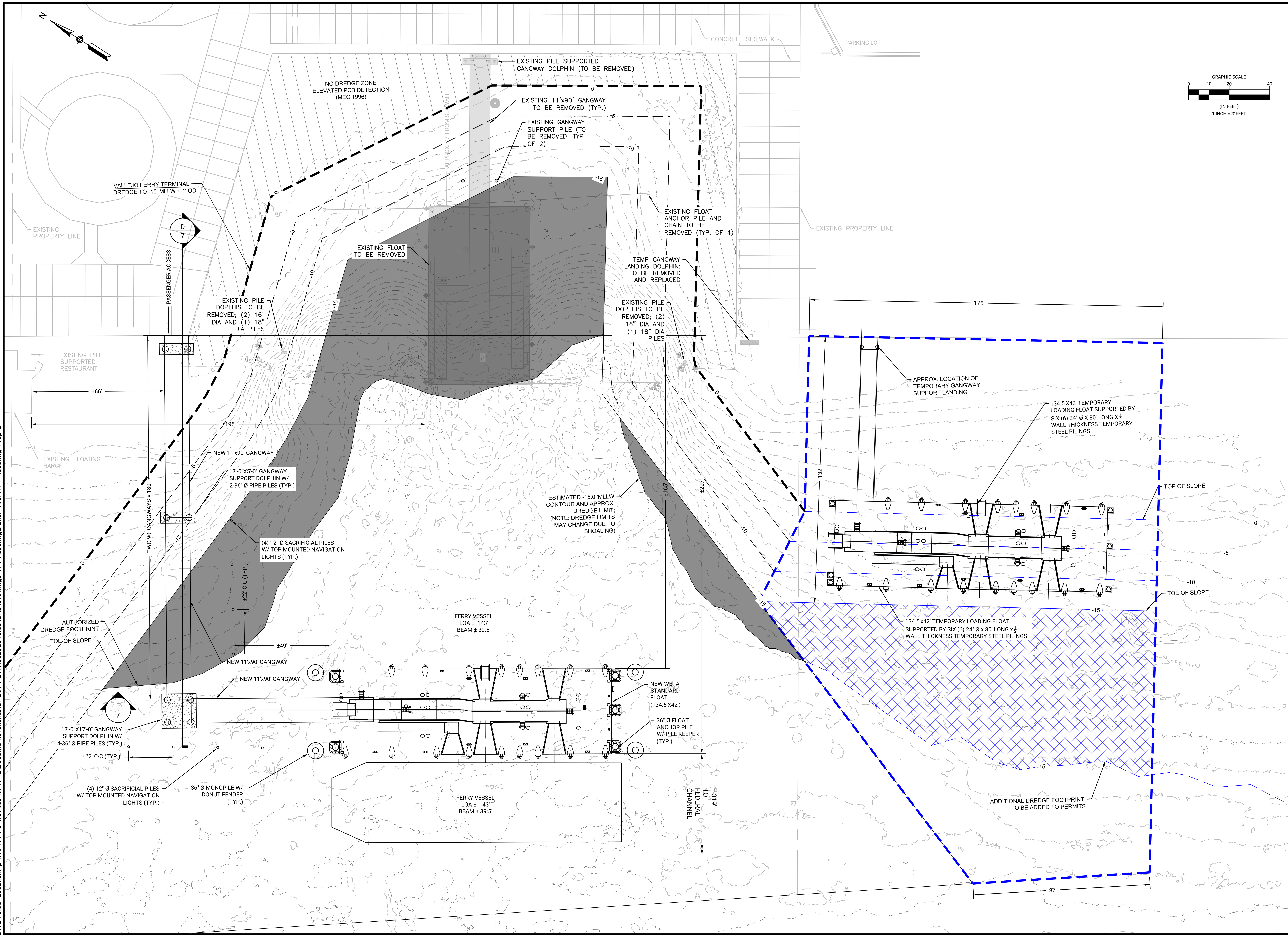

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WETA
WATER EMERGENCY TRANSPORTATION AUTHORITY
San Francisco Bay Ferry

SAN FRANCISCO BAY AREA
WETA

VALLEJO FERRY TERMINAL
RECONFIGURATION OPTIONS

REVISIONS			
NO	BY	DATE	DESCRIPTION
1			
2			
3			
4			
5			

DATE OF PREPARATION

	BY	DATE
SURVEYED		
DRAWN	CFF	11/29/21
DESIGNED	AIM	11/29/21
CHECKED		

SHEET TITLE:

OPTION 2: SITE PLAN W/ EXISTING TEMP. LANDING ORIENTATION

ISSUANCE:

DRAFT

PROJECT NO: 20S045.00

SHEET NUMBER

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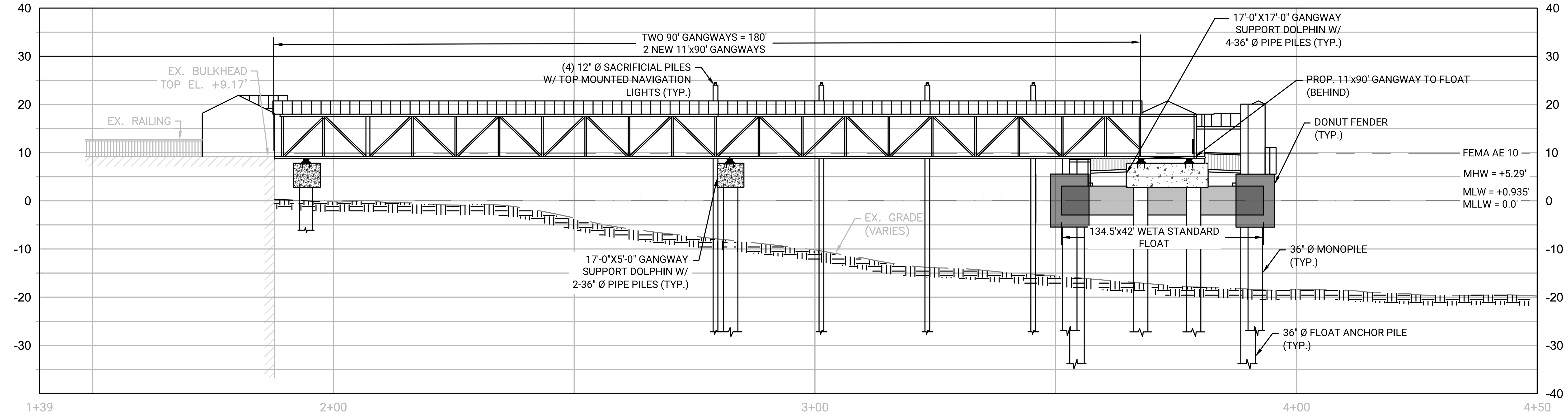

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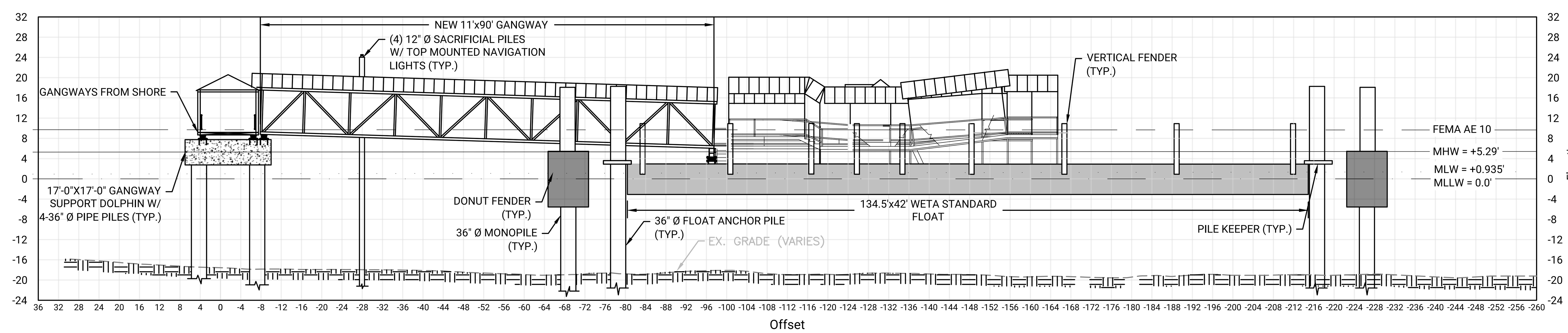

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PROFILE E: OPTION 2
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GRAPHIC SCALE
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(IN FEET)
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WETA
WATER EMERGENCY TRANSPORTATION AUTHORITY
San Francisco Bay Ferry

SAN FRANCISCO BAY AREA
WETA

VALLEJO FERRY TERMINAL
RECONFIGURATION OPTIONS

REVISIONS

NO	BY	DATE	DESCRIPTION

DATE OF PREPARATION

	BY	DATE
SURVEYED		
DRAWN	CFF	11/29/21
DESIGNED	AIM	11/29/21
CHECKED		

SHEET TITLE:

OPTION 2: PROFILE VIEWS

ISSUANCE:

DRAFT

PROJECT NO: 20S045.00

SHEET NUMBER

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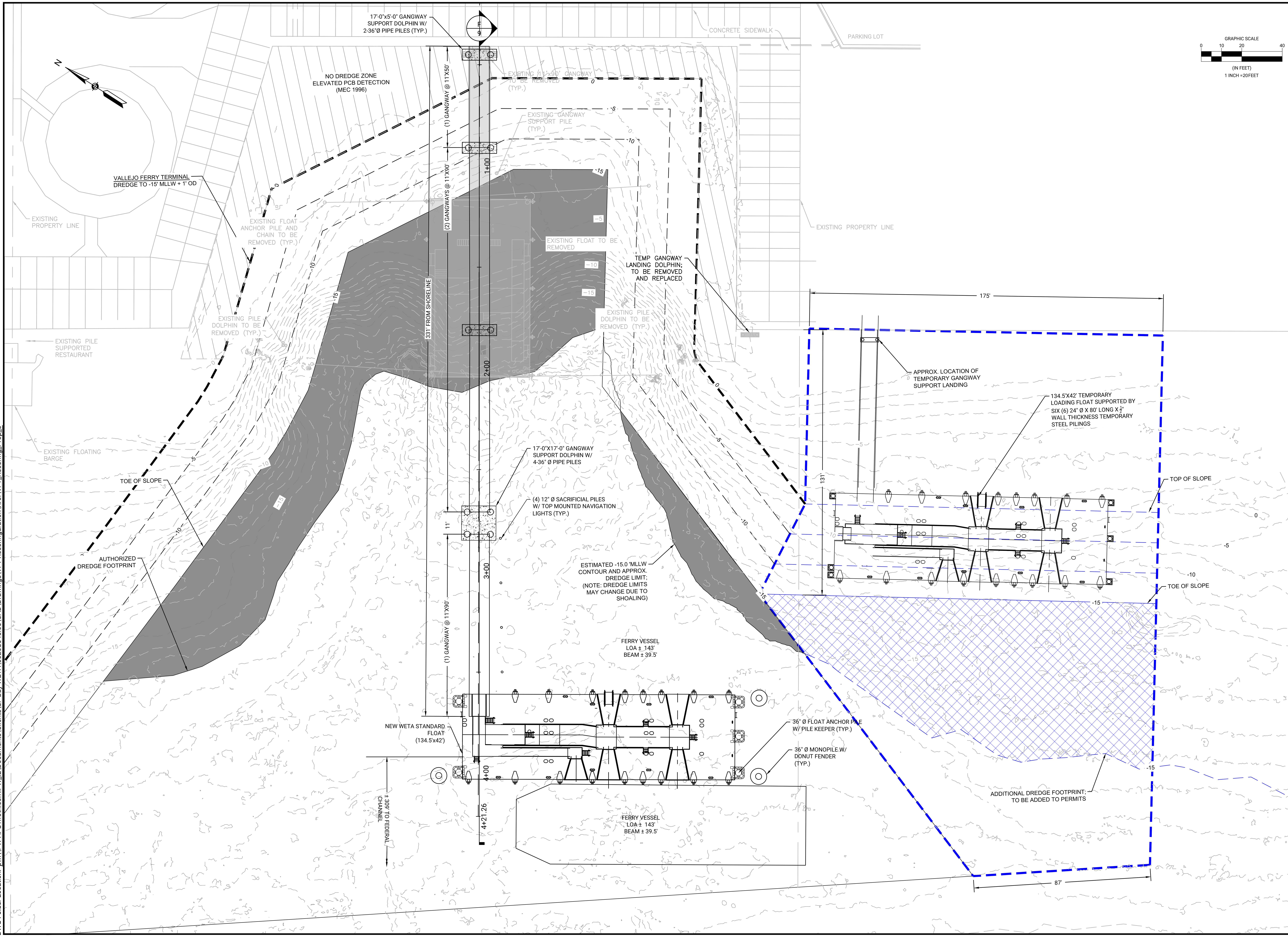

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WETA
WATER EMERGENCY TRANSPORTATION AUTHORITY
San Francisco Bay Ferry

SAN FRANCISCO BAY AREA WETA

VALLEJO FERRY TERMINAL RECONFIGURATION OPTIONS

REVISIONS			
NO	BY	DATE	DESCRIPTION

DATE OF PREPARATION

	BY	DATE
SURVEYED		
DRAWN	CFF	1/13/23
DESIGNED		
CHECKED		

SHEET TITLE:

OPTION 3: SITE PLAN w/ EXISTING TEMP. LANDING ORIENTATION

ISSUANCE:

DRAFT

PROJECT NO:

SHEET NUMBER

8

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APPENDIX C.
SITE PHOTOGRAPHS

Photo 1: The boundary between the developed and open water land cover types within the Study Area. Photo taken on July 25, 2023 facing southeast.

Photo 2: Paved walkways which make up the developed/landscaped portion of the Study Area. Photo taken on July 25, 2023 facing east towards Mare Island Way.

Photo 3: Open water makes up a majority of the Study Area. Photo taken on July 25, 2023 facing south towards San Pablo Bay.

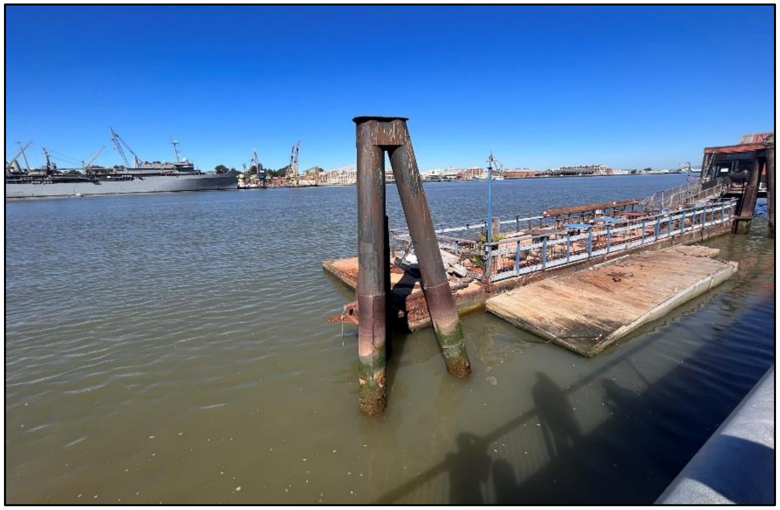

Photo 4: Existing ferry terminal infrastructure. Photo taken on July 25, 2023 facing west towards the Napa River.

Photo 5: The developed/landscaped land cover type is made up of ornamental plant species in addition to paved walk ways. Photo taken on July 25, 2023 facing east towards Mare Island Way.

Photo 6: Existing ferry terminal infrastructure. Photo taken on July 25, 2023 facing southeast.

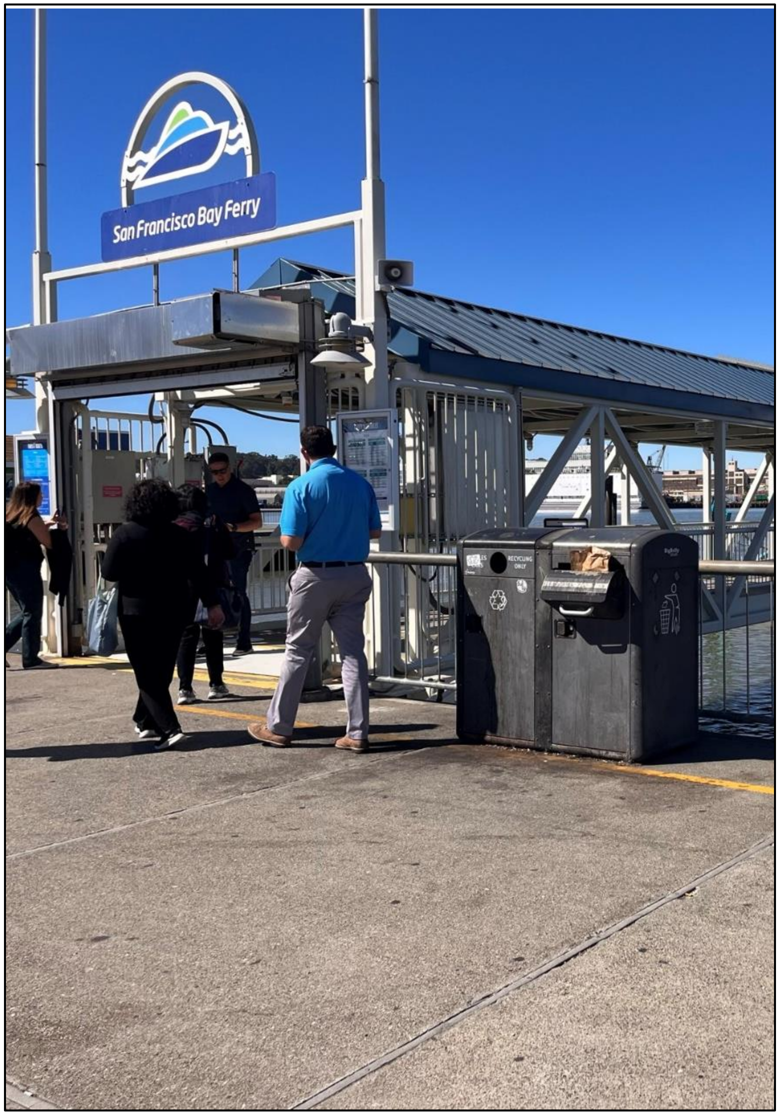

Photo 7: Existing ferry terminal infrastructure and walkways. Photo taken on July 25, 2023 facing southwest.

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APPENDIX D. SPECIAL-STATUS SPECIES POTENTIAL TABLE

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Appendix D. Potential for Special-Status Plant and Wildlife Species to Occur within the proposed Project Area. List Compiled from the California Department of Fish and Wildlife Natural Diversity Database (CDFW 2024), U.S. Fish and Wildlife Service Information for Planning and Consultation Species Lists (USFWS 2024), and California Native Plant Society Rare Plant Inventory (CNPS 2024) search of the Mare Island, Cuttings Wharf, Cordelia, Benicia, Briones Valley, Richmond, San Quentin, Petaluma Point, and Sears Point U.S. Geological Survey 7.5' quadrangles.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
PLANTS				
Napa false indigo *Amorpha californica* var. *napensis*	Rank 1B.2	Broadleafed upland forest (openings), chaparral, cismontane woodland. Elevation ranges from 165 to 6560 feet (50 to 2000 meters). Blooms Apr-Jul.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
bent-flowered fiddleneck *Amsinckia lunaris*	Rank 1B.2	Cismontane woodland, coastal bluff scrub, valley and foothill grassland. Elevation ranges from 10 to 1640 feet (3 to 500 meters). Blooms Mar-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
California androsace *Androsace elongata* ssp. *acuta*	Rank 4.2	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland. Elevation ranges from 490 to 4280 feet (150 to 1305 meters). Blooms Mar-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
coast rockcress *Arabis blepharophylla*	Rank 4.3	Broadleafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub. Elevation ranges from 10 to 3610 feet (3 to 1100 meters). Blooms Feb-May.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
pallid manzanita *Arctostaphylos pallida*	FT, SE, Rank 1B.1	Broadleafed upland forest, chaparral, cismontane woodland, closed-cone coniferous forest, coastal scrub. Elevation ranges from 605 to 1525 feet (185 to 465 meters). Blooms Dec-Mar.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Carlotta Hall's lace fern *Aspidotis carlotta-halliae*	Rank 4.2	Chaparral, cismontane woodland. Elevation ranges from 330 to 4595 feet (100 to 1400 meters). Blooms Jan-Dec.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
alkali milk-vetch *Astragalus tener* var. *tener*	Rank 1B.2	Playas, valley and foothill grassland (adobe clay), vernal pools. Elevation ranges from 5 to 195 feet (1 to 60 meters). Blooms Mar-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
big-scale balsamroot *Balsamorhiza macrolepis*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 150 to 5100 feet (45 to 1555 meters). Blooms Mar-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Sonoma sunshine *Blennosperma bakeri*	FE, SE, Rank 1B.1	Valley and foothill grassland (mesic), vernal pools. Elevation ranges from 35 to 360 feet (10 to 110 meters). Blooms Mar-May.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
big tarplant *Blepharizonia plumosa*	Rank 1B.1	Valley and foothill grassland. Elevation ranges from 100 to 1655 feet (30 to 505 meters). Blooms Jul-Oct.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
serpentine reed grass *Calamagrostis ophitidis*	Rank 4.3	Chaparral (openings, often north-facing slopes), lower montane coniferous forest, meadows and seeps, valley and foothill grassland. Elevation ranges from 295 to 3495 feet (90 to 1065 meters). Blooms Apr-Jul.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Mt. Diablo fairy-lantern *Calochortus pulchellus*	Rank 1B.2	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. Elevation ranges from 100 to 2755 feet (30 to 840 meters). Blooms Apr-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Tiburon mariposa-lily *Calochortus tiburonensis*	FT, ST, Rank 1B.1	Valley and foothill grassland (serpentine). Elevation ranges from 165 to 490 feet (50 to 150 meters). Blooms Mar-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape. Additionally, this species only occurs within a limited range on Ring Mountain.	No further action is necessary for this species.
Oakland star-tulip *Calochortus umbellatus*	Rank 4.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Elevation ranges from 330 to 2295 feet (100 to 700 meters). Blooms Mar-May.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
coastal bluff morning-glory *Calystegia purpurata* ssp. *saxicola*	Rank 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, north coast coniferous forest. Elevation ranges from 0 to 345 feet (0 to 105 meters). Blooms (Mar)Apr-Sep.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Lyngbye's sedge *Carex lyngbyei*	Rank 2B.2	Marshes and swamps (brackish, freshwater). Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms Apr-Aug.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species because it has been developed.	No further action is necessary for this species.
Tiburon paintbrush *Castilleja affinis* var. *neglecta*	FE, ST, Rank 1B.2	Valley and foothill grassland (serpentine). Elevation ranges from 195 to 1310 feet (60 to 400 meters). Blooms Apr-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape and does not contain serpentine soils.	No further action is necessary for this species.
johnny-nip *Castilleja ambigua* var. *ambigua*	Rank 4.2	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pools (margins). Elevation ranges from 0 to 1425 feet (0 to 435 meters). Blooms Mar-Aug.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*	Rank 1B.1	Valley and foothill grassland (alkaline). Elevation ranges from 0 to 755 feet (0 to 230 meters). Blooms May-Oct(Nov).	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
pappose tarplant *Centromadia parryi* ssp. *parryi*	Rank 1B.2	Chaparral, coastal prairie, marshes and swamps (coastal salt), meadows and seeps, valley and foothill grassland (vernally mesic). Elevation ranges from 0 to 1380 feet (0 to 420 meters). Blooms May-Nov.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Point Reyes salty bird's-beak *Chloropyron maritimum* ssp. *palustre*	Rank 1B.2	Marshes and swamps (coastal salt). Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms Jun-Oct.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
soft salty bird's-beak *Chloropyron molle* ssp. *molle*	FE, SR, Rank 1B.2	Marshes and swamps (coastal salt). Elevation ranges from 0 to 10 feet (0 to 3 meters). Blooms Jun-Nov.	**Unlikely**. Although there are historically documented occurrences of this species nearby, the proposed Project Area does not contain suitable marsh or swamp habitat for this species because it has been developed.	No further action is necessary for this species.
Bolander's water-hemlock *Cicuta maculata* var. *bolanderi*	Rank 2B.1	Marshes and swamps (brackish, coastal, freshwater). Elevation ranges from 0 to 655 feet (0 to 200 meters). Blooms Jul-Sep.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Franciscan thistle *Cirsium andrewsii*	Rank 1B.2	Broadleafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub. Elevation ranges from 0 to 490 feet (0 to 150 meters). Blooms Mar-Jul.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
serpentine collomia *Collomia diversifolia*	Rank 4.3	Chaparral, cismontane woodland. Elevation ranges from 655 to 1970 feet (200 to 600 meters). Blooms May-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
western leatherwood *Dirca occidentalis*	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, closed-cone coniferous forest, north coast coniferous forest, riparian forest, riparian woodland. Elevation ranges from 80 to 1395 feet (25 to 425 meters). Blooms Jan-Mar(Apr).	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
dwarf downingia *Downingia pusilla*	Rank 2B.2	Valley and foothill grassland (mesic), vernal pools. Elevation ranges from 5 to 1460 feet (1 to 445 meters). Blooms Mar-May.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
small spikerush *Eleocharis parvula*	Rank 4.3	Marshes and swamps. Elevation ranges from 5 to 9910 feet (1 to 3020 meters). Blooms (Apr)Jun-Aug(Sep).	**Unlikely**. Although there are historically documented occurrences of this species nearby, the proposed Project Area does not contain suitable marsh or swamp habitat for this species because it has been developed.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
streamside daisy *Erigeron biolettii*	Rank 3	Broadleafed upland forest, cismontane woodland, north coast coniferous forest. Elevation ranges from 100 to 3610 feet (30 to 1100 meters). Blooms Jun-Oct.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Tiburon buckwheat *Eriogonum luteolum* var. *caninum*	Rank 1B.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Elevation ranges from 0 to 2295 feet (0 to 700 meters). Blooms May-Sep.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Jepson's coyote-thistle *Eryngium jepsonii*	Rank 1B.2	Valley and foothill grassland, vernal pools. Elevation ranges from 10 to 985 feet (3 to 300 meters). Blooms Apr-Aug.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
cut-leaved monkeyflower *Erythranthe laciniata*	Rank 4.3	Chaparral, lower montane coniferous forest, upper montane coniferous forest. Elevation ranges from 1610 to 8695 feet (490 to 2650 meters). Blooms Apr-Jul.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
bare monkeyflower *Erythranthe nudata*	Rank 4.3	Chaparral, cismontane woodland. Elevation ranges from 655 to 2295 feet (200 to 700 meters). Blooms May-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
San Joaquin spearscale *Extriplex joaquinana*	Rank 1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland. Elevation ranges from 5 to 2740 feet (1 to 835 meters). Blooms Apr-Oct.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
minute pocket moss *Fissidens pauperculus*	Rank 1B.2	North coast coniferous forest (damp coastal soil). Elevation ranges from 35 to 3360 feet (10 to 1024 meters). Blooms .	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
fragrant fritillary *Fritillaria liliacea*	Rank 1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 10 to 1345 feet (3 to 410 meters). Blooms Feb-Apr.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Diablo helianthella *Helianthella castanea*	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Elevation ranges from 195 to 4265 feet (60 to 1300 meters). Blooms Mar-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
hogwallow starfish *Hesperevax caulescens*	Rank 4.2	Valley and foothill grassland (mesic clay), vernal pools (shallow). Elevation ranges from 0 to 1655 feet (0 to 505 meters). Blooms Mar-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Marin western flax *Hesperolinon congestum*	FT, ST, Rank 1B.1	Chaparral, valley and foothill grassland. Elevation ranges from 15 to 1215 feet (5 to 370 meters). Blooms Apr-Jul.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Loma Prieta hoita *Hoita strobilina*	Rank 1B.1	Chaparral, cismontane woodland, riparian woodland. Elevation ranges from 100 to 2820 feet (30 to 860 meters). Blooms May-Jul(Aug-Oct).	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Santa Cruz tarplant *Holocarpha macradenia*	FT, SE, Rank 1B.1	Coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 35 to 720 feet (10 to 220 meters). Blooms Jun-Oct.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
coast iris *Iris longipetala*	Rank 4.2	Coastal prairie, lower montane coniferous forest, meadows and seeps. Elevation ranges from 0 to 1970 feet (0 to 600 meters). Blooms Mar-May(Jun).	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Carquinez goldenbush *Isocoma arguta*	Rank 1B.1	Valley and foothill grassland (alkaline). Elevation ranges from 5 to 65 feet (1 to 20 meters). Blooms Aug-Dec.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Southern California black walnut *Juglans californica*	Rank 4.2	Chaparral, cismontane woodland, coastal scrub, riparian woodland. Elevation ranges from 165 to 2955 feet (50 to 900 meters). Blooms Mar-Aug.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Contra Costa goldfields *Lasthenia conjugens*	FE, Rank 1B.1	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools. Elevation ranges from 0 to 1540 feet (0 to 470 meters). Blooms Mar-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Delta tule pea *Lathyrus jepsonii* var. *jepsonii*	Rank 1B.2	Marshes and swamps (brackish, freshwater). Elevation ranges from 0 to 15 feet (0 to 5 meters). Blooms May-Jul(Aug-Sep).	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
legenere *Legenere limosa*	Rank 1B.1	Vernal pools. Elevation ranges from 5 to 2885 feet (1 to 880 meters). Blooms Apr-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
bristly leptosiphon *Leptosiphon aureus*	Rank 4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Elevation ranges from 180 to 4920 feet (55 to 1500 meters). Blooms Apr-Jul.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
large-flowered leptosiphon *Leptosiphon grandiflorus*	Rank 4.2	Cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 15 to 4005 feet (5 to 1220 meters). Blooms Apr-Aug.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Jepson's leptosiphon *Leptosiphon jepsonii*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 330 to 1640 feet (100 to 500 meters). Blooms Mar-May.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
woolly-headed lessingia *Lessingia hololeuca*	Rank 3	Broadleafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland. Elevation ranges from 50 to 1000 feet (15 to 305 meters). Blooms Jun-Oct.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Mason's lilaeopsis *Lilaeopsis masonii*	SR, Rank 1B.1	Marshes and swamps (brackish, freshwater), riparian scrub. Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms Apr-Nov.	**Unlikely**. Although there are historically documented occurrences of this species nearby, the proposed Project Area does not contain suitable marsh or swamp habitat for this species because it has been developed.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Oregon meconella *Meconella oregana*	Rank 1B.1	Coastal prairie, coastal scrub. Elevation ranges from 820 to 2035 feet (250 to 620 meters). Blooms Mar-Apr.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
San Antonio Hills monardella *Monardella antonina* ssp. *antonina*	Rank 3	Chaparral, cismontane woodland. Elevation ranges from 1050 to 3280 feet (320 to 1000 meters). Blooms Jun-Aug.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Baker's navarretia *Navarretia leucocephala* ssp. *bakeri*	Rank 1B.1	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools. Elevation ranges from 15 to 5710 feet (5 to 1740 meters). Blooms Apr-Jul.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
white-rayed pentachaeta *Pentachaeta bellidiflora*	FE, SE, Rank 1B.1	Cismontane woodland, valley and foothill grassland (often serpentine). Elevation ranges from 115 to 2035 feet (35 to 620 meters). Blooms Mar-May.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Michael's rein orchid *Piperia michaelii*	Rank 4.2	Chaparral, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal scrub, lower montane coniferous forest. Elevation ranges from 10 to 3000 feet (3 to 915 meters). Blooms Apr-Aug.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
hairless popcornflower *Plagiobothrys glaber*	Rank 1A	Marshes and swamps (coastal salt), meadows and seeps (alkaline). Elevation ranges from 50 to 590 feet (15 to 180 meters). Blooms Mar-May.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Marin knotweed *Polygonum marinense*	Rank 3.1	Marshes and swamps (brackish, coastal salt). Elevation ranges from 0 to 35 feet (0 to 10 meters). Blooms (Apr)May-Aug(Oct).	**Unlikely**. Although there are historically documented occurrences of this species nearby, the proposed Project Area does not contain suitable marsh or swamp habitat for this species because it has been developed.	No further action is necessary for this species.
Lobb's aquatic buttercup *Ranunculus lobbii*	Rank 4.2	Cismontane woodland, north coast coniferous forest, valley and foothill grassland, vernal pools. Elevation ranges from 50 to 1540 feet (15 to 470 meters). Blooms Feb-May.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
chaparral ragwort *Senecio aphanactis*	Rank 2B.2	Chaparral, cismontane woodland, coastal scrub. Elevation ranges from 50 to 2625 feet (15 to 800 meters). Blooms Jan-Apr(May).	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
long-styled sand-spurrey *Spergularia macrotheca* var. *longistyla*	Rank 1B.2	Marshes and swamps, meadows and seeps. Elevation ranges from 0 to 835 feet (0 to 255 meters). Blooms Feb-May.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Santa Cruz microseris *Stebbinsoseris decipiens*	Rank 1B.2	Broadleafed upland forest, chaparral, closed-cone coniferous forest, coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 35 to 1640 feet (10 to 500 meters). Blooms Apr-May.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Tiburon jewelflower *Streptanthus glandulosus* ssp. *niger*	FE, SE, Rank 1B.1	Valley and foothill grassland (serpentine). Elevation ranges from 100 to 490 feet (30 to 150 meters). Blooms May-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
California seablite *Suaeda californica*	FE, Rank 1B.1	Marshes and swamps (coastal salt). Elevation ranges from 0 to 50 feet (0 to 15 meters). Blooms Jul-Oct.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
Suisun Marsh aster *Symphyotrichum lentum*	Rank 1B.2	Marshes and swamps (brackish, freshwater). Elevation ranges from 0 to 10 feet (0 to 3 meters). Blooms (Apr)May-Nov.	**Unlikely**. Although there are historically documented occurrences of this species nearby, the proposed Project Area does not contain suitable marsh or swamp habitat for this species because it has been developed.	No further action is necessary for this species.
two-fork clover *Trifolium amoenum*	FE, Rank 1B.1	Coastal bluff scrub, valley and foothill grassland (sometimes serpentine). Elevation ranges from 15 to 1360 feet (5 to 415 meters). Blooms Apr-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
saline clover *Trifolium hydrophilum*	Rank 1B.2	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools. Elevation ranges from 0 to 985 feet (0 to 300 meters). Blooms Apr-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
coastal triquetrella *Triquetrella californica*	Rank 1B.2	Coastal bluff scrub, coastal scrub. Elevation ranges from 35 to 330 feet (10 to 100 meters). Blooms .	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
oval-leaved viburnum *Viburnum ellipticum*	Rank 2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Elevation ranges from 705 to 4595 feet (215 to 1400 meters). Blooms May-Jun.	**No Potential**. The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.
WILDLIFE				
MAMMALS				
Mountain lion *Puma concolor*	SC	Ranging from Chile to British Columbia, and adapting to virtually any habitat that contains its primary prey sources of deer and other large mammals. Widespread, yet uncommon in much of its range, and rarely seen.	**No Potential.** The proposed Project Area is within a developed corridor that does not support deer or large mammals or this species to prey upon.	No further action is necessary for this species.
ringtail (ring-tailed cat) *Bassariscus astutus*	CFP	Widely distributed throughout most of California; absent from some portions of the Central Valley and northeastern California. Found in a variety of habitats including riparian areas, semi-arid country, deserts, chaparral, oak woodlands, pinyon pine woodlands, juniper woodlands and montane conifer forests usually under 4,600 ft. elevation. Typically uses cliffs or large trees for shelter.	**No Potential.** The proposed Project Area does not contain suitable habitat for this species as it is within a developed landscape.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
American badger *Taxidea taxus*	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	**No Potential.** The proposed Project Area does not contain grasslands with populations of burrowing mammals to support this species.	No further action is necessary for this species.
big free-tailed bat *Nyctinomops macrotis*	SSC, WBWG med-high	Occurs rarely in low-lying arid areas. Requires high cliffs or rocky outcrops for roosting sites.	**No Potential.** The proposed Project Area does not contain cliffs or rocky outcrops required for this species to roost.	No further action is necessary for this species.
California sea lion *Zalophus californianus*	MMPA	Range from central Mexico to British Columbia, Canada. Feeds on various fish and squid. Primary breeding range is from the Channel Islands in California to Southern Mexico.	**Moderate Potential.** This species is known to occur in the vicinity of the Carquinez Strait and has the potential to enter the proposed Project Area.	See Section 5.2.2 for further discussion concerning this species.
harbor porpoise *Phocoena phocoena*	MMPA	Inhabits temperate and subarctic waters in California from Morro Bay north. Found in bays, estuaries, harbors, and fjords. Occurs in San Francisco Bay, primarily north of the Golden Gate Bridge.	**Unlikely.** This species is known to occur in the vicinity of the Golden Gate Bridge but largely restricts its distribution to fully marine salinities closer to the Pacific Ocean.	No further action is necessary for this species.
harbor seal *Phoca vitulina*	MMPA	Broadly distributed in coastal areas of the northern hemisphere. Most significant haul-out site in south San Francisco Bay is at Mowry Slough. Pups are born in March and April in Northern California.	**Moderate Potential.** This species is known to occur in the vicinity of the Carquinez Strait and has the potential to enter the proposed Project Area.	See Section 5.2.2 for further discussion concerning this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
hoary bat *Lasiurus cinereus*	WBWG Medium	Prefers open forested habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths.	**No Potential.** No forest habitat is present within the proposed Project Area to support roosting by this species.	No further action is necessary for this species.
pallid bat *Antrozous pallidus*	SSC, WBWG High	Found in a variety of habitats ranging from grasslands to mixed forests, favoring open and dry, rocky areas. Roost sites include crevices in rock outcrops and cliffs, caves, mines, and also hollow trees and various manmade structures such as bridges, barns, and buildings (including occupied buildings). Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**No Potential.** There are no suitable roosting structures for this species within the proposed Project Area.	No further action is necessary for this species.
salt-marsh harvest mouse *Reithrodontomys raviventris*	FE, SE, CFP	Endemic to emergent salt and brackish wetlands of the San Francisco Bay Estuary. Pickleweed marshes are primary habitat; also occurs in various other wetland communities with dense vegetation. Does not burrow, builds loosely organized nests. Requires higher areas for flood escape.	**No Potential.** No saltmarsh wetland habitat is present within the proposed Project Area to support this species.	No further action is necessary for this species.
salt-marsh wandering shrew *Sorex vagrans halicoetes*	SSC	Salt marshes of the south arm of San Francisco Bay. Medium high marsh 6 to 8 feet above sea level where abundant driftwood is scattered among *Salicornia*.	**No Potential.** The proposed Project Area does not contain saltmarsh which is required to support this species.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	SSC	Forest habitats of moderate canopy and moderate to dense understory. Also in chaparral habitats. Constructs nests of shredded grass, leaves, and other material. May be limited by availability of nest-building materials.	**No Potential.** No forest or chaparral habitat is present within the proposed Project Area to support this species.	No further action is necessary for this species.
San Pablo vole *Microtus californicus sanpabloensis*	SSC	Saltmarshes of San Pablo Creek, on the south shore of San Pablo Bay. Constructs burrow in soft soil. Feeds on grasses, sedges and herbs. Forms a network of runways leading from the burrow.	**No Potential.** Uplands within the proposed Project Area are entirely developed as part of the Vallejo waterfront. No salt marsh habitat is present to support this species.	No further action is necessary for this species.
silver-haired bat *Lasionycteris noctivagans.*	WBWG Medium	Primarily a forest dweller, feeding over streams, ponds, and open brushy areas. Summer habitats include a variety of forest and woodland types, both coastal and montane. Roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark.	**No Potential.** No forest habitat is present within the proposed Project Area to support roosting by this species.	No further action is necessary for this species.
Suisun shrew *Sorex ornatus sinuosus*	SSC	Tidal marshes of the northern shores of San Pablo and Suisun Bays. Require dense low-lying cover and driftweed and other litter above the mean hightide line for nesting and foraging.	**No Potential.** The proposed Project Area does not contain saltmarsh which is required to support this species.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Townsend's big-eared bat *Corynorhinus townsendii*	SSC, WBWG High	Associated with a wide variety of habitats from deserts to higher-elevation mixed and coniferous forests. Females form maternity colonies in buildings, caves and mines, and males roost singly or in small groups. Foraging typically occurs at edge habitats near wooded areas, e.g. along streams.	**No Potential.** There are no abandoned buildings, caves, or mines within the proposed Project Area for this species to roost within.	No further action is necessary for this species.
BIRDS				
Alameda song sparrow *Melospiza melodia pusillula*	BCC, SSC	Year-round resident of salt marshes bordering the south arm of San Francisco Bay. Inhabits primarily pickleweed marshes; nests placed in marsh vegetation, typically shrubs such as gumplant.	**No Potential.** This species is known to occur in marsh habitats. Shorelines are composed entirely of developed surfaces. No suitable marsh habitat is present to support this species.	No further action is necessary for this species.
American peregrine falcon *Falco peregrinus anatum*	FD, SD, CFP, BCC	Year-round resident and winter visitor. Occurs in a wide variety of habitats, though often associated with coasts, bays, marshes and other bodies of water. Nests on protected cliffs and also on man-made structures including buildings and bridges. Preys on birds, especially waterbirds. Forages widely.	**Unlikely.** The proposed Project Area does not contain high cliffs required to support nesting by this species. The species may be observed flying over or foraging over the aquatic portions of the proposed Project Area.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
bald eagle *Haliaeetus leucocephalus*	FD, SE, CFP, BCC	Occurs year-round in California, but primarily a winter visitor; breeding population is growing. Nests in large trees in the vicinity of larger lakes, reservoirs and rivers. Wintering habitat somewhat more variable but usually features large concentrations of waterfowl or fish.	**No Potential.** The proposed Project Area and surrounding vicinity is composed of developed uplands. There are no large trees to support nesting by this species.	No further action is necessary for this species.
bank swallow *Riparia riparia*	ST	Summer resident in riparian and other lowland habitats near rivers, lakes and the ocean in northern California. Nests colonially in excavated burrows on vertical cliffs and bank cuts (natural and manmade) with fine-textured soils. Historical nesting range in southern and central areas of California has been eliminated by habitat loss. Currently known to breed in Siskiyou, Shasta, and Lassen Cos., portions of the north coast, and along Sacramento River from Shasta Co. south to Yolo Co.	**No Potential.** This species is only known to occur on large vertical rock faces and cliffs which are not present within the proposed Project Area.	No further action is necessary for this species.
black-crowned night heron *Nycticorax nycticorax*	none (breeding sites protected by CDFW)	Year-round resident. Nests colonially, usually in trees but also in patches of emergent vegetation. Rookery sites are often on islands and usually located adjacent to foraging areas: margins of lakes and bays.	**No Potential.** Colonial roosting by this species is not known to occur within the proposed Project Area. Large trees are absent which might support a roost of this species.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
burrowing owl *Athene cunicularia*	SSC, BCC	Year-round resident and winter visitor. Occurs in open, dry grasslands and scrub habitats with low-growing vegetation, perches and abundant mammal burrows. Preys upon insects and small vertebrates. Nests and roosts in old mammal burrows, most commonly those of ground squirrels.	**No Potential.** The proposed Project Area is comprised of fully developed uplands or aquatic habitats. The proposed Project Area does not contain burrowing mammals or burrow surrogates to support nesting. Grasslands that support foraging by owls are also absent.	No further action is necessary for this species.
California black rail *Laterallus jamaicensis coturniculus*	ST, CFP	Year-round resident in marshes (saline to freshwater) with dense vegetation within 4 inches of the ground. Prefers larger, undisturbed marshes that have an extensive upper zone and are close to a major water source. Extremely secretive and cryptic.	**No Potential.** This species is only known to occur in marsh habitats. Shorelines are composed entirely of developed surfaces. No suitable marsh habitat is present to support this species within or adjacent to the proposed Project Area.	No further action is necessary for this species.
California Ridgway's (clapper) rail *Rallus obsoletus obsoletus*	FE, SE, CFP	Year-round resident in tidal marshes of the San Francisco Bay estuary. Requires tidal sloughs and intertidal mud flats for foraging, and dense marsh vegetation for nesting and cover. Typical habitat features abundant growth of cordgrass and pickleweed. Feeds primarily on molluscs and crustaceans.	**No Potential.** This species is only known to occur in marsh habitats. Shorelines are composed entirely of developed surfaces. No suitable marsh habitat is present to support this species within or adjacent to the proposed Project Area.	No further action is necessary for this species.
golden eagle *Aquila chrysaetos*	BCC, CFP	Occurs year-round in rolling foothills, mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees, usually within otherwise open areas.	**No Potential.** The proposed Project Area does not contain high cliffs capeable of supporting nesting by this species.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
great blue heron *Ardea herodias*	none (breeding sites protected by CDFW); CDF sensitive	Year-round resident. Nests colonially or semi-colonially in tall trees and on cliffs, also sequested terrestrial substrates. Breeding sites usually in close proximity to foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	**No Potential.** Colonial roosting by this species is not known to occur within the proposed Project Area. There are no large trees within the proposed Project Area that could support colonial roosting.	No further action is necessary for this species.
great egret *Ardea alba*	none (breeding sites protected by CDFW)	Year-round resident. Nests colonially or semi-colonially, usually in trees, occasionally on the ground or elevated platforms. Breeding sites usually in close proximity to foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	**No Potential.** Colonial roosting by this species is not known to occur within the proposed Project Area. There are no large trees within the proposed Project Area that could support colonial roosting.	No further action is necessary for this species.
northern harrier *Circus hudsonius (cyaneus)*	SSC	Year-round resident and winter visitor. Found in open habitats including grasslands, prairies, marshes and agricultural areas. Nests on the ground in dense vegetation, typically near water or otherwise moist areas. Preys on small vertebrates.	**No Potential.** There is no open fields, marsh or similar open areas with dense vegetation within the proposed Project Area for this species to nest or forage.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Samuels (San Pablo) song sparrow *Melospiza melodia samuelis*	BCC, SSC	Year-round resident of tidal marshes along the north side of San Francisco and San Pablo Bays. Typical habitat is dominated by pickleweed, with gumplant and other shrubs present in the upper zone for nesting. May forage in areas adjacent to marshes.	**No Potential.** There are no tidal marshes within the proposed Project Area to support this species.	No further action is necessary for this species.
San Francisco common yellowthroat *Geothlypis trichas sinuosa*	BCC, SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	**No Potential.** This species is only known to occur in marsh habitats or densely vegetated riparian areas adjacent to water. Shorelines are composed entirely of developed surfaces. No suitable marsh habitat is present to support this species.	No further action is necessary for this species.
short-eared owl *Asio flammeus*	SSC	Occurs year-round, but primarily as a winter visitor; breeding very restricted in most of California. Found in open, treeless areas (e.g., marshes, grasslands) with elevated sites for foraging perches and dense herbaceous vegetation for roosting and nesting. Preys mostly on small mammals, particularly voles.	**No Potential.** The proposed Project Area does not contain marsh or grasslands to support nesting by this species.	No further action is necessary for this species.
snowy egret *Egretta thula*	none (breeding sites protected by CDFW)	Year-round resident. Nests colonially, usually in trees, at times in sequestered beds of dense tules. Rookery sites usually situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	**Unlikely**. Colonial roosting by this species is not known to occur within the proposed Project Area. There are no large trees within the proposed Project Area that could support colonial roosting.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Suisun song sparrow *Melospiza melodia maxillaris*	BCC, SSC	Year-round resident of brackish-water marshes along Suisun Bay. Inhabits cattails, tules, bulrushes and other emergent vegetation, including pickleweed. Nests typically placed in shrubs.	**No Potential.** This species is known to occur in marsh habitats. Shorelines are composed entirely of developed surfaces. No suitable marsh habitat is present within or adjacent to the proposed Project Area to support this species.	No further action is necessary for this species.
Swainson's hawk *Buteo swainsoni*	ST, BCC	Summer resident in California's Central Valley. Nests in tree groves and isolated trees in riparian and agricultural areas, including near buildings. Forages in grasslands and scrub habitats as well as agricultural fields, especially alfalfa. Preys on arthropods year-round as well as smaller vertebrates during the breeding season.	**No Potential.** The proposed Project Area is comprised of fully developed uplands and aquatic habitats with no tall tress to support nesting. There are no fields or grasslands to support foraging by the species.	No further action is necessary for this species.
tricolored blackbird *Agelaius tricolor*	ST, SSC, BCC, RP	Nearly endemic to California, where it is most numerous in the Central Valley and vicinity. Highly colonial, nesting in dense aggregations over or near freshwater in emergent growth or riparian thickets. Also uses flooded agricultural fields. Abundant insect prey near breeding areas essential.	**No Potential.** The proposed Project Area does not contain freshwater ponds or freshwater marsh habitats required to support nesting by this species.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
western snowy plover *Charadrius nivosus (alexandrines) nivosus*	FT, SSC, BCC, RP	Federal listing applies only to the Pacific coastal population. Year-round resident and winter visitor. Occurs on sandy beaches, salt pond levees, and the shores of large alkali lakes. Nests on the ground, requiring sandy, gravelly or friable soils.	**No Potential.** The proposed Project Area does not contain any sandy beaches that this species requires to nest.	No further action is necessary for this species.
white-tailed kite *Elanus leucurus*	CFP	Year-round resident in coastal and valley lowlands with scattered trees and large shrubs, including grasslands, marshes and agricultural areas. Nests in trees, of which the type and setting are highly variable. Preys on small mammals and other vertebrates.	**No Potential.** The proposed Project Area is comprised of fully developed uplands and aquatic habitats with no trees within grasslands to support nesting. There are no fields or grasslands to support foraging by the species.	No further action is necessary for this species.
yellow rail *Coturnicops noveboracensis*	BCC, SSC	Summer resident in eastern Sierra Nevada in Mono County, breeding in shallow freshwater marshes and wet meadows with dense vegetation. Also a rare winter visitor along the coast and other portions of the state. Extremely cryptic.	**No Potential.** The proposed Project Area does not contain freshwater marshes that this species requires.	No further action is necessary for this species.
yellow-headed blackbird *Xanthocephalus xanthocephalus*	SSC	Summer resident. Breeds colonially in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes or ponds. Requires abundant large insects such as dragonflies; nesting is timed for maximum emergence of insect prey.	**No Potential.** This species is only known to occur in marsh habitats. Shorelines are composed entirely of rip-rap and developed surfaces. No suitable marsh habitat is present to support this species.	No further action is necessary for this species.
REPTILES & AMPHIBIANS				

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Alameda whipsnake *Masticophis lateralis euryxanthus*	FT, ST	Inhabits chaparral and foothill-hardwood habitats in the eastern Bay Area. Prefers south-facing slopes and ravines with rock outcroppings where shrubs form a vegetative mosaic with oak trees and grasses and small mammal burrows provide basking and refuge.	**No Potential.** The proposed Project Area is outside of the known range for this species.	No further action is necessary for this species.
California red-legged frog *Rana draytonii*	FT, SSC, RP	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive vegetation. Disperses through upland habitats after rains.	**No Potential.** The proposed Project Area does not contain freshwater features to support any life stage of this species. Surrounding uplands are also developed with the Vallejo waterfront which preclude access by this species even if it were to occur in the vicinity.	No further action is necessary for this species.
foothill yellow-legged frog *Rana boylii*	FC, SE, SSC	Found in or adjacent to rocky streams in a variety of habitats. Prefers partly shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on both aquatic and terrestrial invertebrates.	**No Potential.** The proposed Project Area does not contain freshwater streams to support this species.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Pacific (western) pond turtle *Actinemys marmorata*	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	**No Potential.** The shoreline of the proposed Project Area is entirely developed and devoid of any undeveloped areas that may be suitable for nesting. Further the aquatic portions of the proposed Project Area are comprised of brackish and tidal bays which are not suitable for this species.	No further action is necessary for this species.
		FISH		
Coho salmon - central CA coast ESU Oncorhynchus kisutch	FE, SE	Federal listing includes populations between Punta Gorda and San Lorenzo River. State listing includes populations south of San Francisco Bay only. Occurs inland and in coastal marine waters. Requires beds of loose, silt-free, coarse gravel for spawning. Also needs cover, cool water and sufficient dissolved oxygen	**No Potential.** This species is considered extirpated from San Francisco Bay and its tributaries (NMFS 2012).	No further action is necessary for this species.
Chinook salmon - central valley fall/late fall-run ESU *Oncorhynchus tshawytscha*	SSC	Populations spawning in the Sacramento and San Joaquin Rivers and their tributaries. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	**High Potential.** This species is known to spawn within the Napa River and would be present within the Mare Island Strait when migrating to and from natal streams.	See Section 5.2.2 for further discussion concerning this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Chinook salmon - Central Valley spring-run ESU *Oncorhynchus tshawytscha*	FT, ST	Occurs in the Feather River and the Sacramento River and its tributaries, including Butte, Mill, Deer, Antelope and Beegum Creeks. Adults enter the Sacramento River from late March through September. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams from mid-August through early October. Juveniles migrate soon after emergence as young-of-the-year, or remain in freshwater and migrate as yearlings.	**Moderate Potential.** This species spawns within headwater streams in the Sacramento River; however, this species has been known to stray into the Mare Island Strait seasonally as it migrates to and from natal streams.	See Section 5.2.2 for further discussion concerning this species.
Chinook salmon – Sacramento winter-run ESU *Oncorhynchus tshawytscha*	FE, SE, RP, NMFS	Occurs in the Sacramento River below Keswick Dam. Spawns in the Sacramento River but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14 degrees C for spawning. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles typically migrate to the ocean soon after emergence from the gravel.	**Moderate Potential.** This species spawns within the Sacramento River; however, this species may stray into the Mare Island Strait seasonally as it migrates to and from natal streams.	See Section 5.2.2 for further discussion concerning this species.
Delta smelt *Hypomesus transpacificus*	FT, SE, RP	Lives in the Sacramento-San Joaquin estuary in areas where salt and freshwater systems meet. Occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt; most often at salinities < 2 ppt.	**Moderate Potential.** This species is known to occur within the Mare Island Strait during extremely wet winters when individuals are able to move from Suisun Bay into the Napa River.	See Section 5.2.2 for further discussion concerning this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
eulachon – Southern DPS *Thaleichthys pacificus*	FT, SSC	Found in Klamath River, Mad River, Redwood Creek and in small numbers in Smith River and Humboldt Bay tributaries. Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand and woody debris.	**No Potential.** The proposed Project Area is outside of the range of this species.	No further action is necessary for this species.
green sturgeon, southern Distinct Population Segment *Acipenser medirostris*	FT, SSC	Spawn in the Sacramento River and the Feather River. Spawn at temperatures between 8-14 degrees C. Preferred spawning substrate is large cobble but can range from clean sand to bedrock.	**High Potential.** This species is known to occur within the Napa River and has been observed within 0.25 mile of the proposed Project Area.	See Section 5.2.2 for further discussion concerning this species.
longfin smelt *Spirinchus thaleichthys*	FC, ST, SSC, RP	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15 to 30 ppt, but can be found in completely freshwater to almost pure seawater.	**High Potential.** This species is known to occur within the Mare Island Strait seasonally.	See Section 5.2.2 for further discussion concerning this species.
Pacific lamprey *Entosphenus (=Lampetra) tridentatus*	SSC	Spawns between March and July in gravel bottomed streams in riffle habitat. Larvae drift downstream to areas of low velocity and fine substrates and are relatively immobile in the stream substrates.	**High Potential.** This species is known to spawn within the Napa River and would be present within the Mare Island Strait when migrating to and from natal streams	See Section 5.2.2 for further discussion concerning this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
river lamprey *Lampetra ayresi*	SSC	Lower Sacramento River, San Joaquin River and Russian River. May occur in coastal streams north of San Francisco Bay. Adults need clean, gravelly riffles, Ammocoetes need sandy backwaters or stream edges, good water quality and temps < 25 degrees C.	**High Potential.** This species is known to spawn within the Napa River and would be present within the Mare Island Strait when migrating to and from natal streams	See Section 5.2.2 for further discussion concerning this species.
Sacramento perch *Archoplites interruptus*	SSC, RP	(Only within native range) Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. Prefer warm water. Aquatic vegetation is essential for young. Tolerate wide range of physio-chemical water conditions.	**Unlikely**. This species is known to occur within sloughs and slow backwater areas. The proposed Project Area is comprised of swift waters which continually exchange through the Carquinez Strait. Such areas are too turbulent for the species.	No further action is necessary for this species.
Sacramento splittail *Pogonichthys macrolepidotus*	SSC, RP	Formerly endemic to the lakes and rivers of the Central Valley, but now confined to the Sacramento Delta, Suisun Bay and associated marshes. Occurs in slow-moving river sections and dead-end sloughs. Requires flooded vegetation for spawning and foraging for young. A freshwater species, but tolerant of moderate salinity (10-18 parts per thousand).	**High Potential.** This species is known to occur within the Mare Island Strait seasonally.	See Section 5.2.2 for further discussion concerning this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
steelhead - central CA coast DPS *Oncorhynchus mykiss irideus*	FT	Occurs from the Russian River south to Soquel Creek and Pajaro River. Also in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	**High Potential.** This species is known to spawn within the Napa River and its tributaries, so it would occur within the Mare Island Strait seasonally when migrating to and from spawning grounds upstream.	See Section 5.2.2 for further discussion concerning this species.
steelhead - central valley DPS *Oncorhynchus mykiss irideus*	FT	Includes all naturally spawned populations (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries, excluding San Francisco and San Pablo bays and their tributaries. Preferred spawning habitat is in cool to cold perennial streams with high dissolved oxygen levels and fast flowing water. Abundant riffle areas for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding.	**High Potential.** This species spawns within rivers in the central valley, however adults and juveniles may stray into the Mare Island Strait when migrating to and from natal streams.	See Section 5.2.2 for further discussion concerning this species.
white sturgeon *Acipenser transmontanus*	SSC	Found in most estuaries along the Pacific coast. Adults in the San Francisco Bay Estuary system spawn in the Sacramento River and are not known to enter freshwater or non-tidal reaches of Estuary streams. Spawn May through June.	**High Potential.** This species is known to occur within the Napa River and has been observed within 0.25 mile of the proposed Project Area.	See Section 5.2.2 for further discussion concerning this species.
INVERTEBRATES				

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
California freshwater shrimp *Syncaris pacifica*	FE, SE, RP	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy. Shallow pools away from main stream flow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.	**No Potential.** The proposed Project Area does not contain freshwater streams which are required by the species.	No further action is necessary for this species.
Callippe silverspot butterfly *Speyeria callippe callippe*	FE	Two populations in San Bruno Mountain and the Cordelia Hills are recognized. Host plant is Viola pedunculata, which is found on serpentine soils. Most adults found on east-facing slopes; males congregate on hilltops in search of females.	**No Potential.** The proposed Project Area does not contain serpentine grasslands that are required to support host plants for this species.	No further action is necessary for this species.
Crotch bumblebee *Bombus crotchii*	SC	Range largely restricted to California, favoring grassland and scrub habitats. Typical of bumble bees, nests are usually constructed underground.	**No Potential.** The proposed Project Area is comprised of fully developed uplands or aquatic habitats. There is no undeveloped upland habitat present to support nests or nectar sources required by this species.	No further action is necessary for this species.
monarch butterfly *Danaus plexippus*	none (winter roosts protected by CDFW)	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, Monterey cypress), with nectar and water sources nearby.	**No Potential.** There are no tree groves within the proposed Project Area that could support winter roosts of this species. Fully developed uplands within the proposed Project Area also preclude the potential presence of nectar plants for the species.	No further action is necessary for this species.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT, RP	Occurs only in the central valley of California, in association with blue elderberry (*Sambucus* spp.). Prefers to lay eggs in elderberrry 2 to 8 inches in diameter; some preference shown for "stressed" elderberry.	**No Potential.** The proposed Project Area does not contain elderberry host plants required to support this species.	No further action is necessary for this species.
vernal pool fairy shrimp *Branchinecta lynchi*	FT, RP	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	**No Potential.** There are no vernal pools within the proposed Project Area to support this species.	No further action is necessary for this species.
western bumble bee *Bombus occidentalis*	SC	Formerly common throughout much of western North America; populations from southern British Columbia to central California have nearly disappeared (Xerces 2015). Occurs in a wide variety of habitat types. Nests are constructed annually in pre-existing cavities, usually on the ground (e.g. mammal burrows). Many plant species are visited and pollinated.	**No Potential.** The proposed Project Area is outside of the current distribution of this species.	No further action is necessary for this species.
HABITATS				
Steelhead, Central California Coast Distinct Population Segment	Critical Habitat	Critical habitat for this species was designated under 70 FR 52487.	**Present.** Critical habitat for this species is present within the Napa River.	See Section 5.3 for further discussion of this specific habitat.
Green sturgeon, southern Distinct Population Segment	Critical Habitat	Critical habitat for this species was designated under 74 FR 52300.	**Present.** Critical habitat for this species is present within aquatic portions of the proposed Project Area up to the high tide line.	See Section 5.3 for further discussion of this specific habitat.

SCIENTIFIC NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Delta smelt	Critical Habitat	Critical habitat for this species was designated under 59 FR 65256.	**Absent.** Critical habitat for this species extends to the Carquinez Bridge but does not extend into the Napa River.	No further action is necessary for this habitat.
Coastal Pelagic	Essential Fish Habitat	Essential Fisheries Habitat is designated under the Coastal Pelagic Species Fishery Management Plan (PFMC 2019)	**Present.** Essential fish habitat governed under this fisheries management plan is present within aquatic portions of the proposed Project Area.	See Section 5.3 for further discussion of this specific habitat.
Groundfish	Essential Fish Habitat	Essential Fisheries Habitat is designated under the Groundfish Fisheries Management Plan (PFMC 2022a)	**Present.** Essential fish habitat governed under this fisheries management plan is present within aquatic portions of the proposed Project Area.	See Section 5.3 for further discussion of this specific habitat.
Salmon (Chinook and Coho)	Essential Fish Habitat	Essential Fisheries Habitat is designated under the Coastal Pelagic Species Fishery Management Plan (PFMC 2022b)	**Present.** Essential fish habitat governed under this fisheries management plan is present within aquatic portions of the proposed Project Area.	See Section 5.3 for further discussion of this specific habitat.

FE:	Federal Endangered
FT:	Federal Threatened
SE:	State Endangered
ST:	State Threatened
SR:	State Rare
Rank 1A:	Plants presumed extinct in California
Rank 1B:	Plants rare, threatened, or endangered in California and elsewhere
Rank 2:	Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3:	Plants about which we need more information – a review list
Rank 4:	Plants of limited distribution – a watch list

Potential for Occurrence:

No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent

to the site is unsuitable. The species has a moderate probability of being found on the site.
High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
Present. Species was observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.
Absent. Species or habitat is not present has not been recorded on the site recently.

Appendix D

Cultural Report

Final

VALLEJO FERRY TERMINAL RECONFIGURATION PROJECT

Cultural Resources Survey Report

Prepared for
Federal Transit Authority,
San Francisco Bay Area Water Emergency Transportation Authority, and
Kimley-Horn and Associates, Inc.

April 2024

ESA

Final

VALLEJO FERRY TERMINAL RECONFIGURATION PROJECT

Cultural Resources Survey Report

Prepared for
Federal Transit Authority, Region 9 Office
90 7th Street, Suite 15-300
San Francisco, CA 94103

April 2024

San Francisco Bay Area Water Emergency Transportation Authority
Pier 9, Suite 11
The Embarcadero
San Francisco, CA 94111

and

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Sacramento, CA 95814

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Location:
USGS: Mare Island, California

Cover Image: View of the Vallejo Ferry Landing with Mare Island in the Background, ca. 1900.
Source: Mare Island Brewing Co. website

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NADB REPORT CITATION

Vallejo Ferry Terminal Reconfiguration Project Cultural Resources Survey Report

Author(s):	Kahn, Johanna, Heidi Koenig, Amy Langford, and Becky Urbano
Year:	2024 (April)
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State:	California
County:	Solano
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State Agency:	Water Emergency Transportation Authority
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EXECUTIVE SUMMARY

Vallejo Ferry Terminal Reconfiguration Project Cultural Resources Survey Report

This Cultural Resources Survey Report (CRSR) documents the methods and results of a cultural resources inventory completed for the Vallejo Ferry Terminal Reconfiguration Project (project). The San Francisco Bay Area Water Emergency Transportation Authority (WETA) proposes to reconfigure the existing Vallejo Ferry Terminal located on the east shore of Mare Island Strait in an effort to substantially reduce or eliminate the need for maintenance dredging of the ferry basin and the strait. The Vallejo waterfront, including the ferry basin and vicinity, was reclaimed and developed in the mid-20th century as one component of the Marina Vista Redevelopment Project. The project requires permits from one or more federal agencies under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act as well as a Regional General Permit and others that are yet to be determined. As a federal undertaking (project requiring federal funding or issuance of a federal permit), the project is subject to federal environmental regulations, including the National Historic Preservation Act of 1966 (NHPA), as amended (54 United States Code [U.S.C.] 306108). The Federal Transit Authority (FTA) is the lead agency for NHPA purposes. The project is also subject to the California Environmental Quality Act (CEQA). WETA is the lead agency for CEQA purposes. This report is a combined technical report to support environmental review and permitting at the local, state, and federal levels.

This includes a survey and evaluations of all buildings, structures, and landscape elements that either currently meet (in 2024) or will meet the 45-year age criterion by the projected date of completion for the environmental review process, which is assumed to be no later than 2025 (i.e., those constructed in and before 1980).

Before a federal undertaking is implemented, NHPA Section 106 requires federal agencies to consider the effects of the undertaking on historic properties. This document records the existing conditions of the Area of Potential Effects (APE) with regard to cultural resources, including both archaeological and architectural resources. Work performed consists of background and archival research, to determine the potential to encounter buried archaeological resources during project implementation, as well as documentation and evaluation of existing properties in the APE.

No archaeological resources have been identified in the APE. Previous and current investigations have determined there is a low potential to encounter buried archaeological resources within the APE during project implementation. Regarding historic architectural resources, ESA recommends that no buildings, structures, or landscape elements located within the APE appear to be individually eligible for listing in the National Register of Historic Places (National Register), the

California Register of Historical Resources (California Register), or the City of Vallejo Historic Resources Inventory (HRI). Additionally, none appear to contribute to a known or potential historic district. As such, ESA recommends a finding of **No Historic Properties Affected** for the project for the purposes of NEPA and assesses impact of the project on cultural resources to be **less than significant**.

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CHAPTER 1

Introduction

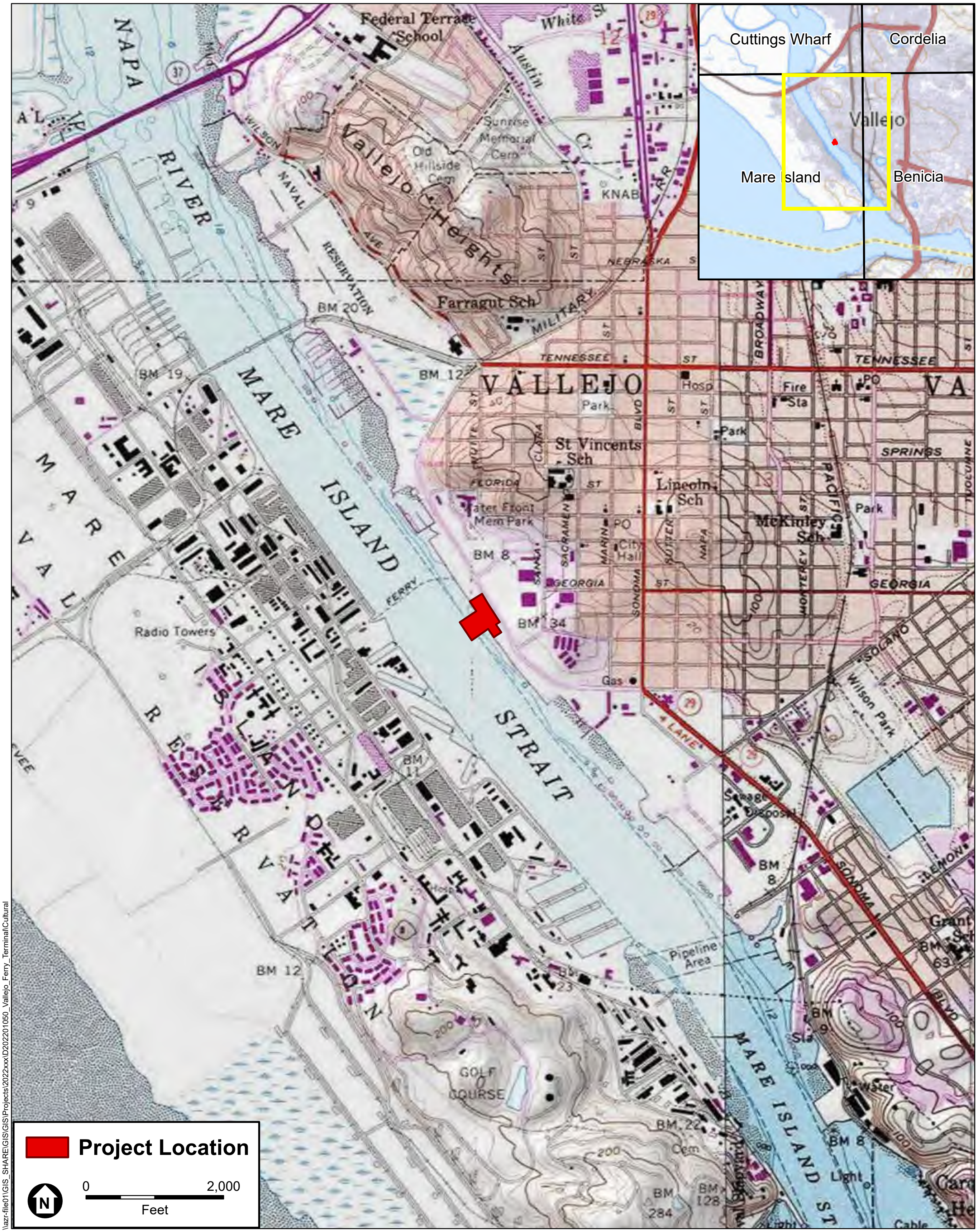
This Cultural Resources Survey Report (CRSR) documents the methods and results of a cultural resources inventory completed for the Vallejo Ferry Terminal Reconfiguration Project (project). The San Francisco Bay Area Water Emergency Transportation Authority (WETA) proposes to reconfigure the existing Vallejo Ferry Terminal located on the east shore of Mare Island Strait in an effort to substantially reduce or eliminate the need for maintenance dredging of the ferry basin and the strait. The Vallejo waterfront, including the ferry basin and vicinity, was reclaimed and developed in the mid-20th century as one component of the Marina Vista Redevelopment Project. The proposed project is shown on the U.S. Geological Survey (USGS) Mare Island 7.5-minute topographic quadrangle in Solano County, California (**Figure 1**).

As a federal undertaking (project requiring federal funding or issuance of a federal permit), the project is subject to federal environmental regulations, including the National Historic Preservation Act of 1966 (NHPA), as amended (54 United States Code [U.S.C.] 306108). The Federal Transit Administration (FTA) is the lead agency for NHPA purposes. The project is also subject to the California Environmental Quality Act (CEQA). WETA is the lead agency for CEQA purposes. This report is a combined technical report to support environmental review and permitting at the local, state, and federal levels.

This document records the existing conditions of the Area of Potential Effects (APE) with regard to cultural resources, including historic architectural resources and archaeological resources. It should be noted that the APE differs from the project area in that the APE includes the geographic area within a project may directly or indirectly cause alterations in the character or use of historic properties. The buildings, structures, and landscape elements that either currently meet (in 2024) or will meet the 45-year age criterion by the date of completion of environmental review, which is assumed to be no later than 2025 (i.e., those constructed in and before 1980) are described and evaluated in this report. Work performed consisted of background and archival research, including: a records search of the California Historical Resources Information System (CHRIS); research on existing cultural resources literature; an intensive-level pedestrian survey of the APE; significance evaluations of identified cultural resources; and a finding of effects recommendation. In accordance with NHPA Section 106 and CEQA, this cultural resources study was conducted in order to:

- Delineate an APE and identify architectural resources within the project APE;
- If applicable, evaluate the significance of identified cultural resources according to the criteria set forth by the National Register and make recommendations as to whether they qualify as historic properties under Section 106;

- If applicable, evaluate the significance of identified cultural resources according to the criteria set forth by the California Register and for designation as City of Vallejo Landmarks and make recommendations as to whether they qualify as historical resources under CEQA;
- If applicable, determine whether project phases would cause an adverse effect to a historic property under Section 106;
- If applicable, determine whether project phases would result in a significant impact to a historical resource under CEQA; and
- If applicable, recommend procedures for avoidance or mitigation of adverse effects to a historic property under Section 106 or impacts to a historical resource under CEQA.



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SOURCE: ESA 2023, ESRI 2023, USGS Topo (Mare Island, CA)

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Figure 1
Project Location

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CHAPTER 2
Project Background

Project Description

The Vallejo-San Francisco ferry route has the highest daily ridership in WETA's San Francisco Bay Ferry service, carrying approximately 1.2 million passengers annually before 2020 and nearly 600,000 passengers in 2022. The Vallejo Ferry Terminal is located on the east shore of Mare Island Strait and is subject to ongoing siltation that requires maintenance dredging every two to four years to maintain adequate depths inside the basin for the ferry vessel operations. The goal of the project is to reduce the frequency of lengthy and disruptive dredge events and provide more suitable berthing configurations for the ferry vessels that will maximize service efficiency while minimizing disruption to passengers.[1] **Figure 2** shows the project area. Three configuration options were developed to reconfigure the existing ferry terminal outside of and immediately adjacent to the existing ferry basin:

- The proposed project (Preferred Configuration) would utilize the existing pedestrian access point on the east face of the ferry basin and construct a new four-section pedestrian gangway in a configuration that remains under development;[2,3]
- Configuration Option 1 would relocate the ferry terminal outside of the ferry basin with an access point to a three-section (i.e., dogleg configuration) pedestrian gangway at the southwest corner of the basin and connecting it to a new ferry terminal float; and
- Configuration Option 2 would relocate the ferry terminal outside of the ferry basin with an access point to a three-section (i.e., dogleg configuration) pedestrian gangway at the northwest corner of the basin and connecting it to a new terminal ferry float.

Federal Regulatory Framework

As a federal undertaking subject to FTA approval, the project is subject to federal environmental regulations, including the NHPA. The FTA is the lead federal agency for NHPA purposes.

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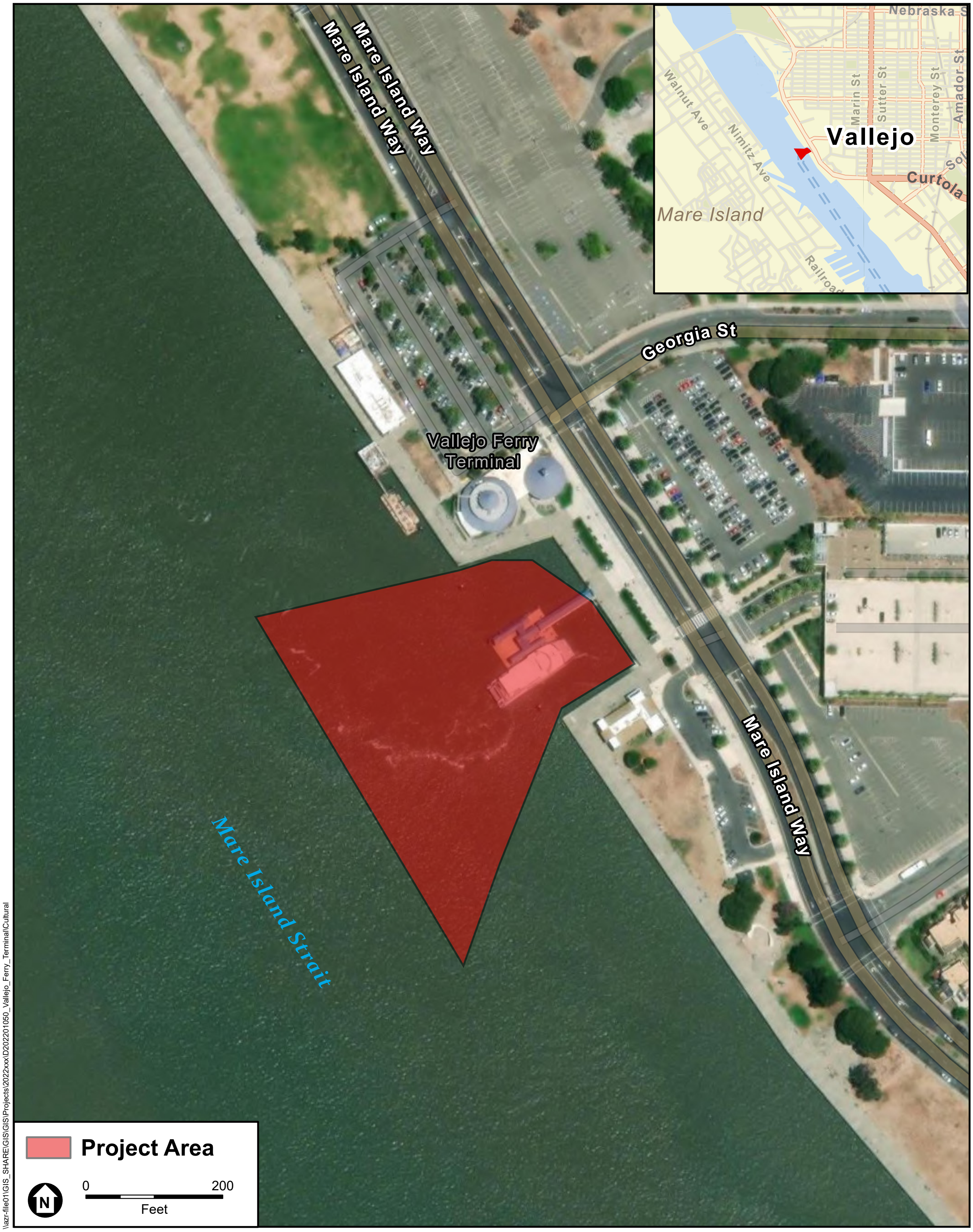
1 "Vallejo Ferry Terminal Reconfiguration Project," San Francisco Bay Ferry, accessed August 25, 2023, https://weta.sanfranciscobayferry.com/current-projects/vallejo-ferry-terminal-reconfiguration-project.

2 Foth, *WETA Vallejo Ferry Terminal Reconfiguration Project Study Report – Revision 1,* prepared for WETA, January 2023, 5-8.

3 "1.0 Description of Proposed Project," March 19, 2024, provided by Alex Jewell (Kimley-Horn) to ESA on April 8, 2024.



SOURCE: ESA 2023, ESRI 2023; World Imagery

D202201050.00 - Vallejo Ferry Terminal Reconfiguration Project CRSR

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Figure 2
Project Area

Effects of federal undertakings on both architectural and archaeological resources are considered through the NHPA, and its implementing regulations. Before a federal undertaking (i.e., project requiring federal funding or issuance of a federal permit) is implemented, NHPA Section 106 requires federal agencies to consider the effects of the undertaking on historic properties (i.e., properties listed in or eligible for listing in the National Register) and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on any undertaking that would adversely affect historic properties. Under the NHPA, a property is considered significant if it meets one of the National Register listing Criteria A through D, in 36 Code of Federal Regulations (CFR) 60.4, as follows:

> *The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and that:*
>
> *A. Are associated with events that have made a significant contribution to the broad patterns of our history, or*
>
> *B. Are associated with the lives of persons significant in our past, or*
>
> *C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or*
>
> *D. Have yielded, or may be likely to yield, information important in prehistory or history.*

In addition to meeting at least one of the four criteria, a property must retain integrity, meaning that it must be able to convey its significance through the retention of seven aspects, or qualities, that in various combinations define integrity:

- *Location:* Place where the historic property was constructed;
- *Design:* Combination of elements that create the form, plans, space, structure, and style of the property;
- *Setting:* The physical environment of the historic property, inclusive of the landscape and spatial relationships of the buildings;
- *Materials:* The physical elements that were combined or deposited during a particular period of time and in a particular pattern of configuration to form the historic property;
- *Workmanship:* Physical evidence of the crafts of a particular culture or people during any given period in history;
- *Feeling:* The property’s expression of the aesthetic or historic sense of a particular period of time; and
- *Association:* Direct link between an important historic event or person and an historic property.

Although there are exceptions, certain kinds of properties are not usually considered for listing on the National Register. These include religious properties, moved properties, birthplaces and graves, cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years. Resources that are less than 50 years old are generally not considered eligible for the National Register. A buffer of five years (i.e., 45 years instead of 50) has been added to the age-eligibility threshold to allow time for project implementation.

Federal review of the effects of undertakings on significant cultural resources is carried out under NHPA Section 106 and is often referred to as the Section 106 review process. This process is the responsibility of the responsible entity. The Section 106 review process typically involves a four-step procedure, which is described in detail in the implementing regulations of the NHPA:

- Initiate the Section 106 process by establishing that the project meets the definition of a federal undertaking and identify the appropriate State Historic Preservation Officer (SHPO) and other consulting parties to participate in the review process.
- Define the APE in which an undertaking could directly or indirectly affect historic properties, identify historic properties within the APE in consultation with the SHPO and other consulting parties, and determine if historic properties will be affected by the undertaking.
- If historic properties will be affected by the undertaking, assess the effects on historic properties by applying the criteria of adverse effects.
- If historic properties will be adversely affected, consult with the SHPO and other consulting parties to resolve adverse effects by developing an agreement that addresses the treatment of historic properties, notify the Advisory Council on Historic Preservation, and proceed with the project according to the conditions of the agreement.

California Regulatory Framework

California implements the NHPA through its statewide comprehensive cultural resource preservation programs. The California Office of Historic Preservation (OHP), an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historical Resources Inventory. The SHPO is an appointed official who implements historic preservation programs within the state's jurisdiction.

CEQA, as codified in Public Resources Code section 21000 et seq. and implemented by the CEQA Guidelines (14 CCR section 15000 et seq.), is the principal statute governing environmental review of projects in California. As stated above, CEQA defines a historical resource as a property listed in, or eligible for listing in, the California Register; included in a qualifying local register; or determined by lead agency to be historically significant. In order to be considered a historical resource, a property must generally be at least 50 years old, and the OHP uses a threshold of 45 years. A "historical resource" is defined in CEQA Guidelines section 15064.5 as a cultural resource (i.e., a built-environment resource, archeological resource, or human remains) that meets at least one of the following criteria:

1. A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing on the California Register.

2. A resource included in a local register of historic resources, as defined in Public Resources Code section 5020.1(k) or identified as significant in a historic resource survey meeting the requirements of Public Resources Code section 5024.1(g), shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historic resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register.

4. The fact that a resource is not listed in, or determined to be eligible for listing on the California Register, not included in a local register of historic resources (pursuant to Public Resources Code section 5020.1(k)), or identified in a historic resources survey (meeting the criteria in Public Resources Code section 5024.1(g)) does not preclude a lead agency from determining that the resource may be a historic resource as defined in Public Resources Code section 5020.1(j) or 5024.1.

Therefore, under the CEQA Guidelines, even if a resource is not included in any local, state, or federal register, or identified in a qualifying historical resources survey, a lead agency may still determine that any resource is a historical resource for the purposes of CEQA if there is substantial evidence supporting such a determination. A lead agency must consider a resource to be historically significant if it finds that the resource meets the criteria for listing on the California Register.

CEQA requires a lead agency to determine if a proposed project would have a significant effect on important historical resources or unique archeological resources. If a resource is neither a unique archeological resource nor a historical resource, the CEQA Guidelines note that the effects of the project on that resource shall not be considered a significant effect on the environment (CEQA Guidelines section 15064.5(c)(4)). As noted above, projects that comply with the Secretary's Standards benefit from a regulatory presumption under CEQA that they would have a less-than-significant impact on a historical resource. Projects that do not comply with the Secretary's Standards may or may not cause a substantial adverse change in the significance of a historical resource and must be subject to further analysis to assess whether they would result in material impairment of a historical resource's significance.

California Register of Historical Resources

The California Register, administered by the California Office of Historic Preservation, is the authoritative guide to historical and archeological resources that are significant within the context of California's history. Criteria for eligibility for inclusion on the California Register are based on and correspond to the National Register criteria. Certain resources are determined under CEQA to be automatically included on the California Register, including California properties formally eligible for or listed on the National Register. These resources are considered historical resources by the planning department for the purposes of CEQA. The evaluative criteria used for determining eligibility for listing on the California Register closely parallel those developed by the National Park Service for the National Register but include relevance to California history. To be eligible for listing on the California Register as a historical resource, a resource must meet at least one of the following criteria (Public Resources Code section 5024.1(c)):

- *Criterion 1 (Event):* Resources that are associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States;
- *Criterion 2 (Person):* Resources that are associated with the lives of persons important to local, California, or national history;
- *Criterion 3 (Design/Construction):* Resources that embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of a master or possesses high artistic values; or
- *Criterion 4 (Information Potential):* Resources that have yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

A historical resource must also possess integrity in addition to meeting the significance criteria to be considered eligible for listing on the California Register. Consideration of integrity for evaluation of California Register eligibility closely follows the seven aspects of integrity that apply to the National Register (listed above).

City of Vallejo Regulatory Framework

Chapter 16.614 of the Vallejo Municipal Code, also known as the Vallejo Heritage and Historic Preservation Ordinance, establishes regulations for historic districts and landmark designations for specific properties that will conserve and enhance the city's architectural heritage and historic resources.

City of Vallejo Historic Resources Inventory

The City of Vallejo Planning Division maintains a historic resources inventory (HRI) of known and potential historic resources. The Architectural Heritage and Landmarks Commission is responsible for designating historic districts and landmarks. General criteria which the Architectural Heritage and Landmarks Commission shall use when deciding whether to designate a property as a landmark are as follows:

1. Architectural Merit:
    a. Property that is the first, last, only, or most significant architectural property of its type in the city or region.
    b. Property that is the prototype of, or outstanding example of, periods, styles, architectural movements, engineering or construction techniques, or an example of the more notable work, or of the best surviving work in the city or region of an architect, designer, or master builder.
    c. Architectural examples worth preserving for the values they add when integrated into the total fabric of the city's neighborhoods;
2. Cultural Value: Structures, objects, sites and areas associated with the movement or evolution or religious, cultural, governmental, social, and economic developments of the city;
3. Educational Value: Structures worth preserving for their educational value;
4. Historical Value: Preservation and enhancement of structures, objects, sites and areas that embody and express the history of Vallejo, Solano County, California, or the United States. History may be social, cultural, economic, political, religious, or military; and
5. Any property which is listed on the National Register and is described in Section 470a of Title 16 of the United States Code and/or is a registered state landmark.

Any property which the Architectural Heritage and Landmarks Commission finds to meet the above criteria may be classified and designated as follows:

1. City Landmark: City landmarks shall include those structures found to have unique historical, architectural, or aesthetic interest or value and which are eligible for or listed on the National Register of Historic Places.
2. Historic Structure: Historic structures shall include those structures found to have outstanding historical, architectural, or aesthetic interest or value.
3. Structure of Merit: Structures of merit shall include those structures found to have significant historical, architectural, or aesthetic interest or value.
4. Contributing Structure: Contributing structures shall include those structures found to warrant special historical, architectural, or aesthetic interest or value.[4]

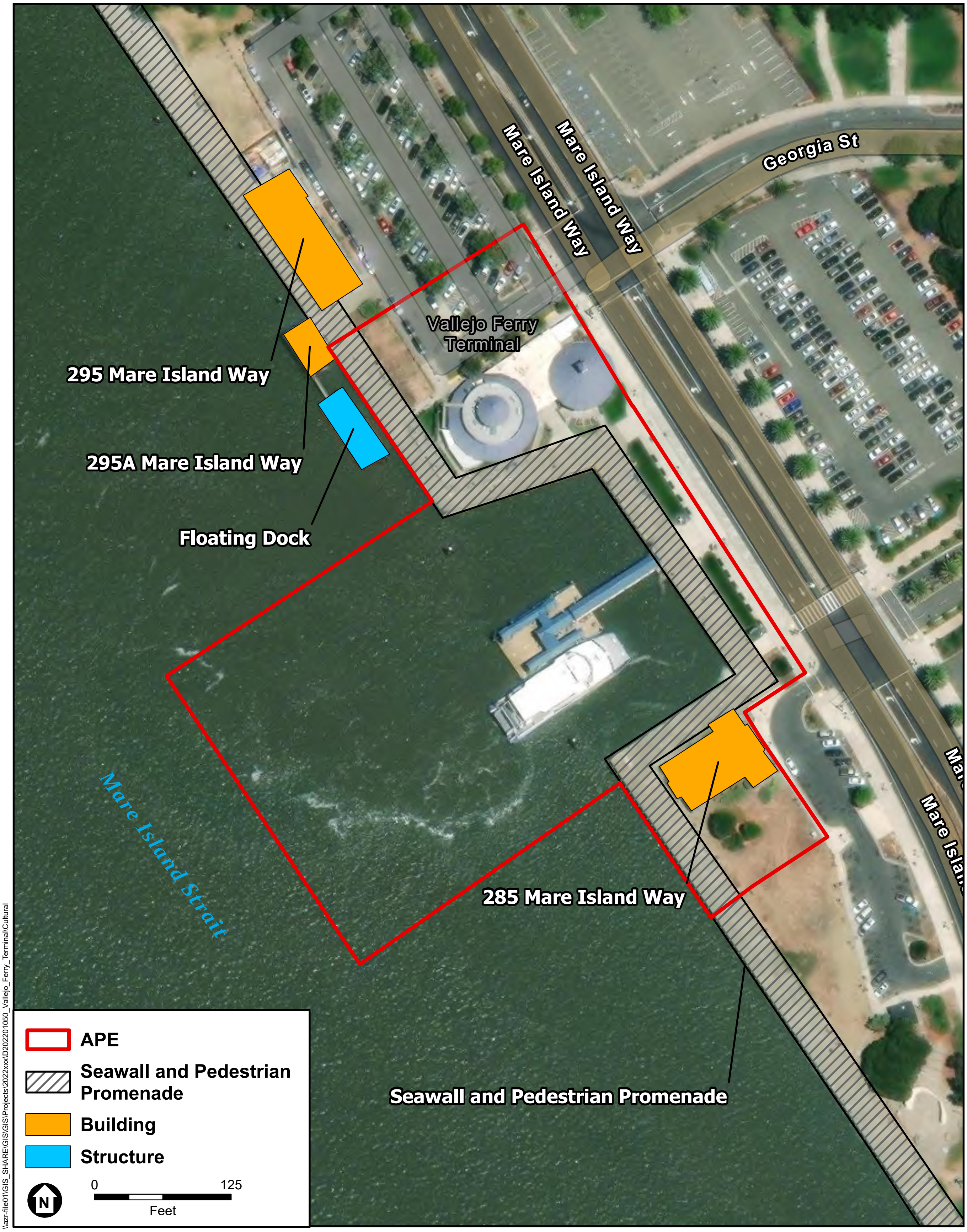
Area of Potential Effects

According to the implementing regulations of NHPA Section 106, as amended, the APE is defined as “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different

[4] “Contributing” is commonly used in reference to a property within an identified historic district. The Vallejo Heritage and Historic Preservation Ordinance uses “contributing” to mean “contribute to and serve as visible reminders of the cultural, aesthetic and architectural heritage of Vallejo.” Vallejo Municipal Code Section 16.614.01.

kinds of effects caused by the undertaking" (36 CFR § 800.16(d)). For this analysis, the APE is also used as the study area for CEQA analysis of historical resources. In this study, the term "APE" is used to describe both the study area for NHPA and CEQA analysis.

For the purposes of this undertaking, the horizontal APE includes the Vallejo Ferry basin (Assessor Parcel Number [APN] 0055-170-050) and the three adjacent parcels (APNs 005-170-040, -060, and -400). The vertical APE includes the depth of proposed ground disturbance for any construction excavation associated with the project. The vertical APE would not exceed 10 feet below the existing ground surface. **Figure 3** shows the project APE.



SOURCE: ESA 2023, ESRI 2023; World Imagery

D202201050.00 - Vallejo Ferry Terminal Reconfiguration Project CRSR

ESA

Figure 3
Area of Potential Effects

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CHAPTER 3
Historic Context

Brief History of Vallejo

Pre-Contact Era

Well before the arrival of European settlers, the area where the City of Vallejo currently stands was inhabited by the Coast Miwok and several Patwin tribes, including the Suisun and Karkin. The Patwin tribes comprised a band of Southern Wintun people who have inhabited portions of Northern California for centuries.[5] The Coast Miwok are one of four linguistically related indigenous groups who spoke one of the Miwok languages within the Utian linguistic family. The Miwok typically subsisted through hunting and gathering and lived in relatively small, interconnected bands without centralized political authority. During the warmer months, Coast Miwok traveled to the Northern California coasts to hunt salmon and other seafood.[6] Archaeological evidence indicates that the Wintun people arrived in the Northern California region by the year 500. Like the Coast Miwok, the southern Patwin tribes were hunting and gathering groups that inhabited territory along the northeast portion of the San Pablo Bay in what is present-day Solano County.[7] Three confirmed Native American sites are located on Sulphur Springs Mountain, near Vallejo's Blue Rock Springs Park.[8]

Spanish and Mexican Eras

The arrival of Spanish settlers to the region irrevocably disrupted indigenous communities throughout California. In 1775, Don Jose Canizares piloted the first Spanish naval ship to arrive in the San Francisco Bay and, later that year, led one of the earliest European expeditions into present-day Solano County. In 1810, Gabriel Moraga led an expedition across the Carquinez Strait and subsequently led a punitive raid against the Suisun Tribe. Violent clashes between Spanish settlers and indigenous peoples continued in varying forms in the following decades. The introduction of new diseases such as smallpox and malaria decimated much of the indigenous

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5 James J. Rawls and Walton Bean, *California: An Interpretive History,* 9th ed (San Francisco: McGraw Hill, 2008), 18; "Time to Learn About Vallejo," Visit Vallejo, accessed August 25, 2023, https://www.visitvallejo.com/about-vallejo/history.

6 Alfred L. Kroeber, *Handbook of the Indians of California* (Washington, DC: Bureau of Ethnology Bulletin, no 78), accessed August 25, 2023, http://www.yosemite.ca.us/library/kroeber/miwok.html; "Coast Miwok at Point Reyes," National Park Service, accessed August 25, 2023, Coast Miwok at Point Reyes - Point Reyes National Seashore (U.S. National Park Service) (nps.gov).

7 Victor Golla, *California Indian Languages* (Berkeley: University of California Press, 2011), 205; "California Indians and Their Reservations: P," San Diego State University Library and Information Access, accessed August 25, 2023, https://web.archive.org/web/20100726212453/http://infodome.sdsu.edu/research/guides/calindians/calinddictty.shtml#w.

8 "History," City of Vallejo, accessed August 25, 2023, https://www.cityofvallejo.net/our_city/about_vallejo/history.

population by the 1840s. Spaniards forcibly relocated thousands of the greatly reduced Suisun, Patwin, and Coast Miwok people to the Mission San Francisco Solano (est. 1823), further disrupting indigenous culture.[9] The cumulative impact of Spanish colonization by the mid-1800s decimated tribal unity and destroyed many natural resources essential for indigenous people's survival.

The Spanish colony of Mexico declared war against Spain in 1810, and Mexico won its independence in 1821. By the end of April 1822, all of California had come under Mexican governance. In 1833, the Mexican Congress passed the Mexican Secularization Act which transferred ownership of the existing twenty-one missions in Alta California from the Catholic Church to the nascent Mexican Government. This act eventually redistributed associated mission land to Mexican citizens through secular land grants.[10] Between 1833 and 1845, under a policy that ordered the colonization of vacant lands, much of the land associated with the missions were allocated to favored citizens as private land grants known as *ranchos*. In 1835, General Mariano Guadalupe Vallejo traveled to the east San Francisco Bay region to establish land grants on behalf of the Mexican government. One such grant, Rancho Soscol (established in 1844), encompassed the future sites of the cities of Vallejo and Benicia. Soon after his arrival, Vallejo formed a political alliance with Sem-Yeto, later known as Chief Solano, the leader of the Suisun tribe. In 1836, Solano and Vallejo secured a peace treaty between neighboring Native American and Mexican populations, which restored a certain level of stability to the region for nearly a decade. As a result of this alliance, surviving Suisunes relocated from former Missions to live and work on ranchos in present-day Sonoma and Solano County.[11]

American Period

When Alta California became an American territory after the Treaty of Guadalupe-Hidalgo in 1848, General Vallejo lobbied to ensure that one of his land parcels become a new state capitol. When California joined the Union in 1850, Vallejo offered to donate $370,000 and 156 acres of land for a new state capital that he suggested be named Eureka, complete with schools, hospitals, asylums, and a state penitentiary. After a state-wide referendum was held in late 1850, the California State Legislature accepted the proposal, but instead determined that the new city would be called Vallejo in honor of the Mexican general.[12] In 1852, Vallejo became the first permanent seat of California's state government. Its tenure as the state capitol, however, was brief. Vallejo's promise of a grand, picturesque city had not been realized by the time state legislators arrived in the sparsely appointed mining town. After only eleven days in town, the new state legislature

9 "History of Solano County, California," Solano County Historical Society, accessed August 25, 2023, https://web.archive.org/web/20061101091352/http://cagenweb.com/solano/county_history.htm; "Sonoma State Historic Park- A Short History of Historical Archaeology," SSHP: California Department of Parks and Recreation, accessed August 25, 2023, https://www.parks.ca.gov/?page_id=22760.

10 Rawls and Bean, 60-68; "Monterey County Historical Society, Local History Pages—Secularization and the Ranchos, 1826-1846," Monterey County Historical Society, accessed August 25, 2023, http://mchsmuseum.com/secularization.html.

11 Stephen Silliman, *Lost Laborers in Colonia California: Native American and the Archaeology of Rancho Petaluma* (Tucson: University of Arizona Press, 2004); "Time to Learn About Vallejo."

12 "Vallejo—Our History," Vallejo Naval & Historical Museum, accessed August 25, 2023, https://vallejomuseum.net/vallejo-history/.

decamped to Sacramento to finish out the session. In 1853, the government seat relocated temporarily to neighboring Benicia before moving permanently to Sacramento.[13]

One Vallejo resident, John B. Frisbie, was instrumental in the development of the town. Frisbie was the son-in-law of General Vallejo and had been granted power of attorney for the former land grant. Frisbie subsequently hired E.H. Rowe to design the city's layout, which included naming east-west streets after states and north-south streets after California counties. Frisbie also helped establish Vallejo's first city government and lobbied diligently in Washington, D.C., which resulted in the city's incorporation in 1867.[14]

Early Development of the Vallejo Waterfront

Mare Island and the Mare Island Ferry

The shoreline along the Mare Island Strait at the mouth of the Napa River has played an important role in the local history of water transportation and recreation as well as the nation's maritime history. On the west side of the strait (outside the APE) is Mare Island, and it was purchased by the United States Navy in 1853 to establish the first naval installation on the West Coast.[15] A ferry service between the City of Vallejo to the east and Mare Island was established shortly thereafter.[16] The shipyard constructed its first U.S. warship (USS *Saginaw*) in 1859 and first dry dock between 1872 and 1891. The installation of the shipyard attracted settlers to Vallejo and helped to establish a local workforce. By the outbreak of World War II in September 1939, Mare Island had become the largest ship construction and repair facility in the world.[17] Over the course of the United States' involvement in the conflict from December 1941 to September 1945, wartime mobilization caused the city's population to grow from 26,000 to nearly 100,000. By the time Mare Island ceased shipbuilding operations in 1996, the shipyard had constructed over 500 naval vessels and overhauled thousands more.[18] In 2002, Mare Island was conveyed to the City of Vallejo, which has ongoing reuse and redevelopment plans for the island.[19]

Water Transportation to and from Vallejo

Intercity/Intercounty Ferries

The Vallejo waterfront located on the east side of the Mare Island Strait was also an important harbor for ferry transportation and commercial shipping. Dr. Robert Semple created a ferry service from Vallejo across the Carquinez Strait to Martinez to serve the influx of settlers who arrived in the region during the Gold Rush. In 1867, the California Pacific Railroad was

13 Ibid.

14 "Time to Learn About Vallejo."

15 "Mare Island Naval Shipyard," Naval History and Heritage Command, accessed August 28, 2023, https://www.history.navy.mil/browse-by-topic/organization-and-administration/historic-bases/mare-island.html.

16 Richard Abrams, "Ferry Slips into History," *Sacramento Bee,* August 30, 1936, B1–B2.

17 "Time to Learn About Vallejo."

18 "Mare Island Naval Shipyard," NHHC; National Park Service. U.S. Department of Interior. *Historic American Buildings Survey, Mare Island Naval Shipyard*. Vol. 1 (HABS No. CA-1543—HABS No. CA-1543-D), San Francisco, 1999.

19 "Mare Island Naval Shipyard," National Park Service, accessed August 28, 2023, https://www.nps.gov/places/mare-island-naval-shipyard.htm.

established to build a fast and reliable route from San Francisco to the state capitol. Subsequently, passengers could travel by steamboat from San Francisco to a ferry terminal in South Vallejo, where they would then travel by rail to Sacramento.[20] During the peak of ferry transportation, riders for the Pony Express also used the ferries at Vallejo to travel between Sacramento and Benicia. The Vallejo waterfront was also used to transport freight trains across San Francisco Bay. The *Solano* and *Contra Costa*—two of the world's largest train ferries ever constructed—operated along the Vallejo waterfront from 1879 to 1930.[21] The Southern Pacific Golden Gate Ferries bought out several existing steamship lines and oversaw the operation of most ferry services between Vallejo and San Francisco until about 1937. At that time, the Bay Bridge opened for operation and diverted many ferry passengers to highway travel.[22]

Mare Island Ferry Company

As mentioned above, a passenger ferry service between the Vallejo mainland and Mare Island was first established in 1854 to transport laborers to the shipyard (**Figure 4**).[23] In 1922, Victor Raahauge purchased the ferry service and established the Mare Island Ferry Company, becoming the sole provider of ferry service across the strait.[24] The ferry terminal was located at the foot of Georgia Street (also known as Lower Georgia Street or the Georgia Street Wharf) in an area rife with gambling, prostitution, and crime. Ridership peaked during World War II, when more than 50,000 passengers were ferried across the strait each day on 17 boats (**Figure 5**).[25] The original ferry terminal is no longer extant.

SOURCE: CardCow.com

Figure 4
Undated (Pre-1960) Photo of the Ferry Between Vallejo and Mare Island

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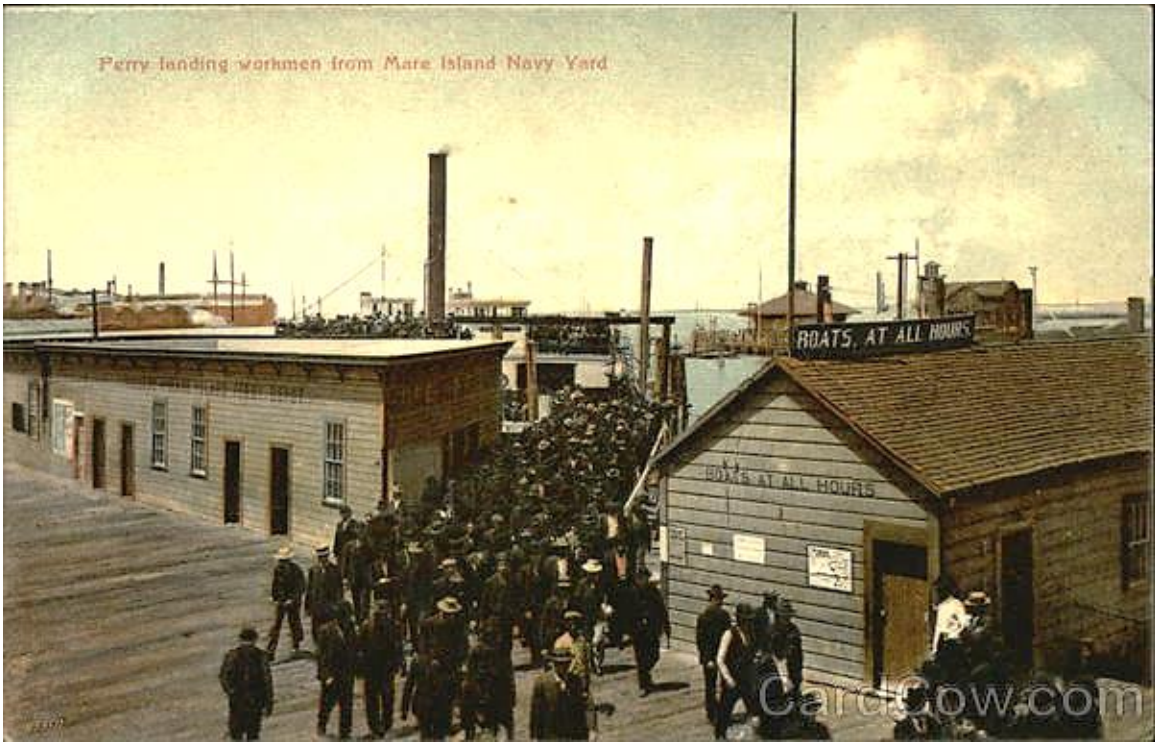
20 "Vallejo—Our History."
21 "Time to Learn About Vallejo."
22 F. Weston Starratt, "Success of Vallejo and Its Ferries: Location, Location for the Past 150 Years," accessed August 28, 2023, http://www.baycrossings.org/Archives/2001/06_July/vallejo_history.htm.
23 Richard Abrams, "Ferry Slips into History," *Sacramento Bee,* August 30, 1936, B1–B2.
24 "MI Ferry Co. Looks Forward To 'Boom' Along Waterfront," *Vallejo Times-Herald,* May 8, 1965.
25 Mark A. Stein, "Ferry Service Making Final Docking After 131 Years," *Los Angeles Times,* August 29, 1986.

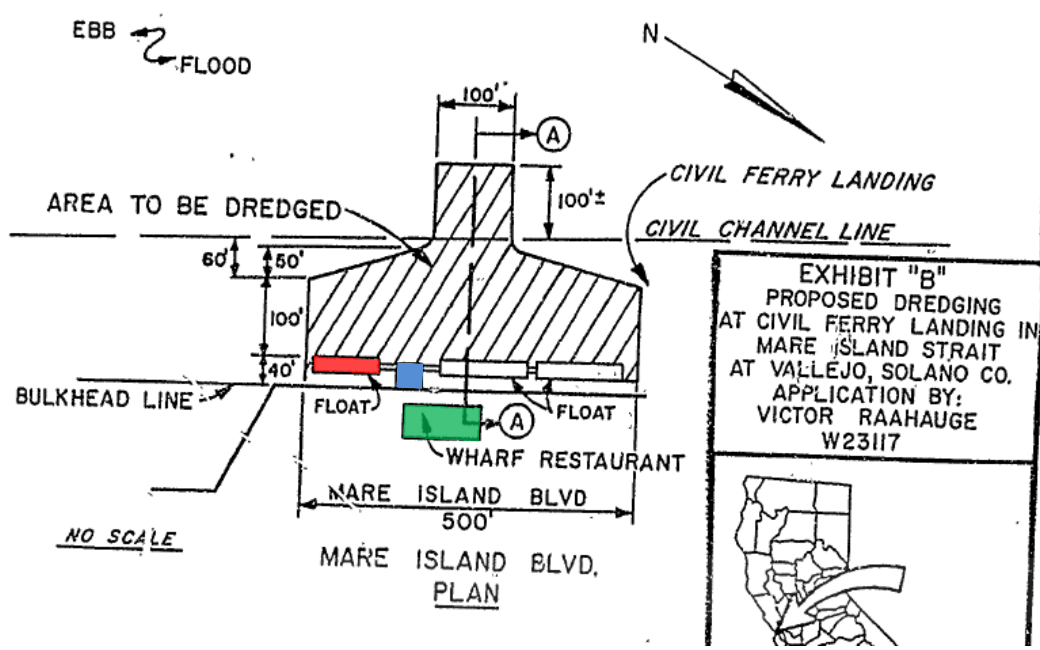


SOURCE: CardCow.com

Figure 5
Undated (Pre-1960) Photo of the Vallejo Ferry Landing

In 1973, the Mare Island Ferry Company and the U.S. Navy entered into a contract under which the Navy was "responsible for maintaining the [channel and] floating docks the ferry uses on each side of the strait [, including both] the ferry's private docks and the docks owned by the shipyards. In exchange, the ferry provided regular service for shipyard employees as well as 24-hour-a-day availability during emergencies."[26] In addition to the ferry terminal building on the Georgia Street Wharf, the ferry company's infrastructure included three "floating docks" that were constructed ca. 1964 parallel to the seawall and immediately north of the APE.[27] These were concrete platforms surrounded by water on all sides and protected by steel dolphins (**Figures 6 and 7**). In 1986, the Navy terminated the contract, removed two of the floating docks, and refused to repair the third,[28] which, along with all of the steel dolphins, is extant and currently serves as an outdoor dining area for the Bay Hibachi Express restaurant at 295A Mare Island Way. Raahague's descendants operated the Mare Island Ferry until it closed in 1986.[29]

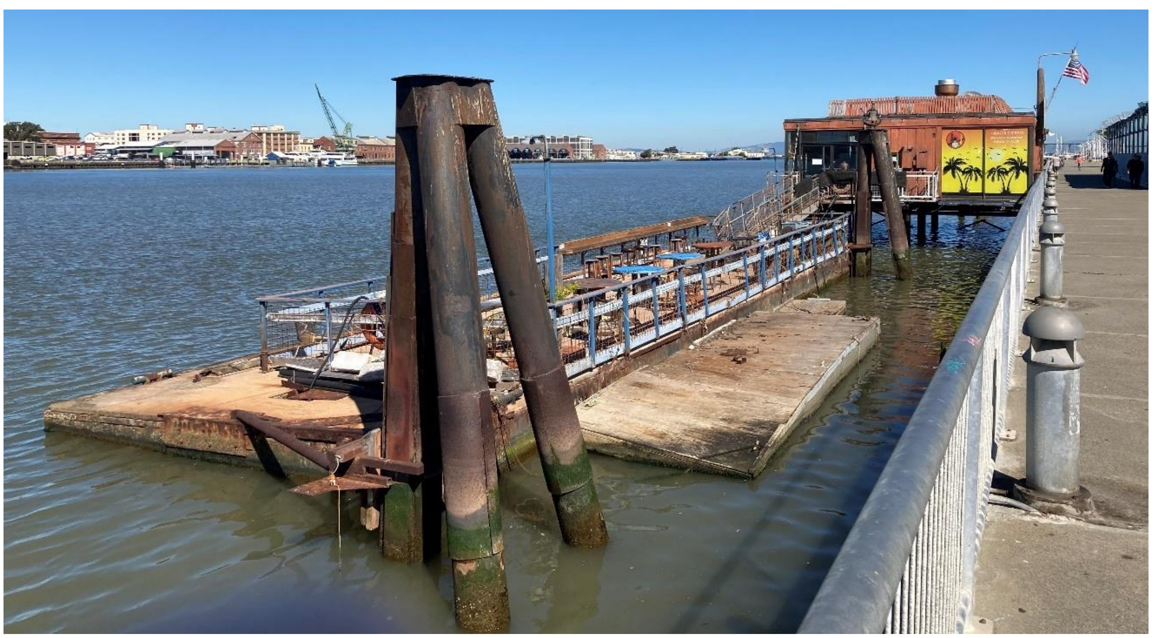
[26] Richard Abrams, "Ferry Slips into History."
[27] "Ferry Slip Comes Out for Progress," *Vallejo Times-Herald,* November 24, 1964.
[28] Harry Jupiter, "After a Million Rides, the Mare Island Ferry Leaves Anger in Wake," *San Francisco Examiner,* August 30, 1986, 2.
[29] Mark A. Stein, "Ferry Service Making Final Docking After 131 Years," *Los Angeles Times,* August 29, 1986.



Each floating dock (i.e., concrete platform) is labeled "float." The only extant floating dock is shown in red. The extant buildings at 295 and 295A Mare Island Way (shown in green and blue, respectively), are located outside of and adjacent to the APE.

SOURCE: California State Lands Commission, Dredging Permit, Calendar Item 14, December 16, 1982

Figure 6
Plan of the Mare Island Ferry Landing Showing Three Floating Docks, 1982



The floating dock and the building at 295A Mare Island Way (visible in the background) are located immediately north of the APE.

SOURCE: ESA, 2023

Figure 7
Remaining Mare Island Ferry Co. floating dock and steel dolphins

Marina Vista Redevelopment Project

The Vallejo waterfront transformed dramatically during the 1950s and 1960s. After World War II ended and automobiles became the predominant mode of transportation, the waterfront lost many of the travelers, workers, and tax revenue that had given the area so much vitality. The rooming houses, taverns, and dance halls built to accommodate Vallejo's swelling wartime population gradually fell into disrepair as the result "of many forces including age, obsolescence, wartime pressures, a changing economy and human neglect."[30] By the 1950s, much of the waterfront and the city's commercial center was "dilapidated and in economic trouble" (**Figure 8**).[31]

Mare Island is visible in the background.
SOURCE: Vallejo Naval and Historic Museum

Figure 8
Undated (Pre-1960) View of the Vallejo Waterfront Near the Georgia Street Wharf at Low Tide, Facing South

[30] Redevelopment Agency of the City of Vallejo, *Marina Vista,* 1967, 1, in "Redevelopment Agency of the City of Vallejo from January 1962 to December 1965 (scrapbook), on file at the Vallejo Naval and Historic Museum.
[31] Brian W. H. Taylor, "Marina Vista: Vallejo's Revitalization," *San Francisco Examiner,* February 28, 1965.

In 1960, the Vallejo City Council adopted what would become known as the Marina Vista Redevelopment Project to revitalize the city's commercial center and waterfront.[32] The urban renewal project razed 600 existing structures and replanned approximately 125 acres of land between Vallejo's business district and the Mare Island Strait, and this included 25 acres of reclaimed land along the shoreline (**Figure 9**).[33] In 1964, the city initiated a $4.4 million construction phase that built a Bank of America branch (extant and currently operating as the Vallejo Housing Authority at 200 Georgia Street), a public library (extant and located at 505 Santa Clara Street), a U.S. Post Office branch (demolished and formerly located at 485 Santa Clara Street), the commercial/office Georgia Vista Building (extant and located at 243–255 Georgia Street), the professional offices Beeman Building (extant and located at 237 Georgia Street), a Safeway supermarket (extant and currently operating as a Grocery Outlet at 401 Marin Street), a senior residential center called Ascension Arms Apartments (extant and located at 301 Butte Street), restaurants, gas stations, and multiple housing projects. In 1966, the Walnut Creek, California, firm Valley Crest Landscape was awarded the contract to oversee the planned site development, and the renowned San Francisco landscape architectural firm led by Robert Royston oversaw the landscape plan for the project's 24 city blocks.[34] The plan for the landscape—with an emphasis on accessible, usable space as well as abstract design—was characteristic of Royston's approach to modern landscape architecture.[35] The project also added approximately 25 acres of new land over the existing tidal mudflats and a new concrete seawall along the waterfront that was completed in 1966 (**Figure 10**).[36] By 1970, the waterfront offered "The Wharf" restaurant (extant at 295 Mare Island Way), the Vallejo Yacht Club and Clubhouse (extant at 485 Mare Island Way), two large parks, public parking, tree-lined walking paths, and public artwork for Vallejo residents (**Figure 11**).[37]

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32 "New Marina vista Plan Adds Land, Recreation Without Increasing Cost," *Labor Journal,* January 22, 1962.

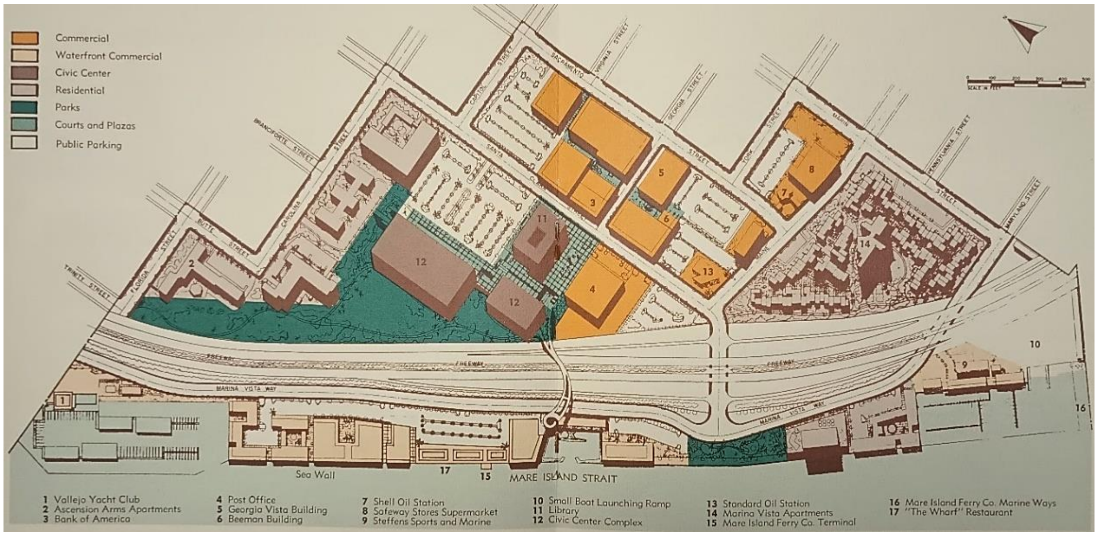
33 "New Building in Redevelopment Area Set," *Vallejo Times-Herald,* February 27, 1962.

34 Different newspaper accounts mention that the contract was awarded to Royston, Hanamoto, Mayes, and Beck (RHMB, in existence 1962-66) and Royston, Hanamoto, Beck, and Abey (RHBA, in existence 1967-79). "Landscaping for Marina Vista Bared," *Vallejo-Times Herald,* April 1, 1965; "Landscape Firm Gets Contract," *Contra Costa Times,* August 10, 1966, 6.

35 Dave Weinstein, "Painting an abstract landscape/One of the inventors of modernist outdoor design, Robert Royston was inspired by Joan Miro and other artists," accessed August 29, 2023, https://www.sfgate.com/homeandgarden/article/Painting-an-abstract-landscape-One-of-the-2484528.php#photo-2640928.

36 "Marina Vista," n.d., p.2, promotional pamphlet in possession of the Vallejo Naval and Historical Museum; Roy Anderberg, "Urban Renewal Changes Vallejo," *Contra Costa Times,* September 19, 1968, 11; "City's Waterfront Undergoes Change; Hills Disappearing," *Vallejo Times-Herald,* July 31, 1964; "Safety Study on Seawall," *Vallejo News-Chronicle,* April 21, 1971.

37 "Marina Vista," n.d., p.8-11, promotional pamphlet in possession of the Vallejo Naval and Historical Museum; "Throngs View Navy River Boats," *Vallejo Times-Herald,* July 5, 1970; "Huge Throng Watches Riverines Arrive," *Vallejo Times-Herald,* July 5, 1971.



The extant ferry basin is shown at the bottom center of the plan.

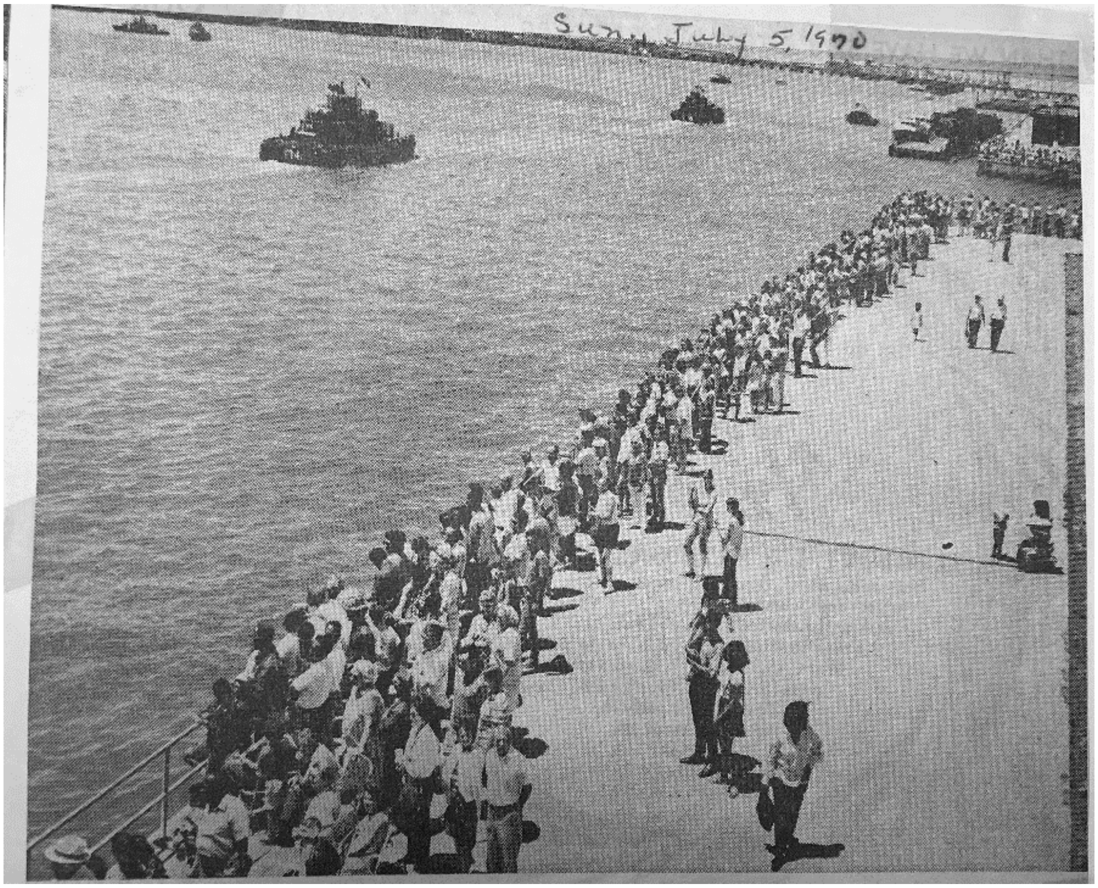
SOURCE: Vallejo Naval and Historic Museum

Figure 9
Site Plan of the Marina Vista Redevelopment Project, 1967

The extant ferry basin and the former Mare Island Ferry terminal are visible in the right middle ground (below the circular marker labeled "3").

SOURCE: Vallejo Naval and Historic Museum

Figure 10
Aerial View of the Marina Vista Redevelopment Project
Under Construction, Facing Southeast, May 1965



The ferry basin is visible in the right background.
SOURCE: *Vallejo Times-Herald*, July 5, 1970

Figure 11
Public Event Along the Vallejo Waterfront, July 1970

The Marina Vista Redevelopment Project was not without controversy. From the outset, some Vallejo residents were concerned that in realizing its dream of a beautiful waterfront, the City of Vallejo would place a heavy financial burden on the city's next generation.[38] In 1969, affordable housing advocates submitted a letter to Representative Robert L. Leggett raising concerns that the Vallejo Redevelopment Agency Board's vision for the project area failed to address the most pressing needs of Vallejo's primarily black Country Club Crest and South Vallejo neighborhoods and lower-income residents and called for a federal study of the redevelopment plan.[39] Later that year, developer Jack Baskin completed the construction of an affordable 235-apartment complex later named Marina Vista Apartments that partially addressed the city's need for affordable housing.[40] However, the Vallejo Redevelopment Agency's 1969 construction plans for an unrealized waterfront freeway required the annexation of Roosevelt Terrace and additional areas contiguous to Vallejo, resulting in the displacement and relocation of an estimated 10,000

38 "City Okehs New Renewal Project," *Vallejo Times-Herald,* February 14, 1962.

39 "Marina Vista Land Use Probe Sought," *Vallejo Times-Herald,* January 25, 1969.

40 "New Marina Vista Restaurant Starts," *Vallejo Times-Herald,* November 23, 1968; "156 Apartments on Waterfront Are Planned By Builder," *Vallejo Times-herald,* December 3, 1968; "Target Date: 1970 Completion of Marina Vista," *Vallejo Times-Herald,* January 1, 1969.

residents.[41] While the redevelopment project ultimately constructed multiple similar low-cost housing options for Vallejo residents and received praise from professional architects and engineers, the City of Vallejo and housing advocates engaged in an ongoing and occasionally contentious debate about the city's housing needs for the project's duration.[42]

Late 20th-Century Revival of the Vallejo Ferry

In 1986, intercity/intercounty ferry service returned to the Vallejo waterfront after a 34-year hiatus. That year, the nature and amusement park Marine World/Africa USA relocated to Vallejo from San Mateo County. In response, the privately owned tour boat operator, Red & White Fleet, launched a commute ferry service to bring visitors from San Francisco to Vallejo's newest attraction. Additionally, the City of Vallejo began construction on a $1.2 million ferry terminal with state and local redevelopment funds to support the growing ferry service. In 1988, Red & White Fleet suspended its service, and the City of Vallejo took over public ferry transit to San Francisco. The passage of Regional Measure 1 in 1988 provided additional funding to upgrade the ferry system and support operating costs for public transit services.[43] In 1989, Crowley Maritime completed construction on the 4,500-square-foot terminal and ferry dock.[44] In 1990, the City of Vallejo and the Metropolitan Transportation Commission utilized $10 million allocated from the California Air Quality & Transportation Improvement Act (CATIA) to develop the Vallejo Ferry Plan which outlined the ferry capital program and ongoing Baylink operations. In 1991, the Vallejo ferry project received an additional $17 million in funding from the federal Intermodal Surface Transportation Efficiency Act (ISTEA). Over the next decade, the City of Vallejo added three high-speed catamarans to its fleet as local demands for ferry service rose steadily. By the end of the 1999–2000 fiscal year, Vallejo Baylink had carried nearly 750,000 passengers across the San Francisco Bay.[45]

Notable People Associated with the Vallejo Ferry Terminal

Victor Raahauge, Owner of the Mare Island Ferry Company

Victor Raahauge (1913–2002) was the president, operator, and one of the owners of the Mare Island Ferry Company from 1937 until its closure in 1986. By 1948, he was "long active in civic affairs [in Vallejo] and had been elected president of the Vallejo Senior Chamber of Commerce for 1949."[46] As the ferry owner and also co-owner of the longstanding The Wharf restaurant (the building is extant at 295 Mare Island Way), Raahauge was known as a "prominent Vallejo

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41 "Waterfront Route Gets Top Priority Of Vallejo Council," *Vallejo Times-Herald,* February 7, 1969.

42 "Vallejo Sees Good Sense In Its Urban Renewal Program," *Fresno Bee,* July 28, 1962; "Marina Vista Gets Nationwide Publicity," *Vallejo Times-Herald,* September 5, 1963; "Low Cost Housing Plan For Vallejo Brings a Dispute," *Vallejo Times-Herald,* November 24, 1970.

43 "History of Vallejo Ferry," Vallejo Ferry Guide, accessed August 28, 2023, https://vallejoferry-schedule.com/history/.

44 Robert McCockran, "After 34-year hiatus, ferry is enjoying a renaissance," *Vallejo Times-Herald,* February 10, 1991.

45 Ibid.

46 "Ferry Owner Elected Chamber President," *Oakland Tribune,* November 25, 1948, 21.

business man."[47] A memorial to Raahauge is located on the former site of the ferry terminal on the north side of the ferry basin. The memorial consists of a plaque and a boat anchor, presumably one that was used by the ferry company (**Figure 12**). The plaque commemorates Raahauge's "lifelong dedication and activity on the Vallejo waterfront [that includes association with the] Mare Island Ferry, 1922–2002 [and] The Wharf restaurant, 1969–2002."

SOURCE: ESA, 2023

Figure 12
Memorial to Victor Raahauge

When Raahauge opened The Wharf restaurant in 1969, the interior design was "done in nautical style, using actual ship's lights, binnacles and two century-old steering wheels […] from the old steamer *Vallejo*, built in 1871, which once plied the channel between Vallejo and Mare Island."[48] Several years after Raahauge's death in 2002, his widow and son relocated the business to an adjacent building and rechristened the business as Vic's Wheelhouse, a "seafood-themed restaurant and museum in the old Mare Island Ferry building [at 295A Mare Island Way] and on a dock attached to it in the water."[49] The restaurant was intended to be a living memorial to Victor Raahauge featuring "local maritime artifacts and memorabilia, some of which dates [to the 19th] century."[50] Vic's Wheelhouse operated from 2009 to ca. 2021 (with some disruptions in service due to the COVID-19 pandemic). As of December 2023, the building operates as the Bay Hibachi Express restaurant and retains the historic nautical artifacts on the interior.

Preliminary research did not identify Raahauge's major achievements as a business owner or his legacy in Vallejo. Rather, it appears that he managed day-to-day operations of the Mare Island Ferry Company and The Wharf restaurant and served for an unknown period on the Vallejo Chamber of Commerce during the mid-20th century.

47 "Vallejoan Offers to Run Benicia Ferry," *Concord Transcript,* April 7, 1955, 2.
48 "Wharf Restaurant Has Nautical Motif," *Vallejo Times-Herald,* November 26, 1969, 10.
49 Rachel Raskin-Zrihen, "Restaurant, Museum Slated for Waterfront," *Vallejo Times-Herald,* August 10, 2007.
50 Ibid.

Archival research did not identify other notable individuals associated with the Vallejo Ferry Terminal. Design professionals associated with the waterfront design under the Marina Vista Redevelopment Project are discussed in the following section.

Design Professionals Whose Work Is Located in the APE

Royston, Hanamoto, Beck, and Abey (Landscape Architect)

The landscape design for the Marina Vista Redevelopment Project (which includes the APE) is attributed to the prolific San Francisco landscape architecture firm Royston, Hanamoto, Beck & Abey (RHBA). The firm's name changed periodically from the 1950s through the 1970s to reflect the current leadership. When the firm was awarded the contract for the Marina Vista Redevelopment Project in 1966, it was named Royston, Hanamoto, Mayes & Beck (RHMB);[51] however, partner David Mayes left the firm later that year. RHBA was established soon after by partners Robert Royston (1918–2008), Asa Hanamoto (1923–2015), H. Eldon Beck (b. 1931), and Kazuo "Kaz" Abey (d. 2019) and practiced ca. 1967–1979.[52] The San Francisco Planning Department considers the founder, Robert Royston (1918–2008), to be a master landscape architect who was "enormously influential in the development of Modern landscape design in San Francisco [and beyond],"[53] and RHBA's legacy is on display throughout California.

Royston and his firms worked extensively in Vallejo. Some of these projects include:

- Marina Vista Redevelopment Project: including but not limited to the Standard Oil Co. service station (1967), Vallejo Public Library (1967), Vallejo Civic Center (collaboration with Marquis and Stoller Architects, 1962), several multi-family residential buildings in collaboration with developer Jack Baskin, and the James Hunter Memorial Promenade (1971);
- U.S. Navy's Combat Data Systems School on Mare Island (collaboration with Lee and Busse Architects, 1967-73);
- Vallejo General Hospital (1968);
- Driftwood Subdivision (1973);
- Solano County Animal Shelter and Department of Weights and Measures (1963); and
- Solano County Master Plan (1966).[54]

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51 "Landscape Firm Gets Contract," *Contra Costa Times,* August 10, 1966, 6.

52 "Inventory of the Robert N. Royston Collection, 1941 – 1990," Environmental Design Archives, College of Environmental Design, University of California, Berkeley, http://pdf.oac.cdlib.org/pdf/berkeley/ceda/royston.pdf, accessed June 30, 2021.

53 Mary Brown. *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement.* Prepared for the San Francisco City and County Planning Department, 2010, pp. 283–284.

54 "Inventory of the Robert N. Royston Collection, 1941 – 1990," Environmental Design Archives, College of Environmental Design, University of California, Berkeley, http://pdf.oac.cdlib.org/pdf/berkeley/ceda/royston.pdf, accessed September 28, 2023.

RHBA received a design merit award in 1970 from the American Society of Landscape Architects (ASLA) for the 125-acre Marina Vista Redevelopment Project (**Figure 13**).[55]

SOURCE: UC Berkeley Environmental Design Archives

Figure 13
Promenade Along the Vallejo Waterfront (south of the APE), 1968

Bond-Dougherty, Inc. (Architect)

The building located at 285 Mare Island Way was designed in 1974 by Bond-Dougherty, Inc.[56] A review of historic newspaper articles indicates that the firm was originally known as Bond and Dougherty Architects, and it appears to have been established ca. 1961 in Vallejo.[57] The firm's early work includes:

- Portable classrooms for the Beverly Hills School District of Vallejo (1961);[58]
- Storage building at Hogan Senior High School in Vallejo (1962);[59]
- Petaluma Convalescent Hospital in Petaluma (1962);[60]

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55 "Marinite Is Honored for Landscaping," *Independent-Journal* (Marin County), June 22, 1970, 3.

56 "Dental Building for C.E. Pickett & W.M. Adams (D.D.S.)" (architectural drawings), 1974, on file at the City of Vallejo.

57 Research identified one of the cofounders as Charles N. Dougherty, and no information about the identity of Bond was found.

58 Julian W. Riehl, "C&F Co. Wins Yountville Grandstand with Low Bid," *Santa Rosa Press Democrat,* November 26, 1961, 3E.

59 Julian W. Riehl, "Hoss Firm Low on Water System, No Award Made," *Santa Rosa Press Democrat,* July 16, 1962, 5E.

60 "Convalescent Home to Be Built Here," *Petaluma Argus-Courier,* October 10, 1962, 1.

- Alderson Convalescent Hospital in Lodi (1965);[61]
- Carmichael Convalescent Hospital in Carmichael (1966);[62]
- Vallejo General Hospital (collaboration with Welton Becket & Associates, 1967);[63]
- American Savings and Loan Co. branch office in Vallejo (1968);[64] and
- AAA branch office in Solano County (1970).[65]

By 1974, the firm was renamed Bond-Dougherty, Inc., and had expanded to offer architectural design, engineering, and planning services, as advertised in the title block for the architectural drawings for 285 Mare Island Way. Additionally, the firm appears to have offered environmental consulting services.[66] The firm's later projects included the North Vallejo Community Center Building (1975; extant at 1121 Whitney Avenue in Vallejo and remodeled in 2016)[67] and the Napa-Solano Girl Scout Council Program Center (1984; extant at 3351 Hillridge Drive in Fairfield).[68] Preliminary archival research yielded no additional information after 1984.

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61 "Lodi Developer Plans Medical Center Project," *Stockton Record,* April 1, 1965, 26.

62 "New Convalescent Hospital" (photograph with caption), *Sacramento Bee,* March 6, 1966, C9.

63 "New General Hospital Is Being Erected in Vallejo," *Berkeley Gazette,* February 6, 1967, 14.

64 Paul Corbin, "Rapp Construction Low Bidder for Rancho Cotate HS Additions," *Santa Rosa Press Democrat*, October 13, 1968, 6E.

65 Paul Corbin, "Petaluma Maintenance Station Bids Sought," *Santa Rosa Press Democrat,* January 4, 1970, 8S.

66 Bond-Dougherty, Inc., is listed as the author of two environmental documents listed in the bibliography of U.S. Department of Housing and Urban Development, San Francisco Area Office, *Draft Environmental Impact Statement for Proposed Residential Development 1980-85, Central Solano County Study Area, California,* 1982, VII-17, accessed September 28, 2023, https://www.google.com/books/edition/Solano_County_Areawide_Study_1980_1985/7tc3AQAAMAAJ?hl=en&gbpv=0.

67 Paul Corbin, "Empire Builders," *Santa Rosa Press Democrat,* July 20, 1975, 5M.

68 "Girl Scouts' New Center Becoming a Reality, *Napa Valley Register,* August 7, 1984, 12.

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CHAPTER 4
Historic Property Identification Efforts

Efforts to identify cultural resources that could qualify as Section 106 historic properties and/or CEQA historical resources included archival research, consisting of a records search at the Northwest Information Center (NWIC) at Sonoma State University in Rohnert Park, California, and a review of historic maps and aerial photography of the APE; and an architectural survey and evaluation of existing buildings, structures, and landscape features in the APE.

Archival Research

Records Search

ESA conducted a records search of the APE at the NWIC of the California Historical Resources Information System (CHRIS) at Sonoma State University in Rohnert Park, California, on June 22, 2023 (File No. 22-1988). The NWIC maintains the official CHRIS records of previous cultural resources studies and recorded cultural resources for the APE and vicinity. The records search covered the project APE and all areas within 0.5 miles of the APE. The records search included a review of previous studies, records, and maps on file at the NWIC, and included a review of the State of California Office of Historic Preservation Built Environment Resources Directory with summary information from the National Register, Registered California State Landmarks, California Historic Points of Interest, Archaeological Determinations of Eligibility, and California Inventory of Historical Resources. The purpose of the records search was to determine whether known cultural resources have been recorded in the vicinity of the APE; assess the likelihood for unrecorded cultural resources to be present based on historical references and the distribution of nearby cultural resources; and develop a context for the identification and preliminary evaluation of cultural resources.

The records search consisted of an examination of the following documents:

- **NWIC digitized base maps** U.S. Geological Survey 7.5-minute topographic maps to identify recorded cultural resources and studies, and historic-era resources of the built environment (buildings, structures, and objects).
- **Resource Inventories:** *California Inventory of Historical Resources, California Historical Landmarks, Archaeological Determinations of Eligibility for Solano County* (through May 2012), and *Built Environment Resource Directory (BERD)* (through November 2023).

Previous Cultural Resources Studies

The records search results, as well as additional background research completed by ESA, indicate that two previous cultural resources studies have been conducted within or adjacent to the APE.

Table 1 summarizes the previous cultural resources studies that have been conducted within or adjacent to the APE.

TABLE 1
PREVIOUS CULTURAL RESOURCES STUDIES WITHIN AND ADJACENT TO THE APE

Report No.	Title	Author	Date	Included APE
S-46990	Historical Resource Evaluation of 1-3 Curtola Parkway	LSA Associates	January 2015	Adjacent
S-49540	Cultural Resources Study for the Vallejo MGP Site,	LSA Associates	June 2016	Adjacent

Previously Recorded Resources

The results of the records search indicated that no previously recorded archaeological resources are in the immediate vicinity of the APE. Two pre-contact Native American shellmounds (CA-SOL-17 and CA-SOL-248) are within the records search radius. These resources would not be impacted by the project. In addition, several historic-era archaeological features have been identified on Mare Island, including red brick manholes (P-48-000440); a subterranean, vaulted red brick tunnel (P-49-000807); a foundation (P-48-000833); and a historic-era artifact concentration (P-48-000889). None of these resources would be impacted by the project.

There are three previously recorded architectural resources located within and in the immediate vicinity of the APE that are not on file at CHRIS. These are the vacant building at 285 Mare Island Way (in the APE) and the two restaurant buildings at 295 and 295A Mare Island Way (both of which are located immediately north of the APE). All three buildings were evaluated under California Register criteria only to support the 2005 *Vallejo Station Project and the Waterfront Project Environmental Impact Report*:[69]

- 285 Mare Island Way was determined to be ineligible under any California Register criteria;
- 295 Mare Island Way was determined to be ineligible under any California Register criteria; and
- 295A Mare Island Way (the building itself) was determined to be ineligible under any California Register criteria, but "the relationship of the [b]uilding site to the nineteenth-century Mare Island Ferry Terminal site appears to be significant under the [fourth] California Register criterion: the potential to yield important archaeological remnants that remain below the structure."[70]

69 The environmental impact report identified 285 Mare Island Way as "Building 3, Marina Vista Dental Building," 295 Mare Island Way as "Building 1, Wharf Restaurant," and 295A Mare Island Way as "Building 2, Accessory Building." EIP Associates, *The Vallejo Station Project and the Waterfront Project Revised Draft Environmental Impact Report (SCH No. 2000052073),* prepared for the City of Vallejo and Redevelopment Agency of the City of Vallejo, June 2005, on file at the City of Vallejo.

70 Ibid., 3.8-9.

Records Request to the City of Vallejo Planning and Development Services Department

On August 29, 2023, ESA architectural historians submitted a formal request to the City of Vallejo Planning and Development Services Department for documents related to the design/planning, construction, maintenance, and alterations of the buildings and structures located within the APE.[71] Several records were provided on September 8 and September 21, 2023, and most dated to the 1990s or later.[72]

ESA also obtained a copy of the 2005 *Vallejo Station Project and the Waterfront Project Environmental Impact Report*.[73]

Freedom of Information Act Request

According to the City of Vallejo Planning and Development Services Department, the construction of the seawall was completed by U.S. Army Corps of Engineers (USACE).[74] Based on this direction, ESA staff submitted a Freedom of Information Act (FOIA) request to USACE San Francisco District on October 6, 2023, to obtain copies of pertinent planning and construction documents related to the seawall on the east side of Mare Island Strait.[75] On November 15, 2023, USACE responded, disputing that it was the agency responsible for the seawall's construction and indicating that any pertinent records would have been destroyed many years ago. Additionally, USACE stated that it is highly unlikely that any pertinent records would be found and to expect a negative official response to the FOIA request.[76] An official response to the FOIA request was received on February 2, 2024, confirming that no agency records were located.[77]

Archaeological Sensitivity Assessment

The APE is located on artificial fill constructed over unconsolidated Bay Mud. This geologic formation has a low potential to contain buried archaeological resources and there is a low sensitivity for intact pre-contact and historic-era archaeological resources in the Bay Mud or artificial fill layer to be identified during project implementation.

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71 Johanna Kahn (ESA), email to Christina Ratcliffe (City of Vallejo Planning and Development Services Director), August 29, 2023.

72 Adrianna Ortiz (City of Vallejo Planning Consultant), emails to Johanna Kahn (ESA), September 8 and September 21, 2023.

73 EIP Associates, *The Vallejo Station Project and the Waterfront Project Revised Draft Environmental Impact Report (SCH No. 2000052073),* prepared for the City of Vallejo and Redevelopment Agency of the City of Vallejo, June 2005, on file at the City of Vallejo.

74 Adrianna Ortiz (City of Vallejo Planning Consultant), email to Johanna Kahn (ESA), September 21, 2023.

75 Johanna Kahn (ESA), email to USACE San Francisco District, October 6, 2023.

76 Jere Harper (Chief of Contracting, USACE San Francisco District), phone call to Johanna Kahn (ESA) re: FOIA request FA-24-0012, November 15, 2023.

77 Merry Goodenough (District Counsel, USACE San Francisco District), letter to Johanna Kahn (ESA) re: FOIA request FA-24-0012, February 2, 2024.

Architectural Resource Analysis

The architectural resources within the APE that either currently meet (in 2024) or will meet the 45-year age criterion by the date completion of environmental review, which is assumed to be no later than 2025 (i.e., those constructed in and before 1980), are described below and recorded on California Department of Parks and Recreation Series 523 (DPR 523) form sets included in **Appendix A.**

Vallejo has a robust public art program, and several artworks on display are located within the APE. All date to the 1990s and 2000s and neither currently meet (in 2024) nor will meet the 45-year age criterion by the date of completion of environmental, which is assumed to be no later than 2025 (i.e., those constructed in and before 1980). Therefore, they were not considered as part of this analysis.

285 Mare Island Way

Architectural Description

The one-story professional office building at 285 Mare Island Way is of wood-frame construction and features a T-shaped footprint. The building is clad in T1-11 (plywood) siding and capped by a series of shed and flat roof forms. The shed roofs are covered with red roof tiles. Typical fenestration consists of fixed, wood-sash windows; a paneled, wood entry door; and flush, metal utility doors. Low shrubs are planted around the perimeter of the building.

The primary (northeast) façade faces Mare Island Way and is composed of three sections (**Figure 14**). The center section features the two primary entrances, and the eave of the shed roof creates a covered walkway accessed by a ramp. The two outer sections are cuboid masses devoid of fenestration or notable details, and the flat rooflines terminate in wood trim.

SOURCE: ESA, 2023

Figure 14
Primary (northeast) façade of 285 Mare Island Way

The secondary (northwest) façade faces the ferry basin and is composed of three sections (**Figure 15**). The east section is a cuboid mass that features a recessed, two-lite window and concrete stoop. The center section features a ribbon window with 12 lites below an eave. The south section features a two-lite window within a cuboid mass.

The southwest façade faces the Mare Island Strait and is composed of three sections (Figure 15). The north section features a two-lite window within a cuboid mass. The center section features a small, horizontal window below an eave. The south section is a cuboid mass devoid of fenestration.

SOURCE: ESA, 2023

Figure 15
Northwest and southwest façades of 285 Mare Island Way

The southeast façade faces Independence Park and is composed of three sections (**Figure 16**). The west section is a cuboid mass with two flush, metal utility doors. The center section features a ribbon window with eight lites below an eave. The east section features a three-lite window within a cuboid mass.

SOURCE: ESA, 2023

Figure 16
Southeast façade of 285 Mare Island Way

Construction Chronology

The building located at 285 Mare Island Way was designed in 1974 by Bond-Dougherty, Inc. (a Vallejo-based design services and environmental consulting firm) and constructed in 1974–75.[78] It was reroofed in 1990–91 and again in 2002.[79,80]

Ownership and Occupancy History

The property has historically been owned by the City of Vallejo. In August 1974, the City leased the property to Dr. Charles E. Pickett, Margalee Pickett, Dr. Warren M. Adams, and Glenda D. Adams (later known as the Adams Family Trust) which developed the property that same year as a dental clinic.[81,82] The original architectural drawings identify it as a dental clinic.[83] The building

78 City of Vallejo, Building permit no. OLD-01024, issued October 29, 1974, *City of Vallejo eTrakit.*

79 City of Vallejo, Building permit no. RO90-0355, issued November 8, 1990, *City of Vallejo eTrakit.*

80 City of Vallejo, Building permit no. RO02-0782, issued October 2, 2002, *City of Vallejo eTrakit.*

81 "Marina Vista Lease Approved," *Vallejo Times-Herald,* August 6, 1974, 2.

82 John Glidden, "Vallejo City Council Approves Waterfront Development; Split on ARPA Funding," *Vallejo Sun,* December 16, 2022, https://www.vallejosun.com/vallejo-city-council-approves-waterfront-development-split-on-arpa-funding/.

83 "Dental Building for C.E. Pickett & W.M. Adams (D.D.S.)" (architectural drawings), 1974, on file at the City of Vallejo.

was known as the Marina Vista Dental Building since at least 1981,[84] and it operated under the name Marina Vista Dental until ca. November 2018.[85]

In August 2019, the City leased the property (including the building) to the Yocha Dehe Wintun Nation which plans to demolish the building and construct a new two-story building with restaurant, commercial, and event spaces.[86,87] The building has been vacant since at least January 2021.[88]

Seawall and Pedestrian Promenade

Architectural Description

The approximately 4,000-foot-long reinforced concrete seawall separates Vallejo's waterfront and the Mare Island Strait at the mouth of the Napa River. At the north end, the structure begins immediately south of the Vallejo Yacht Harbor at Mare Island Way. It continues west and south around the perimeter of the Barbara Kondylis Waterfront Green, jogs inland to form the present-day ferry basin (**Figure 17**), and borders Independence Park. At the south end, it terminates at the Vallejo Launching Facility at 139 Curtola Parkway. A pedestrian promenade with a metal guardrail continues along the full length of the seawall and is a segment of the Bay Trail (**Figure 18**). The promenade is paved in concrete and features a series of expansion joints in a grid pattern.

84 City of Vallejo, Building permit no. OLD.A-12939, issued September 23, 1981, *City of Vallejo eTrakit.*

85 Marina Vista Dental, Facebook post, November 23, 2018, https://www.facebook.com/p/Marina-Vista-Dental-100069328650799/.

86 John Glidden, "Group Buys Waterfront Building in Vallejo, Intends to Build New Two-Story Structure," *Vallejo Times-Herald,* December 16, 2019, https://www.timesheraldonline.com/2019/12/16/group-buys-waterfront-building-in-vallejo-intends-to-build-new-two-story-structure/.

87 John Glidden, "Vallejo City Council Approves Waterfront Development."

88 Signage on the building was removed in or before January 2021, indicating that the occupant had vacated by that time. Google Maps, street view of 285 Mare Island Way, January 2021, https://www.google.com/maps/@38.0997087,-122.2622194,3a,75y,237.78h,87.51t/data=!3m7!1e1!3m5!1stR09LQWI480qUtxD4UM-8w!2e0!5s20210101T000000!7i16384!8i8192?entry=ttu.

SOURCE: ESA, 2023

Figure 17
Seawall and Pedestrian Promenade Around the Ferry Basin, View Facing Northeast

SOURCE: ESA, 2023

Figure 18
Seawall and Pedestrian Promenade, views north (left) and south (right) of the Ferry Basin

Other features found along the seawall and promenade include:

- Lampposts (multiple styles);
- Trash receptacles;
- Metal bike racks;
- Metal bollards;
- Metal benches;

- Concrete planters covered with mosaic artwork (**Figure 19**) – The planters are part of the original landscape design of the waterfront, and the mosaics were added in 2010;[89] and
- Stylized concrete benches that are part of the original landscape design of the waterfront (Figure 19).

SOURCE: Google Street View, November 2016

Figure 19
Example of Original Concrete Bench and Planter

Construction Chronology

Under the Redevelopment Agency of the City of Vallejo, reclamation of 25 acres of tidal mud flats on the east side of the Mare Island Strait began in 1964, and six dikes were completed in August of that year (**Figure 20**).[90] Dredging of the waterfront was completed in 1965, and the ferry basin was dredged last.[91] Approximately 230,000 cubic yards of excavated earth from elsewhere in the redevelopment area was used to fill the reclaimed shoreline, extending it approximately 300 feet into the strait.[92] Construction of the seawall and pedestrian promenade was completed in 1966.[93] Completion of the landscaping program for the entire waterfront area was celebrated with a public festival on June 3, 1967 (**Figure 21**).[94]

89 "Vallejo Waterfront Planters – Community Project," *Rachel Rodi Mosaics,* accessed August 29, 2023, https://www.rachelrodi.com/waterfront-planters-mosaic-vallejo.

90 "First Marina Dike Project Completed," *Vallejo Times-Herald,* August 8, 1964.

91 "Vallejo Waterfront Gets New Look," *Vallejo Times-Herald,* August 22, 1965.

92 "Officials Will Get Waterfront Tour," *Vallejo Times-Herald,* September 3, 1964.

93 Redevelopment Agency of the City of Vallejo, *Marina Vista,* 1967, 2, in "Redevelopment Agency of the City of Vallejo from January 1962 to December 1965 (scrapbook), on file at the Vallejo Naval and Historic Museum.

94 Ibid.

SOURCE: Redevelopment Agency of the City of Vallejo, 1967

Figure 20
Undated Photo of the Seawall Under Construction

SOURCE: Redevelopment Agency of the City of Vallejo, 1967

Figure 21
Completed Seawall, Promenade, and Landscaping Along the Waterfront

Ownership and Occupancy History

The property has historically been owned by the City of Vallejo.

Architectural Resource Evaluations

The following analysis evaluates the two age-eligible architectural resources in the APE for potential significance under federal, state, and local criteria.

National Register and California Register Evaluations

Previous Evaluations

The building at 285 Mare Island Way was previously evaluated ca. 2005 for eligibility for listing in the California Register only in support of *The Vallejo Station Project and the Waterfront Project Environmental Impact Report*.[95] At that time, it was determined not eligible for listing in the California Register under any criteria.[96] Because that evaluation is more than five years old in 2024, the building is being re-evaluated pursuant to current professional standards for eligibility for listing in the California Register, per California Public Resource Code Section 5024.1(g)(4).

The seawall and pedestrian promenade has not been previously evaluated for eligibility for listing in either the National Register or the California Register.

Criterion A/1 (Event)

285 Mare Island Way

Research does not indicate that there are any significant associations between the building at 285 Mare Island Way and important events or patterns in history. It was constructed in 1974-75, approximately eight years after the completion of the seawall and redeveloped Vallejo waterfront, as the first and only building to occupy its precise location adjacent to the extant ferry basin. The building functioned as a dental clinic for approximately 43 years and has remained vacant since the closure of Marina Vista Dental presumably at the end of 2018. The building’s use as a medical building is neither significant in Vallejo nor is it associated with significant trends in local or regional development. For these reasons, 285 Mare Island Way is recommended not eligible for individual listing under Criterion A/1.

Seawall and Pedestrian Promenade

The seawall and pedestrian promenade was constructed between 1964 and 1966 as one part of the Marina Vista Redevelopment Project that modernized a large portion of downtown Vallejo and the waterfront along the east shore of the Mare Island Strait. While the seawall and pedestrian promenade is a crucial structural component of the redesigned waterfront that prevents shoreline erosion and allows for public outdoor recreation, it is functionally unrelated to any of the civic, institutional, commercial, or residential buildings constructed in downtown Vallejo under the

[95] EIP Associates, *The Vallejo Station Project and the Waterfront Project Revised Draft Environmental Impact Report (SCH No. 2000052073),* prepared for the City of Vallejo and Redevelopment Agency of the City of Vallejo, June 2005, on file at the City of Vallejo.

[96] Ibid., 3.8-6, 3.8-8–3.8-9.

redevelopment project. For these reasons, the seawall and pedestrian promenade is recommended not eligible for individual listing under Criterion A/1.

Criterion B/2 (Person)

285 Mare Island Way

Research does not indicate that there are any associations between the building at 285 Mare Island Way and significant persons. (Design professionals are discussed under Criterion C/3 below.) The building is not associated with the Mare Island Ferry Company or Victor Raahauge. Rather, it was home to one or more dental practices from 1975 until ca. 2018. The founders of the first dental clinic were Charles E. Pickett, DDS (1933–2021),[97] and Warren M. Adams, DDS (1933–2019).[98] At the time the Marina Vista Dental clinic shuttered presumably at the end of 2018, the partners were David K. White, DDS,[99] and Kevin B. Duquette, DDS.[100] Research did not confirm the length of any of these people's associations with the building. No scholarly judgement can be made about any of these individuals because research has not revealed specific information about their activities and impact. For these reasons, 285 Mare Island Way is recommended not eligible for individual listing under Criterion B/2.

Seawall and Pedestrian Promenade

Research does not indicate that there are any associations between the seawall and pedestrian promenade and significant persons whose specific contributions to history can be identified and documented. (Design professionals are discussed under Criterion C/3 below.) It is not associated with the Mare Island Ferry Company or Victor Raahauge. The seawall and pedestrian promenade is one component of the much larger Marina Vista Redevelopment Project, and no individuals are known to be associated with this component. Therefore, the seawall and pedestrian promenade is recommended not eligible for individual listing under Criterion B/2.

Criterion C/3 (Design/Construction)

285 Mare Island Way

The building at 285 Mare Island Way does not appear to possess architectural significance. It was designed in 1974 by Bond-Dougherty, Inc., and constructed the next year. The architecture firm designed several other medical-related buildings in northern California as well as a few community centers, as described in *Design Professionals Whose Work Is Located in the APE*, above. As a small office building designed by a local architecture firm, 285 Mare Island Way does not embody distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic values. For these reasons, 285 Mare Island Way is recommended not eligible for individual listing under Criterion C/3.

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97 "Charles Edward Pickett DDS" (obituary), Legacy.com, May 28, 2021, https://www.legacy.com/us/obituaries/napavalleyregister/name/charles-pickett-obituary?id=10151270.

98 "Warren M. Adams" (obituary), Legacy.com, February 20, 2019, https://www.legacy.com/us/obituaries/timesheraldonline/name/warren-adams-obituary?id=8878055.

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100 "Meet Kevin B. Duquette, DDS," Marina Vista Dental, November 11, 2018, https://web.archive.org/web/20190213015652/http://www.marinavistadental.net/dr-duquette.html#.

Seawall and Pedestrian Promenade

As noted above in the research methodology, both the City of Vallejo and the USACE deny playing a leading role in the construction of the seawall and pedestrian promenade. Additional research by ESA staff did not confirm the responsible agency or the structural or civil engineer. The landscape design of the 125-acre Marina Vista Redevelopment Project, including the reclaimed land along the Vallejo waterfront, is attributed to RHBA, a leading landscape architecture firm in the San Francisco Bay Area. RHBA's design for the Marina Vista Redevelopment Project received a merit award from ASLA, adding to the firm's many achievements and recognitions. However, the seawall and pedestrian promenade is a simple structure and pathway which, as a standalone resource, does not embody distinctive characteristics of a type, period, or method of construction; express a particular phase, aspect, or theme in RHBA's body of work; or possess high artistic values. For these reasons, the seawall and pedestrian promenade is recommended not eligible for individual listing under Criterion C/3.

Criterion D/4 (Information Potential)

285 Mare Island Way

Criterion D/4 applies to properties that have the potential to inform important research questions about human history. According to National Register Bulletin 15, to qualify for listing under this criterion, the property must "have or have had information to contribute to our understanding of human history or prehistory and the information must be considered important." Criterion D/4 most commonly applies to archaeological resources. The building at 285 Mare Island Way was built on land reclaimed from Mare Island Strait in the mid-1960s and is not likely to yield information important to prehistory or history. For this reason, 285 Mare Island Way is recommended not eligible for individual listing under Criterion D/4.

Seawall and Pedestrian Promenade

For the same reasons as stated above, the seawall and pedestrian promenade is recommended not eligible for individual listing under Criterion D/4.

Historic District Considerations

The APE does not overlap with any known historic districts in the vicinity, namely the Vallejo Old City Historic District or St. Vincent's Hill Historic District, both of which are listed in the National Register. Therefore, neither 285 Mare Island Way nor the seawall and pedestrian promenade contribute to a known historic district.

Based on the architectural descriptions and individual evaluations presented above and documentation of the physical development of the Vallejo waterfront, no apparent patterns emerge to suggest that there is a potential district that includes the two age-eligible architectural resources located within the APE. They do not appear to be significantly related in terms of architectural design, function, or historical development. The seawall and pedestrian promenade is one component of the 125-acre Marina Vista Redevelopment Project that was built during the 1960s and early 1970s and included reclaimed land along the east shore of Mare Island Strait. Countless American cities were impacted by redevelopment under the guise of "urban renewal" during the mid-20th century, and Vallejo's redevelopment story does not appear to be especially unique or objectively important in this context or as an example of the work of RHBA. For these reasons, it is unlikely that the seawall and pedestrian promenade would contribute to the significance of a potential discontiguous Marina Vista Redevelopment Project Historic District.

City of Vallejo HRI Evaluations

Architectural Merit

Neither the building at 285 Mare Island Way nor the seawall and pedestrian promenade, as a standalone resource, is the first, last, only, or most significant architectural property of its type (i.e., a former professional office building and an infrastructure/recreation element of the waterfront area, respectively) in Vallejo or the region. Based on the research and analysis presented above, neither appears to be the prototype of, or outstanding example of, a period, style, architectural movement, engineering or construction technique, or example of the more notable work, or the best surviving work in Vallejo or the region of an architect, designer, or master builder.

Cultural Value

Based on the research and analysis presented above, neither the building at 285 Mare Island Way nor the seawall and pedestrian promenade, as a standalone resource, appears to be significantly associated with the movement or evolution of religious, cultural, governmental, social, and/or economic developments of Vallejo.

Educational Value

Based on the research and analysis presented above, neither the building at 285 Mare Island Way nor the seawall and pedestrian promenade, as a standalone resource, appears to possess significant educational value beyond what is publicly available in the archival record.

Historical Value

Based on the research and analysis presented above, neither the building at 285 Mare Island Way nor the seawall and pedestrian promenade, as a standalone resource, appears to embody and express the history of Vallejo, Solano County, California, or the United States. The building is a common example of a small medical office constructed in 1974, and the seawall and pedestrian promenade is one element of a much larger redevelopment plan completed in the 1960s, which is relatively late in the existence of the city, county, state, and country.

Historic Property

Neither the building at 285 Mare Island Way nor the seawall and pedestrian promenade, as standalone resources, is a historic property listed in the National Register (either individually or as contributors to a historic district) or a registered California Historical Landmark.

Integrity Analysis

In addition to being eligible for listing under at least one of the National Register, California Register, or City of Vallejo HRI criteria, a property must also retain sufficient integrity to convey its historical significance. There are seven aspects to consider when evaluating the integrity of a property: location, design, setting, materials, workmanship, feeling, and association. As discussed above, neither the building at 285 Mare Island Way nor the seawall and pedestrian promenade, as a standalone resource or as a contributor to a known or potential historic district, is recommended as eligible for listing under any criteria; therefore, a further assessment of integrity is not presented.

Summary of Eligibility of Architectural Resources in the APE

Based on a pedestrian survey, archival research, and analysis, neither of the two age-eligible architectural resources within the APE are recommended as eligible for individual listing in the National Register, California Register, or City of Vallejo HRI. They also do not appear to contribute to any known or potential historic districts. As such, neither the building at 285 Mare Island Way nor the seawall and pedestrian promenade would be considered historic properties under NHPA Section 106 or historical resources under CEQA.

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CHAPTER 5
Finding of Effect

This section provides a recommended finding of effect (FOE) for the project, for Section 106 purposes, based on the results of the analysis presented in this CRSR.

Application of Criteria of Adverse Effect

The implementing regulations for Section 106 (36 CFR 800) require the lead agency to apply the criteria of adverse effect (pursuant to 36 CFR 800.5[a][2]) to historic properties identified in a project's APE to determine if the undertaking would result in an adverse effect to identified historic properties.

Per 36 CFR 800.5, an undertaking is considered to have an adverse effect when it may:

> *alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. (36 CFR 800.5[a][1]).*

Also, per 36 CFR 800.5(a)(2), adverse effects on historic properties include, but are not limited to:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR 68) and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and,
- Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

Finding of Effect

There are no architectural resources in the APE that could be considered historic properties.

There is a low potential to encounter archaeological resources during project implementation and no archaeological resources would be adversely affected by the project.

Based on these conclusions, ESA recommends a finding of ***No Historic Properties Affected*** for the project.

CHAPTER 6
Conclusions

Through background research conducted, no cultural resources were identified within the APE that could be considered historic properties. For this reason, ESA anticipates that the project would not result in an adverse effect to a historic property, pursuant to 36 CFR 800.5. Therefore, ESA recommends a finding of ***No Historic Properties Affected*** for the project for Section 106 purposes, pursuant to 36 CFR 800.4.

Despite the low potential to encounter cultural materials during project implementation, inadvertent discovery of cultural materials cannot be entirely discounted. In the event of an inadvertent discovery the following provisions should be followed:

Inadvertent Discovery of Cultural Materials: If pre-contact or historic-era cultural materials are encountered, all construction activities within 100 feet shall halt and the lead agency should be notified. Pre-contact materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include deposits of metal, glass, and/or ceramic refuse. A Secretary of the Interior-qualified archaeologist shall inspect the findings within 24 hours of discovery. If it is determined that the project could damage a significant resource, the project applicant shall re-design the project to avoid any adverse effects. If avoidance is not feasible, a qualified archaeologist shall prepare and implement a detailed Archaeological Resources Management Plan in consultation with the State Historic Preservation Officer and, for pre-contact resources, the appropriate Native American representative(s).

Inadvertent Discovery of Human Remains: In the event of discovery of any human remains during Project activities, such activities within 100 feet of the find shall cease until the Solano County Coroner has been contacted to determine that no investigation of the cause of death is required. The Native American Heritage Commission will be contacted within 24 hours if it is determined that the remains are Native American. The Commission will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations for the appropriate means of treating the human remains and any grave goods.

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CHAPTER 7
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CHAPTER 8
Professional Qualifications

ESA Architectural Historian Johanna Kahn, M.Ar.H., and ESA Archaeologist Heidi Koenig, M.A., RPA, were the primary authors of this report. Ms. Kahn meets the Secretary of Interior's Professional Qualification Standards (SOI PQS) for Architectural History, Architecture, and Historic Architecture. Ms. Koenig is a Registered Professional Archaeologist, meets the SOI PQS for Archeology, and meets the Society for California Archaeology standards for Principal Investigator. ESA Architectural Historian Amy Langford, Ph.D., provided documentation support. ESA Architectural Historian Becky Urbano, M.S., who meets the SOI PQS for Architectural History and History, provided quality assurance and review.

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Appendix A
New DPR 523 Form Sets

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code   Reviewer   Date

Page 1 **of** 11   ***Resource Name or #:** 285 Mare Island Way

P1. Other Identifier:

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted**

***a. County** Solano

***b. USGS 7.5' Quad** **Date** **T** ; **R** ; **¼ of** **¼ of Sec** ; **B.M.**

c. Address 285 Mare Island Way   City Vallejo   Zip 945990

d. UTM: Zone 10 S, 564670.26 mE/ 4217127.49 mN; NAD 83

e. Other Locational Data: APN 0055-170-400

***P3a. Description:**

The one-story professional office building at 285 Mare Island Way is of wood-frame construction and features a T-shaped footprint. The building is clad in T1-11 (plywood) siding and capped by a series of shed and flat roof forms. The shed roofs are covered with red roof tiles. Typical fenestration consists of fixed, wood-sash windows; a paneled, wood entry door; and flush, metal utility doors. Low shrubs are planted around the perimeter of the building.

The primary (northeast) façade faces Mare Island Way and is composed of three sections. The center section features the two primary entrances, and the eave of the shed roof creates a covered walkway accessed by a ramp. The two outer sections are cuboid masses devoid of fenestration or notable details, and the flat rooflines terminate in wood trim.

The secondary (northwest) façade faces the ferry basin and is composed of three sections. The east section is a cuboid mass that features a recessed, two-lite window and concrete stoop. The center section features a ribbon window with 12 lites below an eave. The south section features a two-lite window within a cuboid mass. (Continued on page 3)

***P3b. Resource Attributes:** HP6. 1-3 story commercial building

***P4. Resources Present:** ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5b. Description of Photo: View of primary (northeast) façade, facing southwest. ESA, 2023.

***P6. Date Constructed/Age and Source:**
☒ Historic ☐ Prehistoric ☐ Both
1974-75. Source: City of Vallejo, Building permit no. OLD-01024.

***P7. Owner and Address:**
City of Vallejo
555 Santa Clara Street
Vallejo, CA 94590

P8. Recorded by:
Johanna Kahn, ESA
2600 Capitol Avenue, Suite 200
Sacramento, CA 95816

***P9. Date Recorded:** July 25, 2023

***P10. Survey Type:** Intensive

***P11. Report Citation**: ESA. *Vallejo Ferry Terminal Reconfiguration Project Cultural Resources Survey Report.* Prepared for Federal Transit Authority, San Francisco Bay Area Water Emergency Transportation Authority, and Kimley-Horn and Associates, Inc., April, 2024.

***Attachments:** ☐ NONE ☐ Location Map ☒ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (List):

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** 285 Mare Island Way ***NRHP Status Code** 6Z

B1. Historic Name: 285 Mare Island Way
B2. Common Name: 285 Mare Island Way
B3. Original Use: Dental Clinic B4. Present Use: Vacant
***B5. Architectural Style:** Contemporary
***B6. Construction History:** (Construction date, alterations, and date of alterations)
Designed in 1974 by Bond-Dougherty, Inc. (a Vallejo-based design services and environmental consulting firm) and constructed in 1974–75 (building permit no. OLD-01024). Reroofed in 1990-91 and again in 2002 (building permit nos. RO90-0355; O02-0782).

***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** N/A **Original Location:** N/A
***B8. Related Features:** none

B9a. Architect: Bond-Dougherty, Inc. b. Builder: Unknown
***B10. Significance: Theme** Development of the Vallejo Waterfront in the 20th Century **Area** Vallejo Waterfront
Period of Significance 1974-75 **Property Type** Commercial/Dental Clinic **Applicable Criteria** N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Early Development of the Vallejo Waterfront

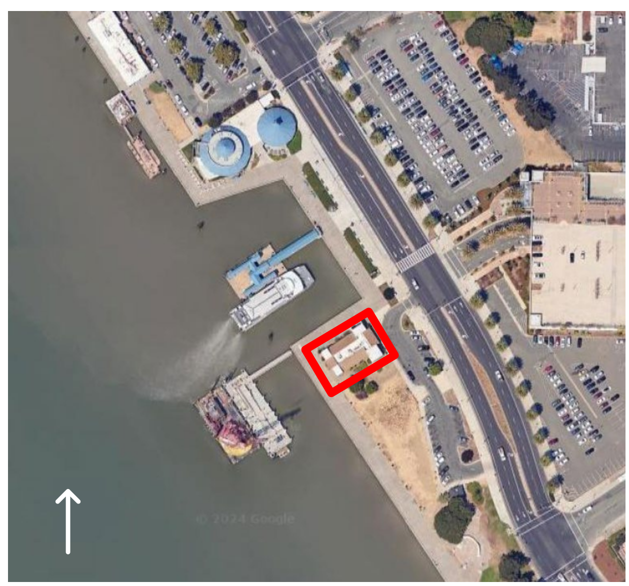
Mare Island and the Mare Island Ferry

The shoreline along the Mare Island Strait at the mouth of the Napa River has played an important role in the local history of water transportation and recreation as well as the nation's maritime history. On the west side of the strait (outside the APE) is Mare Island, and it was purchased by the United States Navy in 1853 to establish the first naval installation on the West Coast.[1] A ferry service between the City of Vallejo to the east and Mare Island was established shortly thereafter.[2] The shipyard constructed its first U.S. warship (USS *Saginaw*) in 1859 and first dry dock between 1872 and 1891. The installation of the shipyard attracted settlers to Vallejo and helped to establish a local workforce. By the outbreak of World War II in September 1939, Mare Island had become the largest ship construction and repair facility in the world.[3] Over the course of the United States' involvement in the conflict from December 1941 to September 1945, wartime mobilization caused the city's population to grow from 26,000 to nearly 100,000. By the time Mare Island ceased shipbuilding operations in 1996, the shipyard had constructed over 500 naval vessels and overhauled thousands more.[4] In 2002, Mare Island was conveyed to the City of Vallejo, which has ongoing reuse and redevelopment plans for the island.[5] (Continued on page 4)

B11. Additional Resource Attributes: none
***B12. References/Endnotes:** See page 10.

B13. Remarks: None

***B14. Evaluator:** Johanna Kahn, ESA
***Date of Evaluation:** April 2024



***Recorded by:** Johanna Kahn, ESA ***Date:** April 2024 ☒ Continuation ☐ Update

***P3a. Description:** (Continued from page 1)

The southwest façade faces the Mare Island Strait and is composed of three sections. The north section features a two-lite window within a cuboid mass. The center section features a small, horizontal window below an eave. The south section is a cuboid mass devoid of fenestration.

The southeast façade faces Independence Park and is composed of three sections. The west section is a cuboid mass with two flush, metal utility doors. The center section features a ribbon window with eight lites below an eave. The east section features a three-lite window within a cuboid mass.

Northwest and southwest façades of 285 Mare Island Way. Source: ESA 2023.

Southeast façade of 285 Mare Island Way. Source: ESA, 2023.

***B10. Significance:** (Continued from page 2)

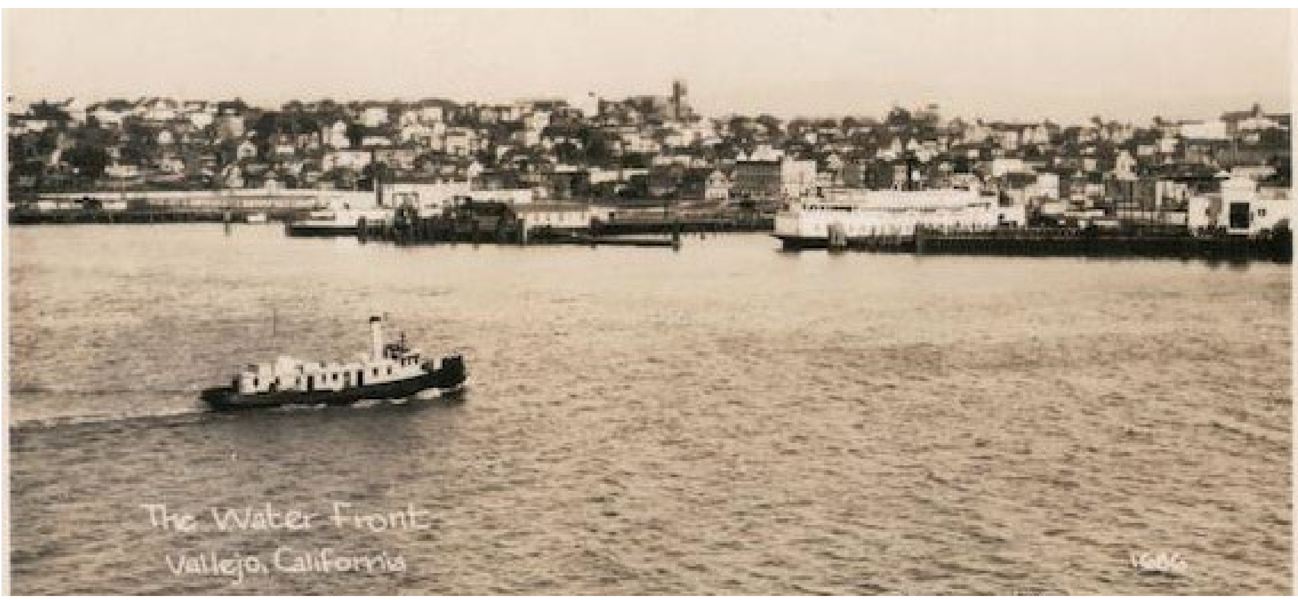
Water Transportation to and from Vallejo

Intercity/Intercounty Ferries

The Vallejo waterfront located on the east side of the Mare Island Strait was also an important harbor for ferry transportation and commercial shipping. Dr. Robert Semple created a ferry service from Vallejo across the Carquinez Strait to Martinez to serve the influx of settlers who arrived in the region during the Gold Rush. In 1867, the California Pacific Railroad was established to build a fast and reliable route from San Francisco to the state capitol. Subsequently, passengers could travel by steamboat from San Francisco to a ferry terminal in South Vallejo, where they would then travel by rail to Sacramento.[6] During the peak of ferry transportation, riders for the Pony Express also used the ferries at Vallejo to travel between Sacramento and Benicia. The Vallejo waterfront was also used to transport freight trains across San Francisco Bay. The *Solano* and *Contra Costa*—two of the world's largest train ferries ever constructed—operated along the Vallejo waterfront from 1879 to 1930.[7] The Southern Pacific Golden Gate Ferries bought out several existing steamship lines and oversaw the operation of most ferry services between Vallejo and San Francisco until about 1937. At that time, the Bay Bridge opened for operation and diverted many ferry passengers to highway travel.[8]

Mare Island Ferry Company

A passenger ferry service between the Vallejo mainland and Mare Island was first established in 1854 to transport laborers to the shipyard.[9] In 1922, Victor Raahauge purchased the ferry service and established the Mare Island Ferry Company, becoming the sole provider of ferry service across the strait.[10] The ferry terminal was located at the foot of Georgia Street (also known as Lower Georgia Street or the Georgia Street Wharf) in an area rife with gambling, prostitution, and crime. Ridership peaked during World War II, when more than 50,000 passengers were ferried across the strait each day on 17 boats.[11] The original ferry terminal is no longer extant.



Undated (Pre-1960) Photo of the Ferry Between Vallejo and Mare Island. Source: CardCow.com.

***Resource Name or #** 285 Mare Island Way

***Recorded by:** Johanna Kahn, ESA ***Date:** April 2024 ☒ Continuation ☐ Update

Undated (Pre-1960) Photo of the Vallejo Ferry Landing. Source: CardCow.com.

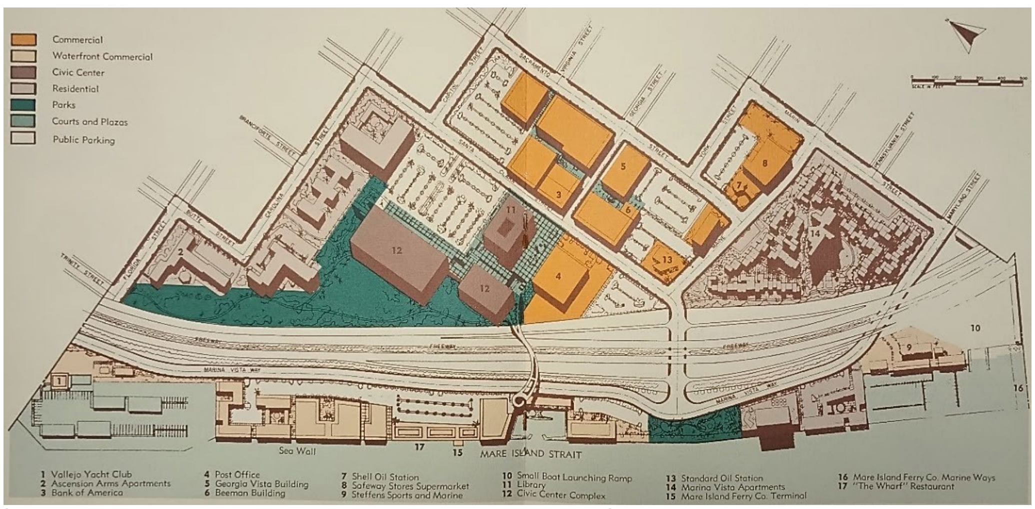
In 1973, the Mare Island Ferry Company and the U.S. Navy entered into a contract under which the Navy was "responsible for maintaining the [channel and] floating docks the ferry uses on each side of the strait [, including both] the ferry's private docks and the docks owned by the shipyards. In exchange, the ferry provided regular service for shipyard employees as well as 24-hour-a-day availability during emergencies."[12] In addition to the ferry terminal building on the Georgia Street Wharf, the ferry company's infrastructure included three "floating docks" that were constructed ca. 1964 parallel to the seawall.[13] These were concrete platforms surrounded by water on all sides and protected by steel dolphins. In 1986, the Navy terminated the contract, removed two of the floating docks, and refused to repair the third,[14] which, along with all of the steel dolphins, is extant and currently serves as an outdoor dining area for the nearby restaurant at 295A Mare Island Way.

<u>Marina Vista Redevelopment Project</u>

The Vallejo waterfront transformed dramatically during the 1950s and 1960s. After World War II ended and automobiles became the predominant mode of transportation, the waterfront lost many of the travelers, workers, and tax revenue that had given the area so much vitality. The rooming houses, taverns, and dance halls built to accommodate Vallejo's swelling wartime population gradually fell into disrepair as the result "of many forces including age, obsolescence, wartime pressures, a changing economy and human neglect."[15] By the 1950s, much of the waterfront and the city's commercial center was "dilapidated and in economic trouble."[16]

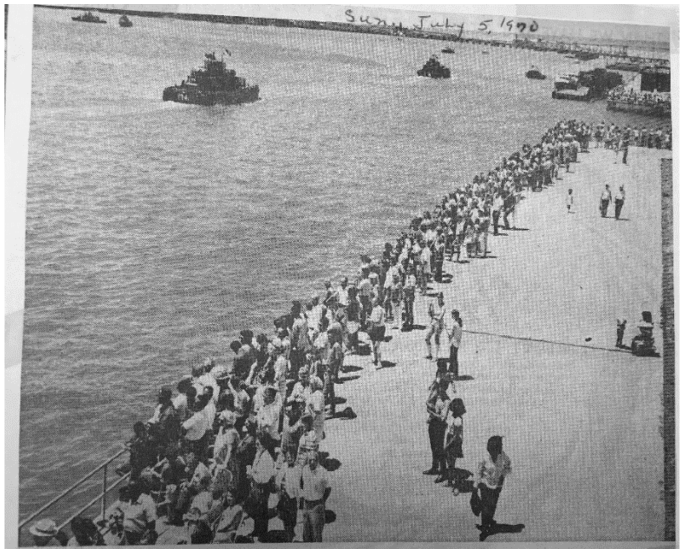
Undated (Pre-1960) View of the Vallejo Waterfront Near the Georgia Street Wharf at Low Tide, Facing South. Mare Island is visible in the background. Source: Vallejo Naval and Historic Museum.

In 1960, the Vallejo City Council adopted what would become known as the Marina Vista Redevelopment Project to revitalize the city's commercial center and waterfront.[17] The urban renewal project razed 600 existing structures and replanned approximately 125 acres of land between Vallejo's business district and the Mare Island Strait, and this included 25 acres of reclaimed land along the shoreline.[18] In 1964, the city initiated a $4.4 million construction phase that built a Bank of America branch (extant and currently operating as the Vallejo Housing Authority at 200 Georgia Street), a public library (extant and located at 505 Santa Clara Street), a U.S. Post Office branch (demolished and formerly located at 485 Santa Clara Street), the commercial/office Georgia Vista Building (extant and located at 243–255 Georgia Street), the professional offices Beeman Building (extant and located at 237 Georgia Street), a Safeway supermarket (extant and currently operating as a Grocery Outlet at 401 Marin Street), a senior residential center called Ascension Arms Apartments (extant and located at 301 Butte Street), restaurants, gas stations, and multiple housing projects. In 1966, the Walnut Creek, California, firm Valley Crest Landscape was awarded the contract to oversee the planned site development, and the renowned San Francisco landscape architectural firm led by Robert Royston oversaw the landscape plan for the project's 24 city blocks.[19] The plan for the landscape—with an emphasis on accessible, usable space as well as abstract design—was characteristic of Royston's approach to modern landscape architecture.[20] The project also added approximately 25 acres of new land over the existing tidal mudflats and a new concrete seawall along the waterfront that was completed in 1966.[21] By 1970, the waterfront offered "The Wharf" restaurant (extant at 295 Mare Island Way), the Vallejo Yacht Club and Clubhouse (extant at 485 Mare Island Way), two large parks, public parking, tree-lined walking paths, and public artwork for Vallejo residents.[22]



Site Plan of the Marina Vista Redevelopment Project, 1967. The extant ferry basin is shown at the bottom center of the plan. Source: Vallejo Naval and Historic Museum.

Aerial View of the Marina Vista Redevelopment Project Under Construction, Facing Southeast, May 1965. The extant ferry basin and the former Mare Island Ferry terminal are visible in the right middle ground (below the circular marker labeled "3"). Source: Vallejo Naval and Historic Museum.



Public Event Along the Vallejo Waterfront, July 1970. The ferry basin is visible in the right background.
Source: *Vallejo Times-Herald*, July 5, 1970.

The Marina Vista Redevelopment Project was not without controversy. From the outset, some Vallejo residents were concerned that in realizing its dream of a beautiful waterfront, the City of Vallejo would place a heavy financial burden on the city's next generation.[23] In 1969, affordable housing advocates submitted a letter to Representative Robert L. Leggett raising concerns that the Vallejo Redevelopment Agency Board's vision for the project area failed to address the most pressing needs of Vallejo's primarily black Country Club Crest and South Vallejo neighborhoods and lower-income residents and called for a federal study of the redevelopment plan.[24] Later that year, developer Jack Baskin completed the construction of an affordable 235-apartment complex later named Marina Vista Apartments that partially addressed the city's need for affordable housing.[25] However, the Vallejo Redevelopment Agency's 1969 construction plans for an unrealized waterfront freeway required the annexation of Roosevelt Terrace and additional areas contiguous to Vallejo, resulting in the displacement and relocation of an estimated 10,000 residents.[26] While the redevelopment project ultimately constructed multiple similar low-cost housing options for Vallejo residents and received praise from professional architects and engineers, the City of Vallejo and housing advocates engaged in an ongoing and occasionally contentious debate about the city's housing needs for the project's duration.[27]

Late 20th-Century Revival of the Vallejo Ferry

In 1986, intercity/intercounty ferry service returned to the Vallejo waterfront after a 34-year hiatus. That year, the nature and amusement park Marine World/Africa USA relocated to Vallejo from San Mateo County. In response, the privately owned tour boat operator, Red & White Fleet, launched a commute ferry service to bring visitors from San Francisco to Vallejo's newest attraction. Additionally, the City of Vallejo began construction on a $1.2 million ferry terminal with state and local redevelopment funds to support the growing ferry service. In 1988, Red & White Fleet suspended its service, and the City of Vallejo took over public ferry transit to San Francisco. The passage of Regional Measure 1 in 1988 provided additional funding to upgrade the ferry system and support operating costs for public transit services.[28] In 1989, Crowley Maritime completed construction on the 4,500-square-foot terminal and ferry dock.[29] In 1990, the City of Vallejo and the Metropolitan Transportation Commission utilized $10 million allocated from the California Air Quality & Transportation Improvement Act (CATIA) to develop the Vallejo Ferry Plan which outlined the ferry capital program and ongoing Baylink operations. In 1991, the Vallejo ferry project received an additional $17 million in funding from the federal Intermodal Surface Transportation Efficiency Act (ISTEA). Over the next decade, the City of Vallejo added three high-speed catamarans to its fleet as local demands for ferry service rose steadily. By the end of the 1999–2000 fiscal year, Vallejo Baylink had carried nearly 750,000 passengers across the San Francisco Bay.[30]

Ownership and Occupancy History

The subject property has historically been owned by the City of Vallejo. In August 1974, the City leased the property to Dr. Charles E. Pickett, Margalee Pickett, Dr. Warren M. Adams, and Glenda D. Adams (later known as the Adams Family Trust) which developed the property that same year as a dental clinic.[31,32] The original architectural drawings identify it as a dental clinic.[33] The building was known as the Marina Vista Dental Building since at least 1981,[34] and it operated under the name Marina Vista Dental until ca. November 2018.[35]

In August 2019, the City leased the subject property (including the building) to the Yocha Dehe Wintun Nation which plans to demolish the building and construct a new two-story building with restaurant, commercial, and event spaces.[36,37] The building has been vacant since at least January 2021.[38]

Bond-Dougherty, Inc. (Architect)

The building located at 285 Mare Island Way was designed in 1974 by Bond-Dougherty, Inc.[39] A review of historic newspaper articles indicates that the firm was originally known as Bond and Dougherty Architects, and it appears to have been established ca. 1961 in Vallejo.[40] The firm's early work includes:

- Portable classrooms for the Beverly Hills School District of Vallejo (1961);[41]
- Storage building at Hogan Senior High School in Vallejo (1962);[42]
- Petaluma Convalescent Hospital in Petaluma (1962);[43]
- Alderson Convalescent Hospital in Lodi (1965);[44]
- Carmichael Convalescent Hospital in Carmichael (1966);[45]
- Vallejo General Hospital (collaboration with Welton Becket & Associates, 1967);[46]
- American Savings and Loan Co. branch office in Vallejo (1968);[47] and
- AAA branch office in Solano County (1970).[48]

By 1974, the firm was renamed Bond-Dougherty, Inc., and had expanded to offer architectural design, engineering, and planning services, as advertised in the title block for the architectural drawings for 285 Mare Island Way. Additionally, the firm appears to have offered environmental consulting services.[49] The firm's later projects included the North Vallejo Community Center Building (1975; extant at 1121 Whitney Avenue in Vallejo and remodeled in 2016)[50] and the Napa-Solano Girl Scout Council Program Center (1984; extant at 3351 Hillridge Drive in Fairfield).[51] Preliminary archival research yielded no additional information after 1984.

Significance Evaluation

<u>Previous Evaluation</u>

The building at 285 Mare Island Way was previously evaluated ca. 2005 for eligibility for listing in the California Register of Historic Places (California Register) only in support of *The Vallejo Station Project and the Waterfront Project Environmental Impact Report*.[52] At that time, it was determined not eligible for listing in the California Register under any criteria.[53] Because that evaluation is more than five years old in 2024, the building is being re-evaluated pursuant to current professional standards for eligibility for listing in the California Register, per California Public Resource Code Section 5024.1(g)(4).

<u>2024 Re-Evaluation</u>

National Register and California Register

285 Mare Island Way is evaluated below for potential historic significance according to National Register of Historic Places (National Register) Criteria A through D and California Register Criteria 1 through 4.

Criterion A/1 (Event) – Research does not indicate that there are any significant associations between the building at 285 Mare Island Way and important events or patterns in history. It was constructed in 1974-75, approximately eight years after the completion of the seawall and redeveloped Vallejo waterfront, as the first and only building to occupy its precise location adjacent to the extant ferry basin. The building functioned as a dental clinic for approximately 43 years and has remained vacant since the closure of Marina Vista Dental presumably at the end of 2018. The building's use as a medical building is neither significant in Vallejo nor is it associated with significant trends in local or regional development. For these reasons, 285 Mare Island Way is recommended not eligible for individual listing under Criterion A/1.

Criterion B/2 (Person) – Research does not indicate that there are any associations between the building at 285 Mare Island Way and significant persons. (Design professionals are discussed under Criterion C/3 below.) The building was home to one or more dental practices from 1975 until ca. 2018. The founders of the first dental clinic were Charles E. Pickett, DDS (1933–2021),[54] and Warren M. Adams, DDS (1933–2019).[55] At the time the Marina Vista Dental clinic shuttered presumably at the end of 2018, the partners were David K. White, DDS,[56] and Kevin B. Duquette, DDS.[57] Research did not confirm the length of any of these people's associations with the building. No scholarly judgement can be made about any of these individuals because research has not revealed specific information about their activities and impact. For these reasons, 285 Mare Island Way is recommended not eligible for individual listing under Criterion B/2.

Criterion C/3 (Design/Construction) – The building at 285 Mare Island Way does not appear to possess architectural significance. It was designed in 1974 by Bond-Dougherty, Inc., and constructed the next year. The architecture firm designed several other medical-related buildings in northern California as well as a few community centers, as described in *Design Professionals Whose Work Is Located in the APE*, above. As a small office building designed by a local architecture firm, 285 Mare Island Way does not embody distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic values. For these reasons, 285 Mare Island Way is recommended not eligible for individual listing under Criterion C/3.

Criterion D/4 (Information Potential) – Criterion D/4 applies to properties that have the potential to inform important research questions about human history. According to National Register Bulletin 15, to qualify for listing under this criterion, the property must "have or have had information to contribute to our understanding of human history or prehistory and the information must be considered important." Criterion D/4 most commonly applies to archaeological resources. The building at 285 Mare Island Way was built on land reclaimed from Mare Island Strait in the mid-1960s and is not likely to yield information important to prehistory or history. For this reason, 285 Mare Island Way is recommended not eligible for individual listing under Criterion D/4.

Historic District Considerations

There are no known historic districts in the vicinity of 285 Mare Island Way. Therefore, the building at 285 Mare Island Way does not contribute to a known historic district.

Based on the architectural description and individual evaluation presented above and documentation of the physical development of the Vallejo waterfront, no apparent patterns emerge to suggest that there is a potential district that includes 285 Mare Island Way. The subject building does not appear to be significantly related in terms of architectural design, function, or historical development to other buildings and structures in the immediate vicinity, many of which predate 285 Mare Island Way and are components of the 125-acre Marina Vista Redevelopment Project that was built during the 1960s and early 1970s and included reclaimed land along the east shore of Mare Island Strait. For these reasons, the subject building would not contribute to the significance of a potential discontiguous Marina Vista Redevelopment Project Historic District.

City of Vallejo Historic Resources Inventory

The City of Vallejo Planning Division maintains a historic resources inventory (HRI) of known and potential historic resources. 285 Mare Island Way is evaluated below for eligibility for listing on the HRI as a City Landmark, Historic Structure, Structure of Merit, or Contributing Structure according to the following criteria.

Architectural Merit – The building at 285 Mare Island Way is not the first, last, only, or most significant architectural property of its type (i.e., a former professional office building) in Vallejo or the region. Based on the research and analysis presented above, it does not appear to be the prototype of, or outstanding example of, a period, style, architectural movement, engineering or construction technique, or example of the more notable work, or the best surviving work in Vallejo or the region of an architect, designer, or master builder.

Cultural Value – Based on the research and analysis presented above, the building at 285 Mare Island Way does not appear to be significantly associated with the movement or evolution of religious, cultural, governmental, social, and/or economic developments of Vallejo.

Educational Value – Based on the research and analysis presented above, the building at 285 Mare Island Way does not appear to possess significant educational value beyond what is publicly available in the archival record.

Historical Value – Based on the research and analysis presented above, the building at 285 Mare Island Way does not appear to embody and express the history of Vallejo, Solano County, California, or the United States. The building is a common example of a small medical office constructed in 1974, which is relatively late in the existence of the city, county, state, and country.

Historic Property – The building at 285 Mare Island Way is not a historic property listed in the National Register (either individually or as a contributor to a historic district) or a registered California Historical Landmark.

Integrity Analysis

In addition to being eligible for listing under at least one of the National Register, California Register, or City of Vallejo HRI criteria, a property must also retain sufficient integrity to convey its historical significance. There are seven aspects to consider when evaluating the integrity of a property: location, design, setting, materials, workmanship, feeling, and association. As discussed above, the building at 285 Mare Island Way, as a standalone resource or as a contributor to a known or potential historic district, is not recommended as eligible for listing under any criteria; therefore, a further assessment of integrity is not presented.

Summary

Based on a pedestrian survey, archival research, and analysis, the building at 285 Mare Island Way is recommended as ineligible for individual listing in the National Register, California Register, or City of Vallejo HRI. It also does not appear to contribute to any known or potential historic districts. As such, the building at 285 Mare Island Way would not be considered historic properties under NHPA Section 106 or historical resources under CEQA.

***B12. References/Endnotes** (Continued from page 2)

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21. "Marina Vista," n.d., p.2, promotional pamphlet in possession of the Vallejo Naval and Historical Museum; Roy Anderberg, "Urban Renewal Changes Vallejo," *Contra Costa Times,* September 19, 1968, 11; "City's Waterfront Undergoes Change; Hills Disappearing," *Vallejo Times-Herald,* July 31, 1964; "Safety Study on Seawall," *Vallejo News-Chronicle,* April 21, 1971.
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42. Julian W. Riehl, "Hoss Firm Low on Water System, No Award Made," *Santa Rosa Press Democrat,* July 16, 1962, 5E.
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44. "Lodi Developer Plans Medical Center Project," *Stockton Record,* April 1, 1965, 26.
45. "New Convalescent Hospital" (photograph with caption), *Sacramento Bee,* March 6, 1966, C9.
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State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code Reviewer Date

Page 1 **of** 11 ***Resource Name or #:** Seawall and Pedestrian Promenade

P1. Other Identifier:

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted**

***a. County** Solano

***b. USGS 7.5' Quad Date T ; R ; ¼ of ¼ of Sec ; B.M.**

c. Address 289 Mare Island Way City Vallejo Zip 945990

d. UTM: Zone 10 S, 564647.269 mE/ 4217177.51 mN; NAD 83

e. Other Locational Data: Spans approximately 4,000 feet along the east side of the Vallejo waterfront

***P3a. Description:**
The approximately 4,000-foot-long, reinforced concrete seawall separates Vallejo's waterfront and the Mare Island Strait at the mouth of the Napa River. At the north end, the structure begins immediately south of the Vallejo Yacht Harbor at Mare Island Way. It continues west and south around the perimeter of the Barbara Kondylis Waterfront Green, jogs inland to form the present-day ferry basin, and borders Independence Park. At the south end, it terminates at the Vallejo Launching Facility at 139 Curtola Parkway. A pedestrian promenade with a metal guardrail continues along the full length of the seawall and is a segment of the Bay Trail. The promenade is paved in concrete and features a series of expansion joints in a grid pattern. Other features found along the seawall and promenade include: lampposts (multiple styles), trash receptacles, metal bike racks, metal bollards; metal benches; concrete planters covered with mosaic artwork (the planters are part of the original landscape design of the waterfront, and the mosaics were added in 2010),[1] and stylized concrete benches that are part of the original landscape design of the waterfront. (Continued on page 3)

***P3b. Resource Attributes:** HP46. Seawall; HP39. Other - Pedestrian promenade

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5b. Description of Photo: View of seawall and pedestrian promenade around the ferry basin, view facing north. ESA, 2023.

***P6. Date Constructed/Age and Source:**

☒ Historic ☐ Prehistoric ☐ Both

1966-67. Source: Redevelopment Agency of the City of Vallejo, 1967.

***P7. Owner and Address:**

City of Vallejo
555 Santa Clara Street
Vallejo, CA 94590

P8. Recorded by:

Johanna Kahn, ESA
2600 Capitol Avenue, Suite 200
Sacramento, CA 95816

***P9. Date Recorded:** July 25, 2023

***P10. Survey Type:** Intensive

P11. Report Citation: ESA. *Vallejo Ferry Terminal Reconfiguration Project Cultural Resources Survey Report.* Prepared for Federal Transit Authority, San Francisco Bay Area Water Emergency Transportation Authority, and Kimley-Horn and Associates, Inc. April 2024.

***Attachments:** ☐ NONE ☐ Location Map ☒ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (List):

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Seawall and Pedestrian Promenade ***NRHP Status Code** 6Z

B1. Historic Name: Seawall and Pedestrian Promenade
B2. Common Name: Seawall and Pedestrian Promenade
B3. Original Use: Seawall and pedestrian promenade B4. Present Use: Seawall and pedestrian promenade
***B5. Architectural Style:** Utilitarian (seawall) and Modern landscape design (pedestrian promenade)
***B6. Construction History:** (Construction date, alterations, and date of alterations)
The Redevelopment Agency of the City of Vallejo reclaimed 25 acres of tidal mud flats on the east side of the Mare Island Strait in 1964, and six dikes were completed in August 1964 (*Vallejo-Times Herald, 1964*). Dredging of the waterfront was completed in 1965, and the ferry basin was dredged last (*Vallejo-Times Herald, 1965*). Approximately 230,000 cubic yards of excavated earth from elsewhere in the redevelopment area was used to fill the reclaimed shoreline, extending it approximately 300 feet into the strait (*Vallejo-Times Herald, 1964*). Construction of the seawall and pedestrian promenade was completed in 1966 (Redevelopment Agency of the City of Vallejo). Completion of the landscaping program for the entire waterfront area was celebrated with a public festival on June 3, 1967.

***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** N/A **Original Location:** N/A

***B8. Related Features:** The pedestrian promenade (which is the horizontal surface of the seawall) is related to the overall landscape design of the Vallejo Waterfront.

B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** Development of the Vallejo Waterfront in the 20th Century **Area** Vallejo Waterfront
Period of Significance 1966-1967 **Property Type** Commercial/Dental Clinic **Applicable Criteria** N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Early Development of the Vallejo Waterfront

Mare Island and the Mare Island Ferry

The shoreline along the Mare Island Strait at the mouth of the Napa River has played an important role in the local history of water transportation and recreation as well as the nation's maritime history. On the west side of the strait (outside the APE) is Mare Island, and it was purchased by the United States Navy in 1853 to establish the first naval installation on the West Coast.[2] A ferry service between the City of Vallejo to the east and Mare Island was established shortly thereafter.[3] The shipyard constructed its first U.S. warship (USS *Saginaw*) in 1859 and first dry dock between 1872 and 1891. The installation of the shipyard attracted settlers to Vallejo and helped to establish a local workforce. By the outbreak of World War II in September 1939, Mare Island had become the largest ship construction and repair facility in the world.[4] Over the course of the United States' involvement in the conflict from December 1941 to September 1945, wartime mobilization caused the city's population to grow from 26,000 to nearly 100,000. By the time Mare Island ceased shipbuilding operations in 1996, the shipyard had constructed over 500 naval vessels and overhauled thousands more.[5] In 2002, Mare Island was conveyed to the City of Vallejo, which has ongoing reuse and redevelopment plans for the island.[6] (Continued on page 4)

B11. Additional Resource Attributes: none
***B12. References/Endnotes:** See page 10.

B13. Remarks: None.

***B14. Evaluator:** Johanna Kahn, ESA
***Date of Evaluation:** April 2024

***Resource Name or #** Seawall and Pedestrian Promenade

***Recorded by:** Johanna Kahn, ESA   ***Date:** April 2024   ☒ Continuation   ☐ Update

***P3a. Description:** (Continued from page 1)


Seawall and Pedestrian Promenade, views north (left) and south (right) of the Ferry Basin. Source: ESA, 2023.

Example of Original Concrete Bench and Planter. Source: Google Street View, November 2016.

***B10. Significance:** (Continued from page 2)

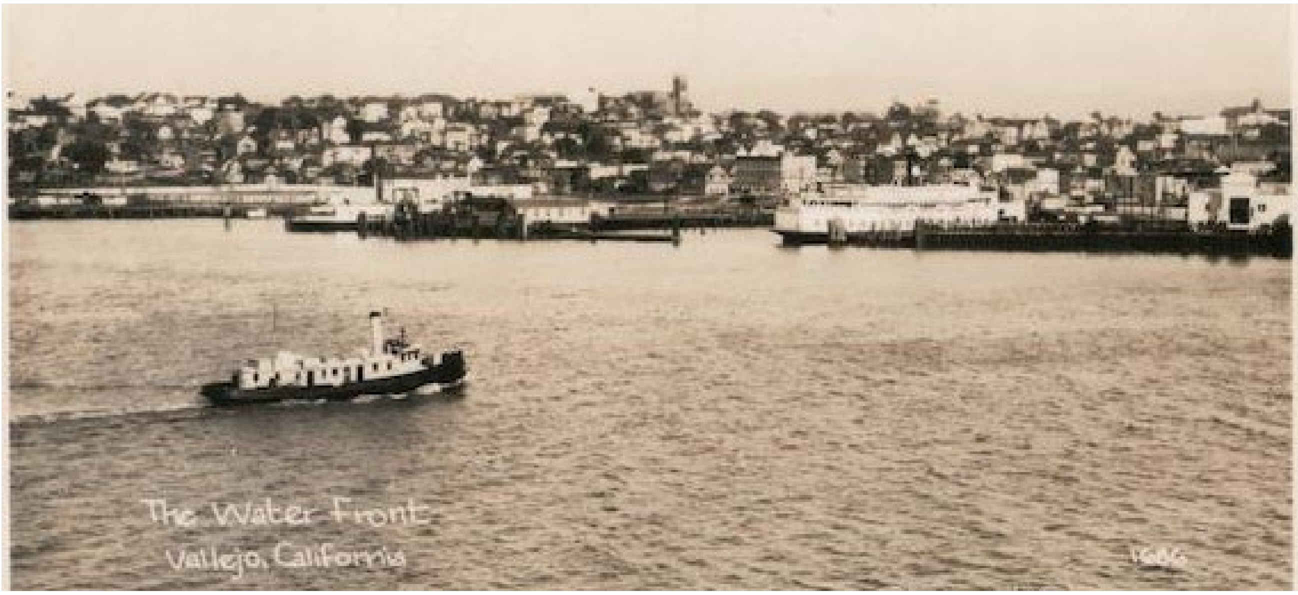
Water Transportation to and from Vallejo

Intercity/Intercounty Ferries

The Vallejo waterfront located on the east side of the Mare Island Strait was also an important harbor for ferry transportation and commercial shipping. Dr. Robert Semple created a ferry service from Vallejo across the Carquinez Strait to Martinez to serve the influx of settlers who arrived in the region during the Gold Rush. In 1867, the California Pacific Railroad was established to build a fast and reliable route from San Francisco to the state capitol. Subsequently, passengers could travel by steamboat from San Francisco to a ferry terminal in South Vallejo, where they would then travel by rail to Sacramento.[7] During the peak of ferry transportation, riders for the Pony Express also used the ferries at Vallejo to travel between Sacramento and Benicia. The Vallejo waterfront was also used to transport freight trains across San Francisco Bay. The *Solano* and *Contra Costa*—two of the world's largest train ferries ever constructed—operated along the Vallejo waterfront from 1879 to 1930.[8] The Southern Pacific Golden Gate Ferries bought out several existing steamship lines and oversaw the operation of most ferry services between Vallejo and San Francisco until about 1937. At that time, the Bay Bridge opened for operation and diverted many ferry passengers to highway travel.[9]

Mare Island Ferry Company

A passenger ferry service between the Vallejo mainland and Mare Island was first established in 1854 to transport laborers to the shipyard.[10] In 1922, Victor Raahauge purchased the ferry service and established the Mare Island Ferry Company, becoming the sole provider of ferry service across the strait.[11] The ferry terminal was located at the foot of Georgia Street (also known as Lower Georgia Street or the Georgia Street Wharf) in an area rife with gambling, prostitution, and crime. Ridership peaked during World War II, when more than 50,000 passengers were ferried across the strait each day on 17 boats.[12] The original ferry terminal is no longer extant.



Undated (Pre-1960) Photo of the Ferry Between Vallejo and Mare Island. Source: CardCow.com.

Undated (Pre-1960) Photo of the Vallejo Ferry Landing. Source: CardCow.com.

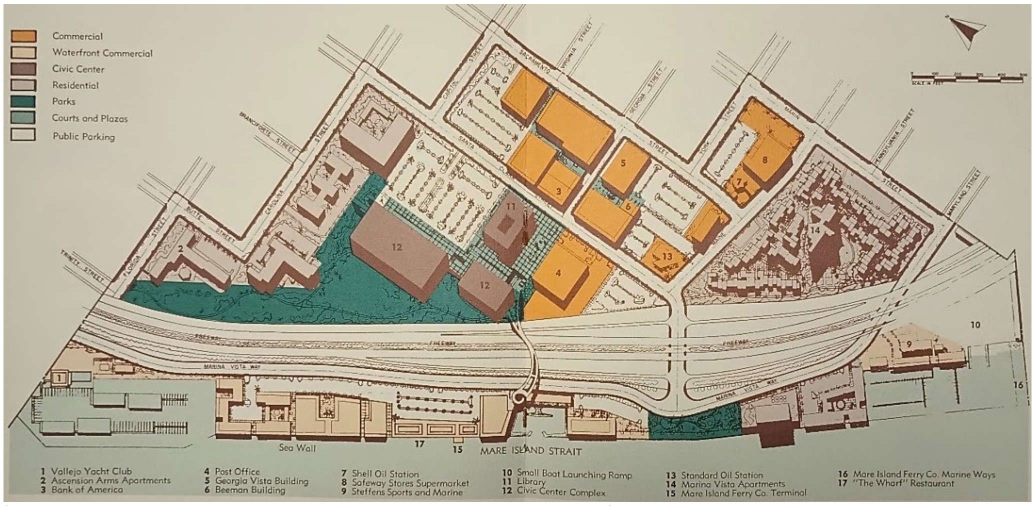
In 1973, the Mare Island Ferry Company and the U.S. Navy entered into a contract under which the Navy was "responsible for maintaining the [channel and] floating docks the ferry uses on each side of the strait [, including both] the ferry's private docks and the docks owned by the shipyards. In exchange, the ferry provided regular service for shipyard employees as well as 24-hour-a-day availability during emergencies."[13] In addition to the ferry terminal building on the Georgia Street Wharf, the ferry company's infrastructure included three "floating docks" that were constructed ca. 1964 parallel to the seawall.[14] These were concrete platforms surrounded by water on all sides and protected by steel dolphins. In 1986, the Navy terminated the contract, removed two of the floating docks, and refused to repair the third,[15] which, along with all of the steel dolphins, is extant and currently serves as an outdoor dining area for the nearby restaurant at 295A Mare Island Way.

<u>Marina Vista Redevelopment Project</u>

The Vallejo waterfront transformed dramatically during the 1950s and 1960s. After World War II ended and automobiles became the predominant mode of transportation, the waterfront lost many of the travelers, workers, and tax revenue that had given the area so much vitality. The rooming houses, taverns, and dance halls built to accommodate Vallejo's swelling wartime population gradually fell into disrepair as the result "of many forces including age, obsolescence, wartime pressures, a changing economy and human neglect."[16] By the 1950s, much of the waterfront and the city's commercial center was "dilapidated and in economic trouble."[17]

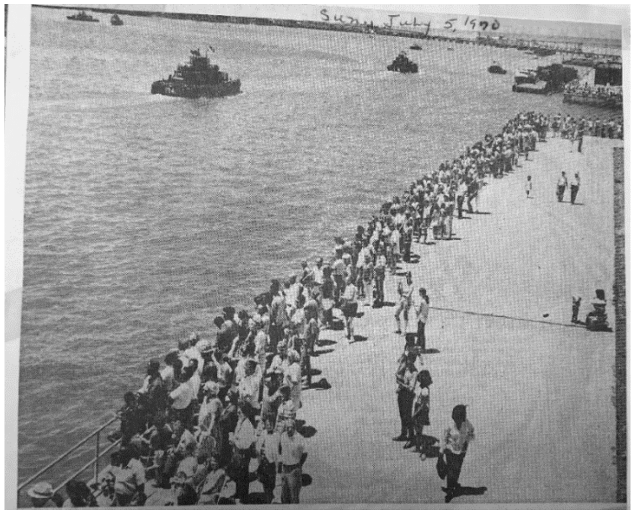
Undated (Pre-1960) View of the Vallejo Waterfront Near the Georgia Street Wharf at Low Tide, Facing South. Mare Island is visible in the background. Source: Vallejo Naval and Historic Museum.

In 1960, the Vallejo City Council adopted what would become known as the Marina Vista Redevelopment Project to revitalize the city's commercial center and waterfront.[18] The urban renewal project razed 600 existing structures and replanned approximately 125 acres of land between Vallejo's business district and the Mare Island Strait, and this included 25 acres of reclaimed land along the shoreline.[19] In 1964, the city initiated a $4.4 million construction phase that built a Bank of America branch (extant and currently operating as the Vallejo Housing Authority at 200 Georgia Street), a public library (extant and located at 505 Santa Clara Street), a U.S. Post Office branch (demolished and formerly located at 485 Santa Clara Street), the commercial/office Georgia Vista Building (extant and located at 243–255 Georgia Street), the professional offices Beeman Building (extant and located at 237 Georgia Street), a Safeway supermarket (extant and currently operating as a Grocery Outlet at 401 Marin Street), a senior residential center called Ascension Arms Apartments (extant and located at 301 Butte Street), restaurants, gas stations, and multiple housing projects. In 1966, the Walnut Creek, California, firm Valley Crest Landscape was awarded the contract to oversee the planned site development, and the renowned San Francisco landscape architectural firm led by Robert Royston oversaw the landscape plan for the project's 24 city blocks.[20] The plan for the landscape—with an emphasis on accessible, usable space as well as abstract design—was characteristic of Royston's approach to modern landscape architecture.[21] The project also added approximately 25 acres of new land over the existing tidal mudflats and a new concrete seawall along the waterfront that was completed in 1966.[22] By 1970, the waterfront offered "The Wharf" restaurant (extant at 295 Mare Island Way), the Vallejo Yacht Club and Clubhouse (extant at 485 Mare Island Way), two large parks, public parking, tree-lined walking paths, and public artwork for Vallejo residents.[23]



Site Plan of the Marina Vista Redevelopment Project, 1967. The extant ferry basin is shown at the bottom center of the plan. Source: Vallejo Naval and Historic Museum.

Aerial View of the Marina Vista Redevelopment Project Under Construction, Facing Southeast, May 1965. The extant ferry basin and the former Mare Island Ferry terminal are visible in the right middle ground (below the circular marker labeled "3"). Source: Vallejo Naval and Historic Museum.



Public Event Along the Vallejo Waterfront, July 1970. The ferry basin is visible in the right background.
Source: *Vallejo Times-Herald*, July 5, 1970.

The Marina Vista Redevelopment Project was not without controversy. From the outset, some Vallejo residents were concerned that in realizing its dream of a beautiful waterfront, the City of Vallejo would place a heavy financial burden on the city's next generation.[24] In 1969, affordable housing advocates submitted a letter to Representative Robert L. Leggett raising concerns that the Vallejo Redevelopment Agency Board's vision for the project area failed to address the most pressing needs of Vallejo's primarily black Country Club Crest and South Vallejo neighborhoods and lower-income residents and called for a federal study of the redevelopment plan.[25] Later that year, developer Jack Baskin completed the construction of an affordable 235-apartment complex later named Marina Vista Apartments that partially addressed the city's need for affordable housing.[26] However, the Vallejo Redevelopment Agency's 1969 construction plans for an unrealized waterfront freeway required the annexation of Roosevelt Terrace and additional areas contiguous to Vallejo, resulting in the displacement and relocation of an estimated 10,000 residents.[27] While the redevelopment project ultimately constructed multiple similar low-cost housing options for Vallejo residents and received praise from professional architects and engineers, the City of Vallejo and housing advocates engaged in an ongoing and occasionally contentious debate about the city's housing needs for the project's duration.[28]

Late 20th-Century Revival of the Vallejo Ferry

In 1986, intercity/intercounty ferry service returned to the Vallejo waterfront after a 34-year hiatus. That year, the nature and amusement park Marine World/Africa USA relocated to Vallejo from San Mateo County. In response, the privately owned tour boat operator, Red & White Fleet, launched a commute ferry service to bring visitors from San Francisco to Vallejo's newest attraction. Additionally, the City of Vallejo began construction on a $1.2 million ferry terminal with state and local redevelopment funds to support the growing ferry service. In 1988, Red & White Fleet suspended its service, and the City of Vallejo took over public ferry transit to San Francisco. The passage of Regional Measure 1 in 1988 provided additional funding to upgrade the ferry system and support operating costs for public transit services.[29] In 1989, Crowley Maritime completed construction on the 4,500-square-foot terminal and ferry dock.[30] In 1990, the City of Vallejo and the Metropolitan Transportation Commission utilized $10 million allocated from the California Air Quality & Transportation Improvement Act (CATIA) to develop the Vallejo Ferry Plan which outlined the ferry capital program and ongoing Baylink operations. In 1991, the Vallejo ferry project received an additional $17 million in funding from the federal Intermodal Surface Transportation Efficiency Act (ISTEA). Over the next decade, the City of Vallejo added three high-speed catamarans to its fleet as local demands for ferry service rose steadily. By the end of the 1999–2000 fiscal year, Vallejo Baylink had carried nearly 750,000 passengers across the San Francisco Bay.[31]

Ownership History

The Vallejo waterfront, including the seawall and pedestrian promenade, has historically been owned by the City of Vallejo.

Royston, Hanamoto, Beck, and Abey (Landscape Architect)

The landscape design for the Marina Vista Redevelopment Project (which includes the pedestrian promenade) is attributed to the prolific San Francisco landscape architecture firm Royston, Hanamoto, Beck & Abey (RHBA). The firm's name changed periodically from the 1950s through the 1970s to reflect the current leadership. When the firm was awarded the contract for the Marina Vista Redevelopment Project in 1966, it was named Royston, Hanamoto, Mayes & Beck (RHMB);[32] however, partner David Mayes left the firm later that year. RHBA was established soon after by partners Robert Royston (1918–2008), Asa Hanamoto (1923–2015), H. Eldon Beck (b. 1931), and Kazuo "Kaz" Abey (d. 2019) and practiced ca. 1967–1979.[33] The San Francisco Planning Department considers the founder, Robert Royston (1918–2008), to be a master landscape architect who was "enormously influential in the development of Modern landscape design in San Francisco [and beyond],"[34] and RHBA's legacy is on display throughout California.

Royston and his firms worked extensively in Vallejo. Some of these projects include:

- Marina Vista Redevelopment Project: including but not limited to the Standard Oil Co. service station (1967), Vallejo Public Library (1967), Vallejo Civic Center (collaboration with Marquis and Stoller Architects, 1962), several multi-family residential buildings in collaboration with developer Jack Baskin, and the James Hunter Memorial Promenade (1971);
- U.S. Navy's Combat Data Systems School on Mare Island (collaboration with Lee and Busse Architects, 1967-73);
- Vallejo General Hospital (1968);
- Driftwood Subdivision (1973);
- Solano County Animal Shelter and Department of Weights and Measures (1963); and
- Solano County Master Plan (1966).[35]

RHBA received a design merit award in 1970 from the American Society of Landscape Architects (ASLA) for the 125-acre Marina Vista Redevelopment Project.[36]

Promenade Along the Vallejo Waterfront (south of the ferry basin), 1968.
Source: UC Berkeley Environmental Design Archives.

Completed Seawall, Promenade, and Landscaping Along the Waterfront, 1967.
Source: Redevelopment Agency of the City of Vallejo, 1967.

Significance Evaluation

The following analysis evaluates the Seawall and Pedestrian Promenade for potential significance under federal, state, and local criteria. The seawall and pedestrian promenade has not been previously evaluated for eligibility for listing in either the National Register of Historic Places (National Register) or the California Register of Historical Resources (California Register).

National Register and California Register

Criterion A/1 (Event) – The seawall and pedestrian promenade was constructed between 1964 and 1966 as one part of the Marina Vista Redevelopment Project that modernized a large portion of downtown Vallejo and the waterfront along the east shore of the Mare Island Strait. While the seawall and pedestrian promenade is a crucial structural component of the redesigned waterfront that prevents shoreline erosion and allows for public outdoor recreation, it is functionally unrelated to any of the civic, institutional, commercial, or residential buildings constructed in downtown Vallejo under the redevelopment project. For these reasons, the seawall and pedestrian promenade is recommended not eligible for individual listing under Criterion A/1.

Criterion B/2 (Person) – Research does not indicate that there are any associations between the seawall and pedestrian promenade and significant persons whose specific contributions to history can be identified and documented. (Design professionals are discussed under Criterion C/3 below.) The seawall and pedestrian promenade is one component of the much larger Marina Vista Redevelopment Project, and no individuals are known to be associated with this component. Therefore, the seawall and pedestrian promenade is recommended not eligible for individual listing under Criterion B/2.

Criterion C/3 (Design/Construction) – As noted above in the research methodology, both the City of Vallejo and the USACE deny playing a leading role in the construction of the seawall and pedestrian promenade. Additional research by ESA staff did not confirm the responsible agency or the structural or civil engineer. The landscape design of the 125-acre Marina Vista Redevelopment Project, including the reclaimed land along the Vallejo waterfront, is attributed to RHBA, a leading landscape architecture firm in the San Francisco Bay Area. RHBA's design for the Marina Vista Redevelopment Project received a merit award from ASLA, adding to the firm's many achievements and recognitions. However, the seawall and pedestrian promenade is a simple structure and pathway which, as a standalone resource, does not embody distinctive characteristics of a type, period, or method of construction; express a particular phase, aspect, or theme in RHBA's body of work; or possess high artistic values. For these reasons, the seawall and pedestrian promenade is recommended not eligible for individual listing under Criterion C/3.

Criterion D/4 (Information Potential) – Criterion D/4 applies to properties that have the potential to inform important research questions about human history. According to National Register Bulletin 15, to qualify for listing under this criterion, the property must "have or have had information to contribute to our understanding of human history or prehistory and the information must be considered important." Criterion D/4 most commonly applies to archaeological resources. The seawall and pedestrian promenade was built on land reclaimed from Mare Island Strait in the mid-1960s and is not likely to yield information important to prehistory or history. For this reason, the seawall and pedestrian promenade is recommended not eligible for individual listing under Criterion D/4.

Historic District Considerations

There are no known historic districts in the vicinity of the seawall and pedestrian promenade. Therefore, the structure does not contribute to a known historic district.

Based on the architectural description and individual evaluation presented above and documentation of the physical development of the Vallejo waterfront, no apparent patterns emerge to suggest that there is a potential district that includes the seawall and pedestrian promenade. The seawall and pedestrian promenade is one component of the 125-acre Marina Vista Redevelopment Project that was built during the 1960s and early 1970s and included reclaimed land along the east shore of Mare Island Strait. Countless American cities were impacted by redevelopment under the guise of "urban renewal" during the mid-20th century, and Vallejo's redevelopment story does not appear to be especially unique or objectively important in this context or as an example of the work of RHBA. For these reasons, it is unlikely that the seawall and pedestrian promenade would contribute to the significance of a potential discontiguous Marina Vista Redevelopment Project Historic District.

City of Vallejo Historic Resources Inventory

The City of Vallejo Planning Division maintains a historic resources inventory (HRI) of known and potential historic resources. The seawall and pedestrian promenade is evaluated below for eligibility for listing on the HRI as a City Landmark, Historic Structure, Structure of Merit, or Contributing Structure according to the following criteria.

Architectural Merit – The seawall and pedestrian promenade is not the first, last, only, or most significant architectural property of its type (i.e., an infrastructure/recreation element of the waterfront area) in Vallejo or the region. Based on the research and analysis presented above, it does not appear to be the prototype of, or outstanding example of, a period, style, architectural movement, engineering or construction technique, or example of the more notable work, or the best surviving work in Vallejo or the region of an architect, designer, or master builder.

Cultural Value – Based on the research and analysis presented above, the seawall and pedestrian promenade does not appear to be significantly associated with the movement or evolution of religious, cultural, governmental, social, and/or economic developments of Vallejo.

Educational Value – Based on the research and analysis presented above, the seawall and pedestrian promenade does not appear to possess significant educational value beyond what is publicly available in the archival record.

Historical Value – Based on the research and analysis presented above, the seawall and pedestrian promenade, as a standalone resource, does not appear to embody and express the history of Vallejo, Solano County, California, or the United States. The seawall and pedestrian promenade is one element of a much larger redevelopment plan completed in the 1960s, which is relatively late in the existence of the city, county, state, and country.

Historic Property – The seawall and pedestrian promenade is not a historic property listed in the National Register (either individually or as contributors to a historic district) or a registered California Historical Landmark.

Integrity Analysis

In addition to being eligible for listing under at least one of the National Register, California Register, or City of Vallejo HRI criteria, a property must also retain sufficient integrity to convey its historical significance. There are seven aspects to consider when evaluating the integrity of a property: location, design, setting, materials, workmanship, feeling, and association. As discussed above, the seawall and pedestrian promenade, as a standalone resource or as a contributor to a known or potential historic district, is not recommended as eligible for listing under any criteria; therefore, a further assessment of integrity is not presented.

Summary

Based on a pedestrian survey, archival research, and analysis, the seawall and pedestrian promenade is recommended as ineligible for individual listing in the National Register, California Register, or City of Vallejo HRI. It also does not appear to contribute to any known or potential historic districts. As such, the seawall and pedestrian promenade would not be considered historic properties under NHPA Section 106 or historical resources under CEQA.

***B12. References/Endnotes** (Continued from page 2)

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2. "Mare Island Naval Shipyard," Naval History and Heritage Command, accessed August 28, 2023, https://www.history.navy.mil/browse-by-topic/organization-and-administration/historic-bases/mare-island.html.
3. Richard Abrams, "Ferry Slips into History," *Sacramento Bee,* August 30, 1936, B1–B2.
4. Visit Vallejo, "Time to Learn About Vallejo," accessed August 25, 2023, https://www.visitvallejo.com/about-vallejo/history.
5. "Mare Island Naval Shipyard," NHHC; National Park Service. U.S. Department of Interior. *Historic American Buildings Survey, Mare Island Naval Shipyard*. Vol. 1 (HABS No. CA-1543—HABS No. CA-1543-D), San Francisco, 1999.
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7. Vallejo Naval & Historical Museum, "Vallejo—Our History," accessed August 25, 2023, https://vallejomuseum.net/vallejo-history/.
8. "Time to Learn About Vallejo."
9. F. Weston Starratt, "Success of Vallejo and Its Ferries: Location, Location for the Past 150 Years," accessed August 28, 2023, http://www.baycrossings.org/Archives/2001/06_July/vallejo_history.htm.
10. Richard Abrams, "Ferry Slips into History," *Sacramento Bee,* August 30, 1936, B1–B2.
11. "MI Ferry Co. Looks Forward To 'Boom' Along Waterfront," *Vallejo Times-Herald,* May 8, 1965.
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15. Harry Jupiter, "After a Million Rides, the Mare Island Ferry Leaves Anger in Wake," *San Francisco Examiner,* August 30, 1986, 2.
16. Redevelopment Agency of the City of Vallejo, *Marina Vista,* 1967, 1, in "Redevelopment Agency of the City of Vallejo from January 1962 to December 1965 (scrapbook), on file at the Vallejo Naval and Historic Museum.
17. Brian W. H. Taylor, "Marina Vista: Vallejo's Revitalization," *San Francisco Examiner,* February 28, 1965.
18. "New Marina vista Plan Adds Land, Recreation Without Increasing Cost," *Labor Journal,* January 22, 1962.
19. "New Building in Redevelopment Area Set," *Vallejo Times-Herald,* February 27, 1962.
20. Different newspaper accounts mention that the contract was awarded to Royston, Hanamoto, Mayes, and Beck (RHMB, in existence 1962-66) and Royston, Hanamoto, Beck, and Abey (RHBA, in existence 1967-79). "Landscaping for Marina Vista Bared," *Vallejo-Times Herald,* April 1, 1965; "Landscape Firm Gets Contract," *Contra Costa Times,* August 10, 1966, 6.
21. Dave Weinstein, "Painting an abstract landscape/One of the inventors of modernist outdoor design, Robert Royston was inspired by Joan Miro and other artists," accessed August 29, 2023, https://www.sfgate.com/homeandgarden/article/Painting-an-abstract-landscape-One-of-the-2484528.php#photo-2640928.
22. "Marina Vista," n.d., p.2, promotional pamphlet in possession of the Vallejo Naval and Historical Museum; Roy Anderberg, "Urban Renewal Changes Vallejo," *Contra Costa Times,* September 19, 1968, 11; "City's Waterfront Undergoes Change; Hills Disappearing," *Vallejo Times-Herald,* July 31, 1964; "Safety Study on Seawall," *Vallejo News-Chronicle,* April 21, 1971.

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[23] "Marina Vista," n.d., p.8-11, promotional pamphlet in possession of the Vallejo Naval and Historical Museum; "Throngs View Navy River Boats," *Vallejo Times-Herald,* July 5, 1970; "Huge Throng Watches Riverines Arrive," *Vallejo Times-Herald,* July 5, 1971.
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[25] "Marina Vista Land Use Probe Sought," *Vallejo Times-Herald,* January 25, 1969.
[26] "New Marina Vista Restaurant Starts," *Vallejo Times-Herald,* November 23, 1968; "156 Apartments on Waterfront Are Planned By Builder," *Vallejo Times-herald,* December 3, 1968; "Target Date: 1970 Completion of Marina Vista," *Vallejo Times-Herald,* January 1, 1969.
[27] "Waterfront Route Gets Top Priority Of Vallejo Council," *Vallejo Times-Herald,* February 7, 1969.
[28] "Vallejo Sees Good Sense In Its Urban Renewal Program," *Fresno Bee,* July 28, 1962; "Marina Vista Gets Nationwide Publicity," *Vallejo Times-Herald,* September 5, 1963; "Low Cost Housing Plan For Vallejo Brings a Dispute," *Vallejo Times-Herald,* November 24, 1970.
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[30] Robert McCockran, "After 34-year hiatus, ferry is enjoying a renaissance," *Vallejo Times-Herald,* February 10, 1991.
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[34] Mary Brown, *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement.* Prepared for the San Francisco City and County Planning Department, 2010, pp. 283–284.
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[36] "Marinite Is Honored for Landscaping," *Independent-Journal* (Marin County), June 22, 1970, 3.

Appendix E

Energy Calculations

Construction Fuel

2029 EMFAC #'s for Gas+Diesel

On-Site Diesel[1]	$MTCO_2e$	Gallons of Fuel[4]	2025 County Fuel	Percent Increase Countywide
Demolition	78	7,717		
Site Preparation/Grading	0	0		
Building Construction	57	5,660		
Paving	0	0		
Architectural Coating	0	0		
Total	136	13,377	47,393,420	0.0282%
Off-Site Diesel[1]				
Demolition	164	16,158		
Site Preparation/Grading	0	0		
Building Construction	0	0		
Paving	0	0		
Architectural Coating	0	0		
Total	164	16,158	47,393,420	0.0341%
Off-Site Gasoline[2]				
Demolition	4	473		
Site Preparation/Grading	0	0		
Building Construction	0	0		
Paving	0	0		
Architectural Coating	0	0		
Total	4	473	163,746,024	0.0003%
Total Diesel Fuel		29,535	47,393,420	0.0623%
Total Gasoline Fuel		473	163,746,024	0.0003%
Total Construction Fuel	304	30,007		

Construction Phase[3]	Demolition			Site Preparation			Grading		
	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gas (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gas (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gas (Worker)
2025	78	164	4						
Total	**78**	**164**	**4**	**0**	**0**	**0**	**0**	**0**	**0**

Construction Phase[3]	Building Construction			Paving			Architectural Coating		
	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gas (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gas (Worker)	On-Site Diesel (Off-Road)	Off-Site Diesel (Hauling/Vendor)	Off-Site Gas (Worker)
2025	57	0	0						
Total	**57**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Notes:

[1] Fuel used for off-road, hauling, and vendor trips assumed to be diesel.

[2] Fuel used for worker trips assumed to be gasoline.

[3] $MTCO_2e$ rates from CalEEMod (3.0 Construction Emission Details).

[4] For CO2e emissions, see Chapter 13 (page 94); Conversion Ratios: Climate Registry, General Reporting Protocol, 2016.

Construction Water

Daily Soil Disturbance[1]	**0**	acres
Days of Soil Disturbance[2]	**109**	days
Water Concentration[3]	3,020	gallons/acre
Water Energy Intensity[4]	4,934	kWh/MG
Total Construction Water	**0.00**	million gallons
Construction Water Energy	**0**	kWh
	0.0000	MWh
Percentage Increase Countywide	0.000000%	

Notes:

[1] Total daily acres disturbed from offroad equipment per CalEEMod (5.6.1 Construction Earthmoving Activities) and maximum SCAQMD LST values for soil-disturbing equipment.

[2] Number of days of construction with soil-disturbing equipment per CalEEMod (5.1 Construction Schedule).

[3] Water application rate per Air and Waste Management Association's Air Pollution Engineering Manual.

[4] Water energy intensity factor for county subarea per CalEEMod User Guide, Appendix G, page G-32.

Appendix F

Greenhouse Gas Emissions Assessment

Greenhouse Gas Emissions Assessment
Vallejo Ferry Terminal Reconfiguration Project
City of Vallejo, California

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LIST OF ABBREVIATED TERMS

AB	Assembly Bill
BAAQMD	Bay Area Air Quality Management District
CARB	California Air Resource Board
CCR	California Code of Regulations
CalEEMod	California Emissions Estimator Model
CEQA	California Environmental Quality Act
CALGreen	California Green Building Standards
CPUC	California Public Utilities Commission
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CFC	Chlorofluorocarbon
EPA	Environmental Protection Agency
FCAA	Federal Clean Air Act
FR	Federal Register
GHG	greenhouse gas
HCFC	Hydrochlorofluorocarbon
HFC	Hydrofluorocarbon
LCFS	Low Carbon Fuel Standard
CH_4	Methane
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
$MTCO_2e$	million tons of carbon dioxide equivalent
NHTSA	National Highway Traffic Safety Administration
NF_3	nitrogen trifluoride
N_2O	nitrous oxide
PFC	Perfluorocarbon
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SF_6	sulfur hexafluoride
TAC	toxic air contaminants

1 INTRODUCTION

This section describes effects on climate change and greenhouse gas (GHG) emissions that would be caused by implementation of the Vallejo Ferry Terminal Reconfiguration Project (Project). The study area for climate change and the analysis of GHG emissions is broad because climate change is influenced by world-wide emissions and their global effects. However, the study area is also limited by the CEQA Guidelines [Section 15064(d)], which directs lead agencies to consider an "indirect physical change" only if that change is a reasonably foreseeable impact that may be caused by the Project. This analysis limits discussion to those physical changes to the environment that are not speculative and are reasonably foreseeable.

1.1 PROJECT LOCATION

The Project site is located at 289 Mare Island Way in the City of Vallejo (City), Solano County, California. The Project includes the existing Vallejo Ferry Terminal, which consists of a steel float structure, aluminum gangway, and covering. The Project site is accessible by vehicle via Mare Island Way, and by ferry. See Figure 1: Regional Location and Figure 2: Vicinity Map.

Additional uses in this area along the Mare Island Strait include the Vallejo Tourism Information Center and commercial retail uses to the east and northeast, Independence Park to the southeast, Barbara Kondylis Waterfront Green to the northwest, a currently vacant office building to the south, and parking areas surrounding the site. Parking is currently provided to the east within waterfront parking lots on the eastern side of Mare Island Way, across the street from terminal site. The existing parking lots and garage areas adjacent to the proposed Project site accommodate Vallejo Ferry Terminal and Transit Center passengers and employees, guests and employees of the Tourism Information Center building and surrounding restaurants, and public users.

1.2 PROJECT DESCRIPTION

The proposed Project would be located on the eastern shore of the Mare Strait, within the footprint of the existing ferry terminal and basin area. The proposed terminal would remove and replace 5,322 square feet (sf) of existing gangway, passenger float, and piles with a new reconfigured gangway, passenger float, and piles. The new Water Emergency Transportation Authority (WETA) Standard float would be approximately 134.5 feet by 42 feet and would accommodate both sides of the float for passenger loading and unloading. No new structures are proposed. Passenger waiting areas would be located along a portion of the San Francisco Bay Trail in a designated outdoor queuing area adjacent to the proposed gangway entry gate. Figure 3: Project Site Plan -- Preferred Project, Figure 4: Project Site Plan -- Configuration Option 1, and Figure 5: Project Site Plan -- Configuration Option 2 depict the overall site plan of each alternative for the proposed Project.

The Project site is zoned as Waterfront Mixed-Use and is located in an urban area with a mix of uses including recreational, commercial, office, and medium to high density residential uses. The surrounding project site is designated under the Parks, Recreation, and Open Space land use, and is zoned Waterfront Mixed-Use.

Construction is anticipated to begin in Summer 2025 with an anticipated completion date of late Winter 2025. Construction methods would include demolition of the existing piles, gangway, and float, site preparation, ground improvements, utility installation or reconfiguration, Bay fill removal (existing piles), and placement for installation of pilings for the new float and donut fenders, and fixed pier support.

The proposed Project would not result in any changes to the existing operational uses of the Project site. The proposed Project would result in the reconfiguration of the existing ferry terminal. Therefore, the proposed facilities would have the same uses that are currently used for standard WETA ferry operations that transport passengers to San Francisco Bay ferry terminals.

Source: ESRI, 2023

Figure 1: Regional Map

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn

Source: Nearmap, 2023

Figure 2: Vicinity Map

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

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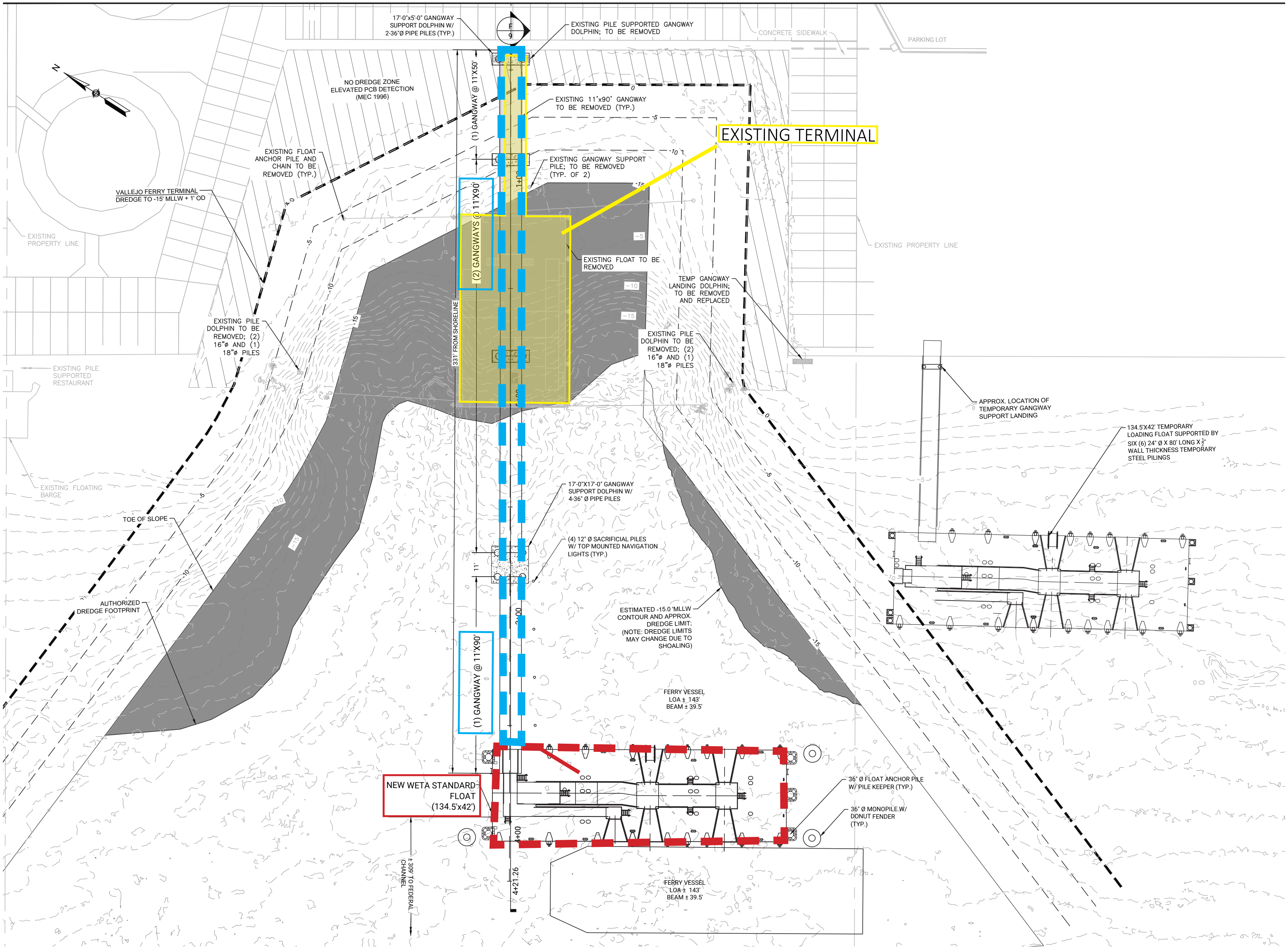

Source: Foth, 2023

Figure 3: Project Site Plan -- Preferred Project

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

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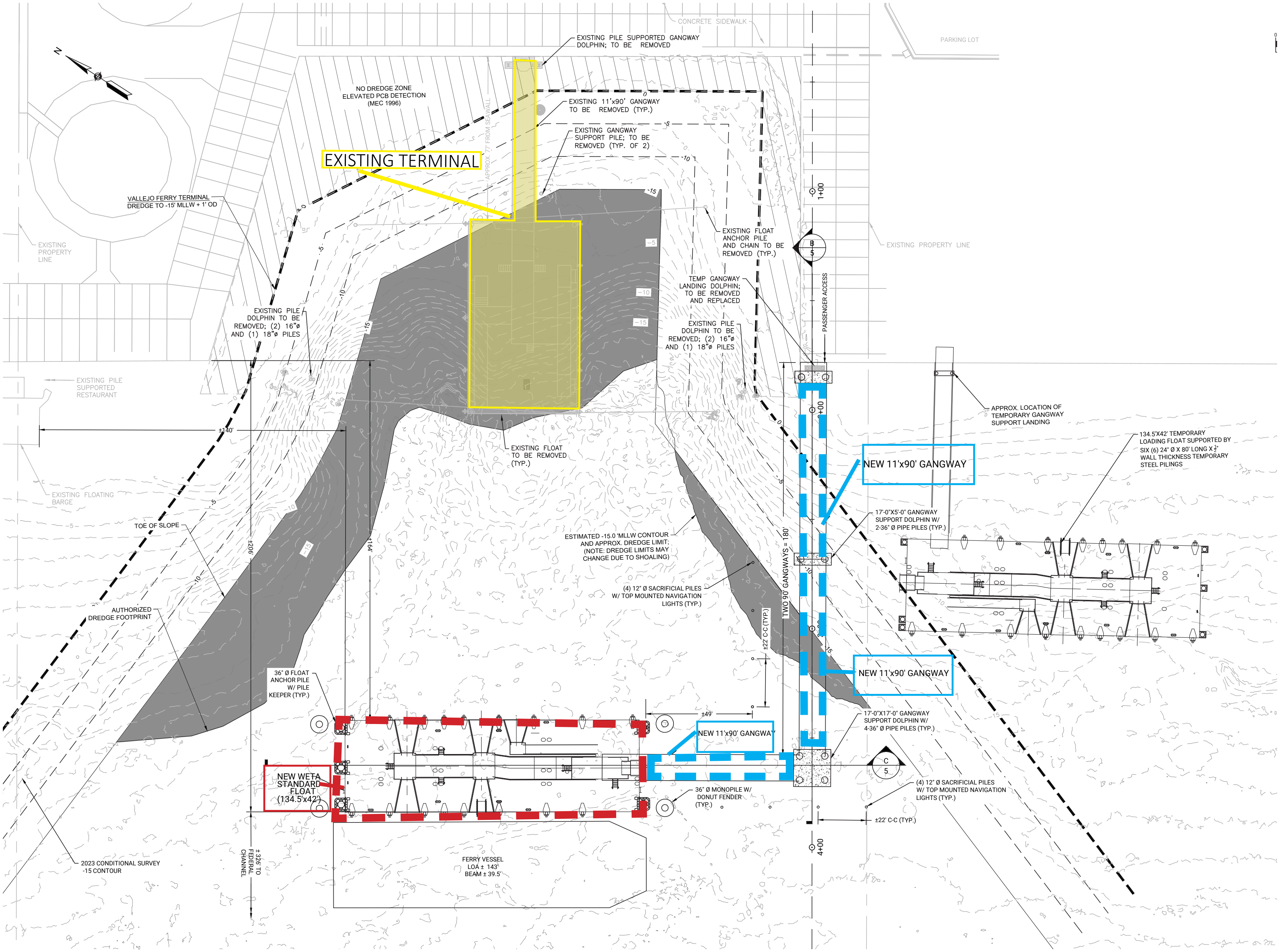

Source: Foth, 2023

Figure 4: Project Site Plan -- Configuration Option 1

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

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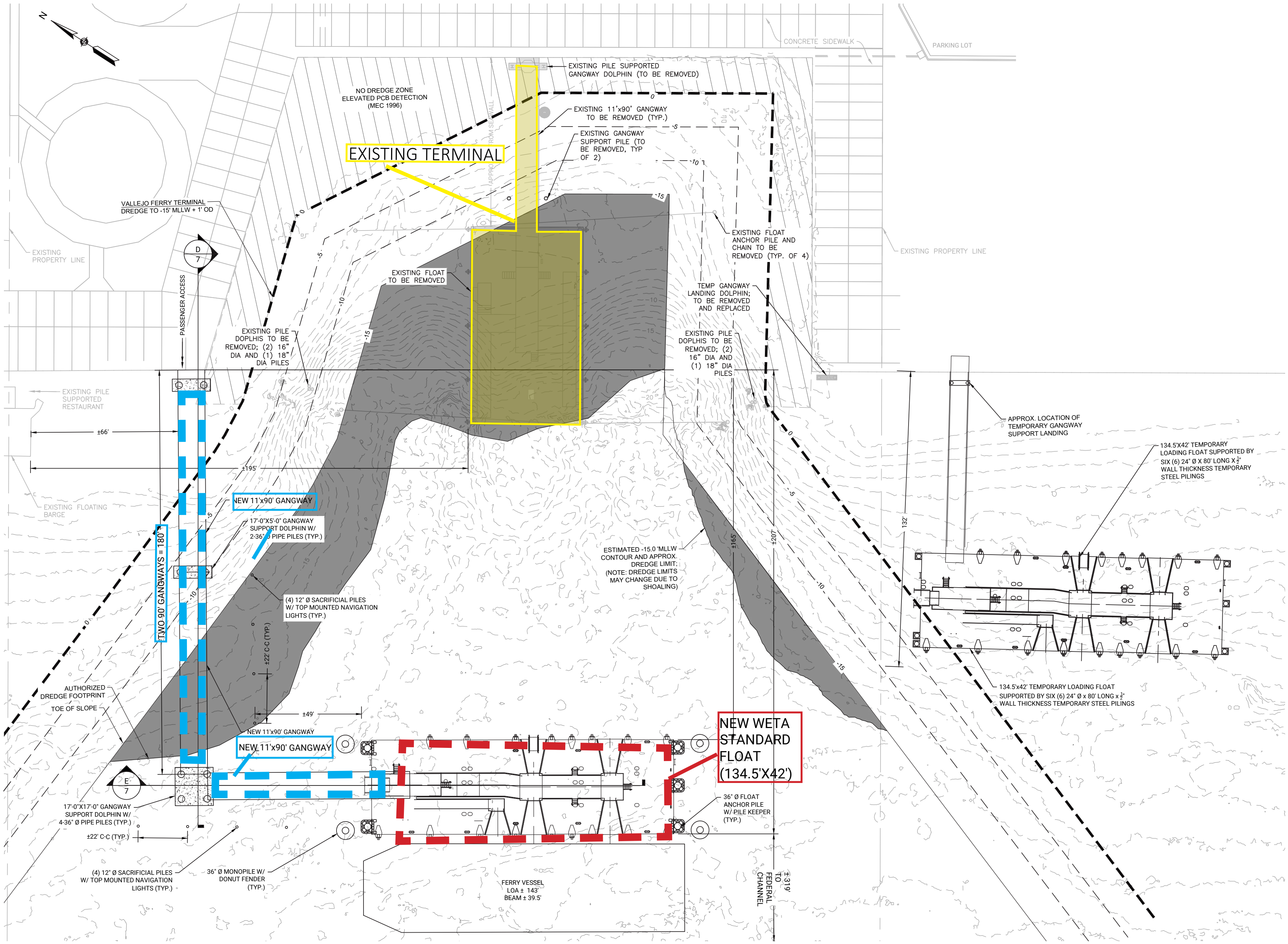

Source: Foth, 2023

Figure 5: Project Site Plan -- Configuration Option 2

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn

2 ENVIRONMENTAL SETTING

2.1 GREENHOUSE GASES AND CLIMATE CHANGE

Certain gases in the earth's atmosphere classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

The primary GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Examples of fluorinated gases include chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3); however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of GHGs exceeding natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the Earth's climate, known as global climate change or global warming.

GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants (TACs), which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of a GHG molecule is dependent on multiple variables and cannot be pinpointed, more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms of carbon sequestration. Of the total annual human-caused CO_2 emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remains stored in the atmosphere (Intergovernmental Panel on Climate Change, 2013). Table 1: Description of Greenhouse Gases, describes the primary GHGs attributed to global climate change, including their physical properties.

Table 1: Description of Greenhouse Gases

Greenhouse Gas	Description
Carbon Dioxide (CO_2)	CO_2 is a colorless, odorless gas that is emitted naturally and through human activities. Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, and industrial facilities. The atmospheric lifetime of CO_2 is variable because it is readily exchanged in the atmosphere. CO_2 is the most widely emitted GHG and is the reference gas (Global Warming Potential of 1) for determining Global Warming Potentials for other GHGs.
Nitrous Oxide (N_2O)	N_2O is largely attributable to agricultural practices and soil management. Primary human-related sources of N_2O include agricultural soil management, sewage treatment, combustion of fossil fuels, and adipic and nitric acid production. N_2O is produced from biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years. The Global Warming Potential of N_2O is 298.
Methane (CH_4)	CH_4, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. Methane is the major component of natural gas, approximately 87 percent by volume. Human-related sources include fossil fuel production, animal husbandry, rice cultivation, biomass burning, and waste management. Natural sources of CH_4 include wetlands, gas hydrates, termites, oceans, freshwater bodies, non-wetland soils, and wildfires. The atmospheric lifetime of CH_4 is approximately 12 years and the Global Warming Potential is 25.
Hydrofluorocarbons (HFCs)	HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is increasing, as the continued phase out of CFCs and HCFCs gains momentum. The 100-year Global Warming Potential of HFCs range from 124 for HFC-152 to 14,800 for HFC-23.
Perfluorocarbons (PFCs)	PFCs have stable molecular structures and only break down by ultraviolet rays approximately 60 kilometers above Earth's surface. Because of this, they have long lifetimes, between 10,000 and 50,000 years. Two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Global Warming Potentials range from 6,500 to 9,200.
Chlorofluorocarbons (CFCs)	CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. The Montreal Protocol on Substances that Deplete the Ozone Layer prohibited their production in 1987. Global Warming Potentials for CFCs range from 3,800 to 14,400.
Sulfur Hexafluoride (SF_6)	SF_6 is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas. The Global Warming Potential of SF_6 is 23,900.
Hydrochlorofluoro-carbons (HCFCs)	HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, HCFCs are subject to a consumption cap and gradual phase out. The United States is scheduled to achieve a 100 percent reduction to the cap by 2030. The 100-year Global Warming Potentials of HCFCs range from 90 for HCFC-123 to 1,800 for HCFC-142b.
Nitrogen Trifluoride (NF_3)	NF_3 was added to Health and Safety Code section 38505(g)(7) as a GHG of concern. This gas is used in electronics manufacture for semiconductors and liquid crystal displays. It has a high global warming potential of 17,200.

Source: Compiled from U.S. EPA, *Overview of Greenhouse Gases*, April 11, 2018 (https://www.epa.gov/ghgemissions/overview-greenhouse-gases); U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016*, 2018; Intergovernmental Panel on Climate Change, *Climate Change 2007: The Physical Science Basis*, 2007; National Research Council, Advancing the Science of Climate Change, 2010; U.S. EPA, *Methane and Nitrous Oxide Emission from Natural Sources*, April 2010.

3 REGULATORY SETTING

3.1 FEDERAL

To date, national standards have not been established for nationwide GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level. Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

Energy Independence and Security Act of 2007. The Energy Independence and Security Act of 2007 (December 2007), among other key measures, requires the following, which would aid in the reduction of national GHG emissions:

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

U.S. Environmental Protection Agency Endangerment Finding. The U.S. Environmental Protection Agency's (EPA) authority to regulate GHG emissions stems from the U.S. Supreme Court decision in Massachusetts v. EPA (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Federal Clean Air Act (FCAA) and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, the EPA finalized an endangerment finding in December 2009. Based on scientific evidence, it found that six GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing FCAA and the EPA's assessment of the scientific evidence that form the basis for the EPA's regulatory actions.

Federal Vehicle Standards. In response to the U.S. Supreme Court ruling discussed above, Executive Order 13432 was issued in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012 to 2016.

In 2010, an Executive Memorandum was issued directing the Department of Transportation, Department of Energy, U.S. EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the U.S. EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon (mpg) if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021. On January 12, 2017, the U.S. EPA finalized its decision to maintain the current GHG emissions standards for model years 2022–2025 cars and light trucks.

On April 2, 2018, the Administrator signed the Mid-term Evaluation Final Determination which finds that the model year 2022-2025 GHG standards are not appropriate in light of the record before U.S. EPA and, therefore, should be revised. [1]

On March 31, 2022, the NHTSA finalized their Corporate Average Fuel Economy (CAFE) standards for model years 2024 to 2026. The final rule requires an industry-wide fuel average of approximately 49 miles per gallon (mpg) for passenger cars and light trucks in model year 2026 by increasing fuel efficiency by 8 percent annually for model years 2024 and 2025 and 10 percent for model year 2026.[2] The NHTSA estimates that final standards will reduce GHG emissions by approximately 605 million MT of CO_2, 730 thousand MT of CH_4, and 17 thousand MT of N_2O.[3] On September 19, 2019, under the Safer, Affordable, Fuel-Efficient (SAFE) Vehicles Rule, the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHSTA) and the U.S. EPA issued the final "One National Program Rule." The rule states that federal law preempts state and local laws regarding tailpipe GHG emissions standards, zero emissions vehicle mandates, and fuel economy for automobiles and light duty trucks. The rule revokes California's Clean Air Act waiver and preempts California's Advanced Clean Car Regulations.[4,5]

On September 20, 2019, a lawsuit was filed by California and a coalition of 22 other states, and the cities of Los Angeles, New York and Washington, D.C., in the United States District Court for the District of Columbia (Case 1:19-cv-02826) challenging the SAFE Rule and arguing that U.S. EPA lacks the legal authority to withdraw the California waiver. In April 2021, the U.S. EPA announced it would reconsider its previous withdrawal and grant California permission to set more stringent climate requirements for cars and SUVs. On March 9, 2022, the U.S. EPA restored California's 2013 waiver to full force, including both its GHG standards and zero-emissions vehicles sales requirements.

3.2 STATE OF CALIFORNIA

California Air Resources Board

The California Air Resources Board (CARB) is responsible for the coordination and oversight of State and local air pollution control programs in California. Various statewide and local initiatives to reduce California's contribution to GHG emissions have raised awareness about climate change and its potential for severe long-term adverse environmental, social, and economic effects. California is a significant

[1] U.S. Environmental Protection Agency, *Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emissions Standards for Model Years 2022-2025,* https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas, accessed December 2023.
[2] NHTSA, *Corporate Average Fuel Economy*, https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy#40466, accessed December 2023.
[3] NHTSA, *Technical Support Document: Final Rulemaking for Model Years 2024-2026 Light-Duty Vehicle Corporate Average Fuel Economy Standards*, March 2022. https://www.nhtsa.gov/sites/nhtsa.gov/files/2022-04/Final-TSD_CAFE-MY-2024-2026.pdf, accessed December 2023.
[4] U.S. Department of Transportation and U.S. EPA, *One National Program Rule on Federal Preemption of State Fuel Economy Standards,* 2019, https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100XI4W.pdf, accessed December 2023.
[5] Southern California Association of Governments. *Final Federal Safer, Affordable, Fuel-Efficient Vehicles Rule Part I (Supplemental Report),* 2019, accessed December 2023.

emitter of CO_2e in the world and produced 381 million gross metric tons (MMT) of CO_2e in 2021.[6] The transportation sector is the State's largest emitter of GHGs, followed by industrial operations such as manufacturing and oil and gas extraction.

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation, such as the landmark AB 32 California Global Warming Solutions Act of 2006, was specifically enacted to address GHG emissions. Other legislation, such as Title 24 building efficiency standards and Title 20 appliance energy standards, were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major legislation related to GHG emissions reduction.

Assembly Bill 32 (California Global Warming Solutions Act of 2006). AB 32 instructs the CARB to develop and enforce regulations for the reporting and verifying statewide GHG emissions. AB 32 also directed CARB to set a GHG emissions limit based on 1990 levels, to be achieved by 2020. It set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

CARB Scoping Plan. Adopted December 15, 2022, CARB's 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) sets a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels by 2045 in accordance with AB 1279. To achieve the targets of AB 1279, the 2022 Scoping Plan relies on existing and emerging fossil fuel alternatives and clean technologies, as well as carbon capture and storage. Specifically, the 2022 Scoping Plan focuses on zero-emission transportation; phasing out use of fossil gas use for heating homes and buildings; reducing chemical and refrigerants with high GWP; providing communities with sustainable options for walking, biking, and public transit; displacement of fossil-fuel fired electrical generation through use of renewable energy alternatives (e.g., solar arrays and wind turbines); and scaling up new options such as green hydrogen.

The key elements of the 2022 CARB Scoping Plan focus on transportation. Specifically, the 2022 Scoping Plan aims to rapidly move towards zero-emission transportation (i.e., electrifying cars, buses, trains, and trucks), which constitutes California's single largest source of GHGs. The regulations that impact the transportation sector are adopted and enforced by CARB on vehicle manufacturers and are outside the jurisdiction and control of local governments. The 2022 Scoping Plan accelerates development of new regulations as well as amendments to strengthen regulations and programs already in place.

Included in the 2022 Scoping Plan is a set of Local Actions (2022 Scoping Plan Appendix D) aimed at providing local jurisdictions with recommendations to reduce GHGs and assist the state in meeting the ambitious targets set forth in the 2022 Scoping Plan. Appendix D to the 2022 Scoping Plan is not regulatory, is not exhaustive, and does not include everything local governments can implement to support the State's climate goals. It focuses primarily on climate action plans (CAPs) and local authority over new residential development. It includes a section on evaluating plan-level and project-level alignment with the State's Climate Goals in CEQA GHG analyses. In this section, CARB identifies several recommendations and strategies that should be considered for new development in order to determine consistency with the 2022 Scoping Plan. CARB specifically states that Section 3 of Appendix D, which discusses land use plans and development projects, does not address land uses other than residential and

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6 California Air Resources Board, *Current California GHG Emissions Inventory Data, 2000-2020 GHG inventory (2022 Edition)*, https://ww2.arb.ca.gov/ghg-inventory-data, accessed December 2023.

mixed-use residential such as industrial. However, CARB plans to explore new approaches for other land use types in the future.

Senate Bill 32 (California Global Warming Solutions Act of 2006: Emissions Limit). Signed into law in September 2016, SB 32 codifies the 2030 GHG reduction target in Executive Order B-30-15 (40 percent below 1990 levels by 2030). The bill authorizes CARB to adopt an interim GHG emissions level target to be achieved by 2030. CARB also must adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG reductions.

With SB 32, the Legislature passed companion legislation, AB 197, which provides additional direction for developing the Scoping Plan. On December 14, 2017, CARB adopted a second update to the Scoping Plan (CARB, 2017b). The 2017 Scoping Plan details how the State will reduce GHG emissions to meet the 2030 target set by Executive Order B-30-15 and codified by SB 32. Other objectives listed in the 2017 Scoping Plan are to provide direct GHG emissions reductions; support climate investment in disadvantaged communities; and support the Clean Power Plan and other Federal actions. In 2022, CARB published the 2022 Scoping Plan, which is discussed above.

SB 375 (The Sustainable Communities and Climate Protection Act of 2008). Signed into law on September 30, 2008, SB 375 provides a process to coordinate land use planning, regional transportation plans (RTP), and funding priorities to help California meet AB 32's GHG reduction goals. SB 375 requires metropolitan planning organizations to include sustainable community strategies in their RTPs reducing GHG emissions, aligns planning for transportation and housing, and creates specified incentives for the implementation of the strategies. The Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) serve as the metropolitan planning organization for the nine counties in the Bay Area region. The applicable sustainable community strategy in the Bay Area is Plan Bay Area 2050, which sets out a path toward achieving a 20 percent per capita reduction in GHG emissions from passenger cars and light-duty trucks by 2035.

AB 1493 (Pavley Regulations and Fuel Efficiency Standards). AB 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the by the U.S. District Court for the District of Columbia in 2011. The regulations establish one set of emission standards passenger vehicle and light duty truck model years 2009–2016 and a second set of emissions standards for model years 2017 to 2025. By 2025, when all rules will be fully implemented, new automobiles will emit 34 percent fewer CO_2e emissions and 75 percent fewer smog-forming emissions.

SB 1368 (Emission Performance Standards). SB 1368 is the companion bill of AB 32, which directs the California Public Utilities Commission (CPUC) to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 limits carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. The new law effectively prevents California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the state. The CPUC adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, for 1,100 pounds of CO_2 per megawatt-hour.

SB 1078, SB 107, and SBX1-2 (Renewable Electricity Standards). SB 1078 (2002) required California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 (2006) changed the due date to 2010 instead of 2017. On November 17, 2008, Executive Order S-14-08 established a Renewable Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Executive Order S-21-09 also directed CARB to adopt a regulation by July 31, 2010, requiring the state's load serving entities to meet a 33 percent renewable energy target by 2020. CARB approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23. SB X1-2 codified the 33 percent by 2020 goal.

SB 350 (Clean Energy and Pollution Reduction Act of 2015). Signed into law on October 7, 2015, SB 350 implements Executive Order B-30-15's goals. The SB 350 objectives are to increase the procurement of electricity from renewable sources from 33 percent to 50 percent (with interim targets of 40 percent by 2024, and 45 percent by 2027) and to double the energy efficiency savings in electricity and natural gas end uses of retail customers through energy efficiency and conservation. SB 350 also reorganizes the Independent System Operator to develop more regional electricity transmission markets and improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States.

AB 398 (Market-Based Compliance Mechanisms). The Cap-and-Trade program covers approximately 80 percent of California's GHG emissions. The statewide cap for GHG emissions from the capped sectors (i.e., electricity generation, industrial sources, petroleum refining, and cement production) commenced in 2013 and would decline approximately three percent each year, achieving GHG emission reductions throughout the program's duration. Signed on July 25, 2017, AB 398 extended the duration of the Cap-and-Trade program from 2020 to 2030. AB 398 required CARB to update the Scoping Plan and for all GHG rules and regulations adopted by the State. It also designated CARB as the statewide regulatory body responsible for ensuring that California meets its statewide carbon pollution reduction targets, while retaining local air districts' responsibility and authority to curb toxic air TACs and criteria pollutants from local sources that severely impact public health. AB 398 also decreased free carbon allowances over 40 percent by 2030 and prioritized Cap-and-Trade spending to various programs including reducing diesel emissions in impacted communities.

SB 150 (Regional Transportation Plans). Signed on October 10, 2017, SB 150 aligns local and regional GHG reduction targets with State targets (i.e., 40 percent below their 1990 levels by 2030). SB 150 creates a process to include communities in discussions on how to monitor their regions' progress on meeting these goals. The bill also requires the CARB to regularly report on that progress, as well as on the successes and the challenges regions experience associated with achieving their targets. SB 150 provides for accounting of climate change efforts and GHG reductions and identify effective reduction strategies.

SB 100 (California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases). Signed into law in September 2018, SB 100 increased California's renewable electricity portfolio from 50 to 60 percent by 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045.

AB 1346 (Air Pollution: Small Off-Road Engines). Signed into Law in October 2021, AB 1346 requires CARB, to adopt cost-effective and technologically feasible regulations to prohibit engine exhaust and evaporative emissions from new small off-road engines, consistent with federal law, by July 1, 2022. The bill requires CARB to identify and, to the extent feasible, make available funding for commercial rebates or similar incentive funding as part of any updates to existing applicable funding program guidelines to local air pollution control districts and air quality management districts to implement to support the transition to zero-emission small off-road equipment operations.

AB 1279 (The California Climate Crisis Act). AB 1279 establishes the policy of the State to achieve carbon neutrality as soon as possible, but no later than 2045; to maintain net negative GHG emissions thereafter; and to ensure that by 2045 statewide anthropogenic GHG emissions are reduced at least 85 percent below 1990 levels. The bill requires CARB to ensure that Scoping Plan updates identify and recommend measures to achieve carbon neutrality, and to identify and implement policies and strategies that enable CO^2 removal solutions and carbon capture, utilization, and storage technologies.

SB 1020 (100 Percent Clean Electric Grid). Signed on September 16, 2022, SB 1020 provides additional goals for the path to the 2045 goal of 100 percent clean electricity retail sales. It creates a target of 90 percent clean electricity retail sales by 2035 and 95 percent clean electricity retail sales by 2040.

SB 905 (Carbon Sequestration Program). Signed on September 16, 2022, SB 905 establishes regulatory framework and policies that involve carbon removal, carbon capture, utilization, and sequestration. It also prohibits the injecting of concentrated carbon dioxide fluid into a Class II injection well for the purpose of enhanced oil recovery.

AB 1757 (Nature-Based Solutions). Signed on September 16, 2022, AB 1757 requires State agencies to develop a range of targets for natural carbon sequestration and nature-based climate solutions that reduce GHG emissions to meet the 2030, 2038, and 2045 goals which would be integrated into a scoping plan addressing natural and working lands.

Executive Orders Related to GHG Emissions

California's Executive Branch has taken several actions to reduce GHGs using executive orders. Although not regulatory, they set the state's tone and guide the actions of state agencies.

Executive Order S-3-05. Executive Order S-3-05 was issued on June 1, 2005, which established the following GHG emissions reduction targets:

- By 2010, reduce greenhouse gas emissions to 2000 levels.
- By 2020, reduce greenhouse gas emissions to 1990 levels.
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order S-01-07. Issued on January 18, 2007, Executive Order S-01-07 mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. The executive order established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, CARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. CARB adopted the LCFS on April 23, 2009

Executive Order S-13-08. Issued on November 14, 2008, Executive Order S-13-08 facilitated the California Natural Resources Agency development of the 2009 California Climate Adaptation Strategy. Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order S-14-08. Issued on November 17, 2008, Executive Order S-14-08 expands the state's Renewable Energy Standard to 33 percent renewable power by 2020. Additionally, Executive Order S-21-09 (signed on September 15, 2009) directs CARB to adopt regulations requiring 33 percent of electricity sold in the state come from renewable energy by 2020. CARB adopted the Renewable Electricity Standard on September 23, 2010, which requires 33 percent renewable energy by 2020 for most publicly owned electricity retailers.

Executive Order S-21-09. Issued on July 17, 2009, Executive Order S-21-09 directs CARB to adopt regulations to increase California's Renewable Portfolio Standard (RPS) to 33 percent by 2020. This builds upon SB 1078 (2002), which established the California RPS program, requiring 20 percent renewable energy by 2017, and SB 107 (2006), which advanced the 20 percent deadline to 2010, a goal which was expanded to 33 percent by 2020 in the 2005 Energy Action Plan II.

Executive Order B-30-15. Issued on April 29, 2015, Executive Order B-30-15 established a California GHG reduction target of 40 percent below 1990 levels by 2030 and directs CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of CO_2e ($MMTCO_2e$). The 2030 target acts as an interim goal on the way to achieving reductions of 80 percent below 1990 levels by 2050, a goal set by Executive Order S-3-05. The executive order also requires the state's climate adaptation plan to be updated every three years and for the state to continue its climate change research program, among other provisions. With the enactment of SB 32 in 2016, the Legislature codified the goal of reducing GHG emissions by 2030 to 40 percent below 1990 levels.

Executive Order B-55-18. Issued on September 10, 2018, Executive Order B-55-18 establishes a goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. This goal is in addition to the existing statewide targets of reducing GHG emissions. The executive order requires CARB to work with relevant state agencies to develop a framework for implementing this goal. It also requires CARB to update the Scoping Plan to identify and recommend measures to achieve carbon neutrality. The executive order also requires state agencies to develop sequestration targets in the Natural and Working Lands Climate Change Implementation Plan.

Executive Order N-79-20. Issued on September 23, 2020, Executive Order N-79-20 established a goal to end the sales of new internal combustion engine vehicles in the state as soon as possible, and no later than 2035, and continue to phaseout fossil-fueled cars and trucks. By setting a course to end sales of internal combustion passenger vehicles by 2035, the Governor's Executive Order establishes a target for the transportation sector that helps put the state on a path to carbon neutrality by 2045. It is important to note that the Executive Order focuses on new vehicle sales for automakers, and therefore does not require Californians to give up the existing cars and trucks they already own.

3.3 REGIONAL

Bay Area Air Quality Management District Thresholds

The Bay Area Air Quality Management District (BAAQMD) is the primary agency responsible for addressing air quality concerns in the San Francisco Bay Area, including the City of Vallejo. BAAQMD also recommends methods for analyzing project-related GHGs in CEQA analyses as well as multiple GHG reduction measures for land use development projects. BAAQMD released its *Justification Report CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans* (BAAQMD Justification Report) in April 2022. BAAQMD Justification Report presents updates to the CEQA GHG thresholds from the 2017 CEQA Guidelines, which were not consistent with the statewide GHG target established by SB 32. The GHG thresholds of significance were updated to consider newer state reduction targets (e.g., SB 32) and plans for eventual carbon neutrality by 2045 (e.g., Executive Order B-55-18 and SB 1279), as well as evolving case law. The BAAQMD Justification Report (and thus the GHG thresholds) was adopted by the Board of Directors on April 20, 2022. In summary, the updated thresholds emphasize:

- Avoiding wasting electricity and developing fossil fuel infrastructure (i.e., natural gas plumbing or appliances) in new buildings that will be in place for decades and thus conflict with carbon neutrality by 2045.
- Compliance with California Green Building Standards Code (CALGreen) Tier 2 EV requirements and per capita VMT reductions consistent with SB 743.
- Consistency with a qualified GHG reduction strategy (also known as a Climate Action Plan).

Clean Air Plan

Air quality plans developed to meet federal requirements are referred to as State Implementation Plans. The federal and state Clean Air Acts require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM_{10} standard). The *2017 Clean Air Plan: Spare the Air, Cool the Climate* (2017 Clean Air Plan) was adopted on April 19, 2019, by BAAQMD.

The 2017 Clean Air Plan provides a regional strategy to protect public health and protect the climate. To protect public health, the plan describes how BAAQMD will continue progress toward attaining all state and federal air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities. To protect the climate, the 2017 Clean Air Plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious greenhouse gas (GHG) reduction targets for 2030 and 2050 and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets.

The 2017 Clean Air Plan includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as particulate matter, ozone, and toxic air contaminants; to reduce emissions of methane and other “super-GHGs” that are potent climate pollutants in the near-term; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

3.4 LOCAL

City of Vallejo Municipal Code

The City's Municipal Code includes the following regulations that would reduce GHG emissions from future development:

- Green Building Code Adoption (Chapter 12.50.010)
- Water Efficient Landscape Requirements (Chapter 16.504.09)
- Construction and Demolition Debris Recycling Ordinance (Chapter 7.53)

City of Vallejo General Plan

The City of Vallejo General Plan includes resource conservation measures that promote water conservation, energy efficiency, and solid waste reduction. The General Plan includes the following GHG reduction policies, which are applicable to the Project.

Policy EET – 4.2: Responsible Development. Favor residential commercial, and industrial development that can mitigate or avoid environmental impacts.

Action EET - 4.2C: Access how the City's procurement policies and employee commute modes and patterns could contribute to greenhouse gas reductions and offer programs to mitigate potential impacts.

Policy MTC – 1.1: Regional Transit Connections. Enhance regional transit services for residents, employees, and visitors.

Action MTC - 1.1A: Work with regional transportation agencies to coordinate regional transit planning activities, including increased frequency of bus, ferry, and rail service, timed connections, and tourism support.

Policy MTC – 1.2: Transit Ridership. Increase regional transit and ferry ridership to and from Vallejo, particularly by commuters and visitors.

Action MTC - 1.2A: Participate in and contribute to regional programs to improve commute alternatives and efficiency.

City of Vallejo Climate Action Plan

The City of Vallejo's Climate Action Plan (CAP) was first published in August 2012. The CAP identifies policies that would achieve the state-recommended GHG reduction target of 15 percent below 2008 levels by 2020. The CAP provides goals and associated measures, also referred to as reduction measures, in the sectors of energy use, transportation, land use, water, solid waste, and off-road equipment. The CAP includes the following GHG reduction policies, which are applicable to the Project.

Transportation Demand Management (TDM): Reduce and consolidate the number of single-occupancy vehicle trips to and from Vallejo by providing attractive alternatives and by requiring co-beneficial land use decisions.

TDM-7: **Commute Behavior**. Reduce emissions from commute travel to and from schools and workplaces.

<u>Off-road Equipment (OR)</u>: Reduce GHG emissions from off-road equipment in Vallejo.

Or-7: **Construction Equipment**. Reduce emissions from heavy-duty construction equipment by limiting idling and utilizing cleaner, fuels, equipment, and vehicles.

4 SIGNIFICANCE CRITERIA AND METHODOLOGY

4.1 THRESHOLDS AND SIGNIFICANT CRITERIA

Based upon the criteria derived from State CEQA Guidelines Appendix G, a project normally would have a significant effect on the environment if it would:

GHG-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

GHG-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

BAAQMD's approach to developing a threshold of significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move towards climate stabilization. If a project would generate GHG emissions above the threshold level, it would be considered to contribute considerably to a significant cumulative impact. Stationary-source projects include land uses that would accommodate processes and equipment that emit GHG emissions and would require an Air District permit to operate. If annual emissions of operational-related GHGs exceed these levels, the project would result in a cumulatively considerable contribution to a cumulatively significant impact to global climate change. In April 2022, new CEQA thresholds for evaluating climate impacts from land use projects and plans were approved. The BAAQMD Thresholds for Land Use Projects (Must Include A or B):

A. Projects must include, at a minimum, the following project design elements:
   1. <u>Buildings</u>
      a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).
      b. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.
   2. <u>Transportation</u>
      a. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:
         i. Residential projects: 15 percent below the existing VMT per capita
         ii. Office projects: 15 percent below the existing VMT per employee
         iii. Retail projects: no net increase in existing VMT
      b. Achieve compliance with electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.

B. Be consistent with a local GHG Reduction Strategy that meets the criteria under the CEQA Guidelines section 15183.5(b)

A qualified GHG Reduction Strategy adopted by a local jurisdiction should include the following elements as described in the State CEQA Guidelines Section 15183.5(b)(1):

i. Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area;

ii. Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;

iii. Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;

iv. Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;

v. Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels; and

vi. Be adopted in a public process following environmental review

It should be noted that BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, BAAQMD recommends quantification and disclosure of construction GHG emissions. BAAQMD also recommends that the Lead Agency should make a determination on the significance of these construction generated GHG emission impacts in relation to meeting AB 32 GHG reduction goals, as required by the Public Resources Code, Section 21082.2. The Lead Agency is encouraged to incorporate best management practices to reduce GHG emissions during construction, as feasible and applicable.

For CEQA analyses, project-related GHG impacts can be categorized as either direct or indirect. Direct emissions refer to those emitted by stationary sources at the Project site or caused by Project activity on-site, and these emissions are normally within control of the Project sponsor or applicant. Indirect emissions include those emissions that are not within the direct control of the Project sponsor or applicant, but may occur as a result of the Project, such as the motor vehicle emissions induced by the Project. Indirect emissions include emissions from any off-site facilities used for Project support as a result of the construction or operation of a Project, and these emissions are likely to occur outside the control of the Project far off-site or even outside of California.

The City of Vallejo has established consistency with their Vallejo CAP. However, the CAP was prepared prior to the adoption of the 2030 GHG targets established by SB 32. Thus, the City's CAP would not be applicable for CEQA streamlining and the Project was evaluated using the BAAQMD project design elements. The City of Vallejo does not have construction-related GHG emission thresholds.

4.2 METHODOLOGY

Global climate change is, by definition, a cumulative impact of GHG emissions. Therefore, there is no project-level analysis. The baseline against which to compare potential impacts of the Project includes the natural and anthropogenic drivers of global climate change, including world-wide GHG emissions from human activities which almost doubled between 1970 and 2010 from approximately 27 gigatonnes (Gt) of CO_2/year to nearly 49 GtCO_2/year.[7] As such, the geographic extent of climate change and GHG emissions' cumulative impact discussion is worldwide.

The Project's construction emissions were calculated using the California Emissions Estimator Model version 2022 (CalEEMod). Details of the modeling assumptions and emission factors are provided in Appendix A: Greenhouse Gas Emissions Data. For construction, CalEEMod calculates emissions from off-road equipment usage and on-road vehicle travel associated with haul, delivery, and construction worker trips. The Project's construction-related GHG emissions were forecasted based on the proposed construction schedule and applying the mobile-source emissions factors derived from CalEEMod. The Project's construction-related GHG emissions would be generated from off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles.

As mentioned previously, the Project would construct an extended ferry terminal with a new reconfigured gangway, passenger float, and piles. The Project does not propose any new sources of GHG emissions and would provide improved terminal operations and reduced dredging impacts. Thus, operational GHG emissions would not change from existing conditions and the Project would have no impact on existing operational GHG emissions.

[7] Intergovernmental Panel on Climate Change, *Climate Change 2014 Mitigation of Climate Change Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2014.

5 POTENTIAL IMPACTS AND MITIGATION

5.1 GREENHOUSE GAS EMISSIONS

Impact GHG-1 Would the Project generate greenhouse gas emissions, either directly or indirectly, that could have a significant impact on the environment?

Construction Greenhouse Gas Emissions

Project construction would result in minor increases in GHG emissions from construction equipment operating on-site and emissions from construction workers' personal vehicle travelling to and from the Project construction site. Construction-related GHG emissions vary depending on the level of activity, length of the construction period, specific construction operations, types of equipment, and number of construction workers. Neither the City of Vallejo nor BAAQMD have an adopted threshold of significance for construction-related GHG emissions; however, BAAQMD recommends quantifying emissions and disclosing that GHG emissions would occur during construction. Based on CalEEMod outputs prepared for the proposed Project (refer to Appendix A), Project construction would generate 308 $MTCO_2e$ for the total construction period (5 months). Because Project construction would be a temporary condition (a total of 5 months) and would not result in a permanent increase in emissions that would interfere with the implementation of the State's GHG reduction goals (established by AB 32, SB 32, AB 1279, etc.), the temporary increase in emissions would be less than significant.

Operational Greenhouse Gas Emissions

As mentioned previously, the Project would construct an extended ferry terminal with a new reconfigured gangway, passenger float, and piles. The Project does not propose any new sources of GHG emissions and would provide improved terminal operations and reduced dredging impacts. The Project would not generate any additional traffic and population growth. Therefore, the operation of the Project would not generate any new GHG emissions and impacts would be less than significant.

Mitigation Measures: None required.

Level of Significance: Less than significant impact.

5.2 GREENHOUSE GAS REDUCTION PLAN COMPLIANCE

Impact GHG-2: Would the Project conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing greenhouse gas emissions?

BAAQMD Project Design Elements

As mentioned previously, the Vallejo CAP would not be applicable as it does not analyze the 2030 GHG targets established by SB 32. Thus, the Project is evaluated against the BAAQMD Project Design Elements listed above in Section 4.1.

According to the BAAQMD a cumulatively considerable impact would occur if a project includes any natural gas appliances or plumbing, or a project results in any wasteful, inefficient, or unnecessary energy usage. The Project would replace the existing ferry terminal with an extended ferry terminal that consists of a new reconfigured gangway, passenger float, and piles. The Project would not include any natural gas appliances or plumbing. Further, as mentioned in Section 4.6 of the Project's Initial Study, the Project would not permanently increase energy usage requirements in the County and would not be wasteful, inefficient, or unnecessary with its energy demands. Thus, the Project would be consistent with both project design elements.

The BAAQMD also requires projects to achieve a VMT reduction and comply with electric vehicle requirements listed in the most recent version of CalGreen Tier 2 to show a less than cumulatively significant impact. The Project would replace an existing ferry terminal and would not result in additional trips to the Project vicinity or increase VMT. Further, the Project would not be subject to parking requirements as it is replacing an existing ferry terminal. Thus, the BAAQMD Project Design Elements would not be applicable to the Project.

As demonstrated above, the Project would be consistent with the applicable BAAQMD Project Design Elements and would, therefore, be consistent with the BAAQMD GHG thresholds. Thus, the Project would have a less than cumulatively considerable impact to global climate change.

City of Vallejo CAP

The Project would be consistent with all applicable measures in the Vallejo CAP. The Project would improve the efficiency of an alternative form of transportation which would promote the usage of an alternative form of commute. Further, as mentioned in the *Vallejo Ferry Terminal Reconfiguration Project Air Quality Assessment*, the Project would also implement the BAAQMD's basic control measures and would adhere to the BAAQMD idling requirements for heavy-duty construction equipment. The Project would not impede any of the other measures outlined in the Vallejo CAP. Thus, the Project would not conflict with CAP and impacts would be less than significant.

2022 CARB Scoping Plan

As previously noted, the 2022 Scoping Plan sets a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels by 2045 in accordance with AB 1279. The transportation, electricity, and industrial sectors are the largest GHG contributors in the State. The 2022 Scoping Plan plans to achieve the AB 1279 targets primarily through zero-emission transportation (e.g., electrifying cars, buses, trains, and trucks). Additional GHG reductions are achieved through decarbonizing the electricity and industrial sectors.

The Project would implement the Best Management Practices (BMPs) included in the *Air Quality Assessment* during construction. For example, a few of the construction measures include enforcing idling time restrictions on construction vehicles, use of added exhaust muffling and filtering devices, replant vegetation in disturbed areas as quickly as possible, and posting a publicly visible sign with the telephone number and person at the lead agency to contact regarding dust complaints.

The Project would not produce any new operational GHG emissions and would improve ferry terminal operations. Thus, the Project would not impede the State's progress towards carbon neutrality by 2045 under the 2022 Scoping Plan. The Project would be required to comply with applicable current and future regulatory requirements promulgated through the 2022 Scoping Plan.

Plan Bay Area

The Project would be consistent with the overall goals of Plan Bay Area 2050 to provide housing, healthy and safe communities, and climate protection with an overall goal to reduce VMT. As noted above, the Project would develop the Project site consistent with the General Plan Land Use Designation and the Vallejo Climate Action Plan. The Project would add some not add any additional employment, trips related to employees that work directly at the Project site. The Project would provide improved operations of an alternative form of transportation. Thus, implementation of the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and this impact would be less than significant.

Summary

As discussed above, implementation of the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The Project would improve the efficiency of a ferry terminal and would not result in operational GHG emissions. Further, the Project would adhere to the applicable BAAQMD Project Design Element requirements and would not impede the implementation of any plans listed above. Thus, this impact would be less than significant.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

5.3 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

Cumulative Setting

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately one day), GHGs have much longer atmospheric lifetimes of one year to several thousand years that allow them to be dispersed around the globe.

Cumulative Impacts and Mitigation Measures

It is generally the case that an individual project of the Project's size and nature is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. The additive effect of Project-related GHG emissions would not result in a reasonably foreseeable cumulatively considerable contribution to global climate change. In addition, the Project as well as other cumulative related projects, would be subject to all applicable regulatory requirements, which would further reduce GHG emissions. As discussed in the GHG-2 discussion above, the Project would be consistent with the Vallejo CAP and the State's goals of reducing GHG levels. Thus, the Project would not conflict with any GHG reduction plan. Therefore, the Project's cumulative contribution of GHG emissions would be less than significant and the Project's cumulative GHG impacts would also be less than cumulatively considerable.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

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Appendix A

Greenhouse Gas Emissions Data

WETA Vallejo Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	WETA Vallejo
Construction Start Date	8/4/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	34.8
Location	38.100147099068124, -122.26264310763507
County	Solano-San Francisco
City	Vallejo
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	823
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	9.10	1000sqft	0.21	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.92	1.61	14.2	15.5	0.03	0.54	0.28	0.82	0.50	0.06	0.56	—	3,608	3,608	0.14	0.05	1.02	3,627
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.91	1.60	14.3	15.4	0.03	0.54	0.28	0.82	0.50	0.06	0.56	—	3,593	3,593	0.14	0.05	0.03	3,611
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.44	0.37	3.43	3.79	0.01	0.13	0.04	0.18	0.12	0.01	0.13	—	878	878	0.04	0.01	0.06	882
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.08	0.07	0.63	0.69	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	145	145	0.01	< 0.005	0.01	146

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2025	1.92	1.61	14.2	15.5	0.03	0.54	0.28	0.82	0.50	0.06	0.56	—	3,608	3,608	0.14	0.05	1.02	3,627
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.91	1.60	14.3	15.4	0.03	0.54	0.28	0.82	0.50	0.06	0.56	—	3,593	3,593	0.14	0.05	0.03	3,611
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.44	0.37	3.43	3.79	0.01	0.13	0.04	0.18	0.12	0.01	0.13	—	878	878	0.04	0.01	0.06	882
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.08	0.07	0.63	0.69	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	145	145	0.01	< 0.005	0.01	146

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.81	1.52	14.1	14.6	0.03	0.54	—	0.54	0.49	—	0.49	—	3,320	3,320	0.13	0.03	—	3,332
Demolition	—	—	—	—	—	—	0.07	0.07	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.81	1.52	14.1	14.6	0.03	0.54	—	0.54	0.49	—	0.49	—	3,320	3,320	0.13	0.03	—	3,332

Demolitio	—	—	—	—	—	—	0.07	0.07	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.22	2.08	2.16	< 0.005	0.08	—	0.08	0.07	—	0.07	—	491	491	0.02	< 0.005	—	493
Demolitio n	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.38	0.39	< 0.005	0.01	—	0.01	0.01	—	0.01	—	81.3	81.3	< 0.005	< 0.005	—	81.6
Demolitio n	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.06	0.91	0.00	0.00	0.19	0.19	0.00	0.04	0.04	—	201	201	< 0.005	0.01	0.83	205
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.11	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	86.1	86.1	< 0.005	0.01	0.19	90.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	0.81	0.00	0.00	0.19	0.19	0.00	0.04	0.04	—	186	186	0.01	0.01	0.02	189
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.11	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	86.1	86.1	< 0.005	0.01	< 0.005	90.3

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.9	27.9	< 0.005	< 0.005	0.05	28.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.7	12.7	< 0.005	< 0.005	0.01	13.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.62	4.62	< 0.005	< 0.005	0.01	4.68
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.11	2.11	< 0.005	< 0.005	< 0.005	2.21

3.3. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.90	8.80	10.1	0.02	0.37	—	0.37	0.34	—	0.34	—	2,295	2,295	0.09	0.02	—	2,303
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.33	1.52	< 0.005	0.06	—	0.06	0.05	—	0.05	—	346	346	0.01	< 0.005	—	347
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.02	0.24	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	—	57.3	57.3	< 0.005	< 0.005	—	57.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetatio	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	8/1/2025	10/15/2025	5.00	54.0	—
Building Construction	Building Construction	10/16/2025	12/31/2025	5.00	55.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	6.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	1.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Cranes	Diesel	Average	3.00	6.00	367	0.29
Demolition	Excavators	Diesel	Average	1.00	6.00	36.0	0.38
Demolition	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Building Construction	Cranes	Diesel	Average	3.00	4.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	22.5	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	1.22	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.00	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	263	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	0.21	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	13.9	annual days of extreme heat
Extreme Precipitation	5.10	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	10.1	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	1	1	3
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	13.6
AQ-PM	39.2
AQ-DPM	75.4
Drinking Water	24.0
Lead Risk Housing	78.3
Pesticides	32.3
Toxic Releases	63.4
Traffic	10.0
Effect Indicators	—
CleanUp Sites	64.4
Groundwater	93.0
Haz Waste Facilities/Generators	81.0
Impaired Water Bodies	51.2
Solid Waste	43.9
Sensitive Population	—
Asthma	99.8
Cardio-vascular	91.6

Low Birth Weights	99.2
Socioeconomic Factor Indicators	—
Education	72.5
Housing	95.2
Linguistic	49.1
Poverty	97.4
Unemployment	99.1

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	1.090722443
Employed	2.284101116
Median HI	0.128320287
Education	—
Bachelor's or higher	26.30565892
High school enrollment	100
Preschool enrollment	16.65597331
Transportation	—
Auto Access	0.397792891
Active commuting	89.25959194
Social	—
2-parent households	0.641601437
Voting	31.59245477
Neighborhood	—
Alcohol availability	23.58526883

Park access	81.35506224
Retail density	74.04080585
Supermarket access	16.64314128
Tree canopy	51.99538047
Housing	—
Homeownership	3.849608623
Housing habitability	6.377518286
Low-inc homeowner severe housing cost burden	3.336327473
Low-inc renter severe housing cost burden	17.56704735
Uncrowded housing	51.79006801
Health Outcomes	—
Insured adults	49.23649429
Arthritis	1.4
Asthma ER Admissions	0.2
High Blood Pressure	1.5
Cancer (excluding skin)	22.7
Asthma	3.8
Coronary Heart Disease	1.7
Chronic Obstructive Pulmonary Disease	1.1
Diagnosed Diabetes	0.9
Life Expectancy at Birth	30.6
Cognitively Disabled	3.1
Physically Disabled	47.8
Heart Attack ER Admissions	2.0
Mental Health Not Good	14.3
Chronic Kidney Disease	2.1
Obesity	8.0

Pedestrian Injuries	88.6
Physical Health Not Good	5.8
Stroke	0.9
Health Risk Behaviors	—
Binge Drinking	98.2
Current Smoker	11.7
No Leisure Time for Physical Activity	6.8
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	44.7
Children	4.0
Elderly	20.2
English Speaking	38.4
Foreign-born	38.0
Outdoor Workers	8.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	9.4
Traffic Density	6.4
Traffic Access	87.4
Other Indices	—
Hardship	95.4
Other Decision Support	—
2016 Voting	11.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	94.0

Healthy Places Index Score for Project Location (b)	0.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Per Construction Questionnaire
Construction: Off-Road Equipment	Additional Equipment added for waterside demolition and construction

Model Output: OFFROAD2021 (v1.0.5) Emissions Inventory
Region Type: Sub-Area
Region: Contra Costa (SF)
Calendar Year: 2025
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Ye	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd	NH3_tpd	Fuel Consumptio	Total_Activ	Total_Population	Horsepower_Hours_hhpy
Contra Costa (SF)	2025	Commercial Harbor Craf	Aggregate	Aggregate	Diesel	0.005242344	0.006343236	0.007548975	0.023017957	0.095441893	13.39199	0.00232926	0.002227	0	0	450713.6823	27884.07	26.49999999	8700617.859

g/hph

	HC	ROG	TOG	CO	Nox	CO2	PM10	PM2_5	Sox	NH3	Fuel_gphr
2025	0.199513059	0.241410792	0.287298791	0.876017105	3.632326308	509.67232	0.088646984	0.0847465	0	0	17153255.39

Project Tugboats	2	
HP	731	
Hours per Day	2	
Days per Year	109	
1 pound =	453.5924	grams

Emissions Source	ROG	NOX	CO	SO2	PM10	PM2.5	CO2	metric tons/yr	PM10 tons/yr
Project Tug Boats	1.56	23.42	5.65	0.00	0.57	0.55	3,286	162	0.031
	0.08	1.28	0.31	0.00	0.03	0.03			

Based on emission rates obtained from CARB OFFROAD Version 1.0.3.
Number of forklifts per SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Business Survey Results, June 2014.

Appendix G

Acoustical Assessment

Acoustical Assessment
Vallejo Ferry Terminal Reconfiguration Project
City of Vallejo, California

Prepared by:

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Los Angeles, CA 90017
Contact: Noemi Wyss

December 2023

TABLE OF CONTENTS

Exhibits

Appendix

LIST OF ABBREVIATED TERMS

APN	Assessor's Parcel Number
ADT	average daily traffic
ASTM	American Society for Testing and Materials
dBA	A-weighted sound level
CEQA	California Environmental Quality Act
CSMA	California Subdivision Map Act
CNEL	community equivalent noise level
L_{dn}	day-night noise level
dB	decibel
du/ac	dwelling units per acre
L_{eq}	equivalent noise level
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HVAC	heating ventilation and air conditioning
Hz	hertz
in/sec	inches per second
LUD	Land Use Designation
L_{max}	maximum noise level
µPa	micropascals
L_{min}	minimum noise level
PPV	peak particle velocity
RMS	root mean square
STC	Sound Transmission Class
sf	square feet
TNM	Traffic Noise Model
VdB	vibration velocity level

1 INTRODUCTION

This report documents the results of an Acoustical Assessment completed for the Vallejo Ferry Terminal Reconfiguration Project ("Project" or "proposed Project"). The purpose of this Acoustical Assessment is to evaluate the Project's potential construction and operational noise and vibration levels associated with the Project and determine the level of impact the Project would have on the environment.

1.1 PROJECT LOCATION

The Project site is located at 289 Mare Island Way in the City of Vallejo (City), Solano County, California. The Project includes the existing Vallejo Ferry Terminal, which consists of a steel float structure, aluminum gangway, and covering. The Project site is accessible by vehicle via Mare Island Way, and by ferry. See Figure 1: Regional Location and Figure 2: Vicinity Map.

Additional uses in this area along the Mare Island Strait include the Vallejo Tourism Information Center and commercial retail uses to the east and northeast, Independence Park to the southeast, Barbara Kondylis Waterfront Green to the northwest, a currently vacant office building to the south, and parking areas surrounding the site. Parking is currently provided to the east within waterfront parking lots on the eastern side of Mare Island Way, across the street from terminal site. The existing parking lots and garage areas adjacent to the proposed Project site accommodate Vallejo Ferry Terminal and Transit Center passengers and employees, guests and employees of the Tourism Information Center building and surrounding restaurants, and public users..

1.2 PROJECT DESCRIPTION

The proposed Project would be located on the eastern shore of the Mare Strait, within the footprint of the existing ferry terminal and basin area. The proposed terminal would remove and replace 5,322 square feet (sf) of existing gangway, passenger float, and piles with a new reconfigured gangway, passenger float, and piles. The new Water Emergency Transportation Authority (WETA) Standard float would be approximately 134.5 feet by 42 feet and would accommodate both sides of the float for passenger loading and unloading. No new structures are proposed. Passenger waiting areas would be located along a portion of the San Francisco Bay Trail in a designated outdoor queuing area adjacent to the proposed gangway entry gate. Figure 3: Project Site Plan -- Preferred Project, Figure 4: Project Site Plan -- Configuration Option 1, and Figure 5: Project Site Plan -- Configuration Option 2 depict the overall site plan of each alternative for the proposed Project.

The Project site is zoned as Waterfront Mixed-Use and is located in an urban area with a mix of uses including recreational, commercial, office, and medium to high density residential uses. The surrounding project site is designated under the Parks, Recreation, and Open Space land use, and is zoned Waterfront Mixed-Use.

Construction is anticipated to begin in Summer 2025 with an anticipated completion date of late Winter 2025. Construction methods would include demolition of the existing piles, gangway, and float, site preparation, ground improvements, utility installation or reconfiguration, Bay fill removal (existing piles), and placement for installation of pilings for the new float and donut fenders, and fixed pier support.

The proposed Project would not result in any changes to the existing operational uses of the Project site. The proposed Project would result in the reconfiguration of the existing ferry terminal. Therefore, the proposed facilities would have the same uses that are currently used for standard WETA ferry operations that transport passengers to San Francisco Bay ferry terminals.

Source: ESRI, 2023

Figure 1: Regional Map

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn

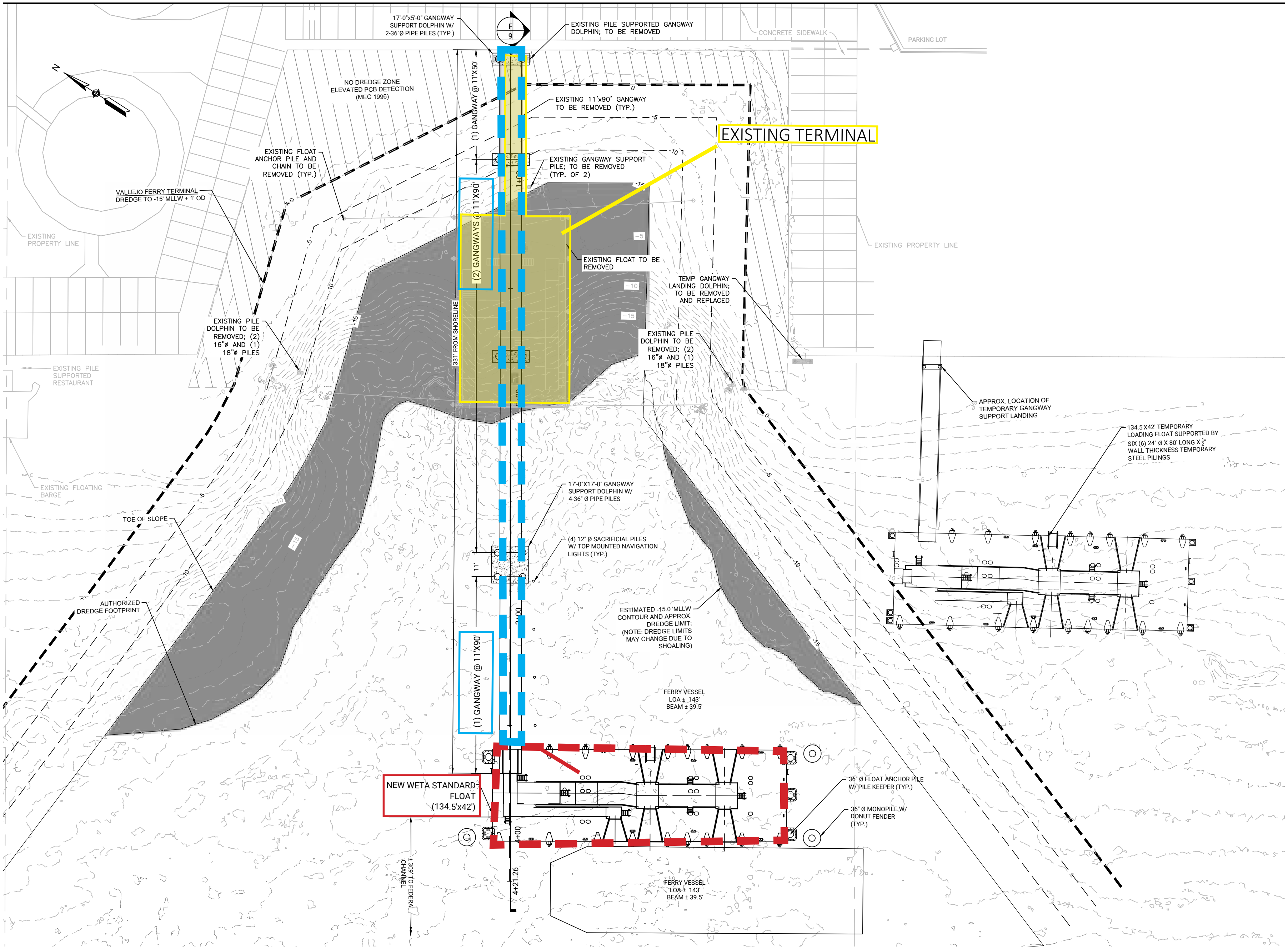
Source: Nearmap, 2023

Figure 2: Vicinity Map

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn



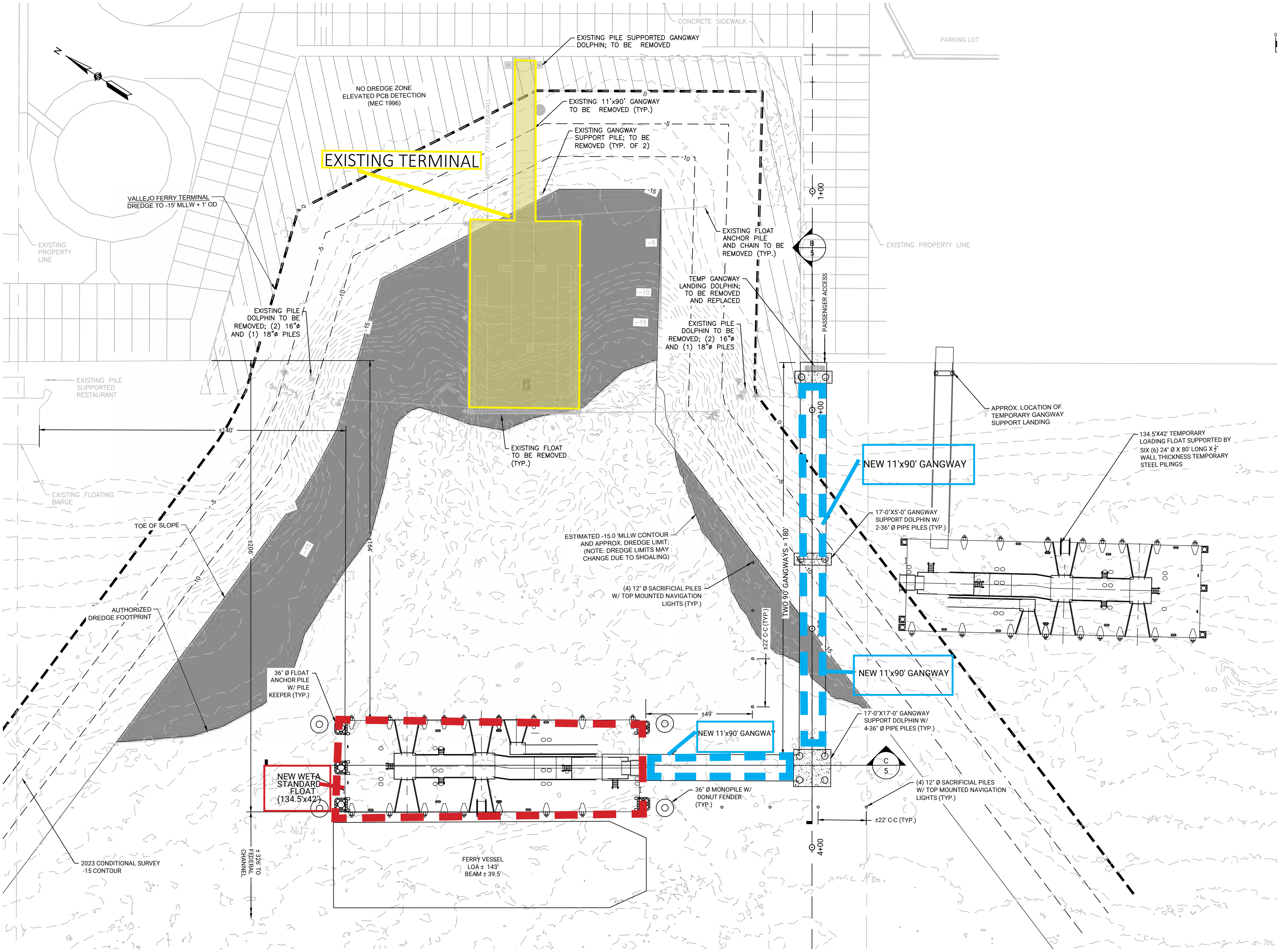
Source: Foth, 2023

Figure 3: Project Site Plan -- Preferred Project

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn



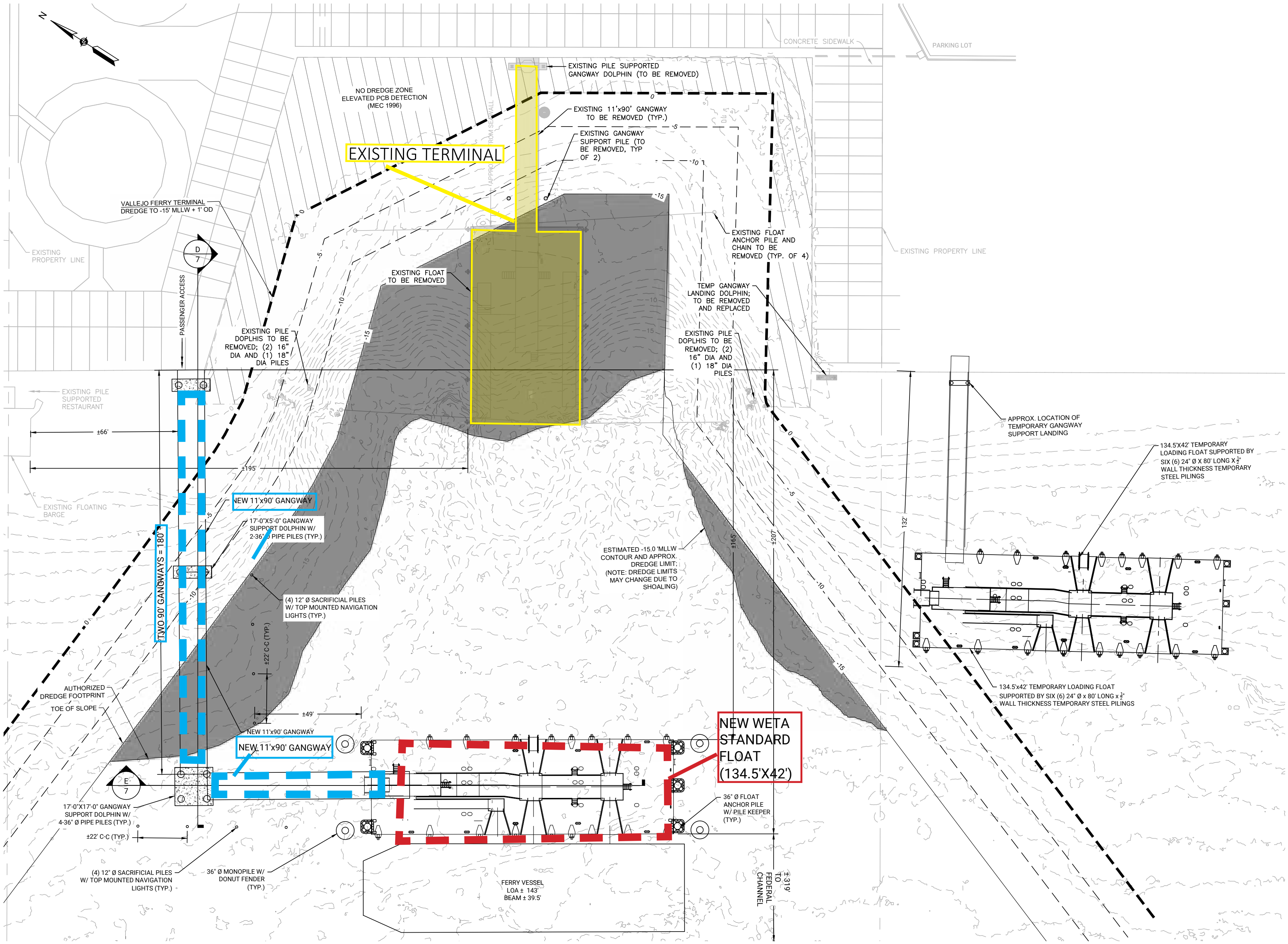
Source: Foth, 2023

Figure 4: Project Site Plan -- Configuration Option 1

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn



Source: Foth, 2023

Figure 5: Project Site Plan -- Configuration Option 2

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

2 ACOUSTIC FUNDAMENTALS

2.1 SOUND AND ENVIRONMENTAL NOISE

Acoustics is the science of sound. Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a medium (e.g. air) to human (or animal) ear. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second, or hertz (Hz).

Noise is defined as loud, unexpected, or annoying sound. The fundamental acoustics model consists of a noise source, receptor, and the propagation path between the two. The loudness of the noise source, obstructions, or atmospheric factors affecting the propagation path, determine the perceived sound level and noise characteristics at the receptor. Acoustics deal primarily with the propagation and control of sound. A typical noise environment consists of ambient noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this ambient noise is the sound from individual local sources. These sources can vary from an occasional aircraft or train passing by to continuous noise from traffic on a major highway. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a large range of numbers. To avoid this, the decibel (dB) scale was devised. The dB scale uses the hearing threshold of 20 micropascals (µPa) as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The dB scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels correspond closely to human perception of relative loudness. Table 1: Typical Noise Levels provides typical noise levels.

Table 1: Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	– 110 –	Rock Band
Jet fly-over at 1,000 feet		
	– 100 –	
Gas lawnmower at 3 feet		
	– 90 –	
Diesel truck at 50 feet at 50 miles per hour		Food blender at 3 feet
	– 80 –	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	– 70 –	Vacuum cleaner at 10 feet
Commercial area		Normal Speech at 3 feet
Heavy traffic at 300 feet	– 60 –	
		Large business office
Quiet urban daytime	– 50 –	Dishwasher in next room
Quiet urban nighttime	– 40 –	Theater, large conference room (background)
Quiet suburban nighttime		
	– 30 –	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	– 20 –	
		Broadcast/recording studio
	– 10 –	
Lowest threshold of human hearing	– 0 –	Lowest threshold of human hearing
Source: California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.		

Noise Descriptors

The dB scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The equivalent noise level (L_{eq}) is the average noise level averaged over the measurement period, while the day-night noise level (L_{dn}) and Community Equivalent Noise Level (CNEL) are measures of energy average during a 24-hour period, with dB weighted sound levels from 7:00 p.m. to 7:00 a.m. Most commonly, environmental sounds are described in terms of L_{eq} that has the same acoustical energy as the summation of all the time-varying events. Each is applicable to this analysis and defined Table 2: Definitions of Acoustical Terms.

Table 2: Definitions of Acoustical Terms

Term	Definitions
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in µPa (or 20 micronewtons per square meter), where 1 pascals is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in dB as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g. 20 µPa). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level (dBA)	The sound pressure level in dB as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level (L_{eq})	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
Maximum Noise Level (L_{max}) Minimum Noise Level (L_{min})	The maximum and minimum dBA during the measurement period.
Exceeded Noise Levels (L_1, L_{10}, L_{50}, L_{90})	The dBA values that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day-Night Noise Level (L_{dn})	A 24-hour average L_{eq} with a 10 dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity at nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
Community Noise Equivalent Level (CNEL)	A 24-hour average Leq with a 5 dBA weighting during the hours of 7:00 a.m. to 10:00 a.m. and a 10 dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.

Term	Definitions
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

The A-weighted decibel (dBA) sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be used. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source.

A-Weighted Decibels

The perceived loudness of sounds is dependent on many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by dBA values. There is a strong correlation between dBA and the way the human ear perceives sound. For this reason, the dBA has become the standard tool of environmental noise assessment. All noise levels reported in this document are in terms of dBA, but are expressed as dB, unless otherwise noted.

Addition of Decibels

The dB scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic dB is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than one source under the same conditions. Under the dB scale, three sources of equal loudness together would produce an increase of 5 dBA.

Sound Propagation and Attenuation

Sound spreads (propagates uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics. No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. For line sources, an overall attenuation rate of 3 dB per doubling of distance is assumed.

Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA. The way older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA, the following relationships should be noted:

- Except in carefully controlled laboratory experiments, a 1-dBA change cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A minimum 5-dBA change is required before any noticeable change in community response would be expected. A 5-dBA increase is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Effects of Noise on People

Hearing Loss. While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise. The Occupational Safety and Health Administration has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over 8 hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Annoyance. Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. A noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance[1].

2.2 GROUNDBORNE VIBRATION

Sources of groundborne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g. factory machinery) or transient (e.g. explosions). Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Table 3: Human Reaction and Damage to Buildings for Continuous or Frequent Vibration, displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Table 3: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration

Maximum PPV (in/sec)	Vibration Annoyance Potential Criteria	Vibration Damage Potential Threshold Criteria	FTA Vibration Damage Criteria
0.008	-	Extremely fragile historic buildings, ruins, ancient monuments	-
0.01	Barely Perceptible	-	-
0.04	Distinctly Perceptible	-	-
0.1	Strongly Perceptible	Fragile buildings	-
0.12	-	-	Buildings extremely susceptible to vibration damage
0.2	-	-	Non-engineered timber and masonry buildings
0.25	-	Historic and some old buildings	-
0.3	-	Older residential structures	Engineered concrete and masonry (no plaster)
0.4	Severe	-	-
0.5	-	New residential structures, Modern industrial/commercial buildings	Reinforced-concrete, steel, or timber (no plaster)
PPV = peak particle velocity; in/sec = inches per second; FTA = Federal Transit Administration			
Source: California Department of Transportation, Transportation and Construction Vibration Guidance Manual, 2020 and Federal Transit Administration; Transit Noise and Vibration Assessment Manual, 2018.			

[1] Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, August 1992.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment. For the purposes of this analysis, a PPV descriptor with units of inches per second (in/sec) is used to evaluate construction-generated vibration for building damage and human complaints.

3 REGULATORY SETTING

To limit population exposure to physically or psychologically damaging as well as intrusive noise levels, the Federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise.

3.1 STATE OF CALIFORNIA

California Government Code

California Government Code Section 65302(f) mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of "normally acceptable", "conditionally acceptable", "normally unacceptable", and "clearly unacceptable" noise levels for various land use types. Single-family homes are "normally acceptable" in exterior noise environments up to 60 CNEL and "conditionally acceptable" up to 70 CNEL. Multiple-family residential uses are "normally acceptable" up to 65 CNEL and "conditionally acceptable" up to 70 CNEL. Schools, libraries, and churches are "normally acceptable" up to 70 CNEL, as are office buildings and business, commercial, and professional uses.

Title 24 – Building Code

The State's noise insulation standards are codified in the California Code of Regulations, Title 24: Part 1, Building Standards Administrative Code, and Part 2, California Building Code. These noise standards are applied to new construction in California for interior noise compatibility from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are located near major transportation noise sources, and where such noise sources create an exterior noise level of 65 dBA CNEL or higher. Acoustical studies that accompany building plans must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new multi-family residential buildings, the acceptable interior noise limit for new construction is 45 dBA CNEL.

3.2 LOCAL

City of Vallejo General Plan

The Vallejo General Plan (General Plan) identifies goals, policies, and implementations in the Noise Element. The Noise Element provides a basis for comprehensive local programs to regulate environmental noise and protect citizens from excessive exposure. Table 4: California Land-Use Compatibility Guidelines for Community Noise Environments highlights five land-use categories and the outdoor noise compatibility guidelines.

Table 4: California Land-Use Compatibility Guidelines for Community Noise Environments

Land-Use Category	Exterior Noise Exposure (DNL), in dBA			
	Normally Acceptable[1]	Conditionally Acceptable[2]	Normally Unacceptable[3]	Clearly Unacceptable[4]
Residential – Low Density Single-Family, Duplex, Mobile Homes	Up to 60	>55 to 70	>70 to 75	<75
Residential – Multiple Family	Up to 65	>60 to 70	>70 to 75	<75
Transient Lodging, Motels, Hotels	Up to 65	>60 to 70	>70 to 80	<80
Schools, Libraries, Churches, Hospitals, Nursing Homes	Up to 70	-	>70 to 80	<80
Auditoriums, Concert Halls, Amphitheaters	-	>50 to 70	-	<65
Sports Arena, Outdoor Spectator Sports	-	>50 to 75	-	<70
Playgrounds, Neighborhood Parks	Up to 70	>68 to 75	-	<73
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Up to 75	>70 to 80	-	<80
Office Buildings, Businesses, Commercial, and Professional	Up to 70	>68 to 78	>75 to 85	-
Industrial, Manufacturing, Utilities, Agricultural	Up to 75	>70 to 80	>75 to 85	-

Source: City of Vallejo, 2017.
1. Normally Acceptable – Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction. There are no special noise insulation requirements.
2. Conditionally Acceptable – New construction should be undertaken only after a detailed analysis of the noise reduction requirement is conducted and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice
3. Normally Unacceptable – New construction or development should generally be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
4. Clearly Unacceptable –New construction or development generally should not be undertaken.

Project relevant General Plan goals and policies related to noise are listed below:

Policy NBE-5.13: Noise Control. Ensure that noise does not affect quality of life in the community.

Action NBE-5.13C: Update City regulations to restrict the allowable hours to between 7 AM and 7 PM on weekdays for construction, demolition, maintenance, and loading/unloading activities that may impact noise-sensitive land uses.

Policy NBE-5.14: Vibration Control. Ensure that vibration does not affect quality of life in the community.

Action NBE-5.14A: Update City regulations to establish quantified vibration level limits similar to commonly used guidelines found in the Federal Transit Administration document “Transit Noise and Vibration Impact Assessment” (2006).

Policy NBE-5.15: Noise Compatibility Standards. Apply the General Plan noise and land use compatibility standards to all new residential, commercial, and mixed-use development and redevelopment.

Action NBE-5.15E: When approving new development, limit project-related noise increases to the following for permanent stationary and transportation-related noise sources:

- No more than 10 dB in non-residential areas;
- No more than 5 dB in residential areas where the with-project noise level is less than the maximum "normally acceptable" level in the Noise and Land Use Compatibility figure; and
- No more than 3 dB where the with-project noise level exceeds the "normally acceptable" level in the Noise and Land Use Compatibility figure.

Action NBE-5.15F: Require acoustical studies with appropriate mitigation measures for projects that are likely to be exposed to noise levels that exceed the "normally acceptable" standard and for any other projects that are likely to generate noise in excess of these standards.

City of Vallejo Municipal Code

The Vallejo Municipal Code, Section 16.502.09 establishes the exterior noise standards applicable to certain uses and facilities. Table 5: Vallejo Maximum Noise Level by Noise Zone shows the maximum exterior noise standard allowed by the City's Municipal Code.

Table 5: Vallejo Maximum Noise Level by Noise Zone

Noise Zone Districts	Maximum Noise Level in dBA (level not to exceeded more than 30 minutes in any hour)		Maximum Noise Level in dBA (level not to be exceeded more than 5 minutes in any hour)
	Measured at Property Line or District Boundary	Measured at Any Boundary of a Residential Zone	Between 10 PM and 7 AM, Measured at any Boundary of a Residential Zone
Single-Unit Residential	60	60	-
Multiple-Unit Residential	65	65	-
Commercial and Mixed-Use, Medical, Office	70	60	50 or Ambient Level
Light Industrial	75	65	50 or Ambient Level
General Industrial	75	65	50 or Ambient Level
Public Facilities and Community Use	65	60	50 or Ambient Level
Open Space and Recreational Districts	65	60	50 or Ambient Level
Source: City of Vallejo Municipal Code, 2023.			

The standard exterior noise limits listed in Table 5, would be adjusted by five decibels for noise that contains a stead pure tone, such as a screech or hum, or impulsive sound, such as hammering or riveting, or contains music or speech, as described below.

- Any type of noise, other than construction and related activities between 7 AM and 10 PM would allow for a plus 5 dBA adjustment;

- Any noise of unusual impulsive character (e.g., hammering or drilling) would have an exterior noise limit reduction of 5 dBA;

- Any noise of unusual periodic character (e.g., screeching or hammering) would have an exterior noise limit reduction of 5 dBA.

According to Vallejo Municipal Code, Section 16.502.09.D, construction hours in a residential or mixed-use zoning district are limited to the hours of 7 AM to 7 PM, when noise levels are exceeding the limits shown in Table 6: Maximum Noise Level for Temporary Construction Activity.

Table 6: Maximum Noise Level for Temporary Construction Activity

Time	**Rural Residential (RR), Residential Low Density (RLD)**	**Residential Medium Density (RMD), Residential High Density (RHD), Neighborhood Mixed-Use (NMX), Neighborhood Commercial (NC)**	**Commercial (Including medical and office) and Industrial**
Mobile Construction Equipment – nonscheduled, intermittent, and short term for less than 15 days			
Weekdays 7 AM to 6 PM	75 dBA	80 dBA	85 dBA
Saturdays 9 AM to 6 PM	60 dBA	65 dBA	70 dBA
Sundays and Legal Holidays	None	None	None
Stationary Construction Equipment			
Weekdays 7 AM to 6 PM	60 dBA	65 dBA	70 dBA
Saturdays 9 AM to 6 PM	60 dBA	65 dBA	70 dBA
Sundays and Legal Holidays	None	None	None
Source: City of Vallejo Municipal Code, 2023.			

4 EXISTING CONDITIONS

4.1 EXISTING NOISE SOURCES

The City of Vallejo is impacted by various noise sources. Mobile sources of noise, particularly cars and trucks, are the most common and significant sources of noise in most communities. Other sources of noise are the various land uses (e.g., residential, commercial, institutional, and recreational and parks activities) throughout the City that generate stationary-source noise.

Noise Measurements

To determine ambient noise levels in the Project area, four 10-minute noise measurements were taken using a Larson Davis SoundExpert® LxT Sound Level Meter between 9:33 a.m. and 10:45 a.m. on December 5, 2023; refer to Appendix A for existing noise measurement data and Figure 6: Noise Measurement Locations. Noise Measurement 1 (NM-1) was taken to represent the ambient noise level in the existing residential neighborhood on Maine Street southeast of the Project site, while NM-2 was taken to represent the ambient noise level at the southeast edge of the Project site. NM- 3 was taken to represent the ambient noise level at the northeast edge of the Project site, while NM-4 was taken to represent the existing public facilities on Georgia Street northeast of the Project site. The primary noise sources during all four measurements were traffic on Mare Island Way, Maine Street, and Georgia Street and operational noise from existing ferry operations. Table 7: Noise Measurements, provides the ambient noise levels measured at these locations.

Table 7: Noise Measurements

Site No.	Location	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)	Time
NM-1	101-201 Maine Street	61.6	45.1	46.8	9:33 a.m.
NM-2	285 Mare Island Way	59.4	49.8	70.5	10:13 a.m.
NM-3	289 Mare Island Way	61.4	47.9	75.3	9:58 a.m.
NM-4	155 Georgia Street	58.2	44.1	70.5	10:35 a.m.
Source: Noise Measurements taken by Kimley-Horn on December 5, 2023.					

Existing Mobile Noise

There is existing mobile noise from surrounding roadways: Mare Island Way, Georgia Street, and Maine Street. Further, mobile noise is generated by the ferries operating at the existing ferry terminal.

Existing Stationary Noise

The primary sources of stationary noise in the Project vicinity are those associated with the operations of the existing ferry terminal, nearby residential uses to the southeast of the site, and existing commercial northwest and east of the Project site. The noise associated with these sources may represent a single-event noise occurrence, short-term noise, or long-term/continuous noise.

4.2 SENSITIVE RECEPTORS

Noise exposure standards and guidelines for various types of land uses reflect the varying noise sensitivities associated with each of these uses. Residences, hospitals, schools, guest lodging, libraries, and churches are treated as the most sensitive to noise intrusion and therefore have more stringent noise exposure targets than do other uses, such as manufacturing or agricultural uses that are not subject to impacts such as sleep disturbance. As shown in Table 8: Sensitive Receptors and Figure 7: Sensitive Receptors, sensitive receptors near the Project site include a multi-family residential community approximately 545 feet southeast and the Vallejo John F. Kennedy Library approximately 615 feet east. The nearest school is the Pathways Charter School approximately 2,155 feet east. These distances are from the Project site to the sensitive receptor property line.

Table 8: Sensitive Receptors

Receptor Description	Distance and Direction from the Project Site
Multi-family residential community	545 feet southeast
Vallejo John F. Kennedy Library	615 feet east
Pathways Charter School	2,155 feet east
1. Distances are measured from the Project site boundary to the property line. Source: Google Earth, 2023.	

Source: ESRI, 2023

Figure 6: Noise Measurement Locations

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn

Source: ESRI, 2023

Figure 7: Sensitive Receptors

WETA Vallejo Ferry Terminal Reconfiguration Project

Not to scale

Kimley»Horn

5 SIGNIFICANCE CRITERIA AND METHODOLOGY

5.1 CEQA THRESHOLDS

Appendix G of the California Environmental Quality Act (CEQA) Guidelines contains analysis guidelines related to noise impacts. These guidelines have been used by the City to develop thresholds of significance for this analysis. A project would create a significant environmental impact if it would:

NOI-1 Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

NOI-2 Generate excessive groundborne vibration or groundborne noise levels; and

NOI-3 For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.

5.2 METHODOLOGY

Construction

Construction noise estimates are based upon typical noise levels generated by construction equipment published by the Federal Transit Administration (FTA) and Federal Highway Administration (FHWA). Construction noise is assessed in dBA L_{eq}. This unit is appropriate because L_{eq} can be used to describe noise level from operation of each piece of equipment separately, and levels can be combined to represent the noise level from all equipment operating during a given period. Section 16.502.09D of the Vallejo Municipal Code limits construction hours between 7 AM and 6 PM on weekdays and 9 AM to 6 PM on Saturday s and restricts construction noise to the levels listed in Table 6. Since construction is anticipated to occur for more than 15 days, the stationary construction equipment thresholds apply to construction of the Project.

Reference noise levels are used to estimate noise levels at nearby sensitive receptors based on a standard noise attenuation rate of 6 dB per doubling of distance (line-of-sight method of sound attenuation for point sources of noise). Construction noise level estimates do not account for the presence of intervening structures or topography, which may reduce noise levels at receptor locations. Therefore, the noise levels presented herein represent a conservative, reasonable worst-case estimate of actual temporary construction noise.

Operations

Operational noise levels would remain similar to existing conditions. The proposed Project would not add any new sources of stationary noise or additional traffic on nearby roadway segments. Therefore, operational noise would not change with implementation of the project.

Vibration

Groundborne vibration levels associated with construction-related activities for the Project were evaluated utilizing typical groundborne vibration levels associated with construction equipment, obtained from FTA published data for construction equipment. Potential groundborne vibration impacts related to structural damage and human annoyance were evaluated, considering the distance from construction activities to nearby land uses and typically applied criteria for structural damage and human annoyance. Vibration levels are evaluated based on the FTA's 0.20 inch-per-second peak particle velocity (PPV) architectural damage threshold listed in the "Transit Noise and Vibration Impact Assessment" and the 0.04 inch-per-second PPV perceptible threshold in accordance with the California Department of Transportation (Caltrans) guidance.[2]

[2] California Department of Transportation, Transportation and Construction Vibration Guidance Manual, Table 20, September 2013.

6 POTENTIAL IMPACTS AND MITIGATION

6.1 ACOUSTICAL IMPACTS

Threshold 6.1 Would the Project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction

Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g. land clearing, grading, excavation, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. During construction, exterior noise levels could affect the residential neighborhoods surrounding the construction site. Project construction would occur approximately 545 feet from existing multi-family residences to the southeast of the Project site, along Maine Street. However, construction activities would occur throughout the Project site and would not be concentrated at a single point near sensitive receptors. Noise levels typically attenuate (or drop off) at a rate of 6 dB per doubling of distance from point sources, such as industrial machinery. During construction, exterior noise levels have a low potential to affect the residential neighborhoods near the construction site.

The Project would require Bay fill removal (existing piles) and placement for installation of pilings for the new float, donut fenders, and fixed pier support. It is estimated that approximately 116 to 126 square feet of 16 to 17 pilings would be installed. Further, the existing steel dolphins within the basin and terminal area would be removed. Overwater construction would include the installation of all of the approach sections, concrete dolphins, and utility installation. Installation of concrete dolphins would require barges, a concrete mixer, a concrete pump, a concrete vibrator, and a crane.

Demolition of the existing facility would be required prior to installation of any new waterside terminal components. The demolition work includes removal of the piles, gangway, and float. This work would be conducted from barges, one for materials storage and one outfitted with demolition equipment (crane and clamshell bucket or vibratory impact pile driver for pulling of piles and a crane for gangway removal). Diesel power tugboats would bring the barges to the Project site, where the barges would be anchored. Pile driving would be limited to the environmental work window of August 1 through October 15. Piles would be removed by either pulling the pile or cutting the piles off below the mud line. The in-water demolition work would include the removal of the existing piles, pile dolphins, and floats.

Landside construction activities include minor demolition and building construction. Construction equipment would include a small backhoe and bulldozer/bobcat, haul trucks, material delivery trucks, a crane, and delivery and support trucks. Operating cycles for these types of construction equipment may involve one or two minutes of full-power operation followed by three to four minutes at lower power settings. Other primary sources of noise would be shorter-duration incidents, such as dropping large pieces of equipment or the hydraulic movement of machinery lifts, which would last less than one minute. It should be noted that only a limited amount of equipment can operate near a given location at a particular time.

It should be noted that the majority of construction would take place on barges above the water rather than on land. The noise levels shown below assume that construction equipment is located at the closest point to sensitive receptors and do not account for any attenuating structures or surfaces. Typical noise levels associated with individual construction equipment are listed in Table 9: Typical Construction Noise Levels. As shown in Table 9, construction equipment noise levels at the closest sensitive receptor, located 545 feet away, would not reach levels exceeding 65 dBA L_{eq} except for impact pile driving equipment. At the closest commercial receptor, located approximately 50 feet away, all construction equipment would exceed the 70 dBA L_{eq} construction noise standard. Thus, implementation of Mitigation Measure (MM) NOI-1 would be required to reduce noise levels below the construction standards in Section 16.502.09D of the Vallejo Municipal Code. Implementation of MM NOI-1 would require the project to use noise reduction technology on construction equipment, construct temporary sound barriers at the project property line, and prohibit the idling of stationary equipment. Noise levels associated with construction would collectively reduce by 20 to 30 decibels with the implementation of MM NOI-1. With this reduction, construction equipment noise levels would adhere to the Vallejo Municipal Code Construction Standards except for pile driving equipment noise at the nearest commercial receptors. However, as mentioned previously, pile driving would operate from barges above the water rather than at the closest point to sensitive receptors. In reality, pile driving equipment would be located approximately 150 feet away from the nearest commercial uses and would produce a noise level of 91 dBA L_{eq} at this distance. With implementation of MM NOI-1, noise levels associated with pile driving at the nearest commercial uses would be below the construction equipment noise standards listed in Section 16.502.09D of the Vallejo Municipal Code. Thus, impacts would be less than significant with the implementation of MM NOI-1.

Table 9: Typical Construction Noise Levels

Equipment	Typical Noise Level (dBA) at 50 feet from Source[1]	Noise Level (dBa) at 545 feet from Source
Air Compressor	80	59
Backhoe	80	59
Concrete Mixer	85	64
Concrete Pump	82	61
Concrete Vibrator	76	55
Crane, Mobile	83	62
Dozer	85	64
Generator	82	61
Impact Wrench	85	64
Loader	80	59
Pile Driving (Impact)	101	80
Pneumatic Tool	85	64
Pump	77	56
Saw	83	55
Shovel	82	61
Truck	84	63

1. Calculated using the inverse square law formula for sound attenuation: $dBA_2 = dBA_1+20Log(d_1/d_2)$
Where: dBA_2 = estimated noise level at receptor; dBA_1 = reference noise level; d_1 = reference distance; d_2 = receptor location distance
Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

Construction Traffic Noise

Construction noise may be generated by large trucks moving materials to and from the Project site. Large trucks would be necessary to deliver building materials as well as remove demolition materials. During the demolition phase of the Project, approximately 5,674 square feet of materials would be removed.

Based on the California Emissions Estimator Model (CalEEMod) default assumptions for this Project, as analyzed in *Air Quality Assessment - Vallejo Ferry Terminal Reconfiguration Project* (Kimley-Horn, 2023), the Project would generate the highest number of daily trips during the demolition phase. The model estimates that the Project would generate up to 21 worker trips per day during demolition. Because of the logarithmic nature of noise levels, a doubling of the traffic volume (assuming that the speed and vehicle mix do not also change) would result in a noise level increase of 3 dBA. Mare Island Way (between Marin Street and Maine Street) has an average daily trip volume of 13,241 vehicles and Mare Island way (between Maine Street and Florida Street) has an average daily trip volume of 12,778 vehicles[3]. Therefore, the Project's 21 demolition worker trips would not double the existing traffic volume. Construction related traffic noise would not be perceptible. Impacts would be less than significant.

California establishes noise limits for vehicles licensed to operate on public roads using a pass-by test procedure. Pass-by noise refers to the noise level produced by an individual vehicle as it travels past a fixed location. The pass-by procedure measures the total noise emissions of a moving vehicle with a microphone. When the vehicle reaches the microphone, the vehicle is at full throttle acceleration at an engine speed calculated for its displacement.

For heavy trucks, the State pass-by standard is consistent with the federal limit of 80 dB. The State pass-by standard for light trucks and passenger cars (less than 4.5 tons gross vehicle rating) is also 80 dB at 15 meters from the centerline. According to the FHWA, dump trucks typically generate noise levels of 77 dBA and flatbed trucks typically generate noise levels of 74 dBA, at a distance of 50 feet from the truck[4].

Operations

Traffic Noise

Implementation of the Project would not generate increased traffic volumes on nearby roadway segments. The Project would not result in uses that would increase traffic volumes over existing levels on surrounding roadway segments given that the Project proposes the same operational uses as the existing facilities. Therefore, there would not be any new operational traffic noise impacts.

Stationary Noise Sources

Implementation of the Project would not create new sources of noise in the Project vicinity from the gangway and passenger float, the passenger queuing and waiting area, parking and circulation, other area improvements (San Francisco Bay Trail improvements), and the ferry route. The Project would reconfigure the existing ferry terminal to reduce or eliminate maintenance dredging and increase operational safety in support of continued ferry service. The Project would not generate any additional sources of stationary noise sources differing from the existing ferry terminal. Therefore, the proposed Project would not result in changes to the existing uses that would create any new operational sources of noise.

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3 City of Vallejo, *City of Vallejo, CA Traffic Counts – Updated 2007/2008 Average Daily Traffic Volumes*, 2008. Available at https://www.cityofvallejo.net/our_city/departments_divisions/public_works_department/engineering_division/traffic_engineering.

4 Federal Highway Administration, *Roadway Construction Noise Model*, 2006.

Summary

Overall, noise impacts associated with construction, traffic, and operation of the ferry terminal would remain less than significant. As stated previously, the Project would not generate additional daily trips or result in any new sources of stationary noise during operation. Project operations would be the same as the existing ferry terminal. Therefore, noise impacts would remain less than significant.

Mitigation Measures:

MM NOI-1 Construction Noise Logistics Plan

Prior to Grading Permit issuance, the Applicant shall demonstrate, to the satisfaction of the City of Vallejo Director of Public Works or City Engineer that the Project complies with the following measures:

- Construct solid plywood fences around ground level construction sites, resulting in a decibel reduction of 5-15 dBA.
- Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment. This would provide at least a 10 dBA reduction to individual equipment noise.[5]
- Equip Pile Drivers with pile driver shrouds.
- Prohibit unnecessary idling of internal combustion engines.
- Locate stationary noise-generating equipment such as air compressors or portable power generators as far as possible from the project property line. Construct temporary noise barriers to screen stationary noise-generating equipment in the construction area.
- Utilize "quiet" air compressors and other stationary noise sources where technology exists.
- Notify all adjacent business, residences, and other noise-sensitive land uses of the construction schedule, in writing, and provide a written schedule of "noisy" construction activities to the adjacent land uses and nearby residences.
- If complaints are received or excessive noise levels cannot be reduced using the measures above, erect a temporary noise control blanket barrier along surrounding building facades that face the construction sites.
- Designate a "disturbance coordinator" who shall be responsible for responding to any complaints about construction noise. The disturbance coordinator shall determine the cause of the noise complaint (e.g., bad muffler, etc.) and shall require that reasonable measures be implemented to correct the problem. Conspicuously post a

[5] United States Environmental Protection Agency, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, 1971.

telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

Level of Significance: Less than significant impact with implementation of MM NOI-1.

Threshold 6.2 Would the Project generate excessive groundborne vibration or groundborne noise levels?

Construction

Increases in groundborne vibration levels attributable to the Project would be primarily associated with construction-related activities. Construction on the Project site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Groundborne vibrations from construction activities rarely reach levels that damage structures.

Table 10: Typical Construction Equipment Vibration Levels, lists vibration levels at 25 feet for typical construction equipment. Groundborne vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. As indicated in Table 10, based on FTA data, vibration velocities from typical heavy construction equipment operations that would be used during Project construction range from 0.003 to 1.518 in/sec PPV at 25 feet from the source of activity. The nearest building structure is approximately 50 feet from the edge of the active construction zone and approximately 150 feet from the closest pile driving location.

Table 10: Typical Construction Equipment Vibration Levels

Equipment	Peak Particle Velocity at 25 Feet (in/sec)	Peak Particle Velocity at 50 Feet (in/sec) 1	Peak Particle Velocity at 150 Feet (in/sec) [1]
Pile Driver (impact)	1.518	-	0.1033
Large Bulldozer	0.089	0.0315	0.0061
Loaded Trucks	0.076	0.0269	0.0052
Small Bulldozer/Tractors	0.003	0.0011	0.0002

1. Calculated using the following formula: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$, where: PPV_{equip} = the peak particle velocity in in/sec of the equipment adjusted for the distance; PPV_{ref} = the reference vibration level in in/sec from Table 7-4 of the Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018; D = the distance from the equipment to the receiver.
Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

As shown in Table 10, the highest vibration levels are achieved with the large bulldozer operations at the receptors located approximately 50 feet away and the impact pile driver operations at receptors located approximately 150 feet away. Large bulldozer operations are expected to take place during demolition and building construction. Pile driving operations are only expected to take place during demolition of the existing facility, which would take place approximately 150 feet away from the nearest building structure over water. At these distances, construction equipment vibration velocities would not exceed the FTA's 0.20 PPV threshold. In general, other construction activities would occur throughout the Project site and would not be concentrated at the point closest to the nearest building structure. Furthermore, construction activity would mostly occur over water and, therefore, these estimates are conservative. Thus, vibration impacts associated with the Project would be less than significant.

Operations

The Project would not generate any new or additional groundborne vibration that could be felt at surrounding uses. The proposed Project includes the reconfiguration of an existing ferry terminal, including the relocation and expansion of an existing bridge and gangway, and installation of a new passenger float. The Project proposes the same operational uses as the existing facilities that are currently used for standard WETA ferry operations. Therefore, there would be no change in operational groundborne vibration as a result of the Project. Furthermore, Project operations would not involve railroads or substantial heavy truck operations, and therefore would not result in vibration impacts at surrounding uses. As a result, impacts from vibration associated with Project operation would be less than significant.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

Threshold 6.3 For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?

The nearest airports to the Project site are the Napa County Airport located approximately 7.4 miles north of the Project, the Sonoma Valley Airport approximately 13.3 miles northwest of the Project, and the Buchanan Field Airport located approximately 13.4 miles southeast of the Project. The Project is not within 2.0 miles of a public airport or within an airport influence zone. Additionally, there are no private airstrips located within the Project vicinity. The Project site is located well outside the noise impact area of the Napa County Airport, the nearest airport to the Project site. Therefore, the Project would not expose people working in or visiting the Project area to excessive airport- or airstrip-related noise levels and no mitigation is required.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

6.2 CUMULATIVE NOISE IMPACTS

Noise by definition is a localized phenomenon, and drastically reduces as distance from the source increases. Cumulative noise impacts involve development of the Project in combination with ambient growth and other related development projects. As noise levels decrease as distance from the source increases, only projects in the nearby area could combine with the Project to potentially result in cumulative noise impacts.

Cumulative Construction Noise

The Project would contribute to other proximate construction noise impacts if construction activities were conducted concurrently. However, based on the City of Vallejo Development Project Website, there are no nearby projects that would construct concurrently with the Project.[6] Further, construction activities at other planned and approved projects would be required to take place during daytime hours, and the City and project applicants would be required to evaluate construction noise impacts and implement mitigation, if necessary, to minimize noise impacts. Therefore, Project construction would not contribute to cumulative impacts and impacts in this regard are not cumulatively considerable. As such, the Project would not result in a cumulatively considerable construction noise impact.

<u>Cumulative Operational Noise</u>

Cumulative noise impacts describe how much noise levels are projected to increase over existing conditions with the development of the Project and other foreseeable projects. Cumulative operational noise impacts would be less than significant given that the proposed Project uses would be the same as the existing uses. Thus, the Project would not result in a cumulatively considerable operational noise impact.

Stationary Noise
As mentioned previously, the Project would not add any new stationary noise sources to the Project vicinity. Given that the proposed Project would not change from existing conditions, cumulative noise impacts would remain less than significant. Thus, cumulative operational noise impacts from related projects, in conjunction with Project-specific noise impacts, would not be cumulatively significant.

Traffic Noise
There would be no cumulative increase in traffic noise levels as a result of Project operations. The Project would not generate any new permanent operational trips given that the proposed uses would remain the same as the existing uses. Therefore, the proposed Project would not increase traffic volumes when compared to the existing ferry terminal. Thus, cumulative traffic noise levels impacts would be less than significant.

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[6] City of Vallejo, *Development Projects*, 2023. Accessed at https://www.cityofvallejo.net/our_city/departments_divisions/planning_development_services/economic_development_department/development_projects.

7 REFERENCES

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Appendix A

Noise Data

Noise Measurement Field Data

Project:	WETA Vallejo	**Job Number:**	099974001
Site No.:	ST-1	**Date:**	12/5/2023
Analyst:	Mia Berg	**Time:**	9:33 AM
Location:	The sidewalk adjacent to 101 Maine Street, looking towards Mare Island Way		
Noise Sources:	Street Traffic from Mare Island Way, Ferry Terminal Parking		
Comments:			

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
61.6	45.1	76.8	97.6

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	52
Wind (mph):	5
Sky:	Partly Cloudy
Bar. Pressure:	30.21
Humidity:	92%

Photo:

Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	LxT_Data.072.s	Computer's File Name	LxTse_0006073-20231205 093353-LxT_Data.072.ldbin		
Meter	LxT SE 0006073	Firmware	2.404		
User		Location			
Job Description					
Note					
Start Time	2023-12-05 09:33:53	Duration	0:10:00.0		
End Time	2023-12-05 09:43:53	Run Time	0:10:00.0	Pause Time	0:00:00.0
Pre-Calibration	2023-12-05 09:30:44	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	61.6 dB		
LAE	89.4 dB	SEA	--- dB
EA	96.4 µPa²h		
LA_{peak}	97.6 dB	2023-12-05 09:34:15	
LAS_{max}	76.8 dB	2023-12-05 09:37:30	
LAS_{min}	45.1 dB	2023-12-05 09:42:46	
LA_{eq}	61.6 dB		
LC_{eq}	75.8 dB	LC_{eq} - LA_{eq}	14.2 dB
LAI_{eq}	64.5 dB	LAI_{eq} - LA_{eq}	2.9 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LApk > 135.0 dB	0	0:00:00.0
LApk > 137.0 dB	0	0:00:00.0
LApk > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
61.6 dB	61.6 dB	0.0 dB

LDEN	LDay	LEve	LNight
61.6 dB	61.6 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	61.6 dB		75.8 dB		--- dB	
$Ls_{(max)}$	76.8 dB	2023-12-05 09:37:30	--- dB	None	--- dB	None
$LS_{(min)}$	45.1 dB	2023-12-05 09:42:46	--- dB	None	--- dB	None
$L_{Peak(max)}$	97.6 dB	2023-12-05 09:34:15	--- dB	None	--- dB	None

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	67.1 dB
LAS 10.0	65.6 dB
LAS 33.3	60.7 dB
LAS 50.0	56.6 dB
LAS 66.6	53.0 dB
LAS 90.0	49.0 dB

Noise Measurement Field Data

Project:	WETA Vallejo	**Job Number:**	099974001
Site No.:	ST-2	**Date:**	12/5/2023
Analyst:	Mia Berg	**Time:**	10:13 AM
Location:	Sidewalk southeast edge of Project site, facing the existing Ferry terminal		
Noise Sources:	Street Traffic from Mare Island Way, Pedestrian Noise		
Comments:			

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
59.4	49.8	70.5	87.4

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	54
Wind (mph):	6
Sky:	Partly Cloudy
Bar. Pressure:	30.21
Humidity:	89%

Photo:

Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	LxT_Data.074.s	Computer's File Name	LxTse_0006073-20231205 101355-LxT_Data.074.ldbin
Meter	LxT SE 0006073	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2023-12-05 10:13:55	Duration	0:10:00.0		
End Time	2023-12-05 10:23:55	Run Time	0:10:00.0	Pause Time	0:00:00.0
Pre-Calibration	2023-12-05 09:30:41	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	59.4 dB		
LAE	87.2 dB	SEA	--- dB
EA	58.1 μPa²h		
LA_{peak}	87.4 dB	2023-12-05 10:19:45	
LAS_{max}	70.5 dB	2023-12-05 10:19:45	
LAS_{min}	49.8 dB	2023-12-05 10:15:20	
LA_{eq}	59.4 dB		
LC_{eq}	68.4 dB	LC_{eq} - LA_{eq}	9.0 dB
LAI_{eq}	61.1 dB	LAI_{eq} - LA_{eq}	1.7 dB

Exceedances

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LApk > 135.0 dB	0	0:00:00.0
LApk > 137.0 dB	0	0:00:00.0
LApk > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
59.4 dB	59.4 dB	0.0 dB	
LDEN	**LDay**	**LEve**	**LNight**
59.4 dB	59.4 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	59.4 dB		68.4 dB		--- dB	
$Ls_{(max)}$	70.5 dB	2023-12-05 10:19:45	--- dB	None	--- dB	None
$LS_{(min)}$	49.8 dB	2023-12-05 10:15:20	--- dB	None	--- dB	None
$L_{Peak(max)}$	87.4 dB	2023-12-05 10:19:45	--- dB	None	--- dB	None

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	64.9 dB
LAS 10.0	63.2 dB
LAS 33.3	58.7 dB
LAS 50.0	56.2 dB
LAS 66.6	53.8 dB
LAS 90.0	51.6 dB

Time History

140

Noise Measurement Field Data

Project:	WETA Vallejo	**Job Number:**	099974001
Site No.:	ST-3	**Date:**	12/5/2023
Analyst:	Mia Berg	**Time:**	9:58 AM
Location:	Sidewalk northeast edge of Project site, facing the existing Ferry terminal		
Noise Sources:	Street Traffic from Mare Island Way, Pedestrian Noise		
Comments:			

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
61.4	47.9	75.3	91.3

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	53
Wind (mph):	5
Sky:	Partly Cloudy
Bar. Pressure:	30.21
Humidity:	90%

Photo:

Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	LxT_Data.073.s	Computer's File Name	LxTse_0006073-20231205 095820-LxT_Data.073.ldbin
Meter	LxT SE 0006073	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2023-12-05 09:58:20	Duration	0:10:00.0		
End Time	2023-12-05 10:08:20	Run Time	0:10:00.0	Pause Time	0:00:00.0
Pre-Calibration	2023-12-05 09:30:41	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	61.4 dB		
LAE	89.2 dB	SEA	--- dB
EA	92.0 µPa²h		
LA_{peak}	91.3 dB	2023-12-05 09:58:34	
LAS_{max}	75.3 dB	2023-12-05 10:08:12	
LAS_{min}	47.9 dB	2023-12-05 10:06:20	
LA_{eq}	61.4 dB		
LC_{eq}	68.6 dB	LC_{eq} - LA_{eq}	7.2 dB
LAI_{eq}	63.5 dB	LAI_{eq} - LA_{eq}	2.1 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LApk > 135.0 dB	0	0:00:00.0
LApk > 137.0 dB	0	0:00:00.0
LApk > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
61.4 dB	61.4 dB	0.0 dB	
LDEN	LDay	LEve	LNight
61.4 dB	61.4 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	61.4 dB		68.6 dB		--- dB	
$Ls_{(max)}$	75.3 dB	2023-12-05 10:08:12	--- dB	None	--- dB	None
$LS_{(min)}$	47.9 dB	2023-12-05 10:06:20	--- dB	None	--- dB	None
$L_{Peak(max)}$	91.3 dB	2023-12-05 09:58:34	--- dB	None	--- dB	None

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	67.3 dB
LAS 10.0	66.1 dB
LAS 33.3	60.1 dB
LAS 50.0	57.6 dB
LAS 66.6	54.4 dB
LAS 90.0	50.8 dB

Noise Measurement Field Data

Project:	WETA Vallejo	**Job Number:**	099974001
Site No.:	ST-4	**Date:**	12/5/2023
Analyst:	Mia Berg	**Time:**	10:35 AM
Location:	Sidewalk at the edge of Martin Luther King Jr Park at 155 Georgia Street		
Noise Sources:	Street Traffic Noise, Pedestrian Noise		
Comments:			

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
58.2	44.1	70.5	91.2

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	55
Wind (mph):	6
Sky:	Partly Cloudy
Bar. Pressure:	30.2
Humidity:	86%

No Photo Available

Kimley»Horn

Measurement Report

Report Summary

Meter's File Name	LxT_Data.075.s	Computer's File Name	LxTse_0006073-20231205 103531-LxT_Data.075.ldbin
Meter	LxT SE 0006073	Firmware	2.404
User		Location	
Job Description			
Note			

Start Time	2023-12-05 10:35:31	Duration	0:10:00.0		
End Time	2023-12-05 10:45:31	Run Time	0:10:00.0	Pause Time	0:00:00.0
Pre-Calibration	2023-12-05 09:30:41	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics

LA_{eq}	58.2 dB		
LAE	86.0 dB	SEA	--- dB
EA	44.0 µPa²h		
LA_{peak}	91.2 dB	2023-12-05 10:44:00	
LAS_{max}	70.5 dB	2023-12-05 10:44:34	
LAS_{min}	44.1 dB	2023-12-05 10:38:01	
LA_{eq}	58.2 dB		
LC_{eq}	68.3 dB	LC_{eq} - LA_{eq}	10.1 dB
LAI_{eq}	61.8 dB	LAI_{eq} - LA_{eq}	3.6 dB

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LApk > 135.0 dB	0	0:00:00.0
LApk > 137.0 dB	0	0:00:00.0
LApk > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	58.2 dB	58.2 dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	58.2 dB	58.2 dB	--- dB	--- dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	58.2 dB		68.3 dB		--- dB	
$Ls_{(max)}$	70.5 dB	2023-12-05 10:44:34	--- dB	None	--- dB	None
$LS_{(min)}$	44.1 dB	2023-12-05 10:38:01	--- dB	None	--- dB	None
$L_{Peak(max)}$	91.2 dB	2023-12-05 10:44:00	--- dB	None	--- dB	None

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	64.8 dB
LAS 10.0	63.0 dB
LAS 33.3	55.9 dB
LAS 50.0	52.6 dB
LAS 66.6	50.3 dB
LAS 90.0	46.8 dB

Appendix H

Hydroacoustic Impact Assessment

WETA VALLEJO FERRY TERMINAL RECONFIGURATION PROJECT

HYDROACOUSTIC ASSESSMENT

Vallejo, California

April 24, 2024

Prepared for:

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I&R Job No.: 23-088

INTRODUCTION

The San Francisco Bay Area Water Emergency Transportation Authority (WETA) proposes to reconfigure the existing ferry terminal in Vallejo, California to reduce or eliminate maintenance dredging and to increase operational safety in support of continued ferry service between the cities of San Francisco and Vallejo. Figure 1 shows the vicinity map of the existing ferry terminal location.

FIGURE 1 Vicinity Map of the existing Valley Ferry Terminal

Source: Kimley Horn Project Description document

The proposed Vallejo Ferry Terminal would be located on the eastern shore of the Mare Strait, within the footprint of the existing ferry terminal and basin area. The proposed terminal includes reconfiguration of an existing ferry terminal, including the removal of the existing fixed pier/gangway, and passenger float and replacing it with a new fixed pier/gangway and a passenger float. The existing terminal in Vallejo would be relocated outside of the current ferry basin to improve terminal operations and to reduce the frequency of dredging. The existing gangway and passenger float are accessible by a gate on the walkway that surrounds the terminal basin area, a paved portion of the San Francisco Bay Trail. The existing facilities are currently used for standard WETA ferry operations that transport passengers to and from Downtown San Francisco and Mare Island. The existing gangway and passenger float would be removed during project construction. Figure 2 shows the existing setting at the ferry terminal.

FIGURE 2 Existing setting at the Vallejo Ferry Terminal

Source: Kimley Horn Project Description document

A Proposed Project and two different configuration options have been proposed to determine an option that provides safer operations, more efficient ferry berthing, and is cost efficient. Figure 3 shows the three proposed ferry terminal layout options.

Demolition of the existing facility would be required prior to installation of any new waterside terminal components. The demolition work includes removal of the piles, gangway, and float. Piles would be removed by either pulling the pile or cutting the piles off below the mud line. Project components to be constructed include a new gangway, piles and a new standard WETA float including 36-inch steel pipe piles with concrete caps and 12-inch steel pipe piles.

This study is an assessment of potential underwater noise levels generated by planned construction activities involved with the refurbishment of the Vallejo Ferry Terminal. The study supports regulatory biologists in assessing underwater sound impacts on fish and marine species that may be present in the area when construction occurs. This assessment is based on information provided by project designers consisting of a location map, draft layout sheets, estimated pile-driving data, a review of potential construction activities to be conducted at the site, a review of related studies, the modeling, and a quantitative analysis of underwater noise levels. This study focuses on the sound impacts associated with potential pile-driving and pile removal activities that could affect aquatic species. This study does not address environmental impacts associated with the project.

FIGURE 3 Project Configurations

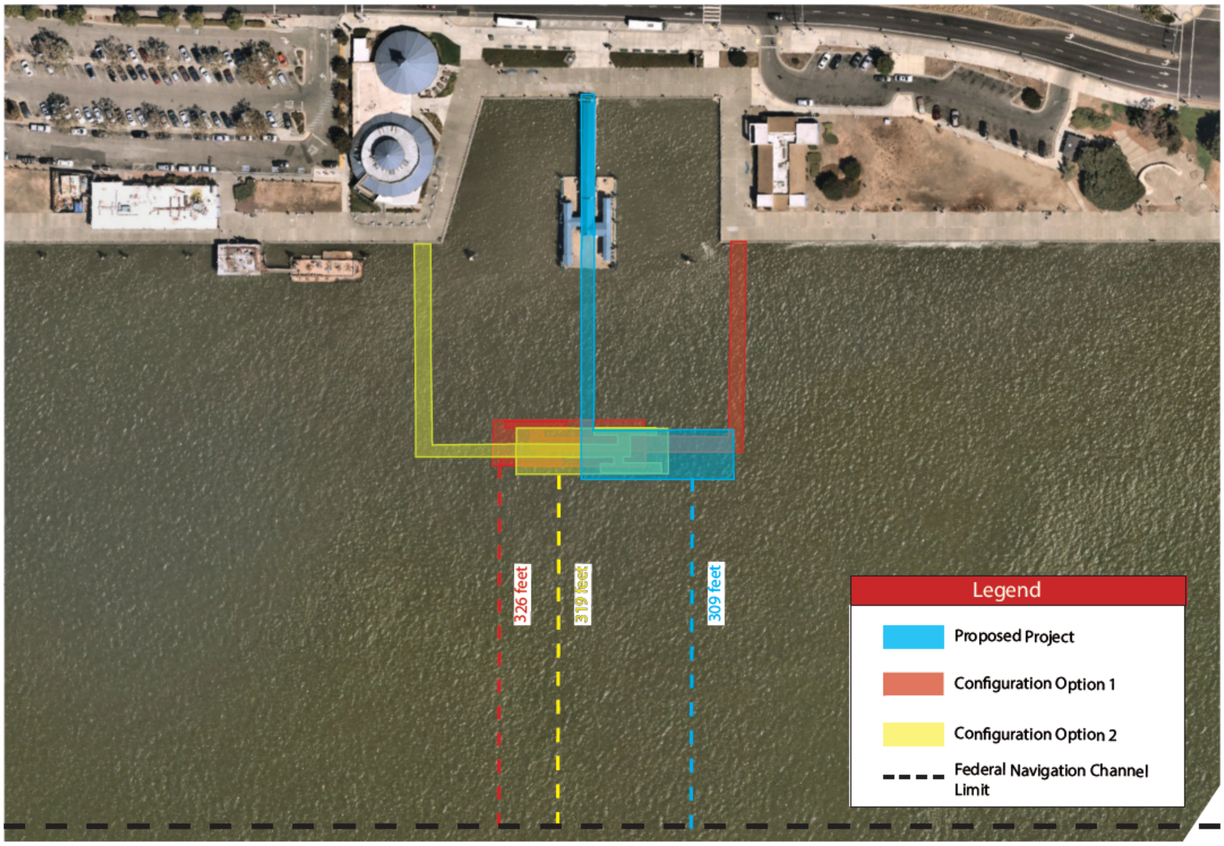


Figure 3: Project Configurations
WETA Vallejo Ferry Terminal Reconfiguration Project

UNDERWATER SOUNDS FROM PILE-DRIVING ACTIVITIES

Fundamentals of Underwater Noise

Vibratory pile installation and removal produces continuous underwater sounds. Impact pile driving can produce high underwater sound levels. When a pile-driving hammer strikes a pile, a pulse is created that propagates through the pile and radiates sound into the water, the ground, and the air. Sound pressure pulse as a function of time is referred to as the waveform. In terms of acoustics, these sounds are described by the peak pressure, the root-mean-square (RMS) pressure, and the sound exposure level (SEL). The peak pressure is the highest absolute value of the measured waveform and can be a negative or positive pressure peak. For pile-driving pulses, RMS level is determined by analyzing the waveform and computing the average of the squared pressures over the time that comprises that portion of the waveform containing the sound energy (Richardson et al. 1995; ISO 18406:2017(E).). The pulse RMS has been approximated in the field for pile-driving sounds by measuring the signal with a precision sound level meter set to the “impulse” RMS setting and is typically used to assess impacts to marine mammals. Another measure of the pressure waveform that can be used to describe the pulse is the sound energy itself. The total sound energy in the pulse is referred to in many ways, most commonly as the "total energy flux" (Finerran 2002). The "total energy flux" is equivalent to the un-weighted SEL for a plane wave propagating in a free field, a common unit of sound energy used in airborne acoustics to describe short-duration events. The unit used is decibels (dB) re 1 micropascal $(\mu Pa)^2$-second (sec). In this report, peak pressure levels are expressed as the absolute maximum pressure of a pulse in dB re 1 µPa; however, in other literature, peak pressure levels can take varying forms, such as pascals or pounds per square inch. The total sound energy in an acoustical impulse accumulates over the duration of that pulse and the duration of a pile driving event. Figure 4 illustrates the acoustical characteristics of an underwater pile-driving pulse. Table 1 includes the definitions of terms commonly used to describe underwater sounds.

The variation of instantaneous pressure over the duration of a sound event is referred to as the waveform. The waveform can provide an indication of rise time or the rapidity with which pressure fluctuates with time; however, rise time differences are not clearly apparent for pile-driving sounds because of the numerous rapid fluctuations that are characteristic of this impulse type. A plot showing the accumulation of sound energy over the duration of the pulse (or at least the portion of time during which much of the energy accumulates) illustrates the differences in source strength and rise time. An example of the underwater acoustical characteristics of a typical pile-driving pulse is shown on Figure 4.

SEL is the acoustic metric that provides an indication of the amount of acoustical energy contained in a sound event. For pile driving, the typical event can be one pile-driving pulse or many pulses, such as pile driving for one pile or for one day of pile driving. Typically, SEL is measured for a single strike and a cumulative condition. The cumulative SEL associated with the driving of a pile can be estimated using the single-strike SEL value and the number of pile strikes through the following equation:

$$SEL_{cumulative} = SEL_{single-strike} + 10log(\#of\ pile\ strikes)$$

For example, if a single-strike SEL for a pile is 165 dB, and it takes 1,000 strikes to drive the pile, the cumulative SEL is 195 dBA (165 dB + 30 dB = 195 dB), where 10 * $Log_{10}(1000) = 30$.

Underwater Sound Thresholds

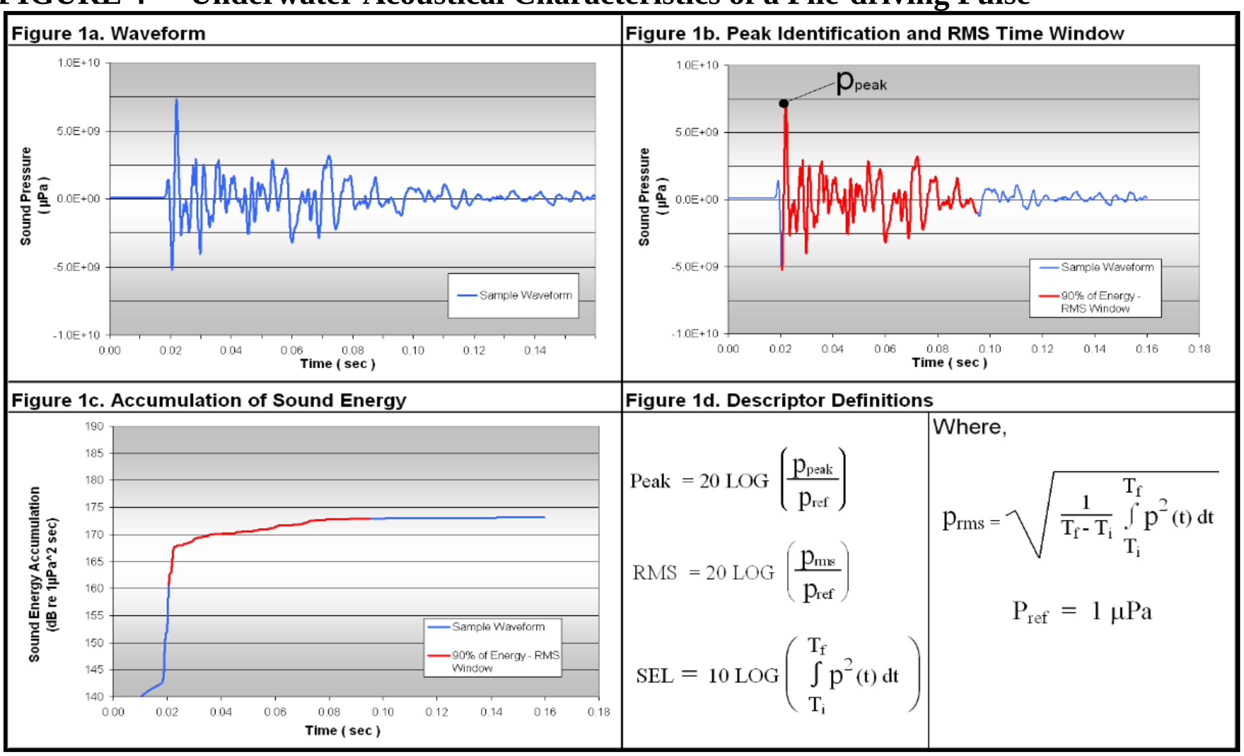
Fish

In 2008, NOAA's NMFS; U.S. Fish and Wildlife Service; California, Oregon, and Washington Departments of Transportation; California Department of Fish and Game; and the U.S. Federal Highway Administration agreed in principle to interim criteria to protect fish from pile-driving activities. The agreed-upon criteria are presented in Table 2.

TABLE 1 Definition of Underwater Acoustical Terms

Term	Definition
Peak Sound Pressure, unweighted (dB)	Peak sound pressure level based on the largest absolute value of the instantaneous sound pressure. This pressure is expressed in this report as a dB (referenced to a pressure of 1 μPa) but can also be expressed in units of pressure, such as μPa or pounds per square inch.
RMS Sound Pressure Level, (NMFS Criterion) dB re 1 μPa	The squared root of the average of the squared pressures over the time that comprises that portion of the waveform containing 90 percent of the sound energy for one pile-driving impulse.[1] This measure is typically used to assess acoustical impacts on marine mammals.
SEL, dB re 1 μPa^2-sec	Proportionally equivalent to the time integral of the squared pressure and is described in this report in terms of dB re 1 μPa^2-sec over the duration of the impulse. Similar to the unweighted SEL standardized in airborne acoustics to study noise from single events.
Cumulative SEL	Measure of the total energy received through a pile-driving event (here defined as pile driving that occurs within a day).
Waveforms, μPa over time	A graphical plot illustrating the time history of positive and negative sound pressures of individual pile strikes shown as a plot of μPa over time (i.e., seconds).
Frequency Spectra, dB over frequency range	A graphical plot illustrating the distribution of sound pressure vs. frequency for a waveform; dimension in RMS pressure and defined frequency bandwidth.

FIGURE 4 Underwater Acoustical Characteristics of a Pile-driving Pulse



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[1] The underwater sound measurement results obtained during a Pile Installation Demonstration Project indicated that most pile-driving impulses occurred over a 50- to 100-msec period. Most of the energy was contained in the first 30 to 50 msec. Analysis of that underwater acoustic data for various pile strikes at various distances demonstrated that the acoustic signal measured using the standard "impulse exponential-time-weighting" (35-msec rise time) correlated to the RMS (impulse) used by NMFS.

Notes: msec = millisecond(s)
NMFS = National Marine Fisheries Service

TABLE 2 Adopted Fish Criteria

Interim Criteria for Injury	Sound Levels Agreed-upon in Principle
Peak	206 dB re 1 μPa (for all sizes of fish)
Cumulative SEL	187 dB re 1 μPa^2-sec – for fish size of 2 grams or greater[a] 183 dB re 1 μPa^2-sec – for fish size of less than 2 grams[a]

[a] Applies to pile strikes of 150 dB SEL (single strike) or greater.

The adopted criteria listed in Table 2 are for pulse-type sounds (e.g., impact pile driving) and do not address sound from vibratory driving. The SEL criteria are not applied to vibratory driving sounds for assessing impacts to fish. The in-water areas with project sound levels above 150 dB RMS are considered by NMFS to be acoustically affected, given possible behavioral changes in fish; however, these levels are not anticipated to trigger any mitigation requirements (Caltrans 2020).

Marine Mammals

For this project location, marine mammals are not usually present, although, otariid pinnipeds (California sea lions) may transit the area at certain times. Under the Marine Mammal Protection Act, NMFS has defined levels of harassment for marine mammals. Level A harassment is defined as “Any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild.” Level B harassment is defined as “Any act of pursuit, torment, or annoyance which has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including but not limited to migration, breathing, nursing, breeding, feeding or sheltering.”

Impact pile driving produces impulsive sounds that correspond to those that are typically transient, brief (typically less than 1 second), broadband and consist of high peak sound pressure with rapid rise time and decay. Vibratory pile installation or removal is considered non-impulsive or continuous sounds as those that could be broadband, narrowband or tonal, brief or prolonged, continuous or intermittent and usually do not have a high peak sound pressure with rapid rise and decay times (NMFS 2018). NMFS uses behavior thresholds rather than TTS thresholds for assessing Level B harassment for pile driving (NMFS 2023).

Table 3 outlines the current adopted Level A and Level B (behavioral harassment) criteria. NMFS has provided marine mammal acoustic technical guidance for predicting the onset of permanent threshold shift (PTS) and temporary threshold shifts in marine mammal hearing from sound sources (NMFS 2018). The onset of PTS is considered by NMFS to be Level A harassment. For impact pile driving, the majority of the acoustic energy is confined to frequencies below 2 kilohertz (kHz), and there is very little energy above 20 kHz. Similarly, much of the acoustic energy for vibratory driving is in the frequency range below 2.5 kHz. The underwater acoustic criteria for phocid and otariid pinnipeds are provided in Table 3. Table 4 lists the functional hearing groups and their hearing ranges as defined by the NMFS guidance (NMFS 2018).

The application of the 120-dB RMS threshold for Level B harassment is used to address vibratory pile driving (or pile removal). This level can sometimes be problematic because this threshold level can be either at or below the ambient noise level of certain locations. In the event that ambient sound levels exceed 120 dB, per NMFS guidance, the ambient sound levels become the Level B harassment threshold. For continuous sounds, NMFS Northwest Region has provided guidance for reporting RMS sound pressure levels. RMS levels are based on a time-constant of 10 seconds; RMS levels should be averaged across the entire event. For impact pile driving, the pulse RMS level is characterized by integrating sound for each acoustic pulse across 90 percent of the acoustic energy in each pulse and taking the median RMS value of all pulses.

TABLE 3 Underwater Acoustic Criteria for Pinnipeds

Species	Underwater Noise Thresholds (dB re 1 μPa)				
	Vibratory Pile-driving Disturbance Threshold (*Level B Harassment*)	Impact Pile-driving Disturbance Threshold (*Level B Harassment*)	Marine Mammal Hearing Group (see Table 4)	PTS SEL_{cum} Threshold Peak – dB re 1 μPa SEL_{cum} – dB re 1 μPa^2-sec	
				Impulsive (*Impact Pile Driving*)	Non-Impulsive (*Vibratory Pile Driving*)
Pinnipeds	120 dB RMS	160 dB RMS	Phocid	218 dB Peak 185 dB SEL_{cum}	201 dB SEL_{cum}
			Otariid	232 dB Peak 203 dB SEL_{cum}	219 dB SEL_{cum}

TABLE 4 Definition of Marine Mammal Hearing Group for Pinnipeds

Marine Mammal Hearing Groups	
Functional Hearing Group	**Functional Hearing Range**
Phocid Pinnipeds – true seals, including harbor seals	50 Hz to 86 kHz
Otariid Pinnipeds – sea lions and fur seals	60 Hz to 39 kHz

Note: Hz = hertz

PROJECT UNDERWATER SOUND-GENERATING ACTIVITIES

The primary type of activity that has the potential to elevate underwater noise levels is the installation of piles using an impact pile driver. Vibratory pile installation or removal could harass marine mammals if they are present. For this project, piles are expected to be installed using both vibratory and impact installation. Pile removal may be conducted using vibratory means. Pile installation activities for the project are summarized for the Proposed Project and two configuration options below.

a) Proposed Project
   - Sixteen (16) 36-inch steel pipe piles installed in water via vibratory driving and proofed using impact driving.
   - Four (4) 12-inch steel pipe piles installed in water via vibratory driving and proofed using impact driving.

b) Configuration Option 1

- Seventeen (17) 36-inch steel pipe piles installed in water via vibratory driving and proofed using impact driving.
- Eight (8) 12-inch steel pipe piles installed in water via vibratory driving and proofed using impact driving.

c) Configuration Option 2
- Seventeen (17) 36-inch steel pipe piles installed in water via vibratory driving and proofed using impact driving.
- Eight (8) 12-inch steel pipe piles installed in water via vibratory driving and proofed using impact driving.

Pile driving in the water causes sound energy to radiate directly into the water by vibrating the pile between the surface of the water and the substrate, and indirectly as a result of ground-borne vibration at the riverbed. Airborne sound does not make a substantial contribution to underwater sound levels because of the attenuation of sound at the air/water interface. A minimum water depth is required to allow sound to propagate. For pile-driving sounds, the minimum depth would be about one m (3 feet).

Table 5 summarizes the proposed pile-driving activities, the number of piles anticipated per day, and the duration of the pile driving activity for vibratory driving.

TABLE 5 Pile-driving Activities for the Proposed Project

New Structure	Pile Type	Pile Location	Duration/Estimated Blows per Pile[1]	Piles per Day
Gangway, Dolphin, New Standard WETA Float, Monopiles	36-inch steel pipe	In Water	120 minutes vibrate 450 strikes impact	4
Monopiles (Marker Piles)	12-inch steel piles	In Water	120 minutes vibrate 450 strikes impact	4

[1] Impact driving assumes about 15 minutes of driving with a total of about 450 strikes per pile.

Predicted Underwater Sound Levels from Construction

This assessment predicts underwater sound levels associated with the different piling activities that are anticipated. Piling activities include the impact and vibratory installation and removal of steel pipe piles. Removal of piles is anticipated to have similar sound levels as installation of a similar size pile.

Pile installation would be conducted using vibratory pile driving methods that minimize impacts to fish. It is assumed that an impact pile driver would be necessary to complete pile installation and provide engineering information to verify design parameters (i.e., proof the piles).

The prediction of sound levels from pile-driving activities proposed for this project relies on data collected from the vicinity of this site and other sites with similar conditions. Table 6 below shows the studies used to aid in predicting underwater noise levels and calculating distances to thresholds for fishes and marine mammals discussed in this report.

Underwater Sound Levels from Project Pile Driving

Data in the following studies were reviewed for the various pile-driving activities summarized in Table 6. The values in Table 6 are for sound levels measured at 10 m (33 feet) from the piles for conditions similar to those that would occur at this project. Detailed information on the measurements that make up these levels below are provided in the references.

TABLE 6 Measured Levels for Pile-driving Activities

Driving Method	Pile Type	Size	Sound Pressure Level in dB re 1 µPa at 10 Meters			Notes
			Peak	RMS	SEL	
Impact	Steel pipe pile in water	12-inch	199	179	169	Based on 14-in steel pile levels in Caltrans 2020. Note there is a lack of representative data for 12-in steel piles.
Impact	Steel pipe pile in water	36-inch	211	193	183	Caltrans 2020 as recommended by NMFS (see 88 FR 56595)
Vibrate	Steel pipe pile in water	12-inch	171	155	155	13-in steel piles measured at Mad River Slough, Arcata, CA due to lack of data for vibrated 12-in piles
Vibrate	Steel pipe pile in water	36-inch	200	168	168	Anchorage Port Modernization Program – Test Pile Program (POA 2016)

* Estimated as 10 dB below measured RMS level

Table 7 shows the predicted sound levels expected at 10-meters (33-foot) distances from different pile-driving activities expected from the project. Included are the unattenuated sound levels (peak, RMS, SEL) expected, also at 10 m (33 feet) from the piles. Table 7 also shows expected attenuated levels that correspond to a 5-dB reduction because of different attenuation mechanisms like bubble curtains or isolation casing that may be used during the in-water pile-driving activities. These levels, which have been taken from past projects, provide an estimate of the levels to be expected from the pile-driving activities proposed for the project. Impacts on fishes and marine mammals are then calculated using these levels (both unattenuated and attenuated).

Note, that the 36-in attenuated levels in Table 7 assume a 10-dB reduction from the unattenuated levels in Table 6. Noise measurements made in 2015[2] at the project site indicate a range of measured 36-in steel pile levels from 172 to 205 dB peak, 149 to 183 dB RMS and 139 to 171 dB SEL for impact pile driving with a bubble curtain. These levels indicate an attenuation of up to 30 dB provided by the bubble curtain, when compared to published unattenuated levels. In order to be in compliance with NMFS recommendations for estimating bubble curtain performance, a conservative 10-dB attenuation is assumed. Use of these higher values also avoid under predicting impacts.

[2] Pommerenck, K., Roberts J. Illingworth & Rodkin, Inc. - WETA North Bay Maintenance and Operations Facility Vallejo, CA August to September 2015

TABLE 7 Sound Levels Used for Predicting Underwater Sound Impacts

Driving Method	Pile Type	Size	Sound Pressure Level Measured in dB re 1 μPa at 10 Meters					
			Unattenuated			Attenuated[a]		
			Peak	RMS	SEL	Peak	RMS	SEL
Impact	Steel pipe pile in water	12-inch	199	179	169	194	174	164
Impact	Steel pipe pile in water	36-inch	211	193	183	201	183	173
Vibrate	Steel pipe pile in water	12-inch	171	155	155	<5 dB attenuation expected from vibrated piles		
Vibrate	Steel pipe pile in water	36-inch	200	168	168	<5 dB attenuation expected from vibrated piles		

[a] Attenuated condition assumes minimum 5-dB lower sounds for 12-inch piles. For 36-inch piles, a conservative estimate of 10-dB attenuation is assumed.

Predicted Impacts on Fishes

Table 8 shows the anticipated distances (in meters and in feet) to the various adopted interim fish thresholds[3]. Distances are shown for both unattenuated and attenuated piles (5- to 10-dB attenuation). Also, when the piles are installed with a vibratory hammer, the cumulative SEL thresholds for fish do not apply, and the 150-dB RMS level provides an estimated zone of possible acoustic effects. The distance to each threshold was computed using the transmission loss coefficient of 15 times the Log_{10} of the distance, as recommended by NMFS when there is no site-specific information for the area. Cumulative SEL was further computed by adding 10 times the Log_{10} of the number of impact pile strikes. Impact strikes used in these computations are the sum of the anticipated strikes per pile times the number of piles per day.

Note that sound propagation in the vicinity of the Vallejo Ferry Terminal is constrained by bends in the Napa River, which is oriented southeast to northwest. Sound would only propagate up and down the channel. Therefore, the distance for noise impact from this project is limited to 3,280 meters north directly upstream and 5,600 meters south directly downstream under the worst-case conditions.

[3] Distances to Adopted Interim fish thresholds calculated using Optional Multi Species Pile Driving Calculator Version 1.2 (2022) - https://www.fisheries.noaa.gov/s3/2023-05/BlankMultiSpecies-August2022b-Public-OPR1.xlsx . Screenshots of calculated results shown in Attachment B

TABLE 8 Distance to Adopted Fish Thresholds for All Piles

Driving Method	Pile Type	Size	Piles per Day	Estimated No. of Strikes per Pile	Condition[a]	Distance to Adopted Fish Thresholds			
						Peak 206 dB[b]	RMS 150 dB[b]	Cumulative SEL	
								187 dB[c]	183 dB[c]
Impact	Steel pile in water	12-in	4	450[e]	Unattenuated	--[d]	858 m *[2,814 ft]*	93 m *[306 ft]*	173 m *[566 ft]*
					Attenuated	--[d]	398 m *[1,306 ft]*	43 m *[142 ft]*	80 m *[263 ft]*
Impact	Steel pile in water	36-in	4	450[e]	Unattenuated	22 m *[71 ft]*	3,280/5,600 m[g] *[10,761/ 18,373 ft]*	801 m *[2,627 ft]*	1,480 m *[4,855ft]*[g]
					Attenuated	--[d]	1,585 m *[5,200 ft]*	173 m *[566 ft]*	319 m *[1,046ft]*
Vibrate	Steel pile in water	12-in	4	--[f]	Unattenuated	--[d]	22 m *[71 ft]*	N/A	N/A
Vibrate	Steel pile in water	36-in	4	--[f]	Unattenuated	--[d]	159 m *[520 ft]*	N/A	N/A

[a] Attenuated condition assumes 5-dB lower sounds for 12-inch piles and 10-dB lower sounds for 36-inch piles
[b] dB re 1 µPa
[c] dB re 1 µPa^2-sec
[d] Within the near-field of the sound source - < 10 meters [33 feet]
[e] Assuming impact hammer usage for 15 mins with about 450 strikes per pile.
[f] Piles vibrated in at 120 minutes each (7,200 sec.).
[g] Constrained by bends in the Napa River near the Vallejo Ferry Terminal, 3,280 m [10,761 ft] north and 5,600 m [18,373 ft] south.

Predicted Impacts on Marine Mammals

The following threshold distances were computed to assess impacts on pinnipeds:

- Distance to onset PTS isopleth for each hearing group (considered Level A impacts)
    - Unattenuated
    - Attenuated
- Distance for unweighted 120-dB vibratory and 160-dB impulse behavior isopleth (considered Level B impacts)
    - Unattenuated
    - Attenuated

The Multi-Species Pile Driving Calculator (Version 1.2 [2022])[4] to the *NMFS Technical Guidance for Assessing the Effects of Anthropogenic Noise on Marine Mammal Hearing* was used to predict zones where the onset of PTS to marine mammal hearing could occur. A spreading loss calculation is included in the spreadsheet to predict the distance to the onset PTS from accumulated SEL and peak sound pressure. The spreadsheet incorporates a frequency weighting function that accounts for sensitivity for different hearing groups when computing the accumulated SEL. These are referred to as weighting frequency adjustments. The default weighting frequency adjustments are

[4] Distances to Marine Mammal thresholds also calculated using Optional Multi Species Pile Driving Calculator Version 1.2 (2022) - https://www.fisheries.noaa.gov/s3/2023-05/BlankMultiSpecies-August2022b-Public-OPR1.xlsx . Screenshots of calculated results shown in Attachment B

2 kHz for impact pile driving and 2.5 kHz for vibratory driving. Because the onset of PTS based on SEL_{cum} is computed as further from the pile than it would be using peak sound pressure computations, the onset of PTS is based on SEL computations; therefore, the onset of PTS based on peak sound levels is not provided in this assessment.

The extent of the Level B Zone was calculated using the 10-meter (33-foot) sound levels and applying a transmission loss coefficient of 15 times the Log_{10} of the distance, as recommended by NMFS when there is no site-specific information for the area.

Table 9 presents the anticipated distances to the adopted marine mammal thresholds (Level A and Level B Zones). When the piles are installed with a vibratory hammer, the cumulative SEL thresholds apply for sounds greater than 150 dB (re 1 μPa^2-sec) SEL. The peak PTS thresholds that apply to marine mammals will not be reached. Distances are shown for both unattenuated and attenuated pile-driving activities expected from the project, for the estimated number of strikes and piles per day proposed.

Attenuation Methods

Air bubble curtains, either confined or un-confined, have been shown to reduce sound pressure levels for impact pile driving in water by up to about 5 to 20 dB within 300 meters of the pile. Caltrans guidance recommends a 5-dB reduction was used for calculating the distances to the fish and marine mammal thresholds (Caltrans 2020). Measurements in the area indicate greater than 10 dB attenuation for driving of 36-inch piles[5]. The amount of attenuation may be more, especially at distant locations from the pile because of the contribution of sound propagating through the bottom substrate.

The design of the specific bubble ring configuration will depend on several factors, such as the depth of water and the water current, and must be designed appropriately. Air bubble curtain systems are used during production pile driving to reduce underwater sound pressures. Typically, a system consists of stacked rings to generate air bubbles throughout the entire water column surrounding the piles, even with currents. It is critical to ensure bubble flux throughout the entire water depth, especially near the bottom. A bubble curtain system is generally composed of air compressors, supply lines to deliver the air, distribution manifolds or headers, perforated aeration pipes, and a frame. The frame is used to facilitate transportation and placement of the system, keep the aeration pipes stable, and provide ballast to counteract the buoyancy of the aeration pipes during pile-driving operations. Bubble curtain designs consist of single or multiple concentric layers of perforated aeration pipes (stacked vertically). Pipes in any layer are arranged in a geometric pattern that allows the pile-driving operation to be completely enclosed by bubbles for the full depth of the water column. The lowest layer of perforated aeration pipe is designed to ensure contact with the mud line without sinking into the bottom substrates. A proper combination of bubble density and closeness of bubbles to the pile is most effective. Numerous smaller bubbles are more effective because they displace more water between the bubbles. Again, this pattern has to be maintained throughout the water column.

[5] Pommerenck, K., Roberts J. Illingworth & Rodkin, Inc. - WETA North Bay Maintenance and Operations Facility Vallejo, CA August to September 2015

TABLE 9 Distance to the Adopted Marine Mammal Thresholds for Different Pile-driving Activities – Level A and B Zones

Driving Method	Pile Type	Size	Piles per Day	Estimated No. of Strikes per Pile	Condition[a]	Level A Injury Zone Using SEL_{cum} Threshold – Pinnipeds – Phocid	Level A Injury Zone Using SEL_{cum} Threshold – Pinnipeds – Otariid	Level B Harassment Zone
Impact	Steel pipe pile in water	12-inch	4	450[e]	Unattenuated	92 m *[303 ft]*	--[b]	185 m *[606 ft]*
					Attenuated	43 m *[140 ft]*	--[b]	86 m *[281 ft]*
Impact	Steel pipe pile in water	36-inch	4	450[e]	Unattenuated	791 m *[2,595 ft]*	58 m *[189 ft]*	1,585 m *[5,200 ft]*
					Attenuated	170 m *[559 ft]*	12 m *[41 ft]*	342 m *[1,120 ft]*
Vibrate	Steel pipe pile in water	12-inch	4	--[c]	Unattenuated	--[b]	--[b]	2,154 m *[7,068 ft]*
Vibrate	Steel pipe pile in water	36-inch	4	--[c]	Unattenuated	49 m *[160 ft]*	--[b]	3,280/5,600 m [d] *[10,761/ 18,373 ft]*

[a] Attenuated condition assumes 5-dB lower sounds for 12-inch piles and 10-dB lower sounds for 36-inch piles
[b] Within the near-field of the sound source - < 10 meters [33 feet]
[c] Piles vibrated in at 120 minutes each.
[d] Constrained by bends in the Napa River near the Vallejo Ferry Terminal, 3,280 m [10,761 ft] north and 5,600 m [18,373 ft] south
[e] Assuming impact hammer usage for 15 mins with about 450 strikes per pile.

Illustration of Impacts

Attachment A includes Google Earth maps displaying the extent of both fish injury zones and marine mammal Level A and B Zones around the proposed project site for the piles driven. Attachment B includes screenshots from the NMFS Multi-Species Calculator tool that was used to calculate distances to fish and marine mammal thresholds.

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Attachment A

Maps Illustrating the 187-dB Cumulative SELs, 206-dB Peak Adopted Fish Injury Zones and Marine Mammal Level A and B Zones (Source: Google Earth 2024)

FIGURE A1 Distance to Adopted Fish Thresholds for Unattenuated 12-inch steel piles impact driven (Google Earth 2024)

FIGURE A2 Distance to Adopted Fish Thresholds for Unattenuated 36-inch steel piles impact driven (Google Earth 2024)

FIGURE A3 Distance to Marine Mammal Thresholds for 12-inch steel piles impact driven (Google Earth 2024)

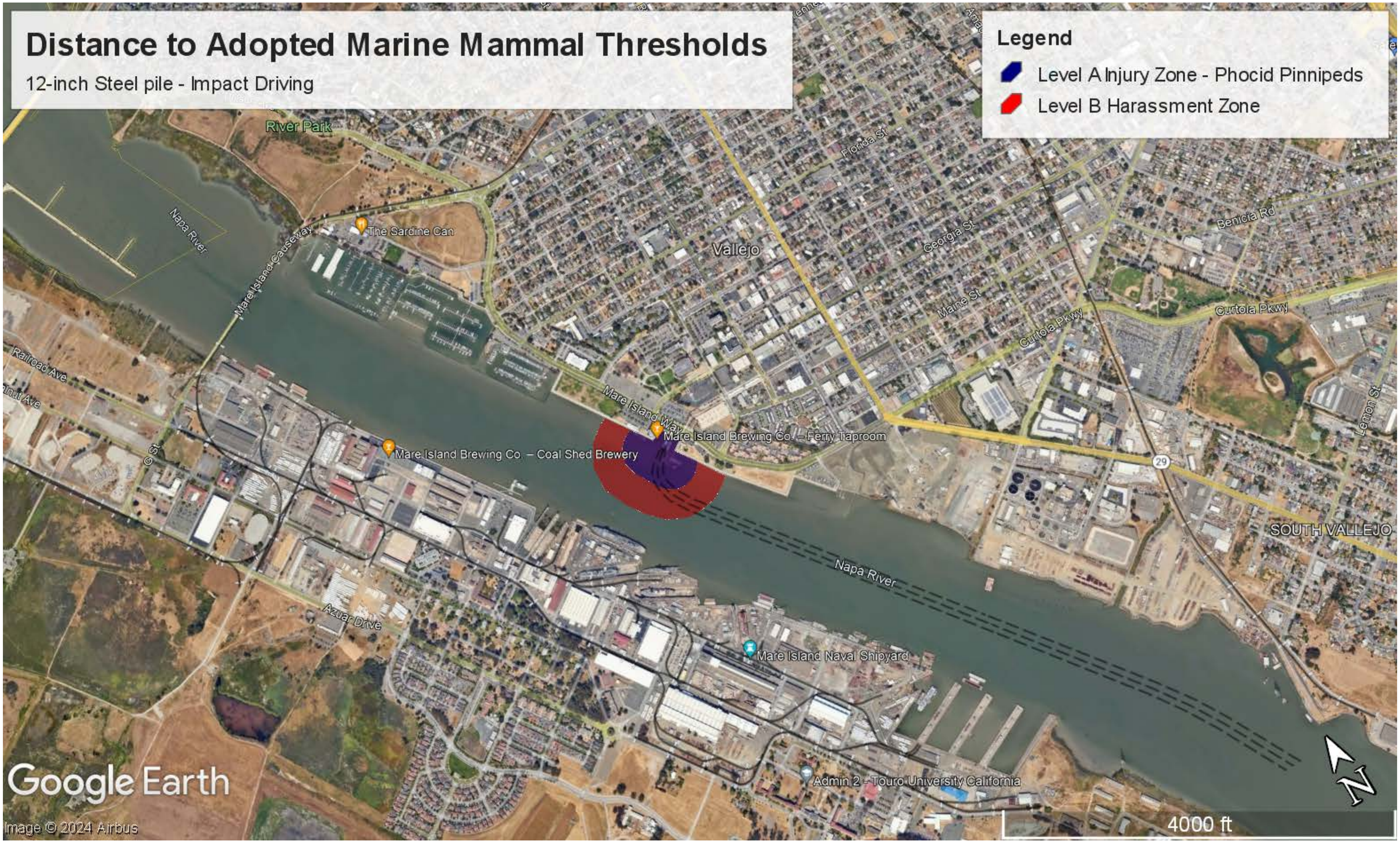


FIGURE A4 Distance to Marine Mammal Thresholds for 12-inch steel piles using vibratory hammer (Google Earth 2024)

FIGURE A5 Distance to Marine Mammal Thresholds for 36-inch steel piles impact driven (Google Earth 2024)

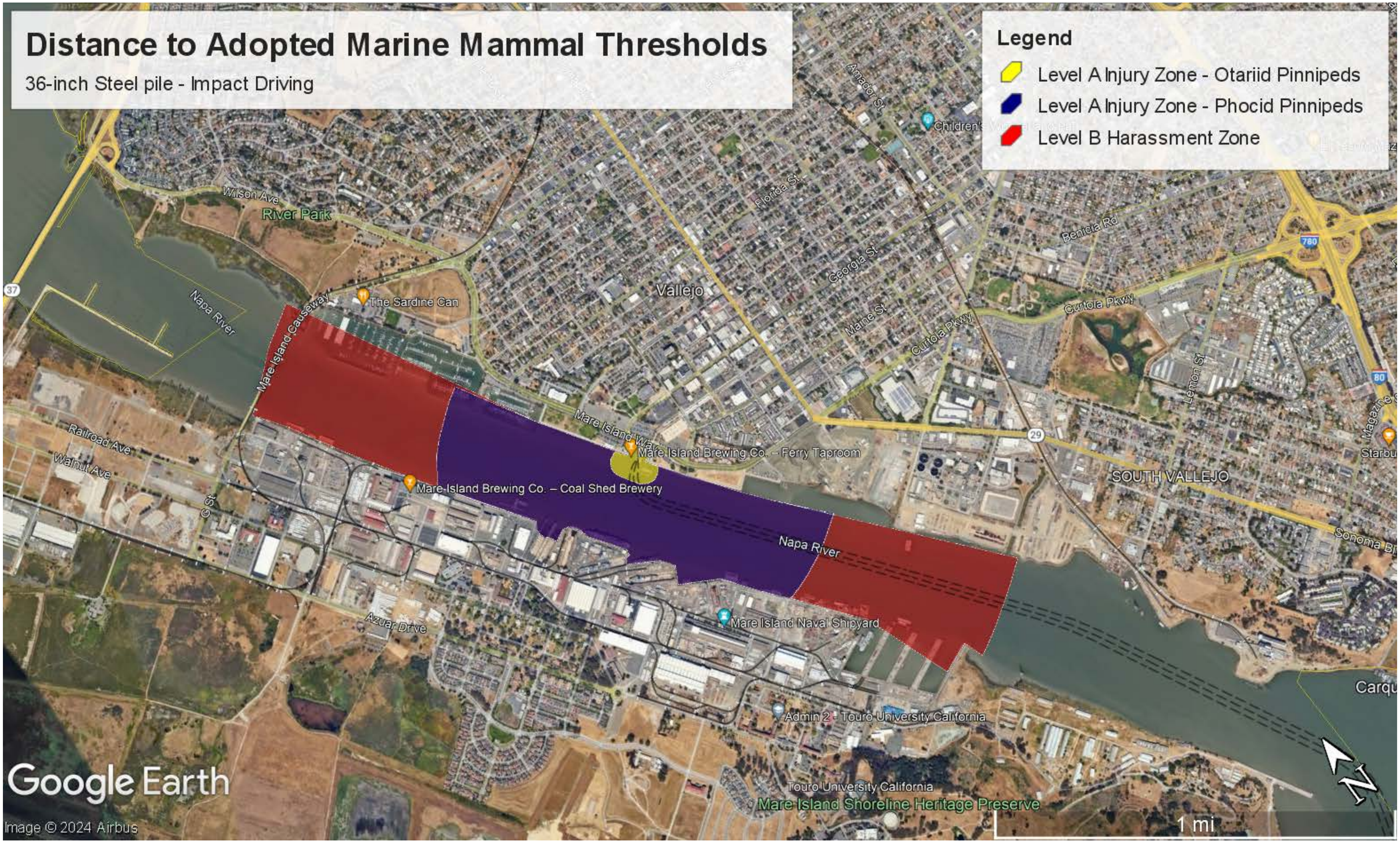


FIGURE A6 **Distance to Marine Mammal Thresholds for 36-inch steel piles using vibratory hammer (Google Earth 2024)**

Attachment B
Screenshots from NMFS Optional Multi Species Pile Driving Calculator Version 1.2 (2022)

FIGURE B1 **NMFS Multi-Species Calculator Spreadsheet Screenshot – 12-inch steel piles impact driven**

IMPACT PILE DRIVING REPORT

VERSION 1.2-Multi-Species: 2022

WETA Vallejo

PRINT IN LANDSCAPE TO CAPTURE ENTIRE SCREEN

(if OTHER INFO or NOTES get cut-off, please include information elsewhere)

PROJECT INFORMATION	PEAK	SELss	RMS
Single strike level (dB)	199	169	179
Distance associated with single strike level (meters)	10	10	10
Transmission loss constant	15		
Number of piles per day	4		
Number of strikes per pile	450		
Number of strikes per day	1800		
Cumulative SEL at measured distance	202		

OTHER INFO: 12-inch steel piles

NOTES: 0

Attenuation: 0

RESULTANT ISOPLETHS

(Range to Effects)

FISHES

	ONSET OF PHYSICAL INJURY			BEHAVIOR	
	Peak Isopleth	SEL_{cum} Isopleth Fish ≥ 2 g	SEL_{cum} Isopleth Fish < 2 g	RMS Isopleth	
ISOPLETHS (meters)	3.4	93.4	172.5	857.7	Fishes present
Isopleth (feet)	11.2	306.3	566.0	2,814.0	

SEA TURTLES

	PTS ONSET		BEHAVIOR	
	Peak Isopleth	SEL_{cum} Isopleth	RMS Isopleth	
ISOPLETHS (meters)	0.1	6.9	18.5	NO SEA TURTLES
Isopleth (feet)	0.2	22.6	60.6	

MARINE MAMMALS

	LF Cetacean	MF Cetaceans	HF Cetaceans	PW Pinniped	OW Pinnipeds
PTS ONSET (Peak isopleth, meters)	0.5	0.1	6.3	0.5	0.1
PTS ONSET (Peak isopleth, feet)	1.5	0.3	20.7	1.8	0.2
PTS ONSET (SEL_{cum} isopleth, meters)	172.3	6.1	205.2	92.2	6.7
PTS ONSET (SEL_{cum} isopleth, feet)	565.2	20.1	673.3	302.5	22.0
	ALL MM	NO MF CET.	NO HF CET.	Phocids present	Otariids present
Behavior (RMS isopleth, meters)	184.8	NO LF CET.			
Behavior (RMS isopleth, feet)	606.2				

FIGURE B2 NMFS Multi-Species Calculator Spreadsheet Screenshot – 12-inch steel piles using vibratory hammer

VIBRATORY PILE DRIVING REPORT

VERSION 1.2-Multi-Species: 2022

WETA Vallejo

PRINT IN LANDSCAPE TO CAPTURE ENTIRE SCREEN
(if OTHER INFO or NOTES get cut-off, please include information elsewhere)

PROJECT INFORMATION	RMS
Sound pressure level (dB)	155
Distance associated with sound pressure level (meters)	10
Transmission loss constant	15
Number of piles per day	4
Duration to drive pile (minutes)	120
Duration of sound production in day	28800
Cumulative SEL at measured distance	200

OTHER INFO	12-in vibrate
NOTES	extra information
Attenuation	0

RESULTANT ISOPLETHS
(Range to Effects)

FISHES

Fishes present	BEHAVIOR RMS Isopleth
ISOPLETHS (meters)	21.5
ISOPLETHS (feet)	70.7

SEA TURTLES

NO SEA TURTLES	PTS ONSET SEL_{cum} Isopleth	BEHAVIOR RMS Isopleth
ISOPLETHS (meters)	0.4	0.5
ISOPLETHS (feet)	1.4	1.5

MARINE MAMMALS

	LF Cetacean	MF Cetaceans	HF Cetaceans	PW Pinniped	OW Pinnipeds
PTS ONSET (SELcum isopleth, meters)	10.9	1.0	16.1	6.6	0.5
PTS ONSET (SELcum isopleth, feet)	35.7	3.2	52.8	21.7	1.5
	ALL MM	NO MF CET.	NO HF CET.	Phocids present	Otariids present
Behavior (RMS isopleth, meters)	2,154.4	NO LF CET.			
Behavior (RMS isopleth, feet)	7,068.4				

FIGURE B3 **NMFS Multi-Species Calculator Spreadsheet Screenshot – 36-inch steel piles impact driven**

IMPACT PILE DRIVING REPORT

VERSION 1.2-Multi-Species: 2022

WETA Vallejo

PRINT IN LANDSCAPE TO CAPTURE ENTIRE SCREEN

(if OTHER INFO or NOTES get cut-off, please include information elsewhere)

PROJECT INFORMATION	PEAK	SELss	RMS
Single strike level (dB)	211	183	193
Distance associated with single strike level (meters)	10	10	10
Transmission loss constant	15		
Number of piles per day	4		
Number of strikes per pile	450		
Number of strikes per day	1800		
Cumulative SEL at measured distance	216		

OTHER INFO: 36-in steel pile

NOTES: 0

Attenuation: 0

RESULTANT ISOPLETHS

(Range to Effects)

FISHES

	ONSET OF PHYSICAL INJURY			BEHAVIOR	
	Peak Isopleth	SEL_{cum} Isopleth Fish ≥ 2 g	SEL_{cum} Isopleth Fish < 2 g	RMS Isopleth	
ISOPLETHS (meters)	21.5	800.8	1,479.7	7,356.4	Fishes present
Isopleth (feet)	70.7	2,627.2	4,854.7	24,135.2	

SEA TURTLES

	PTS ONSET		BEHAVIOR	
	Peak Isopleth	SEL_{cum} Isopleth	RMS Isopleth	
ISOPLETHS (meters)	0.4	59.0	158.5	NO SEA TURTLES
Isopleth (feet)	1.3	193.4	520.0	

MARINE MAMMALS

	LF Cetacean	MF Cetaceans	HF Cetaceans	PW Pinniped	OW Pinnipeds
PTS ONSET (Peak isopleth, meters)	2.9	0.5	39.8	3.4	0.4
PTS ONSET (Peak isopleth, feet)	9.6	1.8	130.6	11.2	1.3
PTS ONSET (SEL_{cum} isopleth, meters)	1,477.7	52.6	1,760.2	790.8	57.6
PTS ONSET (SEL_{cum} isopleth, feet)	4,848.1	172.4	5,774.8	2,594.5	188.9
	ALL MM	NO MF CET. NO LF CET.	NO HF CET.	Phocids present	Otariids present
Behavior (RMS isopleth, meters)	1,584.9				
Behavior (RMS isopleth, feet)	5,199.8				

FIGURE B4 NMFS Multi-Species Calculator Spreadsheet Screenshot – 36-inch steel piles using vibratory hammer

VIBRATORY PILE DRIVING REPORT

PRINT IN LANDSCAPE TO CAPTURE ENTIRE SCREEN

(if OTHER INFO or NOTES get cut-off, please include information elsewhere)

VERSION 1.2-Multi-Species: 2022

WETA Vallejo

PROJECT INFORMATION	RMS
Sound pressure level (dB)	168
Distance associated with sound pressure level (meters)	10
Transmission loss constant	15
Number of piles per day	4
Duration to drive pile (minutes)	120
Duration of sound production in day	28800
Cumulative SEL at measured distance	213

OTHER INFO	36-in vibrate
NOTES	extra information
Attenuation	0

RESULTANT ISOPLETHS

(Range to Effects)

FISHES

Fishes present	BEHAVIOR RMS Isopleth
ISOPLETHS (meters)	158.5
ISOPLETHS (feet)	520.0

SEA TURTLES

NO SEA TURTLES	PTS ONSET SEL_{cum} Isopleth	BEHAVIOR RMS Isopleth
ISOPLETHS (meters)	3.2	3.4
ISOPLETHS (feet)	10.5	11.2

MARINE MAMMALS

	LF Cetacean	MF Cetaceans	HF Cetaceans	PW Pinniped	OW Pinnipeds
PTS ONSET (SELcum isopleth, meters)	80.0	7.1	118.3	48.6	3.4
PTS ONSET (SELcum isopleth, feet)	262.5	23.3	388.1	159.6	11.2
	ALL MM	NO MF CET.	NO HF CET.	Phocids present	Otariids present
Behavior (RMS isopleth, meters)	15,848.9	NO LF CET.			
Behavior (RMS isopleth, feet)	51,997.8				

Appendix I

Transportation and Circulation Report

4.14 TRANSPORTATION AND CIRCULATION

This report describes the existing setting with regard to transportation and circulation conditions, including transit services and pedestrian and bicycle facilities in the project's vicinity of the Vallejo Ferry Terminal Reconfiguration project ("Project"); discusses the regulations and policies pertinent to transportation and circulation; assesses the potential transportation impacts that could result from implementation of the Project; and provides, where appropriate, mitigation measures to address those impacts.

4.14.1 ENVIRONMENTAL SETTING

This section provides a discussion of the existing conditions related to transportation and traffic around and within the Project vicinity. Figure 1 shows the Project site location and surrounding area.

Roadway Network

Regional and local roadways serving the Project site are described below.

(1) Regional Access

Interstate-80 (I-80) is an east-west freeway directly east of the Project site extending southwest to Berkeley and San Francisco via the Carquinez Bridge, and northeast through Fairfield and Sacramento, into Nevada and beyond. I-80 is oriented in the north-south direction through the study area and is accessible from the Project site via interchanges at State Route-29 (SR-29), Magazine Street, Curtola Parkway, Benicia Road, Georgia Street, Springs Road, and Tennessee Street. In the study area, I-80 provides three lanes in each direction and has a posted speed limit of 65 miles per hour (mph).

- Interstate-780 (I-780) is an east-west freeway directly east of the Project site that connects from Interstate-680 (I-680), north of the Benicia-Martinez Bridge, to I-80 in Vallejo. The freeway terminates at the I-80/I-780 interchange, connecting to Curtola Parkway at the Lemon Street intersection. I-780 is accessible from the Project site via Curtola Parkway. In Vallejo, I-780 consists of two lanes in each direction with a posted speed limit of 65 mph.

- SR-29 is a north-south principal arterial/state route directly east of the Project site extending from I-80 in the south, to State Route-37 (SR-37), through American Canyon until its intersection and transition with State Route-12. SR-29 runs through the western part of the City of Vallejo where the roadway is also known as Sonoma Boulevard. SR-29 can be accessed from the Project site via Curtola Parkway, Maine Street, Georgia Street, and Tennessee Street. In the Project vicinity, Sonoma Boulevard is a two-lane roadway with left-turn pockets at major intersections and a posted speed limit of 30 mph.

- SR-37 is an east west freeway/two-lane divided highway north of the Project site. In the Project vicinity, SR-37 is a freeway with a northeast-southwest orientation. SR-37 extends from its interchange with I-80 through Vallejo west to its interchange with US-101. SR-37 is accessible from the Project site via its interchanges at Railroad Avenue and Walnut Avenue on Mare Island, Wilson Avenue, and SR-29. In Vallejo, SR-37 consists of two lanes in each direction with a posted speed limit of 65 mph.

(2) Local Access

- Curtola Parkway is an east-west arterial street south of the Project site. Curtola Parkway extends west from the I-780 terminus to the Maine Street and Mare Island Way intersection where the roadway transitions into Mare Island Way. Curtola Parkway provides two travel lanes in each direction. The posted speed limit is 40 mph from I-780 to the Sonoma Boulevard (SR-29) intersection, where it lowers to 35 mph.

- Mare Island Way is a north-south arterial road that runs along the eastern boundary of the Project site extending from the Maine Street and Curtola Parkway intersection to the Hichborn Street and Wilson Avenue intersection, where the roadway transitions to Wilson Avenue. In the Project vicinity, Mare Island Way provides two travel lanes in either direction and the posted speed limit is 35 mph.

- Georgia Street is an east-west arterial street that extends from the intersection of Ascot Parkway to the intersection of Mare Island Way bordering the Project site. Georgia Street connects to I-80 via its interchange and intersects with Sonoma Boulevard (SR-29). In the Project vicinity, Georgia Street provides one lane of travel in each direction with a posted speed limit of 25 mph.

- Tennessee Street is an east-west arterial street directly north of the Project site extending from the intersection of Columbus Parkway to the Mare Island Road and Mare Island Causeway intersection, where the roadway transitions to Mare Island Causeway. The roadway connects to I-80 via its interchange and intersects with Sonoma Boulevard (SR-29). In the Project vicinity, Tennessee Street provides two travel lanes in each direction with a posted speed limit of 30 mph.

- Mare Island Causeway is an east-west arterial road directly north of the Project site and extends from the Mare Island Way and Tennessee Street intersection to the Nimitz Avenue and G Street intersection, where the roadway transitions into G Street. Besides SR-37, Mare Island Causeway serves as the only connection from Vallejo to Mare Island. In the Project vicinity, this road provides one lane of travel in each direction with a posted speed limit of 30 mph.

- Maine Street is an east-west collector street just south of the project site extending from its transition to Benicia Road at the Solano Avenue and Amador Street intersection to Curtola Parkway. In the Project vicinity, Maine Street provides two travel lanes in each direction with a posted speed limit of 25 mph.

- Florida Street is an east-west collector street north of the Project site extending from the Solano Avenue and 14th Street intersection to Mare Island Way. In the Project vicinity, this road provides one lane of travel in each direction with a posted speed limit of 25 mph.

Transit System

Transit service providers in the Project vicinity include Solano County Transit (SolTrans), VINE Transit, Amtrak, and the San Francisco Bay Ferry. SolTrans provides local and intercity bus service, while VINE Transit and Amtrak provide regional intercity bus service. San Francisco Bay Ferry provides access to the San Francisco Bay Area through specific terminals. Existing transit services near the Project site are shown in Figure 2 and described below.

(1) Bus Services

SolTrans serves as the primary bus service provider in Vallejo providing both local and regional options. Regional lines R, Y, and 82 along with local lines 1, 2, 3, 4, 5, 6, 7A, 7B, and 8 operate within the Project vicinity. All Soltrans routes stop at either the Vallejo Ferry Terminal, or the Vallejo Transit Center (approximately 0.2-mile walking distance from the Vallejo Ferry Terminal). VINE Transit service lines 11 and 11X also stop at either the Vallejo Ferry Terminal, or Vallejo Transit Center, and provide regional access to American Canyon. Amtrak provides a connecting bus service (route 7) from the Martinez Amtrak Station to Cal Poly Humboldt Campus that stops at the Vallejo Transit Center. Table 4.14-1 summarizes the characteristics of the SolTrans, VINE Transit, and Amtrak routes operating in the Project Area.

Table 4.14-1. SolTrans, VINE Transit, and Amtrak Routes in the Project Vicinity

Agency	Route	Type	Termini	Closest Stop	Hours of Operation[1]	Peak Frequency
SolTrans	Y	Intercity/ Commuter	Vallejo Transit Center to Walnut Creek BART	Vallejo Ferry Terminal	Monday to Friday: 4:30 AM to 10:30 PM Weekend: 6:15 AM to 9:00 PM	Monday to Friday: 60 minutes Weekend: 60-90 minutes
SolTrans	R	Intercity/ Commuter	Suisun/Fairfield Amtrak Station to El Cerrito del Norte BART	Vallejo Transit Center	Monday to Friday: 4:30 AM to 11:00 PM[2] Weekend: 7:00 AM to 10:00 PM[2]	60 minutes
SolTrans	82	Intercity/ Commuter	Fairfield Transportation Center to San Francisco Ferry Terminal	Vallejo Transit Center	Monday to Friday: 4:45 AM to 11:30 PM	2 buses per peak period
SolTrans	1	Local	Vallejo Transit Center to Rancho Square	Vallejo Transit Center	Monday to Friday: 6:45 AM to 9:15 PM Weekend: 8:30 AM to 7:15 PM	60 minutes
SolTrans	2	Local	Vallejo Transit Center to Gateway & Fairgrounds	Vallejo Transit Center	Monday to Friday: 7:00 AM to 9:45 PM Saturday: 9:00 AM to 6:45 PM	60 minutes
SolTrans	3	Local	Vallejo Transit Center to Fulton & Old Glen Cove	Vallejo Transit Center	Monday to Friday: 7:30 AM to 8:15 PM Saturday: 8:45 AM to 6:15 PM	30 minutes
SolTrans	4	Local	Vallejo Transit Center to Sereno Transit Center	Vallejo Transit Center	Monday to Friday: 7:00 AM to 9:00 PM Saturday: 8:30 AM to 6:30 PM	60 minutes

SolTrans	5	Local	Vallejo Transit Center to Gateway & Fairgrounds	Vallejo Ferry Terminal	Monday to Friday: 6:45 AM to 8:00 PM Saturday: 8:30 AM to 6:00 PM	60 minutes
SolTrans	6	Local	Vallejo Transit Center to Georgia & Rosewood Hogan MS	Vallejo Transit Center	Monday to Friday: 7:00 AM to 8:00 PM Saturday: 8:30 AM to 6:15 PM	60 minutes
SolTrans	7A	Local	Vallejo Transit Center to Gateway Plaza	Vallejo Transit Center	Monday to Friday: 6:45 AM to 9:00 PM Weekend: 8:45 AM to 7:15 PM	60 minutes
SolTrans	7B	Local	Vallejo Transit Center to Gateway Plaza	Vallejo Transit Center	Monday to Friday: 6:45 AM to 9:00 PM Weekend: 8:45 AM to 6:45 PM	60 minutes
SolTrans	8	Local	Vallejo Transit Center to Georgia & Rosewood Hogan MS	Vallejo Transit Center	Monday to Friday: 6:30 AM to 8:45 PM Saturday: 9:00 AM to 6:45 PM	60 minutes
VINE	11	Intercity/ Commuter	Vallejo Ferry Terminal to Redwood Park & Ride	Vallejo Ferry Terminal	Monday to Friday: 6:30 AM to 9:30 PM Weekend: 7:45 AM to 9:30 PM	60 minutes
VINE	11X	Intercity/ Commuter	Vallejo Ferry Terminal to Redwood Park & Ride	Vallejo Ferry Terminal	Monday to Friday: 6:15 AM to 7:30 PM	2 buses in AM peak period 3 buses in PM peak period
Amtrak	Route 7 NB	Intercity	Martinez Amtrak Station to Cal Poly Humboldt Campus	Vallejo Transit Center	Monday to Sunday: 10:45 AM to 8:00 PM	4 buses per day
Amtrak	Route 7 SB	Intercity	Cal Poly Humboldt Campus to Martinez Amtrak Station	Vallejo Transit Center	Monday to Sunday: 7:00 AM to 4:45 PM	3 buses per day

Table Notes

1. Time rounded to 15 minutes.
2. Limited service offered within this time.

Source: SolTrans, VINE Transit, and Amtrak, accessed July 2023.

(2) San Francisco Bay Ferry

The San Francisco Bay Ferry provides medium distance, cross-bay ferry service at various ferry terminals around the San Francisco Bay Area. The Vallejo Route provides 30-minute service during peak frequency with 60-minute travel times expected. The Vallejo Ferry Terminal is approximately 0.2 miles walking distance from the Vallejo Transit Center.

Pedestrian Network

Pedestrian facilities such as sidewalks, multi-use paved trails, and unpaved recreational trails are provided in the City of Vallejo. Continuous sidewalks are provided in developed areas of the city. Pedestrian activity is concentrated primarily in the downtown area, particularly near the Vallejo Ferry Terminal, Vallejo Transit Center, and the denser, gridded portions of Georgia Street, Virginia Street, Capitol Street, and Sonoma Boulevard. According to the Solano County Active Transportation Plan, in 2020 there were 515 existing miles of sidewalk, with 727 miles of potential sidewalk throughout the city.

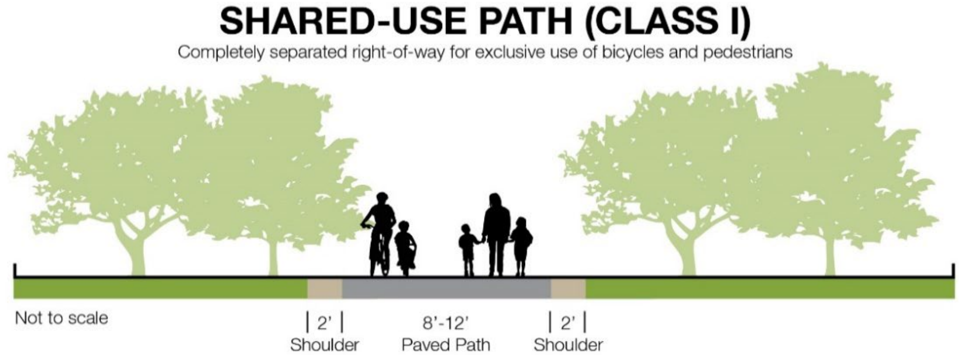
Much of the denser, grid-like portion of the downtown area has existing pedestrian facilities. However, some sidewalk gaps exist within the Project vicinity as highlighted in the Solano County Active Transportation Plan. North of the Project site, sidewalks are generally provided although minor gaps exist in the residential neighborhoods, such as on portions of Trinity Street and Kentucky Street. The main two roads used to access the Vallejo Ferry Terminal – Mare Island Way and Georgia Street – present continuous sidewalks in both sides of the road.

Protected (signalized) crossings are provided at intersections along significant roads, such as Mare Island Way, and Sonoma Boulevard. The Vallejo Transit Center serves nearly all bus lines in the area and is 0.2 miles walking distance from the Vallejo Ferry Terminal via the protected crossing at the Mare Island Way/City of Vallejo Parking Garage Entrance intersection and the marked crossing on Santa Clara Street directly in front of the Vallejo Transit Center.

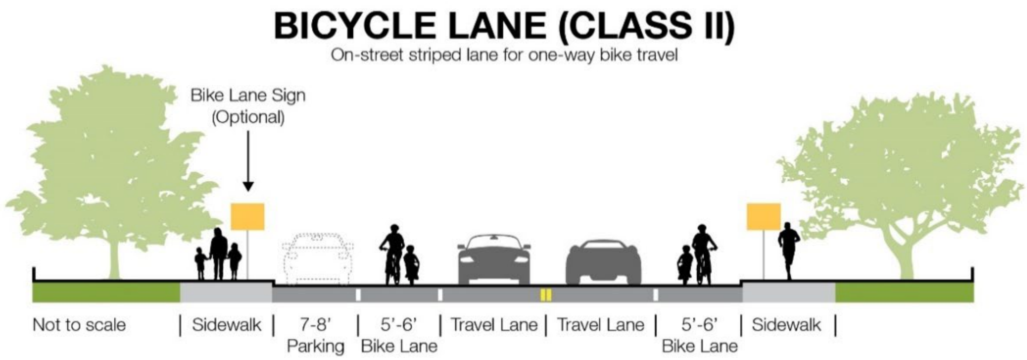
Bicycle Network

Bikeway planning and design in California typically relies on guidelines and design standards established by California Department of Transportation (Caltrans) in the *Highway Design Manual* (Chapter 1000: Bikeway Planning and Design). Caltrans provides examples for four distinct types of bikeway facilities, as described below and shown in the accompanying figures.

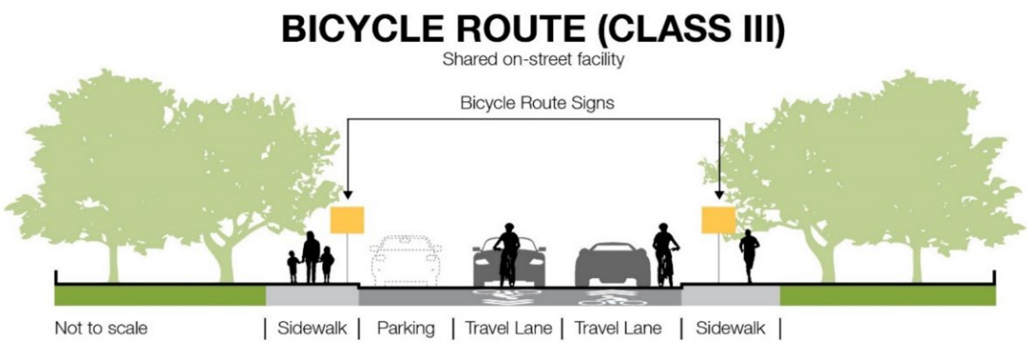
Class I Bikeways (Shared-Use Paths) provide a separate right-of-way and are designated for the exclusive use of bicycles and pedestrians, with vehicle and pedestrian cross-flow minimized. In general, bike paths serve corridors where on-street facilities are not feasible or where sufficient right-of-way exists to allow them to be constructed.



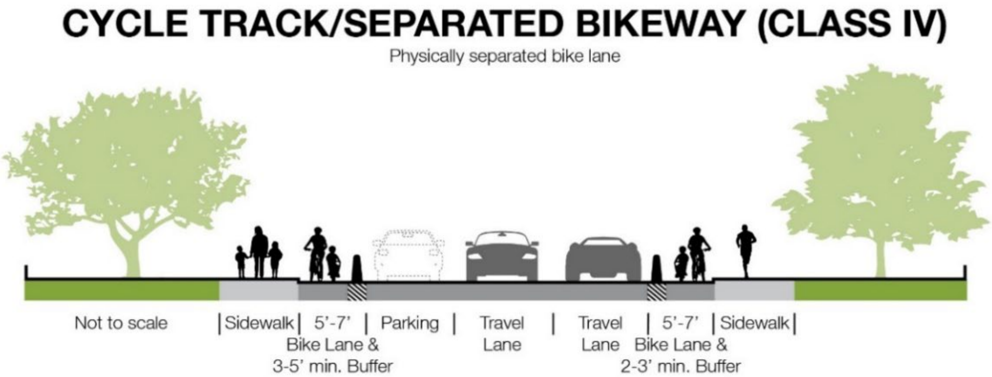
Class II Bikeways (Bicycle Lanes) are dedicated lanes for bicyclists generally adjacent to the outer vehicle travel lanes. These lanes have special lane markings, pavement legends, and signage. Bicycle lanes are typically five feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-flow are permitted.



Class III Bikeways (Bicycle Routes) are designated by signs or pavement markings for shared use with pedestrians or motor vehicles but have no separated bike right-of-way or lane striping. Bike routes serve either to a) provide a connection to other bicycle facilities where dedicated facilities are infeasible, or b) designate preferred routes through high-demand corridors.



<u>*Class IV Bikeways (cycle tracks or “separated” bikeways)*</u> provide a right-of-way designated exclusively for bicycle travel within a roadway and are protected from other vehicle traffic by physical barriers, including, but not limited to, grade separation, flexible posts, inflexible vertical barriers such as raised curbs, or parked cars.



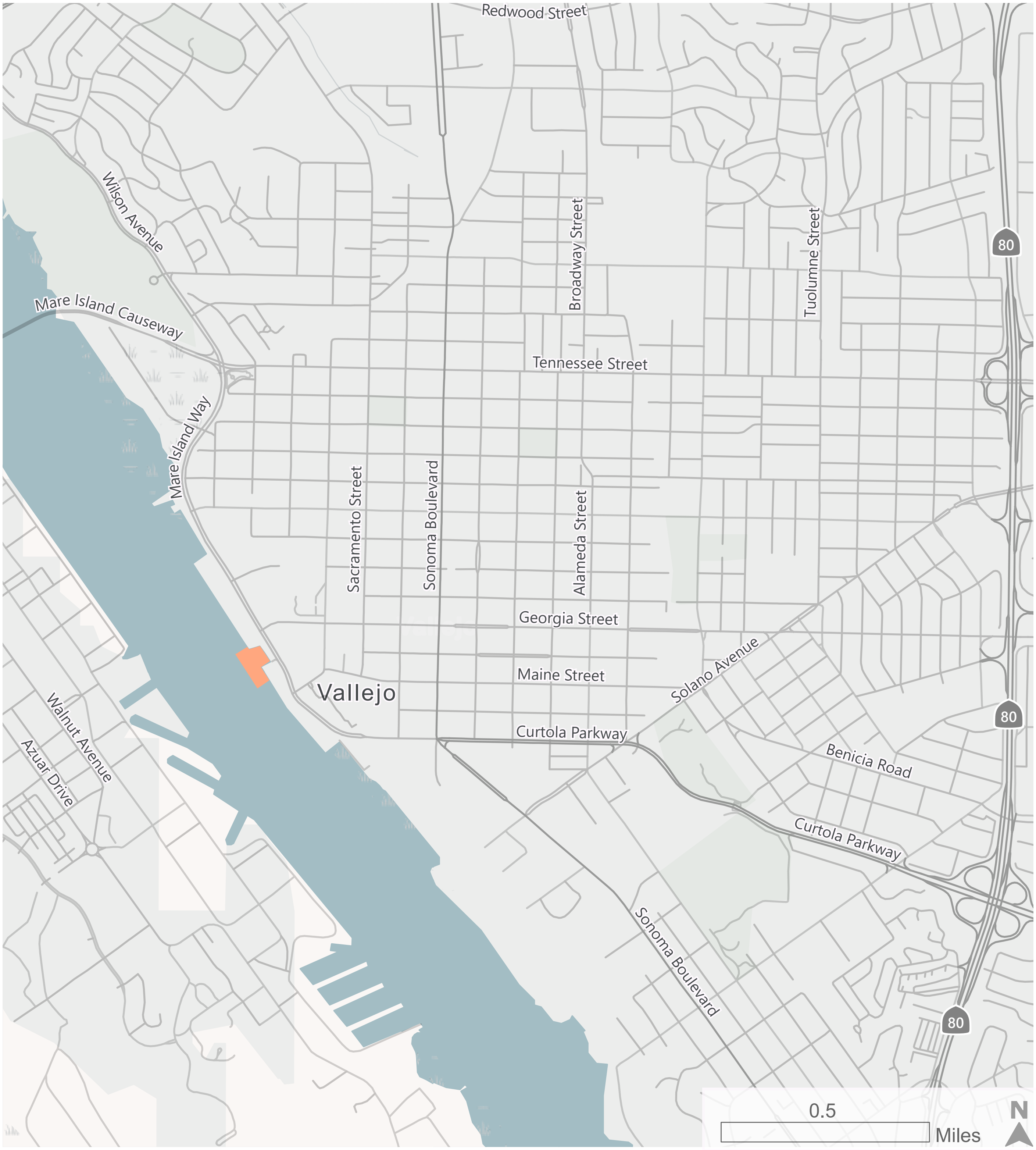
Class 1 bicycle paths are provided along the Vallejo waterfront parallel to Mare Island Way. Class 2 facilities are provided on Mare Island Way between Georgia Street and Maine Street, and further along the road between Florida Street and Wilson Avenue. These facilities are also provided on Georgia Street between Sonoma Boulevard and Monterey Street. Sonoma Boulevard also has an existing Class 2 bikeway lasting between Georgia Street and Florida Street.

The Solano County Active Transportation Plan and Vallejo General Plan propose the following bicycle projects in the Project vicinity:

- Class I facilities
    - San Francisco Bay Trail at Sacramento Street
    - Mare Island Causeway between Tennessee Street and Azuar Drive
- Class II facilities
    - Mare Island Way between Florida Street and Curtola Parkway
    - Wilson Avenue/Sacramento Street between San Francisco Bay Trail to Mare Island Way
- Class III facilities
    - Georgia Street between Sonoma Boulevard and Mare Island Way
    - Tennessee Street between Humboldt Street and Mare Island Way
    - Sacramento Street between Tennessee Street and Maine Street
    - Solano Avenue from Springs Road to Vallejo waterfront
    - Maine Street between Marin Street and Mare Island Way

- Class IV facilities
    - Sonoma Boulevard (SR-29) between I-80 and SR-37

Figure 3 illustrates the existing and proposed bicycle facilities in the Project vicinity.



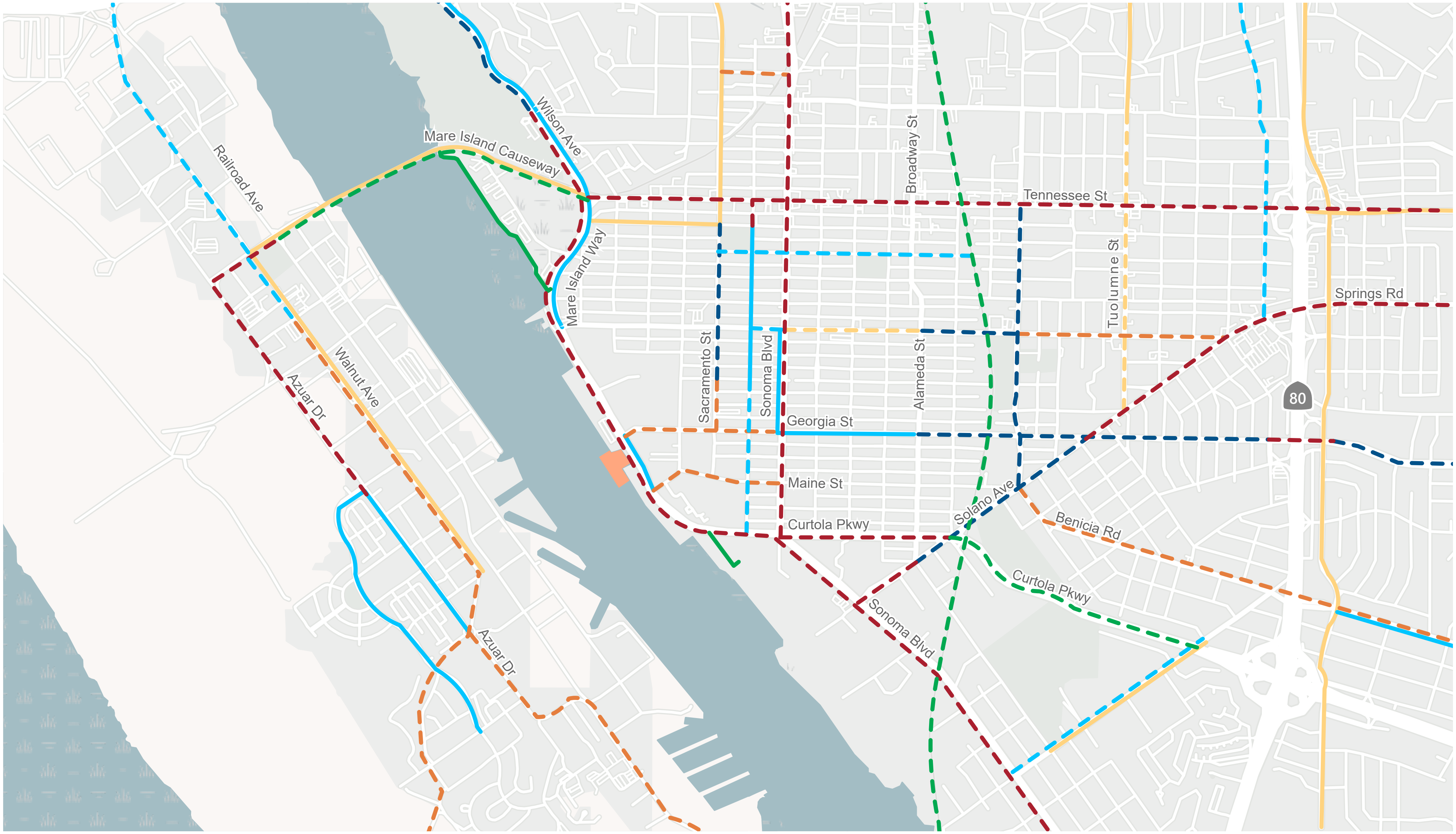
Project Site

Figure 1

Project Site Vicinity

Project Site
Vallejo Ferry
SolTrans
Napa VINE
AmtrakThruway

Figure 2
Existing Transit Routes



Project Site

Existing

- Class I Multi-Use Path
- Class II Bicycle Lane
- Class III Bicycle Route

Proposed

- Class I Multi-Use Path
- Class IV Separated Bikeway
- Class II Bicycle Lane
- Class II Buffered Bicycle Lane
- Class III Bicycle Boulevard
- Class III Bicycle Route

Figure 3

Existing and Proposed Bicycle Facilities

4.14.2 REGULATORY FRAMEWORK

Federal Regulations

AMERICANS WITH DISABILITIES ACT OF 1990

The Americans with Disabilities Act of 1990 (revised 2010) is a landmark civil rights law that prohibits discrimination based upon disability. Titles I, II, III, and V of the act have been codified in Title 42 of the United States Code, beginning at Section 12101. Title III prohibits discrimination on the basis of disability in "places of public accommodation" (businesses and non-profit agencies that serve the public) and "commercial facilities" (other businesses). The regulation includes Appendix 4.13-A to Part 36 (Standards for Accessible Design), which establishes minimum standards for ensuring accessibility for persons with a disability when designing and constructing a new facility or altering an existing facility, including roadways, parking lots, and sidewalks. Examples of key guidelines include detectable warnings for pedestrians when entering traffic where there is no curb, a clear zone of 48 inches for the pedestrian travel way, and a vibration-free zone for pedestrians.

State Regulations

CALIFORNIA DEPARTMENT OF TRANSPORTATION

Caltrans has authority over the State highway system, including freeways, interchanges, and arterial routes. Caltrans operates and maintains State highways in Vallejo. In the study area, Caltrans maintains control of I-80, I-780, SR-29, including the ramp terminal intersection at I-780/I-80/Curtola Parkway, and SR-37. Caltrans issued the Transportation Impact Study Guide (TISG) in May 2020, providing the process by which Caltrans will review and assess Vehicle Miles Travelled (VMT) impacts of land development projects. The TISG generally aligns with the guidance in the Governor's Office of Planning and Research (OPR) Technical Advisory.

Caltrans also issued the Transportation Analysis Framework (TAF) in September 2020, which details methodology for calculating induced travel demand for capacity increasing transportation projects on the State Highway System. Caltrans also issued the Transportation Analysis Under CEQA (TAC) guidance in September 2020 which describes significance determinations for capacity increasing projects on the State Highway System.

Caltrans also issued Traffic Safety Bulletin 20-02-R1: Interim Local Development Intergovernmental Review Safety Review Practitioner Guidance in December 2020, describing the methods with which Caltrans will assess the safety impacts of projects on the Caltrans owned and operated network. This guidance states that Caltrans will provide its safety assessment to lead agencies for inclusion in environmental documents.

Finally, Caltrans has adopted procedures to oversee construction activities on and around its facilities. The Caltrans Construction Manual (Caltrans, 2020b) describes best practices for construction activities, including personnel and equipment safety requirements, temporary traffic control, signage, and other requirements aimed at reducing construction-related hazards and constructing projects safely and efficiently. Any work proposed on Caltrans facilities would be required to abide by these requirements.

State Transportation Improvement Program

The California Transportation Commission administers transportation programming, which is the public decision-making process that sets priorities and funds projects that have been envisioned in long-range transportation plans. The California Transportation Commission commits expected revenues for transportation projects over a multi-year period. The State Transportation Improvement Program is a multi-year capital improvement program for transportation projects both on and off the State highway system. The State Transportation Improvement Program is funded with revenues from the State Highway Account and other funding sources. State Transportation Improvement Program programming typically occurs every 2 years.

California Transportation Plan 2050

The California Transportation Plan 2050 was adopted in 2021. The plan, which is overseen by Caltrans, serves as a blueprint for California's transportation system, as defined by goals, policies, and strategies to meet the State's future mobility needs. The goals defined in the plan are related to safety, climate, equity, accessibility, quality of life and public health, economy, environment, and infrastructure. Each goal is tied to performance measures. In turn, members from regional and metropolitan planning agencies report these performance measures to Caltrans.

SENATE BILL (SB) 375

SB 375 provides guidance regarding curbing emissions from cars and light trucks. There are four major components to SB 375. First, SB 375 requires regional greenhouse gas emission targets. These targets must be updated every 8 years in conjunction with the revision schedule of the housing and transportation elements of local general plans. Second, Metropolitan Planning Organizations are required to create a Sustainable Communities Strategy (SCS) that provides a plan for meeting regional targets. Third, SB 375 requires housing elements and transportation plans to be synchronized on 8-year schedules. Finally, Metropolitan Planning Organizations must use transportation and air emissions modeling techniques that are consistent with the guidelines prepared by the California Transportation Commission.

ASSEMBLY BILL (AB) 1358

AB 1358, also known as the California Complete Streets Act of 2008, requires cities and counties to include "complete street" policies in their general plans. These policies address the safe accommodation of all users, including bicyclists, pedestrians, motorists, public transit vehicles and riders, children, the elderly, and persons with disabilities. These policies can apply to new streets, as well as the redesign of corridors.

SENATE BILL (SB)743

Passed in 2013, SB 743 changes the focus of transportation impact analysis in CEQA from measuring impacts to drivers, to measuring the impact of driving. The change is being made by replacing Level of Service (LOS) as a performance metric with a VMT approach. This shift in transportation impact focus is intended to better align transportation impact analysis and mitigation outcomes with the State's goals to reduce greenhouse gas (GHG) emissions, encourage infill development, and improve public health through development of multimodal transportation networks. LOS or other delay metrics may still be used to evaluate the impact of projects on drivers as part of land use entitlement review and impact fee programs.

In December 2018, the Natural Resources Agency finalized updates to Section 15064.3 of the CEQA Guidelines, including the incorporation of SB 743 modifications. The Guidelines' changes were approved by the Office of Administrative Law and as of July 1, 2020 are now in effect statewide.

To help aid lead agencies with SB 743 implementation, OPR produced the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018) that provides guidance about the variety of implementation questions they face with respect to shifting to a VMT metric. Key guidance from this document includes:

- VMT is the most appropriate metric to evaluate a project's transportation impact.
- OPR recommends tour- and trip-based travel models to estimate VMT, but ultimately defers to local agencies to determine the appropriate tools.
- OPR recommends measuring VMT for residential and office projects on a "per rate" basis.
- OPR recommends that, for residential and office projects, a per capita or per employee VMT that is fifteen percent below that of existing development may be a reasonable threshold. In other words, an office project that generates VMT per employee that is more than 85 percent of the regional VMT per employee could result in a significant impact. OPR notes that this threshold is supported by evidence that connects this level of reduction to the State's emissions goals.
- For roadway infrastructure projects, projects that increase roadway capacity should be analyzed for their potential to increase VMT; projects that decrease roadway capacity will generally reduce VMT and would therefore be expected to have a less than significant effect on transportation.
- Transit and active transportation projects generally reduce VMT and therefore are presumed to cause a less-than-significant impact on transportation. The Technical Advisory states that this presumption may apply to all passenger rail projects, bus and bus rapid transit projects, and bicycle and pedestrian infrastructure projects. However, it can be presumed to apply to ferry terminal projects as well.
- Lead agencies have the discretion to set or apply their own significance thresholds.

Regional Regulations

San Francisco Bay Area Water Emergency Transportation Authority

The San Francisco Bay Area Water Emergency Transportation Authority (WETA) is a regional public transit agency tasked with operating and expanding ferry service on the San Francisco Bay and with coordinating the water transit response to regional emergencies. WETA owns and operates the San Francisco Bay Ferry service between the Vallejo Ferry Terminal and San Francisco. WETA is developing a Business Plan for the San Francisco Bay Area ferry system in 2050, which will present the specific strategies and actions required to achieve their 2050 Service Vision, including the level of service and extent of WETA ferry operations and emergency response.

METROPOLITAN TRANSPORTATION COMMISSION

Metropolitan Transportation Commission (MTC) is the regional transportation planning, coordinating, and financing agency for the nine-county Bay Area, including Solano County. It is the federally designated metropolitan planning organization (MPO) for the Bay Area region. MTC is responsible for preparing the Regional Transportation Plan (RTP), a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle, and pedestrian facilities. The RTP is a 20-year plan that is updated every 3 years to reflect new planning priorities and changing projections of future growth and travel demand. The long-range plan must be based upon a realistic forecast of future revenues, and the transportation projects taken must help improve regional air quality. MTC also screens requests from local agencies for State and federal grants for transportation projects to determine compatibility with the RTP.

Plan Bay Area 2050

Plan Bay Area 2050 is a long-range integrated transportation and land-use/housing strategy through the year 2050 for the San Francisco Bay Area. On October 21, 2021, the Association of Bay Area Governments (ABAG) Executive Board and the MTC jointly approved the plan. Plan Bay Area 2050 connects the elements of housing, the economy, transportation, and the environment through 35 strategies that will make the Bay Area more equitable for all residents and more resilient in the face of unexpected challenges. In the short-term, the plan's Implementation Plan identifies more than 80 specific actions for MTC, ABAG, and partner organizations to take over the next five years to make headway on each of the 35 strategies. Plan Bay Area is the nine-county region's long-range plan designed to meet the requirements of Senate Bill 375, described above.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

The Bay Area Air Quality Management District (BAAQMD) is the regional agency with the authority to develop and enforce regulations for the control of air pollution throughout the Bay Area. The Clean Air Plan is the district's plan for reducing the emissions of air pollutants that combine to produce ozone. The BAAQMD has published guidelines for the purpose of evaluating the air quality impact of projects and plans. One criterion calls for plans, including general plans, to demonstrate reasonable efforts to implement the transportation control measures included in the Clean Air Plan that identify local governments as the implementing agencies.

On-road motor vehicles are the largest source of air pollution in the Bay Area. To address the impact of vehicles, the California Clean Air Act requires air districts to adopt, implement, and enforce transportation control measures.

SOLANO TRANSPORTATION AUTHORITY

The Solano Transportation Authority (STA) was created in 1990 and has jurisdiction for Solano County to manage the county's federal, state, and regional transportation funds. In the role of Solano County's Congestion Management Agency, STA partners with the Metropolitan Transportation Commission and Caltrans District 4. STA provides countywide planning and program prioritization, funding, operating, and maintaining transportation programs and services.

STA maintains the County Congestion Management Program (CMP). The most recently published CMP update is the 2021 CMP. The next update to the CMP will occur in 2023. The CMP requires that the transportation system within the County be monitored biennially for compliance with LOS standards. Each jurisdiction is responsible for monitoring the LOS on segments or intersections within its jurisdiction. The LOS standard for the County CMP facilities has been set at LOS E for all roadways except for those already operating at LOS F when the first CMP was prepared (County of Solano 2013). The CMP transportation system includes all of the state routes in the County and other Routes of Regional Significance. A comprehensive list of these routes is available in the CMP.

In addition to LOS, the CMP considers other performance measures to measure the effectiveness of the multimodal transportation system. These performance measures include intercity transit ridership, bicycle and pedestrian counts, multimodal commute patterns, and travel time reliability.

Local Regulations

City of Vallejo General Plan

The City of Vallejo General Plan 2040 (2017) is a policy document divided into individual elements for topics including a Mobility, Transportation, and Connectivity element. The Plan is a comprehensive general plan that serves as the City's primary guide for long-term development. The mobility, transportation, and connectivity section of the General Plan addresses three goals that represent the priorities of the City: Regional Transportation Hub, Mobile Community, and Interconnected Community.

Mobility, Transportation, and Connectivity

Policy MTC-1.1: Regional Transit Connections. Enhance regional transit service for residents, employees and visitors.

- Action MTC-1.1A: Work with regional transportation agencies to coordinate regional transit planning activities, including increased frequency of bus, ferry, and rail service, timed connections, and tourism support.

- Action MTC-1.1C: Coordinate with private investors and regional transportation agencies to investigate the feasibility of water transport connecting downtown Vallejo/Vallejo Ferry Terminal with Napa.

- Action MTC-1.1D: Study the feasibility of a visitor rail connection between the Vallejo Ferry Terminal and the Napa Valley in coordination with private investors.

Policy MTC-1.3: First/Last Mile Connections. Provide enhancements to the local transit network that make it easier and more convenient to use regional transit.

- Action MTC-1.3A: Pursue One Bay Area grants and other funding to better connect regional transit and the local bicycle and pedestrian network, including through physical infrastructure, wayfinding signage, and real-time information displays.

Policy MTC-1.4: Regional Transportation Planning: Ensure that Vallejo is well connected to road, rail, air and maritime systems in support of both mobility and local economic development.

- Action MTC-1.4A: Continue to coordinate with State and regional agencies on the planning and implementation of regional transportation systems.

- Action MTC-1.4F: Continue to study the feasibility of a visitor rail connection between the Vallejo Ferry Terminal and Napa Valley in coordination with private investors.
- Action MTC-1.4G: Work with shoreline land owners to develop services to the maritime industry and water based transportation.

Policy MTC-2.4: Citywide Mobility. Maintain a transportation network that provides mobility for all ages and abilities and for all areas of the community.

- Action MTC-2.4B: Consult with regional transportation agencies on projects that utilize the multi-modal transportation network to ensure a safe and efficient transportation system.

Policy MTC-2.8: Transportation Demand Management. Decrease dependence on single-occupant vehicles by increasing the attractiveness of other modes of transportation.

- Action MTC-2.8A: Coordinate with employers and transit agencies to encourage and promote the use of shuttles, carpools, vanpools, transit passes, variable work hours, telecommuting, and other methods to reduce vehicle miles travelled (VMT).

Policy MTC-3.1: Coordinated Transportation Planning. Ensure that improvements to the transportation network support a land use pattern that connects the community and facilitates travel among Vallejo's neighborhoods.

- Action MTC-3.1D: Extend Capitol Street so that it connects Santa Clara Street to Mare Island Way, improving circulation and strengthening multi-modal connections between downtown and the waterfront, including the Ferry Terminal.

Policy MTC-3.5: Walkability. Promote a well-designed, interconnected, pedestrian-friendly environment in the Downtown/Waterfront District.

- Action MTC-3.5A: Continue to improve the pedestrian realm connecting downtown with the waterfront and along the waterfront on both sides of the Mare Island Strait, consistent with the Waterfront Planned Development Master Plan and the Mare Island Specific Plan.

Policy MTC-3.6: Wayfinding. Emphasize pedestrian access in the Downtown/Waterfront circulation system.

- Action MTC-3.6A: Enhance and expand the wayfinding and branded signage program for the Downtown/Waterfront District to direct residents and visitors to key destinations, transit, and parking.

Policy MTC-10: Boating. Support recreational boating in Vallejo and foster the development of commercial boating activities, including dinner cruises and water taxis.

- Action MTC-3.10A: Operate the Municipal Marina in a financially viable manner.
- Action MTC-3.10B : Seek funding for marina operations and maintenance, including needed dredging within the existing harbor.

Policy MTC-3.11: Cross-Strait Connections. Facilitate connections across Mare Island Strait.

- Action MTC-3.11A: Explore the feasibility of water shuttles connecting the Downtown/Waterfront District and points on Mare Island.

City of Vallejo VMT Guidelines

The City of Vallejo has adopted VMT analysis methodology, metrics, and significance thresholds for use in CEQA impact analysis (City of Vallejo CEQA Transportation Impact Analysis Guidelines, October 2020). This document requires assessing home-based VMT per resident for residential uses, home-based-work VMT per employee for employment uses, and project-specific metrics for other use types. It states that a land use project which generates VMT per resident or VMT per employee at a rate higher than the citywide average would be considered a significant impact under CEQA.

The Vallejo Guidelines address only land use projects. Because the ferry terminal reconfiguration project is not a land use project, but rather a transportation infrastructure project, the Vallejo Guidelines do not provide direction for the VMT impact analysis of the Project. Therefore, the OPR *Technical Advisory*, discussed above under State Regulations, has been used to develop the threshold of significance with respect to VMT for this analysis.

4.14.3 Environmental Impacts and Mitigation Measures

Methodology

This section describes the impact analysis related to transportation and traffic for the Project, describing the methods used to determine the impacts of the Project and listing the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion, as applicable.

Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines and local guidance, the Project would be considered to have a significant effect if it would result in any of the conditions listed below. These criteria are described in more detail in the following sections.

1. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

2. Conflict or inconsistency with CEQA Guidelines Section 15064.3, subdivision (b), concerning VMT.

3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

4. Result in inadequate emergency vehicle access.

Significance criteria 1 above pertains to consistency with circulation programs, plans, ordinances, and policies. To determine significance under this criterion, the following thresholds are applied:

There would be a significant impact related to the transit system if the Project:

- Disrupts existing transit services or facilities; or

- Conflicts with an existing or planned transit facility; or
- Conflicts with transit policies adopted by the City of Vallejo.

There would be a significant impact related to the roadway if the Project:

- Disrupts existing roadways;
- Interferes with planned roadway facilities; or
- Conflicts with applicable roadway plans, guidelines, policies, or standards.

There would create a significant impact related to the bicycle system if the Project would:

- Disrupt existing bicycle facilities;
- Interfere with planned bicycle facilities; or,
- Conflict with applicable bicycle system plans, guidelines, policies, or standards.

There would be a significant impact related to the pedestrian system if the Project would:

- Disrupt existing pedestrian facilities; or
- Interfere with planned pedestrian facilities; or
- Conflict with applicable pedestrian system plans, guidelines, policies, or standards.

Significance criteria 2 pertains to VMT. To determine significance under this criterion, because the project is a transit project, the following threshold is applied:

- The impact would be considered significant if it increased VMT relative to the baseline condition, or increased VMT in the cumulative condition relative to the cumulative no project condition.

Significance criteria 3 pertains to the creation of transportation hazards. To determine significance under Criterion 3, the following specific thresholds of significance are applied.

The impact would be significant if the Plan resulted in transportation facilities that do not conform to applicable City and industry design standards for roadways, bicycle facilities, and pedestrian facilities.

Significance criteria 4 pertains to the adequacy of emergency access. To determine significance under Criterion 4, the following specific thresholds of significance are applied.

This impact would be significant if roadway geometric design features were not designed to City standards and standard engineering practices were not followed, and design resulted in obstacles to emergency responders.

IMPACT ANALYSIS

Threshold 1: Would implementation of the Project conflict with an applicable program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

The Project reconfigures the Vallejo Ferry Terminal water-side infrastructure by relocating and expanding the existing bridge and gangway and installing a new passenger float. Although no changes to pedestrian or bicycle facilities are planned, temporary pedestrian and bicycle detours along Mare Island Way in the immediate vicinity of the terminal may be needed during construction.. No changes to bus operations, including service changes or bus stop location changes, are proposed. Similarly, no changes to parking lot supply or pricing that would affect those who drive to the terminal are proposed as part of the Project. During construction, currently underutilized parking spaces will be occupied for staging.

The City of Vallejo General Plan 2040 contains three overarching goals: Regional Transportation Hub, Mobile Community, and Interconnected Community. Supporting policies and actions are listed in the regulatory setting. By ensuring the continued efficiency and effectiveness of the Vallejo Ferry Terminal, the Project is consistent with the General Plan goals, policies and actions, and does not present conflicts with the General Plan.

Given that the construction of the Project would obstruct bicycle and pedestrian facilities, and result in temporary detours, the Project would result in a significant impact.

Mitigation Measure

MM TRANS-1: Prior to construction, the project operator shall:

a. Prepare and submit a Construction Traffic Control Plan to City of Vallejo for approval. The Construction Traffic Control Plan must be prepared in accordance with the California Department of Transportation Manual on Uniform Traffic Control Devices and but not be limited to, the following issues:

   1. Timing of deliveries of heavy equipment and building materials. To the extent feasible, restrict deliveries and vendor vehicle arrivals and departures during either the AM and PM peak periods;

   2. Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic;

   3. Ensuring access for emergency vehicles to the project sites;

   4. Maintaining access to San Francisco Bay Trail;

   5. Consult with the City to develop coordinated plans that would address construction-related vehicle routing and detours adjacent to the construction area for the duration of construction overlap with neighboring projects. Key coordination meetings would be held jointly between applicants and contractors of other projects for which the City determines impacts could overlap.

b. Obtain all necessary encroachment permits for the work within the road right-of-way or use of oversized/overweight vehicles that will utilize City-maintained roads.

Significance after Mitigation: Less than significant

Threshold 2: Would the Project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Transit and active transportation projects generally reduce VMT and therefore are presumed to cause a less-than-significant impact on transportation. The Technical Advisory states that this presumption may apply to all passenger rail projects, bus and bus rapid transit projects, and bicycle and pedestrian infrastructure projects. However, it can be presumed to apply to ferry terminal projects as well.

The Project proposes changes to the water-side berth configuration of the ferry terminal. It does not increase the berth capacity to serve more vessels at one time, nor does it propose an increase in ferry service frequency. It also does not increase the land-side vehicle parking capacity serving those who drive to take the ferry, nor does it propose land-side bus service increases. For these reasons, the Project is not expected to increase vehicle miles of travel associated with the Vallejo Ferry Terminal under operating conditions. In addition, because the Project is a transit project, the *Technical Advisory on Evaluating Transportation Impacts in CEQA* supports a finding of a less than significant impact on VMT. Therefore, the impact of the Project under operating conditions is less than significant.

During Project construction, additional construction employee trips and trucks delivering materials and hauling away debris will increase vehicle miles of travel generated at the Project site. This would be a temporary impact and is therefore considered less than significant.

While the temporary impact is less than significant, it can be minimized by minimizing construction employee commuting by single-occupant vehicle and promoting transit use. Therefore, it is recommended that the lead contractor include a carpool matching program and incentives for transit use (such as bus pass vouchers) for construction employees in the construction management plan.

Threshold 3: Would the Project substantially increase hazards due to a geometric design feature (e.g. sharp curves of dangerous intersections) or incompatible uses (e.g. farm equipment)?

The Project does not propose any changes to the roadway, pedestrian, bicycle, and transit facilities and services serving the Vallejo Ferry Terminal site. Therefore, under Project operating conditions, no geometric design features will be affected and no new uses will be introduced to the transportation network serving the site. The impact of the Project under operating conditions is therefore less than significant.

During Project construction, it may be necessary to use traffic control plans to detour vehicles, bicyclists, pedestrians and buses around construction activities. WETA will work with the lead contractor and the City of Vallejo to ensure that the construction management plan includes provisions for the development of code-compliant traffic control plans for all construction stages that require them.

Threshold 4: Would the Project result in inadequate emergency access?

The Project does not propose any changes to the roadway network serving the Vallejo Ferry Terminal site. Therefore, under Project operating conditions, emergency vehicle access to the site as well as circulation near the site would not be affected. The impact of the Project under operating conditions is therefore less than significant.

During Project construction, it may be necessary to use traffic control plans to detour vehicles around construction activities. As noted in the impact discussion for Threshold 3, it is expected that code-compliant traffic control plans will be developed for the construction periods requiring partial or full closure of roadways. WETA will coordinate road closures and subsequent detours with the City of Vallejo, and Vallejo will communicate the plans internally to affected departments, including the police and fire departments.

REFERENCES

Amtrak Trip Planning Map and Schedule: https://www.amtrak.com/plan-your-trip.html

Bay Area Air Quality Management District: https://www.baaqmd.gov/

California Transportation Plan 2050: https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/ctp-2050-v3-a11y.pdf

California Department of Transportation (Caltrans) Highway Design Manual (Chapter 1000: Bikeway Planning and Design): https://dot.ca.gov/programs/design/manual-highway-design-manual-hdm

California Department of Transportation (Caltrans) VMT-Focused Transportation Impact Study Guide: https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-05-20-approved-vmt-focused-tisg-a11y.pdf

City of Vallejo General Plan: https://www.cityofvallejo.net/common/pages/DisplayFile.aspx?itemId=17961496

Governor's Office of Planning and Research Technical Advisory on Evaluating Transportation Impacts in CEQA: https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

Metropolitan Transportation Commission: https://mtc.ca.gov/

Plan Bay Area 2050: https://www.planbayarea.org/

San Francisco Bay Ferry Routes: https://sanfranciscobayferry.com/

San Francisco Bay Area Water Emergency Transportation Authority: https://weta.sanfranciscobayferry.com/

Solano County (Vallejo) Active Transportation Plan: https://sta.ca.gov/wp-content/uploads/2020/06/Vallejo.pdfSolano County General Plan - Transportation and Circulation Element: https://www.solanocounty.com/depts/rm/planning/general_plan.asp

Solano Congestion Management Program: https://sta.ca.gov/documents_and_report/solano-congestion-management-program-cmp-2021/

SolTrans Transit Routes: https://soltrans.org/

State Transportation Improvement Program: https://catc.ca.gov/programs/state-transportation-improvement-program

VINE Transit Routes: https://vinetransit.com/routes/