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FINAL ENVIRONMENTAL IMPACT REPORT FOR THE

California State University Maritime Academy Waterfront Master Plan

Prepared for:

CAL MARITIME

California State University Maritime Academy

July 2024

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LIST OF ABBREVIATIONS

2022 Scoping Plan	*Final 2022 Scoping Plan for Achieving Carbon Neutrality*
2040 General Plan	City of Vallejo General Plan 2040
A	amps
AB	Assembly Bill
AF	acre-feet
AFV	alternative fuel vehicle
AFY	acre-feet per year
AST	aboveground storage tank
BAAQMD	Bay Area Air Quality Management District
Bay Plan	*San Francisco Bay Plan*
BCDC	San Francisco Bay Conservation and Development Commission
BFE	Base Flood Elevation
BMP	best management practice
Board	Board of Forestry and Fire Prevention
CA MUTCD	California Manual on Uniform Traffic Control Devices
CA SDWA	California Safe Drinking Water Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CAL FIRE	California Department of Forestry and Fire Protection
Cal Maritime	California State University Maritime Academy
Cal/OSHA	California Occupational Safety and Health Administration
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	climate action plan
CARB	California Air Resources Board
CARE	Community Air Risk Evaluation
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Resources Conservation and Development Commission
CEMP	California Eelgrass Mitigation Policy
CEQA Guide	Bay Area Air Quality Management District *2022 CEQA Guidelines*

CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CESA	California Endangered Species Act
CFC	California Fire Code
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	methane
CI	carbon intensity
City	City of Vallejo
CMP	comprehensive management plan
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide-equivalent
Commission	State Lands Commission
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CSLC	California State Lands Commission
CSU	California State University
CUPA	Certified Unified Program Agency (
CWA	Clean Water Act
CWPP	Solano County Community Wildfire Protection Plan
CY	cubic yards
CZMA	Coastal Zone Management Act
dB	decibels
dBA	A-weighted decibels
DMMO	Dredged Material Management Office
DOT	US Department of Transportation
Draft EIR	draft environmental impact report
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EA	Environmental Assessment
EFH	Essential Fish Habitat
EO	Executive Order
EOP	emergency operations plan

EPA	US Environmental Protection Agency
EPAct	Energy Policy Act
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
ESA	Federal Endangered Species Act
EUI	Energy Use Index
EV	electric vehicles
FEMA	Federal Emergency Management Agency
FHSZ	Very High Fire Hazard Severity Zone
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FR	Federal Register
FTA	Federal Transit Administration
GB	gigabyte
General Plan	Solano County General Plan
GHG	greenhouse gas
GHGRP	greenhouse gas reduction plan
GPCD	gallons per capita per day
HAP	hazardous air pollutants
HFC	hydrofluorocarbons
HVAC	heating, ventilation, and air conditioning
Hz	hertz
I-80	Interstate 80
IEPR	Integrated Energy Policy Report
in/sec	inches per second
IPaC	Information for Planning and Consultation
kV	kilovolt
kVA	kilovolt amp
lb/day	pounds per day
LCFS	Low Carbon Fuel Standard
L_{dn}	day-night average sound level
L_{eq}	equivalent continuous sound level
LID	low impact development
L_{max}	maximum sound level
LRA	Local Responsibility Area
LTMS	Long Term Management Strategy
MARAD	US Department of Transportation's Maritime Administration
MARSEC	Maritime Security
Master Plan	2017 Physical Master Plan

MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level
MHK	marine hydrokinetic
MLLW	mean low low water
MMI	Modified Mercalli Intensity scale
MMPA	Marine Mammal Protection Act
MMT	million metric tons
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
mPa	micro-Pascals
mph	miles per hour
MPO	metropolitan planning organization
MRZ	Mineral Resource Zone
MS4	municipal separate storm sewer system
MSL	mean sea level
MTC	Metropolitan Transportation Commission
MTC/ABAG	Metropolitan Transportation Association/Association of Bay Area Governments
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	natural community conservation plan
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NFIP	the National Flood Insurance Program
NMFS	National Oceanic and Atmospheric Administration National Marine Fisheries Service
NO	nitric oxide
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOP	notice of preparation
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSMV	National Security Multi-Mission Vessel
NWIC	Northwest Information Center
OPR Technical Advisory	*Technical Advisory on Evaluating Transportation Impacts in CEQA*
OPR	California Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration

PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PE	polyethylene
PF	Public Facilities
PFC	perfluorocarbons
PG&E	Pacific Gas and Electric Company
PM_{10}	respirable particulate matter with aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$	fine particulate matter with aerodynamic diameter of 2.5 micrometers or less
Porter-Cologne Act	Porter-Cologne Water Quality Control Act of 1970
ppd	pounds per day
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
Project	California State University Maritime Academy Waterfront Master Plan Project
PV	photo voltaic
RCRA	Resource Conservation and Recovery Act
RHA	the Rivers and Harbors Act of 1899
RMP	Regional Monitoring Program
RMS	root mean square
ROG	reactive organic gases
ROWD	Report of Waste Discharge
RPS	Renewables Portfolio Standard
RTP	regional transportation plans
RWQCB	regional water quality control board
SAFE Rule	Safer Affordable Fuel-Efficient Vehicles Rule
SARA Title III	Superfund Amendments and Reauthorization Act of 1986
SARC	State Agency Reporting Center
SB	Senate Bill
SBRF	Suisun Bay Reserve Fleet
SCEHD	Solano County Department of Resource Management, Environmental Health Division
SCS	sustainable communities strategies
SCWA	Solano County Water Agency
SFBAAB	San Francisco Bay Area Air Basin
SFEI	San Francisco Estuary Institute
SGMA	Sustainable Groundwater Management Act of 2014
SHBC	State Historical Building Code
SHMA	Seismic Hazards Mapping Act
SHPO	State Historic Preservation Officer

SO_2	sulfur dioxide
SolTrans	Solano County Transit
SPCC	Spill Prevention, Control, and Countermeasure
SPL	sound pressure level
SRA	State Responsibility Area
SRRE	source reduction and recycling element
SSMP	Sanitary Sewer Management Plan
SSO	Sanitary Sewer Overflow
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
SWRCB-DDW	State Water Resources Control Board Division of Drinking Water
T.S.	Training Ship
TAC	toxic air contaminant
TISM	CSU Transportation Impact Study Manual
TMDL	total maximum daily load
TPHd	total petroleum hydrocarbons as diesel
TSGB	Training Ship Golden Bear
TTC	temporary traffic control
UCMP	University of California Museum of Paleontology
USACE	U.S. Army Corps of Engineers
USC	US Code
USFWS	U.S. Department of Fish and Wildlife Service
USGS	US Geological Survey
UWMP	Urban Water Management Plan
UWMPA	Urban Water Management Planning Act
Vallejo CAP	City of Vallejo CAP
VdB	vibration decibels
VFWD WWTP	Vallejo Flood and Wastewater District Wastewater Treatment Plant
VFWD	Vallejo Flood and Wastewater District
VMC	Vallejo Municipal Code
VMT	vehicle miles traveled
VSFCD	Vallejo Sanitation and Flood Control District
WDR	waste discharge requirement
WQOs	Water Quality Objectives
WSCP	Water Shortage Contingency Plan
WTP	water treatment plant
WUI	wildland urban interface
ZEV	zero-emission vehicle

PREFACE TO THE FINAL EIR

In compliance with California Environmental Quality Act (CEQA) Guidelines Section 15132, this document serves as the final environmental impact report (Final EIR) for the California State Maritime Academy (Cal Maritime) Waterfront Master Plan Project (also referred to as the project) (State Clearinghouse [SCH] No. 2022120009). This Final EIR has been prepared under the direction of Board of Trustees of the California State University (Trustees), acting as lead agency, in accordance with the requirements of CEQA (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations [CCR], Title 14, Chapter 3, Section 15000, et seq.). In accordance with Sections 15087 and 15105 of the State CEQA Guidelines, the Draft EIR was circulated for public review and comment for a period of 45 days, from May 15, 2024 through June 29, 2024.

State CEQA Guidelines Section 15132 requires that the Final EIR consist of the following components:

1. The Draft EIR or a revision of the draft;
2. Comments and recommendations received on the Draft EIR either verbatim or in summary;
3. A list of persons, organization, and public agencies commenting on the Draft EIR;
4. The responses of the lead agency to significant environmental points raised in the review and consultation process; and
5. Any other information added by the lead agency.

This Final EIR contains the public comments received on the Draft EIR for the Cal Maritime Waterfront Master Plan Project, as well as all written responses to those comments. A list of the person, organizations, and public agencies who commented on the Draft EIR is provided in the "Responses to Comments" chapter of this document. In addition, this document also contains revisions to the Draft EIR with additions shown in <u>underline</u> and deletions shown in ~~strikethrough~~.

INTRODUCTION

This preface, which serves as an introduction to the Final EIR, provides a summary of the Draft EIR public review process; an overview of the Final EIR contents; and a summary of the changes made to the Draft EIR text in response to comments and community input received during the public comment period.

Public Review Process

The Trustees, acting as lead agency, prepared the Draft EIR to inform decisionmakers and the public of the potential significant environmental effects associated with the proposed Cal Maritime Waterfront Master Plan Project. The Draft EIR was circulated for public review and comment for at least 45 days, from May 15, 2024, through June 29, 2024. A Public Notice of Availability of the Draft EIR was published in the Vallejo Times Herald, a newspaper of general circulation, and mailed to all organizations and individuals previously requesting notice. Cal Maritime submitted the complete Draft EIR with appendices to the State Clearinghouse, which, in turn, distributed the Draft EIR to all interested state agencies for review and comment. The Draft EIR, Final EIR, and associated appendices were made available for review at the following locations:

- Online at https://www.csum.edu/facilities-planning-design-and-construction/capital-improvement-projects/waterfront.html.
- Cal Maritime Library: 200 Academy Drive, Vallejo, CA 94590.

Interested persons and organizations had the opportunity to submit their written comments on the Draft EIR during the public review period. Comment letters received on the Draft EIR, reproduced in their entirety, and responses to those comments are provided in the "Responses to Comments" chapter following this preface.

Section 15088(c) of the State CEQA Guidelines specifies that the focus of the responses to comments shall be on the disposition of significant environmental issues. Responses are not required for comments regarding the merits of the Cal Maritime Waterfront Master Plan Project or on issues not related to potential physical environmental impacts and/or the Draft EIR's analysis of such impacts. Comments on the merits of the Cal Maritime Waterfront Master Plan Project or other comments that do not raise environmental issues are nevertheless included within the record for consideration as part of the Cal Maritime Waterfront Master Plan Project approval process. The responses address environmental issues and indicate where issues raised do not pertain to environmental impacts, analysis, or address the merits of the project. In the latter instance, no further response is provided.

Although some of the comments have resulted in changes to the text of the Draft EIR (see "Revisions to the Draft EIR" below), none of the changes constitute "significant new information," which would require its recirculation. "Significant new information" is defined in Section 15088.5(a) of the State CEQA Guidelines as follows:

> (1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
>
> (2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
>
> (3) A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impacts of the project, but the project's proponents decline to adopt it.
>
> (4) The Draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

None of these circumstances has arisen from comments on the Draft EIR; therefore, recirculation is not required.

As required by CEQA Section 21092.5 and State CEQA Guidelines Section 15088(b), at least 10 days before consideration of the Final EIR for certification, Cal Maritime provided a written response via email) to each public agency that submitted written comments on the Draft EIR.

Overview of the Final EIR

The Final EIR consists of the following components, in the following order:

1. List of persons, organizations, and public agencies commenting on the Draft EIR;
2. Comments and Responses from persons, organizations, and public agencies;
3. The Draft EIR (May 2024) with additions shown in underline and deletions shown in strikethrough; and
4. Technical appendices of the Final EIR, including the Draft EIR comment letters provided in a new appendix

REVISIONS TO THE DRAFT EIR

The following list summarizes the clarifications, text edits, and edits to figures made to the EIR since public review. These changes are reflected with additions shown in <u>underline</u> and deletions shown in ~~strikethrough~~ throughout the Final EIR.

Table of Contents

- Table of Contents has been updated with the addition of "Comments and Responses to Comments" chapter.
- Appendix K, *Coastal Evaluation of San Pablo Bay*, and Appendix L, *Draft EIR Comment Letters*, have been added.

Executive Summary

- The text of "Impact 3.7-3" in Table ES-1 was revised to update the Impact number to 3.6-3.

Section 3.3, "Biological Resources"

- The listing status for white sturgeon has been updated on page 3.3-20.
- Clarification regarding candidate species has been made on page 3.3-29.
- The title for Mitigation Measure 3.3-2j has been updated to include other special-status species.
- Mitigation Measure 3.3-2m has been updated to require submittal of specifications on the barge to regulatory agencies for review and comment.
- Mitigation Measure 3.3-3 has been updated to include the California Department of Fish and Wildlife as a reviewing agency.

Section 3.6, "Geology, Soils, and Mineral Resources"

- The text of "Impact 3.7-3" on page 3.6-15 was revised to update the Impact number to 3.6-3.

Section 3.9, "Hydrology and Water Quality"

- The impact statement for Impact 3.9-3 on page 3.9-19 has been updated to reflect the discussion of erosion and siltation.
- Clarification has been made on page 3.9-19 to indicate the potential impacts due to erosion and siltation are resulted from Phases Two and Three activities.

Chapter 5, "Alternatives"

- The text of "Impact 3.7-3" on pages 5-8,5-14, 5-20, and 5-27 was revised to update the Impact number to 3.6-3.
- The text "landslide" was corrected on page 5-17 to "landside."

Chapter 8, "References"

- Reference for the "Comments and Responses to Comments" chapter has been added to Chapter 8.

PROJECT DECISION PROCESS

This Final EIR will be considered by the Trustees prior to a decision on whether to approve the Cal Maritime Waterfront Master Plan Project. If The Trustees decide to approve the project, The Trustees, as required by State CEQA Guidelines Section 15090, must first certify that the Final EIR was completed in compliance with CEQA's requirements, was reviewed and considered by the Trustees, and reflects its independent judgment and analysis. The Trustees would then be required to adopt findings of fact on the disposition of each significant environmental impact, as required by State CEQA Guidelines Section 15091. If significant and unavoidable impacts (those that cannot feasibly be mitigated to less-than-significant levels) would result from implementing the Cal Maritime Waterfront Master Plan Project, the project can still be approved, but the Trustees must issue a "statement of overriding considerations" explaining in writing the specific economic, social, or other considerations that it believes, based on substantial evidence, make those significant effects acceptable (PRC Section 21002; State CEQA Guidelines Section 15093). A mitigation monitoring and reporting program, which is required by State CEQA Guidelines Section 15091(d) would be considered and adopted by the Trustees in conjunction with any project approval.

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COMMENTS AND RESPONSES TO COMMENTS

This chapter of the final environmental impact report (Final EIR) contains comment letters received during the public review period for the Draft EIR, which concluded on June 29, 2024. In conformance with Section 15088(a) of the State CEQA Guidelines, written responses were prepared to address comments on environmental issues received from reviewers of the Draft EIR.

COMMENTERS ON THE DRAFT EIR

Table RTC-1 lists the comment letters received, and the alpha-numerical designation, author, and date of each letter. Comment letters are numbered in the order in which they were received by the Board of Trustees of the California State University (Trustees).

Table RTC-1 List of Commenters

Letter No.	Commenter	Date
	AGENCIES	
A1	California State Lands Commission, Nicole Dobroski	June 26, 2024
A2	California Department of Fish and Wildfire, Marine Region, Craig Shuman	June 27, 2024
	ORGANIZATIONS	
O1	Vallejo Architectural Heritage Foundation	June 29, 2024
	INDIVIDUALS	
I1	Donald E. Osborne	June 21, 2024

3.1 COMMENTS AND RESPONSES

The written comments received on the Draft EIR and the responses to those comments are presented below. Each comment is reproduced in its entirety and is followed by the response. Comment letters in their original form are included in Appendix L of the EIR; individual comments are bracketed and numbered, and correspond to the comments presented in this section.

3.1.1 Agencies

Letter A1 California State Lands Commission

Nicole Dobroski, Chief
Division of Environmental Science, Planning, and Management
June 26, 2024

Comment A1-1

The California State Lands Commission (Commission) staff has reviewed the subject Draft Environmental Impact Report (Draft EIR) for the Cal Maritime -Waterfront Master Plan (Project), which is being prepared by the Board of Trustees of the California State University (CSU Board). The CSU Board, as the public agency proposing to carry out the Project, is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq). The Commission is a trustee agency for projects that could directly or indirectly affect State sovereign lands and their accompanying Public Trust resources or uses. Additionally, because the Project involves work on State sovereign land, the Commission will act as a responsible agency.

Response A1-1
Thank you for reviewing the Cal Maritime Waterfront Master Plan Draft EIR. The comment provides introductory remarks regarding the responsible parties for the Waterfront Master Plan, which are acknowledged.

Comment A1-2
Commission Jurisdiction and Public Trust Lands

For a description of Commission Jurisdiction and Public Trust lands, please see the Commission's December 30, 2022, comment letter on the Notice of Preparation for the Project. The in-water portion of the Project area encompasses multiple jurisdictions and granted lands. The Project will extend onto ungranted State sovereign land in the Carquinez Strait, waterward of lands granted to the California Department of Education for the use and benefit of the California Maritime Academy, pursuant to Chap. 840, Stats. of 1945 and Chap. 135, Stats. of 1947, no minerals reserved (G 17-04). The Project will require an amendment of Lease 4345 for proposed work on State sovereign land.

Response A1-2
The Commission's comment on the Notice of Preparation of the EIR was received and its jurisdiction over the project area is acknowledged. Section 2.8, "Anticipated Permits, Approvals, and Consultation", of the EIR identifies the agencies involved in the review process for the Waterfront Master Plan, including the Commission for approval of a lease amendment to accommodate the expansion of the pier onto State sovereign land. Cal Maritime is currently engaged in consultation with the Commission and will obtain the necessary Commission approval prior to conducting any work on State sovereign land.

Comment A1-3
Project Description

The purpose of the proposed Project is to prepare the Cal Maritime campus waterfront for the arrival and subsequent operation of the National Security Multi-Mission Vessel, and to upgrade infrastructure and facilities that support other campus and public waterfront-dependent program needs. The Waterfront Master Plan identifies three phases of development over the next 10 years. The Draft EIR analyzes Phase One at a project level and Phases Two and Three at a programmatic level subject to future project-level CEQA analysis. Phase One of the Project focuses on upgrades to in-water infrastructure within Basin One and the Marine Yard, as well as expansion of site-serving utilities. Commission staff's comments are limited to Phase One. The following Phase One components have the potential to affect State sovereign land:

- Demolition: Demolition of the existing mooring dolphin and outer section of the existing catwalk and terminal mooring bit.
- Construction: New navigation aids, mooring dolphins, catwalk, breakwater sheet piles, and pier sheet piles along the seaward side of the new main pier; structural upgrades and extension (or replacement) of the existing trestle for the new pier.
- The outer two boat slips at the end of the new floating and training docks.
- Dredging: A portion of the maintenance dredging area for the existing boat basin and a portion of the new dredging area in the expanded boat basin.

Response A1-3
The Commission's focus on Phase One of the project is acknowledged. The new floating and training docks are Phase Two components. The outer two boat slips at the end of the new floating and training docks would be located outside of Commission jurisdiction and Public Trust lands. Cal Maritime will obtain the Commission's approval to expand the existing Cal Maritime lease area prior to conducting Phase One activities. See also Response A1-2 regarding Commission jurisdiction and approval.

Comment A1-4
Environmental Review

Commission staff requests that the CSU Board consider the following comments to ensure that impacts to State sovereign land are adequately analyzed for the Commission's use of the EIR to support a lease amendment for Phase One improvements for the Project.

General Comments

1. Phase One Project Description – New Breakwater Structures: The Project Description does not appear to include engineering design plans or figures to illustrate the design and extent of the breakwater and pier sheet piles that will serve as a wave screen (hereinafter referred to as breakwater structures). The Final EIR should describe whether the breakwater structures will cover the entire seaward side of the new main pier (for protection of the pier foundation and inner harbor), or whether portions of the main pier will instead have an open piling foundation. This level of description and illustration of the breakwater is needed to support the EIR's impact analysis for biological, geological, and hydrological resources, including but not limited to water circulation and water quality for the inner harbor, littoral drift and shoreline processes, bay currents, seafloor habitat for inner harbor benthic species, and mobile marine species.

Response A1-4

The EIR includes analyses of the potential for the project to affect water quality and shoreline and offshore processes in Section 3.9, "Hydrology and Water Quality". Potential impacts related to water quality are addressed in Impact 3.9-1, Impact 3.9-4, and Impact 3.9-5. These impact analyses include potential effects from construction and post-construction operations, which would be mitigated to less-than-significant levels through implementation of Mitigation Measures 3.3-2d (Implement Spill Prevention and Control), 3.3-2f (Implement Dust and Debris Control), 3.3-2g (Implement Sediment Testing and Design Controls), 3.3-2h (Use Appropriate Creosote Pile Removal and Disposal Methods), and 3.9-2 (Hazardous Material Storage Facilities).

With regard to coastal and shoreline processes including littoral drift, the EIR discussion under Impact 3.9-3 finds that "while Phase One improvements would result in some minor and localized changes to sediment dynamics, flow patterns, and wave energy, the changes would not result in any adverse effects due to erosion of the shoreline or changes to sediment bed dynamics." This finding is based on the *Coastal Evaluation of San Pablo Bay*, prepared by WSP, Inc. The *Coastal Evaluation* assumed the inclusion of a breakwater comprised of sheet pile wall (which would serve as a wave screen) along the face of the new pier. The potential for the new pier and breakwater structure to result in impacts to fish and wildlife is evaluated in Impact 3.3-4, with a less than significant finding. For clarity, the *Coastal Evaluation* study has been added to the FEIR as Appendix K, and the Draft EIR impact statement for Impact 3.9-3 is modified herein to better reflect the findings of the text discussion (see page 3.9-19 of the EIR).

Comment A1-5

2. Phase One Project Description – Maintenance and New Dredging: The Project Description acknowledges that both maintenance and new dredging are proposed within Basin One, but does not clearly identify or describe the extent or volume of maintenance versus new dredging. Commission staff recommends that the area and volume specific to maintenance and new dredging, including a figure distinguishing these locations, be added to the Project Description. This information is important to inform the Geologic Resources environmental analysis pertaining to sediment quality and potential pollutants that may exist within the new dredging area.

Response A1-5

Because, in the context of dredging, sediment quality and potential pollutants could affect biological resources, hazards and hazardous materials, and hydrology and water quality, these impacts are assessed in the respective EIR sections—in accordance with Appendix G of the State CEQA Guidelines—rather than in the Geology and Soils section. While sufficient information was available to reasonably and conservatively assess impacts related to dredging, details about the volume of new and maintenance dredging were not available at the time of Draft EIR preparation. As project design has progressed, more detailed dredging information, including extent and volume of new and legacy dredge areas, has been developed and will be included in permit applications and in the revised lease agreement with the Commission. Table RTC-2 below, Projected Dredged Material Volume, is included in the *Sampling and Analysis Plan and Dredged Material Evaluation* prepared for the project (Haley & Aldrich 2024; see

Section 1, Table 1, Page 4) and is copied below for reference. The methods that are used to sample material to assess sediment quality (e.g., the number, depth, and location of sediment samples for testing) are different for areas of new dredging versus maintenance dredging. Those details are a standard part of the testing and dredged material management requirements that are detailed in Mitigation Measure 3.3-2g. As noted in the Draft EIR, with implementation of Mitigation Measure 3.3-2g, the potential impacts associated with quality of dredged sediment, whether that be new or maintenance dredging, would be mitigated to a less than significant level.

Table RTC-2 Projected Dredged Material Volume

Dredge Area	Design Depth (feet below mean lower low water)[a]	Acreage	Estimated Dredge Volumes		
			To Design Depth[a] (cubic yards)	1-foot Over-depth (cubic yards)	Total (cubic yards)
Legacy Dredge Area (LDA)	-10	1.6	7,420	2,580	10,000
New Dredge Area (NDA)	-10	2.3	26,300	3,700	30,000
TOTAL	-10	4.9	33,720	6,280	40,000

[a] Does not include a 1-foot overdredge tolerance

Source: Haley & Aldrich, 2024

Comment A1-6

Biological Resources

3. Invasive Species: One of the major stressors in California waterways is introduced species. Therefore, the Final EIR should consider the Project's potential to encourage the establishment or proliferation of aquatic invasive species (AIS), including aquatic plants. For example, construction boats and barges brought in from long stays at distant projects may transport new species to the Project area via vessel biofouling, wherein marine and aquatic organisms attach to and accumulate on the hull and other wetted surfaces of a vessel. Possible mitigation could include contracting vessels and barges from within the San Francisco Bay and Delta or requiring contractors to perform vessel cleaning prior to arrival. The California Department of Fish and Wildlife's Invasive Species Program and Commission Marine Invasive Species Program could assist with this analysis as well as with the development of appropriate mitigation (information at https://www.wildlife.ca.gov/Conservation/Invasives andhttps://www.slc.ca.gov/misp/).

   In addition, in light of the recent decline of native pelagic organisms and in order to protect at-risk fish species, the Final EIR should examine if any elements of the Project would favor non-native fishes.

Response A1-6

Potential impacts associated with invasive species are discussed in Impact 3.3-2. Mitigation Measure 3.3-2b (Implement Invasive Species Management Procedures) includes requirements to avoid and minimize the risk of importation of invasive species and includes specific methods for managing invasive species that are recommended by the Commission in this comment for vessels returning to San Francisco Bay from other ports.

Comment A1-7

Climate Change

4. Sea Level Rise: A tremendous amount of State-owned lands and resources under the Commission's jurisdiction will be impacted by rising sea levels. With this in mind, the Final EIR should consider discussing if and how various Project components might be affected by sea level rise and whether "resilient" designs have been incorporated. The Carquinez Strait and its surroundings will be affected by rising sea levels. Additionally, because of their nature and location, these lands and resources are already vulnerable to a range of natural events, such as storms and extreme high tides. Attention should be given to sea level rise projections to ensure the structures'

designs are sufficient to ensure function, safety, and protection of the environment over the expected life of the structure.

Governor Brown issued Executive Order B-30-15 in April 2015, which directs State government to fully implement the Safeguarding Plan and factor in climate change preparedness in planning and decision making. Please note that when considering lease applications, Commission staff will: (1) request information from applicants concerning the potential effects of sea level rise on their proposed projects; (2) if applicable, require applicants to indicate how they plan to address sea level rise and what adaptation strategies are planned during the projected life of their projects; and (3) where appropriate, recommend project modifications that would eliminate or reduce potentially adverse impacts from sea level rise, including adverse impacts on public access. In addition, the State of California 2018 Update to the Safeguarding California Plan provides policy guidance for state decision-makers as part of continuing efforts to prepare for climate risks. The Safeguarding Plan sets forth "actions needed" to safeguard ocean and coastal ecosystems and resources as part of its policy recommendations for state decision-makers.

To accommodate sea level rise, the Project Description explains the new pier and improved/replaced trestle, as well as utilities currently underneath the pier, would be elevated above existing elevations. Section 3.9 of the Draft EIR further explains that the new Phase One pier would be designed such that in the worst-case scenario of a 100-year flood, plus 2060 sea level rise and King Tide, water levels would be at or below the new pier's elevation. Commission staff recommends adding citations to the data sources used to determine the applicable 100-year flood, 2060 sea level rise, and King Tide water levels to support the validity of the new pier's resilience to future sea level rise projections.

Response A1-7

The primary data source providing the basis for the sea level rise discussion in the Draft EIR Project Description is the Governor's Office of Planning and Research (OPR) study *State of California Sea Level Rise Guidance 2018 Update* (available at https://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf.) King tide water levels were based on water level datums from NOAA Station 9415143 in the Carquinez Strait (accessed at https://tidesandcurrents.noaa.gov/water_level_info.html). The 100-year flood elevation was based on the Flood Insurance Study (FIS) for Solano County (FEMA, 2016). These resources, in combination with and in consideration of operational requirements of the new NSMV, were used to determine the appropriate elevation of the new pier and trestle, as well as the utilities carried beneath those structures. No other major Phase One elements are potentially adversely affected by sea level rise.

The Project Description states, on p. 2-42, "During future project phases, the design of shoreline improvements would incorporate design criteria to ensure that these areas are able to serve the function as the campus's first line of defense against sea level rise." To this end, the Project Description notes that proposed intertidal zone improvements under Phase Three of the project include creation of habitat for specific species and sea level rise resilience (see Table 2-1, Summary of Existing and Proposed Uses, p. 2-33), and states that further analysis of the impacts of sea level rise on the greater campus will be addressed in Phase Three. This is generally addressed in Section 3.8, Hazards and Hazardous Materials, of the Draft EIR, in discussions of Phases Two and Three. However, those project phases remain conceptual at this time and were evaluated at a program level in the EIR, as design and engineering parameters for the components of those phases were not yet sufficiently developed to support detailed impact analysis with respect to sea level rise in the Draft EIR.

Comment A1-8

Geologic Resources

5. Sedimentation and Sediment Dynamics: Impact 3.9-3 in the Draft EIR identifies that Phase One improvements would have a less than significant impact on sedimentation and sediment dynamics, but does not appear to analyze or discuss the Project's impacts to littoral drift processes. Given the Project area setting at the mouth of the Carquinez Strait, the new breakwater structures may disrupt bay currents, wind induced wave energy, and tidal cycles, and thus alter sediment movement through littoral drift. Comment 1, above, requests additional information in the Project Description about the breakwater structures to allow adequate evaluation of impacts

to littoral drift, among other impacts. Commission staff recommend this additional information be added to the Project Description and analysis in Section 3.9 to adequately address impacts to littoral drift processes in the EIR.

Response A1-8

Please see the response to comment A1-4.

Comment A1-9

6. New Dredging: It is Commission staff's understanding that the CSU Board is in the early stages of the application process with the San Francisco Bay Dredge Material Management Office (DMMO) for proposed dredging activities. For new dredging, Section 3.9 of the Draft EIR relies on a presumed outcome with the DMMO process that dredging impacts will be less than significant. These impact determinations cannot be confirmed until analysis of sediment toxicity is complete as determined through the DMMO process. As there are known sediment contamination sites within the Project area, the CSU Board should be cautious about assigning impact determinations for new dredging locations prior to completion of the DMMO process.

Response A1-9

Section 3.9 of the EIR concludes that "Phase One and Phase Two could result in potential pollutant mobilization associated with dredging and creosote pile removal, resulting in significant impacts related to water quality." The EIR concludes that this potentially significant impact be mitigated to a less-than-significant level by implementation of Mitigation Measure 3.3-2d, Mitigation Measure 3.3-2f, Mitigation Measure 3.3-2g, and Mitigation Measure 3.3-2h. While these mitigation measures reference the DMMO process with regard to sediment toxicity and handling of dredged material, they also specific measures that will be required based on the findings of that process. The EIR does not solely rely on the DMMO process as a basis for a less than significant conclusion. Notwithstanding the potential for pollutant mobilization, there is no evidence to suggest that dredging would result in significant impacts. Rather, with the specific mitigation measures included in the EIR, it is reasonable to conclude that impacts would be mitigable to less than significant levels.

Comment A1-10

Environmental Justice

7. Environmental justice is defined by California law as "the fair treatment and meaningful involvement of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." (Gov. Code, § 65040.12.) This definition is consistent with the Public Trust Doctrine's principle that management of trust lands is for the benefit of all people. The Commission adopted an updated Environmental Justice Policy and Implementation Blueprint in December 2018 to ensure that environmental justice is an essential consideration in the agency's processes, decisions, and programs. The twelve goals outlined in the Policy reflect an urgent need to address the inequities of the past, so they do not continue. Through its policy, the Commission reaffirms its commitment to an informed and open process in which all people are treated equitably and with dignity, and in which its decisions are tempered by environmental justice considerations.

   Although not legally required in a CEQA document, Commission staff suggests that the CSU Board include a section describing the environmental justice community outreach and engagement undertaken in developing the Draft EIR and the results of such outreach. The California Office of Environmental Health Hazard Assessment developed the CalEnviroScreen mapping tool to assist agencies with locating census tracts near proposed projects and identifying the environmental burdens, should there be any, that disproportionately impact those communities. Environmental justice communities often lack access to the decision-making process and experience barriers to becoming involved in that process. It is crucial that these communities are consulted as early as possible in the project planning process. Commission staff strongly recommends using the Community Vulnerability tool developed by BCDC, BCDC Community Vulnerability Tool and then, as applicable, reaching out through local community organizations, such as the California Environmental Justice Alliance. Engaging in early outreach will facilitate more equitable access for all community members. In this manner, the CEQA public comment process can improve and provide an opportunity for more members of the public to provide input related to environmental justice. Commission staff also recommend incorporating or addressing opportunities for community engagement in mitigation measures. Commission staff will review the environmental justice outreach and associated results as part of any future Commission action.

Response A1-10

As noted by the commenter, environmental justice community outreach and engagement is not required, and there are currently no formal requirements or procedures to evaluate potential environmental justice impacts under CEQA. As described in Chapter 1, Introduction, of the EIR, and pursuant to State CEQA Guidelines Sectoin 15082, a public scoping meeting was held online on December 8, 2022 to receive comments on the scope of the EIR analysis. Additionally, a Draft EIR public meeting (June 5, 2024) was conducted online to review the environmental impacts of the project and solicit public comments on the Draft EIR. All interested parties were invited to participate in the meetings. Pursuant to AB 52, and as described in Section 3.4, Archeological, Historical and Tribal Cultural Resources, of the EIR, the CEQA process also included consultation with Native American Tribes. As part of this process, Cal Maritime mailed notification letters to 13 tribal representatives and conducted formal consultation with two tribes.

Additionally, prior to initiation of the CEQA process, during development of the Waterfront Master Plan, Cal Maritime conducted extensive community outreach during development of the Waterfront Master Plan. This included in-person, one-on-one, and one-on-group work sessions supported by online engagement tools with faculty and cadet focus groups and Waterfront Master Plan working group. An extensive campus-wide survey was conducted online focusing on improvements across four categories--the waterfront as a focus of campus recreational activities; a place for hands-on learning; a showcase for marine technology and research; and an extension of classroom learning.

The project is a Waterfront Master Plan that identifies and integrates key projects into a comprehensive plan to guide redevelopment of Cal Maritime’s in-water and landside facilities and infrastructure to support academic and port operations, public access, environmental factors, and long-term resiliency. It is not the type of project (e.g., landfill, refinery, and resources extraction) that could cause disproportionate environmental harm and risk to human health if located in communities of color, low-income, and other underserved populations. The twofold underlying purpose of the Waterfront Master Plan is to prepare the Cal Maritime campus waterfront for the arrival and subsequent operation of the National Security Multi-Mission Vessel (NSMV) and to upgrade infrastructure and facilities that support other campus and public waterfront-dependent program needs. The NSMV will be used for maritime training and education of cadets, and will be requisitioned, as needed, by the Federal Emergency Management Agency for emergency use. Further, one of the project objectives is to link campus buildings with waterfront open space and enhance public pedestrian and bicycle access to and along an active waterfront. In line with this objective, Phase Two of the project would include construction of a primary pedestrian path in the upland zone, a public pier, a lookout, and a waterfront plaza. Phase Three would include construction of a secondary pedestrian path in the transition zone and completion of overwater portions of the public pier and lookouts. As such, implementation of the Waterfront Master Plan would result in beneficial effects related to public access to the shoreline, including improvements to shoreline access for environmental justice communities.

With regard to potential impacts on environmental justice communities, as discussed in Chapter 3, “Environmental Impacts and Mitigation Measures,” of the EIR (pages 3-1 through 3.15-12), implementation of the Waterfront Master Plan would result in less than significant impacts related to aesthetics, air quality, energy, greenhouse gas emissions, land use and planning, noise and vibration, public services and recreation, transportation, utilities and services systems, and wildfire. Implementation of project-specific mitigation measures identified throughout the EIR would reduce impacts related to biological resources, archaeological, historical, and tribal cultural resources; geology, soils, and mineral resources; hazards and hazardous materials; and hydrology and water quality to a less than significant level. These mitigation measures would fully mitigate the potentially significant impacts of the project on neighboring communities, including environmental justice communities. Therefore, implementation of identified mitigation measures would ensure that the Waterfront Master Plan would not cause a disproportionately high and adverse human health, or environmental impacts on an environmental justice community. Although a significant and unavoidable impact related to a known historic-era archaeological resource would result from implementation of Phase Two activities, the impact would occur within the footprint of the deliberately sunken *Contra Costa* ferry hull remnants and would not cause a disproportionately high and adverse human health or environmental impacts on an environmental justice community.

Therefore, while the EIR does not include a separate section to discussion of outreach or impacts specific to environmental justice communities, implementation of the Waterfront Mater Plan would not result in disproportionately high and adverse human health or environmental impacts on an environmental justice community, and, in fact, would result in beneficial effects related to public access to environmental justice communities.

Comment A1-11

Thank you for the opportunity to comment on the Draft EIR. As a trustee and responsible agency, the Commission will rely on the Final EIR for issuing an amended lease as specified above (see Section "Commission Jurisdiction and Public Trust Lands"). Staff requests that you consider these comments before certifying the Final EIR.

Please send electronic copies of the Final EIR, Mitigation Monitoring Program, Notice of Determination, approving resolution, CEQA Findings, and, if applicable, Statement of Overriding Considerations when they become available. Please note that federal and state laws require all government entities to improve accessibility of information technology and content by complying with established accessibility requirements. (29 U.S.C. § 794d; 36 C.F.R. § 1194.1 et seq.; Gov. Code, § 7405.) California State law prohibits State agencies from publishing on their websites content that does not comply with accessibility requirements. (Gov. Code, § 115467.) Therefore, any documents submitted to Commission staff during the processing of a lease or permit, including all CEQA documentation, must meet accessibility requirements for Commission staff to place the application on the Commission agenda.

Please refer questions concerning environmental review to Jason Ramos, Senior Environmental Scientist, at (916) 574-1814 or via email at jason.ramos@slc.ca.gov. For questions concerning Commission leasing jurisdiction, please contact Joanne Holt, Public Land Management Specialist, at (916)574-1832 or via email at joanne.holt@slc.ca.gov.

Response A1-11

Cal Maritime appreciates the Commission's comments and will provide the requested CEQA documentation. Documents provided by Cal Maritime to be posted online will comply with Section 508 of the federal Rehabilitation Act accessibility requirements.

Letter A2 California Department of Fish and Wildlife

Craig Shuman, Marin Regional Manager
June 27, 2024

Comment A2-1

California State University Maritime Academy Waterfront Master Plan (Project)
Draft Environmental Impact Report (DEIR)
SCH# 2022120009

The California Department of Fish and Wildlife (Department) received a DEIR from California Maritime Academy (Cal Maritime) for the Project pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that the Department, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

Response A2-1

The comment provides introductory remarks and expresses appreciation for the opportunity to comment.

Comment A2-2

The Department is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the state. (Fish & G. Code, Section 711.7, subd. (a) & 1802; Pub. Resources Code, Section 21070; CEQA Guidelines Section 15386, subd. (a).) The Department, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (Id., Section 1802.) Similarly for purposes of CEQA, the Department is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources. The Department is also responsible for marine biodiversity protection under the Marine Life Protection Act in coastal marine waters of California, and ensuring fisheries are sustainably managed under the Marline Life Management Act.

The Department is also submitting comments as a Responsible Agency under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) The Department expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, implementation of the Project may result in “take” as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

Response A2-2

The comment provides a summary of the responsibilities and authority of the California Department of Fish and Wildlife.

Comment A2-3

PROJECT DESCRIPTION SUMMARY

Proponent: Cal Maritime

Objective: The project's purpose is to prepare the Cal Maritime campus waterfront for the arrival of the NSMV, which will replace Cal Maritime's Training Ship Golden Bear (TSGB), and to upgrade infrastructure and facilities that support other campus and public waterfront-dependent program needs.

Location: The Project is located in the city of Vallejo on the waterfront within San Pablo Bay and adjacent to the Carquinez Strait within Morrow Cove.

Timeframe: The Project is expected to begin in 2025 and occur in three phases over 10 years.

Response A2-3

The comment provides a summary of the project purpose, location, and timeframe, all of which are correct.

Comment A2-4

MARINE BIOLOGICAL SIGNIFICANCE

The San Francisco Bay-Delta is the second largest estuary in the United States and supports numerous aquatic habitats and biological communities. It encompasses 479 square miles, including shallow mudflats. This ecologically significant ecosystem supports both state and federally threatened and endangered species and sustains important commercial and recreational fisheries.

Response A2-4

The comment provides a summary of the marine biological significance of the San Francisco Bay-Delta, which is acknowledged.

Comment A2-5

STATE AND FEDERALLY LISTED AND COMMERCIALLY/RECREATIONALLY IMPORTANT SPECIES

Protected species under the State and Federal Endangered Species Acts that could potentially be present near Project activities include:

- Longfin smelt (*Spirinchus thaleichthys*), state-threatened
- Delta Smelt (*Hypomesus transpacificus*), state endangered and federally threatened
- Chinook salmon (*Oncorhynchus tshawytscha*), state and federally threatened (Central Valley Spring-run), state and federally endangered (Sacramento River Winter-run), state species of special concern (Central Valley Late Fall Run, Central Valley Fall Run)

- Steelhead (*Oncorhynchus mykiss*), federally threatened (Central California Coast and Central Valley evolutionary significant units)
- Green sturgeon (*Acipenser medirostris*), federal threatened (Southern Distinct Population Segment)
- White sturgeon (*A. transmontanus*), state-threatened
- Western river lamprey (*Lampetra ayresi*), state species of special concern

Several species with important commercial/recreational fisheries value and habitat value for spawning and rearing could potentially be present near Project activities. These include:

- Pacific herring (*Clupea pallasii*)
- Eelgrass (*Zostera marina*)

<u>Response A2-5</u>
The comment provides a summary of state and federally listed and commercially/recreationally important species that could potentially be present near the project activities. Table 3.3-2 of the EIR (pages 3.3-13 through 3.3-24) provides a summary of special-status wildlife species known to occur in the project site and their potential for occurrence on the project site. Cal Maritime offers clarification that white sturgeon is not a state-listed threatened species; rather, its current status is a species of special concern (Table 3.3-2 of the EIR). White sturgeon will become a candidate species for listing as threatened when the Office of Administrative Law publishes the recent decision by the California Fish and Game Commission to consider the species for listing under the California Endangered Species Act. The EIR considers impacts to special-status species and species that have not been formally listed. The impacts to special-status fish, including white sturgeon, are discussed in Section 3.3, "Biological Resources," of the EIR (pages 3.3-29 and 3.3-30).

<u>Comment A2-6</u>
The Department offers the comments and recommendations below to assist Cal Maritime in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct, and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document.

I. Marine Project Level Impacts and Other Considerations

Hydroacoustic Impacts on Aquatic Species

Comment: All phases of the Project will likely require a substantial number of piles in order to construct the new pier, both basins, trestle replacement, boathouse seismic retrofit and shoreline enhancements. These components of the Project are likely to create hydroacoustic sounds levels that exceed the Interim Criteria for Injury to Fish from Pile Driving Activities (attached). Exceedance of these thresholds may result in take, as described in Fish and Game Code Section 86, of aquatic species.

The Department is in agreement with minimization measures described in mitigation measure (MM) 3.3-2c (Implement In-Water Work Windows) and MM 3.3-2i (Implement methods to Reduce Sound Attenuation from Pile Installation). However, there is no discussion on compensatory mitigation for potentially significant impacts to state and federally listed species. Additionally, there are some inconsistencies between early consultation on permitting Phase 1 pile driving activities and the DEIR in terms of the numbers and size of the piles to be installed.

Recommendation: The Department recommends Cal Maritime continue consultation on permitting potential take of state listed species, via a CESA 2081(b) Incidental Take Permit, during activities for Phase 1 of the Project. The Department recommends additional consultation for take coverage during the planning of Phases 2 and 3 of the Project.

Recommendation: The Department recommends the final EIR include discussion of compensatory mitigation for the impacts to state listed species as it will be a requirement of the Department's CESA 2081(b) Incidental Take Permit for the Project.

Recommendation: The Department recommends that a table be included in the final EIR outlining the exact number, size, and material of the piles that will be used during construction of Phase 1 of the Project and if possible, an estimate of the number, size, and material of the piles that may be used for construction of subsequent Project phases. Additionally, the hydroacoustic impact area should be described for each known pile type and size anticipated to be used.

Response A2-6

Cal Maritime appreciates the Department's concurrence regarding the minimization measures to be employed for pile driving and will continue its ongoing consultation with the Department regarding issuance of an Incidental Take Permit for the project. Mitigation Measure 3.3-2j in Section 3.2 (Biological Resources) of the Draft EIR includes a discussion of mitigation required for potential impacts to special-status species. The title of Mitigation Measure 3.3-2j has been updated in the text of the EIR to provide clarity about the intent of the measure.

The table of piles to be removed and installed is included with the *Aquatic Resources Technical Report* (Appendix E, Table 4, page 33) and is copied below for reference. Because the table is provided in Appendix E, no EIR in-text updates are proposed. Inconsistencies between the EIR and the most recent permit documents with regard to the number and type of piles to be installed are a result of ongoing and recent design refinements, which do not affect the significant impact determination due to pile driving and do not require modifications to the EIR mitigation measures. For reference, the most recent compilation of pile sizes and types is provided in the table below.

Table RTC-3 Summary of Pile Sizes and Types

Pile Type	Pile Material	Pile Size	Number of Piles/Length (Maximum)
Piles to be Removed			
Mooring Dolphin Piles	steel	18-inch	41
Pier Piles	steel	24-inch	51
Breakwater Piles	steel	12-inch	20
Guidepiles (existing floats replace all in-kind)	steel	18-inch	17
Breakwater Sheetpile	steel	NA	Approx. 425 LF
Trestle	steel	24-inch	21
Piles to be Installed			
Pier Piles	steel	42-inch	81
Mooring Dolphin Piles	steel	42-inch	100
Breakwater Piles	steel	42-inch	102
Transition Pier Piles	steel	42-inch	5
Trestle	steel	42-inch	33
Guidepiles (for existing floats being removed/replaced in-kind)	steel	18-inch	17
New Guidepiles (for new floats)	steel	18-inch	36
Breakwater Sheetpile	steel	NA	Approx. 795 LF

Note: LF = Linear feet

Finally, the number and type of piles to be used in subsequent Phases are not known at this time. As described in the EIR, Phases 2 and 3 are entirely conceptual at this stage and may change in the future depending on funding, need, and construction outcomes from Phase 1. However, when these Phases are designed, it is anticipated that they will require further review and permitting, providing Department reviewers with additional opportunities for comment.

<u>Comment A2-7</u>
State Species of Special Concern

Comment: Although the State Species of Special Concern (SSC) designation does not have a formal legal status, species are designated to bring additional attention to conservation, research, and recovery of species that have previously been subject to population declines or are generally rare. SSCs should be considered during the environmental review process. CEQA (California Public Resources Code §§ 21000-21177) requires State agencies, local governments, and special districts to evaluate and disclose impacts from projects in the State. Section 15380 of the CEQA Guidelines indicates that species of special concern should be included in an analysis of project impacts if they can be shown to meet the criteria of sensitivity outlined therein. Sections 15063 and 15065 of the CEQA Guidelines, which address how an impact is identified as significant, are particularly relevant to SSCs. Project-level impacts to listed (rare, threatened, or endangered species) species are generally considered significant thus requiring lead agencies to prepare an Environmental Impact Report to fully analyze and evaluate the impacts. In assigning "impact significance" to populations of non-listed species, analysts usually consider factors such as population-level effects, proportion of the taxon's range affected by a project, regional effects, and impacts to habitat features.

The white sturgeon, formerly designated as a SCC, is now listed as threatened under CESA. The Fish and Game Commission found a petition to list white sturgeon as threatened under the California Endangered Species Act (CESA) contained sufficient information to determine listing may be warranted. The Department will now begin conducting a status review of the species to determine if listing under CESA is warranted and a final decision will be made at a 2025 Commission meeting. Once notice of the decision is published by the Office of Administrative Law, white sturgeon will become a candidate species under CESA and take of white sturgeon will be prohibited without specific take authorizations.

Recommendation: The Department recommends the final EIR include analysis of the potential impacts to SSC and included white sturgeon as a threatened species under CESA.

<u>Response A2-7</u>
Special-status species which rank as an SSC (or those that are formally listed) and have potential to occur within the project site are reviewed in Table 3.3-2 (page 3.3-20). These species are also listed on page 3.3-29 of the Draft EIR. White sturgeon is included in the list of species analyzed in the EIR. On June 19, 2024, after the circulation of this Draft EIR, the California Fish and Game Commission voted to adopt white sturgeon as a candidate species for listing under CEQA. Based on this recent vote, the notation for the status of white sturgeon has been updated to include "State Candidate" in addition to its current listing as an SSC in Table 3.3-20 (Page 3.3-20), and text on page 3.3-29 has been updated acknowledging the species as a candidate for listing. Measures beginning on Page 3.3-35 specific to fish and aquatic environments consider effects to all special-status fish species, including species of special concern and candidate species.

<u>Comment A2-8</u>
Eelgrass

Comment: The DEIR sufficiently discussed and conveyed the potential impacts of the Project during the various Project phases. Additionally, MM 3.3-3 (Conduct Focused Surveys and Compensate for Loss of Eelgrass) is consistent with Department recommendations to avoid, minimize, and mitigate for impacts to eelgrass. Currently, MM3.3-3 describes sending survey reports and results to National Marine Fisheries Service. However, the survey reports and results will not only be determined to be completed by the National Marine Fisheries Service, but also the Department, and likely the other permitting agencies with authority over the Project. The MM should include the Department and other permitting agencies as reviewers of the pre and post construction surveys and the mitigation plan. These surveys and the mitigation plan will be a condition of approval within the Departments authorization of the Project.

Recommendation: The Department recommends that MM 3.3-3 include the Department as a reviewing agency of the eelgrass survey results and eelgrass mitigation plan.

Response A2-8
As requested in this comment, the text of the mitigation measure has been updated to include the Department as a reviewing agency for the eelgrass survey and mitigation plan.

Comment A2-9
Marine Hydrokinetic Barge

Comment: Installation of the Hydrokinetic barge poses potential impacts to aquatic species. During previous review of early design concepts, the Department has raised concerns regarding the potential for entrainment and/or impingement of aquatic species during operation of the hydrokinetic barge. MM 3.3-2m (Reduce Impacts from Hydrokinetic Barge) describes steps to construct the barge and ensure impacts are being considered. The MM3.3-2m should go one step further by including early consultation with permitting agencies during the design of the barge and prior to construction to ensure that the final design meets agency requirements and recommendations. Specifically, determining that exclusionary fish screen measures are sufficient in preventing take of state listed species. See attachment 2 (CDFW Fish Screen Criteria). Additionally, the Department has staff dedicated to review marine renewable energy projects. Department staff review and expertise will be critical to ensuring a final design is permittable by the Department.

Recommendation: The Department recommends that MM 3.3-2m include a bullet describing early consultation with the Department, and other permitting agencies, to ensure the final barge design and isolation components are consistent with current agency recommendations and requirements.

Response A2-9
As requested in the comment, the text of the mitigation measure has been updated to include the Department as a consulting agency.

Comment A2-10
Shoreline Enhancements

Comment: From the limited amount of information provided in the DEIR about the living reef component of the Project, it is the Department's understanding that the living reef component of the shoreline enhancement is designed to act as an artificial reef. The Department has authority for artificial reefs under a variety of roles including Statutory/Legislative Authority, Trustee and Responsible Agency Status under CEQA and the Marine Life Management Act, and an advisory role to other agencies. Fish and Game Code Section 6420-6425 established the California Artificial Reef Program (CARP) through legislation in 1985. The program was created to investigate the potential to enhance declining species through the placement of artificial reefs and is currently unfunded with no identified source of funding. However, the CARP does not consider reef placement for mitigation, dampening effects of sea level rise, improve diving opportunities, or restoration.

The Department is concerned that placement of the living reefs will potentially decrease the amount of habitat for further eelgrass expansion or future

restoration/mitigation efforts based on the previously mapped beds within the Project area. Additionally, The Department is concerned artificial reefs and artificial habitat creation could attract invasive species.

Recommendation: The Department recommends the final EIR include more information on the living reef structures to assist the Department in its review of potential aquatic impacts such as risks to existing sensitive habitat and the proliferation of non-native and/or invasive species. The final EIR should also include discussion on how on-site restoration of eelgrass, should it be necessary, would be able to co-occur with placement of the living reef if the reef structures are placed within what appears to be potential or existing eelgrass habitat. The final EIR should include discussion on developing an invasive species monitoring plan that includes monitoring measures, adaptive management measures, and protocols if invasive species are identified.

Recommendation: The Department recommends Cal Maritime initiate early consultation with the Department to assist with design and permitting of the living reefs while planning Phase 3 of the Project.

Response A2-10
At this stage, the living reef component of Phase 3 is purely conceptual. The intent of this project component, when design is finalized, is to include eelgrass. When future Phases are designed and implemented, the living reef aspect will be further refined and reviewed, including review by the Department.

Comment A2-11
ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link:

https://wildlife.ca.gov/Data/CNDDB/SubmittingData#44524420-pdf-field-survey-form. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: https://wildlife.ca.gov/Data/CNDDB/Plants-and-Animals.

Response A2-11
As requested by the Department, Cal Maritime will report special-status species and natural communities detected during project surveys to the CNDDB.

Comment A2-12
FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by the Department. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, Section 753.5; Fish & G. Code, Section 711.4; Pub. Resources Code, Section 21089.)

Response A2-12
Cal Maritime will pay the required fees when filing the Notice of Determination.

Comment A2-13
CONCLUSION

The Department appreciates the opportunity to comment on the DEIR to assist Cal Maritime in identifying and mitigating Project impacts on biological resources. Questions regarding this letter or further coordination should be directed to Arn Aarreberg, Environmental Scientist, at (707) 791-4195 or R7CEQA@wildlife.ca.gov.

Response A2-13
Cal Maritime appreciates the comments provided on the Draft EIR and will continue to coordinate with the Department regarding the Waterfront Master Plan.

3.1.2 Organizations

Letter O1 Vallejo Architectural Heritage Foundation

Nancy A. Piotrowski, Ph.D., President
June 29, 2024

Comment O1-1
We appreciate the opportunity to provide a few comments on behalf of VAHF regarding the CSUM Waterfront Master Plan. The areas of specific interest that I want to address relate to historical resources and ongoing community benefits associated with access to the resources. These include the Contra Costa, the boathouse, other shipwrecks (the Bangor schooner, the unknown shipwreck), and the Golden Bear.

Response O1-1
Thank you for reviewing the Cal Maritime Waterfront Master Plan Draft EIR. The comment provides introductory language and summarizes topics of specific comments provided in the body of the letter. Specific comments are addressed in individual responses below.

Comment O1-2
First, in reading the DEIR, we understand that the shipwrecks in the vicinity of the plan area will suffer some unavailable impacts. For instance, the ferry, Contra Costa, is described as a shipwreck, but is a known historic resource. In its time, it was the largest steam ferry ship in the world. A buoy serving as a navigational tracker still marks the location of its remains. We believe the process of analyzing and identifying options of what happens to the remains need to be transparent and well documented for history. This is our preference whether the remains are destroyed, left in place, removed, or otherwise salvaged. Perhaps a geocache can be added to the current geocache system in place in Vallejo with relevant information on the Contra Costa in something like a publicly accessible historical marker or interpretive display along the waterfront recognizing its importance to the history of the area. Further, any other historical resources that may be impacted by the project also could be commemorated there, along with acknowledgments of any listings of the vessel on the NRHP and CRHR. And we do specifically ask that CSUM include registration of the Contra Costa to the NRHP and CRHR as part of the Master Plan. Such registrations would demonstrate the University's commitment to recognition of its history and the area's nautical history. Relatedly, if there are items that are removed and salvaged from the Contra Costa, our preference is to keep the local for display, rather than sending them elsewhere. The Vallejo Naval and Historical Museum may be a suitable home, as would be displayed on the CSUM campus, or other water front locations that might be negotiated with the City of Vallejo.

Response O1-2
As stated on page 3.4-23, for clarity and to differentiate between buildings and other resources, "historical resource" is used to describe intact built-environment resources. Archaeological resources (both precontact and historic-period), which may qualify as "historical resources" pursuant to CEQA, are analyzed separately from built-environment historical resources. Therefore, the *Contra Costa* is discussed as an "historic era archaeological resource." Additionally, "shipwrecks" include vessels that have been accidentally or intentionally sunk. Please note that the definition of "shipwreck" has been added as a footnote to page 3.4-16 of Section 3.4, "Archaeological, Historical, and Tribal Cultural Resources," of the Draft EIR as follows:

> 1. As defined in National Register Bulletin 20, this section uses the term "shipwreck" to include all submerged or buried vessels that have foundered, stranded, or wrecked. This includes vessels that exist as intact or scattered components on or in the sea bed, lake bed, river bed, mud flats, beaches, or other shorelines.

Because the *Contra Costa* is a state-owned resource, Cal Maritime is required to consult with the State Historic Preservation Officer (SHPO). The preservation/recovery options will be identified in consultation with SHPO and included in the programmatic agreement during Phase 2 of project implementation. As indicated in Mitigation Measure 3.4-2, potential preservation/recovery options would include: documentation of the shipwreck through a data recovery plan in coordination with the Research Center of the San Francisco Maritime National Historical Park; salvaging portions of the shipwreck, possibly in coordination with the Maritime Museum at the San Francisco Maritime National Historical Park; or development of an interpretive display at a publicly accessible portion of Cal Maritime. Cal Maritime will implement preservation/recovery options approved by SHPO.

Finally, the *Contra Costa* is currently recommended eligible for listing on the NRHP and the CRHR. This eligibility recommendation provides the same level of regulatory oversight and protections for the resource as would official registration on the NRHP and CRHR. While official registration is beneficial in terms of tax incentives for some rehabilitation projects or tax deductions for donation of preservation easement, these benefits would not apply to the proposed project. The greater community benefit would be the interpretive display at a publicly accessible portion of Cal Maritime or as part of the data recovery plan.

Comment O1-3

Second, the boathouse also is qualified for listing on the NRHP. We ask that the CSUM Waterfront Master Plan include the completion of this registration as well, working with the City of Vallejo Architectural Heritage and Landmarks Commission, the Vallejo Museum, and VAHF to support the merits of the work. We think these listing present valuable community benefits, recognizing the history of accomplishments of our citizens. This encourages pride in the community and good land stewardship. Additionally, it would be significant in tying current CSUM work to the nautical history in the area right on campus.

Response O1-3

The boathouse is currently recommended eligible for listing on the NRHP and the CRHR. As stated above for the *Contra Costa*, this eligibility recommendation provides the same level of regulatory oversight and protections for the resource as would official registration on the NRHP and CRHR. While official registration is beneficial in terms of tax incentives for some rehabilitation projects or tax deductions for donation of preservation easement, these benefits would not apply to the proposed project. The greater community benefit would be the continued historic use of the boathouse and potentially including it in an interpretive display at a publicly accessible portion of Cal Maritime. Cal Maritime will continue to engage in outreach with stakeholders interested in the historic resources on its campus as the Waterfront Master Plan is implemented.

Comment O1-4

Third, research and documentation about other wrecks potentially impacted by the planned work also would be beneficial in the same ways as the prior two resources. For example, Bangor schooner and the unknown wreck mentioned on page 3.4-16 would be worthy of mention in any geocache information or interpretive displays along the waterfront.

Response O1-4

As described in Section 3.4, "Archaeological, Historical, and Tribal Cultural Resources," of the Draft EIR, the *Bangor* schooner and the unknown wreck were not relocated during the underwater survey, which included the area to be disturbed by project activities. Therefore, it is not anticipated that the *Bangor* schooner and the unknown wreck will be affected by the proposed project. Research on these vessels has been conducted and is included in the confidential *Underwater Cultural Resources Survey and Evaluation Report for the California State University Maritime Academy Waterfront Master Plan, Solano County, California* (Far Western 2024). These vessels can be included in an interpretive display that is designed as part of the consultation with SHPO. Finally, any member of the public can add a geocache, provided it is in a public space.

Comment O1-5

Finally, regarding the Training Ship Golden Bear, while a newer resource, it still has valued history. So, if it is to be transferred permanently to the US Department of Transportation's Maritime Administration, its history should likewise be recorded and memorialized in some way locally. Prior students/alumni and residents connected to the ship would likely appreciate this and perhaps be able to provide input on how to do this in a way that is meaningful. It is also a nice way to engage alumni and residents in the project as a whole.

<u>Response O1-5</u>

The Training Ship Golden Bear is owned by and currently on loan from the US Maritime Administration (MARAD) to Cal Maritime, as are all training ships at the other five state Maritime Academies, and as the new NSMV will be. Thus, there is no transfer of the Training Ship Golden Bear occurring under the proposed Waterfront Master Plan. Additionally, due to its age (launched in 1987), the Training Ship Golden Bear does not meet the NRHP or CRHR recommended age threshold to be evaluated as a historical resource. If a project affecting the Training Ship Golden Bear is proposed once the ship reaches 45 years, it will be researched and evaluated for its potential historic significance under NRHP or CRHR criteria, as appropriate.

<u>Comment O1-6</u>

Again, thank you for the opportunity to submit comments. We look forward to seeing how the project progresses. We also look forward to collaborations between CSUM and the City of Vallejo as the city progresses with the Vallejo General Plan 2040. Collaborations to recognize history, inspire citizens and students, support public access, and mitigate increased pollution and some of the other environmental impacts of this project are desired and will benefit all. Regionally speaking, too, if there were a way to use the work on the Contra Costa to tell more of the story on the Bay Area's many bridges and how we got along without them before they were built, reaching out to the bridge cities to network on such an effort, that too would be valuable in the presentation of the history of these fabulous ships.

Our best wishes to you going forward with the project.

<u>Response O1-6</u>

Cal Maritime appreciates the comments on the Draft EIR provided by the Vallejo Architectural Heritage Foundation and the support expressed, and will continue to coordinate with VAHF regarding the Waterfront Master Plan.

3.1.3 Individuals

Letter I1 Donald E. Osborne

June 21, 2024

<u>Comment I1-1</u>

It has been a pleasure to hear and read about CSUM's Waterfront Master Plan, particularly given that the project is relatively free of controversy and knowing of CSUM's consideration for its physical location, the area's nautical history, and its longstanding good relationship with the community in Vallejo. I am certain I join many in wishing you all the best as you plan for the future of CSUM and expressing our gratitude that substantial public access remains a priority.

<u>Response I1-1</u>

Cal Maritime appreciates the acknowledgement and good wishes.

<u>Comment I1-2</u>

Although I was not able to read the entire DEIR, there are areas of specific interest that I want to address here, primarily related to historical resources and ongoing community benefits and access to the campus.

- Contra Costa and other "shipwrecks"

The one significant and unavoidable impact in the DEIR that cannot be mitigated is the disposition of the ferry, Contra Costa, which the DEIR describes as a shipwreck: a known historic era archeological resource. While it is a ship and a wreck, it is not what one imagines of a shipwreck. While it certainly falls under the laws and jurisdictions that control shipwrecks, this shipwreck was intentional destruction.

The Contra Costa in its day was the largest steam ship ferry ship in the world, one of two that ferried trains between Port Costa and Benicia. When a train bridge was built from Martinez, the Contra Costa was towed to Morrow Cove and used as a recreational destination. After the arrival of Cal Maritime, due to safety concerns, the ship was burned, dynamited, and sunk for use as a breakwater. A buoy serving as a navigational tracker still marks the location of its remains.

Response I1-2
Please see the response to comment O1-2.

Comment I1-3
I note your intention to work with the State Historic Preservation Officer, as well as the Research Center and Maritime Museum of the San Francisco Maritime National Historic Park in analyzing and documenting its history and the likely substantial adverse changes to a known historic archeological resource, and to determine options for its eventual disposition, whether destruction, removal, salvage, or leaving in place.

Whatever eventually happens to the remains of the Contra Costa, I ask that CSUM document its story with a publicly accessible historical marker or interpretive display along the waterfront recognizing its importance to the history of the area, along with any other historical resources that may be impacted by the project. I ask that you consider with the Vallejo Naval and Historical Museum, whether any part of the ship might be salvaged for possible display either on the CSUM campus or at the Vallejo Museum. Since the ship was likely stripped before its destruction, consider organizing a community search for artifacts that might be displayed with photos in a presentation on campus or at the Museum: a bell, ships wheel, or nameplate. The Bay Area network of bridges all started with the building of the Carquinez Bridge. That story is fascinating. The photos of the Contra Costa, which made some 80 trips a day, are jaw-dropping.

Your study to determine eligibility of the Contra Costa for listing on the NRHP and CRHR indicates a high degree of integrity of the vessel's hulk and recommends these listings. It would be significantly impacted by the dredging planned in Phase 2. To the extent possible, we ask that CSUM include registration of the Contra Costa to the NRHP and CRHR as part of the Master Plan. Such registrations would demonstrate the University's commitment to recognition of its history and the B Area's nautical history. It would be a wonderful learning opportunity for sudents [students] and members of the community. It would instill pride for those involved and bring positivie [positive] attention to the campus. Possibly, along with the boathouse, these would be the only registered historical resources on the campus.

Response I1-3
Please see the response to comment O1-2.

Comment I1-4
I note your reference to the Bangor schooner, also believed to have been intentionally burned and covered at Morrow Cove and ask that its history be researched and recognized by the University, as well as the unknown wreck mentioned on page 3.4-16 (Note: the unknown wreck could not be the Forester whose location is known to be at Martinez where is can still be seen at low tide).

Response I1-4
Please see the response to comment O1-4.

Comment I1-5
If the Training Ship Golden Bear is to be transferred permanently to the US Department of Transportation's Maritime Administration, its history should likewise be recorded and memorialized, perhaps in the naming the new vessel.

Response I1-5
Please see the response to comment O1-5.

Comment I1-6
- Boathouse

The DEIR notes the potential impact to the boathouse, also qualified for listing on the NRHP and not qualified for the CRHR. It states that the rehabilitation of the boathouse will comply with the Secretary of the Interior's Standards for Rehabilitation. As with the Contra Costa, we ask that the Waterfront Plan include the completion of those registrations working with the Vallejo Architectural Heritage and Landmarks Commission, the Vallejo Museum, and the Vallejo Architectural Heritage Foundation.

<u>Response I1-6</u>
Please see the response to comment O1-3.

<u>Comment I1-7</u>
I am grateful for the numerous references to the Vallejo General Plan 2040 in the DEIR and areas that describe the consistencies between it and the Waterfront Master Plan. It is my hope that CSUM Interim President Mike Dumant has already met or will shortly with Vallejo's new City Manager Andrew Murray to discuss mutual interests with our community and the ways in which public accommodation and access can mitigate increased pollution and some of the other environmental impacts of this project. The Waterfront Master Plan makes it clear that the University considers public access an important element of this plan.

<u>Response I1-7</u>
Cal Maritime appreciates the comments on the Draft EIR provided by the commenter and the support that is expressed for the university and the project.

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This summary is provided in accordance with California Environmental Quality Act Guidelines (State CEQA Guidelines) Section 15123. As stated in Section 15123(a), "an EIR [environmental impact report] shall contain a brief summary of the proposed action and its consequences. The language of the summary should be as clear and simple as reasonably practical." As required by the guidelines, this chapter includes (1) a summary description of the Waterfront Master Plan, (2) a synopsis of environmental impacts and recommended mitigation measures (Table ES-1), (3) identification of the alternatives evaluated and of the environmentally superior alternative, and (4) a discussion of the areas of controversy associated with the project.

ES.2 SUMMARY DESCRIPTION OF THE PROJECT

ES.2.1 Project Location

The approximately 31-acre project site (Assessor's Parcel Number 006-209-0030) is located within the Cal Maritime campus boundaries in the City of Vallejo, at the foot of the Carquinez Bridge in southwest Solano County and the adjacent waters of Morrow Cove (Figures ES-1 and ES-2). Southeast of Morrow Cove and across the Carquinez Straight is the community of Crockett. The approximately half-mile of waterfront, which is bordered by Morrow Cove Drive to the north, is the campus's dominant natural feature and the focal point of Cal Maritime instruction and activities. The pier and berth for the existing TSGB and adjacent boat basin are major features of the southeastern edge of the waterfront. The campus waterfront and in-water marine structures make up the entire project site covered by of the Waterfront Master Plan (Figure ES-3). Approximately four acres of the project site occur on land along the waterfront, and approximately twenty-seven acres occur on water in Morrow Cove.

Access to the project site is provided by Maritime Academy Drive, which intersects State Route 29/Sonoma Boulevard just north of Interstate 80 (I-80) entry/exit ramps and provides primary vehicular access to the campus. Maritime Academy Drive descends from the northern and western portions of the campus, directing traffic along the eastern edge of the lower portion of the campus before terminating at the campus pier. Maritime Academy Drive and Morrow Cove Drive form a loop around the lower campus and provide access to the project site.

The campus also provides a network of walkways connecting buildings and open spaces, including the quad and shoreline. Pedestrian access between the lower and upper campus is provided by a sidewalk and a raised boardwalk along Maritime Academy Drive and through staircases where hillside topography necessitates. Beyond the campus, surrounding uses and points of interest include residential uses (the Crystal Pointe neighborhood) northwest of the campus, Carquinez Bridge Vista Point just east of the campus, and Livingstone's Inspiration Park and Bay Area Ridge Trail to the east on the far side of I-80 (Figure ES-4). See Appendix B for photos of existing facilities on the project site.

ES.2.2 Background and Need for the Project

The San Pablo Bay waterfront is the most prominent feature of the Cal Maritime campus and supports teaching and recreational programming. Facilities include an approximately 2,640-foot-long publicly accessible waterfront promenade and public parking; an operational port for small craft; an operating pier; and the (Training Ship Golden Bear) TSGB, a 500-foot training vessel on loan from the US Maritime Administration (MARAD).

Source: Google Earth Pro Imagery; adapted by Ascent Environmental in 2022.

Figure ES-1 Regional Location

Source: ESRI World Imagery; adapted by Ascent Environmental in 2022.

Figure ES-2 Local Vicinity

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Source: ESRI World Imagery; adapted by Ascent Environmental in 2022.

Figure ES-3 Project Site and Existing Uses

Source: ESRI World Imagery; adapted by Ascent Environmental in 2022.

Figure ES-4 Project Boundary

The TSGB is used for applied cadet instruction and spends much of the academic year at berth at Cal Maritime's pier. Each summer, first- and third-year cadets and licensed faculty officers set sail for an annual training cruise lasting approximately 6 weeks. While at sea, cadets apply classroom, lab, and waterfront training toward piloting, navigation, shipboard maintenance, and leadership development in an oceangoing vessel. The ship is presently captained by Captain Samar Bannister and is staffed by crews of varying sizes for training purposes.

A time-critical component of the project is preparation for the arrival of the new training ship, the National Security Multi-Mission Vessel (NSMV), which will replace Cal Maritime's TSGB. The NSMV will be the fifth in a new fleet of ships specifically designed by MARAD for emergency use by the Federal Emergency Management Agency (FEMA) and available for requisition as needed. Most of the time, the vessels will be moored at US state maritime academies and used for training merchant marines by the academies.

The NSMV is 525 feet long, 89 feet wide, with a design draft of 21 feet 4 inches and a depth of 56 feet. Access will be via side entry from the pier. Ship facilities will include 12 classrooms; two navigation labs; six cadet workshops; a large multi-purpose space; a training bridge; simulation spaces and lab spaces; and accommodations for 600 cadets and 100 officers, faculty, staff, and crew. The NSMV also has a medical bay and a helicopter landing pad for emergency use by FEMA, although these would not be used by Cal Maritime when in port. While at port, the NSMV would function for maritime training and education of cadets. Cadets would not be involved in any emergency response missions undertaken by FEMA for which the NSMV might be requisitioned. NSMV delivery to Cal Maritime is scheduled for delivery as early as April 2026.

Arrival of the NSMV will elevate the level of training and shipboard experience for Cal Maritime's cadets. Because these vessels remain part of MARAD's National Defense Reserve Fleet, they may be called into specialized national service. The ship's dual-purpose design, for both cadet training and humanitarian assistance/disaster relief missions, places unique demands on the landside and in-water infrastructure supporting its future Cal Maritime home port.

The Cal Maritime waterfront has never undergone comprehensive master planning and instead has evolved over time in response to evolving programmatic needs. The condition of the waterfront facilities and infrastructure varies from good to poor, and extensive repairs or upgrades are needed. Cal Maritime also anticipates academic and operational changes over the next 5-10 years that elevate the need for a cohesive waterfront master plan. The Waterfront Master Plan is intended to identify and integrate key projects into a comprehensive plan to guide redevelopment of Cal Maritime's in-water and landside facilities and infrastructure to support academic and port operations, public access, environmental factors, and long-term resiliency. The project would not change enrollment or student capacity on campus or alter projected growth of the university. Implementation of the proposed project would occur in three phases spanning 10 years.

ES.2.3 Project Objectives

The twofold underlying purpose of the proposed project is to prepare the Cal Maritime campus waterfront for the arrival and subsequent operation of the NSMV and to upgrade infrastructure and facilities that support other campus and public waterfront-dependent program needs. These other program needs include hands-on campus instruction related to small and large craft navigation, maintenance, and other ship provisioning operations; small craft mooring and storage; and public recreational use.

Consistent with, and in furtherance of, the project purpose, the proposed project has the following objectives:

- Upgrade Cal Maritime's in-water and landside facilities and infrastructure to accommodate berthing and operation of the NSMV, as follows:
  - Replace the main pier and potentially the existing trestle (or causeway) to accommodate the larger NSMV, meet heavy-weather mooring requirements, and allow access to the NSMV by trucks and equipment needed for operation and maintenance of the vessel.
  - Provide necessary new and upgraded infrastructure and utilities sized to support the NSMV.

  - Upgrade the existing marine yard to accommodate improved access, a staging area for ship supplies for the annual training cruise, training areas, support for embarkation and debarkation, and US Coast Guard-required port security measures.
- Upgrade and replace infrastructure to facilitate efficient waterfront operations important for Cal Maritime's educational mission and expansion of cadet instruction.
- Increase hands-on maritime instructional opportunities for cadets to move beyond traditional classroom experience and gain in-water experience.
- Allow for NSMV to operate as an extension of Cal Maritime facilities and provide maritime training and education for cadets.
- Expand and optimize the boat basin to allow simultaneous safe movement of more than two vessels for academic on-water instruction and recreational activities; accommodate Cal Maritime training and small recreational craft currently moored off-site because of lack of space; and accommodate an expanded Cal Maritime fleet of vessels, including a new replacement tug and oceanographic or similar research vessel.
- Dredge the existing and expanded boat basin to ensure depth sufficient to accommodate small vessel programs at the university.
- Ensure that the TSGB remains accessible for instructional use during Phase One implementation of the Waterfront Master Plan.
- Rehabilitate the boathouse in a manner that retains its historic integrity.
- Link campus buildings with waterfront open space and enhance public pedestrian and bicycle access to and along an activated waterfront.
- Ensure waterfront resilience, including the shoreline upland and transition zones that support public open space and recreational use, to climate and storm-related stresses.
- Protect ecological functioning along the waterfront, including upland, intertidal, and subtidal components.
- Allow the NSMV to be requisitioned by FEMA for emergency use, as needed.

ES.2.4 Characteristics of the Project

The Waterfront Master Plan establishes a vision for achieving a campus waterfront aligned with the unique academic and maritime operations, environmental factors, and resiliency needs of Cal Maritime. The plan builds on preliminary concepts explored and aligned with campus community input and identifies three phases of development over the next 10 years focusing on upgrades to in-water infrastructure, renovation and development of waterfront buildings, enhancement of waterfront open space and connectivity, and expansion of site-serving utilities. The three phases of development are described in more detail below.

PHASE ONE

Phase One of the proposed project focuses on upgrades to in-water infrastructure and the Marine Yard, as well as expansion of site-serving utilities. Phase One components would include:

- NSMV arrival and operation;
- main pier demolition and replacement;
- existing trestle structural upgrades and extension (or possible replacement);
- temporary relocation and operation of the TSGB and small vessel programs;
- upgrades of all pier utilities connections and delivery lines for power, sewer, stormwater, gas, fire suppression, and potable water;

- maintenance dredging of the existing boat basin and new dredging in the expanded boat basin;
- installation of navigation aids;
- replacement of floating docks at the boat basin;
- upgrades to the Marine Yard, which would be limited to those needed to support the new pier and extended trestle (or possibly replacement trestle);
- utilities relocation and/or upgrades, including upgraded electrical equipment and gas supply and metering; potable water line expansion; sanitary sewer expansion; shore power, fire suppression, and lighting upgrades and possible removal of the steam plant.
- temporary TSGB berth accommodations at Suisun Bay Reserve Fleet through at least fall 2026. After the arrival of the NSMV the TSGB will be transferred permanently to MARAD.

Phase One would focus on the arrival and operation of the NSMV. The ship would be outfitted with numerous training spaces, including eight classrooms, a full training bridge, lab spaces, and an auditorium, containing space to train up to 600 cadets at sea. In addition to being an educational platform at Cal Maritime, the NSMV would be a highly functional national asset designed to fulfill numerous roles outside of maritime training. Replacement of the main pier would also occur in order to support the NSMV.

The existing pier would be demolished and reconstructed to create a new pier approximately 450 feet long and 50 feet wide (an increase of approximately 230 feet in length and 20 feet in width). Once construction activities of the pier are underway, it is possible the existing trestle may need to be fully replaced. Additionally, the existing floating docks would be expanded to offer approximately 23 slips/berthing positions to accommodate training and recreational vessels. Phase One components would also include improvements to the Marine Yard and utilities, such as resurfacing the Marine Yard to 21,680 square feet to accommodate marine research containers, provisions staging, cranes, and outdoor shop(s) operation with cadets, faculty, and tradespeople. The electrical system that supports the pier, the ship, and the boathouse would also be upgraded for the NSMV because it has a greater electrical need than the TSGB. To accommodate sea level rise, the new pier and improved/replaced trestle, as well as utilities currently underneath the pier, would be elevated above existing elevations. Several utility upgrades to wastewater, water supply, stormwater, electrical, and other utility infrastructure systems such as telecommunication lines and steam plant would also occur under Phase One to meet the requirements of in-water enhancements associated with the main pier and NSMV, as well as future phases of development. Phase One would also result in the TSGB, along with one tugboat and one small passenger boat being temporarily relocated to the Suisun Bay Reserve Fleet, while the small vessels programs would be temporarily relocated to City of Vallejo Marina. These locations would continue to support Cal Maritime programs and avoid any disruption in hands-on training and other shipboard programs.

PHASE TWO

Phase Two of the proposed project would focus on project objectives to rehabilitate the boathouse, expand, and optimize the boat basin, redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. Phase Two components would include:

- seismic retrofit and renovation of the boathouse,
- new pier with breakwater and creation of Boat Basin 2,
- new floating and training docks at Boat Basin 2, and
- shoreline enhancements between the boathouse and new pier.

Phase Two would focus on restoration and rehabilitation of the existing boathouse to address seismic upgrades and tectonic modifications to the structure of the building, as well as sediment removal. Interior upgrades such as improvements to the restroom, mechanical, electrical, and plumbing systems would also be included. While redesign and reconfiguration would occur as a result of renovations, most of the spaces would be protected and preserved to maintain their historic value. Boat Basin 2 would be created during this Phase to expand the existing boat basin through the development of a new pier and installation of approximately 26 slips and berthing areas for Cal Maritime's fleet of work boats, tugboats, small passenger boats, and other vessels currently located off-site and/or planned for future acquisition.

A portion of the Marine Yard located outside the MARSEC-secured perimeter would also be redesigned to create a pedestrian-oriented plaza with a strong connection to the existing adjacent simulation center plaza. This area of the Marine Yard would serve functional activities related to the NSMV and would contain staging, storage, and truck access, as well as including circular paving patterns, a seat wall feature, and ornamental plantings. The design would establish a new pedestrian connection between the renovated boathouse and the new Marine Programs and Naval Science Replacement Building (envisioned in Phase Three); create ample space for vehicular circulation, including truck turning radii; provide flexible functional space for demonstration and outdoor learning purposes; and create continuous visual and circulation shoreline linkages. Phase Two would also include shoreline improvements to establish key elements for the upland zone, including the primary pedestrian path, plantings, and the upland portion of the public pier, lookout, and waterfront plaza. A waterfront plaza, public pier and lookout deck with a shade structure, fire pit, and other furnishings are also proposed in the shoreline upland zone.

PHASE THREE

Phase Three of the proposed project would focus on objectives to redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. Phase Three of the project would add classrooms and outdoor learning spaces associated with the Marine Programs Multi-Use Building. A marine hydrokinetic (MHK) barge and linking trestle may also be implemented in Phase Three. This phase would also focus on improvement of the campus-coastline linkage and open spaces and a heightened level of resilience to climate- and storm-related stresses. Phase Three components would include:

- Marine Programs Multi-Use Building,
- harbor control tower,
- MHK barge and linking trestle,
- central waterfront esplanade canopy,
- row house and floating landing,
- shoreline enhancements between the row house and dining center,
- waterfront overlook/outdoor room one, and
- waterfront overlook/outdoor room two.

Phase Three would focus on creating the Marine Programs Multi-Use Building, which would replace the obsolete trailers and Marine Programs and Naval Science Modulars adjacent to the boat basin. This building would be a multi-story building set back into the hillside, providing storage, academic, and administrative uses and a harbor control tower, overlooking the controlled security checkpoint in the Marine Yard and access to port security areas and the main pier. A marine hydrokinetic (MHK) barge would be anchored close to shore and upstream of the main pier and NSMV, providing up to 10 megawatts of renewable energy to the campus. Additionally, a floating row house, consisting of a new two-story mixed use portal framed structure, would be located along the waterfront to provide storage and maintenance for racing shells, while functioning as a rowing training facility. Phase Three would also focus on designing the central waterfront esplanade to include an iconic canopy structure featuring paving, fire pits, educational signage, and interactive furnishing, situated at the terminus of an axial pedestrian connection to the campus quad, situated to follow Morrow Cove Drive. It would serve as a destination, framing access to both the new public pier and the hinged ramp servicing the proposed row house. Shoreline improvements, as part of a staged approach, would involve mass grading and implementation of the transition zone, intertidal zone, and living reefs, contributing to the waterfront's ecological function and resilience. Phase Three also would involve implementing the remaining major structures extending into the water, including piers and the lookout.

ES.3 ENVIRONMENTAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

ES.3.1 Project-Specific Impacts

This EIR has been prepared pursuant to the CEQA (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 1500, et seq.) to evaluate the physical environmental effects of the proposed project. California State University Maritime Academy (Cal Maritime) is the lead agency for the project. Cal Maritime has the principal responsibility for approving and carrying out the project and for ensuring that the requirements of CEQA have been met. After the Final EIR is prepared and the EIR public-review process is complete, Cal Maritime is the party responsible for certifying that the EIR adequately evaluates the impacts of the project.

Table ES-1, presented at the end of this chapter, provides a summary of the environmental impacts for the proposed project. The table provides the level of significance of the impact before mitigation, recommended mitigation measures, and the level of significance of the impact after implementation of the mitigation measures.

ES.3.2 Significant-and-Unavoidable Impacts and Cumulative Impacts

Section 21100(b)(2)(A) of the State CEQA Guidelines provides that an EIR shall include a detailed statement setting forth "in a separate section: any significant effect on the environment that cannot be avoided if the project is implemented." Accordingly, this section provides a summary of significant environmental impacts of the plan that cannot be mitigated to a less-than-significant level.

Chapter 3, "Existing Environmental Setting, Impacts, and Mitigation," provides a description of the potential environmental impacts arising from the implementation of the Waterfront Master Plan and recommends various mitigation measures to reduce impacts, to the extent feasible. Chapter 4, "Cumulative Impacts," determines whether the incremental effects of this plan are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects. After implementation of the recommended mitigation measures, most of the impacts associated with implementation of the plan would be reduced to a less-than-significant level. The Waterfront Master Plan would result in significant and unavoidable project and cumulative impacts with respect to historic era archaeological resource (shipwreck); that is, no feasible mitigation is available or the mitigation measures available were not sufficient to reduce the plan's impacts to a less-than-significant level. Note, this is only a summary of those impacts; it is important to review the discussions in Chapters 3 and 4 of this EIR to understand the full context of the impact determinations.

ES.4 ALTERNATIVES TO THE PROPOSED PROJECT

State CEQA Guidelines Section 15126.6(c), as amended, mandates that all EIRs include a comparative evaluation of the proposed plan with alternatives to the plan that are capable of attaining most of the plan's basic objectives but would avoid or substantially lessen any of the significant effects of the plan. CEQA requires an evaluation of a "range of reasonable" alternatives, including the "no project" alternative. The following provides brief descriptions of the alternatives evaluated in this ~~Draft~~ EIR. Table ES-2 presents a comparison of the environmental impacts between the alternatives and the proposed project.

- Alternative 1: No Project – No Development Alternative assumes no buildout of the Waterfront Master Plan and thus no arrival of the NSMV. The project site, pier, trestle, and other waterfront elements would remain in their current condition, there would be no delivery of the NSMV to the university, and the TSGB would remain as the cadets' primary experience for hands-on applied instruction until its retirement date.
- Alternative 2: No Master Plan – Mooring Dolphin Only Alternative assumes no buildout of the Waterfront Master Plan, maintaining the existing pier and trestle, and constructing four new mooring dolphins approximately 30 feet farther out in Morrow Cove to allow berthing of the NSMV at the university without upgrades to the existing pier.

- Alternative 3: No Boat Basin 2 (Historic Preservation) Alternative assumes development of all phases of the Waterfront Master Plan except Boat Basin 2.
- Alternative 4: No Boathouse, Shoreline, or Public Access Improvements Alternative assumes development of all components of the Waterfront Master Plan except the boathouse rehabilitation and the shoreline and public access improvements proposed in Phases Two and Three.

ES.4.1 Environmentally-Superior Alternative

Alternative 1, the No Project-No Development Alternative would avoid the adverse impacts generated by the construction and operation of the proposed project. Therefore, it is considered the environmentally superior alternative. However, the No Project–No Development Alternative would not meet the project objectives.

When the environmentally superior alternative is the No Project Alternative, the State CEQA Guidelines (Section 15126[d][2]) require selection of an environmentally superior alternative other than the No Project Alternative from among the other action alternatives evaluated. As illustrated in Table ES-2, below, the No Boat Basin 2 (Historic Preservation) Alternative (Alternative 3) would be environmentally superior action alternative because although the some environmental impacts would be similar to the proposed project, several significant impacts would be reduced and significant and unavoidable impacts would be completely avoided, due to the reduced degree of in-water construction and dredging activities for Phase Two, during the construction and operation of the project.

ES.5 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

A notice of preparation (NOP) was distributed for the proposed project on December 1, 2022, to responsible agencies, interested parties, and organizations, as well as private organizations and individuals that may have an interest in the project. A public scoping meeting was held on December 8, 2022. The purpose of the NOP and the scoping meeting was to provide notification that an EIR for was being prepared for the project and to solicit input on the scope and content of the environmental document. The NOP and responses to the NOP are included in Appendix A of this ~~Draft~~ EIR. Key concerns and issues that were expressed during the scoping process included the following:

- VMT impacts, alternative transportation access, and traffic safety;
- Public access to project site features for viewing purposes;
- Impacts to utility infrastructure;
- Impacts on special status plants and wildlife, riparian habitat, fully protected species, nesting birds, impacts on fish and birds from project-associated noise and vibration, aquatic invasive species, and opportunities for recreational birding on project site;
- Energy consumption;
- Impacts from sea-level rise;
- Impacts on submerged cultural resources;
- Noting the title of all abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in the tide and submerged lands in California;
- Mitigation for inadvertent discoveries; and
- Compliance with AB 52 and SB 18.

All of the substantive environmental issues raised in the NOP comment letters and at the scoping meeting have been considered during preparation of ~~this~~ the Draft EIR.

Table ES-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Aesthetics			
Impact 3.1-1: Result in a Substantial Adverse Effect on a Scenic Vista The project would involve redevelopment of Cal Maritime's waterfront to accommodate the arrival of the NSMV and anticipated academic and operational growth over the next 10 years. Implementation of the proposed project would occur in a currently developed area and would not substantially obstruct or degrade scenic vistas from the surrounding area. This impact would be less than significant.	LTS	No mitigation is required	LTS
Impact 3.1-2: Substantially Degrade the Existing Visual Character or Quality of Public Views of the Site and Its Surroundings The project would involve redevelopment of Cal Maritime's waterfront to accommodate the arrival of the NSMV and anticipated academic and operational growth over the next 10 years. Project implementation would involve temporary (i.e., construction-related) and permanent (i.e., development of new structures and upgrades to existing structures) visual changes on the project site. The proposed project would comply with design standards stated in the Physical Master Plan to establish consistency with the surrounding campus design of maritime infrastructure and facilities used for the purpose of educational and instructional activities. The project impact on the visual character of the site and public views in the project area would be less than significant.	LTS	No mitigation is required	LTS
Impact 3.1-3: Create a New Source of Substantial Light or Glare Which Would Adversely Affect Day or Nighttime Views in the Area The project would involve the redevelopment of Cal Maritime's waterfront to accommodate the arrival of the NSMV and anticipated academic and operational growth over the next 10 years. Implementing the project would result in new sources of light and glare associated with development of new buildings, other structures, and waterfront features. Project-related lighting conditions would be similar to existing lighting conditions in the project area in terms of the amount and intensity of light. Lighting would be designed to meet current regulations and policies, which would reduce both the generation of exterior light and the potential for light trespass to affect off-site areas. Therefore, this impact would be less than significant.	LTS	No mitigation is required	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Air Quality			
Impact 3.2-1: Air Quality Plan Consistency Implementation of the Waterfront Master Plan would be consistent with BAAQMD's 2017 Clean Air Plan, which is intended to guide the region toward achieving attainment of the California 8-hour ozone standard. With implementation of the Waterfront Master Plan, on-campus improvements related to promoting pedestrian/bicycle modes of transportation and decreasing on-campus parking are consistent with objectives of the Clean Air Plan. Further, new buildings planned for development would be consistent with the CSU Sustainability Policy. This impact would be less than significant.	LTS	No mitigation is required	LTS
Impact 3.2-2: Construction and Operational Criteria Air Pollutants and Ozone Precursors As a result of implementation of the Waterfront Master Plan, criteria pollutant emissions would be generated during and construction and operation of new/renovated uses within the project area. Emissions would result from demolition, site preparation (e.g., excavation, clearing), off-road and marine equipment use, material and equipment delivery trips, and worker commute trips; however, average daily emissions (from construction alone) are not anticipated to exceed adopted BAAQMD thresholds for all phases. The proposed improvements would not increase student enrollment or employment, and the change in long-term emissions of criteria air pollutants would not exceed adopted BAAQMD thresholds. This impact would be less than significant.	LTS	No mitigation is required	LTS
Impact 3.2-3: Carbon Monoxide Hot Spots Operational mobile-source emissions of CO generated by additional traffic associated with implementation of the Waterfront Master Plan would not violate an air quality standard or contribute substantially to an existing or projected air quality violation or expose sensitive receptors to substantial pollutant concentrations. As a result, this impact would be less than significant.	LTS	No mitigation is required	LTS
Impact 3.2-4: Toxic Air Contaminants Construction activities would result in temporary, short-term project-generated emissions of TACs, particularly diesel PM. Once operational, the Waterfront Master Plan may introduce new odors to the area, associated with the operation of new training areas, research facilities, or diesel-related exhaust from delivery trucks. However, TAC sources during construction would be transitory and short term, while the change in operational emissions would be minor and at a distance that would not expose sensitive receptor locations to substantial pollutants, As a result, impact would be less than significant	LTS	No mitigation is required	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.2-5: Odorous Emissions Construction of the Waterfront Master Plan would result in temporary odor sources (diesel PM) that would disperse rapidly as each of the construction phases are complete. Once operational, the project may introduce new odors to the area, associated with the operation of new training areas, research facilities, or diesel-related exhaust from delivery trucks. The new odor sources would be similar to existing sources that operate in and around the project site and are not considered operational sources of odors as defined by BAAQMD. As a result, impacts would be less than significant	LTS	No mitigation is required	LTS
Biological Resources			
Impact 3.3-1: Result in Disturbance or Loss of Special-Status Plant Species Project activities conducted during implementation of Phase One and Phase Three components including ground disturbance, vegetation removal, and habitat conversion within the approximately 0.5-acre vegetated hillside in the eastern portion of the project site could result in disturbance or loss of two special-status plant species if they are present. Because the loss of special-status plants could substantially affect the abundance, distribution, and viability of local and regional populations of these species, this would be a significant impact	S	**Mitigation Measure 3.3-1: Conduct Special-Status Plant Surveys, Implement Avoidance Measures and No-Net-Loss Strategies** Prior to implementation of project activities within the approximately 0.5-acre vegetated hillside on the project site and during the blooming period for the special-status plant species with potential to occur in the project site, a qualified botanist shall conduct protocol-level surveys for special-status plants within this portion of the project site using survey methods from CDFW's Protocols for Surveying and Evaluating Impacts on Special Status Native Plant Populations and Natural Communities (CDFW 2018 or most recent version). The qualified botanist shall: 1) be knowledgeable about plant taxonomy, 2) be familiar with plants of the San Francisco Bay Area region, including special-status plants and sensitive natural communities, 3) have experience conducting floristic botanical field surveys as described in CDFW 2018, 4) be familiar with the *California Manual of Vegetation* (Sawyer et al. 2009 or current version, including updated natural communities data at http://vegetation.cnps.org/), and 5) be familiar with federal and state statutes and regulations related to plants and plant collecting. ▸ If special-status plants are not found, the botanist shall document the findings in a letter report to Cal Maritime, and no further mitigation will be required. ▸ If special-status plant species are found, the plant shall be avoided completely, to the maximum extent feasible (i.e., if a majority of project objectives can still be met). Avoidance may be achieved by establishing a no-disturbance buffer around the plants and demarcation of this buffer by a qualified biologist or botanist using flagging or high-visibility construction fencing, or through other established, professionally accepted methods. The size of the buffer shall be determined by the qualified biologist or botanist and will be large enough to avoid direct or indirect impacts on the plant.	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		▸ If special-status plants are found during special-status plant surveys and cannot be avoided, Cal Maritime in coordination with CDFW shall develop and implement a site-specific strategy to achieve no net loss of occupied habitat or individuals. Measures shall be developed by a qualified biologist and include, at a minimum, preserving and enhancing existing populations, establishing populations through seed collection or transplantation, and/or restoring or creating habitat in sufficient quantities to achieve no net loss of occupied habitat or individuals. Potential mitigation sites could include suitable locations within or outside of the project site. Habitat and individual plants lost shall be mitigated at a minimum 1:1 ratio, taking into account acreage as well as function and value. Success criteria for preserved and compensatory populations shall include: ▪ The extent of occupied area and plant density (number of plants per unit area) in compensatory populations shall be equal to or greater than the affected occupied habitat. ▪ Compensatory and preserved populations shall be self-producing. Populations shall be considered self-producing when: • plants reestablish annually for a minimum of five years with no human intervention such as supplemental seeding; and • reestablished and preserved habitats contain an occupied area and flower density comparable to existing occupied habitat areas in similar habitat types in the project vicinity. If off-site mitigation includes dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures shall be included in the mitigation plan, including information on responsible parties for long-term management, conservation easement holders, long-term management requirements, success criteria such as those listed above and other details, as appropriate to target the preservation of long-term viable populations.	
Impact 3.3-2: Result in Disturbance to or Loss of Special-Status Wildlife Species and Habitat Implementation of all phases of the project would include temporary ground disturbance, temporary vegetation removal, and some permanent development of natural habitats or landscaping, which could result in disturbance, injury, or mortality of several special-status wildlife species, if present, reduced breeding productivity of these species, and loss of species habitat. This would be a significant impact	S	**Mitigation Measure 3.3-2a: Conduct Focused Surveys for Special-Status Birds, Nesting Raptors, and Other Native Nesting Birds and Implement Protective Buffers** To minimize the potential for loss of special-status bird species, raptors, and other native birds, project activities (e.g., tree removal, other vegetation removal, ground disturbance, staging) shall be conducted during the nonbreeding season (approximately September 1–January 31, as determined by a qualified biologist), if feasible. If project activities are conducted during the nonbreeding season, no further mitigation shall be required.	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		For project activities that occur during the breeding season (approximately February 1 through August 31, as determined by a qualified biologist), within 14 days prior to starting activities, a qualified biologist familiar with birds of California and with experience conducting nesting bird surveys shall conduct focused surveys for special-status birds, other nesting raptors, and other native birds and shall identify active nests within 500 feet of the project site. These surveys shall be repeated if there is a break in activities longer than 14 days, which could allow birds to initiate new nests. The biologist shall document the survey results in a written memo, report, or email communication to Cal Maritime. In the event nesting birds are identified on the project site, impacts on nesting birds shall be avoided by establishing appropriate buffers around active nest sites identified during focused surveys to prevent disturbance of the nest. A qualified biologist shall determine the size of the buffer after a site- and nest-specific analysis. Buffers typically will be 500 feet for raptors and 100 feet for non-raptor special-status species. Factors to be considered for determining buffer size include presence of natural buffers provided by vegetation or topography, nest height above ground, baseline levels of noise and human activity, species sensitivity, and proposed project activities. The size of the buffer may be adjusted if a qualified biologist determines that such an adjustment would not be likely to adversely affect the nest. Project activities shall not commence within the buffer areas until a qualified biologist has determined that the young have fledged, the nest is no longer active, or reducing the buffer will not likely result in nest abandonment. Any buffer reduction for a special-status species shall require consultation with CDFW. Periodic monitoring of the nest by a qualified biologist during project activities shall be required if the activity has potential to adversely affect the nest, the buffer has been reduced, or if birds within active nests are showing behavioral signs of agitation (e.g., standing up from a brooding position, flying off the nest) during project activities, as determined by the qualified biologist. **Mitigation Measure 3.3-2b: Implement Invasive Species Management Procedures** For all phases of the project, Cal Maritime shall require all vessels brought to the project site from ports outside of San Francisco Bay and Delta for aquatic construction or during operations to follow all applicable maritime regulations relating to the exchange of ballast water to prevent the spread of invasive species from outside ports. Additionally, any in-water fill materials shall not be salvaged from areas outside of San Francisco Bay (e.g., piles shall be new, rock shall be freshly quarried and not previously in a marine environment).	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		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. Implementation of this measure shall be required in the contract Cal Maritime establishes with its construction contractors. **Mitigation Measure 3.3-2c: Implement In-Water Work Window** To minimize impacts on special-status fish, Cal Maritime shall require all in-water work, including pile driving and similar activities that require placing materials below the water's surface, to be completed between July 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 in Mitigation Measure 3.3-2d. 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. Implementation of this measure shall be required in the contract Cal Maritime establishes with its construction contractors. **Mitigation Measure 3.3-2d: Implement Spill Prevention and Control** Prior to commencement of construction activities, 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 best management practices 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 3.3-2e: Implement Environmental Awareness Training** A project-specific environmental awareness training for construction personnel shall be prepared and conducted or administered by a qualified biologist before commencement of construction activities for each phase of the project 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	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		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, proposed project 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 project site, avoidance and mitigation measures, and protocol for encountering such species including communication chain; ▶ Best management practices enacted for habitat protection and their location on the project site 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 qualified biologist addresses their question. The contractor may not begin work until they have signed the documentation. ▶ Field identification of any project site boundaries, egress points and routes to be used for work. Work shall not be conducted outside of the project site. A record of this training shall be maintained on the project site and shall be made available to agencies upon request. **Mitigation Measure 3.3-2f: Implement Dust and Debris Control** During all phases of the project, Cal Maritime and its construction contractors shall employ debris, dust, and garbage control measures to ensure disturbances to any upland areas, as well as overwater work does not result in turbidity, or debris being placed in the Bay. Dust control measures shall include all of the following: ▶ In areas within the boat basin where waters are less affected by high velocity currents, a debris boom or silt curtain shall be deployed around demolition sites, in addition to vessels or catchments used to catch demolition debris before it falls into the water. ▶ In areas outside the boat basin that are affected by high velocity currents, a debris boom or silt curtain may not be feasible during demolition and a work skiff or similar craft may be used instead of a debris boom to corral any debris	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		that may accidentally fall into waters during demolition. Debris shall be retrieved immediately and will not be allowed to drift away from the worksite. ▶ Where cast-in-place concrete is required in over-water areas, the contractor shall use forms and catchments that will 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 minimizes dust and freshly cured concrete from falling into the water. ▶ Within upland areas, any disturbed soils shall be managed to prevent dust from becoming airborne or silt laden runoff from being introduced to the aquatic environment. ▶ All incidental construction-related refuse will be collected in sealed containers and removed regularly. Mitigation Measure 3.3-2g: Implement Sediment Testing and Dredging Controls Prior to dredging in any phase of the project, an assessment shall be conducted according to DMMO sediment sampling requirements to sample and analyze sediments within areas proposed for dredging. The assessment shall be reviewed and approved by the DMMO according to current RWQCB and EPA standards and procedures and sediment shall be placed, beneficially re-used, or disposed of in accordance with standard DMMO requirements. In addition, dredging activities shall implement the following best management practices: ▶ 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. ▶ Prior to dredging in areas of contaminated sediment, a Dredge Operations Plan shall be prepared based on the results of DMMO-required sediment sampling,	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		and shall include all necessary measures to contain, dispose of, and/or remediate contaminated sediments, including: ▪ Containment of turbidity during dredging, including BMPs, such as a silt curtain. ▪ Identification of measures to contain or treat areas of contaminated sediments to prevent the potential for contaminated sediment dispersal following dredging. ▪ Identification of methods for handling, transporting, and disposing of contaminated sediment and methods for handling contaminated sediment. **Mitigation Measure 3.3-2h: Use Appropriate Creosote Pile Removal and Disposal Methods** During construction activities involving removal of creosote piles, Cal Maritime and its construction contractors shall implement the following measures to ensure the appropriate removal and disposal of creosote piles: ▸ When removing creosote piles the contractor shall either fully remove the pile/structure, or piles may be cut off at least 1 foot below the mudline. ▸ Any fragments of wood that break off during the removal process will be collected immediately even if within the limits of a turbidity curtain. ▸ Any treated timber removed in this manner shall be hauled to an upland landfill that accepts treated timber waste for disposal. **Mitigation Measure 3.3-2i: Implement Methods to Reduce Sound Attenuation from Pile Installation** Prior to initiation of construction, the CSU shall consult with regulatory agencies with jurisdiction over the project activities, including but not limited to CDFW, NMFS, and USFWS, to obtain appropriate permits, and shall follow the required permit conditions. If permit requirements conflict with requirements below, the permit requirements shall take precedence. During all phases of the project, 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 to the work window as stated in Mitigation Measure 3.3-2c. ▸ Any wildlife encountered within the work area shall be allowed to leave the area unharmed.	

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		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. ▶ When installation with an impact hammer is required for steel piles, the following additional measures shall be employed: ▪ Use of a bubble curtain around steel piles. ▪ 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 percent of the piles driven of each 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. **Mitigation Measure 3.3-2j: Reduce or Compensate for Shading of Open Waters and Other Special-status Species Impacts** Where possible, the project shall install light-transmitting surfaces allowing for a minimum of 40 percent light transmission to the waters below. In the event light-transmitting surfaces cannot be installed for safety and accessibility reasons, the project shall mitigate for shading and lost aquatic resource function by one of the following means: ▶ Removing equivalent shaded coverage over open water at a nearby site, ▶ With the purchase of appropriate mitigation credits from an approved mitigation bank at a (1:1 ratio), or ▶ By other similar actions approved by regulatory agencies with jurisdiction over the project activities, such as CDFW, NMFS, and USFWS, during the consultation process, so long as those alternative actions achieve a similar effect as described above (e.g., construction of a restoration project which causes ecological uplift of habitat quality).	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		Mitigation Measure 3.3-2k Implement Limited Operating Period or Conduct Focused Surveys for Crotch Bumble Bee Initial ground-disturbing work (e.g., grading, vegetation removal, staging) within the approximately 0.5-acre vegetated hillside portion of the project site shall take place between August 15 and March 15, if feasible, to avoid impacts on Crotch's bumble bees potentially nesting in this area. If completing all initial ground-disturbing work between August 15 and March 15 is not feasible, then a qualified biologist approved by CDFW, familiar with bumble bees of California, with experience using survey methods for bumble bees shall conduct a habitat assessment and focused survey for Crotch's bumble bee within the vegetated hillside portion of the project site prior to the start of any ground-disturbing activities, following the methods in *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* (CDFW 2023). ▶ Cal Maritime shall submit a survey report to CDFW within one month of survey completion and shall notify CDFW within 24 hours if Crotch's bumble bees are detected. ▶ If Crotch's bumble bees are detected during the focused survey, appropriate avoidance measures shall be implemented. Avoidance measures may include, but not be limited to the following: ▶ Protective buffers shall be implemented around active nesting colonies or overwintering queens until these sites are no longer active. ▶ If impacts on Crotch's bumble bee cannot be avoided, Cal Maritime shall obtain an Incidental Take Permit (ITP) from CDFW and shall implement all avoidance measures included in the ITP. **Mitigation Measure 3.3-2l: Reduce Construction Impacts on Marine Mammals** In addition to implementation of Mitigation Measure 3.3-2h: Pile Driving Methods and Monitoring, the project shall implement the following additional measures to reduce impacts to marine mammals from in-water construction. ▶ Cal Maritime shall consult with NMFS to obtain a marine mammal harassment authorization for any potential project related harassment of marine mammals. ▶ 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 distances specified for the various installation scenarios (pile size and hammer size) shown in Table	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		3.3-4 in Section 3.3, "Biological Resources," or within distances determined 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. Mitigation Measure 3.3-2m: Reduce Impacts from Hydrokinetic Barge Prior to installation and operation of the barge, a qualified biologist shall review the proposed design and operation of the hydrokinetic barge to determine if operation of the barge is likely to cause take of fish or if the operation will impact sensitive habitats. The qualified biologist shall compose a memo outlining anticipated operational procedures and shall review any potential impacts to fish and habitats, along with recommendations to modify the proposed operation to minimize any such impacts to less than significant levels (if necessary). Such recommendations may include: ▶ Take permits under California Fish and Game Code and the federal Endangered Species Act shall be obtained prior to installation and operation of any hydrokinetic barge system with the potential to harass, injure or kill listed fish or other listed aquatic species. ▶ Measures to isolate the turbine and other moving parts from the aquatic environment (such screening) shall be required to avoid and minimize potential impacts to listed species. ▶ Noise modeling shall be completed for hydrokinetic barge operation and the results compared to thresholds for noise effects to fish and marine mammals described in Table 3 and Table 7. Measures to minimize significant noise impacts to listed species and marine mammals shall be incorporated into the hydrokinetic barge design. ▶ Stationing the barge over water of sufficient depth that it is unlikely to support eelgrass or other submerged aquatic vegetation. ▶ Obtaining additional mitigation credits for shading open waters and eelgrass. ▶ Seasonal operation of the barge to limit the potential for special-status fish to be injured. ▶ During the design phase, specifications on the barge including any components for fish exclusion will be provided to the regulatory agencies including CDFW, NMFS and the USFWS for review and comment.	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		After a review and any recommendations are compiled, the report shall be submitted to CDFW, USFWS, and NMFS for review to ensure that installation and operation of the barge with any adaptive recommendations shall sufficiently reduce effects of installation and operation of the barge to less than significant levels.	
Impact 3.3-3: Result in Disturbance to or Loss of Aquatic Sensitive Natural Communities and other Sensitive Habitat Implementation of all phases of the project would not have a substantial adverse effect on essential fish habitat within the project site, because construction of the project would not impede migration of fish. However, all phases of the project include in-water construction, shading of open water, and dredging that could result in loss or degradation of eelgrass beds which are a sensitive natural community. This would be a significant impact.	S	**Mitigation Measure 3.3-3: Conduct Focused Surveys and Compensate for Loss of Eelgrass** For the protection and mitigation of impacts to eelgrass, surveys and assessments as well as mitigation prescribed in the California Eelgrass Mitigation Policy (CEMP) (NMFS 2014) (or its subsequent replacement document) shall be implemented by Cal Maritime for the proposed project. As stated in the CEMP, Cal Maritime shall be required to perform the following series of pre- and post-construction surveys and assessments to minimize and compensate for (as necessary) potential impacts to eelgrass. ▸ No more than 60 days before implementation of any in-water construction, a pre-construction eelgrass survey shall be conducted by a qualified biologist. The pre-construction survey shall assess all subtidal areas where in-water work will occur plus a 150-foot buffer, excluding any subtidal areas that are deeper than -12 feet mean lower low water (MLLW) as these depths are considered unsuitable for eelgrass in San Francisco Bay. If any eelgrass is detected within the survey area during the pre-construction survey, a reference site shall also be surveyed as part of the pre-construction eelgrass survey as recommended by the CEMP. The size and location of the selected reference site will be determined by the qualified biologist following the recommendations provided in the CEMP. The reference site will be used to differentiate between project-related and non-project-related impacts to eelgrass following the completion of post-construction eelgrass surveys, described below. The pre-construction eelgrass survey shall occur during the growth period for eelgrass within San Francisco Bay as defined by the CEMP (April 1 – October 31). ▸ A new pre-construction eelgrass survey shall be performed for each year that in-water work will occur to account for the high amount of variability in eelgrass extent in San Francisco Bay (up to one pre-construction eelgrass survey per year). ▸ If eelgrass is detected during any pre-construction eelgrass survey, following the completion of in-water construction, the project site and reference site shall be resurveyed annually for three years as described below:	LTS

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		▪ The first post-construction eelgrass survey shall occur within 30 days following the completion of in-water construction unless work is completed outside the eelgrass growing season in San Francisco Bay; if in-water work concludes outside the eelgrass growing season, the first post-construction eelgrass survey shall be conducted within the first 30 days of the start of next eelgrass growth period. ▪ The second post-construction eelgrass survey shall be performed approximately one year after the first post-construction survey. ▪ The third post-construction eelgrass survey shall be performed approximately two years after the first post-construction survey. ▸ All pre- and post-construction eelgrass survey results shall be provided to National Marine Fisheries Service (NMFS) and CDFW. ▸ Once all eelgrass surveys are completed, a comparison of pre- and post-construction eelgrass results at the project site shall be assessed relative to the reference site to determine if project-related impacts to eelgrass occurred. The findings shall be provided to NMFS and CDFW to make a final determination regarding the actual impact and amount of mitigation needed, if any, to offset impacts to eelgrass. If ~~NMFS determines~~ in-water work ~~resulted~~ results in permanent impacts to eelgrass, the project proponent will prepare and implement an eelgrass mitigation plan approved by NMFS and CDFW that will result in a no net loss of habitat function or services, generate services similar to that of eelgrass habitat, or will improve conditions for establishment of eelgrass. The mitigation plan shall follow one or a combination of mitigation options described in the CEMP, detailed below: ▪ *Option 1: Comprehensive Management Plan.* As described in the CEMP, a Comprehensive Management Plan (CMP) may be an appropriate eelgrass compensatory mitigation strategy in situations where a project or collection of similar projects will result in incremental but recurrent impacts to a small portion of local eelgrass populations through time (e.g., lagoon mouth maintenance dredging, maintenance dredging of channels and slips within established marinas, navigational hazard removal of recurrent shoals, shellfish farming, and restoration or enhancement actions). Specifically, CMPs allow for the development of region or system-specific framework for achieving the objectives of the CEMP instead of the preparation of individual	

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		mitigation plans for each discrete action. If prepared, the CMP would need to be approved by NMFS. ▪ *Option 2: In-kind mitigation.* In-kind compensatory mitigation is defined as the creation, restoration, or enhancement of habitat to compensate for adverse impacts to the same type of habitat. Under the CEMP, eelgrass mitigation plans which propose in-kind mitigation for eelgrass impacts in the San Francisco Bay are required to achieve a final mitigation ratio of 1.2:1 (mitigation: impact) unless otherwise stated by NMFS during consultation. In addition, because of the relatively low success rate of eelgrass restoration projects implemented in San Francisco Bay, the CEMP recommends an initial eelgrass restoration site size that is 3.01-times larger than the target mitigation size to account for substantial losses. NMFS may increase the required eelgrass mitigation ratio if there is a significant delay between when impacts occurred and when mitigation commences to account for temporal losses in eelgrass habitat. After initial eelgrass planting, the CEMP recommends five years of monitoring of the mitigation site and a reference site. Specifically, the CEMP recommends mapping of eelgrass extent and monitoring of eelgrass density 0, 12, 24, 36, 48, and 60 months after installation of mitigation plantings. Success criteria (such as eelgrass density) are typically assessed relative to the reference site. Actual success criteria, monitoring periods, and site selection shall be determined in coordination with and approved by NMFS. ▪ *Option 3: Mitigation banks and in-lieu-fee programs.* Under the CEMP, NMFS supports the use of mitigation bank and in-lieu fee programs to compensate for impacts to eelgrass habitat where such instruments are available and where such programs are appropriate to the statutory structure under which mitigation is recommended. If this mitigation option is selected, credits shall be used at a ratio of 1:1 if those credits have been established for a full three-year period prior to use. If the bank credits have been in place for a period less than three years, credits shall be used at a ratio determined through application of the wetland mitigation calculator. ▪ *Option 4: Out-of-kind mitigation.* Out-of-kind compensatory mitigation means the adverse impacts to one habitat type are mitigated through the creation, restoration, or enhancement of another habitat type. In most cases, out-of-kind mitigation is discouraged for eelgrass because eelgrass is a rare, special-status habitat in California. There may be some scenarios, however,	

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		where out-of-kind mitigation for eelgrass impacts is ecologically desirable or when in-kind mitigation is not feasible. No recommended eelgrass mitigation ratios are provided in the CEMP for out-of-kind mitigation, however the ratio is likely to be greater than that required for in-kind mitigation. If pursued, an out-of-kind mitigation plan would need to be developed and approved by NMFS prior to implementation. Per the CEMP, the out-of-kind mitigation plan must demonstrate that the proposed mitigation will compensate for the loss of eelgrass habitat function within the ecosystem and should evaluate mitigation options that generates services similar to that of eelgrass habitat or improve conditions for establishment of eelgrass. If permanent impacts to eelgrass are evident following analysis of post-construction eelgrass survey, ahead of the final Year 3 post-construction eelgrass survey, Cal Maritime may proceed with developing and implementing an eelgrass mitigation plan in consultation with NMFS and CDFW via any of the above options. Commencing with the eelgrass mitigation process as soon as impacts are realized may help avoid increased mitigation ratios as described above.	
Impact 3.3-4: Wildlife Movement Corridors and Native Wildlife Nursery Sites (Aquatic) Project activities conducted during implementation of Phase One and Phase Three, if conducted during the portion of the year when fish may be migrating through the project site, could disrupt movement of these species. In addition, construction and maintenance dredging may disrupt use of eelgrass beds that may be used as nursery habitat for native fish species. In addition to these adverse effects, Phase Two includes the creation of Boat Basin 2, its new pier with breakwater, and 26 additional slips and berthing areas that could result in trapping or impeding the migration of fish through the project site. These adverse effects on fish movement and nursery habitat would be a significant impact.	S	**Mitigation Measure 3.3-4: Design In-Water Structures to be Permeable to Fish Movement** Prior to approval of final design and construction plans, Cal Maritime shall require and ensure breakwaters and other in-water structures shall be designed to be permeable in such a way that the final design of the Waterfront Master Plan does not form a fully enclosed area which might trap or impede fish movement. Design plans provide multiple exit routes at all tides such that fish moving through the vicinity can enter or exit the waterfront facilities at will, through multiple locations thereby minimizing the potential to be affected by marina operations.	LTS
Archaeological, Historical, and Tribal Cultural Resources			
Impact 3.4-1: Cause a Substantial Adverse Change in the Significance of a Historical Resource The Cal Maritime boathouse has been recommended as eligible for listing in the NRHP/CRHR under Criterion A/1. Modifications to a historic structure could adversely affect its historic status. There would be no impact on historical resources as a result of Phases One or Three; the impact on the boathouse during Phase Two would be potentially significant.	PS	**Mitigation Measure 3.4-1: Comply with the Secretary of the Interior's Standards for Rehabilitation** Prior to implementation of any modifications to the boathouse, Cal Maritime shall consult with SHPO under PRC 5024.5. This consultation shall confirm that alterations to the boathouse comply with the *Secretary of the Interior's Standards for Rehabilitation*.	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.4-2: Cause a Substantial Adverse Change in the Significance of a Known Historic Era Archaeological Resource (Shipwreck) Project-related ground-disturbing activities could result damage to the shipwreck *Contra Costa*. The shipwreck has been recommended eligible for listing in the NRHP and CRHR, and therefore is a significant archaeological resource as defined in State CEQA Guidelines Section 15064.5. Phase 2 of the project consists of dredging which would result in substantial damage to the *Contra Costa*; this impact would be significant.	S	**Mitigation Measure 3.4-2: SHPO Consultation and Programmatic Agreement** Prior to implementation of Phase 2 activities, Cal Maritime shall consult with SHPO under PRC 5024.5 related to the *Contra Costa*, because it is a state-owned historic property. Through SHPO consultation under PRC 5024.5, a programmatic agreement shall be developed, outlining preservation/recovery options for the shipwreck. Based on the finalized dredging boundaries and identification of the portions of the Contra Costa to be removed, these preservation/recovery options are expected to include: documentation of the shipwreck through a data recovery plan in coordination with the Research Center of the San Francisco Maritime National Historical Park; salvaging portions of the shipwreck, possibly in coordination with the Maritime Museum at the San Francisco Maritime National Historical Park; or development of an interpretive display at a publicly accessible portion of Cal Maritime.	SU
Impact 3.4-3: Cause a Substantial Adverse Change in the Significance of Previously Undiscovered Archaeological Resources Results of the records search and pedestrian survey did not result in the identification of archaeological resources within the project site. Although the project site has a low sensitivity for subsurface resources, it remains possible that project-related ground-disturbing activities could result in discovery or damage of yet undiscovered archaeological resources as defined in State CEQA Guidelines Section 15064.5 or CEQA Section 21083.2(g). This impact would be potentially significant.	PS	**Mitigation Measure 3.4-3: Halt Ground-Disturbing Activity upon Discovery of Subsurface Archaeological Features** Prior to the start of any ground-disturbing activities, a qualified archaeologist meeting the US Secretary of the Interior guidelines for professional archaeologists shall be retained to develop a construction worker awareness brochure. This brochure shall be distributed to all construction personnel and supervisors who may have the potential to encounter cultural resources. The topics to be addressed in the Worker Environmental Awareness Program shall include, at a minimum: ▶ types of cultural resources expected in the project area; ▶ what to do if a worker encounters a possible resource; ▶ what to do if a worker encounters bones or possible bones; and ▶ penalties for removing or intentionally disturbing cultural resources, such as those identified in the Archaeological Resources Protection Act. If any precontact or historic-era subsurface archaeological features or deposits (e.g., ceramic shard, trash scatters), including locally darkened soil ("midden"), which may conceal cultural deposits, are discovered during construction, all ground-disturbing activity within 100 feet of the resources shall be halted, and a qualified professional archaeologist shall be retained to assess the significance of the find. If the qualified archaeologist determines the archaeological material to be Native American in nature, Cal Maritime shall contact the appropriate California Native American tribes. A tribal representative from a California Native American tribe that is traditionally and culturally affiliated with the project area may make	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		recommendations for further evaluation and treatment as necessary and provide input on the preferred treatment of the find. If the find is determined to be significant by the archaeologist or the tribal representative (i.e., because it is determined to constitute a unique archaeological resource or a tribal cultural resource, as appropriate), the archaeologist and tribal representative, as appropriate, shall develop, and Cal Maritime shall implement, appropriate procedures to protect the integrity of the resource and ensure that no additional resources are affected. Procedures may include but would not necessarily be limited to preservation in place (which shall be the preferred manner of mitigating impacts on archaeological and tribal sites), archival research, subsurface testing, or contiguous block unit excavation and data recovery (when it is the only feasible mitigation, and pursuant to a data recovery plan). No work at the discovery location (i.e., within 100 feet of the discovered resource[s] unless a lesser buffer distance is determined appropriate by a qualified professional archaeologist) shall resume until necessary investigation, evaluation, and protection of the resource has been conducted.	
Impact 3.4-4: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource Tribal consultation under AB 52 has not resulted in the positive identification of a tribal cultural resource as defined by PRC Section 21074. However, excavation activities associated with project construction may disturb or destroy previously undiscovered significant subsurface tribal cultural resources. This impact would be potentially significant.	PS	**Mitigation Measure 3.4-4a: Worker Environmental Awareness Program for Tribal Cultural Resources** Prior to initiating landside construction-related ground-disturbing activities, representatives of either of the two tribes that participated in formal consultation under AB 52 shall have the opportunity to train construction contractors engaged in ground disturbance activities regarding tribal cultural values and tribal cultural resource potential as those relate to the project site, and of the regulatory protections afforded those resources under CEQA. The initial training shall be conducted by the on-site Native American monitor and can be incorporated into the project's construction safety training or in conjunction with the Worker Environmental Awareness Program for Archaeological Resources in accordance with Mitigation Measure AR-C. A supplemental briefing shall be provided to all new construction personnel that are engaged in ground-disturbing activities and may consist of reviewing presentation slides or viewing a recording. Construction contractors shall also be informed of the required procedures to be undertaken in the event of discovery of unanticipated resources that require evaluation as potential tribal cultural resources, such leaving artifacts in situ, informing a construction supervisor, the Native American monitor(s), and the university in the event that tribal cultural resources are discovered during ground-disturbing activities.	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		Examples of ground-disturbing activities include: ▶ Clearing ▶ Excavating, digging, trenching, and grading ▶ Land leveling ▶ Equipment and materials staging and laydown ▶ Soil stockpiling ▶ Landside placement of temporary structures including construction trailers Mitigation Measure 3.4-4b: Native American Construction Monitoring Construction monitoring shall be conducted by a qualified Native American monitor representing either of the two tribes that participated in formal consultation under AB 52. Archaeological monitoring shall be provided by an entity separate and distinct from that providing Native American monitoring. The tribal cultural monitor shall observe ground-disturbing activities, maintain logs of all activities monitored, and make documentation available to the university and any consulting Native American tribal representatives who request a record of the logs. The log shall contain at a minimum: a brief description of the locations and activities monitored; a description of tribal cultural resources encountered; and a description of the treatment of those resources. The logs shall be submitted to the university within 4 weeks of the completion of monitoring. Mitigation Measure 3.4-4c: Treatment of Tribal Cultural Resources Avoidance and preservation in place are the preferred treatment for tribal cultural resources, should such resources be discovered. In the event of discovery, the university shall attempt avoidance, if possible, through such measures such as restricting work to disturbed soil or limiting the depth of excavations to avoid potential tribal cultural resources. If a significant tribal cultural resource as defined by PRC Section 21074 is identified within the project site, the university shall prepare a treatment plan and share it for review and comment by the Native American tribe(s) engaged in consultation prior to the beginning of the ground-disturbing activities within the boundaries of the resource.	
Impact 3.4-5: Disturb Human Remains Based on documentary research, no evidence suggests that any precontact or historic-period marked or un-marked human interments are present within or in the immediate vicinity of the project site. However, ground-disturbing construction activities could uncover previously unknown human remains. Compliance with	LTS	No mitigation is required	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
California Health and Safety Code Section 7050.5 and PRC Section 5097 would make this impact less than significant.			
Energy			
Impact 3.5-1: Wasteful, Inefficient, or Unnecessary Consumption of Energy, During Project Construction or Operation Implementation of the project and associated construction/renovation of on-campus buildings would result in the consumption of additional energy supplies during construction in the form of gasoline and diesel fuel. However, this energy expenditure would not be wasteful, because construction would be temporary, and would not require additional capacity or increased peak or base period demands for electricity or other forms of energy. University operations as a result of Waterfront Master Plan implementation would not result in additional energy consumption, as the project would not increase student enrollment or employment. The proposed improvements would increase electricity consumption, and the marine hydrokinetic barge proposed in Phase Three would increase the use of renewable energy at the campus. While an increase in electrical power would be required for operation of the NSMV, the increase would not be substantial, and the project would not result in the wasteful, inefficient, or unnecessary consumption of energy during project construction or operation. This impact would be less than significant.	LTS	No mitigation is required	LTS
Impact 3.5-2: Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency Onsite renewable energy generation from the implementation of project, would result in an increase in renewable energy use, which would directly support the goals and strategies in the State's Energy Efficiency Action Plan and the CSU Sustainability Policy. Construction and operating project buildings in compliance with the 2019 (or as updated) California Energy Code would improve energy efficiency compared to buildings built to earlier iterations of the code. Therefore, construction and operation of the project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. This impact would be less than significant.	LTS	No mitigation is required	LTS
Geology, Soils, and Mineral Resources			
Impact 3.6-1: Expose People or Structures to Seismic Hazards, Including Ground Shaking, Seismic-Related Ground Failure, Liquefaction and Lateral Spreading, and Tsunami	LTS	No mitigation is required	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Strong seismic ground shaking could be generated at the project site by locally active faults. The potential impacts from seismic ground shaking would be reduced by adherence to the design and materials standards set forth in the current CBC and through compliance with the CSU seismic policy. The CSU process for managing seismic safety issues associated with building design and construction provides a higher level of design review and more oversight of construction than for private sector development projects that are subject to local code and policy. The protections for seismic-related ground shaking and secondary seismic hazards including seismic-related ground failure, landslides, mass wasting, liquefaction, and lateral spreading are also robust, because the CBC and CSU seismic requirements involve mandatory preparation of a geotechnical engineering report prepared by a licensed engineer that would include design standards to reduce or eliminate the effects of these hazards. While Morrow Cove is within a tsunami hazard zone, as mapped by CGS (Bott and Wilson 2022), it is near the interior limit of the mapped zone where the threat of hazard would be lowest, assuming a tsunami approach from the open ocean through the mouth of San Francisco Bay. Moreover, the updated tsunami hazard maps are based on probabilistic tsunami inundation modeling results using a nearly 1,000 year-return period, which means that such inundation would have an extremely remote—approximately one-tenth of one percent—chance of occurring in any given year (CGS 2022). As a result, the overall impact for seismically related hazards would be less than significant			
Impact 3.6-2: Cause Damage to Structures or Result in Injury or Death from Development on Expansive Soils Implementation of the project involves construction of structures in areas that are expected to potentially contain soil components with shrink-swell potential. However, all construction would comply with the current CBC and CSU seismic requirements. As part of compliance with CBC and CSU seismic requirements, a geotechnical engineering report would be prepared by a California Registered Civil Engineer or Geotechnical Engineer as part of project planning for each element of the project, as prescribed by CSU seismic policy, and would contain recommendations for development in areas that contain soils with high shrink-swell potential, or other hazardous soil conditions. Recommendations of the site-specific geotechnical study (e.g., design of foundations, retaining walls, grading practices) would be implemented for each phase of the proposed project. Therefore, the risk of damage from development on expansive, or otherwise hazardous soils would be less than significant.	LTS	No mitigation is required	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.~~7~~6-3: Loss of a Unique Paleontological Resource No paleontological resources are known to exist within the project site. However, the geologic unit underlying the project site is the Great Valley Complex; this sequence of sedimentary lithologic units has yielded paleontologically significant fossils in California. Excavations in previously undisturbed geological units could therefore affect undiscovered paleontological resources. This impact would be potentially significant.	PS	**Mitigation Measure 3.6-3a: Paleontological Sensitivity Training for Construction Personnel** Prior to construction commencing on the Marine Programs Multi-Use Building under Phase Three and before initiating earthmoving activities, Cal Maritime shall provide training for construction personnel involved with earthwork at the site of excavations. The training will educate construction workers about the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and the proper stop-work and CSU-approved notification procedures to follow if fossils are encountered. **Mitigation Measure 3.6-3b: Inadvertent Discovery of Potential Paleontological Resources** During construction of the Marine Programs Multi-Use Building under Phase Three, if a paleontological resource is inadvertently discovered during project-related soil disturbance, regardless of the depth of work or location, work must be halted within 30 feet of the find and a qualified paleontologist notified immediately so that an assessment of its potential significance can be undertaken. Coordination with experts on resource recovery and curation of specimens and/or other measures will be considered, as appropriate, after assessment and consultation with the qualified paleontologist.	LTS
Greenhouse Gas Emissions and Climate Change			
Impact 3.7-1: Generate Significant GHG Emissions The project would result in GHG emissions during construction of all project phases from the use of offroad construction equipment, harbor craft, and on road vehicular emissions from construction workers and vendors. CSU would adhere to recommended construction BMPs that reduce GHG emissions to the extent feasible. Operations of the project would not result in new natural gas use, in fact, the project is expected to replace an existing steam boiler plant with a renewable hydrokinetic barge. Operations would not result in increased mobile-source GHG emissions because the project would not expand residential or employee capacity. The project would be consistent with BAAQMD's adopted thresholds, and thus would not generate GHG emissions that would cause a significant impact or conflict with an adopted GHG reduction plan. This impact would be less than significant.	LTS	No mitigation is required	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Hazards and Hazardous Materials			
Impact 3.8-1: Expose Workers or the Public to Hazardous Substances from Routine or Upset Conditions Project implementation, including both construction and long-term operation of the project, would involve the use, storage, and transport of hazardous materials (such as gasoline, diesel fuel, lubricating oil, grease, and solvents). Such materials could risk worker or public health through routine or accidental exposure. However, hazardous materials are comprehensively governed by existing regulations that require proper storage and handling, environmental management plans, spill contingency plans, employee and public noticing, and other emergency preventive and response measures to minimize the risk of accidental releases and related environmental impacts. As a matter of routine practice, the Cal Maritime campus implements hazardous waste management practices in accordance with applicable laws and regulations. This impact therefore would be less than significant.	LTS	No mitigation is required	LTS
Impact 3.8-2: Result in Release of Hazardous Substances during In-Water Activities Dredging activities carried out to accommodate the NSMV, as well as in-water demolition and construction work, could result in disturbance to contaminated seabed sediments and suspension of these sediments in the water column. Compliance with local, state, and federal regulatory requirements would reduce impacts related to the release of and exposure to hazardous materials during in-water project construction. However, the potential would remain for contaminated sediments to be encountered and released, and this impact would be significant.	S	**Mitigation Measure 3.3-2g: Implement Sediment Testing and Dredging Controls**	LTS
Impact 3.8-3: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan The project would be integrated with local and regional emergency response systems, and the Cal Maritime Emergency Management Plan would be updated to reflect changes from implementation of the project. The project would therefore not conflict with or physically interfere with an adopted emergency response plan. This impact would be less than significant.	LTS	No mitigation is required	LTS
Impact 3.8-4: Expose People or Structures to the Risk of Loss, Injury, or Death Involving Wildland Fires The project site is not located in an area of high wildland fire risk, and the project would not involve development that would exacerbate wildland fire risk; require the installation or maintenance of infrastructure that would exacerbate wildfire risk; cause a significant risk of loss, injury, or death involving wildland fires; or expose	LTS	No mitigation is required	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
people or structures to significant post-fire risks, including postfire flooding or landslides. Consequently, the risk of exposure to wildland fire hazards is low. This impact would be less than significant.			
Hydrology and Water Quality			
Impact 3.9-1: Violate Any Water Quality Standards or Waste Discharge Requirements or Otherwise Degrade Surface or Ground Water Quality In-water activities, including dredging, removal of piles, and in-water construction conducted during all project phases would have the potential to affect surface water quality. Increases in the area of impervious surfaces from shoreline improvements would also have the potential to affect water quality. These project elements have the potential to degrade surface water quality through the release of sediment and increase in urban stormwater flows, therefore would result in significant impacts on water quality and the attainment of water quality standards.	S	Mitigation Measure 3.3-2d: Implement Spill Prevention and Control Mitigation Measure 3.3-2f: Implement Dust and Debris Control Mitigation Measure 3.3-2g: Implement Sediment Testing and Dredging Controls Mitigation Measure 3.3-2h: Use Appropriate Creosote Pile Removal and Disposal Methods	LTS
Impact 3.9-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin Project activities conducted during implementation of Phases One, Two, and Three would not use groundwater, would not result in structures or surfaces that would interfere with groundwater recharge, and would not draw upon existing groundwater supply. Therefore, the project would have a less than significant impact on groundwater resources.	LTS	No mitigation is required	LTS
Impact 3.9-3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would: result in substantial erosion, siltation or flooding on- or off-site; create or contribute runoff water that would exceed the capacity of existing or planned stormwater-drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows The proposed project would result in less than significant impacts to flooding based on compliance with MS4 permit requirements. Landside improvements associated would result in less than significant impacts from localized changes to drainage patterns surrounding new landside facilities. However, the project would have the potential to result in impacts related to erosion, sedimentation and sediment dynamics from Phases Two and Three activities. This would be a significant impact.	S	Mitigation Measure 3.3-2d: Implement Spill Prevention and Control Mitigation Measure 3.3-2f: Implement Dust and Debris Control Mitigation Measure 3.9-1: Coastal Evaluation Study and Implementation of Design Control Measures Prior to construction of in-water elements as part of Phases Two and Three, a Coastal Evaluation Study shall be prepared by a qualified coastal engineer. The study shall evaluate whether or not proposed in-water elements, such as piers, docks, breakwaters and other similar permanent structures will result in changes to sediment dynamics, currents, and wave patterns such that erosion or siltation of on-site or off-site shoreline areas and navigational channels would occur. The study will include recommendations regarding design control measures to address	LTS

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		potential adverse effects resulting from changes to sediment dynamics, currents, and wave patterns which may affect shoreline areas and navigational channels. If the Coastal Evaluation Study finds that proposed in-water elements could result in changes to sediment dynamics, currents, and wave patterns such that erosion or siltation of on-site or off-site shoreline areas and navigational channels would occur, the project shall implement design control measures to avoid and minimize those adverse effects, such as: ▶ Erosion control measures such as rip rap or bioengineered methods to control shoreline erosion. ▶ Project design modifications such as reconfiguration of in-water elements to lessen the adverse effects, or inclusion of additional elements such as breakwaters or similar structures to control, avoid and minimize potential adverse shoreline or navigational channel erosion or siltation.	
Impact 3.9-4: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation The project is located within Zone VE, a coastal area with a 1 percent chance or greater of flooding, and within a tsunami zone. All project phases could result in the release of pollutants due to project inundation resulting in a significant impact.	S	**Mitigation Measure 3.3-2d: Implement Spill Prevention and Control** **Mitigation Measure 3.3-2f: Implement Dust and Debris Control** **Mitigation Measure 3.9-2: Hazardous Material Storage Facilities** For all phases of the project, all permanent storage facilities for potentially hazardous materials shall be located on land and shall be designed to be resilient to flood events through incorporation of measures such as secondary containment, stable foundations that avoid buoyancy of storage facilities during floods, and access and entry ways that can be securely locked and secured.	LTS
Impact 3.9-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan No sustainable groundwater management plan is in effect for the project site; therefore, the project would not conflict with such a plan. All project phases could result in potential impacts to water quality and hydrology during construction and operations. Because such impacts could result in a conflict with or obstruct implementation of the Water Quality Control Plan for the San Francisco Bay Basin, this impact would be significant.	S	**Mitigation Measure 3.3-2d: Implement Spill Prevention and Control** **Mitigation Measure 3.3-2f: Implement Dust and Debris Control** **Mitigation Measure 3.3-2g: Implement Sediment Testing and Dredging Controls** **Mitigation Measure 3.3-2h: Use Appropriate Creosote Pile Removal and Disposal Methods**	LTS

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Land Use and Planning			
Impact 3.10-1: 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 The project would involve new and redeveloped facilities on the Cal Maritime waterfront and adjacent Morrow Cove. The project site has been identified by the Physical Master Plan as the most prominent feature of the Cal Maritime campus that supports teaching and recreational programming. Although the Physical Master Plan does not have any policies adopted for the purpose of avoiding environmental effects to conform to, the project would conform to the plan's land use map. The project would also comply with all applicable environmental regulatory requirements through the incorporation of project design features, recommended mitigation measures, and permit conditions. The project's compliance with such requirements is described in the analysis of resource impacts throughout Chapter 3 of this EIR. The project would not create a conflict with any plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. This Impact would be less than significant.	LTS	No mitigation is required	LTS
Noise and Vibration			
Impact 3.11-1: Create Substantial Temporary (Construction) Noise Project-related construction activities would generate noise levels of up to 73.5 dBA Leq at the nearest on-campus receptors and noise levels of up to 56.3 dBA Leq at the nearest off-campus sensitive receptors within the City of Vallejo. These noise levels would not exceed the FTA or the City of Vallejo construction noise thresholds at on-campus or off-campus receptors, respectively. Therefore, this impact would be less than significant.	LTS	No mitigation is required	LTS
Impact 3.11-2: Create Substantial Temporary (Construction) Vibration Levels The use of heavy-duty construction equipment can generate levels of vibration that could result in disturbance to nearby sensitive residential land uses or structural damage. Vibration levels for each land phase would vary based on which piece of equipment was used and the distance to the nearest structure. Construction vibration would occur during daytime hours when people are less likely to be disturbed. Therefore, the potential for disturbance to nearby receivers is low. In addition, the FTA vibration criteria for residential uses (0.2 in/sec PPV for vibration damage and 80 VdB for human response) would not be exceeded at the nearest structure during any construction phase. This impact would be less than significant.	LTS	No mitigation is required	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.11-3: Create a Substantial Increase in Operational On-Site Noise The project would involve the long-term operation of new noise sources and new noise-generating activities on the project site that may expose off-site noise-sensitive receivers to excessive noise levels. New operational noise sources would include mechanical equipment, such as new HVAC systems, and upgrades to the pumping station and increased vessel and marine activity. New project-related long-term operational noise sources would not exceed the VMC noise standards at the nearest off-site residential receptors. Therefore, this impact would be less than significant.	LTS	No mitigation is required	LTS
Public Services			
Impact 3.12-1: Result in Substantial Adverse Physical Construction-Related Impacts Associated with the Provision of or the Need for New or Physically Altered Fire and Police Facilities, to Maintain Acceptable Service Ratios The project would involve redevelopment of Cal Maritime's waterfront to accommodate the arrival of the NSMV and anticipated academic and operational growth over the next 10 years. Implementation of the project would result in improvements to on-campus facilities which would be constructed in a developed area that is already receiving fire and police services. VFD, CMPD, and VPD would continue to provide fire protection and police services to the campus and the project site under an existing mutual aid agreement. The university also would be required to submit design plans of new buildings to the California State Fire Marshal for review and approval to ensure building designs comply with regulations related to fire protection services. Implementing the project would not increase the population of the campus and therefore would not require expanded services that would necessitate the construction of new or physically altered public services facilities. Therefore, this impact would be less than significant.	LTS	No mitigation is required	LTS
Impact 3.12-2: Result in Substantial Deterioration of Neighborhood and Regional Parks, or Require Construction or Expansion of Recreational Facilities The project would involve redevelopment of Cal Maritime's waterfront to accommodate the arrival of the NSMV and anticipated academic and operational growth over the next 10 years. Implementation of the project would result in an increase in on-campus facilities which would be constructed in an already developed area. The proposed project would result in the improvement of the waterfront area and increased connectivity of the waterfront area to the campus and the San Francisco Bay Trail. Improvements to the waterfront, and San Francisco Bay Trail, would provide renovated and new passive recreational features for cadets and visitors of the campus to utilize. As a result, the project would not	LTS	No mitigation is required	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
result in the substantial deterioration of or need for additional recreational facilities. I This impact would be less than significant			
Transportation			
Impact 3.13-1: Conflict with a Program, Plan, Ordinance, or Policy Addressing the Circulation System, Including Transit, Roadway, Bicycle, and Pedestrian Facilities Implementation of the proposed project would not substantially change main vehicular and pedestrian circulation identified or planned for in the 2017 Cal Maritime Physical Master Plan. Phases One, Two, and Three would include improvements to on-site pedestrian facilities, benefitting pedestrian circulation. None of the phases would alter, impair, or otherwise adversely affect existing transit facilities. Additionally, the proposed project would not interfere with the implementation of any planned pedestrian, bicycle, or transit facility. Therefore, implementation of the Waterfront Master Plan would not conflict with a program, plan, ordinance, or policy addressing the circulation system. This impact would be less than significant	LTS	No mitigation is required	LTS
Impact 3.13-2: Substantially Increase Hazards due to a Geometric Design Feature (e.g., Sharp Curves or Dangerous Intersections) or Incompatible Uses (e.g., Farm Equipment) Implementation of the Waterfront Master Plan would not involve changes to the on-site transportation network that would result in an increase in hazards, nor would it result in alterations to public right-of-way. Phases One, Two, and Three would include pedestrian improvements that would increase safety for people walking and bicycling. Construction of all phases of the project would involve the hauling of materials and movement of heavy vehicles in the surrounding roadway network, potentially resulting in increased hazards. However, if needed, implementation of a TCP for each phase would ensure that proper precautions are met during construction activities. For these reasons, implementing the project would not result in an increase in hazards related to a design feature or incompatible use. This impact would be less than significant.	LTS	No mitigation is required	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Utilities and Service Systems			
Impact 3.14-1: Result in Insufficient Water Supplies The City of Vallejo anticipates meeting its current and 2045 projected water demand based on projections from the 2020 UWMP (City of Vallejo 2020). While construction activities would require a minimal amount of water for activities in the upland areas, operation of the proposed project would not generate an increased demand for water since there would be no increase in student enrollment or campus staffing. Thus, no new or expanded water entitlements would be required to serve the proposed project. In addition, the City has a Water Shortage Contingency Plan to ensure water supplies will be sufficient to serve the campus and other planned growth in normal, dry, and multiple-dry years. Therefore, impacts on water supply would be less than significant	LTS	No mitigation is required	LTS
Impact 3.14-2: Result in Impacts on Available Wastewater Treatment Capacity The proposed project could generate a minor increase of wastewater during construction as a result of water usage, but this increase would not be substantial and would therefore result in a negligible impact related to wastewater treatment requirements. None of the three phases of the proposed project would create an increase in wastewater during operation because there would be no increase in enrollment or staffing beyond existing projections. Therefore, impacts related to wastewater treatment capacity would be less than significant	LTS	No mitigation is required	LTS
Impact 3.14-3: Result in Impacts on Solid Waste Facilities and Compliance with Regulations Related to Solid Waste The proposed project would include construction that would increase the generation of construction material solid waste. Waste generated at the project site could be accommodated by several permitted haulers, and waste would be hauled to a permitted landfill for disposal as selected by the hauler. There is substantial remaining capacity in the landfills in the area serving local waste haulers, with remaining capacity until at least 2048. Therefore, because the project would not generate solid waste in excess of State or local standards or in excess of the capacity of the local infrastructure, adversely affect solid waste services, or affect the attainment of solid waste reduction goals, this impact would be less than significant	LTS	No mitigation is required	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Wildfire			
Impact 3.15-1: Expose People or Structures to the Risk of Loss, Injury, or Death Directly from Wildland Fires or Post-Fire Flooding or Landslides The project site is not located in an area of high wildland fire risk, and the project would not involve development that would exacerbate wildland fire risk; require the installation or maintenance of infrastructure that would exacerbate wildfire risk; cause a significant risk of loss, injury, or death involving wildland fires; or expose people or structures to significant post-fire risks, including postfire flooding or landslides. Consequently, the risk of exposure to wildland fire hazards is low. This impact would be less than significant.	LTS	No mitigation is required	LTS
Impact 3.15-2: Substantially Impair an Adopted Emergency Response Plan or Evacuation Plan The project would be integrated with local and regional emergency response systems, and the Cal Maritime Emergency Management Plan would be updated to reflect changes from implementation of the project. The project would therefore not conflict with or physically interfere with an adopted emergency response plan. This impact would be less than significant.	LTS	No mitigation is required	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Table ES-2 Summary Environmental Impacts of the Alternatives Relative to the Proposed Project

Environmental Topic	Proposed Project	Alternative 1: No Project – No Development Alternative	Alternative 2: No Master Plan–Mooring Dolphin Only Alternative	Alternative 3: No Boat Basin 2 (Historic Preservation) Alternative	Alternative 4: No Boathouse, Shoreline or Public Access Improvements Alternative
Aesthetics	LTS	>	>	<	<
Air Quality	LTS	<	<	<	<
Biological Resources	LTS/M	<	<	<	=
Cultural Resources	SU	<	<	<	=
Energy	LTS	<	<	<	<
Geology and Soils	LTS/M	<	<	<	<
Greenhouse Gas Emissions and Climate Change	LTS	<	<	<	<
Hazards and Hazardous Materials	LTS/M	<	=	<	<
Hydrology and Water Quality	LTS/M	<	<	=	<
Land Use and Planning	LTS	<	<	<	<
Noise and Vibration	LTS	<	=	=	=
Public Services	LTS	<	<	<	<
Transportation	LTS	<	<	=	<
Utilities and Service Systems	LTS	<	<	=	<
Wildfire	LTS	=	<	=	=

Impact Status:

LTS = less-than-significant impact

LTS/M = LTS with mitigation

SU = Significant and Unavoidable

= - Impacts would be similar to those of the project.

< - Impacts would be less than those of the project.

> - Impacts would be greater than those of the project.

Source: Data compiled by Ascent Environmental in 2024.

1 INTRODUCTION

This ~~draft~~ environmental impact report (~~Draft~~ EIR) evaluates the environmental impacts of the proposed California State Maritime Academy (Cal Maritime) Waterfront Master Plan Project (project). This ~~Draft~~ EIR has been prepared under the direction of Cal Maritime in accordance with the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines. This chapter of the ~~Draft~~ EIR provides information on:

- the project requiring environmental analysis (synopsis);
- the type, purpose, and intended uses of the ~~Draft~~ EIR;
- the scope of this ~~Draft~~ EIR;
- the agency roles and responsibilities;
- the public review process;
- the organization of the ~~Draft~~ EIR; and
- the standard terminology.

1.1 PROJECT REQUIRING ENVIRONMENTAL ANALYSIS

This section presents a brief synopsis of the project's components and phasing. A more detailed description of the proposed project is provided in Chapter 3, "Project Description."

California State University Maritime Academy (Cal Maritime) is proposing the preparation of a Waterfront Master Plan (proposed project) to implement improvements along Cal Maritime's waterfront and in-water infrastructure to prepare for arrival of the next generation of state-of-the-art training ship—the National Security Multi-Mission Vessel (NSMV)—as well as other upgrades to be constructed in three phases over the next 10+ years. NSMV delivery to Cal Maritime is scheduled for April 2026. The Waterfront Master Plan is intended to identify and integrate key projects into a comprehensive plan to guide redevelopment of Cal Maritime's in-water and landside facilities and infrastructure to support academic and port operations, public access, environmental factors, and long-term resiliency. The project would not change enrollment or student capacity on campus or alter projected growth of the university.

The approximately 31-acre project site (Assessor's Parcel Number 006-209-0030) is located within the Cal Maritime campus boundaries in the City of Vallejo, at the foot of the Carquinez Bridge in southwest Solano County. The approximately half-mile of waterfront, which is bordered by Morrow Cove Drive to the north, is the campus's dominant natural feature and the main focal point of Cal Maritime instruction and activities. The main pier and berth for the existing training ship, Training Ship Golden Bear (TSGB), and adjacent boat basin are major features of the southeastern edge of the waterfront. The entirety of the waterfront and in-water marine structures make up the entire project site covered by of the Waterfront Master Plan.

The Waterfront Master Plan establishes a vision for achieving a campus waterfront aligned with the unique academic and maritime operations, environmental factors, and resiliency needs of Cal Maritime. The plan identifies three phases of development over the next 10+ years focusing on upgrades to in-water infrastructure, renovation and development of waterfront buildings, enhancement of waterfront open space and connectivity, and expansion of site-serving utilities. Phase One of the proposed project focuses on upgrades to in-water infrastructure and the Marine Yard, as well as expansion of site-serving utilities in order to serve arrival and operation of the NSMV. Phase Two of the proposed project would focus on project objectives to rehabilitate the boathouse, expand and optimize the boat basin, redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. Phase

Two of the proposed project involves activities that are not critical to support the arrival of the NSMV but that are important for Cal Maritime's educational mission and expansion of cadet instruction.

Phase Three of the proposed project would focus on objectives to redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. Phase Three of the project would add classrooms and outdoor learning spaces associated with the Marine Programs Multi-Use Building. A marine hydrokinetic (MHK) barge and linking trestle would also be constructed during this phase. This phase would also focus on improvement of the campus-coastline linkage and open spaces and a heightened level of resilience to climate- and storm-related stresses. Phase three will address the future impacts from sea level rise to the campus.

Construction of Phase One is anticipated to occur over 21 months commencing in summer 2025 with completion in fall 2026. Work would be conducted on weekdays, 10–12 hours per day with 1 day on weekends for maintenance activities. The TSGB and small vessels programs would be relocated during reconstruction of and expansion of the main pier. The TSGB and two small vessels would be berthed for the duration of construction, potentially starting in 2025 and concluding in 2026 with the arrival of the NSMV, at Suisun Bay Reserve Fleet, a MARAD facility. Phases Two and Three are conceptual at this time because detailed information related to construction activities is currently unknown. However, Phase Two is anticipated to be implemented over approximately 6 years commencing in 2027, after the arrival of the NSMV. Phase Three would take place thereafter as funding is available.

1.2 PURPOSE AND INTENDED USES OF THIS ~~DRAFT~~ EIR

According to CEQA, preparation of an EIR is required whenever it can be fairly argued, based on substantial evidence, that a proposed project may result in a significant environmental impact. An EIR is an informational document used to inform public-agency decision makers and the general public of the significant environmental impacts of a project, identify possible ways to minimize the significant impacts, and describe reasonable alternatives to the project that could feasibly attain most of the basic objectives of the project while substantially lessening or avoiding any of the significant environmental impacts. Public agencies are required to consider the information presented in the EIR when determining whether to approve a project. This ~~Draft~~ EIR has been prepared to meet the requirements of a project EIR as defined by Section 15161 of the State CEQA Guidelines. A project EIR focuses on the changes in the physical environment that would result from the implementation of a project, including its planning, construction, and operation. This EIR provides an evaluation of the impacts of the project during the three proposed phases pursuant to the level of detail available at the time of publication. Given that Phase One is driven by the near-term need for Cal Maritime to accept delivery of the NSMV, the design of project components in this phase generally is further developed at this time than those in Phases Two and Three. The State's intention in preparing a project EIR is that no further environmental analysis would be required for additional regulatory approvals following approval of the project, absent conditions requiring a subsequent EIR, a supplement to the EIR, or an addendum. (See State CEQA Guidelines Sections 15162–15164.)

1.3 SCOPE OF THIS ~~DRAFT~~ EIR

This ~~Draft~~ EIR includes an evaluation of the following 16 environmental issue areas as well as other CEQA-mandated issues (e.g., cumulative impacts, growth-inducing impacts, significant unavoidable impacts, alternatives):

- aesthetics;
- air quality;
- biological resources;
- cultural and tribal cultural resources;
- energy;
- geology and soils;

- greenhouse gas emissions and climate change;
- hazards and hazardous materials;
- hydrology and water quality;
- land use and planning;
- noise and vibration;
- public services;
- transportation/traffic;
- utilities and service systems; and
- wildfire.

Under the CEQA statutes and the State CEQA Guidelines, a lead agency may limit an EIR's discussion of environmental effects when such effects are not considered potentially significant (PRC Section 21002.1[e]; State CEQA Guidelines Sections 15128, 15143). Information used to determine which impacts would be potentially significant was derived from review of the proposed project; feedback from public and agency consultation; and comments received during the public scoping period, including comments received on the Notice of Preparation (NOP) (see Appendix A of this ~~Draft~~ EIR), which was distributed on December 1, 2022.

1.4 EIR PROCESS

As identified above in Section 1.3, "Scope of this ~~Draft~~ EIR," in accordance with CEQA regulations, an NOP was distributed on December 1, 2022, to responsible agencies, interested parties and organizations, and private organizations and individuals that could have interest in the project. The purpose of the NOP was to provide notification that an EIR for the proposed project was being prepared and to solicit input on the scope and content of the environmental document. Written comments in response to the NOP on the scope and content of the EIR were accepted from December 1, 2022 to January 3, 2023. During this 30-day comment period, a scoping meeting was also held to inform interested parties about the project and to provide agencies and the public with the opportunity to provide comments on the scope and content of the EIR. As a result of the review of existing information and comments received during the scoping process, it was determined that each of the issue areas listed above should be evaluated fully in this ~~Draft~~ EIR. Further information on comments received during the public scoping period is provided in each resource section of Chapter 3 of this EIR.

~~This~~ The Draft EIR ~~is being~~ was circulated for public review and comment for a period of 45 days. During ~~this~~ that period, comments from the general public as well as organizations and agencies on environmental issues ~~may be~~ were able to be submitted to the lead agency.

A virtual public meeting ~~will be~~ was held on the Draft EIR on June 5, 2024, between 4:00 p.m. and 6:00 p.m~~.~~. Participants ~~must~~ were required to register online prior to the meeting start time to participate at: https://us06web.zoom.us/webinar/register/WN_lbIY-zpzSL2K26D7ZmRdUg. Upon completion of the public review and comment period, a Final EIR ~~will be~~ was prepared that ~~will~~ includes both written and oral comments on the Draft EIR received during the public-review period, responses to those comments, and any revisions to the Draft EIR made in response to public comments. ~~The Draft EIR and Final EIR together will make up the EIR for the project.~~ Before adopting the proposed project, the lead agency is required to certify that the EIR has been completed in compliance with CEQA, that the decision-making body reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the lead agency.

1.5 ~~DRAFT~~ EIR ORGANIZATION

This ~~Draft~~ EIR is organized into chapters, as identified and briefly described below. Chapters are further divided into sections (e.g., Chapter 3, "Environmental Impacts and Mitigation Measures" and Section 3.6, "Energy"):

- The "Executive Summary": This chapter introduces the proposed project; provides a summary of the environmental review process, effects found not to be significant, and key environmental issues; and lists significant impacts and mitigation measures to reduce significant impacts to a less-than-significant level.
- Chapter 1, "Introduction": This chapter provides a synopsis of the project; a description of the type, purpose, and intended uses of this ~~Draft~~ EIR; a description of the scope of this EIR; a description of the lead and responsible agencies; a summary of the public review process; and a description of the organization of this EIR; and definitions of standard terminology used in this EIR.
- Chapter 2, "Project Description": This chapter describes the location, background, and goals and objectives for the proposed project, and describes the project elements in detail.
- Chapter 3, "Environmental Impacts and Mitigation Measures": The sections in this chapter evaluate the expected environmental impacts generated by the proposed project, arranged by subject area (e.g., land use, hydrology and water quality). In each subsection of Chapter 3, the regulatory background, existing conditions, analysis methodology, and thresholds of significance are described. The anticipated changes to the existing conditions after development of the project are then evaluated for each subject area. For any significant or potentially significant impact that would result from project implementation, mitigation measures are presented and the level of impact significance after mitigation is identified. Environmental impacts are numbered sequentially within each section (e.g., Impact 3.2-1, Impact 3.2-2, etc.). Any required mitigation measures are numbered to correspond to the impact numbering; therefore, the mitigation measure for Impact 3.2-2 would be Mitigation Measure 3.2-2.
- Chapter 4, "Cumulative Impacts": This chapter provides information required by CEQA regarding cumulative impacts that would result from implementation of the proposed project, as well as other past, present, and probable future projects.
- Chapter 5, "Alternatives": This chapter evaluates alternatives to the proposed project, including alternatives considered but eliminated from further consideration, the No Project Alternative, and two alternative development options. The environmentally superior alternative is identified.
- Chapter 6, "Other CEQA Sections": This chapter evaluates growth-inducing impacts and irreversible and irretrievable commitment of resources, and discloses any significant and unavoidable adverse impacts.
- Chapter 7, "Report Preparers": This chapter identifies the preparers of the document.
- Chapter 8, "References": This chapter identifies the organizations and persons consulted during preparation of this ~~Draft~~ EIR and the documents and individuals used as sources for the analysis.

2 PROJECT DESCRIPTION

2.1 PROJECT OVERVIEW

Cal Maritime is one of 23 universities in the California State University (CSU) system. Established in 1929 as the California Nautical School, Cal Maritime is one of six degree-granting state maritime academies in the United States and the only one on the West Coast. It joined the CSU in 1995 and provides academic experience combining classroom learning with applied technology, leadership development, and global awareness/globalization and cross cultural competence. The university's approximately one-half mile of waterfront along San Pablo Bay is the campus's dominant natural feature and the focal point of Cal Maritime instruction and activities. An important part of the cadets' training is navigating and piloting a vessel at sea, which are key components in Cal Maritime's educational program that currently take place aboard the 500-foot Training Ship Golden Bear (TSGB). The TSGB serves as a floating classroom/laboratory where classroom concepts in marine transportation, engineering, and technology are practiced and applied.

Cal Maritime proposes the adoption of a Waterfront Master Plan (proposed project) to implement improvements along Cal Maritime's waterfront and in-water infrastructure to prepare for arrival of the next generation of state-of-the-art training ships—the National Security Multi-Mission Vessel (NSMV)—as well as other upgrades to be constructed in three phases over the next 10+ years. The project, including the project location, setting, goals and objectives, and components, as well as the permits and approvals that may be necessary during project implementation, is described in detail in this chapter.

2.2 PROJECT BACKGROUND AND NEED

The San Pablo Bay waterfront is the most prominent feature of the Cal Maritime campus and supports teaching and recreational programming. Facilities include an approximately 2,640-foot-long publicly accessible waterfront promenade and public parking; an operational port for small craft; an operating pier; and the TSGB, a 500-foot training vessel on loan from the US Maritime Administration (MARAD).

The TSGB is used for applied cadet instruction and spends much of the academic year at berth at Cal Maritime's pier. Each summer, first- and third-year cadets and licensed faculty officers set sail for an annual training cruise lasting approximately 6 weeks. While at sea, cadets apply classroom, lab, and waterfront training toward piloting, navigation, shipboard maintenance, and leadership development in an oceangoing vessel. The ship is presently captained by Captain Samar Bannister and is staffed by crews of varying sizes for training purposes. The TSGB is shown at berth at Cal Maritime in Figure 2-1.

A time-critical component of the project is preparation for the arrival of the new training ship, the NSMV, which will replace Cal Maritime's TSGB. The NSMV will be the fifth in a new fleet of ships specifically designed by MARAD for emergency use by the Federal Emergency Management Agency (FEMA) and available for requisition as needed. Most of the time, the vessels will be moored at US state maritime academies and used for training merchant marines by the academies.

The NSMV is 525 feet long, 89 feet wide, with a design draft of 21 feet 4 inches and a depth of 56 feet. Access will be via side entry from the pier. Ship facilities will include 12 classrooms; two navigation labs; six cadet workshops; a large multi-purpose space; a training bridge; simulation spaces and lab spaces; and accommodations for 600 cadets and 100 officers, faculty, staff, and crew. The NSMV also has a medical bay and a helicopter landing pad for emergency use by FEMA, although these would not be used by Cal Maritime when in port. While at port, the NSMV would function for maritime training and education of cadets.

Source: Image provided by WRA in 2023; adapted by Ascent Environmental in 2023.

Figure 2-1 Training Ship Golden Bear Aerial Photo

Cadets would not be involved in any emergency response missions undertaken by FEMA for which the NSMV might be requisitioned. NSMV delivery to Cal Maritime is scheduled for delivery as early as April 2026.

Arrival of the NSMV will elevate the level of training and shipboard experience for Cal Maritime's cadets. Because these vessels remain part of MARAD's National Defense Reserve Fleet, they may be called into specialized national service. The ship's dual-purpose design, for both cadet training and humanitarian assistance/disaster relief missions, places unique demands on the landside and in-water infrastructure supporting its future Cal Maritime home port.

The Cal Maritime waterfront has never undergone comprehensive master planning and instead has evolved over time in response to evolving programmatic needs. The condition of the waterfront facilities and infrastructure varies from good to poor, and extensive repairs or upgrades are needed. Cal Maritime also anticipates academic and operational changes over the next 5-10 years that elevate the need for a cohesive waterfront master plan. The Waterfront Master Plan is intended to identify and integrate key projects into a comprehensive plan to guide redevelopment of Cal Maritime's in-water and landside facilities and infrastructure to support academic and port operations, public access, environmental factors, and long-term resiliency. The project would not change enrollment or student capacity on campus or alter projected growth of the university. Implementation of the proposed project would occur in three phases spanning 10 years.

Because it is unknown when, where, and how often the NSMV may be requisitioned for emergency purposes by the federal government, a general description of NSMV emergency capabilities has been provided for informational purposes only and will not be discussed further in this EIR.

2.3 PROJECT OBJECTIVES

The twofold underlying purpose of the proposed project is to prepare the Cal Maritime campus waterfront for the arrival and subsequent operation of the NSMV and to upgrade infrastructure and facilities that support other campus and public waterfront-dependent program needs. These other program needs include hands-on campus instruction related to small and large craft navigation, maintenance, and other ship provisioning operations; small craft mooring and storage; and public recreational use.

Consistent with, and in furtherance of, the project purpose, the proposed project has the following objectives:

- Upgrade Cal Maritime's in-water and landside facilities and infrastructure to accommodate berthing and operation of the NSMV, as follows:
  - Replace the main pier and potentially the existing trestle (or causeway) to accommodate the larger NSMV, meet heavy-weather mooring requirements, and allow access to the NSMV by trucks and equipment needed for operation and maintenance of the vessel.
  - Provide necessary new and upgraded infrastructure and utilities sized to support the NSMV.
  - Upgrade the existing marine yard to accommodate improved access, a staging area for ship supplies for the annual training cruise, training areas, support for embarkation and debarkation, and US Coast Guard-required port security measures.
- Upgrade and replace infrastructure to facilitate efficient waterfront operations important for Cal Maritime's educational mission and expansion of cadet instruction.
- Increase hands-on maritime instructional opportunities for cadets to move beyond traditional classroom experience and gain in-water experience.
- Allow for NSMV to operate as an extension of Cal Maritime facilities and provide maritime training and education for cadets.
- Expand and optimize the boat basin to allow simultaneous safe movement of more than two vessels for academic on-water instruction and recreational activities; accommodate Cal Maritime training and small

recreational craft currently moored off-site because of lack of space; and accommodate an expanded Cal Maritime fleet of vessels, including a new replacement tug and oceanographic or similar research vessel.

- Dredge the existing and expanded boat basin to ensure depth sufficient to accommodate small vessel programs at the university.
- Ensure that the TSGB remains accessible for instructional use during Phase One implementation of the Waterfront Master Plan.
- Rehabilitate the boathouse in a manner that retains its historic integrity.
- Link campus buildings with waterfront open space and enhance public pedestrian and bicycle access to and along an activated waterfront.
- Ensure waterfront resilience, including the shoreline upland and transition zones that support public open space and recreational use, to climate and storm-related stresses.
- Protect ecological functioning along the waterfront, including upland, intertidal, and subtidal components.
- Allow the NSMV to be requisitioned by FEMA for emergency use, as needed.

2.4 PROJECT LOCATION AND SETTING

The approximately 31-acre project site (Assessor's Parcel Number 006-209-0030) is located within the Cal Maritime campus boundaries in the City of Vallejo, at the foot of the Carquinez Bridge in southwest Solano County and the adjacent waters of Morrow Cove (Figures 2-2 and 2-3). Southeast of Morrow Cove and across the Carquinez Straight is the town of Crockett. The approximately half-mile of waterfront, which is bordered by Morrow Cove Drive to the north, is the campus's dominant natural feature and the focal point of Cal Maritime instruction and activities. The pier and berth for the existing TSGB and adjacent boat basin are major features of the southeastern edge of the waterfront. The campus waterfront and in-water marine structures make up the entire project site covered by of the Waterfront Master Plan (Figure 2-4). Approximately four acres of the project site occur on land along the waterfront, and approximately twenty seven acres occur on water in Morrow Cove.

Access to the project site is provided by Maritime Academy Drive, which intersects State Route 29/Sonoma Boulevard just north of Interstate 80 (I-80) entry/exit ramps and provides primary vehicular access to the campus. Maritime Academy Drive descends from the northern and western portions of the campus, directing traffic along the eastern edge of the lower portion of the campus before terminating at the campus pier. Maritime Academy Drive and Morrow Cove Drive form a loop around the lower campus and provide access to the project site.

The campus also provides a network of walkways connecting buildings and open spaces, including the quad and shoreline. Pedestrian access between the lower and upper campus is provided by a sidewalk and a raised boardwalk along Maritime Academy Drive and through staircases where hillside topography necessitates. Beyond the campus, surrounding uses and points of interest include residential uses (the Crystal Pointe neighborhood) northwest of the campus, Carquinez Bridge Vista Point just east of the campus, and Livingstone's Inspiration Park and Bay Area Ridge Trail to the east on the far side of I-80 (Figure 2-5). See Appendix B for photos of existing facilities on the project site.

2.4.1 Main Pier

The original main pier was constructed of timber in 1942 and was replaced in 1996 with a reinforced concrete pier supported on steel piles driven into the bay floor. The university has had four training ships: Training Ship Golden State (1931–1946), Training Ship Golden Bear I (1946–1971), Training Ship Golden Bear II (1971–1995), and Training Ship Golden Bear III (TSGB) (1996 to present). Cal Maritime's current ship, the TSGB, ties up to the face of the pier on the port side when moored. Four foam-filled fenders along the face of the pier absorb energy as the ship contacts the pier while berthing.

Source: Google Earth Pro Imagery; adapted by Ascent Environmental in 2022.

Figure 2-2 Regional Location

Source: ESRI World Imagery; adapted by Ascent Environmental in 2022.

Figure 2-3 Local Vicinity

Source: ESRI World Imagery; adapted by Ascent Environmental in 2022.

Figure 2-4 Project Site and Existing Uses

Source: ESRI World Imagery; adapted by Ascent Environmental in 2022.

Figure 2-5 Project Boundary

Mooring bollards are located on the pier, quick-release mooring hooks are located on shore, and mooring dolphins are accessed from the pier by a catwalk. Load capacities of the pier are approximately 400–600 pounds per square foot for a uniformly distributed load and 50-100 tons for a point load. (These metrics, important in design and construction, are defined as follows: A uniformly distributed load is one whose weight is distributed over an entire surface, and a point load describes a force that is applied to a concentrated point on the surface.)

The trestle or causeway connecting the shore to the pier is approximately 20 feet wide and 174 feet long, the pier is approximately 30 feet wide and 262 feet long, and the catwalk extension is approximately 4 feet wide and 204 feet long.

The ship connects to an electrical shore tie cable when moored at the pier. The capacity of the 500-kilovolt-amp (kVA) transformer was upgraded after the construction of the 1996 pier replacement to allow 800 amps/480 alternating current service to the ship. Steel sheet piles are attached to the pier and catwalk to provide wave protection for the boat basin. Figure 2-6 shows the existing pier, floating docks, and boat basin.

The TSGB is the primary marine use of the main pier. Cadets use the TSGB to apply technological and leadership skills outside the classroom while the vessel is at Cal Maritime, as well as during the annual summer training cruise.

2.4.2 Boat Basin and Floating Docks

The boat basin is a natural portion of San Pablo Bay/Carquinez Strait. It is enclosed by the shore on the northeast and by the breakwater panels (wave screen) attached to the pier and catwalk on the south and west, which protect it from the predominant wind waves from the west. The water depth increases rapidly between the south side of the basin and the Carquinez Strait as a result of scour by tidal currents. The water depth at the face of the pier is greater than 30 feet to accommodate the 30-foot TSGB draft. The water depth inside the boat basin is significantly shallower.

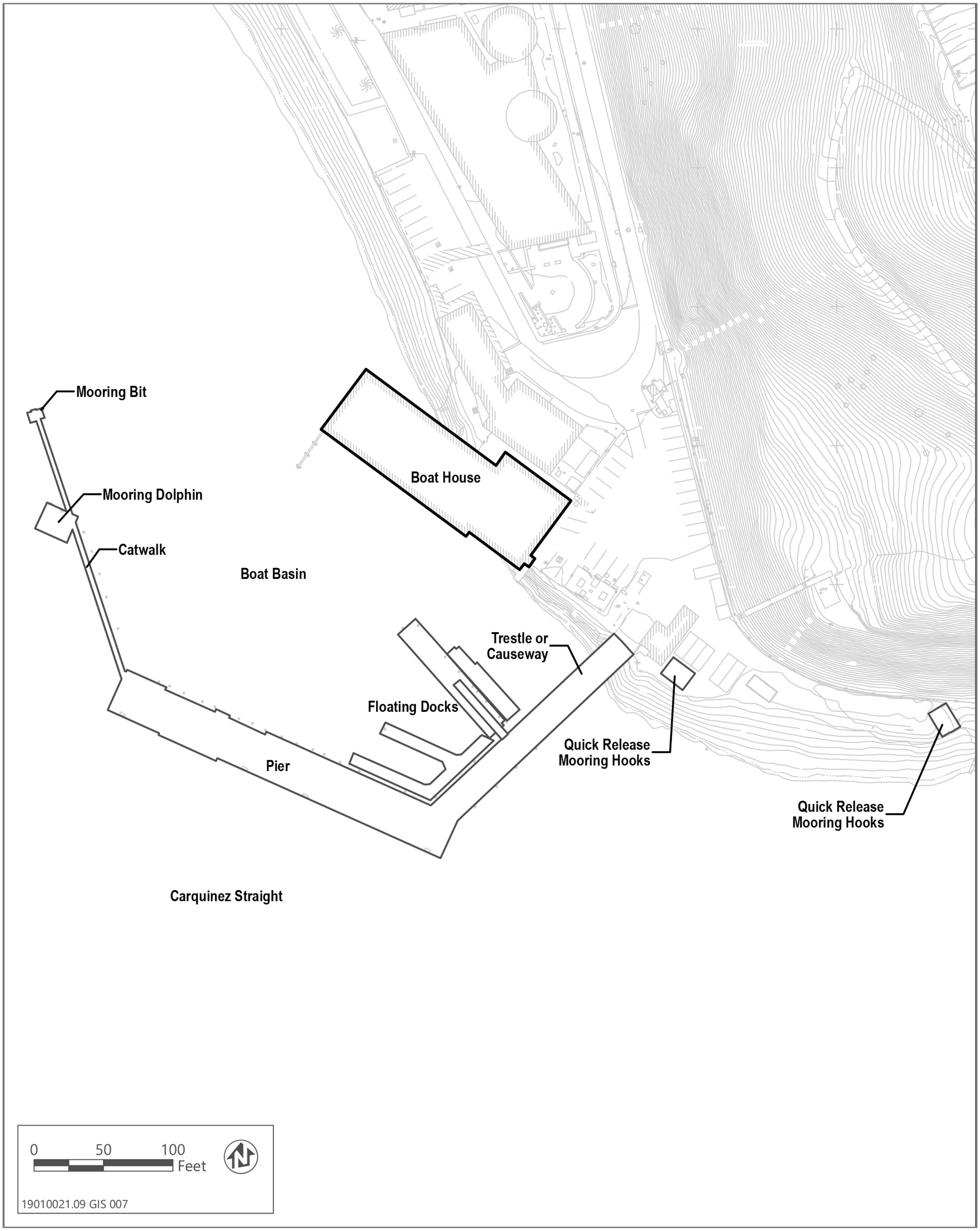
The boat basin is a focal point of learning and recreational activities. Vessels currently accommodated in the boat basin vary in size and type and include three 50-foot-long vessels, three 20- to 25-foot vessels, six 20-foot oar-powered boats, a training tugboat, and others. Cal Maritime plans to expand its fleet of vessels to include a new replacement tug and an oceanographic or similar research vessel. Because limited space is available, additional Cal Maritime training and recreational vessels are currently stored at off-campus locations nearby.

Cal Maritime reports that limited space within the existing boat basin, which is approximately 80,000 square feet or 1.8 acres in area, affects the scheduling and timing of academic instruction, because generally no more than two vessels can safely move and operate simultaneously in this zone. Oar-powered vessels are kept in the boathouse, requiring time to launch and store. Low tide and shoaling, or shortening and steepening of waves, in and around the boathouse also limit times when small craft can be launched from the boathouse.

The present depths in the boat basin are adequate for current use by the variety of vessels currently in operation. However, since the most recent dredging activity in 2019, so much sediment has accumulated in the boat slips that the bottom of the basin at the front of the slip is exposed at low tides. Sediments have also accumulated in the boathouse area. In addition, a sampling of sediments from the 2019 dredging episode indicated that contaminants were present in the boathouse area that would require disposal at an approved hazardous waste disposal facility. However, during previous maintenance dredging episodes, the area of contaminated sediment were avoided by dredging the affected areas to a finished elevation that avoided disturbance of contaminated sediments.

Three floating docks are located in the basin created by the main pier. The docks provide mooring for boats 60 feet or less in length. These boats provide hands-on training for the cadets in basic seamanship skills and port operations and logistics. In addition, small sailboats moored at the docks provide recreational sailing opportunities.

The docks are constructed of concrete-encased polystyrene foam modules connected with timber beams (walers). The original date of construction is unknown but was after 1996 because the existing docks at that time were shown on plan sheets to be removed with the replacement of the main pier in 1996. The docks are held in place by 16 steel guide piles driven into the bay bottom. There are guide piles at the end of each dock.



Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.

Figure 2-6 Cal Maritime Pier and Basin

The floating dock closest to shore has 11 associated piles, all 18-inch steel cylinders. Seven of these piles line its shore-facing edge, whereas one sits at the end of the dock, and three are positioned closest to the main pier under the metal gangway. The middle floating dock has just one 18-inch steel cylinder pile positioned at the end of the dock. The dock closest to the TSGB has four 18-inch steel cylinder piles positioned on the side between it and the main pier. The existing floating docks measure approximately 4,500 square feet with approximately 10 slips/berthing positions.

2.4.3 Marine Yard

The entirety of the Marine Yard, encompassing approximately 22,500 square feet, or just under half an acre, is subject to Cal Maritime and port security requirements and Maritime Security (MARSEC) levels identified by the US Coast Guard. This zone and accessible areas (main pier and boat basin) are secured by fencing with manual gate and a guardhouse structure. Figure 2-7 shows the location of the Marine Yard, as well as the existing buildings and structures in the yard.

The Marine Yard hosts the following services and small buildings and structures:

- 11 shipping containers (including one used for hazardous storage);
- one prefabricated metal fabrication facility;
- one prefabricated dock steam boiler with metal access deck and foundations supporting the TSGB;
- electrical substation and transformer equipment with slab on grade;
- one fire alarm panel, a fire hydrant, and a back-check valve;
- one monopole hosting emergency communications equipment;
- 35 parking stalls, three of which are marked accessible.
- boat trailers; and
- two quick release mooring hooks associated with TSGB berthing.

The Marine Programs and Naval Science Modular structures and a portion of the boathouse are located outside the secured perimeter of the Marine Yard. The existing simulation center plaza is immediately adjacent to the east. Cadets use both areas within the secured perimeter and outside to train with forklifts and ships' cranes to practice loading cargo and other provisioning activities. The demands for Marine Yard space to support services and structures for landside and in-water operations are extensive and existing space is insufficient and limited.

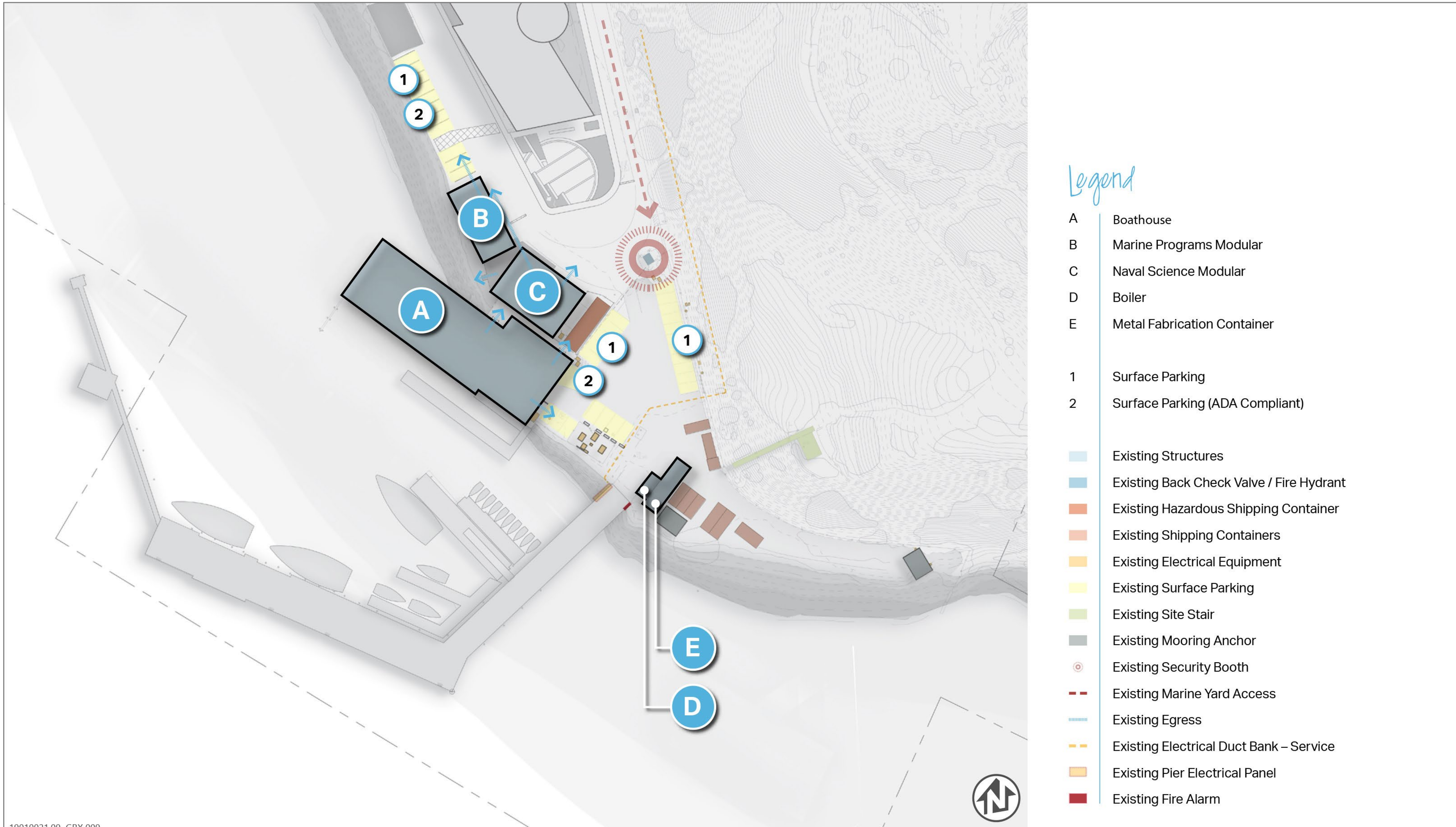
2.4.4 Training Ship Golden Bear

The TSGB is an approximately 500-foot training vessel. It was built in 1989 and is approximately 151 feet tall from keel to mast top. The maximum operating draft is 30.5 feet and can sustain a maximum operating speed of 20 knots. The TSGB can accommodate 316 cadets and 56 officers, faculty, crew, and staff.

Generally, operations involve the TSGB departing campus each summer for an approximately 6 week cruise, usually soon after commencement in early May. The ship also may depart the dock for the university's 1-day Day on the Bay excursion in October. However, because of COVID, the university has not run the Day on the Bay excursion since 2019.

2.4.5 Utility Systems

The Cal Maritime campus and the waterfront are served by a network of utility systems extending from Maritime Academy Drive to buildings and in-water infrastructure installations. Figure 2-8 shows the existing campus site utilities.



Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.

Figure 2-7 Marine Yard Conditions

Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.

Figure 2-8 Existing Utilities

A fueling station is also located near the shoreline immediately adjacent to the project site which supports marine training vessels for Cal Maritime. The fueling station follows all requirements and standards for near-shore fueling to prevent and mitigate any potential release of pollutants to the Bay. Cal Maritime also maintains a Spill Prevention Plan and implements Best Management Practices for the to control the release of pollutants in the Bay.

WASTEWATER

Almost all the Cal Maritime campus wastewater, including wastewater from the TSGB when it is in port, drains by gravity via a campus-owned collection system to a Vallejo Flood and Wastewater District (VFWD) sanitary sewer pump station located at the western point of the Cal Maritime campus near the northern end of Morrow Cove. The system and pump station are adequately sized in their current configurations.

WATER SUPPLY

The City of Vallejo (City) provides water service to the Cal Maritime campus. The entire campus, including the TSGB when at port, is within the service area of the Fleming Hill Water Treatment Plant and is served by a City-owned and operated water main that runs along Maritime Academy Drive. The existing Cal Maritime system is a combination of looped and dead-end lines, with PVC and transite pipe. There are no known issues with the condition of the existing pipe and no major maintenance or repairs are anticipated.

STORMWATER

VFWD is responsible for managing stormwater quantity (flood control) and quality in Vallejo. However, stormwater generated on the Cal Maritime campus discharges directly to the bay without going through the public system and therefore is under the jurisdiction of the Small MS4 (municipal separate storm sewer systems) General Permit. The existing Cal Maritime storm drain collection system consists of a mix of gravity pipes and surface flow. Ultimately, the discharge is directed to the San Pablo Bay and is, for the most part, untreated with no retention and no peak reduction. Stormwater treatment facilities were installed near the dining center, but they serve a small portion of the overall campus. Stormwater treatment facilities do not exist for the waterfront area.

ENERGY

Pacific Gas and Electric Company (PG&E) provides electrical service to the Cal Maritime site via 12.47-kilovolt (kV) feeders that also serve other sites. The site distribution system comprises the main 12-kV/1,200 amps switchgear, overhead and underground lines, outdoor building transformers, and building services/meters. Backup power is limited to a diesel generator for classroom buildings, the administration building, and a university communications hut. The sanitary sewer pump station has City-provided backup power. The TSGB has its own diesel generators. In addition, life safety systems use batteries and uninterruptible power supply units in various buildings for backup power.

Shore power infrastructure, also known as cold-ironing or alternative marine power, enables ships to turn off their engines while at berth and connect to local electric power. Shore power infrastructure consists of four main elements: (1) incoming electrical power supply to substation transformers and switchgear; (2) on-site power distribution and control (load transformer and switchgear); (3) transmission lines and equipment that make up the cable management system, providing the essential linkage from the substation to the vessel; and (4) vessel power supply connection point(s). Shore power systems are present for the TSGB; the capacity of the transformer serving the ship was upgraded to 800 amps from 500 amps in 1996. The TSGB currently draws a maximum of 400 amps at 480 kV.

2.4.6 Boathouse

The boathouse, constructed in 1942, is one of the earliest permanent structures established on the campus. It is situated in the south end of campus at the intersection of Maritime Academy Drive and Morrow Cove Drive and partially within the Marine Yard. The existing boathouse facility consists of a single-story, split-level, timber- and steel-framed building along with a steel and concrete pier. The boathouse, which is approximately 9,990 square feet in size, includes a large open assembly area, sail loft[1], seven offices, two unisex restrooms, utility and equipment rooms, a break room, wood and metal workshops, storage spaces, and a partially enclosed, covered boat basin with three boat slips with equipment to lift smaller vessels out of the water for repairs. The boathouse serves the campus by providing a location for maintenance and storage of smaller vessels (boats, sails, rigging, and tools).

The boathouse foundation is creosote-treated timber piles driven into the bay bottom. Many of the piles have been encased with grout, inside of a fiberglass jacket, with the remaining piles wrapped with PVC sheeting. It is assumed that approximately 10 piles support the overwater portion of the existing boathouse. A 2009 Sediment Characterization Report (Dixon Marine Services 2009; Haley & Aldrich 2019) prepared before maintenance dredging activities identified sediments under and around the boathouse with levels of dichlorodiphenyltrichloroethane (DDT), total chlordane, polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs) that are elevated above ambient concentrations and have the potential to result in adverse ecological effects if disturbed. As mentioned above, during previous maintenance dredging episodes, the area of contaminated sediment were avoided by dredging the affected areas to a finished elevation that avoided disturbance of contaminated sediments.

The boathouse is in good overall condition and the exposed piles have no known defects. Deterioration is visible in many of the siding boards in the boat slips and on the north wall within the lower tidal zone (0–2 feet mean lower low water height). The horizontal beams that support the siding/rub boards within the boat slip are composite (reinforced-plastic) members and are in excellent condition. Figures 2-9 and 2-10 show the boathouse elevations and layout of the ground and first floors.

2.4.7 Marine Programs and Naval Science Modulars

Outside the secured perimeter of the Marine Yard and directly in front of the boathouse are two prefabricated modular structures that make up the Marine Programs and Naval Science modulars. Both are in fair condition but are considered a temporary solution and are scheduled for replacement as part of the proposed project. The Marine Programs modular, which is approximately 2,575 square feet, is made up of a break room, a commanding officer office, a director’s office, an administrative support area, an officer-in-charge office, an assistant officer-in-charge office, a human resources office, and additional office areas. The Naval Science modular, which is approximately 2,279 square feet, is made up of a multi-purpose room, seven office areas, and storage space. Figure 2-11 shows the layout of both modular buildings.

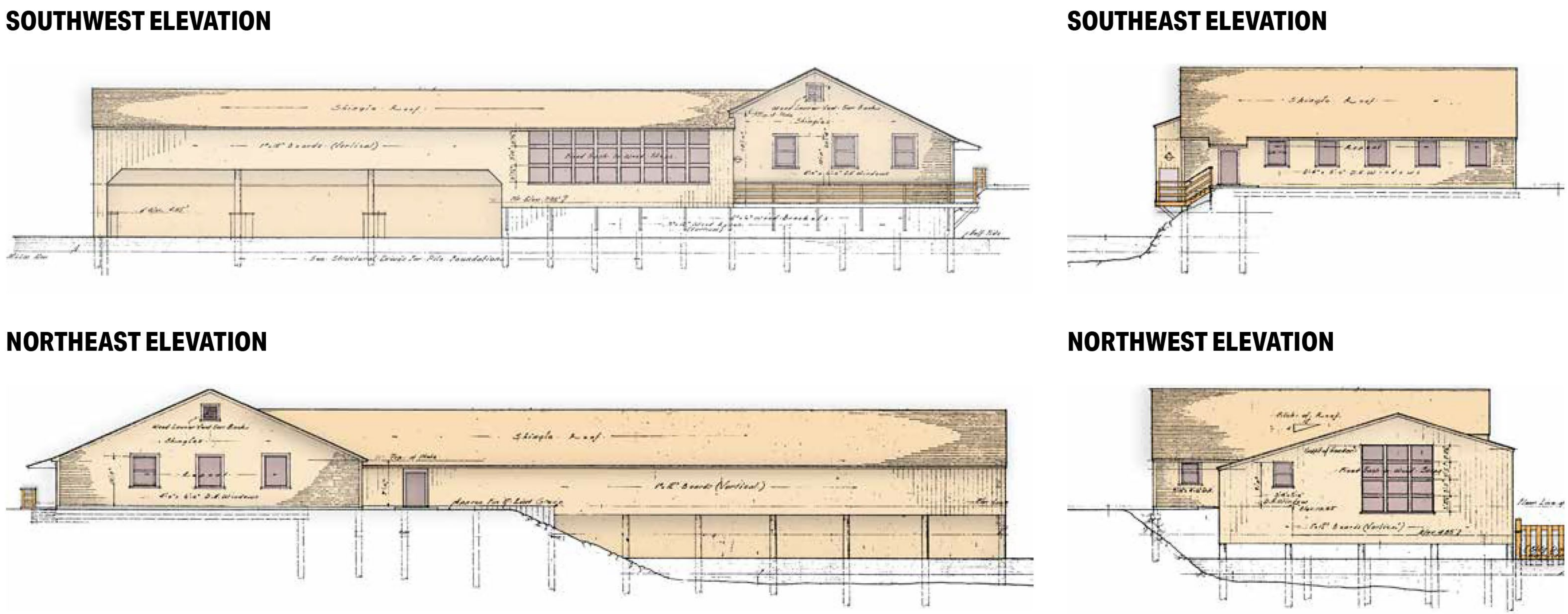
2.4.8 Shoreline

The campus’s shoreline is the shoreline of Morrow Cove and is maintained by Cal Maritime as open space. Public access to the shoreline is allowed under the terms of a permit granted to Cal Maritime from the San Francisco Bay Conservation and Development Commission in 1977. The shoreline sits approximately 15 feet above mean sea level and is armored with riprap, and a corresponding narrow band of land designated as Zone VE on a Flood Insurance Rate Map published by FEMA indicates that the area has a 1 percent chance or greater of flooding in any given year.

The shoreline provides a nearly continuous and accessible east-west linkage for use by the university and general public. Modest picnicking, fishing and other recreational facilities are available in several places along the shoreline. A portion of the Bay Trail follows the asphalt path paralleling the shoreline and Morrow Cove Drive and terminates near the Cal Maritime dining hall on the west side of campus.

In 1999, for purposes of seismic stability and site densification, an estimated 533 36-inch-diameter stone columns were installed beneath the ground surface along the waterfront at depths ranging from 25 to 35 feet.

[1] Area within the primary entrance where historically sails were cut, sewn, and repaired (Page & Turnbull 2022).



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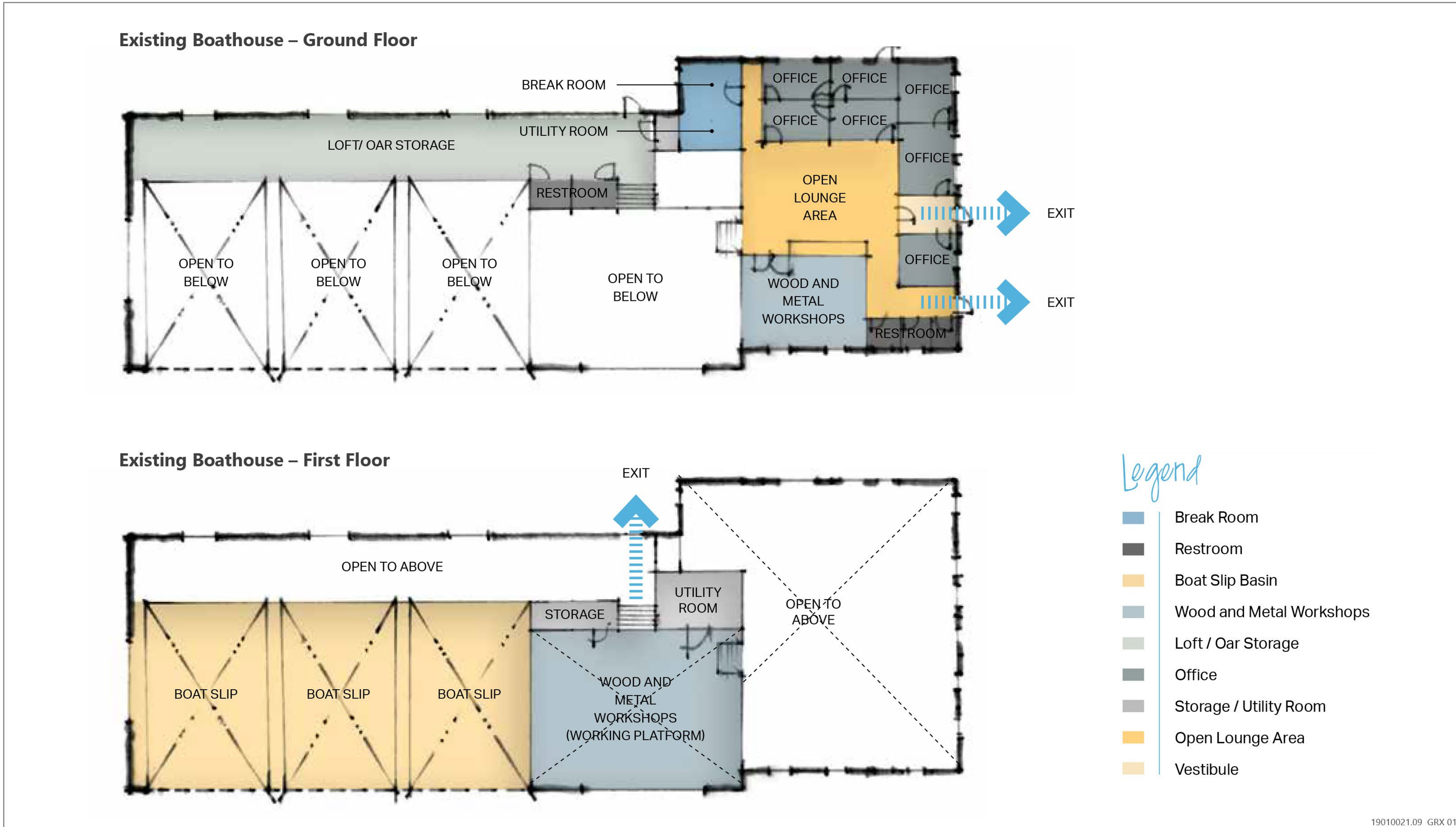
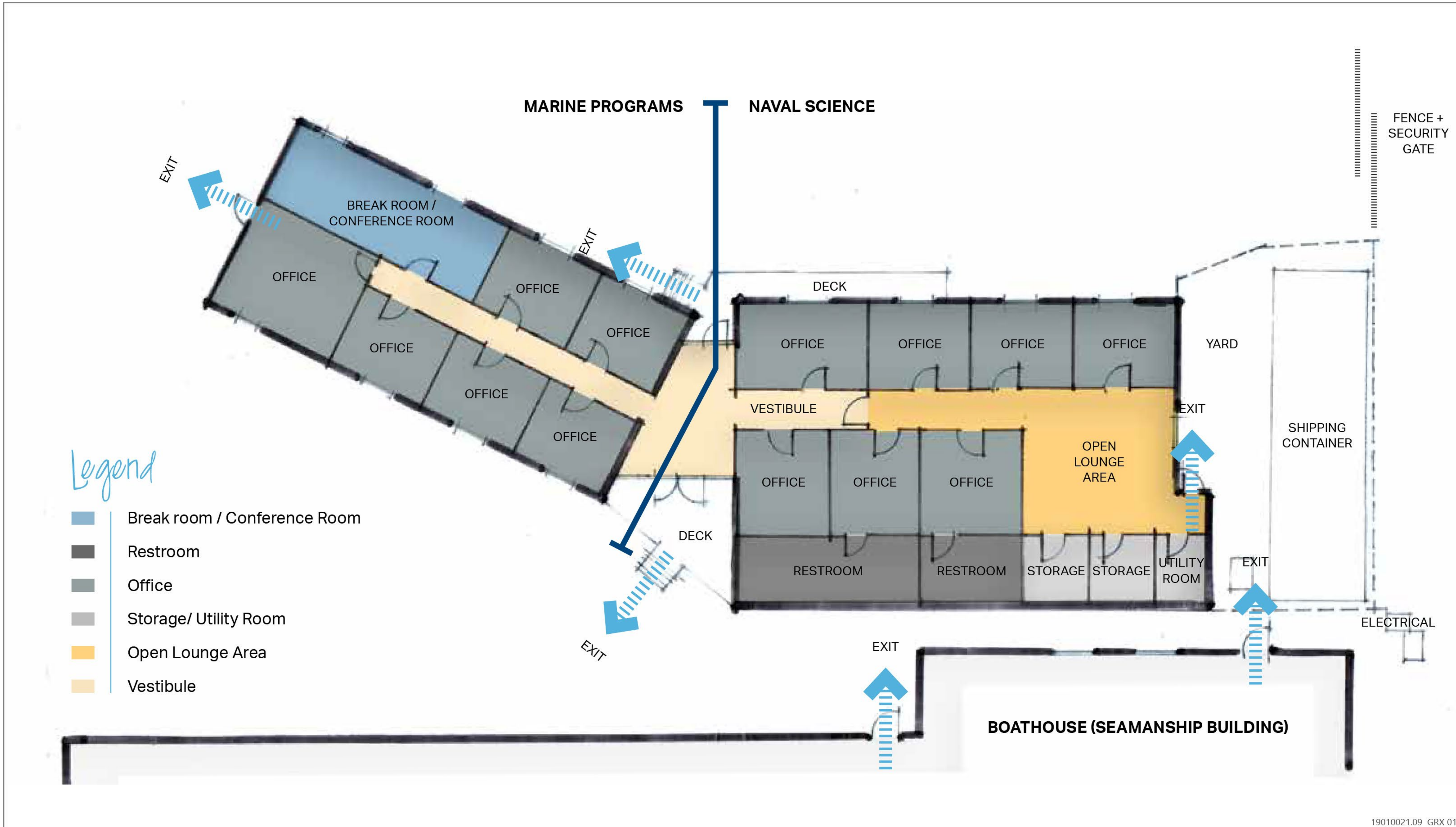
Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.

Figure 2-9 Existing Boathouse Elevations



Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.

Figure 2-10 Existing Boathouse – Ground Floor and First Floor Layout



Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.

Figure 2-11 Existing Marine Programs and Naval Science Building – Ground Floor

The columns were installed vertically at 10-foot intervals in five rows following the waterfront over a distance of approximately 940 feet between (beneath) the dining hall adjacent to the project site's northwest boundary and a point immediately west of the library. The stone columns are constructed like gabions, each composed of an assemblage of rocks, possibly contained in a wire/rebar basket. Near-surface portions of the stone columns can be removed and replaced to allow for shallow grading without compromising their function. Updated geotechnical surveys and reports may indicate that additional stone columns should be installed along the waterfront. If required, this work would be completed as part of Phase Three. See Appendix C for drawings of stone column locations.

2.4.9 Maintenance Dredging

Past dredging for navigational purposes at Cal Maritime has typically been undertaken every 8–10 years and has involved volumes of up to approximately 15,400 cubic yards. Dredged materials (spoils) are disposed of at the Carquinez Strait Dredged Material Disposal Site. For all past and future maintenance dredging activities, Cal Maritime is responsible for obtaining all required dredging permits, preparing a sediment sampling and analysis plan, and preparing a post-dredge survey.

As mentioned above, contaminated sediments have been identified to occur in and around the boathouse area that would require disposal at an approved hazardous waste disposal facility. However, during previous maintenance dredging episodes, the area of contaminated sediment was avoided by dredging the affected areas to a finished elevation that avoided disturbance of contaminated sediments.

2.5 PROPOSED PROJECT

The Waterfront Master Plan establishes a vision for achieving a campus waterfront aligned with the unique academic and maritime operations, environmental factors, and resiliency needs of Cal Maritime. The plan builds on preliminary concepts explored and aligned with campus community input and identifies three phases of development over the next 10 years focusing on upgrades to in-water infrastructure, renovation and development of waterfront buildings, enhancement of waterfront open space and connectivity, and expansion of site-serving utilities. The three phases of development are described in more detail below. As mentioned in Chapter 1, "Introduction," this EIR provides an evaluation of the impacts of the project during the three proposed phases pursuant the level of detail available at the time of publication. Given that Phase One is driven by the near-term need for Cal Maritime to accept delivery of the NSMV, the design of project components in this phase generally is further developed at this time than those in Phases Two and Three.

Figure 2-12 provides a conceptual rendering of the Waterfront Master Plan, and Figure 2-13 illustrates all the individual components of the proposed Waterfront Master Plan at full completion. Table 2-1 shows a comparison of the existing site conditions and the proposed project.

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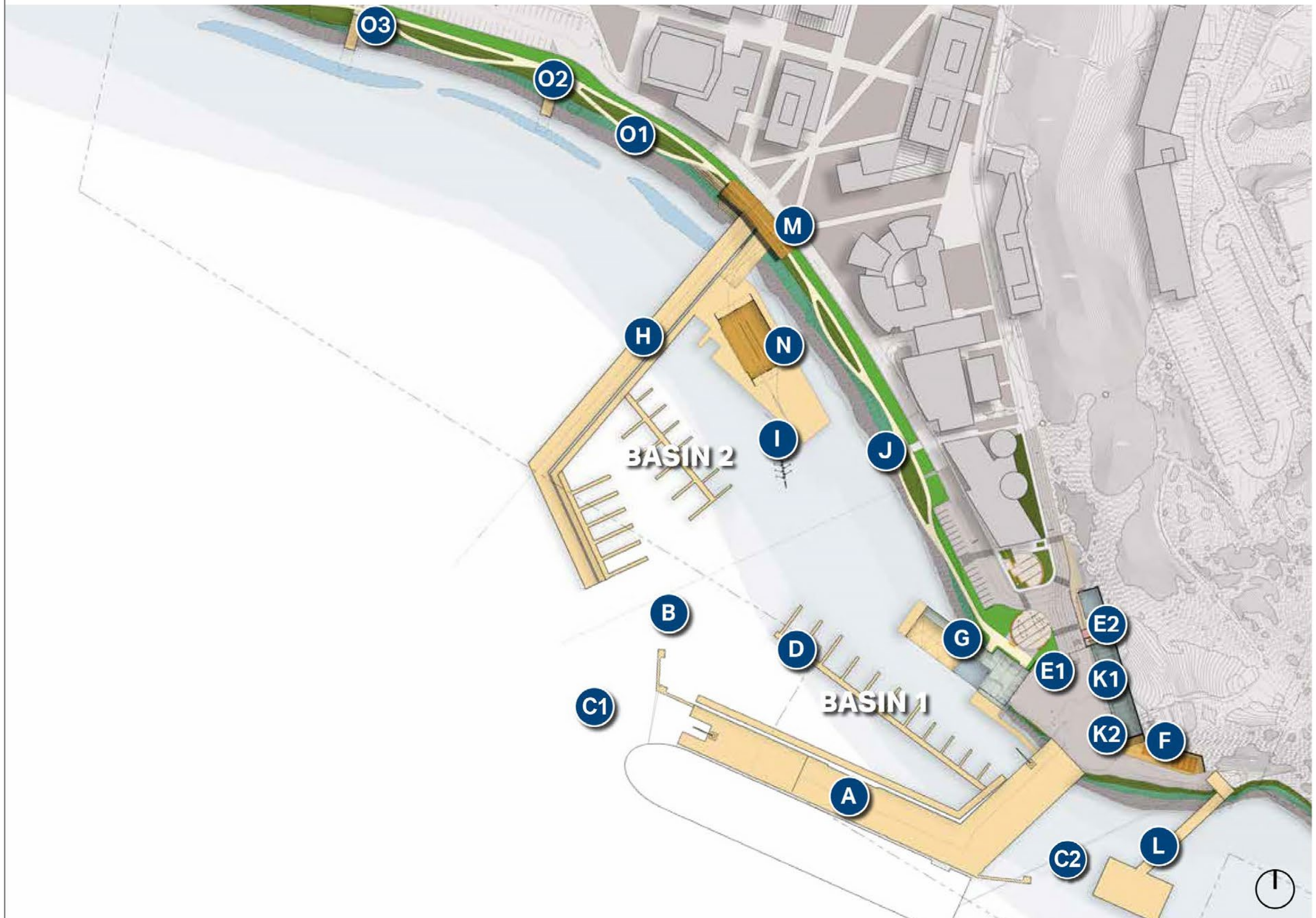
Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.
Note: For conceptual purposes only and does not represent final design of the project

Figure 2-12 Waterfront Master Plan: Conceptual Rendering



Legend

A | Main Pier Expansion
B | Dredging of Boat Basin and Approaches (As Necessary)
C1 | Navigation Aids, Mooring Dolphins, Breakwater and Catwalk
C2 | Mooring Dolphins and Catwalk
D | New Floating and Training Docks at Basin 1
E1 | Marine Logistical Yard Upgrade (Linking Gatehouse to Pierhead)
E2 | Yard Expansion
F | Utilities Relocation and Upgrade
G | Seismic Retrofit and Renovation of Boathouse
H | New Accessible Breakwater and Creation of Basin 2
I | New Floating and Training Docks at Basin 2
J | Shoreline Enhancements (Boathouse to New Accessible Breakwater)
K1 | Marine Programs Multi-Use Building
K2 | Harbor Control Tower
L | Marine Hydrokinetic (MHK) Barge and Linking Trestle
M | Central Waterfront Esplanade Canopy
N | Row House and Floating Landing
O1 | Shoreline Enhancements (Row House to Dining Center)
O2 | Water Overlook / Outdoor Room One
O3 | Water Overlook / Outdoor Room Two

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Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.

Figure 2-13 Waterfront Master Plan: All Components

Table 2-1 Summary of Existing and Proposed Uses

Land Use	Existing Conditions	Proposed Project
Phase One		
Main Pier and Trestle	▶ Pier is approximately 30 feet wide and 262 feet long ▶ Trestle connecting shore to pier is approximately 20 feet wide and 202 feet long ▶ Catwalk extension is approximately 4 feet wide and 204 feet long ▶ Approximately 70 piles make up main pier, including 20 fender piles	▶ Pier demolition and replacement with 50 feet wide and 450 feet long pier ▶ Trestle extension to new length of 220 feet (with possibility of full replacement) ▶ Removal of 135 piles ▶ Removal of breakwater, including steel pile–supported catwalk and sheet piles serving as a wave screen, as well as mooring dolphins ▶ Installation of 282 new piles
Boat Basin 1 and Floating Docks	▶ Approximately 4,500 square feet of floating dock space ▶ 10 slips/berthing positions ▶ 16 guide piles make up floating docks ▶ Maintenance dredging every 8–10 years of approximately 15,400 cubic yards	▶ 9,500 square feet of floating dock space ▶ 23 slips/berthing positions ▶ Installation of approximately 50 guide piles ▶ Construction of two gangways approximately 60 feet long by 5 feet wide and ascending 4 feet high ▶ 40,000 cubic yards of dredged material to be excavated
Marine Yard	▶ Approximately 0.5 acre ▶ Hosts a number of small buildings and structures within secured perimeter ▶ Marine Programs and Naval Science modular structures are located outside MARSEC-secured perimeter of Marine Yard ▶ Cadets use area within secured perimeter to train with forklifts and ships' cranes to practice loading cargo and other provisioning activities	▶ Organized to operate in a typical training and education manner
Vessel	▶ 500-foot training vessel (the TSGB) ▶ 151 feet tall with operating draft of 30.5 feet ▶ Accommodations for 295 crew and students	▶ 525-foot multi-mission vessel (the NSMV) ▶ Design draft of 21 feet 4 inches ▶ Accommodations for 600 cadets ▶ TSGB would be temporarily relocated and operated while the main pier is under construction during Phase One
Utility Systems	▶ Existing wastewater pump station is adequately sized in current conditions; however, it is close to capacity ▶ No known issues with existing water conveyance system condition; no major maintenance or repair requirements are anticipated ▶ Stormwater treatment facilities currently do not exist for waterfront area	▶ Upgrades to VFWD pump station ▶ Replacing line from pier to lift station (approximately 1,400 linear feet may be required) ▶ Improvements to water conveyance system to meet fire flow and pressure requirements, as well as remediation of unusually shallow pipes in some areas, including replacement of lines that are too small and/or too shallow and connecting dead-end lines ▶ Potable water line expansion out to main pier ▶ Improvements to existing stormwater drainage channel along Maritime Academy Drive, including upsizing a culvert and potentially widening some portions of channel, and reducing peak flow upstream detention ▶ Installation of stormwater treatment facilities ▶ Upgrades to shore power transformer, switch gear, and cable management system

Land Use	Existing Conditions	Proposed Project
		▸ Upgrades to telecommunication lines ▸ Upgrades to fire detection systems, energy management, heating/ventilation/air-conditioning, chilled water, boilers, and steam piping ▸ Demolition and removal of steam plant ▸ Rerouting, and potential expansion of existing dock boiler, gas supply, and metering ▸ Sitewide lighting upgrades
Temporary Berth Accommodations	▸ Suisun Bay Reserve Fleet ▸ City of Vallejo Marina	▸ Suisun Bay Reserve Fleet (TSGB, tugboat, and small passenger boat (or T-boat)) ▸ Cadets would continue to receive instruction aboard TSGB while temporarily moored at Suisun Bay during the day, with nighttime activities limited to night watches (four cadets per watch performing 3-hour shifts for a 12-hour total nighttime duration) ▸ Cal Maritime would operate shuttle between main campus and temporary berth at Suisun Bay and City of Vallejo Marina to transport cadets, faculty, and staff as needed ▸ Cadets will continue to receive small vessel training at City of Vallejo Marina
Phase Two		
Boathouse	▸ Approximately 9,990 square feet ▸ Overwater portion supported by approximately 10 piles ▸ One large open assembly area, sail loft, seven offices, two unisex restrooms, utility and equipment rooms, break room, wood and metal workshops, and storage spaces ▸ Partially enclosed boat basin ▸ Three boat slips	▸ Seismic upgrades, including foundation improvements and installation of new structural piles ▸ Interior upgrades reverting the primary entrance (or headhouse) back to original use as sail loft, ADA-compliant improvements and restroom, electrical, and plumbing system upgrades
Boat Basin 2	▸ Not present in existing conditions ▸ Currently open water in Morrow Cove	▸ Expansion of existing boat basin by creating new 18,000-square-foot pier with breakwater extending 450 feet offshore ▸ Installation of 10,800 square feet of floating berthing area with 26 slips/berthing positions ▸ Installation of approximately 270 new piles ▸ 30,000 cubic yards of dredging with expanded boat basin
Marine Yard	▸ Marine Yard area located outside MARSEC-secured perimeter ▸ Cadets use area to train with forklifts and practice loading cargo and other provisioning activities	▸ Envisioned to be pedestrian-oriented plaza ▸ Would serve functional activities related to the new NSMV and contain staging, storage, and truck access ▸ Landscape improvements ▸ Demolition and removal of existing Marine Program and Naval Science modulars
Shoreline	▸ Maintained by Cal Maritime as open space and allows public access ▸ Armored with riprap and approximately 533 stone columns for seismic integrity site densification	▸ Upland zone improvements, including primary pedestrian path; plantings; and upland portion of a public pier, lookout, and waterfront plaza

Land Use	Existing Conditions	Proposed Project
	▸ Picnic, fishing, and other park/recreation facilities available along the shoreline ▸ A portion of the Bay Trail also runs along an asphalt path paralleling the shoreline terminating near the dining hall on west side of campus	
Phase Three		
Marine Programs Multi-Use Building	▸ Located in Marine Yard, outside the MARSEC-secured perimeter ▸ Marine Programs modular is approximately 2,575 square feet ▸ Naval Science modular is approximately 2,279 square feet	▸ Construction of new multi-story Marine Programs Multi-Use Building set back into hillside ▸ Gross building area would be approximately 20,300 square feet ▸ Lookout and harbor control tower also proposed in this area and would be between 50 and 60 feet in height
Marine Hydrokinetic Barge	▸ Not present in existing conditions ▸ Currently open water east of TSGB	▸ Installation of power barge anchored close to shore and upstream of main pier and NSMV ▸ Would provide renewable energy source to campus of up to 10 megawatts
Row House	▸ Not present in existing conditions ▸ Currently open water in Morrow Cove	▸ New two-story, mixed-use, portal framed structure ▸ Gross area is proposed to be approximately 10,750 square feet (6,150 square feet at first floor and 4,600 square feet at second-floor mezzanine) ▸ Structure is proposed on-water, to be placed over floating dock system composed of high-density polyethylene cubes
Central Waterfront Esplanade and Canopy	▸ Not present in existing conditions ▸ Involves area at terminus of major campus axis connecting main quad and extending to new pier with breakwater developed during Phase Two	▸ Construction of new iconic canopy structure, feature paving, fire pits, educational signage, and interactive furnishing elements ▸ Canopy area would be approximately 3,780 square feet with a height of 14 feet ▸ Construction of large, stepped seating area on western edge providing access to water's edge at different tidal levels ▸ Exterior light fixtures, integrated atmospheric misting, outdoor ceiling fans, built-in furniture, gas barbecue equipment or fire pits could also be developed
Shoreline	▸ Same area as Phase Two	▸ Mass grading and implementation of the transition zone, intertidal zone, and living reefs ▸ Transition zone improvements: landscaping improvements, construction of secondary pedestrian path ▸ Intertidal zone improvements: creation of habitat for specific species and sea level rise resilience ▸ Living reef improvements: create native habitat for oysters, eels, and mussels ▸ Completion of overwater portions of public pier and lookouts constructed during Phase Two

Notes: ADA = Americans with Disabilities Act; MARSEC = Maritime Security; NSMV = National Security Multi-Mission Vessel; TSGB = Training Ship Golden Bear; VFWD = Vallejo Flood and Wastewater District.

Source: Moffatt & Nichol 2022; adapted by Ascent Environmental in 2022.

2.5.1 Phase One Components

Phase One of the proposed project focuses on upgrades to in-water infrastructure and the Marine Yard, as well as expansion of site-serving utilities. Each of the components is discussed in more detail below and is essential to meeting Cal Maritime's readiness for NSMV arrival. Overall, Phase One would disturb less than 2,500 square feet of impermeable surface area. As shown in Figure 2-14, Phase One components would include:

- NSMV arrival and operation;
- main pier demolition and replacement;
- existing trestle structural upgrades and extension (or possible replacement);
- temporary relocation and operation of the TSGB and small vessel programs;
- upgrades of all pier utilities connections and delivery lines for power, sewer, stormwater, gas, fire suppression, and potable water;
- maintenance dredging of the existing boat basin and new dredging in the expanded boat basin;
- installation of navigation aids;
- replacement of floating docks at the boat basin;
- upgrades to the Marine Yard, which would be limited to those needed to support the new pier and extended trestle (or possibly replacement trestle);
- utilities relocation and/or upgrades, including upgraded electrical equipment and gas supply and metering; potable water line expansion; sanitary sewer expansion; shore power, fire suppression, and lighting upgrades and possible removal of the steam plant.
- temporary TSGB berth accommodations at Suisun Bay Reserve Fleet through at least fall 2026. After the arrival of the NSMV the TSGB will be transferred permanently to MARAD.

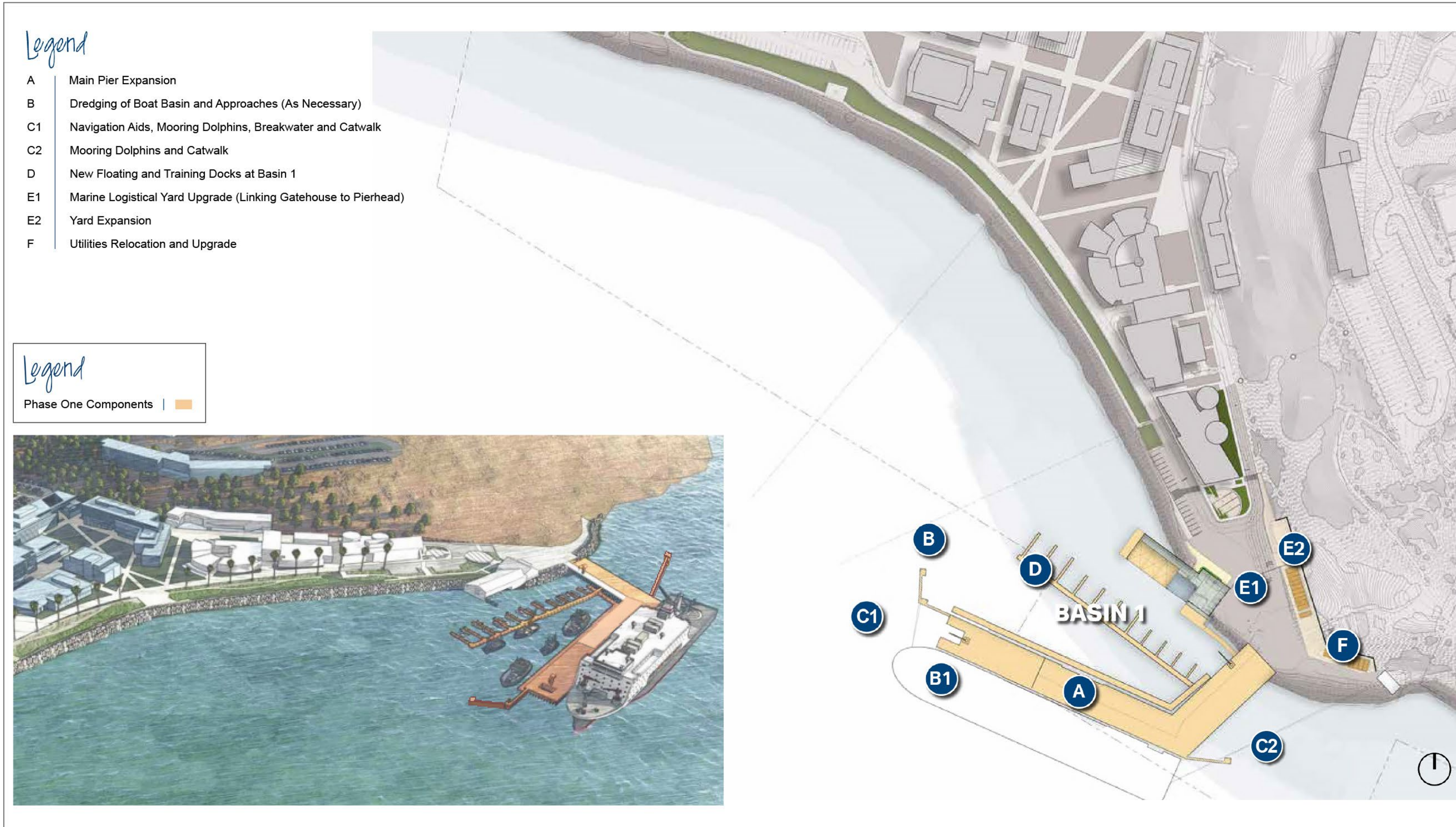
NSMV ARRIVAL AND OPERATION

The NSMV would be designed to provide a state-of-the-art training platform that ensures that the United States continues to set the world standard in maritime training. Figure 2-15 shows an example rendering of the NSMV. The ship would be outfitted with numerous training spaces, including eight classrooms, a full training bridge, lab spaces, and an auditorium. The NSMV would have space to train up to 600 cadets at sea.

In addition to being an educational platform at Cal Maritime, the NSMV would be a highly functional national asset designed to fulfill numerous roles outside of maritime training. In addition to its functions on campus, the NSMV could effectively support federal response to national disasters, such as hurricanes and humanitarian emergencies. However, and as mentioned above, when in port at Cal Maritime the NSMV would function for maritime training and education of cadets and cadets would not be involved in any emergency response missions undertaken by the federal government for which the NSMV could be requisitioned. Figure 2-16 shows a comparison of the sizes of the NSMV and the TSGB.

MAIN PIER, FLOATING DOCKS, AND BOAT BASIN

Replacement of the main pier would involve demolition of the existing pier and construction of a new pier approximately 450 feet long and 50 feet wide (an increase of approximately 230 feet in length and 20 feet in width). The existing trestle would be extended to a new length of 220 feet (an increase of approximately 50 feet in length).



Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.

Figure 2-14 Waterfront Master Plan: Phase One Components

Source: Maritime Administration 2022.

Figure 2-15 Representative Image of NSMV One

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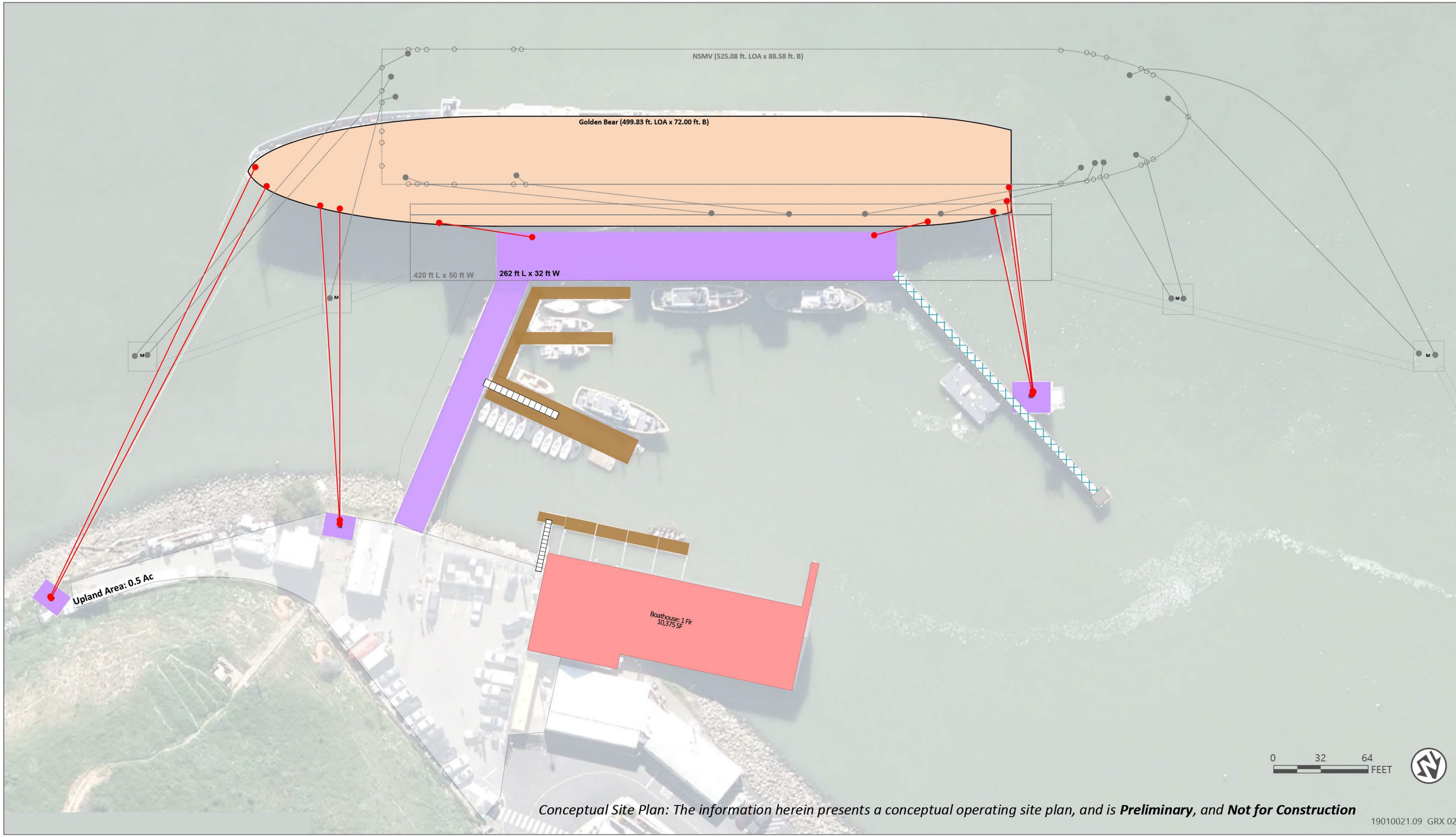

Source: Image provided by WSP in 2023; adapted by Ascent Environmental in 2023.

Figure 2-16 NSMV vs TSGB comparison

Once construction activities of the pier are underway, it is possible the existing trestle may need to be fully replaced. Demolition of the existing trestle would include the removal of 21 piles and the installation of 33 steel piles and concrete deck. The new trestle would be approximately 4,700 square feet. A series of floating docks and berthing areas for Cal Maritime's fleet of work boats, tugboats, small passenger boats, and other vessels currently located off-site and/or planned for future acquisition would also be replaced. An estimated 135 piles make up the current pier trestle, catwalk, mooring dolphin, floating docks, and batter piles. All existing piles would be removed, and an estimated 268 piles would be required for construction of the new pier, trestle extension, catwalks, mooring dolphins, and floating docks. The fender piles to be removed are assumed to be creosote-treated timber and would be transported to an appropriate disposal location by barge or trucks. In addition, the breakwater sheet piles and the pier sheet piles serving as a wave screen would be completely removed and replaced.

Although dredging is not anticipated to be required for the NSMV at the future berth pocket, this would be confirmed prior to construction. Dredging would occur with the expansion of the boat basin; approximately 40,000 cubic yards of material would be excavated during Phase One. Similar to existing maintenance dredging, a portion of dredged material could require disposal at an approved hazardous waste disposal facility should dredging be required under and around the boathouse where contaminated sediments have been identified to occur. Consistent with prior maintenance dredging activities, Cal Maritime would obtain all required dredging permits, prepare a sediment sampling and analysis plan before dredging activities begin to determine the limits of contaminated sediments, and prepare a post-dredge survey confirming the volume and location of material removed and disposition of contaminated sediments. Dredging activities would be conducted using only clamshell or other similar mechanical methods. Suction dredging would not be used as part of project activities.

The existing floating docks, measuring approximately 4,500 square feet, would remain and would be expanded with new floating docks to accommodate training and recreational vessels. The expanded floating docks would cover approximately 9,500 square feet and offer approximately 23 slips/berthing positions. The new floating docks would be concrete and require the installation of approximately 50 guide piles measuring 18 inches in diameter. Two aluminum gangways, measuring approximately 60 feet long by 5 feet wide, would be constructed and would ascend from the floating docks to the pier and to the marine yard.

Existing support piles would be removed by vibrating them out with a vibratory hammer or cutting them below the mudline. Installation of new steel piles would be conducted using both vibratory and impact hammer methods. To the maximum extent feasible, pile driving would be conducted with a vibratory hammer. The limiting factors to driving with a vibratory hammer are seating depth, sediment type, 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 sand lenses and bedrock, especially when driving large diameter steel pipe piles, may limit the use of a vibratory hammer as it may not have sufficient energy to install the pile fully. In these instances, rock anchors or rock socketed piles would be needed for piles which may encounter bedrock.

Rock anchors are typically constructed by drilling small diameter holes within the pile casing, through soil and/or weak rock to competent rock using small/lightweight auger and/or downhole drill rigs. Depending on the design requirements, rock anchor drill holes will vary in diameter. Rock socketed piles are piles which would be located within the bedrock material. Rock socketed piles are constructed using larger diameter auger and/or rock core barrel drill rigs. Depending on the type of soil and/or weak rock and groundwater conditions, a temporary liner may be placed inside the pile casing and used to support the upper soils and/or weak rock. While separated from surrounding waters by the pile casing, following drilling for both rock anchors and rock socketed piles, drill holes are tremie-filled with structural strength grout or concrete through the pile casing and the reinforced steel anchors or piles are installed. With the grout or concrete being contained in the bedrock or within the pile itself, it would not come into contact with the water column. Geotechnical drilling of this nature produces non-impulsive sounds.

MARINE YARD

Phase One elements include improvements to upland operational areas and site infrastructure, including the Marine Yard and utilities. The electrical service would need to be upgraded for the NSMV because it has a greater electrical need than the TSGB. This work would include construction of a new substation adjacent to the existing substation, along with improvements to associated electrical equipment as well as installation of new switchgear, transformers, and panels with an increase in the size of the concrete pad to accommodate the new substation and equipment. Upgrades to the electrical system that supports the pier, the ship, and the boathouse may require accessing the point of connections of electrical lines using trenching and excavation. The extent of this work is yet to be determined by PG&E; however, excavation and trenching would be within the limits of the 2,500 square feet of impermeable surface disturbance area proposed for Phase One and analyzed throughout Chapter 3, "Environmental Impacts and Mitigation Measures," of this EIR. Should replacement of PG&E overhead distribution lines be required to accommodate the additional energy demand, this would be completed by PG&E and would not require any additional ground disturbance (Motschall, pers. comm., 2024). The stormwater and sewer services, which are managed by VFWD, may also require upgrades. Upgrades to the sanitary sewer system may require trenching and excavation of the existing systems to access the service lines and points of connection. In the case of the sanitary lift station, the old pumps may need to be replaced. These elements are discussed in more detail below under "Utility Upgrades."

As described above, the Marine Yard is subject to Cal Maritime and port security requirements and MARSEC levels identified by the US Coast Guard. This zone and accessible areas (main pier and boat basin areas) are secured by fencing and a guardhouse structure. With implementation of the Waterfront Master Plan, the Marine Yard would be resurfaced to 21,680 square feet (just under 0.5 acre). Utilities and storage areas would shift to zones created as part of future phases of the master plan and along the perimeter of those areas. The purpose of this shift is to create the largest operational zone possible for academic program functions and the overall logistical needs of the main pier and area overall. The Marine Yard would also be able to accommodate marine research containers, provisions staging, cranes, and outdoor shop(s) operation with cadets, faculty, and tradespeople. During NSMV emergency deployments, the NSMV would be outfitted for deployment at a government facility and not at Cal Maritime. The Cal Maritime campus and Marine Yard are not equipped to allow greater levels of container and palletized materials to be organized, staged, and made available to the ship. Vehicle maneuvering areas are planned to accommodate vehicle turning movements of up to 50 feet. Emergency operations and provisioning functions within the yard can also be simulated as part of cadet training.

To accommodate projected sea level rise in the project area, the new pier and improved/replaced trestle would be elevated above existing elevations. The most commonly relied-upon sea level rise projection predicts sea level to increase by 2.6 feet by 2060, as outlined in the State of California Sea Level Rise Guidance published in 2018. The sea level rise predictions are shown relative to a worst-case scenario: FEMA 100-year flood elevation of 12 feet plus 2.6 feet of sea level rise and the annual predicted king tide plus 2060 sea level rise of 2.6 feet. The pier would be designed such that in the worst-case scenario of a 100-year flood plus 2060 sea level rise and king tide plus 2060 sea level rise conditions, water levels would be at or below the new pier's elevation.

As an added security measure, the utilities currently underneath the pier also would be elevated. During future project phases, the design of shoreline improvements would incorporate design criteria to ensure that these areas are able to serve the function as the campus's first line of defense against sea level rise.

UTILITY UPGRADES

Utility upgrades would be necessary to meet the requirements of in-water enhancements associated with the main pier and NSMV, as well as future phases of development, including new buildings along the water's edge. Utility upgrades would be necessary for shore power and water systems to support the NSMV, which would require considerably more power than the TSGB. Buildings proposed as part of future phases would also require electrical, potable water, wastewater, communications, and other features. It should be noted that the NSMV is under construction and that the direct impacts on utilities associated with home port operations are not fully known at this time. Additional detailed investigations will be necessary to properly size and account for utility elements supporting NSMV operations.

The following utility upgrades are anticipated under the proposed project:

- expansion and upgrades to the existing electrical substation equipment; switchgear, transformer, and electrical panels;
- related site demolition, minor earthwork, and smaller-scale utility upgrades as required to support the NSMV operations;
- potable water line expansion out to the main pier, along with associated expansion of existing fire hydrant and back-check valves required to support NSMV operations;
- sanitary sewer expansion out to the main pier, required to support the NSMV operations;
- upgrades to the shore power transformer, switch gear, and cable management system required to support the NSMV operations; and
- sitewide lighting upgrades.

Wastewater

Discharge from the NSMV to the VFWD pump station may require upgrades, which could include replacing/upsizing pumps and/or increasing the wet well size. Despite the increased size of the NSMV, including the ability to accommodate a greater number of cadets and crew (295 for the TSGB versus 760 for the NSMV), there would be no increased demand on the existing Cal Maritime sanitary sewer system. However, pump station and discharge lines at or near the main pier may need to be upgraded. The extent of the work may include installing new pumps at the lift station. Replacing the line from the pier to the lift station (approximately 1,400 linear feet of trenching and new piping) may be required in later phases of the project.

Water Supply

As described in Section 2.4.5 above, although there are no significant issues with the existing water service infrastructure, improvements may be needed on the pier to ensure that adequate fire flow and pressure are available to meet fire code requirements. Phase One improvements would include a pump station, replacement of lines that may be too small or too shallow, and connecting dead-end lines that are currently capped and no longer in use. Relocation and reconnection of these facilities may require excavating and trenching to access points of connection to the expanded pier.

The increased size of the NSMV, including its capacity to accommodate a greater number of cadets and crew, would come with additional potable water demand. Potable water connections to the vessel would need to be sized to fill NSMV water storage tanks to meet daily consumption rates, as well as for needed readiness for deployment at sea. The NSMV has 1,375 tons of potable water storage, or about 14 days for 700 persons. Using reverse osmosis, the ship can generate approximately 130 tons of water per day when at sea, sufficient for 1,000 persons on board. Since the NSMV would be able to accommodate more students, and thus more maritime training and educational activities would be shifted from campus classrooms to the NSMV, water required to fill NSMV water storage tanks would come from water supply no longer needed on campus because current landside training and instruction would instead take place on the ship. Thus, there would be no net increase in the volume of water demand generated on campus.

Stormwater

The existing stormwater drainage channel along Maritime Academy Drive, which accepts runoff from I-80 (including runoff from the hillsides above and below I-80), much of the campus, the Carquinez Heights neighborhood to the west, and undeveloped hillsides to the northwest, has flooded during past storm events. Phase One improvements would not increase the extent of landside impervious areas; therefore, a landside increase in discharge to the channel is not expected. The proposed Phase Two and Phase Three components would address the potential for flooding with a combination of improvements to increase channel capacity, such as upsizing an existing culvert, potentially widening portions of the channel, and reducing peak flow with upstream detentions. The increased size of the pier would expand the extent of the overwater impervious area. This would be addressed with on-pier stormwater filtration systems. The on-pier overwater stormwater filtration systems will be sized according to the square footage of the overwater impervious area. There are no existing stormwater treatment facilities for the waterfront. Improvements anticipated under the Waterfront Master Plan during Phase Two and Phase Three would require stormwater treatment that complies with existing San Francisco Regional Water Quality Control Board standards.

Energy

The existing electrical system on campus does not appear to have adequate capacity to serve the proposed project; however, this would need to be confirmed based on final load calculations and coordination with PG&E. Shore power systems are present for the TSGB and would need to be upgraded to meet requirements of the NSMV. Initial estimates of power-connected demand for the NSMV are approximately 4,828 kVA. To meet this projected demand, construction of a new substation adjacent to the existing substation would be required, along with improvements to associated electrical equipment; switchgear, transformer, and panels, which may require excavating and trenching to access points of connection to the upgraded pier. As mentioned above, the extent of this work is yet to be determined by PG&E; however, excavation and trenching would be within the limits of the 2,500 square feet of impermeable surface disturbance area proposed for Phase One. Should replacement of PG&E overhead distribution lines be required to accommodate the additional energy demand, this would be completed by PG&E and would not require any additional ground disturbance (Motschall, pers. comm., 2024).

Other Utility Improvements

In addition to the main site utility infrastructure systems, several other important systems would require upgrades. These would include fire detection systems (e.g., alarms, monitoring) and energy management. Dedicated telecommunication lines serving the TSGB would also need to be upgraded to meet the requirements of the NSMV, as well as port security requirements. Steam piping and related plant systems presently support the heating needs of the TSGB when it is docked at the pier. To serve the NSMV, the existing boiler may need new steam piping, and some trenching may be required if the steam plant is to remain. If the steam plant is not required to support the NSMV while it is docked at the pier, it may be removed from the campus. The steam plant is approximately 320 sf in size and the foundation and overhead structure and machinery within would be demolished and removed.

TEMPORARY BERTH ACCOMMODATIONS

While demolition and the construction of in-water and landside project improvements in anticipation of the NSMV's arrival are underway, potentially starting in 2025 and concluding in 2026 with the arrival of the NSMV, the TSGB along with one tugboat and one small passenger boat (or T-boat) would be temporarily relocated to the Suisun Bay Reserve Fleet (SBRF), which is a federal facility of the U.S. Department of Transportation Maritime Administration (MARAD). This location would support Cal Maritime programs and avoid any disruption in hands-on training and other shipboard programs. Cadets would continue to receive instruction aboard the TSGB while temporarily moored at SBRF during the day, with nighttime activities limited to night watches (eight cadets per watch performing 4-hour shifts for a 12-hour total nighttime duration between 4:00 p.m. and 8:00 a.m.). Cal Maritime would operate a shuttle between the main campus and temporary mooring at SBRF to transport cadets, faculty, and staff as required. Between the hours of 8:00 a.m. and 4:00 p.m., approximately 35 to 45 cadets and 10 to 1 faculty/staff would be shuttled to the temporary berth location. The temporary mooring would be served by existing power, water supply, and sanitary sewer utilities. No landside facility or infrastructure improvements would be needed to accommodate the TSGB at the temporary berth.

The small vessels programs would be temporarily relocated to City of Vallejo Marina. Cal Maritime would operate a shuttle between the main campus and the City of Vallejo Marina to transport cadets, faculty and staff as required. Between the hours of 8:00 am and 4:00 pm approximately 20 to 30 cadets and 2 to 4 faculty/staff would be shuttled to this temporary location.

2.5.2 Phase Two Components

Phase Two of the proposed project would focus on project objectives to rehabilitate the boathouse, expand, and optimize the boat basin, redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. Phase Two of the proposed project involves activities that are not critical to support the arrival of the NSMV but that are important for Cal Maritime's educational mission and expansion of cadet instruction. Phase Two components would include expansion of the existing boat basin to create Boat Basin 2, renovation of the boathouse, and other shoreline improvements. As shown in Figure 2-17, Phase Two components would include:

- seismic retrofit and renovation of the boathouse,
- new pier with breakwater and creation of Boat Basin 2,
- new floating and training docks at Boat Basin 2, and
- shoreline enhancements between the boathouse and new pier.

Phase Two of the proposed project generally is analyzed at a more conceptual level in this EIR because project-level details are not yet finalized.

BOATHOUSE RENOVATION

Renovation of the boathouse would involve restoration and rehabilitation of the building to address needed seismic upgrades and tectonic modifications of the existing structure, as well as sediment removal. The primary entrance (or headhouse) would be reverted to its originally intended use as a sail loft. Interior upgrades would involve a new barrier-free ADA-compliant lift servicing the split ground-floor level. Restroom, mechanical, electrical, and plumbing systems would also be improved.

Although limited redesign and reconfiguration of the lower-level woodworking and vessel service/demonstration areas are proposed, overall, most of the spaces would be protected and preserved to maintain their historic value. Existing openings would not be altered or enlarged, but doors and windows may be replaced in-kind or, where materials are non-historic, with historically appropriate alternatives. Some timber piles may require replacement; however, the exact number is unknown at this time. It is anticipated that the size and types of piles would be like those described above for Phase One. Any additional structures constructed adjacent to the boathouse would be designed to be freestanding and would not touch the historic materials of the boathouse.

Figure 2-19 shows a conceptual design of the proposed ground-floor renovations for the boathouse.

BOAT BASIN 2

Creation of a second boat basin, or Boat Basin 2, would involve expansion of the existing approximately 80,000-square-foot boat basin through development of a new pier with breakwater and installation of approximately 26 slips and berthing areas for Cal Maritime's fleet of work boats, tugboats, small passenger boats, and other vessels currently located off-site and/or planned for future acquisition. The pier with breakwater would be approximately 18,000 square feet and would likely be a pile-supported pier with wave baffles (sheet piles) spanning between piles, extending approximately 450 feet offshore (the current breakwater extends approximately 300 feet offshore); it would provide wind and wave protection for the safe use of small craft and protection of docked larger craft. A total of 10,800 square feet of additional floating slips/berthing area (approximately 26 slips/berthing positions) would be provided in Boat Basin 2. Creation of Boat Basin 2 is needed to optimize movement and storage of Cal Maritime's fleet of vessels, as well as for training and on-water instruction for cadets. Boat Basin 2 would encompass approximately 200,000 square feet of area, or 4.6 acres. Figure 2-17 shows the location and facilities proposed for Boat Basin 2.

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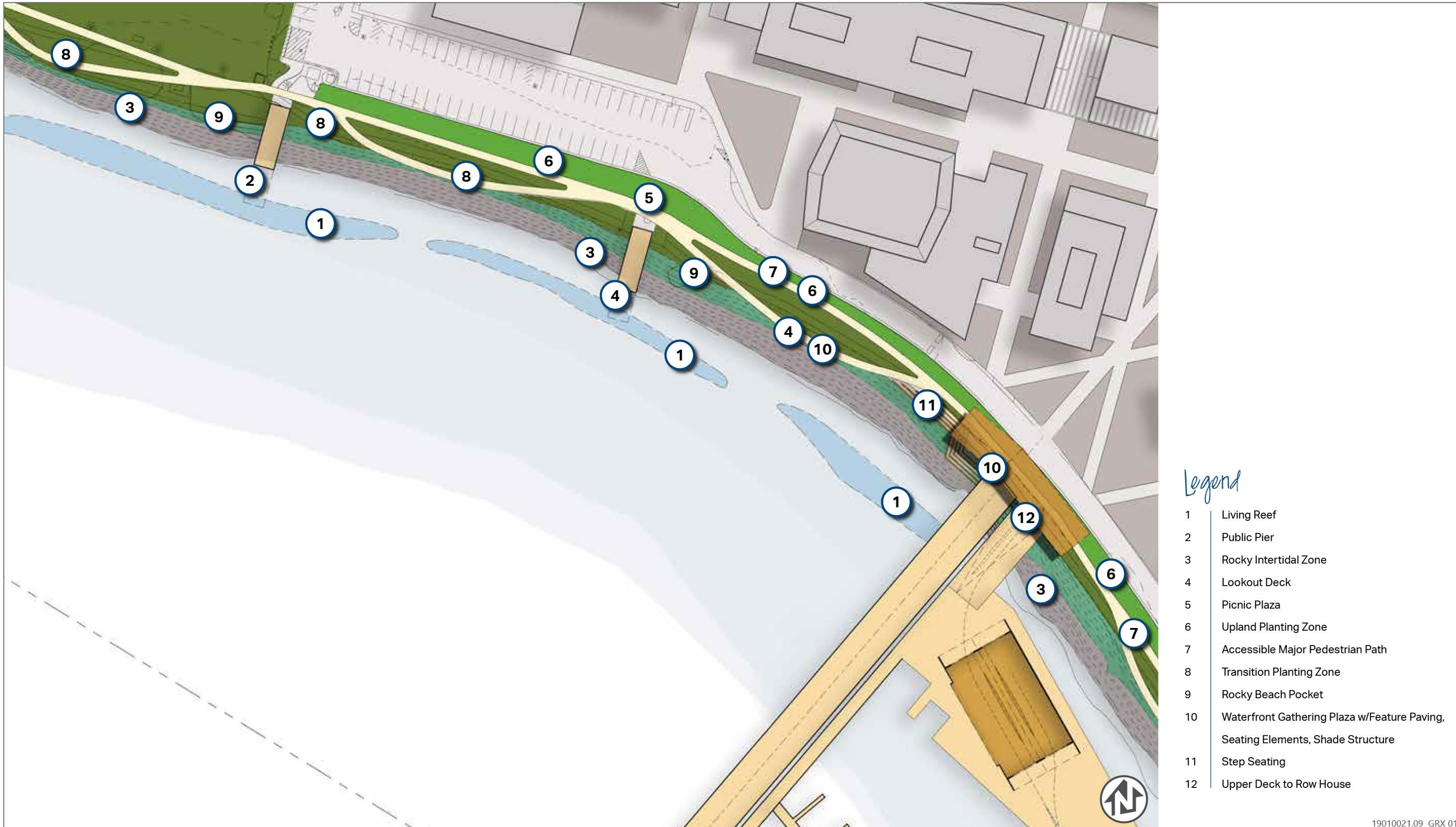
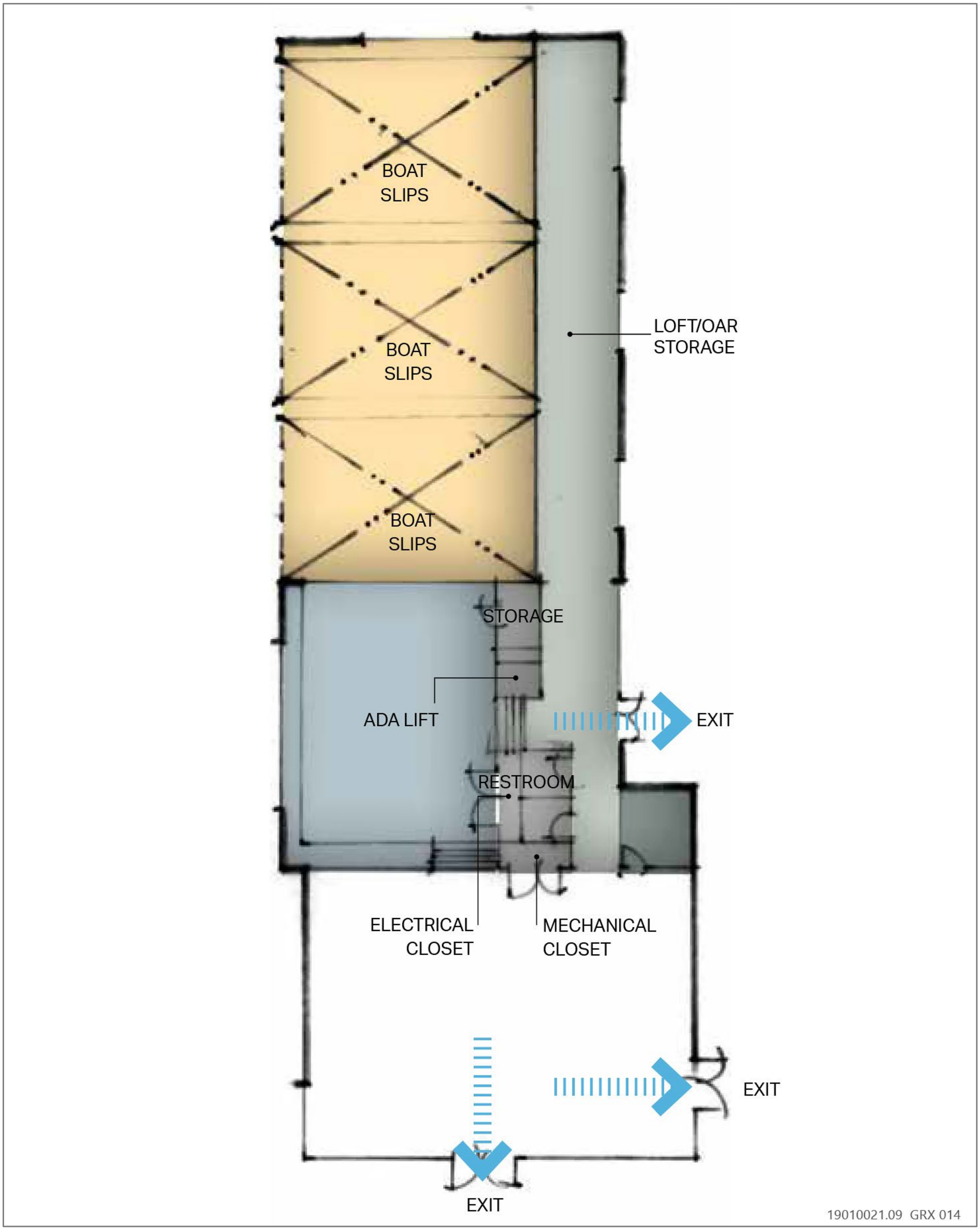
Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.

Figure 2-17 Waterfront Master Plan: Phase Two Components



Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.

Figure 2-18 Shoreline Mitigation and Improvements Enlargement Area



Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.
Note: For conceptual purposes only and does not represent final design of the project

Figure 2-19 Proposed Boathouse Renovation – Ground Floor

Approximately 30,000 cubic yards of dredge material is anticipated to be excavated as part of this phase, a portion of which would require disposal at an approved hazardous waste disposal facility because sediments dredged from under and around the boathouse are contaminated. As with prior maintenance dredging activities, Cal Maritime would obtain all required dredging permits, prepare a sediment sampling and analysis plan before dredging activities begin to determine the limits of contaminated sediments, and prepare a post-dredge survey confirming the volume and location of material removed and disposition of contaminated sediments. Like Phase One, dredging activities would be conducted using only clamshell or other similar mechanical methods. Suction dredging would not be used as part of project activities.

MARINE YARD

As described in Section 2.4.3, a portion of the Marine Yard located outside the MARSEC-secured perimeter contains the Marine Programs and Naval Science Modular structures and a portion of the boathouse. Cadets use this area to train with forklifts and ships' cranes to practice loading and unloading of cargo and other provisioning activities. During Phase Two activities, the existing Marine Programs and Naval Science modular buildings would be demolished and removed.

This portion of the Marine Yard (outside the MARSEC-secured perimeter) is envisioned as a pedestrian-oriented plaza with a strong connection to the existing adjacent simulation center plaza (see Figure 2-4). This area of the Marine Yard would serve functional activities related to the NSMV and would contain staging, storage, and truck access. Landscape improvements along the shoreline would visually connect the Marine Yard to other parts of the waterfront and would allow access to the water from both Maritime Academy Drive and Morrow Cove Drive.

The hardscape and landscape elements for the Marine Yard would include circular paving patterns, a seat wall feature, and ornamental plantings. The design intent is to emphasize the visual corridor, maintain the vehicular/pedestrian connections, and create a focal point at the terminus of Morrow Cove Drive and Maritime Academy Drive. The design would establish a new pedestrian connection between the renovated boathouse and the new Marine Programs and Naval Science Replacement Building (envisioned in Phase Three); create ample space for vehicular circulation, including truck turning radii; provide flexible functional space for demonstration and outdoor learning purposes; and create continuous visual and circulation shoreline linkages. Figures 2-20 and 2-21 show an oblique, illustrative view and the proposed master plan, respectively, for the Phase Two Marine Yard improvements.

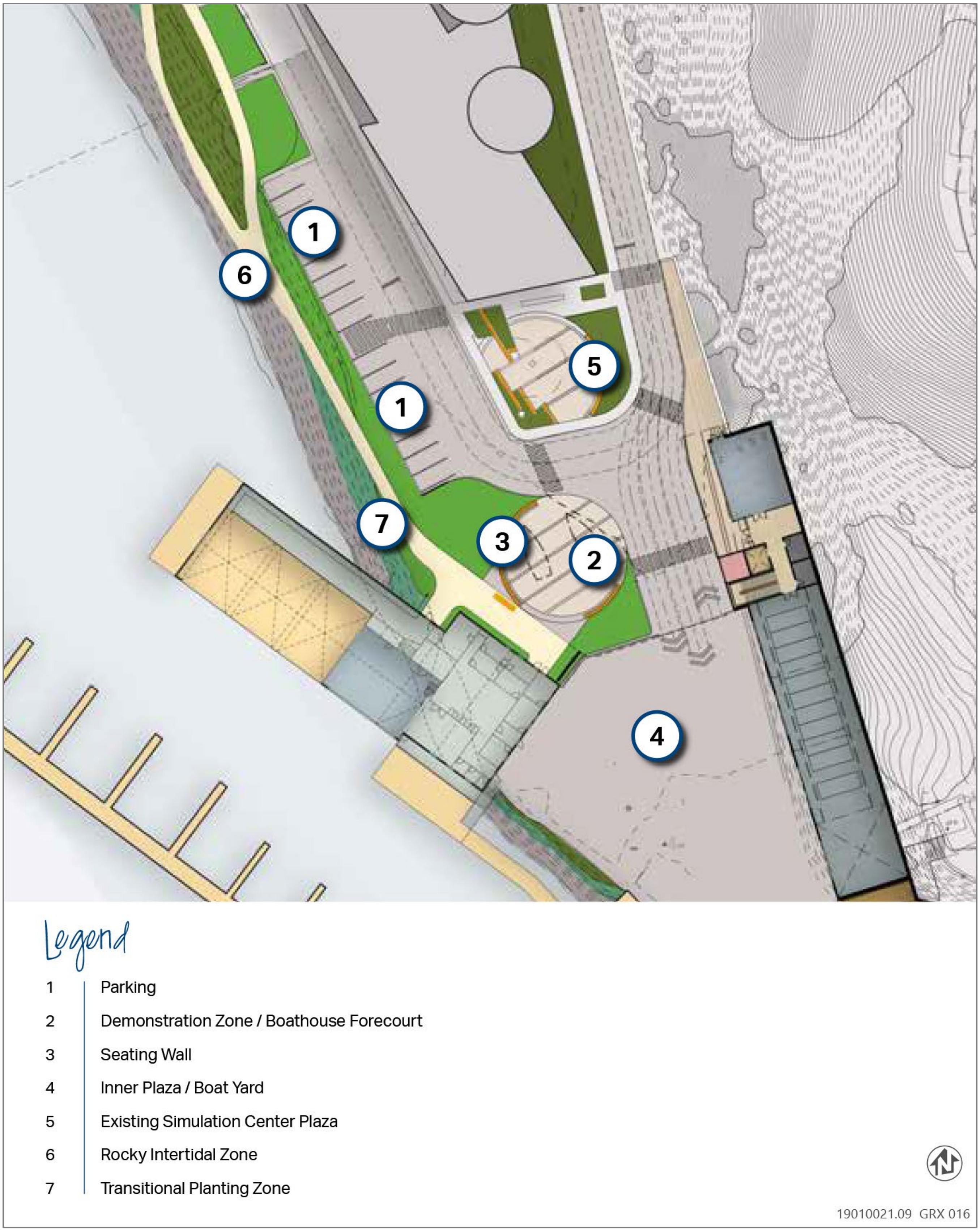
SHORELINE ENHANCEMENTS

Shoreline improvements are proposed as part of the Waterfront Master Plan to support and complement in-water activities and facilities (Figure 2-18). The detailed enhancement strategy would be coordinated with the appropriate environmental regulatory agencies and would include maximizing the ecological and recreational values of the existing underused riprap shoreline, which are currently lacking.

The shoreline improvements are planned to be staged, with the initial improvements occurring during Phase Two of the proposed project and later stages of improvements occurring during Phase Three. Phase Two would focus on establishing the key elements for the upland zone, including the primary pedestrian path, plantings, and the upland portion of the public pier, lookout, and waterfront plaza. Specifically, a shoreline upland zone is proposed in Phase Two. This zone would provide a continuous and accessible east-west linkage for campus users, and ornamental vegetation would provide color and textural interest. Existing palm trees would be kept as a defining element for the waterfront. Resting nodes with seating elements are envisioned along the major pedestrian path. A waterfront plaza, public pier and lookout deck with a shade structure, fire pit, and other furnishings are also proposed in the shoreline upland zone, providing diverse opportunities for different scales of gathering and social events.

Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.
Note: For conceptual purposes only and does not represent final design of the project

Figure 2-20 Shoreline and Marine Yard Improvement Perspective



Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.

Figure 2-21 Shoreline and Marine Yard Improvements Master Plan

Stormwater

The existing stormwater drainage channel along Maritime Academy Drive, which accepts runoff from I-80 (including runoff from the hillsides above and below I-80), much of the campus, the Carquinez Heights neighborhood to the west, and undeveloped hillsides to the northwest, have flooded during past storm events. Phase Two and Three improvements would likely increase the extent of landside impervious areas; therefore, a landside increase in discharge to the drainage channel is expected. Improvements anticipated under the Waterfront Master Plan during Phase Two and Phase Three would require stormwater treatment that complies with existing San Francisco Regional Water Quality Control Board standards. The proposed Phase Two and Phase Three components would address the potential for flooding with a combination of improvements to increase channel capacity, such as upsizing an existing culvert, potentially widening portions of the channel, and reducing peak flow with upstream detentions. The addition of the Phase Two boat basin and pier would expand the extent of the overwater impervious area. This would be addressed with on-pier stormwater filtration systems. The on-pier overwater stormwater filtration systems would be sized according to the square footage of the overwater impervious area. There are no existing stormwater treatment facilities for the waterfront.

2.5.3 Phase Three Components

Phase Three of the proposed project would focus on objectives to redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. Phase Three of the project would add classrooms and outdoor learning spaces associated with the Marine Programs Multi-Use Building. A marine hydrokinetic (MHK) barge and linking trestle may also be implemented in Phase Three. This phase would also focus on improvement of the campus-coastline linkage and open spaces and a heightened level of resilience to climate- and storm-related stresses. As shown in Figure 2-22, Phase Three components would include:

- Marine Programs Multi-Use Building,
- harbor control tower,
- MHK barge and linking trestle,
- central waterfront esplanade canopy,
- row house and floating landing,
- shoreline enhancements between the row house and dining center,
- waterfront overlook/outdoor room one, and
- waterfront overlook/outdoor room two.

Like Phase Two, Phase Three of the proposed project generally is analyzed at a more conceptual level in this EIR because project-level details are not yet finalized.

MARINE PROGRAMS MULTI-USE BUILDING

The new Marine Programs Multi-Use Building would replace the obsolete trailers and Marine Programs and Naval Science Modulars adjacent to the boat basin and found throughout the Marine Yard with a single multi-story building set back into the hillside. The proposed gross building area would be approximately 20,300 square feet, of which 7,350 square feet of mixed-use, separated assembly and storage areas would be situated on the ground floor. An additional open-air exterior space would be dedicated to relocated utilities and flat-lay material storage. The lookout and harbor control tower proposed in this area would be incorporated into the building and set to a proposed height of between 50 and 60 feet. This element would directly overlook the controlled security checkpoint in the Marine Yard and access to port security areas and the main pier.

Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.

Figure 2-22 Waterfront Master Plan: Phase Three Components

The main-floor academic use would function primarily as an extension of the Marine Yard. At the north end of the building, a wet lab classroom is proposed and would have the strongest connection to campus, the outer yard, and the renovated boathouse building. The main entry lobby, security checkpoint, ADA-accessible unisex restrooms, elevator and egress stair elements, and other elements would be programmatically oriented adjacent to the outer yard, reinforcing wayfinding, security, and ingress/egress.

The balance of the ground floor would serve as a natural extension of the functions from the Marine Yard, hosting both short- and long-term storage, cadet training areas, container modules, equipment areas, and other elements. This zone would be approximately 20 feet high, serviced by a built-in gantry crane. Access to the storage area would be provided through four automated overhead service doors.

The first floor of the building would have academic and administrative uses. Administrative offices and a multi-functional conference room would be located at the north end of the building because it would have the strongest physical and visual connection to campus. At the south end of the second floor, an exterior terrace would create a strong connection to Morrow Cove, the boat basin, and the new NSMV. Figures 2-23 and 2-24 show an illustrative perspective and master plan, respectively, for the Marine Programs Multi-Use Building.

MARINE HYDROKINETIC BARGE

The MHK barge, which would be anchored close to shore and upstream of the main pier and NSMV, would provide a renewable energy source to campus of up to 10 megawatts. While the specific design and operations of the hydrokinetic barge is not known at this time, it is anticipated that this system could operate similarly to other aquatic based electric generation, via a turbine which is driven by the movement of water. As the turbine rotates from the natural movement of water, a generator could be powered to create electricity. The turbine could be turned via rotating surface paddles, or directly from wave and currents below the waterline. In both cases, the flow of water across the turbine blade or paddle, drives a generator which produces electricity. That electricity is then sent via a transmission line back to the shore and into the power grid.

ROW HOUSE

A floating row house is proposed to provide the campus with much-needed waterfront athletic facilities while serving a dual purpose as a public-facing welcome center and focal point of campus culture. The row house structure would complement the maritime culture connecting the campus's athletics department directly to Morrow Cove and the Carquinez Strait.

The proposed row house would consist of a new two-story mixed-use portal framed structure. The gross area is proposed to be approximately 10,750 square feet (6,150 square feet on the first floor and 4,600 square feet on the second-floor mezzanine). The main floor would be used for storage and maintenance of racing shells. The second-floor mezzanine would function as a rowing training facility. Double overhead service/access doors would be located at either end of the facility, accommodating circulation and connection from land to cove.

The structure is proposed to be a pre-engineered portal steel frame building. It is proposed on-water, to be placed over a floating dock system composed of high-density polyethylene cubes. These elements undulate with cyclical tidal conditions and the movement of waves in the boat basin. The exterior finishes would include vertically oriented, clear-grade, tongue-and-groove, stained wood rainscreen siding. Figure 2-25 shows the row house layout and illustrative views.

CENTRAL WATERFRONT ESPLANADE AND CANOPY

The central waterfront esplanade would be located at the terminus of the major campus axis. It would connect to the proposed main quad and extend into the new accessible breakwater. The design for the central waterfront esplanade envisions an iconic canopy structure featuring paving, fire pits, educational signage, and interactive furnishing elements.

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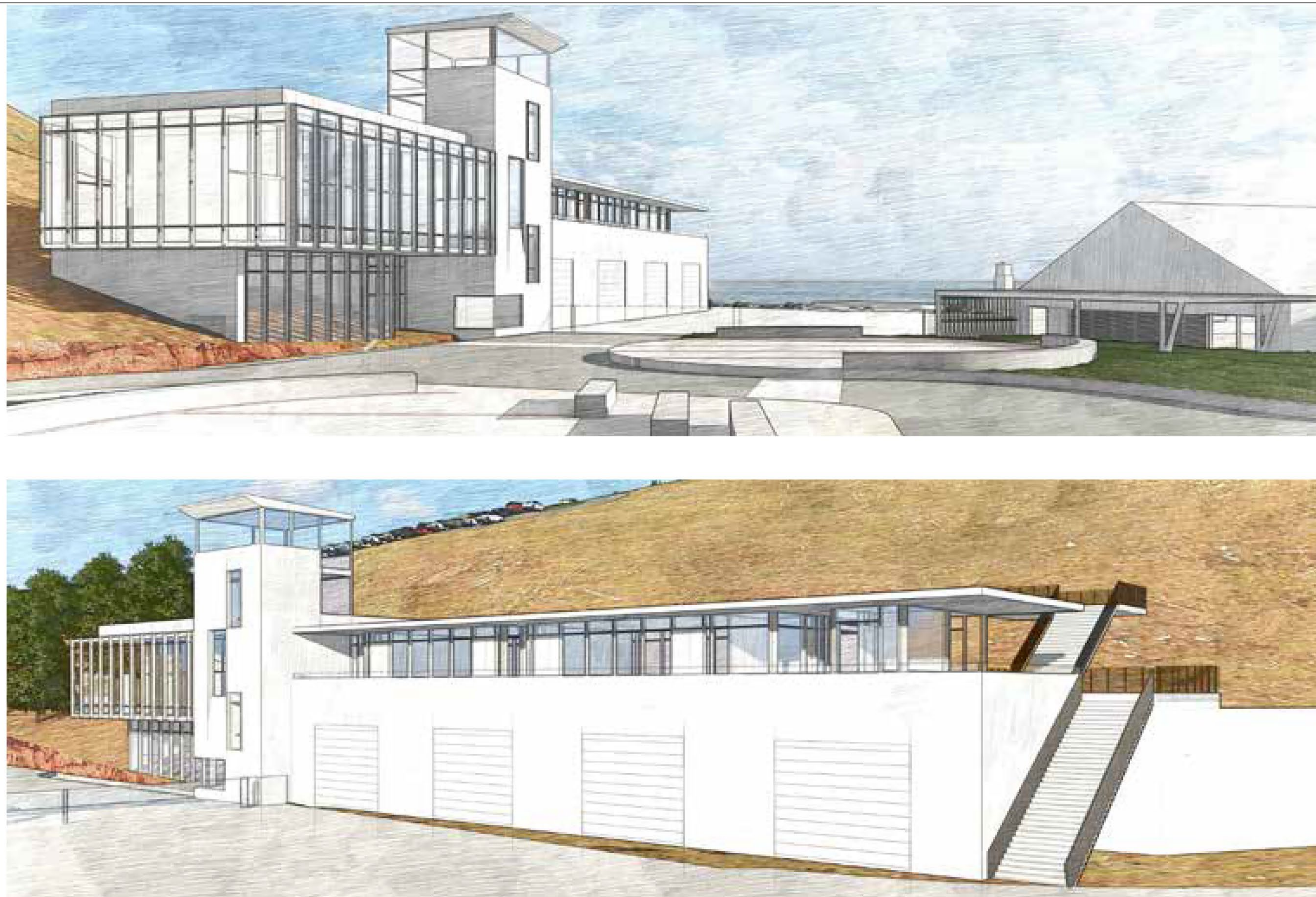
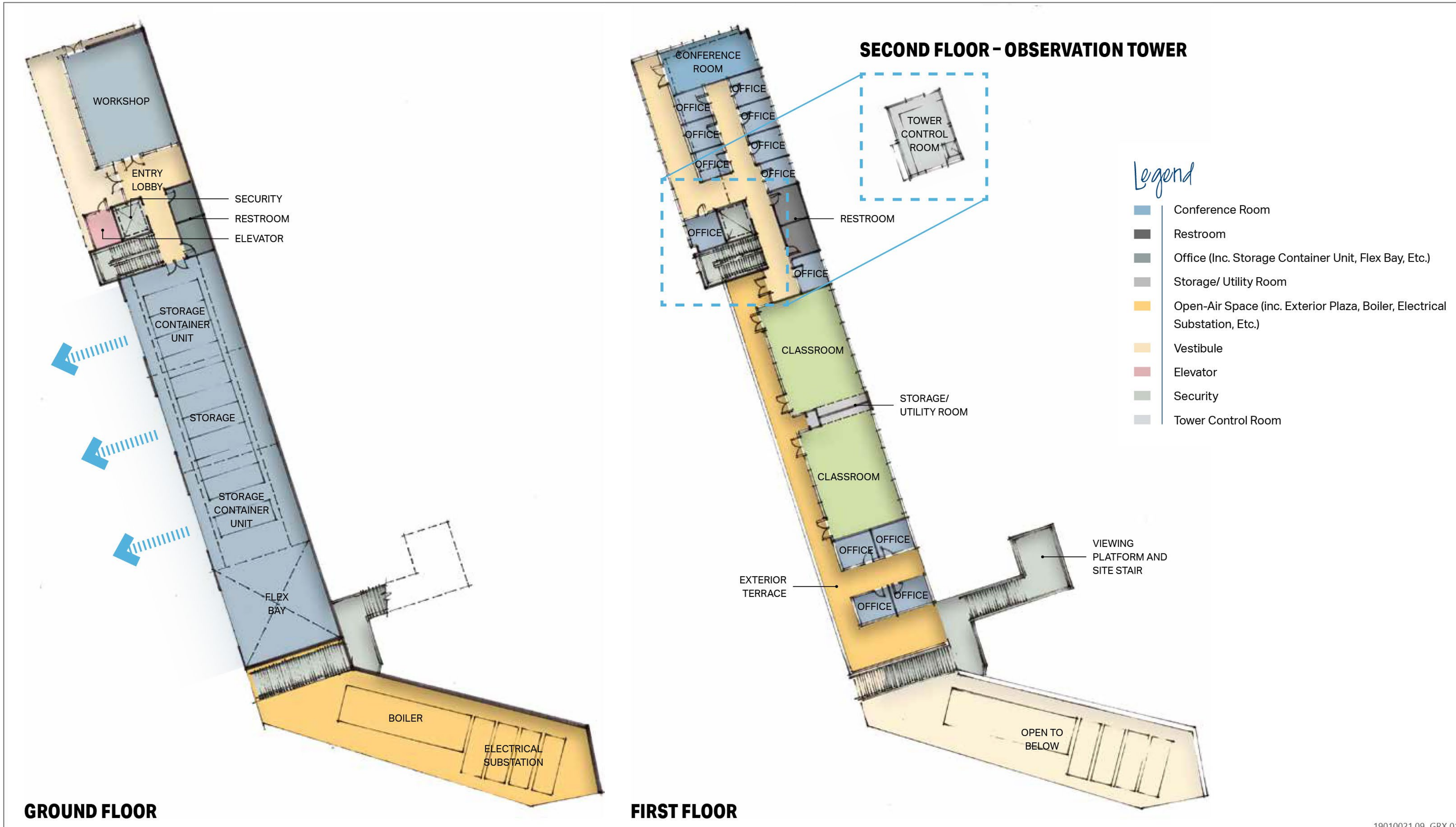


19010021.09 GRX 018

Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.
Note: For conceptual purposes only and does not represent final design of the project

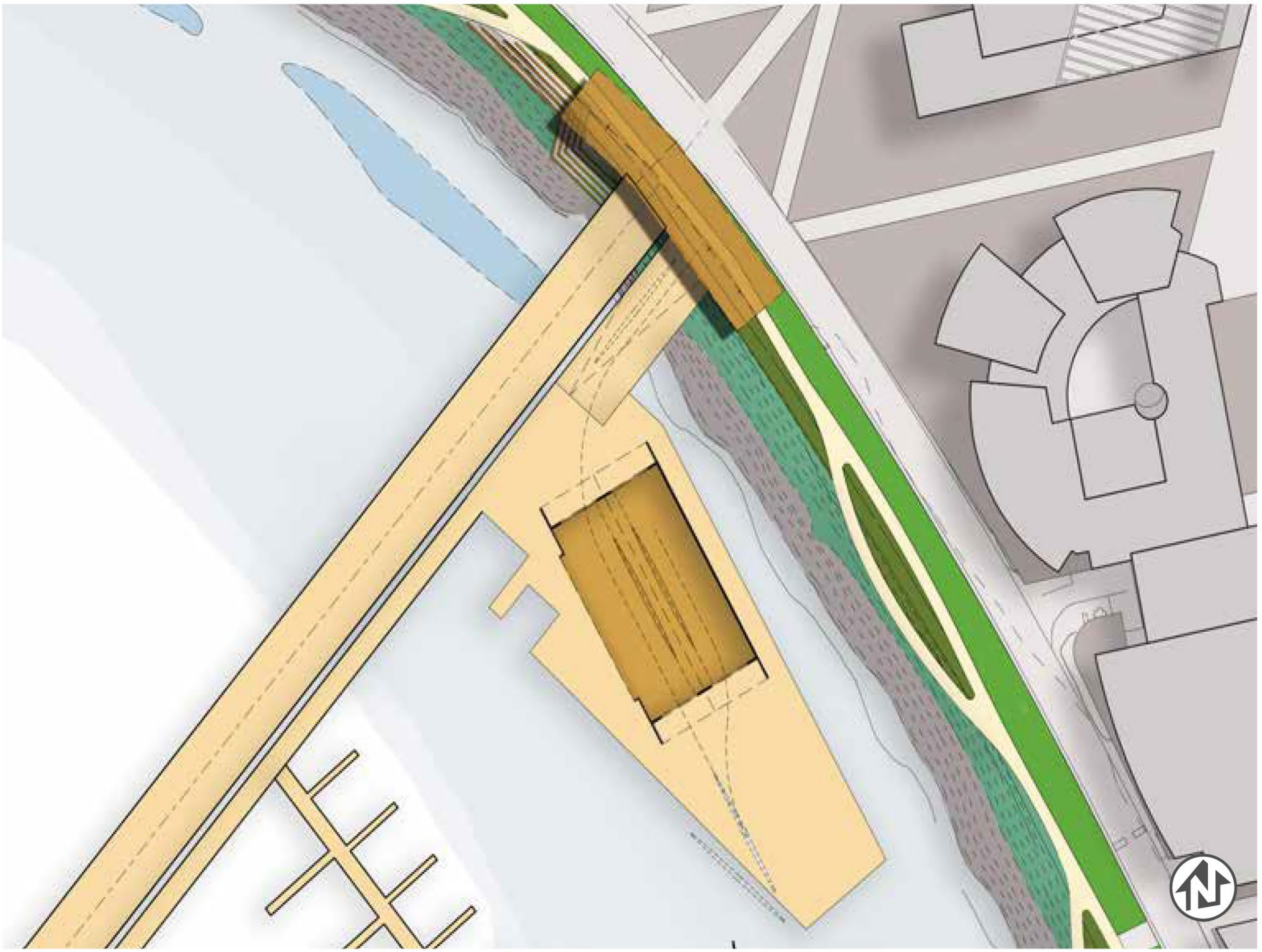
Figure 2-23 Proposed Marine Programs and Naval Science Building Perspective



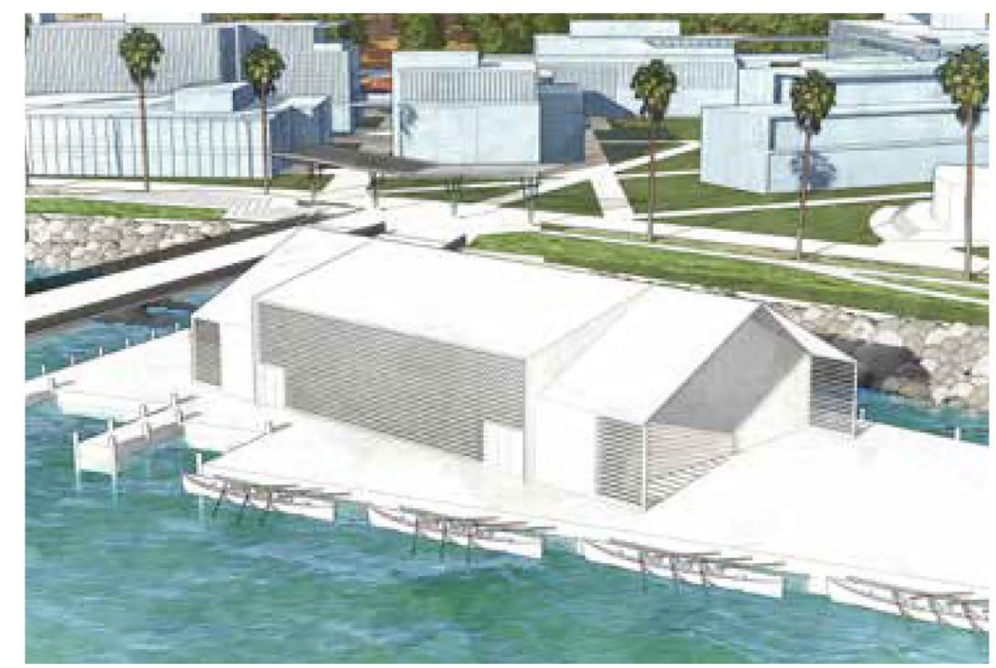
Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.

Figure 2-24 Proposed Marine Programs Multi-Use Building

PROPOSED FLOATING ROW HOUSE LAYOUT PLAN



MASSING PERSPECTIVE



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Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.

Figure 2-25 Proposed Floating Row House Layout Plan and Massing Perspective

It would include large-stepped seating on the western edge, providing access to the water's edge at different tidal levels. These seating areas would accommodate the grading and step down to the shoreline transition zone, providing opportunities for viewing, resting, and social gathering.

The central waterfront esplanade canopy would be situated at the terminus of an axial pedestrian connection to the campus quad, situated to follow Morrow Cove Drive. It would serve as a destination, framing the access to both the new public pier and the hinged ramp servicing the proposed row house.

The canopy would consist of a compound bent plate that is analogous to the rhythm of oar movement propelling a racing shell through the water. The canopy area would be approximately 3,780 square feet with a height of 14 feet. Its proposed construction would consist of a prefabricated, prefinished steel structure with a louvered slat or custom perforated metal panel finish with multi-column structural supports. The campus may also consider providing utilities at this location. Exterior light fixtures, integrated atmospheric misting, outdoor ceiling fans, built-in furniture, and gas barbecue equipment or fire pits also might be considered. Figure 2-26 shows a schematic of the proposed canopy.

SHORELINE ENHANCEMENTS

As described in Section 2.5.2, shoreline improvements are programmed as a staged approach with the second and third stages of shoreline improvements occurring during Phase Three of the proposed project (Figure 2-18). Phase Three shoreline improvements would involve mass grading and implementation of the transition zone, intertidal zone, and living reefs, contributing further to the waterfront's ecological function and resilience. Phase Three also would involve implementing the remaining major structures extending into the water, including piers and the lookout. Improvements in each of three shoreline ecological zones are proposed as follows:

- Shoreline Transition Zone. The shoreline transition zone's elevation ranges from 10 feet to 15 feet above sea level. This zone consists of plantings that can help reduce coastal erosion, tolerate occasional inundations, and provide aesthetic value. A secondary pedestrian path proposed in the shoreline transition zone would connect the shoreline upland zone to the water's edge, providing a waterfront experience and outdoor educational opportunities.
- Shoreline Rocky Intertidal Zone. The shoreline rocky intertidal zone is envisioned as a mix of coarse-grained pocket beach and rocky habitat. It would transition from an elevation of 10 feet down to the water level. The intertidal zone would include habitat for specific species and would be resilient to sea level rise over time. It also would encourage new relationships between campus users and the waterfront.
- Living Reefs. The living reefs would be a subtidal living shoreline component. They would be located at the terminus of the public pier, lookout, and waterfront plaza zones. The reefs would create native habitat for oysters, eels, mussels, and other organisms; help restore the shore's biodiversity, and improve water quality.

It is not anticipated that stone columns to enhance the shoreline for protection against liquefaction would be required. The final determination would be determined by the results in the geotechnical survey and report.

2.6 CONSTRUCTION

Construction of Phase One is anticipated to occur over 21 months commencing in summer 2025, with substantive completion in fall 2026. Work would be conducted on weekdays, 10–12 hours per day with 1 day on weekends for maintenance activities. The TSGB and small vessels programs would be relocated during reconstruction of and expansion of the main pier. The TSGB and two small vessels would be berthed for the duration of construction, potentially starting in 2025 and concluding with the arrival of the NSMV, at Suisun Bay Reserve Fleet, a MARAD facility.

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Source: Image provided by Moffatt & Nichol in 2022; adapted by Ascent Environmental in 2022.

Figure 2-26 Proposed Waterfront Canopy Perspective

A variety of marine equipment, including derrick barges, laydown barges, work boats and tugs, would be required for construction staging and materials laydown. The equipment may be anchored in one place for a few days to several weeks. The Marine Yard and existing pier would also serve as construction staging areas. All construction activities would take place within the boundaries of the project site, and no off-site staging areas would be required. Phase One construction phasing and equipment details are provided in Table 2-2.

Table 2-2 Phase One Construction Phasing and Equipment Details

Stage	Activity	Anticipated Equipment	Quantity	Schedule	Type of Work
1	Demolition (Fenders, Breakwater, Catwalk, Mooring Dolphins)	Derrick Barge w/ Crane	1	10 weeks	In-Water
		Workboats	2		
		Flat Deck Barge	1		
		Tugboat	1		
2	Pier (In-Water)	Derrick Barge w/ Crane	1	24 weeks	In-Water
		Workboats	2		
		Flat Deck Barge	1		
		Tugboat	1		
3	Breakwater/Dolphins	Derrick Barge w/ Crane	1	12 weeks	In-Water
		Workboats	2		
		Flat Deck Barge	1		
		Tugboat	1		
4	Pier (Over-Water)	Derrick Barge w/ Crane	1	12 weeks	Over-Water
		Workboats	2		
		Sectional Barges	2		
		Tugboat	1		
5	Docks	Derrick Barge w/ Crane	1	14 weeks	In-Water
		Workboats	2		
		Flat Deck Barge	2		
		Tugboat	1		
6	Upland Construction	Crane	1	16 weeks	Upland
		Excavator	2		
		Dozer	1		

Source: Compiled by Ascent Environmental in 2023.

Phases Two and Three are conceptual at this time because detailed information related to construction activities is currently unknown. However, Phase Two is anticipated to be implemented over approximately 6 years commencing in 2027, after the arrival of the NSMV. Phase Three would take place thereafter as funding is available.

2.7 INTENDED USES OF THE EIR

This EIR will be used by the CSU Board of Trustees to evaluate the potential environmental impacts associated with approval of the proposed Waterfront Master Plan. This EIR provides project-level analysis for Phase One and more general analysis for conceptual Phases Two and Three components because project-level details are not yet finalized for all elements of these two phases.

This EIR may be used during consideration and evaluation of project-level analysis of specific project elements identified in this EIR. As other individual project elements are refined and proposed for implementation, additional CEQA compliance review, including site- and condition-specific analysis, permits and/or approvals, may be needed, depending on the circumstances of each particular Master Plan element. This EIR could also be relied upon by responsible and trustee agencies with permitting or approval authority over any project-specific action to be implemented in connection with the proposed project.

2.8 ANTICIPATED PERMITS, APPROVALS, AND CONSULTATION

The proposed project would require regulatory approvals for construction activities, including for in-water construction and ongoing maintenance dredging. It is expected that the following agencies will be involved in the review process for these project elements.

2.8.1 Federal

The following federal agencies are expected to be involved in the review process for the proposed project:

- MARAD for project components that would be connected to federal funding associated with the NSMV, namely proposed changes to the main pier and potentially navigational aids to assist with vessel berthing
- MARAD for certification of the environmental assessment/finding of no significant impact
- US Army Corps of Engineers for a Rivers and Harbors Act Section 10 permit for work in navigable waters of the United States, at Cal Maritime
- US Army Corps of Engineers for Clean Water Act Section 404 permit for the discharge of dredged or fill material into waters of the United States, for dredging of Boat Basin 2 at Cal Maritime

2.8.2 State

The following state agencies are expected to be involved in the review process for the proposed project:

- California State Lands Commission for approval of expansion of lease area
- San Francisco Bay Conservation and Development Commission for a major permit under the McAteer-Petris Act for activities related to in-water work, shoreline band work, and public access
- San Francisco Regional Water Quality Control Board for a Water Quality Certification under Section 401 of the Clean Water Act
- San Francisco Regional Water Quality Control Board for a Waste Discharge Requirement order under the State Porter-Cologne Water Quality Control Act
- California Department of Fish and Wildlife Incidental Take Permit

2.8.3 Other Consultation

The following agencies would also be consulted as part of the permit review process and/or for consultation and advisory input:

- National Oceanic and Atmospheric Administration Fisheries,
- US Fish and Wildlife Service,
- US Coast Guard,
- Federal Aviation Administration, and

State Office of Historic Preservation

3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

APPROACH TO THE ENVIRONMENTAL ANALYSIS

This ~~draft~~ environmental impact report (~~Draft~~ EIR) evaluates and discloses the environmental impacts associated with the proposed project, in accordance with the CEQA (Public Resources Code [PRC] Section 21000, et seq.) and the State CEQA Guidelines (California Code of Regulation, Title 14, Chapter 3, Section 1500, et seq.). Sections 3.1 through 3.18 of this ~~Draft~~ EIR present a discussion of regulatory background, existing conditions, environmental impacts associated with construction and operation of the project, mitigation measures to reduce the level of impact, and residual level of significance (i.e., after application of mitigation, including impacts that would remain significant and unavoidable after application of all feasible mitigation measures). Issues evaluated in these sections consist of the environmental topics identified for review in the notice of preparation prepared for the project (see Appendix A of this ~~Draft~~ EIR). Chapter 4 of this ~~Draft~~ EIR, "Cumulative Impacts," presents an analysis of the project's impacts considered together with those of other past, present, and probable future projects producing related impacts, as required by Section 15130 of the State CEQA Guidelines. Chapter 5, "Alternatives," presents a reasonable range of alternatives and evaluates the environmental effects of those alternatives relative to those of the proposed project, as required by Section 15126.6 of the State CEQA Guidelines. Chapter 6, "Other CEQA Sections," includes an analysis of the project's growth inducing impacts, as required by Section 21100(b)(5) of CEQA.

INTRODUCTION TO THE ANALYSIS

As required by the State CEQA Guidelines (CCR Section 15126.2), this ~~Draft~~ EIR identifies and focuses on the significant direct and indirect environmental effects of the project. Short-term effects are generally associated with construction, and long-term effects are generally those associated with operation of the project. This chapter addresses the environmental setting, environmental impacts and mitigation measures associated with the project in relation to the following resource topics:

- Section 3.1, "Aesthetics";
- Section 3.2, "Air Quality";
- Section 3.3, "Biological Resources";
- Section 3.4, "Archaeological, Historical, and Tribal Cultural Resources";
- Section 3.5, "Energy";
- Section 3.6, "Geology and Soils";
- Section 3.7, "Greenhouse Gas Emissions and Climate Change";
- Section 3.8, "Hazards and Hazardous Materials";
- Section 3.9, "Hydrology and Water Quality";
- Section 3.10, "Land Use and Planning";
- Section 3.11, "Noise and Vibration";
- Section 3.12, "Public Services and Recreation";
- Section 3.13, "Transportation/Traffic";
- Section 3.14, "Utilities and Service Systems"; and
- Section 3.15, "Wildfire."

There are no known mineral, agricultural, or forest resources present on or adjacent to the project site. Given the lack of potential for mineral and agricultural/forestry resources to be affected by the proposed project, these issues do not require further evaluation as part of this ~~Draft~~ EIR.

ORGANIZATION OF THIS CHAPTER

Sections 3.1 through 3.15 of this ~~Draft~~ EIR chapter each include the following components.

Regulatory Setting: This subsection presents information on the laws, regulations, plans, and policies that relate to the issue area being discussed. Regulations originating from the federal, state, and local levels are each discussed as appropriate.

Environmental Setting: This subsection presents the existing environmental conditions on the project site and in the surrounding area as appropriate, in accordance with State CEQA Guidelines Section 15125. The discussions of the environmental setting focus on information relevant to the issue under evaluation. The extent of the environmental setting area evaluated (the project study area) differs among resources, depending on the locations where impacts would be expected to occur.

Environmental Impacts and Mitigation Measures: This subsection presents thresholds of significance and discusses significant and potentially significant effects of the Cal Maritime Waterfront Master Plan project on the existing environment, including the environment beyond the project boundaries, in accordance with State CEQA Guidelines Section 15126.2. The methodology for impact analysis is described, including technical studies upon which the analyses rely. The thresholds of significance are defined and thresholds for which the project would have no impact are disclosed and dismissed from further evaluation. Project impacts and mitigation measures are numbered sequentially in each subsection (Impact 3.2-1, Impact 3.2-2, Impact 3.2-3, etc.). A summary impact statement precedes a more detailed discussion of each environmental impact. The discussion includes the analysis, rationale, and substantial evidence on which conclusions are based. The determination of level of significance of the impact is presented in bold text. A “less-than-significant” impact is one that would not result in a substantial adverse change in the physical environment. A “potentially significant” impact or “significant” impact is one that would result in a substantial adverse change in the physical environment; both are treated the same under CEQA in terms of procedural requirements and the need to identify feasible mitigation. Mitigation measures are identified, as feasible, to avoid, minimize, rectify, reduce, or compensate for significant or potentially significant impacts, in accordance with the State CEQA Guidelines Section 15126.4. Unless otherwise noted, the mitigation measures presented are recommended in the EIR for consideration by the State to adopt as conditions of approval.

Where an existing law, regulation, or permit specifies mandatory and prescriptive actions about how to fulfill the regulatory requirement as part of the project definition, leaving little discretion in its implementation, and would avoid an impact or maintain it at a less-than-significant level, the environmental protection afforded by the regulation is considered before determining impact significance. Where existing laws or regulations specify a mandatory permit process for future projects, performance standards without prescriptive actions to accomplish them, or other requirements that allow substantial discretion in how they are accomplished, or have a substantial compensatory component, the level of significance is determined before applying the influence of the regulatory requirements. In this circumstance, the impact would be potentially significant or significant, and the regulatory requirements would be included as a mitigation measure.

This subsection also describes whether mitigation measures would reduce project impacts to less than significant levels. Significant and unavoidable impacts are identified as appropriate in accordance with State CEQA Guidelines Section 15126.2(b). Significant-and-unavoidable impacts are also summarized in Chapter 6, “Other CEQA Considerations.” Cumulative impacts are addressed in Chapter 4, “Cumulative Impacts.”

References: The full references associated with the references cited in Sections 3.1 through 3.16 are presented in Chapter 8, “References,” organized by chapter or section number.

California State University Autonomy

Cal Maritime is an entity of the CSU, which is a statutorily and legislatively created, constitutionally authorized state entity and is therefore not subject to local government planning and land use plans, policies, or regulations. Although there is no formal requirement or mechanism for joint planning or the exchange of ideas, Cal Maritime may consider, for coordination purposes, aspects of local jurisdictions' plans and policies for the communities surrounding the campus when it is appropriate. The proposed project (Cal Maritime Waterfront Master Plan) would be subject to state and federal agency planning regulations and policies described herein but would not be bound by local or regional planning regulations or documents such as the City's General Plan or municipal code.

Cal Maritime seeks to maintain an ongoing exchange of ideas and information and to pursue mutually acceptable solutions for issues that confront both the campus and its surrounding community. To foster this process, Cal Maritime participates in, and communicates with, the City of Vallejo (City), Solano County (County) and community organizations, and sponsors periodic meetings and briefings to keep local organizations, associations, and elected representatives apprised of ongoing planning efforts and solicit community input.

Standard Terminology

This ~~Draft~~ EIR uses the following standard terminology:

- **"No impact"** means no change from existing conditions (no mitigation is needed).
- **"Less than significant impact"** means no substantial adverse change in the physical environment (no mitigation is needed).
- **"Potentially significant impact"** means an impact that might cause a substantial adverse change in the environment (mitigation is recommended because potentially significant impacts are treated as significant).
- **"Significant impact"** means an impact that would cause a substantial adverse change in the physical environment (mitigation is recommended).
- **"Significant and unavoidable impact"** means an impact that would cause a substantial adverse change in the physical environment and that cannot be avoided, even with the implementation of all feasible mitigation.
- **"CSU"** refers to The California State University system as a whole.
- **"Trustees"** refers to the CSU Board of Trustees, the CEQA Lead Agency for the 2035 Master Plan ~~Draft~~ EIR.

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3.1 AESTHETICS

This section provides a description of existing visual conditions (the physical features that make up the visible landscape) near the project site and an assessment of changes to those conditions that would occur from project implementation. The effects of the project on the visual environment are generally defined in terms of the project's physical characteristics and potential visibility, the extent to which the project's presence would change the perceived visual character and quality of the environment, and the expected level of sensitivity that the viewing public may have where the project would alter existing views. The "Methodology" discussion in Section 3.1.3 provides further detail on the approach used in this evaluation.

During the public scoping period for the notice of preparation (NOP), commenters expressed the desire to allow the existing main pier and the proposed new pier leading to Boat Basin 2 in the western portion of the project site to be accessible to the public for viewing purposes. These comments are addressed, as appropriate, in this section. See Appendix A for all NOP comments received.

3.1.1 Regulatory Setting

FEDERAL

No federal plans, policies, regulations, or laws related to aesthetics, light, and glare are applicable to the project.

STATE

California Scenic Highway Program

California's Scenic Highway Program, which was created by the California Legislature in 1963, is managed by the California Department of Transportation (Caltrans). The goal of this program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to highways. A highway may be designated "scenic" depending on how much of the natural landscape travelers can see, the scenic quality of the landscape, and the extent to which development intrudes on travelers' enjoyment of the view. The program maintains a list of highways eligible to become, or designated as, official scenic highways and includes a process for designating official state or county scenic highways. No officially Caltrans designated scenic highways are located in the vicinity of the project site. State Route (SR) 37 parallels San Pablo Bay and is eligible to be designated as scenic highway along Sears Point Road/Sears Point Highway. The segment of SR 37 nearest to the project site that is eligible to be designated as scenic highway is located approximately 5 miles northwest of the project site, and the site is not visible from the scenic highway. No other state-designated scenic highways are near the project site (Caltrans 2023).

California Energy Code and Green Building Regulations

The California Energy Code and Green Building Standards Code (CALGreen) stipulate that all luminaries must meet the mandated BUG (Backlight/Uplight/Glare) ratings identified for their designated lighting zone unless otherwise exempt; lighting for athletic fields is exempt. All outdoor luminaires that emit 6,200 lumens or greater must comply with BUG requirements contained in Section 5.106.8 of the CalGreen Code (Title 24, Part 11).

The BUG ratings assume that the light emitted from the luminaire is providing useful illuminance on the task surfaces rather than scattering the light in areas where the light is not needed or intended, such as toward the sky. The BUG ratings also increase visibility by reducing the amount of light shining directly into observers' eyes, thus decreasing glare. In addition, light pollution into neighbors' properties is reduced. The BUG requirements vary by outdoor lighting zones.

CALIFORNIA STATE UNIVERSITY

California State University Maritime Academy Physical Master Plan

The purpose of the CSU Maritime Academy Physical Master Plan (Physical Master Plan) is to define the spatial implications and vision for accommodating growth and change by 2032 (CSU Maritime Academy 2017). Chapter 5, "Campus Design," Chapter 6, "Building Design," Chapter 7, "Landscape Character," and Chapter 8, "Circulation," of the Physical Master Plan identify campus design principles and guidelines that encompass the vision for creating an enduring and vibrant campus environment. These guidelines address campus ecology, precincts, connectivity, landscape and public space, building alignments and composition, architectural and landscape guidelines, sustainability, and circulation systems.

California State University Outdoor Lighting Design Guide

The CSU Outdoor Lighting Design Guide (CSU Office of the Chancellor 2018) provides the CSU campuses with guidance for outdoor lighting design to create a comfortable nighttime environment, maximize energy efficiency, and improve campus aesthetics. The guide identifies CSU lighting design goals and strategies, lighting control strategies and methods to be used throughout the campuses, and lamp types preferred for energy efficiency and ease of maintenance. The guide includes goals pertaining to compliance with local codes, assurance of good nighttime visibility, low maintenance of lighting, energy efficiency, reduced light pollution, and integration into the overall campus aesthetic. Athletic field lighting is not specifically addressed in the guide. Lighting design strategies are provided to aid in implementation of established lighting goals. Lighting design strategies are orientated toward creating vertical surface brightness, enhancing navigation, minimizing glare, maintaining lighting uniformity, and providing appropriate lighting levels.

LOCAL

Cal Maritime is part of the CSU, which is a statutorily and legislatively created, constitutionally authorized state entity. As explained in the "California State University Autonomy" section in the introduction to Chapter 3 of this EIR, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, Cal Maritime does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes.

City of Vallejo General Plan 2040

The following goals and policies from the City of Vallejo General Plan 2040 (City of Vallejo 2017) are relevant to visual resources on the project site:

GOAL NBE-1: Beautiful City. Preserve and enhance the natural, historic, and scenic resources that make Vallejo special.

- **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.
- **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.
- **Policy NBE-1.5**: **Scenic Vistas**. Protect and improve scenic vistas, including views from Interstate 80 and State Route 37 in Vallejo.
- **Policy NBE-1.6**: **Open Space**. Conserve and enhance natural open space areas in and adjacent to Vallejo and its waterfront.

GOAL NBE-2: **A Place Where People Want to Be**. Establish Vallejo as an attractive place to live, work, shop, and enjoy time off.

- **Policy NBE-2.2**: **Inviting Gateways**. Establish gateways design guidelines, as needed, to improve key City gateways.
- **Policy NBE-2.3**: **Inviting, Compatible Design**. Promote attractive development that is compatible with surrounding uses.
- **Policy NBE-2.4**: **Play to Strengths**. Capitalize on Vallejo's maritime tradition, higher education presence, and historic downtown to keep and attract land use activities that contribute positive energy to the community.

City of Vallejo Municipal Code

Title 16, Zoning Ordinance, of the City of Vallejo Municipal Code identifies development requirements for the City's zoning districts. These requirements regulate several aspects of development that affect visual character, such as building heights, landscaping, signage, yards, and lot coverage.

The following chapters and section of the Zoning Ordinance are applicable to aesthetics:

- **Chapter 16.208: Public and Semi-Public District**. This chapter provides regulations applicable to the Public and Semi-Public (PS) Zoning District. The purposes of the PS Zoning District are to provide land for development of public, cultural, and institutional uses that provide services to the community; create and establish lower use regulations developments and for a public and semi-public facilities public utilities, and other community facilities; and ensure design compatibility between public uses and adjacent residential neighborhoods. The PS Zoning District is intended to regulate areas that provide governmental and quasi-governmental services and supportive services.
- **Chapter 16.504: Landscaping**. This chapter provides provisions to establish standards for landscaping that will improve the livability and visual character of the City; help to protect the natural environment by reducing the amount of pavement, increasing the extent of permeable surfaces, and improving air quality; provide shade and reduce heat and the heat island effect; control erosion; increase the compatibility between residential and abutting commercial and industrial land uses; screen and buffer incompatible land uses; improve the overall aesthetic quality of neighborhoods and commercial corridors; enhance pedestrian and vehicular traffic and safety; establish consistent standards for landscaping for new development; and provide a means for upgrading existing landscaping when property improvements are proposed.
- **Chapter 16.506: Lighting and Glare**. Lighting standards apply to all new developments and to exterior alterations and additions to existing development that involve replacement of light fixtures or systems. The total outdoor light output shall not exceed that allowed on the site for individual lighting zoning districts, except as provided in Section 16.06.02, "Exemptions." The purpose of the standards is to control outdoor lighting in order to maintain adequate visibility and safety, conserve energy, and protect against direct glare and excessive lighting.

3.1.2 Environmental Setting

CAL MARITIME CAMPUS

Cal Maritime, which is located in the City of Vallejo, occupies 88 acres along the Morrow Cove waterfront, at the mouth of the Carquinez Strait and the foot of the Carquinez Bridge, approximately 2 miles south of downtown Vallejo, in the southwest corner of Solano County. The campus is surrounding by coastal hillside in a relatively secluded location. The campus provides a scenic and panoramic view of the Napa River to San Pablo Bay and the Carquinez Strait. I-80 runs along the campus's eastern border, and the Crystal Pointe neighborhood, located atop a coastal hillside on the west, looks down upon the campus. The campus is almost entirely enclosed by coastal hillsides. Figure 3.1-1 shows an aerial view of the southeast side of the campus, providing views of one of the coastal hillsides, as well as I-80. The topography of the steep hillside slopes divides the campus into four main "zones": the lower campus, the upper east campus, the upper west campus, and the upper north campus. Although the campus maintains a unified appearance, each zone retains unique characteristics and programs.

Source: Photograph taken by Cal Maritime in 2023.

Figure 3.1-1 Aerial View of the Southeastern Coastal Hillside of the Campus

The lower campus, where the project site is located, is oriented around Morrow Cove and contains most of the academy's academic, administrative, and student service buildings. Most of these buildings are oriented around the central quad, an approximately 58,000-square-foot area that serves as the gathering area for formal events, ceremonies, and biweekly musters. The major aesthetic components that distinguish the university as a maritime academy are primarily located in the lower campus, including the TSGB, main pier, boat basin, Marine Yard, and extensive, open views of San Pablo Bay along the waterfront. The project site and the lower campus surrounding the project site are located in a narrow, flat valley between the two steep hillsides east and west of the campus (CSU Maritime Academy 2017).

The upper east campus is directly east of and above the lower campus. Characterized by its hilltop location and vegetated slopes, the upper east campus contains most of the academy's parking areas and corporate yard facilities. The upper east campus, which is physically isolated and largely undeveloped, is accessible only by vehicle along the Upper Services Road and by pedestrian stairs. However, it maintains visual connections to the campus and views of San Pablo and San Francisco Bays, as well as views of the campus's maritime features: the TSGB, main pier, boat basin, Marine Yard, and waterfront. None of the proposed project components would be implemented within the upper east campus.

The upper west campus occupies the slopes and hilltops above the lower campus and to the west. Student residence halls and staff housing are located in here, as is Cal Maritime's athletic field and Cal Maritime Extension. The University Police Department and tennis and basketball courts are located in the lower portion of the west campus along Maritime Academy Drive. Extensive views of the TSGB, main pier, boat basin, Marine Yard, and waterfront can be seen from the stairs that connect the upper west campus and lower campus. None of the project components would be implemented within the within the upper west campus.

The upper north campus is highly visible and is one of the first views of the campus that greets visitors approaching along Maritime Academy Drive. The Physical Education Facility, which is the only building in the upper north campus, acts as a gateway building and is characterized by distinctive modern architecture, Cal Maritime branding, and signage. None of the project components would be implemented within the upper north campus.

Entry to the academy is restricted to a single route along Maritime Academy Drive and provides the first impressions of the campus upon entry. In the central portion of campus, and campuswide in general, buildings are relatively low in scale, with most limited to a single story and none exceeding three stories. The TSGB, one of the defining visual elements of Cal Maritime, is docked in Morrow Cove and is generally visible to the public from the Carquinez Bridge, San Pablo Bay, and rail line along the edge of the town of Crockett, which is located across San Pablo Bay, south of the project site. The publicly accessible shoreline along Morrow Cove, located on the south side of Morrow Cove Drive, serves as a formal promenade above the rocky riprap at the water’s edge.

The areas surrounding the central campus contrast with the more formal central campus, with its buildings at higher elevations, more widely spaced, and sited largely in response to topography and site access. The coastal hillside immediately north of the central campus is dominated by three stacked wooden dormitory buildings built in 1977, as well as an older brick-style dormitory directly behind in the hillside. On top of the hill in a flat area is staff housing and another dormitory constructed more recently, in 2009. To the west, off-campus, is the Crystal Pointe neighborhood, consisting of single-family residences beginning at the ridgeline of a grass-covered hill and extending westward down the slope. The most northernly portion of the campus is characterized by broad expanses of open space, including recreation fields.

VISUAL CHARACTER OF THE PROJECT SITE AND SURROUNDING AREA

As noted above, the project site is located in the lower campus of the academy, which serves as one of the most visually distinct portions of the campus. This area is characterized by panoramic views of San Pablo Bay, extending westward to Mount Tamalpais and eastward to the Carquinez Bridge. This area also supports important academic and recreational features including Morrow Cove, the main pier and berth for the TSGB and associated trestle (or causeway), the boat basin, the boathouse, the Marine Yard, two instructional marine buildings, and a formal promenade along the waterfront.

The main pier and berth for the TSGB, adjoining trestle (or causeway) connecting the pier to the shore, and adjacent boat basin are major visual features of the waterfront and of the campus’ identity as a maritime academy. The main pier consists of a reinforced concrete pier supported on steel piles driven into the bay bottom.

The 500-foot TSGB is a distinguishing feature of the campus and campus identity and serves multiple uses. The TSGB is the primary marine use of the main pier and exemplifies the campus’ commitment to maritime education and experiential learning. The TSGB ties up to the face of the main pier when moored on the port side. The trestle is approximately 20 feet wide and 174 feet long. The pier is approximately 30 feet wide and 262 feet long, and the catwalk extension is approximately 4 feet wide and 204 feet long. The boat basin is enclosed by the shore of Morrow Cove to the northeast and to the south and west, and breakwater panels attached to the pier and catwalk protect the boat basin from the predominate wind waves, which come from the west.

The boathouse, built in 1942, is located in the eastern portion of the project site, south of the Marine Programs and Naval Science modular buildings and west of the Marine Yard (shown in Figure 2-4 in Chapter 2, “Project Description”). The boathouse consists of a single-story, split level, timber- and steel-framed building along with a steel and concrete pier. It contains a large, open assembly area; seven offices; two restrooms; utility and equipment rooms; a break room; wood and metal workshops; storage spaces; and a partially enclosed boat basin with three boat slips. The foundation is creosote-treated timber piles driven into the bay bottom. Many of the timber piles have been encased with grout, inside of a fiberglass jacket, and the remaining piles have been wrapped with PVC sheeting. Figure 3.1-2 provides an aerial view of the existing main pier, boat basin, boathouse, and TSGB.

Source: Photograph taken by Cal Maritime in 2023.

Figure 3.1-2 Aerial View of the Existing Main Pier, Boat Basin, Boathouse, and TSGB

The Marine Yard, in the eastern portion of the project site east of the Marine Programs and Naval Science modular buildings and boathouse and south of Alumni Plaza (shown in Figure 2-4 in Chapter 2, "Project Description"), is secured by fencing and a guardhouse structure for compliance with Cal Maritime and port security requirements and MARSEC levels defined by the US Coast Guard. Pedestrians and bicyclists can enter the Marine Yard through the security gate built into the fencing of the Marine Yard. The Marine Yard hosts a number of services and small buildings and structures, including shipping containers, a prefabricated metal fabrication shop, a dock boiler supporting the TSGB, an electrical substation and transformer equipment, a fire hydrant, a 95-foot-tallmonopole supporting emergency communications equipment, boat trailer storage, two mooring bollards for TSGB berthing, and 35 parking stalls,. The Marine Yard is visible from Maritime Academy Drive, Morrow Cove Road, and motorists/pedestrians on the Carquinez Bridge. Figure 3.1-3 provides a view of the secured portion of the Marine Yard from the security fencing and guardhouse. Figure 3.1-4 provides a view from within the secured portion of the Marine Yard, showing the parking stalls and shipping containers.

Source: Photograph taken by Cal Maritime in 2023.

Figure 3.1-3 Outside View of the Marine Yard and Guardhouse Structure

Outside the secured perimeter of the Marine Yard are the Marine Programs and Naval Science Modular buildings, which include two prefabricated modular structures that sit directly north of the boathouse. The Marine Programs modular, which is approximately 2,575 square feet, is made up of a break room, a commanding officer office, a director's office, an administrative support area, an officer in charge office, an assistant officer in charge office, a human resources office, and additional office areas. The Naval Science modular, which is approximately 2,279 square feet, is made up of a multi-purpose room, seven office areas, and storage space. Figure 3.1-5 provides an elevated view from the coastal hillside next to the campus, showing an overview of the TSGB, boat basin, boathouse, Marine Yard, and Marine Programs and Naval Science Modular buildings.

The formal promenade along the waterfront of Morrow Cove is dominated by open lawn areas and plantings clustered around the buildings located in the lower campus. The shoreline that borders the edge of the promenade, armored with rocky riprap (shown in Figure 3.1-5), has a downward slope between the shoreline and the water's surface. Evenly spaced mature palm trees line the promenade, creating a striking landscape that highlights the water's edge. Outdoor furniture, such as benches and picnic tables, water fountains, and art are located in the outdoor public areas adjacent to the promenade. Figure 3.1-6 provides a view looking west of the shoreline and waterfront esplanade.

Source: Photograph taken by Cal Maritime in 2023.

Figure 3.1-4 Inside View of the Marine Yard

Source: Photograph taken by Cal Maritime in 2023.

Figure 3.1-5 Elevated View of the TSGB, Main Pier, Boat Basin, Boathouse, and Marine Programs and Naval Science Modular Buildings

Source: Photograph taken by Cal Maritime in 2023.

Figure 3.1-6 View of the Shoreline and Waterfront Esplanade Facing West Toward the Crystal Pointe Neighborhood

The visual character of the project site is dominated by waterfront features including the offshore Morrow Cove, part of the San Pablo Bay, the TSGB, the main pier and boat basin, the Marine Yard, and other associated marine structures. The campus waterfront also offers distant views of Mare Island and the Coast Range. The landside portion of the site is characterized by various campus structures downslope from hilly topography that slopes that steepens toward the northwestern and northeastern edges of the project site. The hilly topography on the northeastern edge of the project site is developed with the upper east campus, while that of the northwestern edge is largely undeveloped, with the exception of the Crystal Pointe neighborhood, which extends to the peak of the hill. The Crystal Pointe neighborhood, consisting of single-family residences, is located beyond and uphill of the northwestern campus boundary.

Immediately east of the project site is the Carquinez Bridge Vista Point, the Carquinez Bridge, Livingstone's Inspiration Park, the Bay Area Ridge Trail, and I-80, which is not designated a scenic highway. As noted above, the project site is primarily located on and within Morrow Cove, and San Pablo Bay extends to the south. Farther south and across San Pablo Bay is the town of Crockett, which is visible from the project site. Crockett has a primarily urban/suburban visual character similar to that of the City of Vallejo, blending in with the areas surrounding the project site. Although southern views from the project site face the town of Crockett, views are primarily of San Pablo Bay and hillside topography. A segment of SR 37 located approximately 5 miles northwest of the project site is eligible to be designated as scenic highway by Caltrans. This segment of SR 37 is also known as Sears Point Road/Sears Point Highway. The campus, including the project site, is not visible from this points 37.

VIEWS OF THE PROJECT SITE AND SURROUNDING AREA

CEQA only applies to public views, which are defined as views that are experienced from publicly accessible vantage points. Primary viewer groups in the project area include motorists, bicyclists, and pedestrians traveling along the Carquinez Bridge; members of the general public who visit the publicly accessible waterfront promenade; residents in the Crystal Pointe neighborhood; members of the public who visit the campus' publicly available waterfront for scenic viewing and recreational activities such as fishing; and public visitors to the Carquinez Bridge Vista Point. The project site would be visible to a slightly lesser degree from passenger trains operated by Amtrak (the Capitol Corridor, San Joaquin, and California Zephyr lines) traveling along the edge of San Pablo Bay and those who visit the vista point along San Pablo Avenue north of Vista del Rio Street, in the town of Crockett. The project site is also visible to passengers of marine vessels traveling in the Carquinez Strait and passing Morrow Cove. Figure 3.1-7 displays the locations of the viewpoints mentioned below. As described further below in, "Methodology," the visual quality of a view is determined through the degree of vividness, the visual power or memorability, unity, the visual coherence and compositional harmony, and intactness, the visual integrity.

Views from the Carquinez Bridge

Viewpoint 1 in Figure 3.1-7 represents the view from the Carquinez Bridge. Motorists, bicyclists, and pedestrians traveling on I-80 along the Carquinez Bridge have an elevated view of the project site. The Carquinez Bridge is at a substantially higher elevation than the project site, so viewers looking onto the project site from the Carquinez Bridge would have a downward view of the site. The view from the Carquinez Bridge when traveling north consists primarily of San Pablo Bay, the Cal Maritime campus, and the City of Vallejo. The foreground and background from this direction are dominated by hillside topography that surrounds the project site and the campus, San Pablo Bay, and the City of Vallejo. When traveling south, the view from the Carquinez Bridge consists primarily of San Pablo Bay, and the town of Crockett. The foreground and background from this direction are dominated by hillside topography that surrounds the town of Crockett and San Pablo Bay. Motorists traveling either direction on the Carquinez Bridge have an obstructed view of the project site because it is restricted by the structure of the bridge. The dominant hues are vivid and muted; the natural hues of San Pablo Bay and vegetation on the surrounding hillsides provide vividness, and the roadway of I-80 and the surrounding urban development of the cities provide more muted hues. Muted hues are defined as colors of low saturation that appear subdued or grayed.

The vividness (i.e., the degree to which views might be considered distinctive or memorable) and intactness (i.e., the visual integrity of the landscape and absence of encroachment by incongruous elements) associated with Viewpoint 1 are moderate because the bay underneath the highway and coastal hillsides create a pleasant and memorable pattern, but the view is dominated by the Carquinez Bridge. The unity (i.e., the visual coherence of the landscape) associated with this viewpoint is moderately high because, although the highway is an encroaching element, the highway alignment goes above the natural topography. Overall, the visual quality of the view from the Carquinez Bridge is moderately high.

Views from the Cal Maritime Campus

Viewpoint 2 in Figure 3.1-7 represents the southern views from the Cal Maritime campus. Students of Cal Maritime and visiting members of the public have an up close and intimate view of the project site. The main visual character is that of the campus, coastal hillsides, and the Carquinez Bridge with San Pablo Bay and the town of Crockett in the background of the project site. The foreground dominated by the instructional and dormitory buildings of the campus with lawns and an array of various trees and shrubs. The midground is dominated by San Pablo Bay, coastal hillsides, and the Carquinez Bridge. The background is dominated by the town of Crockett across the bay. The dominant hues are a mixture of muted and vivid, including campus buildings, the Carquinez Bridge, roadways, parking lots, and the natural hues of San Pablo Bay, vegetation, and the coastal hillsides.

The vividness and intactness associated with Viewpoint 2 are moderate because the bay and coastal hillsides create a pleasant and memorable pattern, but the view is dominated by the campus infrastructure and the Carquinez Bridge. The unity associated with this viewpoint is moderately high because, although the campus and the bridge are encroaching elements, they do not occupy a large part of the extensive views of San Pablo Bay, and the town of Crockett across the bay is still widely visible from the campus. Overall, the visual quality of the view from the Cal Maritime campus is moderately high.

Source: Adapted by Ascent Environmental in 2022.

Figure 3.1-7 Locations of Project Site Viewpoints

Views from the Crystal Pointe Neighborhood

Viewpoint 3 in Figure 3.1-7 represents the eastern views from the Crystal Pointe neighborhood. Residents of the Crystal Pointe neighborhood are located northwest of the Cal Maritime campus, atop a coastal hill. They have a southeast-facing view of the project site. Views of the project area from the neighborhood may be obstructed by physical structures in the neighborhood, including the single-family housing units. However, some residents living in homes on the northwesternmost edge of the neighborhood would have an unobstructed view of the campus, project site, San Pablo Bay, and the Carquinez Bridge. The visual character is residential with the views of the bay in the background. The foreground is dominated by single-family residences, shrubs, and other vegetation associated with the neighborhood. The midground is dominated by instructional buildings and vegetation associated with Cal Maritime. The background is dominated by the natural vista of San Pablo Bay, the Carquinez Bridge, and the western edge of the town of Crockett across the bay. The dominant hues of the roadway asphalt, the residential buildings, and the vegetation are muted.

The vividness and intactness associated with Viewpoint 3 are moderately high because the bay and coastal hillsides create a pleasant and memorable pattern, but the view is dominated by the residential land uses of the neighborhood. The unity associated with this viewpoint is moderately high because, although the neighborhood is an encroaching element, vast and extensive views of San Pablo Bay and the coastal hillsides are still widely visible and accessible from the neighborhood. Overall, the visual quality of the view from the Crystal Pointe neighborhood is moderately high. However, views from the Crystal Pointe neighborhood is considered private views that are not regulated by CEQA.

Views from the Carquinez Bridge Vista Pointe

Viewpoint 4 in Figure 3.1-7 represents the western views from the Carquinez Bridge Vista Pointe. Pedestrians visiting the Carquinez Bridge Vista Pointe have an elevated southeastern view of the project site. The Carquinez Bridge Vista Pointe is at a substantially higher elevation than the project site, so viewers looking toward the project site have a downward view of the site. The western view consists primarily of the campus and San Pablo Bay. The foreground is dominated by existing vegetation. The midground is dominated by San Pablo Bay and the campus. The background from this viewpoint is dominated by San Pablo Bay and Mare Island. The dominant hues are vivid, with the natural hues of San Pablo Bay and vegetation on the surrounding hillsides providing the vividness.

The vividness and intactness associated with Viewpoint 4 are moderately high because San Pablo Bay creates a pleasant and memorable pattern, but the views of the campus interrupt the natural scenic views of the bay and surrounding coastal hillsides. The unity associated with this viewpoint is high because, although the campus is an encroaching element, vast and extensive views of San Pablo Bay and the surrounding coastal hillsides are still widely visible and accessible from the viewpoint. Overall, the visual quality from the Carquinez Bridge Vista Pointe is high.

Views from the Vista Point Located in the town of Crockett

Viewpoint 5 in Figure 3.1-7 represents the northern views from the vista point located in the town of Crockett. Pedestrians visiting this vista point have an elevated and direct view of the project site. Although the vista point is elevated, the distance between the vista point and the project site makes the view appear to be level. The view consists of San Pablo Bay, the Carquinez Bridge, the campus of Cal Maritime, the Crystal Pointe neighborhood, and the surrounding hillsides of the region. The foreground is dominated by low vegetation; the midground is dominated by San Pablo Bay; and the background is dominated by the campus, the Crystal Pointe neighborhood, and the Carquinez Bridge. The dominant hues are vivid with hints of muted or dull/grayed features. The natural environment of the vegetation, San Pablo Bay, and surrounding topography and environment provide vivid hues, and the campus and the Carquinez Bridge have muted hues.

The vividness and intactness associated with Viewpoint 5 are moderately high because San Pablo Bay creates a pleasant and memorable pattern, but the views of the Carquinez Bridge and campus interrupt the natural scenic views of the bay and surrounding coastal hillsides. The unity associated with this viewpoint is high because, although the bridge and campus are encroaching elements, due to their distance from this vista point, vast panoramic views of San Pablo Bay and the surrounding coastal hillsides are still widely seen and accessible from this vista point. Overall, the visual quality from the vista point in the town of Crockett is high.

Views from Marine Vessels and Trains

Viewpoint 6 in Figure 3.1-7 is representative of northern views of the project site from marine vessels and from train routes featuring scenic views of the San Pablo Bay and the Carquinez Straight. Passengers of marine vessels and trains traveling past the project site have multiple views of the campus depending on location in relation to the project site. Passengers traveling on trains that run along the northern edge of the town of Crockett and the shore of San Pablo Bay, south of the project site, have a view that is slightly more distant than that of passengers on marine vessels because marine vessels have the ability to maneuver to any point in the bay, whereas trains are restricted to the train tracks. The duration of views for train passengers are short due to the speed of the trains and view distance. Regardless of distance to the project site, passengers have a level and direct view of the campus. The view consists of San Pablo Bay, the Carquinez Bridge, Cal Maritime, the Crystal Pointe neighborhood, and the topography surrounding the bay. The middle ground includes existing vegetation and San Pablo Bay. The background encompasses an arc that includes San Pablo Bay, the Crystal Pointe neighborhood, the Carquinez Bridge, and the City of Vallejo. The natural environment of the vegetation, San Pablo Bay, and the surrounding topography and environment provide vivid hues, with the muted hues coming from the campus, the Carquinez Bridge, and developments in the City of Vallejo.

Although the vividness and intactness of the view of San Pablo Bay from Viewpoint 6 is moderately high, a portion of the otherwise unbroken panoramic views of the bay and surrounding coastal hillsides are interrupted by the Carquinez Bridge and Cal Maritime campus. The unity associated with this viewpoint is high because, although the bridge and Cal Maritime are encroaching elements, views from marine vessels and trains still provide vast and extensive views of San Pablo Bay and the surrounding coastal hillsides that are widely visible and accessible. Overall, the visual quality from the marine vessels and trains is high.

VIEWER GROUPS AND SENSITIVITY

Viewer groups include (1) motorists, such as those who are commuting, touring, or transporting goods on roads, railways, and waterways surrounding the campus, in particular motorists on I-80 when traveling along the Carquinez Bridge; (2) neighbors, such as those occupying residential land uses in the Crystal Pointe neighborhood and the staff and students of Cal Maritime; and (3) recreationists, such as those visiting local recreational areas, visitors who come to the campus to enjoy the scenery, and anglers who visit to fish off the waterfront. Viewer sensitivity is affected by proximity (i.e., the distance from the viewer to the scene), extent (i.e., number of viewers observing the scene), and duration (i.e., how long viewers spend looking at the scene). The viewer groups and their sensitivity to visual changes in the environment are summarized as follows:

- Motorists: Motorists are those traveling on I-80, specifically along the Carquinez Bridge, passengers on trains traveling on the railway along the edge of the town of Crockett and shoreline, and passengers on marine vessels traveling in San Pablo Bay and passing Morrow Cove. Because motorists would pass the project site at relatively fast speeds, the duration of exposure to the project site for this viewer group would be low. However, motorists and train passengers who commute regularly past the project site are more familiar with the views of the project site, despite the relatively fast speeds. Those on a marine vessel would pass the project site at a much slower speed than motorists on I-80, resulting in a longer duration of exposure to the project site. This would make the exposure for marine vessel passengers relatively higher than that for general motorists. Motorists may be more likely to notice changes in the visual environment along this segment of I-80 on the Carquinez Bridge and San Pablo Bay because of the relatively open views of the project site and the potential frequency and duration of exposure, particularly for regular commuters. Therefore, the overall visual sensitivity of motorists would be moderate.
- Neighbors: The nearest residential neighbors are those in the Crystal Pointe neighborhood, located west of the project site, and students in the dormitories located north of the project site on the hillsides. The overall visual sensitivity of these residential viewers is high because of their proximity to the project site, the number of viewers, the elevation of their location in relation to the project site, and the extended duration of time they spend looking at views of the project site, making residential neighbors more likely to notice changes in the visual environment.

- **Recreationists**: Parks, San Pablo Bay, and other recreational areas that have views of the project site include the project site's promenade, Carquinez Bridge Vista Pointe, and the vista point located across San Pablo Bay in the town of Crockett. Recreationists and visitors who come to the waterfront to enjoy the scenery; anglers who fish off the waterfront; passengers who are taking marine vessels for a scenic tour; and people who swim, boat, fish, or surf in the bay also enjoy views of the project site and its surrounding vista. The overall visual sensitivity for this viewer group is high because one of the reasons recreationists visit these locations is to enjoy the scenery and visual quality.

LIGHT AND GLARE CONDITIONS

Sources of light and glare are uniformly present in the project vicinity. Existing sources of light include streetlights along roadways surrounding the project site; lights in parking lots, along walkways, and on the exteriors of campus buildings; lights associated with the TSGB and Carquinez Bridge; interior lights in campus buildings; and automobile headlights. Natural and artificial light reflect off various surfaces, primarily the water's surface, and can create localized occurrences of daytime and nighttime glare. Buildings and structures made with glass, metal, and polished exterior roofing materials are present throughout the campus. During daylight hours, the amount of glare depends on the intensity and direction of sunlight. The amount of light and glare experienced in the surrounding vicinity is typical for a residential and urban setting.

3.1.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The methodology used for this assessment of impacts on aesthetics, light, and glare is adapted from guidelines prepared by the Federal Highway Administration (FHWA 2015) for assessing visual impacts associated with transportation projects. These guidelines are easily transferred to other types of projects that could alter existing landscapes. The process of describing and evaluating visual resources near the project site and the surrounding areas involves the following steps:

- Identify the visual features or resources that make up and define the visual character of the viewsheds. (A viewshed is a physiographic area composed of land, water, biotic, and cultural elements that may be viewed and mapped from one or more viewpoints and that has inherent scenic qualities and/or aesthetic values as determined by those who view it.)
- Assess the quality of the identified visual resources relative to overall regional visual character.
- Identify major viewer groups and describe viewer exposure.
- Identify viewer sensitivity, or the relative importance of views to people who are members of the viewing public.

The following concepts are used in evaluating the project's effects on visual resources:

- Visual quality is dependent upon the degree to which landscape features combine to provide striking and distinctive visual patterns, whether or not intrusive elements are dominant in the views, and the visual or compositional harmony of the views.
- A scenic vista is generally considered a view of an area that has remarkable or unique scenery or a resource that is unique to the area.
- The viewer's distance from landscape elements plays an important role in the determination of an area's visual quality. Visibility and the visual dominance of landscape elements depend on their placement within a viewshed. Viewer sensitivity is also considered in assessing the impacts of visual change and is a function of several factors.
- The sensitivity of the viewer or viewer concern is based on the visibility of resources in the landscape, proximity of the viewers to the visual resource, elevation of the viewers relative to the visual resource, frequency and duration of views, numbers of viewers, and types and expectations of individuals and viewer groups.

The visual quality of a view is assessed through determining the degree of vividness, unity and intactness of the view:

- Vividness: the visual power or memorability of landscape components as they combine in striking or distinctive visual patterns.
- Unity: the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape.
- Intactness: the visual integrity of the natural and human-built landscape and its freedom from encroaching, incongruous elements; this factor can be present in well-kept urban and rural landscapes, as well as in natural settings.

THRESHOLDS OF SIGNIFICANCE

An impact on aesthetics, light, and glare would be significant if implementation of the proposed project would:

- have a substantial adverse effect on a scenic vista;
- damage scenic resources, including trees, rock outcroppings, and historic buildings within a state scenic highway;
- substantially degrade the existing visual character or quality of public views of the site and its surroundings;
- conflict with applicable zoning and other regulations governing scenic quality; or
- create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

ISSUES NOT DISCUSSED FURTHER

Damage to Scenic Resources within a State Scenic Highway

No designated state scenic highways are located within or visible from the project site. As discussed above, SR 37 is located approximately 5 miles northeast of the project site. The area between SR 37 and the project site is heavily developed with urban uses. As a result, the project site is not visible from the state scenic highway. Therefore, the project would not affect the scenic resources within a state scenic highway. This issue is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.1-1: Result in a Substantial Adverse Effect on a Scenic Vista

The project would involve redevelopment of Cal Maritime’s waterfront to accommodate the arrival of the NSMV and anticipated academic and operational growth over the next 10 years. Implementation of the proposed project would occur in a currently developed area and would not substantially obstruct or degrade scenic vistas from the surrounding area. This impact would be **less than significant**.

Scenic vistas in the vicinity of the project site include recreation areas in four main zones of the campus to the north, the Carquinez Bridge and Carquinez Vista Pointe to the east, and San Pablo Bay/Carquinez Strait and vista point in the town of Crockett to the south. Because of the surrounding topography, the secluded nature of the project site, and intervening development and vegetation surrounding the campus, the views of the project from these scenic vistas are all obstructed to some extent by existing buildings/structures or vegetation, or occupy a relatively small part of the field of view due to distance. However, the project site is at least partially visible from all of these vantages. The potential for implementation of the project to result in substantial adverse effects on a scenic vista during all three phases of development is discussed in the following sections.

Phase One

Phase One activities would be confined to the main pier and Marine Yard. As discussed in Chapter 2, "Project Description," Phase One of the project focuses on upgrades to in-water infrastructure, the Marine Yard, and other elements essential to meeting Cal Maritime's readiness for the arrival of the NSMV. To prepare for the arrival of the NSMV, the current main pier would be demolished and a new, longer, wider pier would be constructed to accommodate the size of the new NSMV. Structural upgrades and extension of the existing trestle would also be required. There is potential for the existing trestle to be demolished and replaced with a new trestle, if the existing trestle is determined to be defective. Demolition and construction of a new trestle would result in temporary disruption to the scenic quality of the campus, however, this activity would be temporary and would not substantially or permanently degrade the scenic characteristics once the replaced trestle is constructed. Other features, such as the installation of new floating and training docks at the boat basin, expansion and upgrade of the Marine Yard, utility upgrades, and dredging of the existing and expanded boat basin would result in minor temporary impacts related to the current scenic views. Although dredging of the existing and expanded boat basin would be moderately disruptive to the existing views of the campus from scenic vistas, such as Carquinez Bridge, Carquinez Vista Pointe, and San Pablo Bay/Carquinez Strait, this activity would be temporary and would not create a substantial permanent degradation to the scenic characteristics. During construction, other marine vessels may be present in the bay for construction activity purposes and would be visible. However, as mentioned above, these vessels would be present temporarily for construction activity purposes and would not be a permanent component of the project site. Construction of Phase One would be completed over approximately 21 months, with most construction activity occurring in-water. During construction, the TSGB would be relocated to the Suisun Bay Reserve Fleet, located in the Suisun Bay to the east of the Benicia-Martinez Bridge, and the small vessels program would be relocated to the City of Vallejo Marina, opening the views to and from the campus.

Upon completion of Phase One, the views of the project site from the scenic vistas would be similar to existing conditions because Phase One components, centered around the academy's mission of offering maritime instruction and training and the accommodation of the NSMV, would not include construction of features that would be substantially different in appearance to what currently exists on the waterfront. The new pier would be larger, covering approximately 4,600 square feet of more water surface area than the existing pier, and the NSMV would be larger than the TSGB. These changes would result in a larger presence in the project area and would be noticeable to those familiar with the existing site. As maritime features, however, the aesthetic character of the area would not substantially change or create conflict with the existing visual environment.

With the construction of the new pier, arrival of the NSMV, and other Phase One features (e.g., floating and training docks, upgrades to in-water infrastructure and the Marine Yard), the project site would look similar to the existing condition before construction; thus, implementing Phase One of the proposed project would not result in a substantial adverse effect on a scenic vista. After completion of Phase One, views of the site from a distance would be similar to current views. Although implementing Phase One features would result in noticeable aesthetic changes, these components would be in generally the same locations as under existing conditions, and would continue to be marine-related in nature and consistent with existing uses, resulting in an appearance similar to that of the exiting conditions. Figure 2-14 presents a rendering of the completed Phase One components. Completion of Phase One would not result in a substantial adverse effect on a scenic vista, therefore, impacts under Phase One would be less than significant.

Phase Two

Phase Two would focus on rehabilitating the boathouse, creating Boat Basin 2 and its new pier, adding new floating docks to Boat Basin 2, increasing hands-on instructional opportunities, demolishing the Marine Programs and Naval Science modular buildings, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning through shoreline enhancements. The Phase Two components would result in temporary and permanent physical changes to the project site. The renovation of the boathouse would include restoration and rehabilitation of the building to address the need for seismic upgrades. The primary entrance to the boathouse would be reverted to its intended use as a sail loft. The renovations of the boathouse would not result in a substantial impact on the scenic characteristics and scenic vistas of the project area, because the renovations to the boathouse would result in a similar but enhanced look, minimally affecting views from scenic vistas.

The creation of Boat Basin 2 would result in a more noticeable visual change than the renovations to the boathouse. It would involve the installation of approximately 26 floating docks and berthing areas for the academy's fleet of marine vessels currently located off-site and/or planned for future acquisition. The breakwater of Boat Basin 2 would be approximately 18,000 square feet, extending approximately 450 feet offshore. The 26 floating docks and berthing positions would total 10,800 square feet. Overall, Boat Basin 2 would encompass approximately 200,000 square feet of area, or 4.6 acres. Creating Boat Basin 2 would result in a more substantial visual change because it would create a new marine feature in an area that is currently open water. However, Boat Basin 2 would have characteristics similar to those of the existing boat basin and would be visually consistent with the current maritime environment of the project area, ultimately resulting in a less-than-significant impact.

The portion of the Marine Yard outside the MARSEC secured perimeter would be enhanced to include a pedestrian-oriented plaza, providing a visual corridor to maintain vehicular/pedestrian connections and create a focal point at the terminus of Morrow Cove Drive and Maritime Academy Drive. The new Marine Yard plaza would blend with the existing design of the campus, creating consistency for pedestrian and vehicular connection. During the enhancements of the Marine Yard, the existing Marine Program and Naval Science modular buildings would be demolished and removed. The shoreline enhancements would result in a less-than-significant impact because the design improvements would be consistent with the existing surrounding campus and its features of connectedness through circulation. Shoreline enhancements would consist of a shoreline upland zone that provides a primary pedestrian path, a waterfront plaza, a public pier and lookout deck with a shade structure, a fire pit, and other furnishings for opportunities for gathering and social events along the waterfront.

Views of and from the project site described above would not be significantly affected by implementing Phase Two because the features would blend with the existing and future visual characteristics and scenic vista of the project site and its surroundings, by continuing to support, enhance, and upgrade the maritime educational and training activities centered around the campus and its educational mission. After Phase Two, views would be similar to those of Phase One. However, the completion of Phase Two would present a noticeable change to the existing view as result of adding Boat Basin 2. Phase Two would implement shoreline enhancements that would not be obviously noticeable to the public eye, blending in with current conditions and not resulting in a substantial change to the visual character of the project site. Although implementing Phase Two would result in new physical changes through renovation of the boathouse, the creation of Boat Basin 2 and its pier, and floating docks at the new basin, and the demolition of the Marine Programs and Naval Science modular buildings, these components would further enhance and support the campus' maritime instructional and training activities. Figure 2-15 provides a rendering of the completed Phase Two components. Completion of Phase Two would not result in a substantial adverse effect on a scenic vista, therefore, impacts under Phase Two would be less than significant.

Phase Three

Phase Three, like Phase Two, would focus on redeveloping the existing Marine Yard, increasing hand-on instructional opportunities, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning. Phase Three includes construction of the Marine Programs Multi-Use Building, which would be located at the foot of the coastal hills on the eastern side of the lower campus. The Marine Programs Multi-Use Building would replace the existing obsolete trailers and Marine Programs and Naval Science modulars that are currently adjacent to the boat basin. The building would occupy approximately 20,300 square feet and be two stories in height. It would include academic and administrative uses, as well as a 50- to 60-foot-tall lookout and harbor control tower. Classrooms and outdoor learning spaces would be added, associated with the Marine Programs Multi-Use Building.

A marine hydrokinetic (MHK) barge and linking trestle would be located on the far southeast side of campus anchored close to the shore. A floating row house, which would be connected to Boat Basin 2, would consist of a two-story, mixed-use, portal framed structure. The structure is proposed to be in-water, placed over a floating dock system consisting of approximately 10,750 square feet of gross area.

In continuation with improving the waterfront and shoreline enhancements, a central waterfront esplanade would be located at the terminus of the major campus axis. The esplanade is envisioned as an iconic canopy structure featuring paving, fire pits, educational signage, and interactive furnishing elements. The proposed canopy structure would be approximately 3,780 square feet with a height of 14 feet. Utilities such as exterior light fixtures, integrated atmospheric misting, outdoor ceiling fans, built-in furniture, and gas barbeque equipment or fire pits would also be considered. Shoreline enhancements would include mass grading and the implementation of the transition zone, intertidal zone, and living reefs, as well as piers and lookout structures.

Implementing Phase Three would result in new structures within the physical landscape of the project site, altering the current views of the campus. However, as described above for Phases One and Two, the addition of the features proposed under Phase Three would not result in a significant impact, because the components of Phase Three would blend with the existing characteristics of the campus and surrounding areas. In addition, while implementation of Phase Three would result in additional visible mass and human-made structures in the project area, the Waterfront Master Plan was developed with the intent to create an environment that is visually pleasing as well as practical and functional by linking campus buildings to waterfront open space, enhancing public access, and safeguarding waterfront resilience and ecological functioning. The design for the central waterfront esplanade envisions, for example an iconic canopy structure featuring paving, fire pits, educational signage, and interactive furnishing elements. It would include large-stepped seating on the western edge, providing access to the water's edge at different tidal levels. These seating areas would accommodate the grading and step down to the shoreline transition zone, providing opportunities for viewing, resting, and social gathering.

Phase Three of the project would add classrooms and outdoor learning spaces associated with the Marine Programs Multi-Use Building. An MHK barge and linking trestle may also be implemented in Phase Three. This phase would also focus on improvement of the campus-coastline linkage and open spaces.

Although views of the project site from scenic vistas (e.g., Carquinez Vista Pointe and San Pablo Bay/Carquinez Strait) may be slightly obstructed because of the floating row house and Marine Programs Multi-Use Building, the new structures would not completely block views of the scenic surroundings. After Phase Three is implemented, views would be similar to views following implementation of Phase Two; however, the completion of Phase Three would result in a noticeable change to the current existing view as result of the Marine Programs Multi-Use Building, harbor control tower, and row house. Figure 2-20 provides a rendering of the completed Phase Three components and the completed design of the proposed project. Completion of Phase Three would not result in a substantial adverse effect on a scenic vista, therefore, impacts under Phase Three would be less than significant.

<u>Summary</u>

As discussed above, the project site is visible from several scenic vistas, including the Carquinez Bridge, the Carquinez Vista Pointe and San Pablo Bay/Carquinez Strait. The project would introduce the construction, redesign, and enhancement of multiple structures and facilities on the project site to accommodate the arrival of the NSMV, expansion of cadet education and hands-on instructional opportunities, and improvements to the campus' resilience to climate- and storm-related stresses. Although the project would expand existing structures and introduce new structures, the visual quality of the project site would continue to be aligned with the unique academic and maritime operations of the campus, aiding in the maritime academic experience by providing unique educational and training opportunities. Completion of the project would create enhanced and upgraded maritime facilities that would support the campus' educational mission, consistent with the existing uses and surroundings of the campus. As previously mentioned, because the project area is already developed with the Cal Maritime campus, implementing the proposed project would not substantially impact scenic vistas in the vicinity. Therefore, implementing the project would not result in a substantial adverse effect on scenic vistas. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.1-2: Substantially Degrade the Existing Visual Character or Quality of Public Views of the Site and Its Surroundings

The project would involve redevelopment of Cal Maritime's waterfront to accommodate the arrival of the NSMV and anticipated academic and operational growth over the next 10 years. Project implementation would involve temporary (i.e., construction-related) and permanent (i.e., development of new structures and upgrades to existing structures) visual changes on the project site. The proposed project would comply with design standards stated in the Physical Master Plan to establish consistency with the surrounding campus design of maritime infrastructure and facilities used for the purpose of educational and instructional activities. The project impact on the visual character of the site and public views in the project area would be **less than significant**.

Views of the project site are available from San Pablo Bay/Carquinez Strait, the segment of the Carquinez Bridge along I-80, the vista point in the town of Crockett, and recreation areas within the campus. The site is in a developed area of the campus that is designed with the purpose of supporting and identifying the maritime academy with instructional uses for the students attending the academy, as well as public and recreational uses for visitors of the campus. As described above for Impact 3.1-1, the proposed project would be constructed in three phases over the next several years. Phases Two and Three are conceptual at this time because detailed information related to construction activities is currently unknown. However, Phase Two is anticipated to be implemented over approximately 6 years commencing in 2027, after the arrival of the NSMV. Phase Three would take place thereafter as funding is available. While construction activities would occur over the course of several years, construction activities would be staged throughout the three phases and would gradually change the views of the project site over time as the phases of construction are completed.

Phase One

As discussed in detail in Chapter 2, "Project Description," Phase One, which focuses on the arrival of the new NSMV, involves demolishing and replacing the existing pier, dredging the main berth pocket for the NSMV and adjacent boat basin, upgrading or replacing the existing trestle, constructing new floating docks in the boat basin, and expanding and upgrading the Marine Yard and utilities. Project construction would require heavy equipment for both the landside and in-water improvements, which would temporarily modify the visual character of the project site. The in-water construction under Phase One would require the temporary presence of additional marine vessels in San Pablo Bay. The vessels used for construction activities would not be permanent components of the project site, although construction would occur over a 21-month period.

Upon completion of construction under Phase One, the visual character would be permanently altered somewhat by the introduction of the new main pier; the enhanced and upgraded boat basin, floating docks, and Marine Yard; and the arrival of the new NSMV. Although the completed Phase One components would alter the project site's visual character, it would be similar to the existing visual character of the project site because development on the site would still provide instructional maritime infrastructure and facilities, allow vast views of San Pablo Bay, and have the same layout as under current conditions. Thus, implementation of Phase One would not substantially alter, much less degrade, the existing visual character or quality of public views of the site and its surroundings, therefore, this impact would be less than significant.

Phase Two

Phase Two would focus on creating a new Boat Basin 2 and associated pier, renovating the boathouse, installing new floating docks at Boat Basin 2 and a new pedestrian-oriented plaza in the Marine Yard, demolishing the existing Marine Program and Naval Science modular buildings, and improving the publicly accessible shoreline. The construction period for Phase Two is currently conceptual because detailed construction information is currently unknown; however, it is generally anticipated to require6 years for implementation, potentially commencing upon arrival of the NVSM.

Although Phase Two would introduce new elements and features to the project site, they would be consistent with the visual character of the project site because they would continue to provide maritime facilities used for the purpose of educational and training opportunities for cadets, which would support the academy's educational mission and blend in with the surrounding campus character, and panoramic views of San Pablo Bay would continue to be available from publicly accessible points on campus for recreationists to enjoy. Public views of the project site and its surroundings may be marginally blocked by the addition of Boat Basin 2, but the quality of public views and the visual character would not be substantially altered because the proposed components would add to the overall maritime aesthetic of the campus while continuing to allow expansive views of San Pablo Bay and the surrounding environments of the Carquinez Bridge, the Cal Maritime campus, and the western edge of the town of Crockett, located across the bay. Viewers would continue to have a view of the campus and its surroundings, because the proposed components of Phase Two would not substantially block substantial views of the above-mentioned viewpoints and would provide viewers with a more modern and enhanced version of the academy's maritime facilities and operations. Thus, implementation of Phase Two would not substantially alter the existing visual character or quality of public views of the site and its surroundings, therefore, the impact related to degrading visual character or quality would be less than significant.

Phase Three

Phase Three would focus on creating the new Marine Programs Multi-Use Building, which would be set back into the hillside; replacing the current instructional buildings located in the Marine Yard; and adding classrooms and outdoor learning spaces and a harbor control tower associated with the new instructional building. It would also focus on improving the campus' shoreline, coastline, and open spaces by redesigning the waterfront with features that students and the public could enjoy for recreational purposes. As mentioned above for the previous phases, construction of Phase Three elements may temporarily degrade the visual character and quality of public views of the project site and its surroundings as a result of construction activities and the presence of the equipment necessary to construct the Marine Program Multi-Use Building, harbor control tower, MHK barge and linking trestle, row house and floating docks, and upgrades to the waterfront esplanade. The Phase Three construction period is currently unknown; however, construction would occur after funding for the phase is available.

New elements associated with Phase Three would result in a permanent change in the visual character of the project site but would not degrade the visual character. Instead, they would enhance it and blend in with the current conditions of the campus. Features added during Phase Three may alter public views of the project site but ultimately would not substantially block or degrade public views, because the proposed elements would be consistent with the overall aesthetic of the maritime educational facilities and would continue to allow expansive views of San Pablo Bay and the surrounding environments of the Carquinez Bridge, the Cal Maritime campus, and the western edge of the town of Crockett, located across the bay. Viewers would continue to have a view of the campus and its surroundings, because the proposed elements of Phase Three would not substantially block substantial views of the above-mentioned viewpoints and would provide viewers with a more modern and enhanced version of the academy's maritime facilities and operations. In addition, viewers would be able to enjoy the views from the project site to a higher degree than before with the addition of piers and lookout structures that would provide additional access to the extensive views the campus offers. Thus, implementation of Phase Three would not substantially alter the existing visual character or quality of public views of the site and its surroundings, therefore, the impact related to degrading visual character or quality would be less than significant.

Summary

As mentioned above, the project site is already developed with instructional and recreational facilities supporting the maritime tradition in the lower campus of Cal Maritime, which is located along San Pablo Bay/Carquinez Strait directly adjacent to the campus. Because the project site is already developed with maritime and academic uses, the new proposed project components on the project site would not be substantially different than what currently exists on campus. The improvements and additions of the proposed project both in-water and landslide would not substantially alter the existing visual character or quality of the site and its surroundings. Although implementing the proposed project would result in the development of new features, the new development would be consistent with and would blend in with the existing characteristics and would not introduce new land uses to the project site. The project would continue to add to the maritime aesthetic of the campus by providing educational support facilities and buildings, as well as enhancing one of the most prominent features of the campus: the waterfront. In addition, the proposed project would follow the campus design principals and guidelines stated in the Physical Master Plan to establish consistency with the surrounding campus design. Therefore, the impact on the visual character or quality of public views of the site and surroundings would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.1-3: Create a New Source of Substantial Light or Glare Which Would Adversely Affect Day or Nighttime Views in the Area

The project would involve the redevelopment of Cal Maritime's waterfront to accommodate the arrival of the NSMV and anticipated academic and operational growth over the next 10 years. Implementing the project would result in new sources of light and glare associated with development of new buildings, other structures, and waterfront features. Project-related lighting conditions would be similar to existing lighting conditions in the project area in terms of the amount and intensity of light. Lighting would be designed to meet current regulations and policies, which would reduce both the generation of exterior light and the potential for light trespass to affect off-site areas. Therefore, this impact would be **less than significant**.

As described in Chapter 2, "Project Description," the proposed project would involve the installation of new, upgraded light fixtures for the newly proposed structures. In addition, the proposed structures have the potential to include reflective materials that could enhance the glare from new light sources associated with the buildings and outdoor spaces.

Phase One

The light from fixtures associated with the NSMV would combine with and contribute to the amount of light produced from the campus operations. With the NSMV replacing the TSGB at the main pier, the lights aboard the ship, as well as new light fixtures on the new main pier and floating docks, would reflect off the water's surface and into the surrounding vicinity. Although the NSMV would require more light fixtures than the TSBG because the new ship will be larger, it would not constitute a new substantial light source, because light and glare conditions would be similar to those related to the TSGB. The newly proposed main pier and floating docks at the boat basin would also include new light fixtures, creating new light sources and glare off the water's surface. During the daytime hours, exterior lighting associated with the NSMV, main pier, and floating docks would not be used. During nighttime hours, lights associated with the NSMV, main pier, and floating docks would be required to be on for visibility purposes, potentially creating a significant impact. New exterior lighting visible at night from off-site vantages surrounding the project site would consist of exterior illumination from the NSMV, boat basin, and boat house, as well as safety lighting along the main pier and within the Marine Yard. However, the new light sources associated with the NSMV, main pier, and floating docks would result in conditions during the daytime and nighttime hours similar to those before project implementation and would include only the minimum amount of outdoor wayfinding and security lighting necessary, resulting in a less-than-significant impact.

Construction activities would be conducted on the weekdays, 10–12 hours per day with one day on weekends for maintenance activities. Construction lighting would have the potential to spill onto adjacent properties that could be sensitive to nighttime lighting, such as single-family residences west of the project site and the residential dormitories on campus. However, because of the distance from the project site, topography, and existing intervening structures, light spillover would be minimal. In addition, construction activities would occur primarily during daylight hours; therefore, it would not be a substantial source of new lighting. During construction, glare would be introduced to the project site as a result of a slight increase in vehicular presence at the site (e.g., from windshields of vehicles and construction equipment). These sources of glare would be limited to the ground level. Glare from project construction would be minor and would not adversely affect daytime views of the area. Existing landscaping and topography around the periphery of the project site would also aid in providing screening and minimizing spillover effects on adjacent properties.

In addition, implementation of Phase One would be required to comply with lighting standards and regulations stated in CALGreen, the CSU Outdoor Lighting Design Guide and Chapter 16.506 of the City of Vallejo Municipal Code to reduce light and glare impacts. Thus, implementing Phase One would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area, therefore, this impact would be less than significant.

Phase Two

Phase Two would include renovations to the existing boathouse, a new Boat Basin 2 and associated pier and floating docks, and shoreline improvements. During daytime hours, light fixtures and glare impacts associated with the proposed elements of Phase Two would be minimal, and similar to light and glare sources under existing conditions. Although the new elements would include potentially reflective surfaces, there would not be a substantial increase in intense glare conditions that would affect surrounding receptors. During nighttime hours, the number of light sources would increase conditions with the introduction of Boat Basin 2, the new floating docks, and the shoreline enhancements, as they would require light fixtures that would be illuminated for nighttime visibility. These light fixtures would also be reflect on the water's surface at night, rendering them more visible. New exterior lighting visible at night from off-site vantages surrounding the project site would consist of exterior building illumination from Boat Basin 2, as well as safety lighting along the Boat Basin 2 pier. However, the new light and glare sources would be consistent with the surrounding conditions of the campus and would blend in with the existing light and glare from the campus, as well as with the additional light and glare from the completed Phase One elements. Additionally, new light sources would only include the minimum amount of outdoor wayfinding and security lighting necessary, ultimately resulting in a less than significant impact. Further, existing landscaping and topography around the periphery of the project site would screen and minimize light spillover effects on adjacent properties. Although the construction period is currently unknown for Phase Two, the construction conditions and light and glare impacts described for Phase One also would apply to Phase Two.

In addition, implementation of Phase Two would be required to comply with lighting standards and regulations stated in CALGreen, the CSU Outdoor Lighting Design Guide and Chapter 16.506 of the City of Vallejo Municipal Code to reduce light and glare impacts. Thus, implementing Phase Two would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area, therefore, this impact would be less than significant.

Phase Three

Phase Three would include constructing multiple new buildings and structures, such as the Marine Programs Multi-Use Building, harbor control tower, MHK barge, row house, classrooms and outdoor learning spaces, and enhancements to the waterfront and shoreline to fully complete and enhance the project and its surrounding characteristics.

The construction period is currently unknown for Phase Three; however, the construction conditions and light and glare impacts described for Phase One and Phase Two would be similar to Phase Three.

As discussed for Phase One and Phase Two, during daytime hours, the light and glare conditions associated with the proposed elements of Phase Three would be similar to the existing conditions of the campus operations, as well as the conditions that would be introduced with Phases One and Two. Although light and glare conditions would be more intense, especially with the addition of the Marine Programs Multi-Use Building, harbor control tower, row house, and shoreline enhancements, the light and glare produced from these structures would not result in a substantial increase because the previous phases would slowly intensify the light and glare conditions at the campus and because the project would be required to comply with the specific lighting regulations and requirements consistent with Phases One and Two. During nighttime hours, there would be a slight increase in light and glare sources from the light fixtures associated with the new elements and light reflecting off the water's surface. New exterior lighting visible at night from off-site vantages surrounding the project site would consist of exterior building illumination from the Marine Programs Multi-Use Building, harbor control tower, and row house, as well as safety lighting along pedestrian paths near the waterfront, lookout structures, and piers. However, as previously discussed, the conditions would blend in with the surrounding light and glare conditions of the campus as well as the light and glare conditions created under Phase One and Two and would include only the minimum amount of outdoor wayfinding and security lighting necessary and therefore would not constitute a significant substantial light or glare source. Existing landscaping and topography around the periphery of the project site would also aid in providing screening and minimizing spillover effects on adjacent properties.

In addition, implementation of Phase Three would be required to comply with lighting standards and regulations contained in CALGreen, the CSU Outdoor Lighting Design Guide and Chapter 16.506 of the City of Vallejo Municipal Code to reduce light and glare impacts. Thus, implementing Phase Three would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area, therefore, this impact would be less than significant.

Summary

Upon completion of the project, the project site would conform with design guidelines and regulations in the Physical Master Plan, the CSU Outdoor Lighting Design Guide, CALGreen lighting regulations and Chapter 16.506 of the City of Vallejo Municipal Code regarding light pollution. The three phases would introduce new exterior lighting that would be visible at night from off-site vantages surrounding the project site, consisting of exterior building illumination and safety lighting along pedestrian paths near the waterfront. The project would include only the outdoor wayfinding and security lighting necessary to maintain safety and comfort. In addition, existing landscaping and topography around the periphery of the project site would be maintained and enhanced through the provision of additional landscaping along the western edge of development to provide screening and minimize spillover effects on adjacent properties. As mentioned above, the project site already contains sources of light and glare typical of a university campus and project buildout would introduce a modest amount of new lighting similar to that already present in the project vicinity. No large-scale sources of intense glare that could be annoying or disabling to surrounding land uses or motorists on surrounding roadways and the Carquinez Bridge are proposed as part of the project. For these reasons, project implementation would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. This impact would be **less than significant.**

Mitigation Measures

No mitigation is required for this impact.

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3.2 AIR QUALITY

This section includes a discussion of existing air quality conditions, a summary of applicable regulations, and an analysis of potential construction and operational air quality impacts caused by proposed development of the California State University Maritime Academy (Cal Maritime) Waterfront Master Plan Project (project). Mitigation is recommended as necessary to reduce significant air quality impacts to the extent feasible. Detailed calculations, modeling inputs, and results can be found in Appendix D.

No comment letters regarding air quality were received in response to the Notice of Preparation.

3.2.1 Regulatory Setting

Air quality in the project area is regulated through the efforts of various federal, State, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality within the air basins are discussed below.

FEDERAL

U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) has been charged with implementing national air quality programs. EPA's air quality mandates draw primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments made by Congress in 1990. EPA's air quality efforts address both criteria air pollutants (CAPs) and hazardous air pollutants (HAPs). EPA regulations concerning CAPs and HAPs are presented in greater detail below.

Criteria Air Pollutants

The CAA required EPA to establish National Ambient Air Quality Standards (NAAQS) for six common air pollutants found all over the U.S. referred to as criteria air pollutants (CAPs). EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter with aerodynamic diameter of 10 micrometers or less (PM_{10}) and fine particulate matter with aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead. The NAAQS are shown in Table 3.2-1. The primary standards protect public health, and the secondary standards protect public welfare. The CAA also required each state to prepare a State implementation plan (SIP) for attaining and maintaining the NAAQS. The federal Clean Air Act Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. California's SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, EPA may prepare a federal implementation plan that imposes additional control measures. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

Table 3.2-1 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California (CAAQS)[a,b]	National (NAAQS)[c]	
			Primary[b,d]	Secondary[b,e]
Ozone	1-hour	0.09 ppm (180 μg/m^3)	–[e]	Same as primary standard
	8-hour	0.070 ppm (137 μg/m^3)	0.070 ppm (147 μg/m^3)	
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	Same as primary standard
	8-hour	9 ppm[f] (10 mg/m^3)	9 ppm (10 mg/m^3)	
Nitrogen dioxide (NO_2)	Annual arithmetic mean	0.030 ppm (57 μg/m^3)	53 ppb (100 μg/m^3)	Same as primary standard
	1-hour	0.18 ppm (339 μg/m^3)	100 ppb (188 μg/m^3)	—
Sulfur dioxide (SO_2)	24-hour	0.04 ppm (105 μg/m^3)	—	—
	3-hour	—	—	0.5 ppm (1300 μg/m^3)
	1-hour	0.25 ppm (655 μg/m^3)	75 ppb (196 μg/m^3)	—
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 μg/m^3	—	Same as primary standard
	24-hour	50 μg/m^3	150 μg/m^3	
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 μg/m^3	12.0 μg/m^3	15.0 μg/m^3
	24-hour	—	35 μg/m^3	Same as primary standard
Lead [f]	Calendar quarter	—	1.5 μg/m^3	Same as primary standard
	30-Day average	1.5 μg/m^3	—	—
	Rolling 3-Month Average	–	0.15 μg/m^3	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 μg/m^3)	No national standards	
Sulfates	24-hour	25 μg/m^3		
Vinyl chloride [f]	24-hour	0.01 ppm (26 μg/m^3)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

Notes: μg/m^3 = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million.

a California standards for ozone, carbon monoxide, SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

c National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m^3 is equal to or less than one. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency for further clarification and current federal policies.

d National primary standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

e National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

f The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: EPA 2023, CARB 2016.

Hazardous Air Pollutants and Toxic Air Contaminants

Toxic air contaminants (TACs), or in federal parlance, hazardous air pollutants (HAPs), are a defined set of airborne pollutants that may pose a present or potential hazard to human health. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

A wide range of sources, from industrial plants to motor vehicles, emit TACs. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; or short-term acute effects such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches.

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 3.2-1). Cancer risk from TACs is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure.

EPA regulates HAPs through its National Emission Standards for Hazardous Air Pollutants. The standards for a particular source category require the maximum degree of emission reduction that the EPA determines to be achievable, which is known as the Maximum Achievable Control Technology—MACT standards. These standards are authorized by Section 112 of the 1970 Clean Air Act and the regulations are published in 40 CFR Parts 61 and 63.

STATE

California Air Resources Board

The California Air Resources Board (CARB), a part of the California Environmental Protection Agency (CalEPA), is responsible for the coordination and administration of both federal and State air pollution control programs within California. In this capacity, CARB conducts research and defines the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products, such as hairspray, aerosol paints, and barbecue lighter fluid, and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB has primary responsibility for the development of California's SIP, for which it works closely with the federal government and the local air districts.

In addition to standards set for the six criteria air pollutants, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety, meaning that exposure to concentrations at or below the CAAQS would be preventative against the development of acute or chronic illnesses. The attainment status under the CAAQS for the Sacramento County is discussed in the Section, "Environmental Setting," below.

California Clean Air Act

The California Clean Air Act (CCAA) of 1988 requires non-attainment areas to achieve and maintain the CAAQS by the earliest practicable date and local air districts to develop plans for attaining the State's ozone, CO, SO_2, and NO_2 limits. The CCAA also requires that air districts assess their progress toward attaining the air quality standards every 3 years.

The Air Toxics Hot Spots Information and Assessment Act

California Health and Safety Code Section 44300 et seq., provides for the regulation of over 200 air toxics and contains the primary air contaminant legislation in the state. Under the Act, local air districts may request that a facility account for its TAC emissions. Local air districts then prioritize facilities on the basis of emissions, and high-priority designated facilities are required to submit a health risk assessment and communicate the results to the affected public. The TAC control strategy involves reviewing new sources to ensure compliance with required emission controls and limits, maintaining an inventory of existing sources of TACs, and developing new rules and regulations to reduce TAC emissions.

Assembly Bill 1807

Assembly Bill (AB) 1807, enacted in September 1983, sets forth a procedure for the identification and control of TACs in California. AB 1807 defines a TAC as an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. CARB prepares identification reports on candidate substances under consideration for listing as TACs. The reports and summaries describe the use of and the extent of emissions in California resulting in public exposure, together with their potential health effects.

In 1998, CARB identified diesel PM as a TAC under the AB 1807 program. Diesel PM is emitted into the air via heavy-duty diesel trucks, construction equipment, and passenger cars.

CALIFORNIA STATE UNIVERSITY

California State University Sustainability Policy

In the Spring of 2022, The California State University (CSU) Board of Trustees adopted an update to the CSU system-wide Sustainability Policy, which was first adopted in 2014 with subsequent updates in 2019 and 2020. The current update became effective March 23, 2022. The policy aims to reduce the environmental impact of construction and operation of buildings and to integrate sustainability across the curriculum. The CSU Sustainability Policy established the following goals related to air quality:

- The CSU will pursue energy procurement and production to reduce energy capacity requirements from fossil fuels, enhance electrical demand flexibility, and promote energy resilience using available economically feasible technology for on-site renewable generation, microgrids, and other fossil fuel-free energy storage solutions. The CSU shall endeavor to increase its self-generated renewable energy and battery capacity from 32 to 80 megawatts by 2030.
- The CSU will consider cost effective opportunities to exceed the State of California and California Public Utilities Commission Renewable Portfolio Standard (RPS) sooner than the established goal of procuring 60 percent of its electricity needs from renewable sources by 2030 consistent with SB 100 (PUC Section 399.11)
- To minimize use of natural gas, campuses will transition from fossil-fuel sourced equipment to electric equipment as replacements or renovations are needed. Any in-kind fossil-fuel sourced equipment will be justified through an analysis which demonstrates why that solution represents the most cost-effective option and what alternatives were analyzed for comparative purposes. The intention of this item shall be limited to no new investment in, or renewal of, natural gas assets or infrastructure as part of campus projects starting July 1, 2035, with the exception of critical academic program needs.
- The CSU will encourage and promote the use of alternative transportation and/or alternative fuels to reduce GHG emissions related to university associated transportation, including commuter and business travel. The Chancellor's Office will establish a baseline for carbon emissions from student, faculty, and staff commuting and establish a systemwide reduction target.
- All CSU campuses shall develop and maintain a transportation demand management plan to reduce vehicle miles traveled (VMT) and carbon emissions. This plan will be updated every five years and guide the overall transportation and parking program at each campus.
- Campuses shall strive to increase electric vehicle, electric bicycle, and other electric mobility and transportation device charging infrastructure and incentive programs to further support campus carbon reduction strategies.
- Campuses shall strive to develop and maintain a long-range plan for transitioning fleet, and grounds equipment to zero emissions, excluding public safety patrol vehicles if necessary. Fifty percent of all light duty vehicle purchases will be zero-emission vehicles (ZEVs) by 2035, with no addition of gas-powered light duty vehicles to

the fleet after 2035. All small off-road engine equipment used for campus grounds will be all-electric by 2035. All buses and heavy-duty vehicles will be ZEV by 2045 in alignment with state regulations.

California State University Maritime 2017 Physical Master Plan

The 2017 Physical Master Plan (Master Plan) for Cal Maritime serves as a guidebook that defines the spatial implications and vision for Cal Maritime's growth. The Master Plan covers all aspects of the campus's development, including student enrollment growth, overall campus land use and design, building capacity and placement, circulation and infrastructure, and sustainability. The Master Plan includes goals which are intended to guide the continued development of Cal Maritime. Additionally, Chapter 6 of the Master Plan includes various fundamental green building strategies that will be considered by Cal Maritime in finalizing project design. Strategies related to air quality are as follows:

- Climate Sensitive Building Envelope. A well-designed building envelope should respond to the local climate to help a building use less energy while making occupants more comfortable.
- Green Roofs and Cool Roofs. Both cool roofs and green roofs help to reduce a building's energy use and contribution to the heat island effect by reflecting or absorbing solar energy. Green roofs are roofs covered in vegetation that absorbs the sun's energy for photosynthesis, protecting the roof membrane and cooling overall building temperature. Cool roofs are constructed with materials that reflect solar energy, protecting the roof membrane and also cooling overall building temperature.
- Daylighting. Daylighting refers to the effective organization of apertures (windows, skylights, etc.) that allow natural light to infiltrate a building's interior and negate the need for excessive artificial lighting. Buildings that incorporate effective and sustainable daylighting strategies serve occupant lighting needs while remaining aware of climate dynamics that can negatively and positively impact thermal comfort.
- Solar Shading and Glare Control. Solar shading and glare controls help to provide visual and thermal comfort within a building. Shading strategies include louvers, vertical fins, and overhangs. Glare control strategies include light shelves and baffles. All of these strategies can be used both internally and externally on buildings and may be adjustable or fixed in place depending upon climate and usage.
- Renewable Energy Generation. On site renewable energy generation can be achieved with solar photovoltaics and wind turbines. Renewable energy generation should be considered as a contribution to a campus micro-grid.
- Green Insulation Materials. Green insulation helps lower a building's energy usage by preserving indoor temperatures and reducing heating and cooling requirements. There are many examples of green insulation materials such as recycled denim cotton and corkwood.
- Geothermal Heating and Cooling. Geothermal systems take advantage of stable underground temperatures to heat and cool systems. This typically works by piping water through and underground looped system that exchanges heat between a building, a heat pump, and the earth. This provides heating, cooling, and hot water with a higher degree of efficiency that traditional systems.
- Rotary Air to Air Heat Exchangers. These devices capture incoming air and use recycled exhaust to preheat the air on cold days, utilizing what would otherwise be wasted exhaust energy.
- Stack Ventilation. Stack ventilation helps to passively move air through a building using temperature differences from inside and outside the building. The system works by taking cool air inside of the building through low inlet openings and allowing hotter exhaust air to escape through high outlet openings. These systems help to reduce energy required for mechanical exhaust systems in addition to the energy required for thermal comfort.
- Rainwater Harvesting And "Greywater" Recycling. The capture of water that would otherwise be wasted can help to decrease a buildings use of potable water. Rainwater harvesting and "greywater" recycling are two methods of capturing water for reuse. Rainwater harvesting involves the collection and use or rainwater from roofs for applications such as landscape irrigation and toilet flushing. Rainwater is typically directed from a building's roof

into above or below grade cisterns or storage tanks. Greywater reuse involves the collection of gently used water from plumbing fixtures for reuse in landscape irrigation and toilet flushing.

- **Energy Efficient Fixtures.** Usually combined with sensors; energy efficient fixtures can help to reduce a building's lifetime energy consumption. Examples include LED lighting, occupancy sensors, and automatic shut-off controls.
- **Water Conserving Fixtures.** Sensored and low-flow plumbing fixtures help conserve water and increase efficiency.
- **Locally Sourced and Recycled Materials.** Building and construction materials can help minimize negative environmental impacts and increase a buildings overall sustainability. Examples include sustainably harvested wood framing and flooring, carpet made from recycled content, and recycled insulation.
- **Cogeneration (Microgrid).** Cogeneration, also known as Combined Heat and Power (CHP), is the process of creating electrical energy and harvesting the waste heat energy. By taking advantage of the wasted heat, this technology is more efficient than standard electrical power generation equipment. The buildings most suited to this technology are 24/7 buildings like residence halls, computer labs, or natatoriums.
- **Grey and Black Water.** On-site greywater treatment involves collecting sewer effluent, referred to as greywater, from plumbing fixtures such as showers, lavatories, and laundry facilities, and treating the greywater through settling, filtration, and chlorine dosing for reuse in non-potable fixtures, such as toilets and urinals, landscape irrigation, or cooling towers. preliminary calculations for the full campus expansion show that collecting and treating greywater from the proposed new residence halls could yield approximately 15,000 to 20,000 gallons of recycled water per day, roughly 40% of the projected expansion potable water demand.
- **Photovoltaics.** Photovoltaics or (PV) creates electrical energy by harnessing the power of the sun. Roof infrastructure should be allotted for photovoltaic systems as part of the 2032 Campus Master Plan build-out for each building.

LOCAL

Cal Maritime is part of the CSU, which is a statutorily- and legislatively-created and constitutionally authorized entity of the State of California, and therefore the project site is owned by the CSU. As explained in Chapter 3 of this ~~Draft~~ EIR, in the "California State University Autonomy" section, as a state agency, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, this EIR does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes.

Bay Area Air Quality Management District

Criteria Air Pollutants

The Bay Area Air Quality Management District (BAAQMD) maintains and manages air quality conditions in the San Francisco Bay Area Air Basin (SFBAAB), including Solano County, through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of BAAQMD includes the preparation of plans and programs for the attainment of the NAAQS and CAAQS, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. BAAQMD also inspects stationary sources, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements other programs and regulations required by the CAA and CCAA.

To achieve the CAAQS, BAAQMD prepares and updates air quality plans on a regular basis. The air quality plans published by BAAQMD and other local air districts in the state are incorporated into California's SIP Strategy and meet CAA requirements.

The most recently adopted air quality plan for the SFBAAB is the *2017 Clear the Air, Cool the Climate Clean Air Plan* (2017 Clean Air Plan). To fulfill State ozone planning requirements, the 2017 control strategy includes all feasible measures to reduce emissions of ozone precursors (reactive organic gases [ROG] and oxides of nitrogen [NO_X]) and reduce the transport of ozone and its precursors to neighboring air basins. In addition, the 2017 Clean Air Plan builds upon and enhances BAAQMD's efforts to reduce emissions of fine particulate matter (i.e., $PM_{2.5}$) and TACs. The 2017 Clean Air Plan does not include control measures that apply directly to individual development projects. Instead, the control strategy includes measures related to stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-greenhouse gas pollutants (BAAQMD 2017).

The 2017 Plan focuses on two paramount goals (BAAQMD 2017):

- Protect air quality and health at the regional and local scale by attaining all state and national air quality standards and eliminating disparities among Bay Area communities in cancer health risk from TACs;
- and protect the climate by reducing Bay Area GHG emissions to 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050.

In 2004, BAAQMD initiated the Community Air Risk Evaluation (CARE) program. This program has helped identify communities in the Bay Area that are disproportionately impacted by local emission sources. The CARE program serves as a foundation for the BAAQMD's efforts to reduce population exposure to TACs, including diesel particulate matter (diesel PM), in communities that experience higher than average pollution levels. These communities are generally located near sources of pollution (e.g., freeways, industrial facilities), and thus have higher levels of risk from TAC exposure. BAAQMD-designated CARE communities are located in Concord, Richmond/San Pablo, eastern San Francisco, western Alameda County, Vallejo (including the Cal Maritime campus), San Rafael, Pittsburg/Antioch, and San José.

Toxic Air Contaminants

At the regional level, air pollution control or management districts may adopt and enforce the CARB's control measures and adopt their own TAC regulations. BAAQMD limits emissions and public exposure to TACs primarily through Regulation 2-5 (New Source Review of Toxic Air Contaminants) and other rules. BAAQMD prepared Planning Healthy Places guidelines to promote efficient and sustainable land use development while ensuring clean and healthy air for residents. Planning Healthy Places was developed on the premise that regional ambient air emissions and health risk control programs do not account for localized impacts to communities located near busy roadways, factories, airports, and other sources of air pollution. BAAQMD prepared these guidelines outside the CEQA context to assist developers and land use planners in addressing potential land use compatibility issues associated with locating people close to localized sources of air pollution, specifically PM and TACs. BAAQMD identifies a list of best practices to reduce emissions or exposure of sensitive receptors located near development projects. Through Planning Healthy Places, BAAQMD denotes regions in the Bay Area near highways and busy roadways where best practices are recommended to reduce exposure and emissions, as well as regions situated close to large and complex emissions sources (e.g., ports, refineries, and gas stations) where further study is required to assess air pollution levels. These recommendations are intended for development projects that will place future residential receptors near existing sources of PM and TAC emissions.

Odors

Because odors are typically considered a local air quality problem, EPA nor CARB has not established any odor regulations. Instead, BAAQMD enforces rules that pertain to odors in the SFBAAB. Although offensive odors rarely cause physical harm, they can be unpleasant and generate citizen complaints. BAAQMD's Regulation 7 (Odorous Substances) places general limitations on odorous substances and specific emission limitations on certain odorous compounds. This regulation does not apply until the air pollution control officer receives, within a 90-day period, 10 or more odor complaints alleging that a person or entity has caused odors, at or beyond the source's property line, that are perceived to be objectionable by the complainants in the normal course of their work, travel, or residence. At this point, the limits in the regulation become effective until such time as no complaints have been received by the air pollution control officer for one year. The limits in the regulation become applicable again if the air pollution control officer receives odor complaints from five or more complainants within a 90-day period.

City of Vallejo General Plan 2040

The City of Vallejo General Plan 2040 (2040 General Plan) developed to emphasize economic development; historic preservation; arts and culture; and community health. Adopted by the City Counsel in August 2017, the Council's goals for the 2040 General Plan included not only protecting and improving on the City's existing physical, social, and economic conditions, but also to promote sustainability and improve the efficacy of non-automobile transportation in Vallejo. As explained in the "California State University Autonomy" section in the introduction to Chapter 3 of this EIR, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, Cal Maritime does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes. The policies and actions of the 2040 General Plan Update which relate to air quality that are relevant to the project include:

- Policy CP-1.12 Clean Air. Protect the community from harmful levels of air pollution.
- 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 child care facilities.
- 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.

3.2.2 Environmental Setting

The project site is located in the SFBAAB. The SFBAAB covers all of Alameda, Contra Costa, Marin Napa, Santa Clara, San Mateo, and San Francisco counties, and portions of Solano and Sonoma counties. The ambient concentrations of air pollutant emissions are determined by the number of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the number of emissions released by existing air pollutant sources, as discussed separately below.

CLIMATE, METEOROLOGY, AND TOPOGRAPHY

The topography of the SFBAAB is characterized by complex terrain consisting of coastal mountain ranges, inland valleys and bays. SFBAAB is where the major break in California's Coast Range occurs. Here the Coast Range splits into western and eastern ranges. Between the two ranges lies San Francisco Bay. There are gaps known as the Golden Gate in the western coast range, and Carquinez Strait in the eastern coast range. This complex terrain adds complexity to the normal wind flow patterns in the SFBAAB.

The SFBAAB has a Mediterranean climate characterized by dry summers and wet winters. During the summer, a high-pressure cell centered over the northeastern Pacific Ocean results in stable meteorological conditions and a steady northwesterly wind flow that keeps storms from affecting the California coast. Mostly clear skies result in warm daytime temperatures and cool nights in the summer. During the winter, the Pacific high-pressure cell weakens, resulting in increased precipitation and the occurrence of storms. Winter temperatures are mild, except for very cool but generally frost-less mornings. Further inland where the moderating effect of the bay is not as strong, temperature extremes are greater. Wind patterns are influenced by local terrain, with a northwesterly sea breeze typically developing during the daytime. Winds are usually stronger in the spring and summer. Rainfall amounts are modest, ranging from 13 inches in the lowlands to 20 inches in the hills. The highest air pollutant concentrations in the Bay Area generally occur during inversions, when a surface layer of cooler air becomes trapped beneath a layer of warmer air. An inversion reduces the amount of vertical mixing and dilution of air pollutants in the cooler air near the surface.

CRITERIA AIR POLLUTANTS

Ozone and fine particle pollution, or $PM_{2.5}$, are the major regional air pollutants of concern in the SFBAAB. Ozone is primarily a problem in the summer, and fine particle pollution in the winter. Most of Santa Clara County is well south of the cooler waters of the San Francisco Bay and far from the cooler marine air which usually reaches across San Mateo County in summer. Ozone frequently forms on hot summer days when the prevailing seasonal northerly winds carry ozone precursors southward across the county, causing health standards to be exceeded. Santa Clara County experiences many exceedances of the $PM_{2.5}$ standard each winter. This is due to the high population density, wood smoke, industrial and freeway traffic, and poor wintertime air circulation caused by extensive hills to the east and west that block wind flow into the region.

Concentrations of criteria air pollutants are used to indicate the quality of the ambient air. A brief description of key criteria air pollutants in the SFBAAB is provided below. Emission source types and health effects are summarized in Table 3.2-2.

The western portion of Solano County is designated as marginal nonattainment with respect to the ozone NAAQS and moderate nonattainment with respect to the $PM_{2.5}$ NAAQS (EPA 2023). Additionally, the western portion of Solano County is designated as nonattainment for ozone, $PM_{2.5}$, and PM_{10} with respect to CAAQS (CARB 2022). Solano is designated as attainment or unclassified with respect to the NAAQS and CAAQS for all other criteria air pollutants (CARB 2022). Attainment status is summarized in Table 3.2-3.

Ozone

Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of ROG and NO_X in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels.

Emissions of the ozone precursors ROG and NO_X have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. Emissions of ROG and NO_X decreased from 2000 to 2010 and are projected to continue decreasing from 2010 to 2035 (CARB 2013).

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X and are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local sources of NO_X emissions (EPA 2012).

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors (CARB 2013). Fine particulate matter ($PM_{2.5}$) includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM_{10} emissions in the SVAB are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. Direct emissions of PM_{10} are projected to remain relatively constant through 2035. Direct emissions of $PM_{2.5}$ have steadily declined in the SFBAAB between 2000 and 2010 and then are projected to increase very slightly through 2035. Emissions of $PM_{2.5}$ in the SFBAAB are dominated by the same sources as emissions of PM_{10} (CARB 2013).

Table 3.2-2 Sources and Health Effects of Criteria Air Pollutants

Pollutant	Sources	Acute[1] Health Effects	Chronic[2] Health Effects
Ozone	Secondary pollutant resulting from reaction of ROG and NO_X in presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO_X results from the combustion of fuels	increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	permeability of respiratory epithelia, possibility of permanent lung impairment

Pollutant	Sources	Acute[1] Health Effects	Chronic[2] Health Effects
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	headache, dizziness, fatigue, nausea, vomiting, death	permanent heart and brain damage
Nitrogen dioxide (NO_2)	combustion devices; e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines	coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, death	chronic bronchitis, decreased lung function
Sulfur dioxide (SO_2)	coal and oil combustion, steel mills, refineries, and pulp and paper mills	Irritation of upper respiratory tract, increased asthma symptoms	Insufficient evidence linking SO_2 exposure to chronic health impacts
Respirable particulate matter (PM_{10}), Fine particulate matter ($PM_{2.5}$)	fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO_2 and ROG	breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	alterations to the immune system, carcinogenesis
Lead	metal processing	reproductive/ developmental effects (fetuses and children)	numerous effects including neurological, endocrine, and cardiovascular effects

Notes: NO_X = oxides of nitrogen; ROG = reactive organic gases.

[1] "Acute" refers to effects of short-term exposures to criteria air pollutants, usually at fairly high concentrations.

[2] "Chronic" refers to effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations.

Sources: EPA 2023.

Table 3.2-3 Attainment Status Designations for San Francisco Bay Area Air Basin

Pollutant	Averaging Time	National Ambient Air Quality Standard[1]	California Ambient Air Quality Standard[1]
Ozone	1-hour	NA[1]	Nonattainment
	8-hour	Nonattainment x- Marginal	Nonattainment
Respirable particulate matter (PM_{10})	24-hour	Unclassified	Nonattainment
	Annual	--	Nonattainment
Fine particulate matter ($PM_{2.5}$)	24-hour	Nonattainment	--
	Annual	Unclassified/Attainment	Nonattainment
Carbon monoxide (CO)	1-hour	Attainment	Attainment
	8-hour	Attainment	Attainment
Nitrogen dioxide (NO_2)	1-hour	Unclassified/Attainment	Attainment
	Annual	Attainment	Attainment
Sulfur dioxide (SO_2)[5]	1-hour	Attainment	Attainment
	24-hour	Attainment	Attainment
	Annual	--	Attainment
Lead (Particulate)	30-day	--	Attainment
	Calendar quarter	Attainment	--

Notes: PM_{10}= respirable particulate matter; $PM_{2.5}$=fine particulate matter; CO= carbon monoxide; NO_2= nitrogen dioxide; SO_2=sulfur dioxide

[1] The national 1-hour ozone standard was revoked by U.S. EPA on June 15, 2005.

Source: CARB 2022, EPA 2023.

TOXIC AIR CONTAMINANTS

According to the *California Almanac of Emissions and Air Quality* (CARB 2013), the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being diesel PM. Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene. Diesel PM poses the greatest health risk among these 10 TACs mentioned. Based on receptor modeling techniques, levels of most TACs, except para-dichlorobenzene and formaldehyde, have overall decreased since 1990 (CARB 2013).

ODORS

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals can smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity. Odor sources of concern include wastewater treatment plants, sanitary landfills, composting facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting operations, rendering plants, and food packaging plants (BAAQMD 2022). There are no sources of widespread odors within the vicinity of the project site. None of these odorous land uses are within proximity to the project site.

SENSITIVE RECEPTORS

Sensitive receptors are generally considered to include those land uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the presence of individuals particularly sensitive to pollutants and/or the potential for increased and prolonged exposure of individuals to pollutants.

Existing sensitive receptors include students on-site as well as residents at the Lower Residence Halls, which are approximately 215 feet northeast of the project boundary and 1,000 feet north of the existing Main Pier. The nearest off-campus sensitive receptors are the residences along Jade Circle, approximately 375 feet north of the campus boundary, and the residences along Glen Cove View, approximately 1,410 feet east of the campus boundary. The residences along Jade Circle are approximately 1,650 north of the existing Main Pier.

3.2.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

This air quality analysis evaluates the potential impacts of the Waterfront Master Plan consistent with BAAQMD's 2022 CEQA Guidelines, which provide guidance for evaluating air quality impacts at both the project- and plan-level. Pursuant to the guidelines the project's consistency with the 2017 Clean Air Plan is evaluated qualitatively in this analysis. Construction-related emissions and operational emissions for all potential development under the Waterfront Master Plan, as set forth in Chapter 2, "Project Description," also are evaluated quantitatively. The quantitative emissions analysis represents a conservative analysis that meets and exceeds the BAAQMD's guidelines by quantifying and applying a project-specific threshold to all development under the Waterfront Master Plan collectively. In addition, this evaluates localized CO emissions, TAC, and odor impacts as described below.

Criteria pollutant and TAC emissions would be generated during construction and operation of the proposed project. Methods used to estimate levels of construction- and operation-related emissions, which are provided in Appendix D, are described below.

Consistency Analysis

In accordance with BAAQMD guidance for plan-level CEQA analyses, the Waterfront Master Plan was evaluated qualitatively for consistency with the most recently adopted air quality plan in the region and other relevant standards, including measures outlined in the BAAQMD's 2022 CEQA Guidelines. Specifically, the guiding principles and sustainability features of the Waterfront Master Plan were compared to the land use and transportation control measures and strategies outlined in the 2017 Clean Air Plan. Additionally, project-generated, VMT was also evaluated, consistent with BAAQMD recommendations against the projected campus population with implementation of the Waterfront Master Plan.

Criteria Air Pollutants and Ozone Precursor Emissions

The SFBAAB is currently designated as a nonattainment area for the CAAQS and NAAQS for ozone and particulate matter. A number of criteria and non-criteria pollutants, such as volatile organic compounds, PM, NOx, and TACs, also carry local health risks to surrounding communities. The project's emissions were assessed in accordance with BAAQMD-recommended methodologies and compared to BAAQMD-adopted thresholds.

Overall, construction is expected to be staggered over three phases that span many years across the waterfront area. Construction details, including anticipated schedule and equipment, were provided for each phase. Of the three phases, the specific timing of Phase One is relatively known, as this phase needs to be completed before arrival of the National Security Multi-Mission Vessel (). However, the specifics regarding the other two phases – Phase Two and Phase Three – are more conceptual at this point, as construction details, including specific timing of construction activities, as well as the equipment mix to be used during construction, are currently unknown. Based on the level of detail available, construction emissions from Phase One were quantified at the project level, whereas construction emissions from Phases Two and Three were quantified at the programmatic level based on a reasonable set of assumptions that reasonably represent the scale of construction. Specific methods for each impact assessed are described below.

Construction

Emissions would originate from construction of landside and waterside components of the project. Sources of emissions associated with landside activities would include exhaust from off-road equipment as well as exhaust from employees' vehicles and haul trucks (i.e., on-road vehicles). Sources of emissions associated with waterside activities include exhaust from tugboats and barges that will be used to store and move equipment, materials, and personnel around the project site.

Emissions estimates were based on a combination of project-specific construction data (e.g., schedule, equipment types and numbers, and truck volumes) provided by Cal Maritime and industry standard and accepted software tools, techniques, and emission factors. Construction emissions from equipment, including cranes, excavators, and dozers were estimated using equipment emission factors and emission formulas from the California Emissions Estimator Model (CalEEMod), version 2022.1 (CAPCOA 2023). Emissions from haul trucks, concrete trucks, and worker commutes were estimated using a combination of emission factors and methodologies from CalEEMod and emission factors from CARB's EMFAC 2021 model.

Construction equipment assumptions are summarized in Table 3.2-4. The equipment types (e.g., excavator/backhoe, dozer, crane, derrick barge) were provided by Cal Maritime, but the specific pieces of equipment to be used are yet unknown. Therefore, CARB defaults, as obtained from CalEEMod, were used for equipment for offroad equipment (e.g., cranes, excavators, and dozers). For marine equipment, such as tugboats, workboats, and barge engines, default horsepower by engine type (e.g., main and auxiliary) and number of engines per piece were obtained from CARB's harbor craft emissions inventory. To maintain consistency with CARB data, the number of engine values were not rounded (e.g., 2.2 auxiliary engines on each barge).

It was assumed that cranes, derrick barge, excavators, and dozers would operate 8 hours per day. However, it was assumed that all other waterside equipment would operate periodically throughout the day, and only the engines on the derrick barge, which is anticipated to house the crane, will be active 8 hours per day. All other waterside equipment engines were assumed to operate 2 hours per day.

For each phase, it was assumed there would be 200 truck trips to haul debris to upland disposal. Additionally, it was assumed there would be 50 construction workers per day. Haul trip and worker trip distances and fleet mix are based on CalEEMod defaults.

All construction equipment and harbor craft are assumed to be powered by engines that meet, at a minimum, the Tier 3 California Emissions Standards for off-road diesel engines.

Construction of Phase One is anticipated to occur over 21 months, starting in Summer 2025. Phases Two and Three are conceptual, and the specific timing of construction activities is unknown. Regardless, for purposes of analysis, it was assumed that Phase Two would begin in 2027, while Phase Three is assumed to begin in early 2030.

Table 3.2-4 Construction Equipment Assumptions

Equipment	Horsepower	Hours per Day Per Engine
Excavator/Backhoe	84	8
Dozer	367	8
Crane	367	8
Derrick Barge	Main = none Auxiliary = 224 hp x 2.2 engines	8
Workboats	Main 471 hp x 1.6 engines Auxiliary = 247 hp x 0.7 engines	2
Flat Deck Barge	Main = none Auxiliary = 224 hp x 2.2 engines	2
Tugboat	Main = 731 hp x 2 engines Auxiliary = 93 hp x 1.5 engines	2
Sectional Barges	Main = none Auxiliary = 224 hp x 2.2 engines	2

Source: CAPCOA 2023, CARB 2021.

Operation

As discussed in Chapter 2, "Project Description," the project would not change enrollment or student capacity on campus or alter projected growth of the university. Therefore, the proposed project would not expand operations or result in additional enrollment, employment, or vehicle trips compared to existing conditions. The master plan would implement improvements along the waterfront and in-water infrastructure to prepare for arrival of the next generation of state-of-the-art training ships—the NSMV—as well as other upgrades to modernize the campus. None of these improvements would result in an increase energy consumption, vehicle trips, equipment use, or vessel usage. Because long-term operational changes are minimal, operational emissions are discussed qualitatively.

Toxic Air Contaminants

TAC impacts were assessed qualitatively due to the sporadic and transitory nature of project construction and the fact that the project would not change university operations.

Carbon Monoxide

CO impacts were assessed qualitatively, using the screening criteria set forth by BAAQMD and results from the project-specific traffic study.

Odors

Impacts related to odors were also assessed qualitatively, based on proposed construction activities, equipment types and duration of use, overall construction schedule, and distance to nearby sensitive receptors.

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the State CEQA Guidelines, an air quality impact would be significant if implementation of the proposed project would:

- conflict with or obstruct implementation of the applicable air quality plan,
- 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,
- expose sensitive receptors to substantial pollutant concentrations, or
- result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The BAAQMD's air quality thresholds of significance are tied to achieving or maintaining attainment designations with the NAAQS and CAAQS, which are scientifically substantiated, numerical concentrations of criteria air pollutants considered to be protective of human health. Implementing the project would have a significant impact related to air quality such that human health would be adversely affected if it would (BAAQMD 2022):

- conflict with or obstruct implementation of the applicable air quality plan;
- cause daily average construction-generated criteria air pollutant or precursor emissions to exceed 54 pounds per day (lb/day) for ROG and NO_X, 82 lb/day for PM_{10} exhaust, and 54 lb/day for $PM_{2.5}$ exhaust;
- cause daily average long-term criteria air pollutant or precursor emissions to exceed 54 lb/day or 10 tons per year (tons/year) of ROG and NO_X, 82 lb/day or 15 tons/year for PM_{10} exhaust, and 54 lb/day or 10 tons/year for $PM_{2.5}$ exhaust;
- result in long-term operational local mobile-source CO emissions that would violate or contribute substantially to concentrations that exceed the 1-hour CAAQS of 20 parts per million (ppm) or the 8-hour CAAQS of 9 ppm;
- expose sensitive receptors to a substantial incremental increase in TAC emissions that exceed 10 in one million for carcinogenic risk (i.e., the risk of contracting cancer) and/or a noncarcinogenic hazard index of 1.0 or greater and/or a chronic or acute hazard index of 1 or $PM_{2.5}$ concentrations greater than 0.3 $\mu g/m^3$;
- not implement BAAQMD's Best Management Practices for controlling fugitive dust emissions during project construction; or
- result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (i.e., five confirmed complaints per year averaged over 3 years).

ISSUES NOT DISCUSSED FURTHER

All issues pertaining to air quality are addressed below.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.2-1: Air Quality Plan Consistency

Implementation of the Waterfront Master Plan would be consistent with BAAQMD's 2017 Clean Air Plan, which is intended to guide the region toward achieving attainment of the California 8-hour ozone standard. With implementation of the Waterfront Master Plan, on-campus improvements related to promoting pedestrian/bicycle modes of transportation and decreasing on-campus parking are consistent with objectives of the Clean Air Plan. Further, new buildings planned for development would be consistent with the CSU Sustainability Policy. This impact would be **less than significant.**

<u>All Phases</u>

BAAQMD adopted the 2017 Clean Air Plan, which (as adopted in April 2017) establishes a blueprint for clean air and climate projection within the region, including the project site. This is the applicable clean air plan evaluated herein. To determine whether or not the proposed project would conflict or obstruct implementation of the Clean Air Plan, this analysis focuses on 1) consistency of the project with the 2017 Clean Air Plan and 2) whether project-generated VMT increases would be consistent with per capita VMT targets.

As shown in Table 3.2-5, the proposed project was evaluated against appropriate control measures identified in the 2017 Clean Air Plan. Note that control measures in the 2017 Clean Air Plan cover a myriad of emissions sectors and sources, including processes and sectors that individual land use development projects and land use authorities have no control over. For example, measures include actions that the BAAQMD would undertake to reduce emissions limits for petroleum refining, oil/gas production, and cement production. The Waterfront Master Plan and Cal Maritime would not be required to be consistent with these types of measures as the measures would result in emissions reductions through new programs, rules, or regulations that would affect all development within the jurisdiction of the BAAQMD. Thus, based on a review of all control measures in Chapter 5 of the 2017 Clean Air Plan, only the measures relevant to a university land use are presented.

In addition to conducting a plan consistency analysis, BAAQMD recommends consideration of project-generated VMT in comparison to anticipated population growth. As discussed in Section 3.13, "Transportation," the CSU Transportation Impact Study Manual (TISM) establishes screening criteria for projects that are presumed to result in a less than significant VMT impact. The CSU TISM states that projects generating less than 110 vehicle trips per day can be screened from further VMT analysis (Fehr & Peers 2019: 3). As detailed in Chapter 2, "Project Description," implementation of the three phases of the proposed project would not result in increased enrollment or student capacity, nor would it result in a related increase in staff and faculty employment. Phases 2 and 3 of the project would include construction of a new public pier, including upland improvements, which may attract additional public use of the site. However, the campus shoreline already is maintained as open space and allows public access, and the proposed project improvements are not expected to generate substantial new public use and associated VMT. Therefore, the project would not substantially increase VMT.

Table 3.2-5 2017 Clean Air Plan Consistency Analysis

	Stationary Source	Description (Abbreviated Summary)	Consistency
SS21	New Source Review	Propose revisions to existing New Source Review rule to be in line with OEHHA's 2015 Health Risk Assessment Guidelines and CARB/CAPCOA's 2015 Risk Management Guidance and revise the Air District's health risk assessment trigger levels for TACs using the same guidelines.	**Consistent.** Any new stationary source would be subject to the BAAQMD's New Source Review, at the time of development application, and would be required to meet necessary emissions limits and/or control technologies, subject to BAAQMD review at issuance of permits to operate.

	Stationary Source	Description (Abbreviated Summary)	Consistency
SS22	Stationary Gas Turbines	Reduce nitrogen oxide emissions from stationary gas turbines.	**Consistent.** Natural gas and electricity are provided to the campus by PG&E. There is no power generation on-site. The campus has a Clean Microgrid initiative, which aims to make the campus independent of grid power. Additionally, Phase Three includes a marine hydrokinetic barge, which would be anchored close to shore and upstream of the main pier and NSMV and would provide 10 megawatt of renewable energy source to the campus. Additionally, the current steam plant may be removed in the future if it becomes obsolete. Additionally, various fundamental green building strategies from the Physical Master Plan promote renewable energy generation, cogeneration (microgrid), and installation of photovoltaic systems on campus.
SS32	Emergency Backup Generators	Reduce emissions of diesel PM and black carbon through new rules.	**Consistent.** See discussion for control measure SS21.
SS36	PM from Trackout	Develop new Air District rule to prevent mud/dirt and other solid trackout from construction, landfills, quarries and other bulk material sites.	**Consistent.** Although the measure intends to develop new rules, the project would comply with all dust suppression requirements during construction, reducing fugitive dust emissions during construction phases.
	Transportation		
TR1	Clean Air Teleworking Initiative	Develop strategies to promote telecommuting.	**Consistent.** One of the project's overall objectives is linking campus buildings with waterfront open space and enhancing public pedestrian and bicycle access to and along the activated waterfront. The proposed project would be consistent with the 2017 Cal Maritime Physical Master Plan's goals related to pedestrian access, safety, and circulation and CSU's Sustainability Policy, which encourages the use of alternative modes of transportation and the Transportation Demand Management Manual, which contains a set of goals, criteria, and best practices to lessen reliance on single-occupant vehicle travel and reduce vehicle trips to campuses.
TR2	Trip Reduction Programs	Implement and provide funding for commute trip reduction programs, encourage trip reduction policies, encourage local governments to reduce VMT in new development, and develop innovative ways to encourage rideshare, transit, cycling, and walking for work trips.	**Consistent.** See discussion for control measure TR1.
TR9	Bicycle and Pedestrian Access an Facilities	Encourage planning for bicycle and pedestrian facilities (e.g., fund bike lanes, routes, paths and bicycle parking facilities).	**Consistent.** See discussion for control measure TR1.
TR13	Parking Policies	Encourage parking policies/programs (e.g., reduce minimum parking requirements, limit supply of off-street parking in transit-oriented areas, unbundle parking prices) to reduce vehicular use.	**Consistent.** See discussion for control measure TR1.

	Stationary Source	Description (Abbreviated Summary)	Consistency
TR22	Construction, Freight and Farming Equipment	Provide incentives for the early deployment of cleaner-burning heavy-duty equipment (e.g., electric, Tier and 4).	**Consistent.** See discussion for control measure TR1.
	Energy		
EN1	Decarbonize Electricity Production	Engage with utilities to maximize the amount of renewable energy contributing to the production of electricity. Work with local governments to implement local renewable energy programs and engage with stakeholders to increase use of biomass in electricity production.	**Consistent.** See discussion for control measure SS22. There is no power generation on-site. Fundamental green building strategies from the Physical Master Plan promote the installation of renewable energy systems. Additionally, Phase Three of the proposed project includes a marine hydrokinetic barge, which would be anchored close to shore and upstream of the main pier and NSMV, and would provide 10 megawatt of renewable energy source to the campus.
EN2	Decrease Electricity Demand	Work with local governments to adopt additional energy efficiency policies and programs. Support local government energy efficiency program via best practices, model ordinances, and technical support. Work with partners to develop messaging to decrease electricity demand during peak times.	**Consistent.** There are various fundamental green building strategies from the Physical Master Plan that promote decreasing energy demand in new and existing buildings. For example, the Climate Sensitive Building Envelope strategy 6.4.1 promotes accounting for local climate to build energy-efficient buildings, while Green Roofs and Cool Roofs strategy promotes the use of cool roofs and green roofs to reduce building energy use by reflecting or absorbing solar energy. These strategies will be incorporated into project design.
	Buildings		
BL1	Green Buildings	Identify energy-related opportunities for onsite renewable energy systems, investigate funding strategies to implement upgrades, identify barriers to local implementation of CALGreen building code, and secure funding to support energy-related projects in buildings.	**Consistent.** See discussions above for control measure EN1 and EN2.
BL2	Decarbonize Buildings	Explore potential Air District rulemaking, incentive programs, and guidance documents to limit the sale of fossil-fuel appliances and promote replacement of existing appliances.	**Consistent.** See discussions above for control measure EN1 and EN2.
BL4	Urban Heat Island Mitigation	Develop/urge adoption of model ordinances for “cool parking” and “cool roofs” that promotes the use of cool surface treatments for new and existing facilities.	**Consistent.** See discussions above for control measure EN2.
	Waste Management		
WA3	Green Waste Diversion	Develop policies to facilitate local ordinances/programs to reduce green waste to landfills.	**Consistent.** The project would be consistent with City of Vallejo Municipal Code Chapter 7.48, regarding waste collection of solid waste, recyclables, and green.
WA4	Recycling and Waste Reduction	Develop/identify/promote model ordinances on zero waste and recycling of construction materials.	**Consistent.** The project would be consistent with Chapter 7.53 of the City’s Municipal Code, the Construction and Demolition Debris Recycling Ordinance. This ordinance is intended to meet the goals of the California Integrated Waste Management Act of 1989 (AB 939).

	Stationary Source	Description (Abbreviated Summary)	Consistency
	Water		
WR2	Support Water Conservation	Develop best practices that reduce water consumption/ increase on-site water recycling in new and existing buildings.	**Consistent.** Physical Master Plan strategies promote low-flow plumbing fixtures to conserve water,. the use of greywater for non-potable fixtures, such as irrigation, to reduce water demand. These strategies will support water conservation and reduce water demand in new and existing buildings.

In consideration of the plan consistency analysis conducted and the anticipated increase in VMT efficiency as a result of implementation of the Waterfront Master Plan, no inconsistencies or conflict with the BAAQMD's 2017 Clean Air Plan would occur. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-2: Construction and Operational Criteria Air Pollutants and Ozone Precursors

As a result of implementation of the Waterfront Master Plan, criteria pollutant emissions would be generated during and construction and operation of new/renovated uses within the project area. Emissions would result from demolition, site preparation (e.g., excavation, clearing), off-road and marine equipment use, material and equipment delivery trips, and worker commute trips; however, average daily emissions (from construction alone) are not anticipated to exceed adopted BAAQMD thresholds for all phases. The proposed improvements would not increase student enrollment or employment, and the change in long-term emissions of criteria air pollutants would not exceed adopted BAAQMD thresholds. This impact would be **less than significant.**

To evaluate project generated GHG emissions, proposed construction activities are discussed below (by phase), then a qualitative discussion regarding operational emissions is provided.

<u>Construction</u>

Construction-related activities would generate emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ associated with off-road equipment, harbor craft, material delivery, hauling trips, and worker commute trips. For modeling purposes, construction activities were modeled separately by phase, accounting for the total anticipated activity that would occur in each phase. Table 3.2-6 below provides a summary of air quality emissions related to construction of the proposed project by phase.

Phase One

Phase One would involve construction activities associated with demolition and reconstruction of the main pier, reinforcement (and possible replacement of the existing trestle, Boat Basin and Floating Docks, Marine Yard, existing Vessels, and Utility Systems (See Table 2-1 for more details). These upgrades would be limited primarily to demolition, material movement, and minor infrastructure upgrades, resulting in exhaust emissions from the use of heavy-duty construction equipment (harbor craft and offroad). Emissions from these activities are summarized below in Table 3.2-6.

Phase Two

Phase Two of the project would focus on project objectives to rehabilitate the boathouse, expand and optimize the boat basin, redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. Phase Two components would include expansion of the existing boat basin to create Boat Basin 2, renovation of the boathouse, and other shoreline improvements. These upgrades would be limited primarily to demolition, material movement, and minor infrastructure upgrades, resulting in exhaust emissions from the use of heavy-duty construction equipment (harbor craft and offroad). Emissions from these activities are summarized below in Table 3.2-6.

Phase Three

Phase Three of the project would redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. New classrooms, outdoor learning spaces, and a new Marine Programs Multi-Use Building would be constructed. A marine hydrokinetic barge and linking trestle, which would provide up to 10 megawatts of renewable energy to the campus are also considered during this phase. This phase would also focus on improvement of the campus-coastline linkage and open spaces and a heightened level of resilience to climate- and storm-related stresses. These upgrades would be limited primarily to demolition, material movement, and minor infrastructure upgrades, resulting in exhaust emissions from the use of heavy-duty construction equipment (harbor craft and offroad). Emissions from these activities are summarized below in Table 3.2-6.

Table 3.2-6 Estimated Construction Emissions (Average Daily)

Construction Emissions	ROG	NO_X	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Average Daily Emissions (lbs/day)				
Phase 1	1	30	1	1
Phase 2	1	33	1	1
Phase 3	1	21	1	1
BAAQMD Construction Threshold (daily)	**54**	**54**	**82**	**54**
Exceeds Threshold?	No	No	No	No

Notes: ROG = reactive organic gases; NOx = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter; lb/day = pounds/day, BAAQMD = Bay Area Air Quality Management District

Source: Modeled by Ascent Environmental, Inc. in 2023.

Operations

Sources of emissions associated with campus operations include motor vehicle exhaust and dust associated with student, employee, and staff commuting; motor vehicle exhaust and dust associated with material deliveries to the campus; exhaust from the operation of training vessels; fuel combustion for space and water heating; emergency diesel generators; landscaping equipment; and the use of consumer products (such as paints and solvents). The change in these emission sources with implementation of the project is discussed below.

Phase One

Phase One of the proposed project focuses on upgrades to in-water infrastructure and the Marine Yard, as well as expansion of site-serving utilities. These components are essential to meeting Cal Maritime's readiness for NSMV arrival, which will replace the TSGB as the campus training ship.

Implementation of Phase One would not increase campus population or employment. The larger NSMV has more power draw while at-berth than the existing TSGB, but the more modern vessel will be more fuel efficient overall and result in lower fuel consumption and associated emissions than the TSBG. Other than the new training vessel, no other activities are expected to change. Phase One elements also include replacement of the main pier and floating docks, dredging to expand the boat basin, and construction of the Marine Yard and utilities. The pier, floating dock and boat basin work would help accommodate the larger NSMV but would not result in new emission sources. The Marine Yard is used to house training materials and equipment and would continue to operate similar to existing conditions.

Additionally, as described in detail in Section 3.13, "Transportation," one of the project's overall objectives is linking campus buildings with waterfront open space and enhancing public pedestrian and bicycle access to and along the activated waterfront. Phase One of the project would not modify existing off-site bicycle facilities or conflict with existing bicycle facilities, would not interfere with the implementation of any planned bicycle facilities, and would improve internal vehicular and pedestrian circulation.

Phase One would not change the nature or extent of existing operations at the campus. The proposed improvements would not result in increased student capacity or enrollment, nor would it result in increased employment of faculty and staff. The new training vessel is more modern than the existing vessel, likely resulting in a marginal to no change in emissions. The change in operational impacts would be less than significant, and no mitigation is required.

Phase Two

Phase Two of the project would focus on project objectives to rehabilitate the boathouse, expand and optimize the boat basin, redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. Phase Two components would include expansion of the existing boat basin to create Boat Basin 2, renovation of the boathouse, and other shoreline improvements.

Phase Two of the proposed project involves activities that are not critical to support the arrival of the NSMV but that are important for Cal Maritime's educational mission and expansion of cadet instruction. Seismic retrofits and renovation of the boathouse would improve safety and change access to the boathouse but would not change its operation. The creation of Boat Basin 2, as well as new floating and training docks at Boat Basin 2, would increase vessel storage capacity for vessels that are currently moored elsewhere and optimize vessel movement, but would not increase the training vessel activity nor would it increase student visitation to the site. Additionally, the improvements at the Marine Yard would include constructing a pedestrian-oriented plaza as well as allowing of the Marine Yard to serve its functional activities related to the NSMV and would contain staging, storage, and truck access. All told, these improvements would further Cal Maritime's educational mission and expansion of cadet instruction but would not result in a change in activity or emission sources that would result in emission increases above existing conditions. These changes would not change existing or introduce new sources of emissions. Thus, the change in operational impacts would be less than significant, and no mitigation is required.

Phase Three

Phase Three of the project would redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. New classrooms, outdoor learning spaces, and a new Marine Programs Multi-Use Building would be constructed. A marine hydrokinetic barge and linking trestle, which would provide up to 10 megawatts of renewable energy to the campus, are also considered during this phase. This phase would also focus on improvement of the campus-coastline linkage and open spaces and a heightened level of resilience to climate- and storm-related stresses.

New buildings and facilities are proposed under Phase Three. The new Marine Programs Multi-Use Building would replace the obsolete trailers and modulars with a 20,300 square foot building. The 10,750 square feet floating row house is proposed to provide waterfront athletic facilities. These improvements would increase and improve instructional opportunities on campus but would not increase student enrollment or staffing. Other improvements, such as the central waterfront esplanade and shoreline enhancements, would improve pedestrian access and provide while furthering the waterfront's ecological function and resilience. Neither of these would increase student enrollment or staffing.

Additionally, the marine hydrokinetic barge (MHK) could ultimately provide up to 10 megawatts of renewable energy to the campus. This would reduce the amount of energy the campus would need to purchase from PG&E, thereby reducing campus wide emissions while improving climate-related resilience. These changes would not change existing or introduce new sources of emissions. Thus, the change in operational impacts would be less than significant, and no mitigation is required.

Summary

As shown above in Table 3.2-6, construction activities are not anticipated to result in exceedances of any of the average daily thresholds established by BAAQMD. In addition, operational activities are not anticipated to increase resource consumption, student enrollment, or staffing. Any change in operational emissions would be minor and well below thresholds established by BAAQMD. Thus, the proposed project is not anticipated to result in cumulatively considerably increases in criteria air pollutants and ozone precursors that would contribute to the nonattainment status of the SFBAAB. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-3: Carbon Monoxide Hot Spots

Operational mobile-source emissions of CO generated by additional traffic associated with implementation of the Waterfront Master Plan would not violate an air quality standard or contribute substantially to an existing or projected air quality violation or expose sensitive receptors to substantial pollutant concentrations. As a result, this impact would be **less than significant**.

Mobile-source CO emissions have historically decreased since the advent of catalytic converters, which decrease mobile-source exhaust emissions, as well as improvements in fuel economy since the CO NAAQS and CAAQS were established and implemented by EPA and CARB, respectively (e.g., the Corporate Average Fuel Economy standards and Advanced Clean Cars II program). Nonetheless, BAAQMD continues to recommend the evaluation of protects to determine if increases in peak-hour vehicular traffic could result in local CO hotspots from project operation. The BAAQMD 2022 CEQA Guide provides conservative screening criteria that can be used to determine whether implementing the Waterfront Master Plan could result in CO emissions that exceed the thresholds of significance. If all the following screening criteria are met, operation of the proposed project would result in a less than significant impact related to carbon monoxide:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, the regional transportation plan, and local congestion management agency plans.
- Project-generated traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- Project-generated traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

As detailed in Chapter 2, "Project Description," implementation of the three phases of the proposed project would not result in increased enrollment or student capacity, nor would it result in a related increase in staff and faculty employment. Phases 2 and 3 of the project would include construction of a new public pier, including upland improvements, which may attract additional public use of the site. However, the campus shoreline already is maintained as open space and allows public access, and the proposed project improvements are not expected to generate substantial new public use and associated vehicle trips. Therefore, project-generated traffic volumes would not exceed BAAQMD's screening criteria established for evaluating CO impacts. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-4: Toxic Air Contaminants

Construction activities would result in temporary, short-term project-generated emissions of TACs, particularly diesel PM. Once operational, the Waterfront Master Plan may introduce new odors to the area, associated with the operation of new training areas, research facilities, or diesel-related exhaust from delivery trucks. However, TAC sources during construction would be transitory and short term, while the change in operational emissions would be minor and at a distance that would not expose sensitive receptor locations to substantial pollutants, As a result, impact would be **less than significant**.

Construction activities associated with proposed project would result in temporary, short-term emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment used during demolition, site preparation, building construction, paving, and application of architectural coatings and the exhaust of on-road haul truck travel. For construction activity, diesel PM is the primary TAC of concern.

Demolition and renovation of older facilities may also result in the release of airborne asbestos because of the disturbance of asbestos-containing material that may be present in older buildings. Exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest and abdominal cavity), and asbestosis (a non-cancerous lung disease which causes scarring of the lungs) (CARB 2017). However, these activities would be subject to the Federal EPA Asbestos NESHAP regulation and BAAQMD Regulation 11, Rule 2. The rule requires Cal Maritime and its contractors to notify BAAQMD of any renovation or demolition activity at least 45 working days prior to commencement of demolition/renovation. When removing any Regulated Asbestos Containing Material (RACM), BAAQMD regulations must be followed. This notification includes a description of structures and methods utilized to determine whether asbestos-containing materials are potentially present. All RACM found on the site must be removed prior to renovation activity and there are specific requirements for surveying, notification, removal, and disposal of material containing asbestos. Therefore, project compliance with BAAQMD rules and Federal regulations would ensure that asbestos-containing materials would be disposed of appropriately and safely and unsafe exposure to asbestos would not occur.

As noted in Section 3.2.2, "Environmental Setting," existing sensitive receptors include students and residents on-site and residents off-site. The closest on-site residential uses are approximately 215 feet northeast of the project boundary and 1,000 feet north of the existing Main Pier. The closest off-site residences are those along Jade Circle, approximately 375 feet north of the campus boundary and 1,650 north of the existing Main Pier.

Construction of the project would take place over approximately 10 years. Phase One is anticipated to occur over 21 months commencing in summer 2025, with completion in fall 2026. Phase Two is anticipated to be implemented over approximately 6 years commencing in 2027, while Phase Three would take place thereafter as funding is available. Construction of the various elements would include construction equipment (such as cranes, loaders, and dozers), waterside equipment (such as barges, tugboats, and workboats), and trucks used to haul materials and debris. Construction would be sporadic over the entire project area over multiple years, which includes 4.8 acres of land area, 1.8 acres in existing boat basin, and 4.6 acres of new boat basin. Based on the construction modeling for the proposed project, the majority of $PM_{2.5}$ emissions would result from waterside equipment and the crane, which operates on the derrick barge. These emissions sources occur in the water, which is further from existing receptor location than the landside areas. Additionally, construction in any single location would be short term and any associated emissions and pollutant concentrations would be temporary and much less than the 30- or 70-year exposure period typically used to estimate lifetime cancer risks.

Although specific details needed to assess construction-related emissions at individual locations are not available at this time, construction $PM_{2.5}$ and diesel PM levels associated with future buildout are expected to be minimal. Construction at any single site would be short term and transitory, result in minimal emissions, and occur at distances not expected to expose sensitive receptor locations to substantial pollutant concentrations. As such, impacts from the emission of $PM_{2.5}$ and diesel PM during construction would be less than significant.

Implementation of the project would not change the nature or extent of existing operations at the campus. The proposed improvements would not result in increased student capacity or enrollment, nor would it result in increased employment of faculty and staff. The new training vessel is more modern than the existing vessel, likely resulting in a marginal to no change in emissions. The change in operational impacts would be **less than significant**, and no mitigation is required.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-5: Odorous Emissions

Construction of the Waterfront Master Plan would result in temporary odor sources (diesel PM) that would disperse rapidly as each of the construction phases are complete. Once operational, the project may introduce new odors to the area, associated with the operation of new training areas, research facilities, or diesel-related exhaust from delivery trucks. The new odor sources would be similar to existing sources that operate in and around the project site and are not considered operational sources of odors as defined by BAAQMD. As a result, impacts would be **less than significant**.

The occurrence and severity of odor impacts depends on numerous factors, including: the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies. Projects with the potential to frequently expose a substantial number of members of the public to objectionable odors would be deemed to have a significant impact.

Construction of the project would result in minor odors from the use of heavy-duty diesel equipment during construction phases. These odors would be intermittent and temporary, as they would only occur during the construction phases and would cease once construction activities are complete. Although construction activities are planned over multi-year period, construction activities would be spaced out over the 88-acre campus (including 76 acres of land and 12 acres of waterways); thus, odors generated during construction would not all concentrate at the same location for the entire duration of Waterfront Master Plan implementation. Further, construction activities would be subject to BAAQMD Regulation 8, Rule 3, Architectural Coatings, and Rule 15, Emulsified Asphalt, which reduce odors from VOCs. Therefore, construction is not anticipated to result in substantial odors.

BAAQMD identifies land uses typically associated with potential odor impacts, including coffee roasters, industrial uses, waste and compost facilities, wastewater treatment plants, water treatment plans, and various industrial and agricultural uses. The Waterfront Master Plan includes various waterfront improvements that support campus and waterfront-dependent program needs, including hands-on campus instruction related to small and large craft navigation, maintenance, and other ship provisioning operations; small craft mooring and storage; and public recreational use. None of these uses include long-term odor sources.

The proposed project would not introduce new odor sources to the project area. The use of heavy-duty diesel equipment during construction would be intermittent and short-term and would not result in substantial odors. As a result, the project would not result in substantial odor impacts to both existing and future sensitive receptors. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.3 BIOLOGICAL RESOURCES

This section addresses biological resources known or with potential to occur on or near the project site and describes potential effects of implementation of the project on those resources. Data reviewed in preparation of this analysis include:

- Results of California Natural Diversity Database (CNDDB) record search of the Cuttings Wharf, Cordelia, Fairfield South, Mare Island, Benicia, Vine Hill, Richmond, Briones Valley, and Walnut Creek US Geological Survey (USGS) 7.5-minute quadrangles (CNDDB 2023);
- Results of California Native Plant Society (CNPS), Inventory of Rare Plants search of the Cuttings Wharf, Cordelia, Fairfield South, Mare Island, Benicia, Vine Hill, Richmond, Briones Valley, and Walnut Creek USGS 7.5-minue quadrangles (CNPS 2023);
- Results of USFWS Information for Planning and Consultation (IPaC) electronic records search (USFWS 2023);
- Review of the California State University Maritime Academy Waterfront Master Plan Project, Aquatic Resources Technical Report (Appendix E);
- Aerial photographs of the project site and region.

In response to the Notice of Preparation (NOP) for the project, comment letters (see Appendix A) pertaining to biological resources were received from the California Department of Fish and Wildlife (CDFW), Napa Solano Audubon, and the California State Lands Commission regarding impacts on special-status plants and wildlife, riparian habitat, fully protected species, nesting birds, impacts on fish and birds from project-associated noise and vibration, aquatic invasive species, and opportunities for recreational birding on the project site. These issues are considered and addressed below, where applicable. Refer to Appendix A for comments received on the NOP.

3.3.1 Regulatory Setting

Regulations that pertain to the proposed project or project site are set forth below.

FEDERAL

Federal Endangered Species Act

Pursuant to the federal Endangered Species Act (ESA) (16 U.S.C. Section 1531 et seq.), the U.S. Department of Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS) regulate the taking of species listed in ESA as threatened or endangered. In general, persons subject to ESA (including private parties) are prohibited from "taking" endangered or threatened fish and wildlife species on private or government-owned property, and from "taking" endangered or threatened plants in areas under federal jurisdiction or in violation of state law. Under Section 9 of the ESA, the definition of "take" is to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS and NMFS have also interpreted the definition of "harm" to include significant habitat modification that could result in take.

Section 10 of ESA applies if a non-federal agency is the lead agency for an action that results in take and no other federal agencies are involved in permitting the action. Section 7 of ESA applies if a federal discretionary action is required (e.g., a federal agency must issue a permit), in which case the involved federal agency consults with USFWS or NMFS.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act declares it is illegal to "take" bald eagles, including their parts, nests, or eggs, unless authorized. Under this Act, "take" is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." "Disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, injury to an eagle; a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or nest abandonment. In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits and causes injury, nest abandonment, or death.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. MBTA provides that it shall be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. Under the MBTA, "take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities." A take does not include habitat destruction or alteration, as long as there is not a direct taking of birds, nests, eggs, or parts thereof. The current list of species protected by the MBTA can be found in 50 CFR 10.13. The list includes nearly all birds native to the United States.

Clean Water Act

Section 404 of the Clean Water Act (CWA) requires a project applicant to obtain a permit before engaging in any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands. Fill material is material placed in waters of the United States that has the effect of replacing any portion of waters of the United States with dry land or changing the bottom elevation of any portion of waters of the United States. Waters of the United States include navigable waters; interstate waters; all other waters where the use, degradation, or destruction of the waters could affect interstate or foreign commerce; relatively permanent tributaries to any of these waters; and wetlands adjacent to these waters. Wetlands are defined as those areas that are inundated or saturated by surface water or groundwater 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. Potentially jurisdictional wetlands typically must meet three wetland delineation criteria: hydrophytic vegetation, hydric soil types, and wetland hydrology. Wetlands that meet the delineation criteria may be jurisdictional under Section 404 of the CWA pending U.S. Army Corps of Engineers (USACE) verification.

Under Section 401 of the CWA, an applicant for a Section 404 permit must obtain a certificate from the appropriate state agency stating that the intended dredging or filling activity is consistent with the state's water quality standards and criteria. In California, the authority to grant water quality certification is delegated by the State Water Resources Control Board (SWRCB) to the nine regional water quality control boards (RWQCBs). Section 3.9, "Hydrology and Water Quality," includes further discussion of water quality regulations.

Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) (16 US Code Chapter 31), first enacted in 1972, provides for protection of all marine mammals (whales, dolphins, seals, and sea lions) in the United States. The MMPA provides that it shall be unlawful, with certain permitted exceptions, to take a marine mammal in waters of the United States. Under the MMPA, "take" is defined as "harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal."

Magnuson-Stevens Fishery Conservation and Management Act

The federal Magnuson-Stevens Fishery Conservation and Management Act (16 US Code Section 1801 et seq.) is the primary law governing management of commercial and recreational marine fisheries in the United States. The purpose of this federal law is sevenfold: conserve fishery resources, support enforcement of international fishing agreements, promote fishing in line with conservation principles, provide for the implementation of fishery management plans to achieve optimal yield, establish regional fishery management councils to steward fishery resources, develop underutilized fisheries, and protect Essential Fish Habitat (EFH).

The Magnuson-Stevens Act requires federal agencies to consult with the National Marine Fisheries Service (NMFS) when a project has the potential to adversely affect EFH. State agencies are not required to consult with NMFS; however, NMFS is required to develop EFH conservation recommendations for any state agency activity that would affect EFH. Similar to the treatment of critical habitat in the ESA, EFH protection measures recommended by NMFS or a regional fisheries management council are advisory and not prescriptive.

Coastal Zone Management Act

The Coastal Zone Management Act (CZMA; 16 USC § 1451 *et seq*.), established in 1972 and administered by NOAA's Office of Ocean and Coastal Resource Management, provides for management of the nation's coastal resources through a state and federal partnership. In the vicinity of the Site, the San Francisco Bay Conservation and Development Commission (BCDC) is the state's coastal zone management agency responsible for issuing concurrence with consistency determinations under the CZMA. The *San Francisco Bay Plan* (Bay Plan) contains the policies that the BCDC uses to determine whether permit applications can be approved for projects within the BCDC's jurisdiction, which consists of the San Francisco Bay, salt ponds, managed wetlands, certain waterways, and land within 100 feet of the San Francisco Bay (BCDC 2011). The Project's consistency with the CZMA is discussed further in Section 3.10, "Land Use and Planning."

California Eelgrass Mitigation Policy

The California Eelgrass Mitigation Policy (CEMP) was developed by NMFS (2014) to provide consistent, statewide guidance for protection of eelgrass beds in California. The CEMP recommends no net loss of eelgrass habitat function in California, recognizing the important biological, physical, and economic value that eelgrass provides, as well as its importance to species managed under the Magnuson-Stevens Act (described above). The CEMP includes guidelines recommending survey and monitoring methods and strategies for assessing and mitigating impacts on eelgrass habitat.

Rivers and Harbors Act

The Rivers and Harbors Act is a primary federal law regulating activities that may affect navigation on the nation's waterways. Sections 9 and 10 of the Rivers and Harbors Act grant the USACE control over obstructions to navigable waters of the United States.

STATE

California Endangered Species Act

Pursuant to the California Endangered Species Act (CESA), a permit from CDFW is required for projects that could result in the "take" of a plant or animal species that is listed by the state as threatened or endangered. Under CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species but does not include "harm" or "harass," as does the federal definition. As a result, the threshold for take is higher under CESA than under the federal ESA. Authorization for take of state-listed species can be obtained through a California Fish and Game Code Section 2081 incidental take permit.

Native Plant Protection Act

The Native Plant Protection Act (NPPA) (California Fish and Game Code Section 1900 et seq.) allows the California Fish and Game Commission to designate plants as rare or endangered. Sixty-four species, subspecies, and varieties of plants are protected as rare under the NPPA. The act prohibits take of endangered or rare native plants but includes exceptions for agricultural and nursery operations; for emergencies; and, after proper notification of CDFW, for vegetation removal from canals, roads, and other building sites, changes in land use, and other situations.

California Fish and Game Code Sections 3503 and 3503.5

Section 3503 of the Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 of the California Fish and Game Code states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders *Falconiformes* and *Strigiformes*), including their nests or eggs. Typical violations include destruction of active nests as a result of tree removal or disturbance caused by project construction or other activities that cause the adults to abandon the nest, resulting in loss of eggs or young.

Fully Protected Species

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code prohibit take of fully protected birds, mammals, reptiles and amphibians, and fish. Species listed under these statutes may not be taken or possessed at any time and no incidental take permits can be issued for these species except for scientific research purposes, for relocation to protect livestock, or as part of a natural community conservation plan (NCCP).

California Fish and Game Code Section 1602—Streambed Alteration

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports fish or wildlife resources are subject to regulation by CDFW under Section 1602 of the California Fish and Game Code. Under Section 1602, it is unlawful for any person, governmental agency, or public utility to do any of the following without first notifying CDFW:

- substantially divert or obstruct the natural flow of, or substantially change or use any material from, the bed, channel, or bank of any river, stream, or lake; or
- deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

The regulatory definition of a stream is a body of water that flows at least periodically or intermittently through a bed or channel that has banks and supports fish or other aquatic life. This definition includes watercourses with a surface or subsurface flow that supports or has supported riparian vegetation (California Code of Regulations Title 14, Section 1.72). CDFW jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife. A streambed alteration agreement must be obtained for any diversion or alteration that would substantially adversely affect a fish or wildlife resource in a river, stream, or lake.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), waters of the state fall under the jurisdiction of the appropriate RWQCB. The project site is within the San Francisco Bay RWQCB. The RWQCB must prepare and periodically update water quality control plans (basin plans). Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control point and nonpoint sources of pollution to achieve and maintain these standards. The RWQCB's jurisdiction includes federally protected waters as well as areas that meet the definition of "waters of the state." Waters of the state are defined as any surface water or groundwater, including saline waters, within the boundaries of the state. In addition to water quality certifications under Section 401 of the federal Clean Water Act, discharges to waters of the state, including wetlands, must meet the RWQCB waste discharge requirements.

Bay Conservation and Development Commission

BCDC is dedicated to the protection and enhancement of San Francisco Bay and to the encouragement of its responsible use. Pursuant to the McAteer-Petris Act, BCDC is designated as the agency responsible for the protection of the Bay and its natural resources and for the regulation of the development of the Bay and shoreline to their highest potential with a minimum of Bay fill. It is necessary to obtain BCDC approval prior to undertaking any work within 100 feet of the Bay shoreline; filling of the Bay or certain tributaries of the Bay; dredging; any filling, new construction, major remodeling, substantial change in use, and many land subdivisions in the Bay, along the shoreline, in salt ponds, duck hunting preserves or other managed wetlands adjacent to the Bay.

McAteer-Petris Act

The McAteer-Petris Act (California Government Code § 66000 *et seq.*), first enacted in 1965, created BCDC to prepare a plan (the Bay Plan) to protect the San Francisco Bay and shoreline, and provide for appropriate development and public access. The act directs BCDC to exercise its authority to issue or deny permit applications for placing fill, dredging, or changing the use of any land, water, or structure in the area of its jurisdiction (i.e., San Francisco Bay waters and a 100-foot band above the shoreline).

BCDC, through its coastal management program, has jurisdiction over the San Francisco Bay segment of the California coastal zone. BCDC's coastal management program as it applies to the Site is based on the provisions and policies of the McAteer-Petris Act and the Bay Plan, as well as BCDC's administrative regulations.

Pursuant to the McAteer-Petris Act, BCDC has designated certain areas within the 100-foot shoreline band for specific priority uses including ports, water-related industry, water-oriented recreation, airports, and wildlife refuges. BCDC has authority to grant or deny permits for development or other actions within the priority use areas based on Bay Plan policies pertaining to those uses. The Bay Plan does not identify any priority-use areas for aquatic biological resources at or near the Site (BCDC 2020).

The Bay Plan also identifies habitats and other physical features of the estuary that are "particularly important to certain species of fish, other aquatic organisms and wildlife due to their high native biodiversity, productivity or scarcity," and outlines policies to protect these areas and their resources (BCDC 2020). Among the findings of the Bay Plan are that: "Eelgrass beds are a valuable shallow water habitat, providing feeding, escape, or breeding habitat for many species of invertebrates, fishes, and some waterfowl." Other Bay Plan findings and policies related to eelgrass include:

- Eelgrass grows in relatively few locations in the San Francisco Bay and requires special conditions to flourish. Cultivating eelgrass is difficult and efforts to grow eelgrass in San Francisco Bay have not succeeded.
- Baywide studies would help determine the need for, appropriate locations for, and potential effects of in-Bay disposal for eelgrass or other shallow water habitat enhancement or restoration.
- Any proposed filling or dredging project in a subtidal area should be thoroughly evaluated to determine the local and Bay-wide effects of the project on: (a) the possible introduction or spread of invasive species; (b) tidal hydrology and sediment movement; (c) fish, other aquatic organisms and wildlife; (d) aquatic plants; and (e) the Bay's bathymetry. Projects in subtidal areas should be designed to minimize and, if feasible, avoid any harmful effects.
- Subtidal areas that are scarce in the Bay or have an abundance and diversity of fish, other aquatic organisms and wildlife (e.g., eelgrass beds, sandy deep water or underwater pinnacles) should be conserved. Filling, changes in use; and dredging projects in these areas should therefore be allowed only if: (a) there is no feasible alternative; and (b) the project provides substantial public benefits.
- A project that uses dredged material to create, restore, or enhance bay or certain waterway natural resources should be approved only if dredged material would not be placed in areas with particularly high or rare existing natural resource values, such as eelgrass beds and tidal marsh and mudflats, unless the material would be needed to protect or enhance the habitat.

LOCAL

Cal Maritime is part of the CSU, which is a statutorily- and legislatively-created and constitutionally authorized entity of the State of California, and therefore the project site is owned by the CSU. As explained in Chapter 3 of this ~~Draft~~ EIR, in the "California State University Autonomy" section, as a state agency, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, this EIR does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes.

City of Vallejo General Plan

The Nature and Built Environment chapter of the City of Vallejo General Plan includes policies pertaining to biological resources that may apply to the project (City of Vallejo 2018).

- 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.

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

City of Vallejo Tree Ordinance

Chapter 10.12.010 of the City of Vallejo Municipal Code regulates cutting, trimming, pruning, planting, removal, injury, or interference of any tree, shrub, or ornamental plant located on any street, park, pleasure ground, boulevard, alley, or public place within the City. Removal, cutting, or trimming of trees and shrubs within these areas required a permit from the City of Vallejo public works director. Street trees that are removed are required to be replaced by the property owner with an equal number of trees from an approved street tree list, and replacement trees shall be a minimum fifteen-gallon size. Alternatively, the applicant may pay a fee in an amount established by city council resolution, which would be used to purchase and replant a street tree on the property or on public property at another location within the city.

3.3.2 Environmental Setting

LAND COVER TYPES

The project site is primarily composed of open water habitat within San Francisco Bay, and also includes developed areas, rip-rap shoreline, landscaping, and a vegetated hillside. These land cover types are described in more detail below and are shown in Figure 3.3-1.

Open Water

The project site contains 26.28 acres of open water habitat within San Francisco Bay (Figure 3.3-1). Within the open water portion of the project site there is approximately 0.15 acre of eelgrass beds and 0.51 acre of open water is covered by existing overwater structures (Appendix E). There are no other wetlands or waters within the project site.

Developed

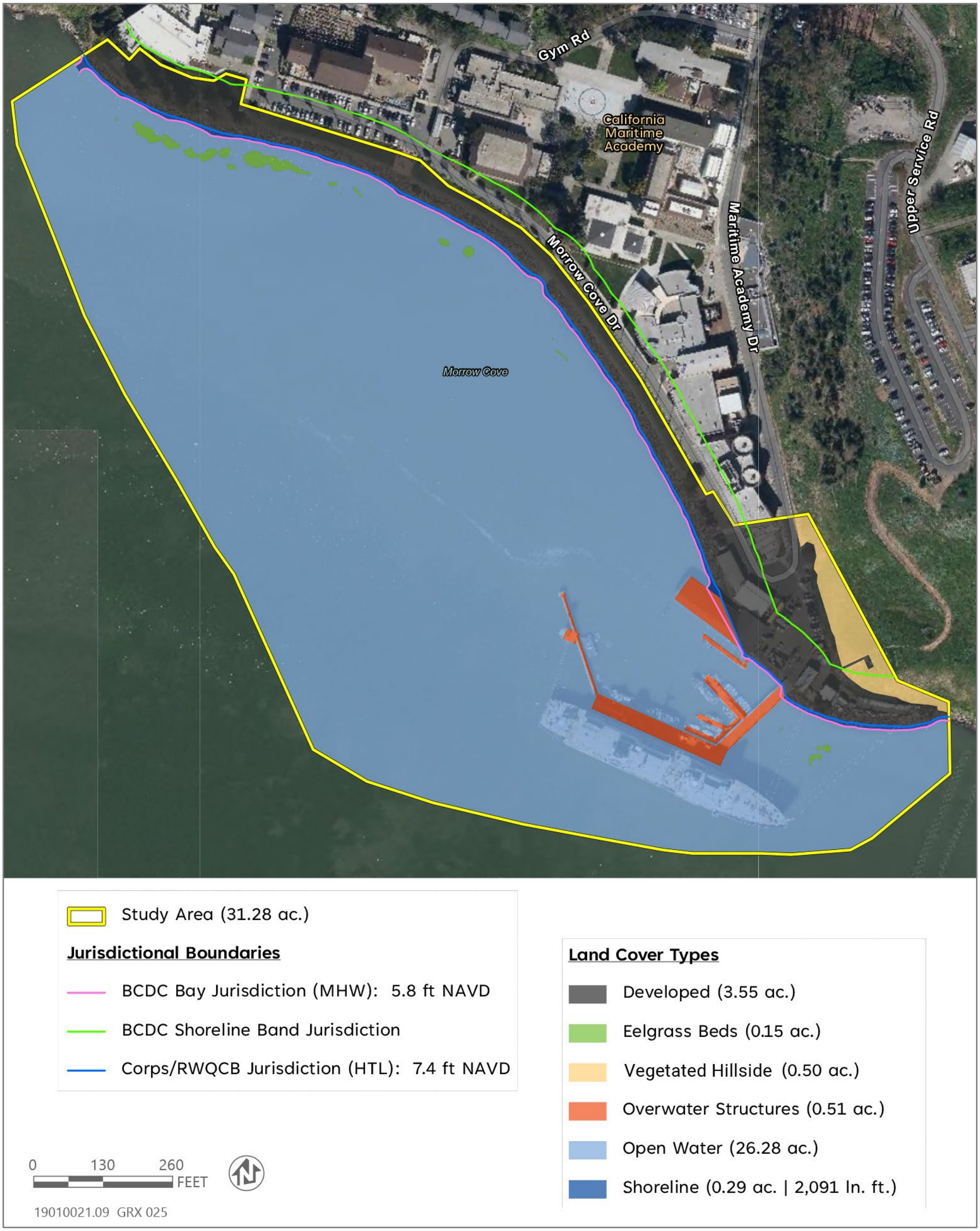
Approximately 3.55 acres of the project site are developed, including developed areas on land (e.g., paved roads, parking areas, walkways, buildings) and within the Bay (e.g., boathouse, piers, Training Ship Golden Bear, boat docks) (Figure 3.3-1).

Rip-Rap Shoreline

The project site contains 0.29 acre of rip-rap shoreline, which spans the entire shoreline of the project site (Figure 3.3-1).

Vegetated Hillside

An approximately 0.5-acre area of steep hillside in the eastern corner of the project site contains ruderal grassland as well as some native shrub species, including California sagebrush (*Artemisia californica*) and toyon (*Heteromeles arbutifolia*). This hillside is disturbed and contains transmission towers, a staircase, roads, and footpaths (Figure 3.3-1).



Source: adapted by Ascent in 2023.

Figure 3.3-1 Land Cover on the Project Site

SENSITIVE BIOLOGICAL RESOURCES

Special-Status Species

Special-status species are defined as species that are legally protected or that are otherwise considered sensitive by federal, state, or local resource agencies. Special-status species are species, subspecies, or varieties that fall into one or more of the following categories, regardless of their legal or protection status:

- officially listed by California or the federal government as endangered, threatened, or rare;
- a candidate for state or federal listing as endangered, threatened, or rare;
- taxa (i.e., taxonomic category or group) that meet the criteria for listing, even if not currently included on any list, as described in California Code of Regulations (CCR) Section 15380 of the State CEQA Guidelines;
- species identified by CDFW as Species of Special Concern;
- species listed as Fully Protected under the California Fish and Game Code;
- species afforded protection under local planning documents; and
- taxa considered by the CDFW to be "rare, threatened, or endangered in California" and assigned a California Rare Plant Rank (CRPR). The CDFW system includes five rarity and endangerment ranks for categorizing plant species of concern, summarized as follows:
  - CRPR 1A - Plants presumed to be extinct in California;
  - CRPR 1B - Plants that are rare, threatened, or endangered in California and elsewhere;
  - CRPR 2 - Plants that are rare, threatened, or endangered in California but more common elsewhere;

The term "California species of special concern" is applied by CDFW to animals not listed under ESA or CESA, but that are considered to be declining at a rate that could result in listing, or that historically occurred in low numbers and known threats to their persistence currently exist. CDFW's fully protected status was California's first attempt to identify and protect animals that were rare or facing extinction. Most species listed as fully protected were eventually listed as threatened or endangered under CESA; however, some species remain listed as fully protected but do not have simultaneous listing under CESA. Fully protected species may not be taken or possessed at any time and no take permits can be issued for these species except for scientific research purposes, for relocation to protect livestock, or as part of an NCCP.

The special-status plant species that are known to occur within the nine USGS 7.5-minute quadrangles including and surrounding the project site were evaluated to determine the potential for these species to occur on the project site based on the presence of habitat suitable for the species (CNDDB 2023; CNPS 2023, Table 3.3-1). The special-status wildlife species that are known to occur within the nine-quadrangle search area were similarly evaluated to determine which species have potential to occur on the project site based on the presence of habitat suitable for the species (CNDDB 2023, Table 3.3-2). The tables describe the species' regulatory status, habitat, and potential for occurrence on the project site.

Table 3.3-1 Special-Status Plant Species Known to Occur in the Vicinity of the Project Site and Their Potential for Occurrence on the Project Site

Species	Listing Status[1] Federal	Listing Status[1] State	CRPR	Habitat	Potential for Occurrence
Bent-flowered fiddleneck *Amsinckia lunaris*	—	—	1B.2	Cismontane woodland, valley and foothill grassland, coastal bluff scrub. 10–2,610 feet in elevation. Blooms March–June. Annual.	Not expected to occur. The project site does not contain woodland, grassland, or coastal bluff scrub habitat.
Pallid manzanita *Arctostaphylos pallida*	FT	SE	1B.1	Grows on uplifted marine terraces on siliceous shale or thin chert. May require fire. 590–1,510 feet in elevation. Blooms December–March. Perennial.	Not expected to occur. The project site does not contain chaparral habitat and is outside of the elevation range of this species.
Alkali milk-vetch *Astragalus tener* var. *tener*	—	—	1B.2	Low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools. 0–550 feet in elevation. Blooms March–June. Annual.	Not expected to occur. The project site does not contain alkali flats, flooded lands, or vernal pool habitats.
Vernal pool smallscale *Atriplex persistens*	—	—	1B.2	Alkaline vernal pools. 10–380 feet in elevation. Blooms June–October. Annual.	Not expected to occur. The project site does not contain vernal pool habitat.
Big-scale balsamroot *Balsamorhiza macrolepis*	—	—	1B.2	Chaparral, valley and foothill grassland, cismontane woodland. Open grassy or rocky slopes, valleys. Sometimes on serpentine. 115–4810 feet in elevation. Blooms March–June. Perennial.	**May occur**. Grassy slope habitat potentially suitable for this species is present in the vegetated hillside on the project site.
Big tarplant *Blepharizonia plumosa*	—	—	1B.1	Dry hills and plains in annual grassland. Clay to clay-loam soils; usually on slopes and often in burned areas. 100–1,660 feet in elevation. Blooms July–October. Annual.	**May occur**. Grassy slope habitat potentially suitable for this species is present in the vegetated hillside on the project site.
Mt. Diablo fairy-lantern *Calochortus pulchellus*	—	—	1B.2	Endemic to California, where it is mainly restricted to Mount Diablo in Contra Costa County. Grows in chaparral and woodland of the bayside slopes. 100–3,000 feet in elevation. Blooms April–June. Geophyte.	Not expected to occur. The project site does not contain woodland or chaparral habitat.
Coastal bluff morning-glory *Calystegia purpurata* ssp. *saxicola*	—	—	1B.2	Coastal dunes, coastal scrub, coastal bluff scrub, north coast coniferous forest. 30–345 feet in elevation. Blooms April–September. Perennial.	Not expected to occur. The project site does not contain dunes, coastal scrub, or forest habitat.
Lyngbye's sedge *Carex lyngbyei*	—	—	2B.2	Marshes and swamps (brackish or freshwater). 0–660 feet in elevation. Blooms April–August. Geophyte.	Not expected to occur. The project site does not contain marsh or swamp habitat.
Tiburon paintbrush *Castilleja affinis* var. *neglecta*	FE	ST	1B.2	Rocky serpentine sites. 390–1,310 feet in elevation. Blooms April–June. Perennial.	Not expected to occur. The project site does not contain serpentine soils and is outside of the elevation range of this species.
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*	—	—	1B.1	Alkaline soils, sometimes described as heavy white clay. 0–755 feet in elevation. Blooms May–October. Annual.	Not expected to occur. The project site does not contain alkaline soils.
Pappose tarplant *Centromadia parryi* ssp. *parryi*	—	—	1B.2	Vernally mesic, often alkaline sites. 5–1,380 feet in elevation. Blooms May–November. Annual.	Not expected to occur. The project site does not contain vernal pool habitat.

Species	Listing Status[1] Federal	Listing Status[1] State	CRPR	Habitat	Potential for Occurrence
Point Reyes salty bird's-beak *Chloropyron maritimum* ssp. *palustre*	—	—	1B.2	Usually in coastal salt marsh. 0–380 feet in elevation. Blooms June–October. Annual.	Not expected to occur. The project site does not contain marsh habitat.
Soft salty bird's-beak *Chloropyron molle* ssp. *molle*	FE	SR	1B.2	In coastal salt marsh. 0–520 feet in elevation. Blooms July–November. Annual.	Not expected to occur. The project site does not contain marsh habitat.
Bolander's water-hemlock *Cicuta maculata* var. *bolanderi*	—	—	2B.1	Marshes and swamps, fresh or brackish water. 0–660 feet in elevation. Blooms July–September. Perennial.	Not expected to occur. The project site does not contain marsh or swamp habitats.
Franciscan thistle *Cirsium andrewsii*	—	—	1B.2	Coastal bluff scrub, broadleaved upland forest, coastal scrub, coastal prairie. Sometimes serpentine seeps. 0–490 feet in elevation. Blooms March–July. Perennial.	Not expected to occur. The project site does not contain coastal bluff scrub, forest, coastal scrub, or coastal prairie habitat.
Suisun thistle *Cirsium hydrophilum* var. *hydrophilum*	FE	—	1B.1	Marshes and swamps. Grows near small watercourses within saltmarsh. 0–5 feet in elevation. Blooms June–September. Perennial.	Not expected to occur. The project site does not contain marsh or swamp habitats.
Western leatherwood *Dirca occidentalis*	—	—	1B.2	On brushy slopes, mesic sites; mostly in mixed evergreen and foothill woodland communities. 80–1,395 feet in elevation. Blooms January–March. Perennial.	Not expected to occur. The project site does not contain evergreen or foothill woodland habitat or mesic habitat.
Dwarf downingia *Downingia pusilla*	—	—	2B.2	Vernal lake and pool margins with a variety of associates. In several types of vernal pools. 0–1,610 feet in elevation. Blooms March–May. Annual.	Not expected to occur. The project site does not contain vernal pool habitat.
Mt. Diablo buckwheat *Eriogonum truncatum*	—	—	1B.1	Chaparral, coastal scrub, valley and foothill grassland. Dry, exposed clay or sandy substrates. 345–1,150 feet in elevation. Blooms April–September. Annual.	Not expected to occur. The project site does not contain chaparral, coastal scrub, or grassland habitat and is outside of the elevation range of this species.
Jepson's coyote-thistle *Eryngium jepsonii*	—	—	1B.2	Vernal pools, valley and foothill grassland. Clay. 10–985 feet in elevation. Blooms April–August. Perennial.	Not expected to occur. The project site does not contain vernal pool habitat.
San Joaquin spearscale *Extriplex joaquinana*	—	—	1B.2	In seasonal alkali wetlands or alkali sink scrub. 0–2,740 feet in elevation. Blooms April–October. Annual.	Not expected to occur. The project site does not contain alkali wetland or alkali sink scrub habitat.
Minute pocket moss *Fissidens pauperculus*	—	—	1B.2	Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 30–3,360 feet in elevation. Perennial.	Not expected to occur. The project site does not contain streambed or stream bank habitat.
Fragrant fritillary *Fritillaria liliacea*	—	—	1B.2	Often on serpentine; various soils reported though usually on clay, in grassland. 10–1,310 feet in elevation. Blooms February–April. Geophyte.	Not expected to occur. The project site does not contain serpentine or other heavy clay soils and does not contain grassland habitat.
Diablo helianthella *Helianthella castanea*	—	—	1B.2	Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. 150–3,510 feet in elevation. Blooms March–June. Perennial.	Not expected to occur. The project site does not contain chaparral or oak woodland habitats or rocky soils.

Species	Listing Status[1] Federal	Listing Status[1] State	CRPR	Habitat	Potential for Occurrence
Loma Prieta hoita *Hoita strobilina*	—	—	1B.1	Chaparral, cismontane woodland, riparian woodland. Serpentine; mesic sites. 200–3,200 feet in elevation. Blooms May–July. Perennial.	Not expected to occur. The project stie does not contain serpentine soils.
Santa Cruz tarplant *Holocarpha macradenia*	FT	SE	1B.1	Light, sandy soil or sandy clay; often with nonnatives. 30–720 feet in elevation. Blooms June–October. Annual.	Not expected to occur. The project site does not contain sandy soils.
Carquinez goldenbush *Isocoma arguta*	—	—	1B.1	Valley and foothill grassland. Alkaline soils, flats, lower hills. On low benches near drainages and on tops and sides of mounds in swale habitat. 0–165 feet in elevation. Blooms August–December. Perennial.	Not expected to occur. The project site does not contain swales or drainages.
Contra Costa goldfields *Lasthenia conjugens*	FE	—	1B.1	Vernal pools, swales, low depressions, in open grassy areas. 0–1,480 feet in elevation. Blooms March–June. Annual.	Not expected to occur. The project side does not contain vernal pool habitat.
Delta tule pea *Lathyrus jepsonii* var. *jepsonii*	—	—	1B.2	Freshwater and brackish marshes. Usually on marsh and slough edges. 0–15 feet in elevation. Blooms May–July. Perennial.	Not expected to occur. The project site does not contain marsh or slough habitat.
Legenere *Legenere limosa*	—	—	1B.1	In beds of vernal pools. 0–2,890 feet in elevation. Blooms April–June. Annual.	Not expected to occur. The project side does not contain vernal pool habitat.
Jepson's leptosiphon *Leptosiphon jepsonii*	—	—	1B.2	Open to partially shaded grassy slopes. On volcanics or the periphery of serpentine substrates. 180–2,805 feet in elevation. Blooms March–May. Annual.	Not expected to occur. The project site does not contain volcanic or serpentine soils.
Mason's lilaeopsis *Lilaeopsis masonii*	—	SR	1B.1	Tidal zones, in muddy or silty soil formed through river deposition or riverbank erosion. 0–35 feet in elevation. Blooms April–November. Geophyte.	Not expected to occur. While the project site contains tidal zones, these areas are composed of rip-rap, and do not have muddy or silty soils.
Delta mudwort *Limosella australis*	—	—	2B.1	Usually on mud banks of the Delta in marshy or scrubby riparian associations; often with *Lilaeopsis masonii*. 0–20 feet in elevation. Blooms May–August. Perennial.	Not expected to occur. The project site does not contain mud bank habitat.
Oregon meconella *Meconella oregana*	—	—	1B.1	Coastal prairie, coastal scrub. Open, moist places. 200–2,100 feet in elevation. Blooms March–April. Annual.	Not expected to occur. The project site does not contain coastal prairie or coastal scrub habitat.
Antioch Dunes evening-primrose *Oenothera deltoides* ssp. *howellii*	FE	SE	1B.1	Interior dunes. Remnant river bluffs and sand dunes east of Antioch. 0–100 feet in elevation. Blooms March–September. Perennial.	Not expected to occur. The project site does not contain dune habitat.
California alkali grass *Puccinellia simplex*	—	—	1B.2	Alkaline, vernally mesic. Sinks, flats, and lake margins. 0–3,000 feet in elevation. Blooms March–May. Annual.	Not expected to occur. The project site does not contain sinks, flats, or vernal pools.
Chaparral ragwort *Senecio aphanactis*	—	—	2B.2	Drying alkaline flats. 62–2,805 feet in elevation. Blooms January–April. Annual.	Not expected to occur. The project site does not contain alkaline flat habitat.

Species	Listing Status[1] Federal	Listing Status[1] State	CRPR	Habitat	Potential for Occurrence
Long-styled sand-spurrey *Spergularia macrotheca* var. *longistyla*	—	—	1B.2	Marshes and swamps, meadows and seeps. Alkaline. 0–840 feet in elevation. Blooms February–May. Perennial.	Not expected to occur. The project site does not contain marsh or swamp habitat.
Northern slender pondweed *Stuckenia filiformis* ssp. *alpina*	—	—	2B.2	Shallow, clear water of lakes and drainage channels. 15–7,630 feet in elevation. Blooms May–July. Perennial.	Not expected to occur. The project site does not contain lakes or drainage channels.
California seablite *Suaeda californica*	FE	—	1B.1	Margins of coastal salt marshes. 0–20 feet in elevation. Blooms July–October. Perennial.	Not expected to occur. The project site does not contain salt marsh habitat.
Suisun Marsh aster *Symphyotrichum lentum*	—	—	1B.2	Marshes and swamps (brackish and freshwater). Most often seen along sloughs. 0–100 feet in elevation. Blooms May–November. Geophyte.	Not expected to occur. The project site does not contain marsh or swamp habitat.
Two-fork clover *Trifolium amoenum*	FE	—	1B.1	Sometimes on serpentine soil, open sunny sites, swales. Most recently cited on roadside and eroding cliff face. 12–1,020 feet in elevation. Blooms April–June. Annual.	Not expected to occur. The project site does not contain serpentine soils or swale habitat. While the project site may be within the historic range of this species, there is currently only a single extant population in northern Marin County
Saline clover *Trifolium hydrophilum*	—	—	1B.2	Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. 0–985 feet in elevation. Blooms April–June. Annual.	Not expected to occur. The project site does not contain marsh, swamp, or vernal pool habitats.
Oval-leaved viburnum *Viburnum ellipticum*	—	—	2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. 705–4,595 feet in elevation. Blooms May–June. Perennial.	Not expected to occur. The project site is outside of the elevation range of this species.

Notes: CRPR = California Rare Plant Rank; CEQA = California Environmental Quality Act; ESA = Endangered Species Act; NPPA = Native Plant Protection Act

1 Legal Status Definitions

Federal:

FE Federally Listed as Endangered (legally protected by ESA)

FT Federally Listed as Threatened (legally protected by ESA)

State:

SE State Listed as Endangered (legally protected by CESA)

ST State Listed as Threatened (legally protected by CESA)

SR

California Rare Plant Ranks (CRPR):

1B Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA).
2B Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA).

CRPR Threat Ranks:

0.1 Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)
0.2 Moderately threatened in California (20-80% occurrences threatened; moderate degree and immediacy of threat)
0.3 Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Sources: CNDDB 2023; CNPS 2023

Table 3.3-2 Special-Status Wildlife Species Known to Occur in the Vicinity of the Project Site and Their Potential for Occurrence on the Project Site

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence
Amphibians and Reptiles				
Alameda whipsnake *Masticophis lateralis euryxanthus*	FT	ST	Typically found in chaparral and scrub habitats but will also use adjacent grassland, oak savanna and woodland habitats. Mostly south-facing slopes and ravines, with rock outcrops, deep crevices, or abundant rodent burrows, where shrubs form a vegetative mosaic with oak trees and grasses.	Not expected to occur. The project site is outside of the documented range of Alameda whipsnake.
California red-legged frog *Rana draytonii*	FT	SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	Not expected to occur. The nearest documented occurrence of California red-legged frog is approximately 5 miles north of the project site on the PG&E Swett Ranch (CNDDB 2023). The project site does not contain aquatic or upland habitat suitable for this species, and there is dense residential development, roads, and a large four-land highway (i.e., SR 780) between the nearest occurrence and the project site that would prohibit dispersal.
California tiger salamander - central California DPS *Ambystoma californiense* pop. 1	FT	ST	Lives in vacant or mammal-occupied burrows throughout most of the year; in grassland, savanna, or open woodland habitats. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	Not expected to occur. The project site is outside of the documented range of California tiger salamander, and the project site does not contain vernal pool or seasonal wetland habitat suitable for this species.
Coast horned lizard *Phrynosoma blainvillii*	—	SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Not expected to occur. Shrub habitat with sandy soils and patches of loose soil is not present on the project site.
Coast Range newt *Taricha torosa*	—	SSC	Coastal drainages from Mendocino County to San Diego County. Lives in terrestrial habitats and will migrate over approximately 0.6 mile (1 km) to breed in ponds, reservoirs and slow-moving streams.	Not expected to occur. The project site is outside of the documented range of Coast Range newt.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence
Foothill yellow-legged frog (Central Coast DPS) *Rana boylii* pop. 4	FP	SE	San Francisco Peninsula and Diablo Range south of San Francisco Bay Estuary, and south through the Santa Cruz and Gabilan Mountains east of the Salinas River in the southern inner Coast Ranges. Partly shaded shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying and at least 15 weeks to attain metamorphosis.	Not expected to occur. The project site is outside of the range of the foothill yellow-legged frog Central Coast DPS.
Foothill yellow-legged frog (North Coast DPS) *Rana boylii* pop. 1	—	SSC	Northern Coast Ranges north of San Francisco Bay Estuary, Klamath Mountains, and Cascade Range including watershed subbasins (HU 8) Lower Pit, Battle Creek, Thomes Creek, and Big Chico Creek in Lassen, Shasta, Tehama, and Butte Counties. Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.	Not expected to occur. The project site does not contain stream habitat suitable for foothill yellow-legged frog.
Northern California legless lizard *Anniella pulchra*	—	SSC	Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. Prefers soils with a high moisture content.	Not expected to occur. The project site is outside of the documented range of this species.
Western pond turtle *Actinemys marmorata*	—	SSC	Ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6,000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.3 mile (0.5 km) from water for egg-laying.	Not expected to occur. The project site does not contain ponds, streams, irrigation ditches, or other aquatic habitat suitable for western pond turtle.
Birds				
Alameda song sparrow *Melospiza melodia pusillula*	—	SSC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits pickleweed (*Salicornia* spp.) marshes; nests low in *Grindelia* bushes (high enough to escape high tides) and in pickleweed.	Not expected to occur. The project site does not contain marsh habitat suitable for nesting Alameda song sparrows.
American peregrine falcon *Falco peregrinus anatum*	FD	SD	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	**May occur**. The project site does not contain nesting habitat (e.g., cliffs, human-made structures) suitable for nesting American peregrine falcons; however, the species is known to nest in the vicinity of the project site (CNDDB 2023) and likely forages over the open water/bay portions of the project site.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence
American white pelican *Pelecanus erythrorhynchos*	—	SSC	Colonial nester on large interior lakes. Nests on large lakes, providing safe roosting and breeding places in the form of well-sequestered islets.	Not expected to occur. The project site does not contain nesting habitat suitable for American white pelicans.
Bald eagle *Haliaeetus leucocephalus*	FD	SE FP	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	May occur. The project site does not contain large trees suitable for nesting bald eagles; however, the species likely forages over the open water/bay portions of the project site.
Bank swallow *Riparia riparia*	—	ST	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Not expected to occur. The project site does not contain bank or cliff habitat suitable for nesting bank swallows.
Bryant's savannah sparrow *Passerculus sandwichensis alaudinus*	—	SSC	California endemic restricted to a narrow coastal strip from Humboldt Bay south to the Morro Bay area. Inhabits low, tidally influenced habitats, adjacent ruderal areas, moist grasslands within and just above the fog belt, and, infrequently, drier grasslands. Bay-shore habitats are composed primarily of broad expanses of higher parts of pickleweed marsh, 5–10 feet above mean sea level, above cord grass stands, and where the pickleweed community merges into grassland.	Not expected to occur. The project site does not contain pickleweed marsh habitat suitable for Bryant's savannah sparrow.
Burrowing owl *Athene cunicularia*	—	SSC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Not expected to occur. The project site does not contain grassland nesting habitat suitable for burrowing owls. While the project site contains ruderal grassland habitat on a vegetated hillside, this area is very steep and would not provide suitable burrow habitat for this species.
Aleutian cackling goose *Branta hutchinsii leucopareia*	FD	—	Winters on lakes and inland prairies. Forages on natural pasture or that cultivated to grain; loafs on lakes, reservoirs, ponds.	May occur. Aleutian cackling geese may be present within open water/bay habitat on the project site during the winter.
California (Ridgway's) clapper rail *Rallus obsoletus obsoletus*	FE	SE FP	Salt-water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	Not expected to occur. The project site does not contain marsh habitat suitable for nesting California Ridgway's rails.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence
California black rail *Laterallus jamaicensis coturniculus*	—	ST FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	Not expected to occur. The project site does not contain marsh or meadow habitat suitable for nesting California black rails.
California least tern *Sternula antillarum browni*	FE	SE FP	Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	Not expected to occur. The project site does not contain beaches or flats suitable for California least terns. The rip-rap shoreline present on the project site does not provide nesting habitat suitable for this species.
Golden eagle *Aquila chrysaetos*	—	FP	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Not expected to occur. The project site does not contain large trees or cliff habitat suitable for nesting golden eagles.
Grasshopper sparrow *Ammodramus savannarum*	—	SSC	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.	Not expected to occur. The project site does not contain dense grasslands suitable for nesting grasshopper sparrows.
Loggerhead shrike *Lanius ludovicianus*	—	SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	May occur. The project site contains a small vegetated hillside with some shrubs that may provide nesting habitat suitable for loggerhead shrikes.
Long-eared owl *Asio otus*	—	SSC	Riparian bottomlands grown to tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	Not expected to occur. The project site does not contain riparian forest habitat suitable for nesting long-eared owls.
Mountain plover *Charadrius montanus*	—	SSC	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Short vegetation, bare ground and flat topography. Prefers grazed areas and areas with burrowing rodents.	Not expected to occur. The project site does not contain grasslands of fields suitable for mountain plovers.
Northern harrier *Circus hudsonius*	—	SSC	Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	Not expected to occur. The project site does not contain shrub or marsh habitat suitable for nesting northern harriers.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence
Purple martin *Progne subis*	—	SSC	Nests in old woodpecker cavities mostly, also in human-made structures. Nest often located in tall, isolated tree/snag.	Not expected to occur. The project site is outside of the documented range of purple martin.
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	—	SSC	Resident of the San Francisco Bay region, in fresh and salt marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	Not expected to occur. The project site does not contain marsh habitat.
San Pablo song sparrow *Melospiza melodia samuelis*	—	SSC	Resident of salt marshes along the north side of San Francisco and San Pablo bays. Inhabits tidal sloughs in the pickleweed (*Salicornia* spp.) marshes; nests in *Grindelia* bordering slough channels.	Not expected to occur. The project site does not contain marsh or tidal slough habitat.
Short-eared owl *Asio flammeus*	—	SSC	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	Not expected to occur. The project site does not contain swamp, meadow, or field habitat suitable for short-eared owls.
Song sparrow ("Modesto" population) *Melospiza melodia*	—	SSC	Emergent freshwater marshes, riparian willow thickets, riparian forests of valley oak (*Quercus lobata*), and vegetated irrigation canals and levees.	Not expected to occur. The project site does not contain marsh or riparian habitat or vegetated irrigation canals.
Suisun song sparrow *Melospiza melodia maxillaris*	—	SSC	Resident of brackish-water marshes surrounding Suisun Bay. Inhabits cattails, tules and other sedges, and pickleweed (*Salicornia* spp.); also known to frequent tangles bordering sloughs.	Not expected to occur. The project site does not contain marsh habitat.
Swainson's hawk *Buteo swainsoni*	—	ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Not expected to occur. The project site does not contain nesting trees with adjacent foraging habitat suitable for Swainson's hawk.
Tricolored blackbird *Agelaius tricolor*	—	ST SSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	Not expected to occur. The project site does not contain riparian or wetland vegetation suitable for nesting tricolored blackbirds.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence
Western snowy plover *Charadrius nivosus nivosus*	FT	SSC	Sandy beaches, salt pond levees and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	Not expected to occur. The project site does not contain sandy beach or shore habitat suitable for western snowy plovers. The rip-rap shoreline present on the project site does not provide nesting habitat suitable for this species.
White-tailed kite *Elanus leucurus*	—	FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Not expected to occur. The project site does not contain woodland or riparian nesting habitat suitable for white-tailed kite.
Willow flycatcher *Empidonax traillii*	—	SE	Inhabits extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters, 2,000-8,000 feet elevation. Requires dense willow thickets for nesting/roosting. Low, exposed branches are used for singing posts/hunting perches.	Not expected to occur. The project site does not contain riparian vegetation suitable for nesting willow flycatchers.
Yellow rail *Coturnicops noveboracensis*	—	SSC	Summer resident in eastern Sierra Nevada in Mono County. Fresh-water marshlands.	Not expected to occur. The project site does not contain marsh habitat.
Yellow warbler *Setophaga petechia*	—	SSC	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	Not expected to occur. The project site does not contain riparian vegetation suitable for nesting yellow warblers.
Yellow-breasted chat *Icteria virens*	—	SSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 feet of ground.	Not expected to occur. The project site does not contain riparian or wetland vegetation suitable for nesting yellow-breasted chats.
Yellow-headed blackbird *Xanthocephalus xanthocephalus*	—	SSC	Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds. Nests only where large insects such as Odonata are abundant, nesting timed with maximum emergence of aquatic insects.	Not expected to occur. The project site does not contain riparian or wetland vegetation suitable for nesting yellow-headed blackbirds.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence
Fish				
Chinook salmon - Central Valley fall / late fall-run ESU *Oncorhynchus tshawytscha* pop. 13	—	SSC	Populations spawning in the Sacramento and San Joaquin rivers and their tributaries.	May occur. This species may be seasonally present within open water habitat on the project site.
Chinook salmon - Central Valley spring-run ESU *Oncorhynchus tshawytscha* pop. 11	FT	ST	Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps greater than 27 C are lethal to adults. Federal listing refers to populations spawning in Sacramento River and tributaries.	May occur. This species may be present seasonally within open water habitat on the project site.
Chinook salmon – Sacramento River winter-run ESU *Oncorhynchus tshawytscha* pop. 7	FE	SE	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 C for spawning.	May occur. This species may be seasonally present within open water habitat on the project site.
Delta smelt *Hypomesus transpacificus*	FT	SE	Estuary. Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities greater than 10 ppt. Most often at salinities less than 2 ppt.	May occur. This species may be present within open water habitat on the project site.
Green sturgeon *Acipenser medirostris*	FT	SSC	This species of sturgeon spends more time in marine habitats than other sturgeon species. Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, and Trinity Rivers. Spawns at temperatures between 8-14 degrees C. Preferred spawning substrate is large cobble but can range from clean sand to bedrock.	Known to occur. This species is known to occur seasonally within the Mare Island Strait.
Longfin smelt *Spirinchus thaleichthys*	FC	ST SSC	Estuary. Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt but can be found in completely freshwater to almost pure seawater.	May occur. This species may be seasonally present within open water habitat on the project site.
Pacific lamprey *Entosphenus tridentatus*	—	SSC	Found in Pacific Coast streams north of San Luis Obispo County, however regular runs in Santa Clara River. Size of runs is declining. Swift-current gravel-bottomed areas for spawning with water temperatures between 12-18 degrees C. Ammocoetes need soft sand or mud.	May occur. This species may be seasonally present within open water habitat on the project site.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence
Sacramento perch *Archoplites interruptus*	—	SSC	Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. Prefers warm water. Aquatic vegetation is essential for young. Tolerates wide range of physio-chemical water conditions.	Not expected to occur. The project site is comprised of swift waters which continually exchange through the Carquinez Strait. Such areas are too turbulent for the species
Sacramento splittail *Pogonichthys macrolepidotus*	—	SSC	Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay and associated marshes. Slow moving river sections, dead end sloughs. Requires flooded vegetation for spawning and foraging for young.	**May occur**. This species may be seasonally present within open water habitat on the project site.
Steelhead - central California coast DPS *Oncorhynchus mykiss irideus* pop. 8	FT	—	From Russian River, south to Soquel Creek and to, but not including, Pajaro River. Also San Francisco and San Pablo Bay basins.	**May occur**. This species may be seasonally present within open water habitat on the project site.
Steelhead - Central Valley DPS *Oncorhynchus mykiss irideus* pop. 11	FT	—	Populations in the Sacramento and San Joaquin rivers and their tributaries.	**May occur**. This species may be present seasonally within open water habitat on the project site.
Western river lamprey *Lampetra ayresii*	—	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 with good water quality.	**May occur**. This species may be seasonally present within open water habitat on the project site.
White sturgeon *Acipenser transmontanus*	—	SC, SSC	Live in estuaries of large rivers, moving into freshwater to spawn. Most abundant in brackish portions of estuaries. In estuaries adults concentrate in deep areas with soft bottoms.	**Known to occur**. This species is known to occur within the Mare Island Strait.
Invertebrates				
California freshwater shrimp *Syncaris pacifica*	FE	SE	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 streamflow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.	Not expected to occur. The project site does not contain stream habitat suitable for California freshwater shrimp.
Callippe silverspot butterfly *Speyeria callippe callippe*	FE	—	Restricted to the northern coastal scrub of the San Francisco peninsula. Hostplant is *Viola pedunculata*. Most adults found on east-facing slopes; males congregate on hilltops in search of females.	Not expected to occur. The project site is outside of the documented range of Callippe silverspot butterfly.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence
Crotch bumble bee *Bombus crotchii*	—	SC	Found primarily in California: Mediterranean, Pacific coast, western desert, Great Valley, and adjacent foothills through most of southwestern California. Habitat includes open grassland and scrub. Nests underground.	May occur. The vegetated hillside on the project site contains ruderal grassland and some native shrubs, and this area may provide nesting, overwintering, or foraging habitat suitable for Crotch bumble bee.
Monarch *Danaus plexippus*	FC	—	Monarch butterfly habitat requirements include host plants for larvae; adult nectar sources; and sites for roosting, thermoregulation, mating, hibernation, and predator escape. Additionally, monarch butterfly requires conditions and resources for initiating and completing migration both to and from winter roosting areas. Along their migration routes and on their summer ranges, monarch butterflies require two suites of plants: (1) host plants for monarch caterpillars, which are primarily milkweeds (*Asclepias* spp.) within the family Apocynaceae upon which adult monarchs lay eggs; and (2) nectar-producing flowering plants of many other species that provide food for adult butterflies. Having both host and nectar plants available from early spring to late fall and along migration corridors is critical to the survival of migrating pollinators. Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (Eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	May occur. The project site is within the overwintering range of monarch, and overwintering monarchs have been observed within a Eucalyptus grove approximately 0.8 mile northwest of the project site (CNDDB 2023). However, the landscape trees on the project site (e.g., pines) are not present in groves, and would not provide the wind protection needed for overwintering monarchs. The vegetated hillside on the project site may provide floral resources for foraging or breeding monarchs.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	—	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus mexicana*). Prefers to lay eggs in elderberries 2–8 inches in diameter; some preference shown for "stressed" elderberries.	Not expected to occur. The project site is outside of the documented range of this species.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence
Vernal pool fairy shrimp *Branchinecta lynchi*	FT	—	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.	Not expected to occur. The project site does not contain vernal pools or other wetlands suitable for this species.
Western bumble bee *Bombus occidentalis*	—	SC	Once common throughout much of its range, in California, this species is currently largely restricted to high elevation sites in the Sierra Nevada and the northern California coast. Habitat includes open grassy areas, chaparral, scrub, and meadows. Requires suitable nesting sites for the colonies, availability of nectar and pollen from floral resources throughout the duration of the colony period (spring, summer, and fall), and suitable overwintering sites for the queens.	Not expected to occur. While the project site is located within the historic range of western bumble bee, this species is currently restricted to the high Sierra Nevada and the northern California coast, and this current range does not overlap the project site. All of the occurrences of western bumble bee in Solano County are historic (i.e., 1910–1975; CNDDB 2023)
Mammals				
American badger *Taxidea taxus*	—	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Not expected to occur. The project site does not contain grassland den habitat suitable for American badger. While the project site contains ruderal grassland habitat on a vegetated hillside, this area is very steep and would not provide suitable den habitat for this species.
Big free-tailed bat *Nyctinomops macrotis*	—	SSC	Low-lying arid areas in southern California. Need high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	Not expected to occur. The project site does not contain cliffs or rocky outcrops suitable for roosting big free-tailed bats.
California sea lion *Zalophus californianus*	MMPA	—	Species ranges 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.	Known to occur. This species is known to occur in the Carquinez Strait.
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.	Not expected to occur. 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.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence
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.	**Known to occur.** This species is known to occur in the Carquinez Strait.
Pallid bat *Antrozous pallidus*	—	SSC	Most common in open, dry habitats with rocky areas for roosting. Tree roosting has also been documented in large conifer snags, inside basal hollows of redwoods and giant sequoias, and bole cavities in oaks. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Not expected to occur. The project site does not contain roost habitat (e.g., trees with large cavities, rocky areas) suitable for pallid bats.
Salt-marsh harvest mouse *Reithrodontomys raviventris*	FE	SE FP	Only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat but may occur in other marsh vegetation types and in adjacent upland areas. Does not burrow, build loosely organized nests. Requires higher areas for flood escape.	Not expected to occur. The project site does not contain salt marsh habitat.
Salt-marsh wandering shrew *Sorex vagrans halicoetes*	—	SSC	Salt marshes of the south arm of San Francisco Bay. Medium high marsh 6-8 feet above sea level where abundant driftwood is scattered among pickleweed (*Salicornia* spp.).	Not expected to occur. The project site is outside of the documented range of salt-marsh wandering shrew, and the project site does not contain salt marsh habitat.
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	—	SSC	Forest habitats of moderate canopy and moderate to dense understory. May prefer chaparral and redwood habitats. Constructs nests of shredded grass, leaves and other material. May be limited by availability of nest-building materials.	Not expected to occur. The project site is outside of the documented range of San Francisco dusky-footed woodrat.
San Pablo vole *Microtus californicus sanpabloensis*	—	SSC	Salt marshes 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	Not expected to occur. The project site does not contain salt marsh habitat.
Southern sea otter *Enhydra lutris nereis*	FT	FP	Nearshore marine environments from about Año Nuevo, San Mateo County to Point Sal, Santa Barbara County. Needs canopies of giant kelp and bull kelp for rafting and feeding. Prefers rocky substrates with abundant invertebrates.	Not expected to occur. The project site does not contain marine habitat suitable for sea otters, and this species is not known to occur in San Francisco Bay.

Species	Listing Status[1] Federal	Listing Status[1] State	Habitat	Potential for Occurrence
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.	Not expected to occur. The project site does not contain tidal marsh habitat.
Townsend's big-eared bat *Corynorhinus townsendii*	—	SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Requires large cavities for roosting, which may include abandoned buildings and mines, caves, and basal cavities of trees. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Not expected to occur. The project site does not contain roost habitat (e.g., trees with large cavities, abandoned buildings, caves) suitable for Townsend's big-eared bat.
Western red bat *Lasiurus blossevillii*	—	SSC	Roosts primarily in trees, 2–40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Not expected to occur. The project site does not contain tree habitat suitable for roosting western red bats, which roost in foliage. Western red bats have not been documented roosting in palm trees, unlike some other bat species.

Notes: CNDDB = California Natural Diversity Database; CEQA = California Environmental Quality Act; MMPA = Marine Mammal Protection Act

1 Legal Status Definitions

Federal:

FE Federally Listed as Endangered (legally protected)
FT Federally Listed as Threatened (legally protected)
FD Federally Delisted
MMPA Marine Mammal Protection Act (legally protected)

State:

FP Fully protected (legally protected)
SSC Species of special concern (no formal protection other than CEQA consideration)
SE State Listed as Endangered (legally protected)
ST State Listed as Threatened (legally protected)
SC State Candidate for listing (legally protected)
SD State Delisted

Sources: Appendix E; CNDDB 2023; USFWS 2023.

Sensitive Natural Communities

Sensitive natural communities are those native plant communities defined by CDFW as having limited distribution statewide or within a county or region and that are often vulnerable to environmental effects of projects (CDFW 2018). These communities may or may not contain special-status plants or their habitat (CDFW 2018). CDFW designates sensitive natural communities based on their state rarity and threat ranking using NatureServe's Heritage Methodology. Natural communities with rarity ranks of S1 to S3, where S1 is critically imperiled, S2 is imperiled, and S3 is vulnerable, are considered sensitive natural communities to be addressed in the environmental review processes of CEQA and its equivalents (CDFW 2018).

Sensitive natural communities are generally identified at the alliance level of vegetation classification hierarchy using the Manual of California Vegetation (Sawyer et al. 2009). Known occurrences of sensitive natural communities are included in the CNDDB; however, no new occurrences have been added to the CNDDB since the mid-1990s when funding was eliminated for this portion of the CNDDB program. Seven sensitive natural communities were identified within the nine USGS quadrangles surrounding project site through a query of the CNDDB: coastal brackish marsh, northern claypan vernal pool, northern coastal salt marsh, northern maritime chaparral, northern vernal pool, serpentine bunchgrass, and valley needlegrass grassland (CNDDB 2023). In addition to these seven sensitive natural communities listed in the CNDDB, the aquatic resources report for the project (Appendix E) determined that eelgrass beds (S3), are present within the project site.

3.3.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

This impact evaluation is based on review of existing databases that address biological resources in the project vicinity, a report summarizing aquatic biological resources on the project site (Appendix E), and review of aerial photographs, as described above.

THRESHOLDS OF SIGNIFICANCE

An impact on biological resources is considered significant if implementation of the project would do any of the following:

- 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 CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS;
- have a substantial adverse effect on state or federally protected wetlands (e.g., marsh, vernal pool, coastal) through direct removal, filling, hydrological interruption, or other means;
- 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;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

ISSUES NOT DISCUSSED FURTHER

Riparian Habitat and Terrestrial Sensitive Natural Communities

The terrestrial portion of the project site does not contain riparian habitat or other sensitive natural communities. This issue is not discussed further.

State and Federally Protected Wetlands and Other Waters

The open water portions of the project site are state and federally protected waters. There are no other wetlands or waters on the project site. The project would result in the addition of approximately 305 new piles and removal of 129 existing piles within aquatic areas in Morro Cove. Installation of piles in aquatic areas would not have a substantial adverse effect on the continued water resources function of a water body, as demonstrated by the fact that the U.S.

Army Corps of Engineers does not regulate piles as fill under the Clean Water Act (see 33CFR328.3). Therefore, impacts to state and federally protected wetlands and other waters associated with the installation of piles would be a less than significant impact. The project would also result in shading of protected waters though the installation of overwater cover, and shoreline construction. The potential impacts of overwater cover and shoreline construction are disclosed under Impacts 3.3-2 and 3.3-3 below.

Wildlife Movement Corridors and Native Wildlife Nursery Sites (Terrestrial)

The terrestrial portion of the project site is almost entirely developed and the relatively small area of undeveloped land on the project site is disturbed and surrounded by developed areas (e.g., parking areas, utility infrastructure, Interstate 80, dense residential development). The terrestrial portion of the project site does not support wildlife nursery sites or substantial wildlife movement corridors. The project would not result in impacts on such resources, and this issue is not discussed further. For impacts related to aquatic wildlife movement corridors, refer to Impact 3.3-4 below.

Conflict with Local Policies or Ordinances Protecting Biological Resources

As described above in Section 3.3.1, "*Regulatory Setting*," the City of Vallejo Municipal Code regulates trees, shrubs, and ornamental plants located on any street, park, pleasure ground, boulevard, alley, or public place within the city. Trees on the project site are not located within any of these locations, are located completely within state property on the Cal Maritime campus and moreover are subject to regulations in the City of Vallejo Tree Ordinance. In addition, as described above in Section 3.3.1, "Regulatory Setting," the City of Vallejo General Plan includes General Plan policies pertaining to natural and sensitive resources within city limits, although as previously stated, the City does not have jurisdiction over state lands including the project site. Nonetheless, the project would not conflict with these policies after implementation of Mitigation Measures 3.3-1 through 3.3-4. This issue is not discussed further.

Conflict with Adopted Habitat Conservation Plans, Natural Community Conservation Plans, or other Approved Local, Regional, or State Habitat Conservation Plans

The project site is located within the proposed plan area of the Solano Multispecies Habitat Conservation Plan and the City of Vallejo is a participant in the proposed plan. However, this plan is in the planning stages and has not yet been adopted. Therefore, there would be no conflict with adopted habitat conservation plans, NCCPs, or other approved plan as a result of project implementation, and this issue is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.3-1: Result in Disturbance or Loss of Special-Status Plant Species

Project activities conducted during implementation of Phase One and Phase Three components including ground disturbance, vegetation removal, and habitat conversion within the approximately 0.5-acre vegetated hillside in the eastern portion of the project site could result in disturbance or loss of two special-status plant species if they are present. Because the loss of special-status plants could substantially affect the abundance, distribution, and viability of local and regional populations of these species, this would be a **significant** impact.

<u>Phase One</u>

Table 3.5-1 provides a list of special-status plant species that may occur on the project site. Two special-status plant species have potential to occur within the ruderal grasslands and native shrubs on the approximately 0.5-acre hillside on the project site: big-scale balsamroot and big tarplant. Implementation of Phase One components (i.e., marine yard expansion, and utilities upgrades) would result in permanent ground disturbance, vegetation removal, and conversion of this habitat, which could result in direct loss of special-status plants or indirect damage through trampling. Accordingly. Phase One could result in a significant impact on special-status plants.

Following construction, ongoing operations of Phase One would not have an effect on special-status plants.

<u>Phase Two</u>

The proposed components of Phase Two of the project (i.e., boathouse renovation, boat basin 2, marine yard improvements, and shoreline enhancements) would occur within developed and landscaped areas of the project site that do not provide habitat for special-status plant species. No components of Phase Two are proposed within the approximately 0.5-acre vegetated hillside on the project site that provides habitat for special-status plants. Therefore, there would be no impact on special-status plants from construction and operations of Phase Two of the project.

<u>Phase Three</u>

While the majority of Phase Three components would occur within developed or landscaped portions of the project site, construction of the Marine Programs Building and Harbor Control Tower proposed for Phase Three may result in disturbance of the approximately 0.5-acre vegetated hillside that provides habitat for big-scale balsamroot and big tarplant. Conversion of this habitat could result in direct loss of special-status plants or indirect damage through trampling. Therefore, Phase Three could result in a significant impact on special-status plants. Ongoing operations of Phase Three would not have an effect on special-status plants.

<u>Summary</u>

As shown in Table 3.5-1, two special-status plant species (big-scale balsamroot and big tarplant) have the potential to occur within the 0.5-acre vegetated hillside on the project site. Implementation of Phase Two of the project is not anticipated to result in disturbance to the vegetated hillside or impacts to special-status plants. However, components of Phase One and Phase Three would occur within the vegetated hillside and the conversion of this habitat could result in direct loss of special-status plants or indirect damage through trampling. Therefore, the project as a whole could have a **significant** impact on special-status plants.

Mitigation Measures

Mitigation Measure 3.3-1: Conduct Special-Status Plant Surveys, Implement Avoidance Measures and No-Net-Loss Strategies

Prior to implementation of project activities within the approximately 0.5-acre vegetated hillside on the project site and during the blooming period for the special-status plant species with potential to occur in the project site, a qualified botanist shall conduct protocol-level surveys for special-status plants within this portion of the project site using survey methods from CDFW's Protocols for Surveying and Evaluating Impacts on Special Status Native Plant Populations and Natural Communities (CDFW 2018 or most recent version). The qualified botanist shall: 1) be knowledgeable about plant taxonomy, 2) be familiar with plants of the San Francisco Bay Area region, including special-status plants and sensitive natural communities, 3) have experience conducting floristic botanical field surveys as described in CDFW 2018, 4) be familiar with the *California Manual of Vegetation* (Sawyer et al. 2009 or current version, including updated natural communities data at http://vegetation.cnps.org/), and 5) be familiar with federal and state statutes and regulations related to plants and plant collecting.

- If special-status plants are not found, the botanist shall document the findings in a letter report to Cal Maritime, and no further mitigation will be required.
- If special-status plant species are found, the plant shall be avoided completely, to the maximum extent feasible (i.e., if a majority of project objectives can still be met). Avoidance may be achieved by establishing a no-disturbance buffer around the plants and demarcation of this buffer by a qualified biologist or botanist using flagging or high-visibility construction fencing, or through other established, professionally accepted methods. The size of the buffer shall be determined by the qualified biologist or botanist and will be large enough to avoid direct or indirect impacts on the plant.

Table 3.3-3 Normal Blooming Period for Special-Status Plants that May Occur on the Project Site

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Big-scale balsamroot												
Big tarplant												

Source: Data compiled by Ascent in 2023; CNPS 2023.

- If special-status plants are found during special-status plant surveys and cannot be avoided, Cal Maritime in coordination with CDFW shall develop and implement a site-specific strategy to achieve no net loss of occupied habitat or individuals. Measures shall be developed by a qualified biologist and include, at a minimum, preserving and enhancing existing populations, establishing populations through seed collection or transplantation, and/or restoring or creating habitat in sufficient quantities to achieve no net loss of occupied habitat or individuals. Potential mitigation sites could include suitable locations within or outside of the project site. Habitat and individual plants lost shall be mitigated at a minimum 1:1 ratio, taking into account acreage as well as function and value. Success criteria for preserved and compensatory populations shall include:
  - The extent of occupied area and plant density (number of plants per unit area) in compensatory populations shall be equal to or greater than the affected occupied habitat.
  - Compensatory and preserved populations shall be self-producing. Populations shall be considered self-producing when:
    - plants reestablish annually for a minimum of five years with no human intervention such as supplemental seeding; and
    - reestablished and preserved habitats contain an occupied area and flower density comparable to existing occupied habitat areas in similar habitat types in the project vicinity.
    - If off-site mitigation includes dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures shall be included in the mitigation plan, including information on responsible parties for long-term management, conservation easement holders, long-term management requirements, success criteria such as those listed above and other details, as appropriate to target the preservation of long-term viable populations.

Significance after Mitigation

Implementation of Mitigation Measure 3.3-1 would reduce significant impacts on special-status plants to a less than significant level by requiring protocol-level surveys for special-status plants where they may occur and implementation of avoidance measures and compensation for impacts on special-status plants.

Impact 3.3-2: Result in Disturbance to or Loss of Special-Status Wildlife Species and Habitat

Implementation of all phases of the project would include temporary ground disturbance, temporary vegetation removal, and some permanent development of natural habitats or landscaping, which could result in disturbance, injury, or mortality of several special-status wildlife species, if present, reduced breeding productivity of these species, and loss of species habitat. This would be a **significant** impact.

Table 3.3-2 provides a list of the special-status wildlife species that may occur or are known to occur on the project site. Common native nesting birds protected under California Fish and Game Code and the federal MBTA may also nest on the project site.

Phase One

Special-Status Birds, Common Raptors, and Common Native Nesting Birds

Four special-status bird species may occur on the project site: American peregrine falcon, bald eagle, Aleutian cackling goose, and loggerhead shrike. Some of these species may forage within open water/bay habitat on the project site (i.e., American peregrine falcons, bald eagles) and Aleutian cackling goose may overwinter within open water/bay habitat on the project site; however, there is no nesting habitat on the project site suitable for these species. Project implementation would not result in significant loss of foraging or overwintering habitat or a substantial change in the character of the foraging or overwintering habitat on the project site. During project implementation, these species may temporarily avoid using open water/bay habitat within the project site; however, after project implementation, this habitat would be available for foraging and overwintering birds. Because project implementation would not result in direct loss of American peregrine falcons, bald eagles, or Aleutian cackling geese or nests because nesting habitat is not present on the project site, these species are not discussed further.

Loggerhead shrikes, as well as common native nesting birds protected under California Fish and Game Code and the federal MBTA (including raptors) may nest on the project site, particularly within shrubs and trees on vegetated hillside in the northeast portion of the project site or within landscape trees throughout the project site.

Temporary ground disturbance, tree removal, vegetation removal, or permanent conversion of natural habitat during implementation of Phase One could result in inadvertent disturbance, injury, or mortality of nesting birds. If present, nesting birds, including special-status species (i.e., loggerhead shrike) and common raptors and other native birds, could be disturbed due to the presence of and noise from equipment and personnel in close proximity of a nest, potentially resulting in nest abandonment. Active nests could be inadvertently removed if trees or shrubs containing these nests are pruned or removed, potentially resulting in loss of eggs or chicks. However, operations associated with Phase One would not have an impact on special-status birds due the existing human activity on the project site. Overall, implementation of Phase One could result in a significant impact on loggerhead shrike and common native nesting birds.

Special-Status Fish

Special-status fish species that are known to occur or may occur within the project site and listed under ESA or CESA 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 under CESA or ESA (including those that are currently candidate species) that are known to occur or may occur are 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 site and spend some portion of the year in the vicinity. No spawning habitats are known for any of these species within the project site.

Many of these species are only present seasonally when salinity conditions are appropriate, or during migration periods. Those species 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 site year-round including green and white sturgeon, as well as Sacramento splittail.

Phase One construction and operations activities may have direct adverse effects on special-status fish if work occurs during the season when special-status fish migrate through the project site (approximately between November 30 and July 1). Pile installation would involve a combination of vibratory and impact pile driving, as well as bedrock drilling in some instances, to set and drive structural components such as piles to support structures. Pile installation causes in-water sounds and vibration, which in the case of impact hammer pile driving, can have a substantial adverse effect on special-status fish both physically and behaviorally (see Appendix E). Construction equipment used for pile installation would also use hydraulically operated mechanical equipment which can pose potential for spills or accidents which may introduce toxic substances (i.e., fuel or hydraulic fluid) to the aquatic environment and kill special-status fish. In addition to construction activities, the project proposes to dredge from within the existing boat basin (approximately 40,000 cubic yards) to prepare the area for installation of various Phase One elements.

Operation of Phase One elements would require maintenance dredging in addition to the initial dredging effort. Dredging has the potential to entrain special-status fish during the process when collecting bottom sediments. Life stages which are immobile such as eggs and larvae are the most susceptible to dredging; however, because there are no spawning beds for any special-status species within the project site, impacts to eggs and larvae are not likely to occur. However, if dredging occurs during the season when special-status fish migrating through the project site injury or death of special-status fish may occur.

In addition to the direct effects on special-status fishes, the project may also have adverse effects on habitat for special-status fishes within the project site. Equipment and materials used during construction and operations may introduce non-native species of fish, or invertebrates, to the work area if proper procedures are not followed for decontamination, which can result in increased competition with special-status fish, predation, and reduction in habitat productivity. Construction activities in general also have the potential to introduce debris and refuse associated with work to surrounding waters, which can have an adverse effect on fish habitat. Sediment suspended in the water column caused by dredging (turbidity) may also result in both temporary and permanent habitat loss for special-status fish. The removal of existing pilings may release creosote into the water, which can also have adverse effects on special-status fish. Furthermore, Phase One would result in a net expansion of the portion of special-status fish habitat that is shaded by overwater structures by up to 29,681 square feet. This area of expanded shading is based on replacement of the trestle and would be less if the trestle is not replaced. This increase in shaded area may result in an adverse effect on the suitability of the habitat for special-status fish within the project site by reducing photosynthesis of diatoms, benthic algae, eelgrass, and other aquatic organisms. This decrease in primary productivity can then lead to a decrease in prey for special-status fish (Appendix E). The proposed dredging for the project may also result in adverse effects to special-status fish habitat due to the turbidity associated with dredging and the potential for contaminants to be released from the bottom of the bay. Construction and operation of Phase One of the proposed project, including dredging, could result in injury or death of special-status fish and adverse effects on habitat that could result in a substantial adverse effect on the regional and local populations of these species. Therefore, implementation of Phase One of the project could result in a significant impact on special-status fish.

Crotch Bumble Bee

Crotch bumble bee is a candidate for listing under CESA. Although the life history characteristics of Crotch bumble bees are not well understood, bumble bees have three basic habitat requirements: nesting sites for colonies, availability of nectar and pollen from floral resources throughout the duration of the colony period (spring, summer, and fall), and overwintering sites for queens. Bumble bees in general are capable of flying up to approximately 6 miles from the nest while foraging; however, most foraging activity is likely conducted much closer to the nest (Williams et al. 2014).

Known native floral resources for Crotch bumble bee include milkweed (*Asclepias* spp.), lupine (*Lupinus* spp.), *Phacelia* spp., *Clarkia* spp., poppy (*Eschscholzia* spp.), sage (*Salvia* spp.), and buckwheat (*Eriogonum* spp.). Bumble bees are typically generalist foragers and are known to use other native and nonnative floral resources, such as vetch (*Vicia* spp.) and clover (*Trifolium* spp.) (Williams et al. 2014). These floral species are fairly common within grassland habitats in California. Habitat within the vegetated hillside on the project site appears to be dominated by nonnative grasses and forbs but may include flowering plants that could be used by bumble bees for foraging.

Crotch bumble bee nests typically occur in abandoned rodent burrows or other animal nests. Crotch bumble bee is generally believed to overwinter near the ground surface in loose soil or under leaf litter or other debris (e.g., thatch and bunch grasses). Nesting and overwintering habitat potentially suitable for this species may be present on the project site within the approximately 0.5-acre vegetated hillside in the eastern portion of the project site. Vegetation removal and ground disturbing activities in this area during implementation of Phase One components could result in mortality of Crotch bumble bees while foraging and within nesting or overwintering colonies (e.g., in underground rodent holes, loose soil, leaf litter, log/tree cavities, surface vegetation). However, the ongoing operations of Phase One would not have an adverse effect on Crotch bumble bee, because operations would not result in further disturbance of habitat.

While implementation of Phase One of the project could result in loss of individual Crotch bumble bees and loss of foraging and breeding habitat for the species, it is unlikely that the project site would support a high concentration of bumble bee colonies due to the disturbed nature of the project site, and project implementation is not expected to result in loss of a significant number of bumble bees, if present. While loss of individual Crotch bumble bees or a colony as a result of project activities may not cause the population to drop below self-sustaining levels, threaten to eliminate the species, or substantially reduce the range of the species, the population status of this species is poorly understood, and loss of a colony could have a substantial effect on the population. Thus, Phase One of the project could have a significant impact on Crotch bumble bees.

Monarch

The vegetated hillside in the eastern portion of the project site may provide floral resources that could provide foraging or breeding habitat suitable for monarchs. Ground disturbance and vegetation removal within the vegetated hillside on the project site could result in loss of individual monarchs and loss of foraging and breeding habitat for the species; however, the project site is not expected to support large numbers of monarch butterflies due to its disturbed nature. As a result, implementation of Phase One of the project is not expected to substantially reduce the number of monarchs, restrict the range of the species, or cause the population to drop below self-sustaining levels. Further, because the project site is disturbed and does not contain substantial natural habitat areas, project implementation is not expected to result in a significant loss of foraging or breeding habitat for the local and statewide populations of monarchs. In addition, the ongoing operations of Phase One would not have an adverse effect on monarch as operations would not result in additional disturbance of habitat. Therefore, Phase One impacts on monarchs would be less than significant.

Marine Mammals

Marine mammals, including harbor seal and California sea lion, are known to occur within San Pablo Bay. No islands or sandy beaches are present within the project site or immediately adjacent and the project site does not support haul-outs, colony basking sites or breeding grounds for marine mammals. However, these species may be observed moving through open waters in route to other locations where haul-outs, rookeries, or similar sites of aggregation are known. Both harbor seal and California sea lion are known to occur in the project site, primarily during seasonal periods following returning salmon or when foraging for other fish species. 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 project area.

Operation of Phase One of the project would increase vessel traffic within the project site; however, Morrow Cove and the Carquinez Strait are already highly trafficked and developed waterways supporting numerous private industrial and recreational facilities. Industrial operations which are commonly serviced by large ships include the Shell Martinez Oil Refinery, Crocket Cogeneration, and the Mare Island Dry Docks. In addition, industrial ports further inland within California's Central Valley include the Ports of Stockton and West Sacramento. The Port of Stockton supports between 230 and 300 industrial ships per year, and when combined with the Port of Sacramento, services more than 350 ships per year (Appendix E). Additionally, the current boat basin supports approximately 10-15 small vessels, along with a boathouse that supports additional vessels. Given the level of traffic at these various operations and ports which must pass through or travel adjacent to the project site, the waters surrounding the project site are already highly disturbed by large vessel traffic and the extant boat basin is operating near maximum capacity, with 10-20 vessels (including the boathouse vessels) at any given time. As such, operation of Phase One is not anticipated to significantly change extant conditions. All vessels would continue to operate in the extant limits of Boat Basin 1 and the number of slips would be increased from 10 to 23 to accommodate the number of currently operational vessels more readily.

Construction and operation of Phase One of the project could have other adverse effects on the habitat of marine mammals similar to those discussed for special-status fish above (i.e., reduction of habitat productivity due to introduction of invasive species, habitat degradation due to spills and debris, release of toxic substances from sediment by dredging, and creosote toxicity). In addition, pile installation can have impacts on marine mammals due to hearing damage or loss, although, the thresholds for injury are different than those discussed above for special-status fish (see Tables 7 and 8 in Appendix E).

Overall, the construction and operation of Phase One of the project could result in injury of marine mammals and adverse effects on habitat that could result in a substantial adverse effect on the regional and local populations of these species, which could result in a significant impact on marine mammals.

Phase Two

Special-Status Birds, Common Raptors, and Common Native Nesting Birds

As with Phase One, implementation of Phase Two of the project would not result in direct loss of American peregrine falcons, bald eagles, or Aleutian cackling geese or nests because nesting habitat is not present on the project site. Nor would Phase Two result in permanent loss of foraging habitat for these species.

However, the proposed components of Phase Two would occur within landscaped areas of the project site, and landscaping trees may provide habitat for loggerhead shrikes, as well as common native nesting birds. Implementation of ground disturbance, tree removal, or vegetation removal during implementation of Phase Two components could result in inadvertent disturbance, injury, or mortality of nesting birds. If present, nesting birds, including special-status species (i.e., loggerhead shrike) and common raptors and other native birds, could be disturbed due to the presence of and noise from equipment and personnel in close proximity to a nest, potentially result in nest abandonment. Active nests could be inadvertently removed if trees or shrubs containing these nests are pruned or removed, potentially resulting in loss of eggs or chicks. However, operations associated with Phase Two would not have an impact on special-status birds due to the existing human activity on the project site that would not change with the proposed project. Thus, implementation of Phase Two of the project could result in a significant impact on loggerhead shrike and common native nesting birds.

Special-Status Fish

As described in Chapter 2, Project Description, the shoreline work in Phase Two of the project would take place in the upland zone and result in a more ecologically focused shoreline. However, as discussed for Phase One, construction and operation of Phase Two of the project, which includes renovation of the boathouse, replacement of piles, and additional dredging (during construction and maintenance dredging), could result in injury or mortality of special-status fish, and loss or degradation of habitat for these species, through construction noise, introduction of invasive species, spills and debris, spreading of contaminated sediments, and remnant toxicity from creosote piles. In addition, Phase Two would expand the shaded area of open water further increasing the potential adverse effects to special-status fish habitat. Thus, implementation of Phase Two of the project could result in a significant impact on special-status fish.

Crotch Bumble Bee

As discussed for Phase One above, nesting and overwintering habitat potentially suitable for Crotch bumble bee may be present on the project site within the approximately 0.5-acre vegetated hillside in the eastern portion of the project site. However, construction and operations of Phase Two components are not anticipated to occur within the vegetated hillside, and no other potentially suitable habitat is present within the area of Phase Two implementation. Therefore, there would be no impact on Crotch bumble bee from implementation of Phase Two of the project.

Monarch

As discussed for Phase One above, the vegetated hillside in the eastern portion of the project site may provide floral resources that could provide foraging or breeding habitat suitable for monarchs. However, construction and operations of Phase Two components are not anticipated to occur within the vegetated hillside, and no other potentially suitable habitat is present within the area of Phase Two implementation. Therefore, there would be no impact on monarch from implementation of Phase Two of the project.

Marine Mammals

Operation of Phase Two would further increase boat traffic due to construction of new facilities for Boat Basin 2, which would more than double the current number of slips in the project site. While this increase relative to existing slips in the Boat Basin is sizeable, this area of the Carquinez Strait currently supports substantial boat and ship traffic such that the increase supported by project-generated docking capacity would be minor. The increase represents an increase of less than 3 percent in the total number of slips present in the project vicinity (Appendix E). Therefore, the increase in boat traffic would not result in a substantial adverse effect on marine mammals within the project site. In water construction and operations activities for Phase Two, however, which includes renovation of the boathouse, replacement of piles, and additional dredging (during construction and maintenance dredging) would have similar adverse effects on marine mammals as discussed for Phase One and could result in a significant impact on marine mammals.

Phase Three

Special-Status Birds, Common Raptors, and Common Native Nesting Birds

As discussed for Phase One and Phase Two, implementation of Phase Three of the project would not result in direct loss of American peregrine falcons, bald eagles, or Aleutian cackling geese or nests because nesting habitat is not present on the project site. Also, Phase Three of the project would not result in permanent loss of foraging habitat for these species. The Marine Programs Building and Harbor Control Tower proposed for Phase Three may result in disturbance of the approximately 0.5-acre vegetated hillside on the project site, and other components of Phase Three may remove landscaping trees that may provide suitable habitat for loggerhead shrikes, as well as common native nesting birds. While operation of Phase Three would not have an impact on special-status birds because of the existing level of human activity on the project site, ground disturbance, tree removal, and vegetation removal during construction of Phase Three could result in inadvertent disturbance, injury, or mortality of nesting birds. If present, nesting birds, including special-status species (i.e., loggerhead shrike) and common raptors and other native birds, could be disturbed by noise from equipment and personnel in close proximity to a nest, potentially resulting in nest abandonment. Active nests could also be inadvertently removed if trees or shrubs containing these nests are pruned or removed, potentially resulting in loss of eggs or chicks. Thus, implementation of Phase Three of the project could result in a significant impact on loggerhead shrike and common native nesting birds.

Special-Status Fish

The shoreline work in Phase Three of the project would involve a continuation of Phase Two ecologically focused shoreline improvements, as well as in-water work to create a living shoreline including establishing a transition zone, intertidal zone, and living reefs, which would benefit special-status fish through the creation of complex and preferred fisheries habitats. This shoreline work would result in a net benefit to special-status fish species. However, as discussed for Phase One and Phase Two, construction of Phase Three of the project could result in injury or mortality of special-status fish, and loss or degradation of habitat for these species, through construction noise, introduction of invasive species, spills and debris, spreading of contaminated sediments, and remnant toxicity from creosote piles. In addition, Phase Three would further expand the shaded area of open water over Phase One and Phase Two because of the construction of the row house and floating landing, waterfront lookout/outdoor rooms, and the marine hydrokinetic barge and linking trestle increasing the potential adverse effects to special-status fish habitat.

In addition to these effects, Phase Three of the project includes installation and operation of a hydrokinetic barge. While the specific design and operations of the hydrokinetic barge is not known at this time, it is anticipated that this system could operate similarly to other aquatic based electric generation, via a turbine which is driven by the movement of water. As the turbine rotates from the natural movement of water, a generator could be powered to create electricity. The turbine could be turned via rotating surface paddles, or directly from wave and currents below the waterline. In both cases, flow of water across the turbine blade or paddle, drives a generator which produces electricity. That electricity is then sent via a transmission line back to the shore and into the power grid. If water is drawn across a turbine, it is possible that fish or other wildlife may be forced through the turbine, which can cause injury or death. Therefore, construction and operation of Phase Three of the project could result in a significant impact on special-status fish.

Crotch Bumble Bee

As discussed for Phase One above, nesting and overwintering habitat potentially suitable for Crotch bumble bee may be present on the project site within the approximately 0.5-acre vegetated hillside in the eastern portion of the project site. The Marine Programs Building and Harbor Control Tower proposed for Phase Three may result in disturbance of this vegetated hillside. However, operations associated with Phase Three would not have an impact on Crotch bumble bee once vegetation has been disturbed during construction. While implementation of Phase Three of the project could result in loss of individual Crotch bumble bees and loss of foraging and breeding habitat for the species, it is unlikely that the project site would support a high concentration of bumble bee colonies due to the disturbed nature of the project site, and project implementation is not expected to result in loss of a significant number of bumble bees, if present. While loss of individual Crotch bumble bees or a colony as a result of project activities may not cause the population to drop below self-sustaining levels, threaten to eliminate the species, or substantially reduce the range of the species, the population status of this species is poorly understood, and loss of a colony could have a substantial effect on the population. Thus, implementation of Phase Three of the project could result in a significant impact on Crotch bumble bee.

Monarch

As discussed for Phase One above, the vegetated hillside in the eastern portion of the project site may provide floral resources that could provide foraging or breeding habitat suitable for monarchs. Ground disturbance and vegetation removal within the vegetated hillside during construction of the Marine Programs Building and Harbor Control Tower could result in loss of individual monarchs and loss of foraging and breeding habitat for the species; however, the project site is not expected to support large numbers of monarch butterflies due to its disturbed nature. As a result, implementation of Phase Three of the project is not expected to substantially reduce the number of monarchs, restrict the range of the species, or cause the population to drop below self-sustaining levels. Further, because the project site is disturbed and does not contain substantial natural habitat areas, project implementation is not expected to result in a significant loss of foraging or breeding habitat for the local and statewide populations of monarchs. In addition, operations associated with Phase Three would not have an impact on monarch once vegetation has been removed. Therefore, impacts from implementation of Phase Three of the project would result in a less than significant impact on monarchs.

Marine Mammals

Operation of Phase Three of the project would not result in additional boat traffic, or subsequent impacts on marine mammals; however, in-water construction activities for Phase Three would have similar adverse effects on marine mammals as discussed for Phase One and Phase Two and could result in a significant impact on marine mammals.

Summary

Construction of Phase One components would occur in habitats that are potentially suitable for special-status birds, special-status fish, Crotch bumble bee, and marine mammals. The construction of these components may result in injury or mortality of special-status species, degradation of habitat, and for Crotch bumble bee, loss of reproductive effort. Maintenance dredging and introduction of invasive species during operation of Phase One components could result in injury or mortality of special-status fish. Maintenance dredging may also result in injury or mortality of marine mammals. These impacts would have a potentially substantial adverse effect on these species. However, operations would not affect special-status birds and Crotch bumble bee. While Phase One components would occur in habitat suitable for monarch, the habitat is disturbed to the degree that substantial adverse effects on the species are not anticipated.

Construction and operation of Phase Two components would not occur in suitable habitat for, or result in impacts to, Crotch bumble bee and monarch butterfly; however, construction of Phase Two may result in impacts to special-status birds that would be similar to those discussed for Phase One and could be potentially significant. Phase Two also includes shoreline enhancements to the rip-rap shoreline that would improve aquatic habitat; however, operation of Phase Two components would have impacts to special-status fish and marine mammals that would be similar to those discussed for Phase One and could be potentially significant.

The construction of the majority of Phase Three components would avoid habitat for Crotch bumble bee and monarch; however, the Marine Programs Building and Harbor Control Tower would be constructed with potentially suitable habitat for these species, and Phase Three would have similar impacts on terrestrial special-status species as those discussed for Phase One, including the lack of impact from operations. Phase Three also includes shoreline enhancements to the rip-rap shoreline that would improve aquatic habitat and installation and operation of a hydrokinetic barge, which may result in additional construction and operational impacts to special-status fish. Overall, implementation of the three phases of the project would result in a **significant impact** to special-status wildlife.

Mitigation Measures

Mitigation Measure 3.3-2a: Conduct Focused Surveys for Special-Status Birds, Nesting Raptors, and Other Native Nesting Birds and Implement Protective Buffers

To minimize the potential for loss of special-status bird species, raptors, and other native birds, project activities (e.g., tree removal, other vegetation removal, ground disturbance, staging) shall be conducted during the nonbreeding season (approximately September 1–January 31, as determined by a qualified biologist), if feasible. If project activities are conducted during the nonbreeding season, no further mitigation shall be required.

For project activities that occur during the breeding season (approximately February 1 through August 31, as determined by a qualified biologist), within 14 days prior to starting activities, a qualified biologist familiar with birds of California and with experience conducting nesting bird surveys shall conduct focused surveys for special-status birds, other nesting raptors, and other native birds and shall identify active nests within 500 feet of the project site. These surveys shall be repeated if there is a break in activities longer than 14 days, which could allow birds to initiate new nests. The biologist shall document the survey results in a written memo, report, or email communication to Cal Maritime.

In the event nesting birds are identified on the project site, impacts on nesting birds shall be avoided by establishing appropriate buffers around active nest sites identified during focused surveys to prevent disturbance of the nest. A qualified biologist shall determine the size of the buffer after a site- and nest-specific analysis. Buffers typically will be 500 feet for raptors and 100 feet for non-raptor special-status species. Factors to be considered for determining buffer size include presence of natural buffers provided by vegetation or topography, nest height above ground, baseline levels of noise and human activity, species sensitivity, and proposed project activities. The size of the buffer may be adjusted if a qualified biologist determines that such an adjustment would not be likely to adversely affect the nest. Project activities shall not commence within the buffer areas until a qualified biologist has determined that the young have fledged, the nest is no longer active, or reducing the buffer will not likely result in nest abandonment. Any buffer reduction for a special-status species shall require consultation with CDFW. Periodic monitoring of the nest by a qualified biologist during project activities shall be required if the activity has potential to adversely affect the nest, the buffer has been reduced, or if birds within active nests are showing behavioral signs of agitation (e.g., standing up from a brooding position, flying off the nest) during project activities, as determined by the qualified biologist.

Mitigation Measure 3.3-2b: Implement Invasive Species Management Procedures

For all phases of the project, Cal Maritime shall require all vessels brought to the project site from ports outside of San Francisco Bay and Delta for aquatic construction or during operations to follow all applicable maritime regulations relating to the exchange of ballast water to prevent the spread of invasive species from outside ports. Additionally, any in-water fill materials shall not be salvaged from areas outside of San Francisco Bay (e.g., piles shall be new, rock shall be freshly quarried and not previously in a marine environment).

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. Implementation of this measure shall be required in the contract Cal Maritime establishes with its construction contractors.

Mitigation Measure 3.3-2c: Implement In-Water Work Window

To minimize impacts on special-status fish, Cal Maritime shall require all in-water work, including pile driving and similar activities that require placing materials below the water’s surface, to be completed between July 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 in Mitigation Measure 3.3-2d. 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. Implementation of this measure shall be required in the contract Cal Maritime establishes with its construction contractors.

Mitigation Measure 3.3-2d: Implement Spill Prevention and Control

Prior to commencement of construction activities, 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 best management practices 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 3.3-2e: Implement Environmental Awareness Training

A project-specific environmental awareness training for construction personnel shall be prepared and conducted or administered by a qualified biologist before commencement of construction activities for each phase of the project 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, proposed project 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 project site, avoidance and mitigation measures, and protocol for encountering such species including communication chain;
- Best management practices enacted for habitat protection and their location on the project site 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 qualified biologist addresses their question. The contractor may not begin work until they have signed the documentation.
- Field identification of any project site boundaries, egress points and routes to be used for work. Work shall not be conducted outside of the project site.

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

Mitigation Measure 3.3-2f: Implement Dust and Debris Control

During all phases of the project, Cal Maritime and its construction contractors shall employ debris, dust, and garbage control measures to ensure disturbances to any upland areas as well as overwater work does not result in turbidity or debris being placed in the Bay. Dust control measures shall include all of the following:

- In areas within the boat basin where waters are less affected by high velocity currents, a debris boom or silt curtain shall be deployed around demolition sites, in addition to vessels or catchments used to catch demolition debris before it falls into the water.
- In areas outside the boat basin that are affected by high velocity currents, a debris boom or silt curtain may not be feasible during demolition and a work skiff or similar craft may be used instead of a debris boom to corral any debris that may accidentally fall 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 forms and catchments that will 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 minimizes dust and freshly cured concrete from falling into the water.
- Within upland areas, any disturbed soils shall be managed to prevent dust from becoming airborne or silt laden runoff from being introduced to the aquatic environment.
- All incidental construction-related refuse shall be collected in sealed containers and removed regularly.

Mitigation Measure 3.3-2g: Implement Sediment Testing and Dredging Controls

Prior to dredging in any phase of the project, an assessment shall be conducted according to DMMO sediment sampling requirements to sample and analyze sediments within areas proposed for dredging. The assessment shall be reviewed and approved by the DMMO according to current RWQCB and EPA standards and procedures and sediment shall be placed, beneficially re-used, or disposed of in accordance with standard DMMO requirements.

In addition, dredging activities shall implement the following best management practices:

- 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.
- Prior to dredging in areas of contaminated sediment, a Dredge Operations Plan shall be prepared based on the results of DMMO-required sediment sampling, and shall include all necessary measures to contain, dispose of, and/or remediate contaminated sediments, including:
  - Containment of turbidity during dredging, including BMPs, such as a silt curtain.
  - Identification of measures to contain or treat areas of contaminated sediments to prevent the potential for contaminated sediment dispersal following dredging.
  - Identification of methods for handling, transporting, and disposing of contaminated sediment and methods for handling contaminated sediment.

Mitigation Measure 3.3-2h: Use Appropriate Creosote Pile Removal and Disposal Methods

During construction activities involving removal of creosote piles, Cal Maritime and its construction contractors shall implement the following measures to ensure the appropriate removal and disposal of creosote piles:

- When removing creosote piles the contractor shall either fully remove the pile/structure, or piles may be cut off at least 1 foot below the mudline.
- Any fragments of wood that break off during the removal process will be collected immediately even if within the limits of a turbidity curtain.
- Any treated timber removed in this manner shall be hauled to an upland landfill that accepts treated timber waste for disposal.

Mitigation Measure 3.3-2i: Implement Methods to Reduce Sound Attenuation from Pile Installation

Prior to initiation of construction, the CSU shall consult with regulatory agencies with jurisdiction over the project activities, including but not limited to CDFW, NMFS, and USFWS, to obtain appropriate permits, and shall follow the required permit conditions. If permit requirements conflict with requirements below, the permit requirements shall take precedence. During all phases of the project, 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 to the work window as stated in Mitigation Measure 3.3-2c.
- 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.
- When installation with an impact hammer is required for steel piles, the following additional measures shall be employed:
  - Use of a bubble curtain around steel piles.
  - 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 percent of the piles driven of each 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.

Mitigation Measure 3.3-2j: Reduce or Compensate for Shading of Open Waters <u>and Other Special-status Species Impacts</u>

Where possible, the project shall install light-transmitting surfaces allowing for a minimum of 40 percent light transmission to the waters below. In the event light-transmitting surfaces cannot be installed for safety and accessibility reasons, the project shall mitigate for shading and lost aquatic resource function by one of the following means:

- Removing equivalent shaded coverage over open water at a nearby site,
- With the purchase of appropriate mitigation credits from an approved mitigation bank at a (1:1 ratio), or
- By other similar actions approved by regulatory agencies with jurisdiction over the project activities, such as CDFW, NMFS, and USFWS, during the consultation process, so long as those alternative actions achieve a similar effect as described above (e.g., construction of a restoration project which causes ecological uplift of habitat quality).

Mitigation Measure 3.3-2k Implement Limited Operating Period or Conduct Focused Surveys for Crotch Bumble Bee

Initial ground-disturbing work (e.g., grading, vegetation removal, staging) within the approximately 0.5-acre vegetated hillside portion of the project site shall take place between August 15 and March 15, if feasible, to avoid impacts on Crotch bumble bees potentially nesting in this area.

If completing all initial ground-disturbing work between August 15 and March 15 is not feasible, then a qualified biologist approved by CDFW, familiar with bumble bees of California, with experience using survey methods for bumble bees shall conduct a habitat assessment and focused survey for Crotch bumble bee within the vegetated hillside portion of the project site prior to the start of any ground-disturbing activities, following the methods in *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* (CDFW 2023a).

- Cal Maritime shall submit a survey report to CDFW within one month of survey completion and shall notify CDFW within 24 hours if Crotch bumble bees are detected.
- If Crotch bumble bees are detected during the focused survey, appropriate avoidance measures shall be implemented. Avoidance measures may include, but not be limited to the following:
- Protective buffers shall be implemented around active nesting colonies or overwintering queens until these sites are no longer active.

- If impacts on Crotch bumble bee cannot be avoided, Cal Maritime shall obtain an Incidental Take Permit (ITP) from CDFW and shall implement all avoidance measures included in the ITP.

Mitigation Measure 3.3-2l: Reduce Construction Impacts on Marine Mammals

In addition to implementation of Mitigation Measure 3.3-2h: Pile Driving Methods and Monitoring, the project shall implement the following additional measures to reduce impacts to marine mammals from in-water construction.

- Cal Maritime shall consult with NMFS to obtain a marine mammal harassment authorization for any potential project related harassment of marine mammals.
- 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 shown in Table 3.3-4, or within distances determined 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.

Table 3.3-4 Distances to Marine Mammal Onset Post-Traumatic Stress by Pile and Hammer Type

Pile Material	Pile Size	Hammer Type	Hammer Strikes Per Day (Impact) or Drive Time Per Day (Vibratory)	Buffer Distance (feet)
Steel shell	24-inch	Impact	6,000 strikes	1,750
Steel shell	24-inch	Vibratory	360 minutes	20
Steel shell[1]	48-inch	Impact	6,000 strikes	3,650
Steel shell	48-inch	Vibratory	360 minutes	50
Sheetpile[1]	24-inch	Impact	6,000 strikes	425
Sheetpile	24-inch	Vibratory	360 minutes	95

[1] For calculation of the buffers distances above it is assumed a bubble curtain would be deployed to reduce the overall decibels by 5.

Mitigation Measure 3.3-2m: Reduce Impacts from Hydrokinetic Barge

Prior to installation and operation of the barge, a qualified biologist shall review the proposed design and operation of the hydrokinetic barge to determine if operation of the barge is likely to cause take of fish or if the operation will impact sensitive habitats. The qualified biologist shall compose a memo outlining anticipated operational procedures and shall review any potential impacts to fish and habitats, along with recommendations to modify the proposed operation to minimize any such impacts to less than significant levels (if necessary). Such recommendations may include:

- Take permits under California Fish and Game Code and the federal Endangered Species Act shall be obtained prior to installation and operation of any hydrokinetic barge system with the potential to harass, injure or kill listed fish or other listed aquatic species.
- Measures to isolate the turbine and other moving parts from the aquatic environment (such screening) shall be required to avoid and minimize potential impacts to listed species.
- Noise modeling shall be completed for hydrokinetic barge operation and the results compared to thresholds for noise effects to fish and marine mammals described in Table 3 and Table 7. Measures to minimize significant noise impacts to listed species and marine mammals shall be incorporated into the hydrokinetic barge design.
- Stationing the barge over water of sufficient depth that it is unlikely to support eelgrass or other submerged aquatic vegetation.
- Obtaining additional mitigation credits for shading open waters and eelgrass.
- Seasonal operation of the barge to limit the potential for special-status fish to be injured.

- <u>During the design phase, specifications on the barge including any components for fish exclusion will be provided to the regulatory agencies, including CDFW, NMFS and the USFWS for review and comment.</u>

After a review and any recommendations are compiled, the report shall be submitted to CDFW, USFWS, and NMFS for review to ensure that installation and operation of the barge with any adaptive recommendations shall sufficiently reduce effects of installation and operation of the barge to less than significant levels.

<u>Significance after Mitigation</u>

Implementation of Mitigation Measure 3.3-2a would reduce potential impacts on special-status birds, raptors, and other native nesting birds to less than significant by requiring focused surveys for nesting birds and implementation of measures to avoid disturbance, injury, or mortality of the species if nests are detected.

Implementation of Mitigation Measures 3.3-2b, 3.3-2c, 3.3-2d, 3.3-2e, 3.3-2f, 3.3-2g, 3.3-2h, 3.3-2i, 3.3-2j, and 3.3-2m would reduce potential impacts on special-status fish to less than significant by requiring measures to reduce the likelihood that invasive species would be introduced; requiring in-water work to be performed during less sensitive periods, requiring spill and debris prevention; reducing shading of open waters; and reducing the impacts from pile driving, pile disposal, dredging, and the hydrokinetic barge. With the implementation of these measures the potential impacts on special-status fish would be reduced to less than significant.

Implementation of Mitigation Measures 3.3-2b, 3.3-2c, 3.3-2d, 3.3-2e, 3.3-2f, 3.3-2g, 3.3-2h, and 3.3-2l would reduce potential impacts on marine mammals to less than significant by requiring measures to reduce the likelihood that invasive species would be introduced, requiring in-water work to be performed during less sensitive periods, requiring spill and debris prevention, and measures to reduce the impacts from pile driving, pile disposal, and dredging. With the implementation of these measures the potential impacts on marine mammals would be reduced to less than significant.

Implementation of Mitigation Measure 3.3-2k would reduce potential impacts on Crotch bumble bee to a less than significant level by requiring implementation of a limited operating period for ground disturbance within the vegetated hillside portion of the project site, or focused surveys for the species and implementation of measures to avoid injury or mortality of Crotch bumble bees if the limited operating period is not feasible.

In sum, implementation of Mitigation Measures 3.3-2a through 3.3-2m would reduce impacts related to the disturbance to or loss of special-status wildlife species and habitat to a **less than significant** level.

Impact 3.3-3: Result in Disturbance to or Loss of Aquatic Sensitive Natural Communities and other Sensitive Habitat

Implementation of all phases of the project would not have a substantial adverse effect on essential fish habitat within the project site, because construction of the project would not impede migration of fish. However, all phases of the project include in-water construction, shading of open water, and dredging that could result in loss or degradation of eelgrass beds which are a sensitive natural community. This would be a **significant impact.**

<u>Phase One</u>

The project site is located within Essential Fish Habitat (EFH) for three fisheries management plans: Coastal Pelagic, Pacific Groundfish and Pacific Salmon (Appendix E). 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. Within the project site, the majority of benthic substrates consist of silt and mudflat. These areas are typical low-productivity areas which are more commonly traversed by migratory species. The absence of any reefs, freshwater streams, or similar complex habitat features make this area important primarily as a migratory corridor, allowing EFH species to move from place to place.

Eelgrass is identified as a sensitive natural community by CDFW (CDFW 2023b) and contributes to the productivity of EFH. Eelgrass grows in waters shallower than 12 feet below mean low water (MLLW) in clear, protected bays and harbors. In San Francisco Bay, the presence of eelgrass is limited to significantly shallower areas due to the highly turbid conditions common to San Francisco Bay (NMFS 2014). Eelgrass surveys conducted in 2022 observed a 0.15

acre area of vegetated eelgrass habitat within the project site; however, subsequent 2023 eelgrass surveys did not observe any rooted eelgrass plants within the project site or immediate vicinity. These results are consistent with the expected annual variation in eelgrass within the project site given its extent is driven primarily by abiotic factors such as salinity and turbidity. Although the 2023 survey did not detect the presence of eelgrass, it has the potential to return to the project site in future years when conditions are suitable.

Major elements of the proposed project in Phase One such as the new pier, mooring piles, potential expanded trestle, and floating docks are located fully or partially within deep, subtidal areas approximately 20 feet below MLLW. These areas have no potential to support eelgrass beds and these elements in deep water are not anticipated to have an impact on eelgrass. However, portions of these structures which overlap with areas along the shoreline may affect eelgrass by the expanded footprint of overwater structures as they are constructed with a solid deck to allow vehicles and equipment to be loaded and unload from these new structures. The expanded shade footprint therefore may impede current eelgrass extent and future expanse. As such, expansion of structures associated with Phase One may reduce eelgrass extent within the project site. In addition, expanded dredging and maintenance dredging to account for navigational safety as part of construction and operation of Phase One may also impact areas at suitable elevations for eelgrass, and could result in removal of eelgrass or degradation of the community though increased turbidity. The loss or degradation of eelgrass beds within the project site could result in a significant impact to a sensitive natural community and EFH.

<u>Phase Two</u>

As discussed for Phase One, the construction and operation of Phase Two of the project may have a substantial adverse effect on EFH through loss or degradation of eelgrass beds. In addition, Phase Two would expand the shaded area of open water over Phase One because of the creation of Boat Basin 2, its new pier with breakwater, and 26 additional slips and berthing areas. The construction of the new breakwater may also result in obstruction of fish migration. This increase in shaded area and potential obstruction of fish migration would further increase the potential adverse effects to EFH. Therefore, implementation of Phase Two of the project could have a significant impact on eelgrass beds as a sensitive natural community and as part of EFH.

<u>Phase Three</u>

Phase Three components would not result in the construction of structures that would impede fish migration. However, the construction and operation impacts of Phase Three on eelgrass beds would be similar to those discussed for Phase One and Phase Two above, which could result in a significant impact on eelgrass beds as a sensitive natural community and as part of EFH.

<u>Summary</u>

Implementation of all phases of the project would result in degradation of eelgrass beds, which may have a substantial adverse effect on this sensitive natural community and EFH. Therefore, the project would have a **significant** impact on aquatic sensitive natural communities.

Mitigation Measures

Mitigation Measure 3.3-3: Conduct Focused Surveys and Compensate for Loss of Eelgrass

For the protection and mitigation of impacts to eelgrass, surveys and assessments as well as mitigation prescribed in the California Eelgrass Mitigation Policy (CEMP) (NMFS 2014) (or its subsequent replacement document) shall be implemented by Cal Maritime for the proposed project. As stated in the CEMP, Cal Maritime shall be required to perform the following series of pre- and post-construction surveys and assessments to minimize and compensate for (as necessary) potential impacts to eelgrass.

- No more than 60 days before implementation of any in-water construction, a pre-construction eelgrass survey shall be conducted by a qualified biologist. The pre-construction survey shall assess all subtidal areas where in-water work will occur plus a 150-foot buffer, excluding any subtidal areas that are deeper than -12 feet mean lower low water (MLLW) as these depths are considered unsuitable for eelgrass in San Francisco Bay. If any eelgrass is detected within the survey area during the pre-construction survey, a reference site shall also be surveyed as part of the pre-construction eelgrass survey as recommended by the CEMP. The size and location of the selected reference site will be determined by the qualified biologist following the recommendations provided in the CEMP. The reference site will be used to differentiate between project-related and non-project-related impacts to eelgrass following the completion of post-construction eelgrass surveys, described below. The pre-construction eelgrass survey shall occur during the growth period for eelgrass within San Francisco Bay as defined by the CEMP (April 1 – October 31).

- A new pre-construction eelgrass survey shall be performed for each year that in-water work will occur to account for the high amount of variability in eelgrass extent in San Francisco Bay (up to one pre-construction eelgrass survey per year).
- If eelgrass is detected during any pre-construction eelgrass survey, following the completion of in-water construction, the project site and reference site shall be resurveyed annually for three years as described below:
    - The first post-construction eelgrass survey shall occur within 30 days following the completion of in-water construction unless work is completed outside the eelgrass growing season in San Francisco Bay; if in-water work concludes outside the eelgrass growing season, the first post-construction eelgrass survey shall be conducted within the first 30 days of the start of next eelgrass growth period.
    - The second post-construction eelgrass survey shall be performed approximately one year after the first post-construction survey.
    - The third post-construction eelgrass survey shall be performed approximately two years after the first post-construction survey.
- All pre- and post-construction eelgrass survey results shall be provided to National Marine Fisheries Service (NMFS) <u>and CDFW</u>.
- Once all eelgrass surveys are completed, a comparison of pre- and post-construction eelgrass results at the project site shall be assessed relative to the reference site to determine if project-related impacts to eelgrass occurred. The findings shall be provided to NMFS<u> and CDFW</u> to make a final determination regarding the actual impact and amount of mitigation needed, if any, to offset impacts to eelgrass. If ~~NMFS determines~~ in-water work ~~resulted~~ <u>results</u> in permanent impacts to eelgrass, the project proponent will prepare and implement an eelgrass mitigation plan approved by NMFS <u>and CDFW</u> that will result in a no net loss of habitat function or services, generate services similar to that of eelgrass habitat, or will improve conditions for establishment of eelgrass. The mitigation plan shall follow one or a combination of mitigation options described in the CEMP, detailed below:
    - *Option 1: Comprehensive Management Plan.* As described in the CEMP, a Comprehensive Management Plan (CMP) may be an appropriate eelgrass compensatory mitigation strategy in situations where a project or collection of similar projects will result in incremental but recurrent impacts to a small portion of local eelgrass populations through time (e.g., lagoon mouth maintenance dredging, maintenance dredging of channels and slips within established marinas, navigational hazard removal of recurrent shoals, shellfish farming, and restoration or enhancement actions). Specifically, CMPs allow for the development of region or system-specific framework for achieving the objectives of the CEMP instead of the preparation of individual mitigation plans for each discrete action. If prepared, the CMP would need to be approved by NMFS.
    - *Option 2: In-kind mitigation.* In-kind compensatory mitigation is defined as the creation, restoration, or enhancement of habitat to compensate for adverse impacts to the same type of habitat. Under the CEMP, eelgrass mitigation plans which propose in-kind mitigation for eelgrass impacts in the San Francisco Bay are required to achieve a final mitigation ratio of 1.2:1 (mitigation: impact) unless otherwise stated by NMFS during consultation. In addition, because of the relatively low success rate of eelgrass restoration projects implemented in San Francisco Bay, the CEMP recommends an initial eelgrass restoration site size that is 3.01-times larger than the target mitigation size to account for substantial losses. NMFS may increase the required eelgrass mitigation ratio if there is a significant delay between when impacts occurred and when mitigation commences to account for temporal losses in eelgrass habitat. After initial eelgrass planting, the CEMP

recommends five years of monitoring of the mitigation site and a reference site. Specifically, the CEMP recommends mapping of eelgrass extent and monitoring of eelgrass density 0, 12, 24, 36, 48, and 60 months after installation of mitigation plantings. Success criteria (such as eelgrass density) are typically assessed relative to the reference site. Actual success criteria, monitoring periods, and site selection shall be determined in coordination with and approved by NMFS.

- *Option 3: Mitigation banks and in-lieu-fee programs.* Under the CEMP, NMFS supports the use of mitigation bank and in-lieu fee programs to compensate for impacts to eelgrass habitat where such instruments are available and where such programs are appropriate to the statutory structure under which mitigation is recommended. If this mitigation option is selected, credits shall be used at a ratio of 1:1 if those credits have been established for a full three-year period prior to use. If the bank credits have been in place for a period less than three years, credits shall be used at a ratio determined through application of the wetland mitigation calculator.
- *Option 4: Out-of-kind mitigation.* Out-of-kind compensatory mitigation means the adverse impacts to one habitat type are mitigated through the creation, restoration, or enhancement of another habitat type. In most cases, out-of-kind mitigation is discouraged for eelgrass because eelgrass is a rare, special-status habitat in California. There may be some scenarios, however, where out-of-kind mitigation for eelgrass impacts is ecologically desirable or when in-kind mitigation is not feasible. No recommended eelgrass mitigation ratios are provided in the CEMP for out-of-kind mitigation, however the ratio is likely to be greater than that required for in-kind mitigation. If pursued, an out-of-kind mitigation plan would need to be developed and approved by NMFS prior to implementation. Per the CEMP, the out-of-kind mitigation plan must demonstrate that the proposed mitigation will compensate for the loss of eelgrass habitat function within the ecosystem and should evaluate mitigation options that generates services similar to that of eelgrass habitat or improve conditions for establishment of eelgrass.

If permanent impacts to eelgrass are evident following analysis of post-construction eelgrass survey, ahead of the final Year 3 post-construction eelgrass survey, Cal Maritime may proceed with developing and implementing an eelgrass mitigation plan in consultation with NMFS and CDFW via any of the above options. Commencing with the eelgrass mitigation process as soon as impacts are realized may help avoid increased mitigation ratios as described above.

Significance after Mitigation

Implementation of Mitigation Measure 3.3-3 and Mitigation Measure 3.3-4 would reduce impacts on aquatic sensitive natural communities and other sensitive habitat from all three phases of the project to a **less than significant** level by requiring focused surveys for eelgrass and implementation of measures to compensate for degradation or loss of eelgrass beds, and requiring design criteria that would prevent impeding fish movement.

Impact 3.3-4: Wildlife Movement Corridors and Native Wildlife Nursery Sites (Aquatic)

Project activities conducted during implementation of Phase One and Phase Three, if conducted during the portion of the year when fish may be migrating through the project site, could disrupt movement of these species. In addition, construction and maintenance dredging may disrupt use of eelgrass beds that may be used as nursery habitat for native fish species. In addition to these adverse effects, Phase Two includes the creation of Boat Basin 2, its new pier with breakwater, and 26 additional slips and berthing areas that could result in trapping or impeding the migration of fish through the project site. These adverse effects on fish movement and nursery habitat would be a **significant** impact.

Phase One

The project site lies along the migratory route for salmonids when moving from natal streams in the Central Valley and the Pacific Ocean, as such it functions as a migratory corridor for fish. The future buildout of Phase One would upgrade or expand upon elements which extend outward into the Bay; However, the current pier and wharf extends approximately 200 feet outward from shore to its furthest point. The new pier would be slightly larger, extending roughly 225 feet outward from shore, resulting in approximately a 25-foot increase in length. At this location, the Carquinez Strait is approximately 3,300 feet wide. Therefore, the extension of the pier would increase shade across approximately 0.001 percent of the width of the Carquinez Strait. Additionally, new elements of Phase One would not create an aquatic net, trap, or barrier that might impede fish movement. The linear pier and breakwater are permeable to water and fish movement in multiple locations such that a fish may move around these objects easily, without risk of being trapped behind an impermeable barrier. As such, the new structures proposed in Phase One would not represent a significant barrier that would cause a cessation to movement, disorientation, or significant delay for migrating fish. However, if construction were to occur at times of year when migratory events for fish were occurring (approximately between November 30 and July 1), construction activities may have a substantial adverse effect on movement of aquatic species.

While the project site does not support rookery sites, or colonial nesting sites for species such as egrets, herons, or marine mammals, the project site contains small areas of eelgrass which can function as a nursery site for fish species such as Pacific herring which can spawn and rear within eelgrass. If construction or maintenance dredging were to occur at times of year when larval fish were present, construction activities may have a substantial adverse effect on the use of this habitat as a nursery. In addition, as discussed in Impact 3.3-3, construction activities may also result in degradation or removal of eelgrass beds. Therefore, construction and operation of Phase One could result in a significant impact on aquatic movement corridors and nursery sites.

Phase Two

Similar to Phase One, construction of Phase Two components have the potential to result in substantial adverse effects to migratory corridors and construction and operations would have a substantial adverse effect on eelgrass beds as nursery sites for fish. In addition, elements of Phases Two including the creation of Boat Basin 2, its new pier with breakwater, and 26 additional slips and berthing areas would increase maintenance dredging and create a relatively enclosed and protected marina that may not be easily escaped by migrating fish should they stray into the marina. Therefore, Phase Two could result in a significant impact on aquatic movement corridors and nursery sites.

Phase Three

The effects of Phase Three on aquatic movement corridors and nursery sites would be similar to those discussed above for construction and operation of Phase One and therefore could result in a significant impact on aquatic movement corridors and nursery sites.

Summary

Implementation of Phase One and Phase Three would have the potential to result in substantial adverse effects on movement of aquatic species if construction or maintenance dredging is conducted during times when fish are migrating through the project site, in addition, construction and maintenance dredging of Phase One may have substantial adverse effects on aquatic nursery habitat. Phase Two would have the potential for the same effects as Phase One and Phase Three; however, this phase would also create Boat Basin 2 that may have additional adverse effects on fish movement. Therefore, the project would have a significant impact on aquatic wildlife movement corridors and native wildlife nursery sites.

Mitigation Measures

Implement Mitigation Measure 3.3-2c described above.

Mitigation Measure 3.3-4: Design In-Water Structures to be Permeable to Fish Movement

Prior to approval of final design and construction plans, Cal Maritime shall require and ensure breakwaters and other in-water structures shall be designed to be permeable in such a way that the final design of the Waterfront Master Plan does not form a fully enclosed area which might trap or impede fish movement. Design plans shall provide multiple exit routes at all tides such that fish moving through the vicinity can enter or exit the waterfront facilities at will, through multiple locations thereby minimizing the potential to be affected by marina operations.

Significance after Mitigation

Implementation of Mitigation Measure 3.3-2c and Mitigation Measure 3.3-4 would reduce potential impacts on aquatic wildlife movement corridors and native wildlife nursery sites to less than significant by requiring in-water work during construction and operations to be performed during less sensitive periods and requiring design criteria that would prevent impeding fish movement. With the implementation of these measures the potential impacts on aquatic wildlife movement corridors and native wildlife nursery sites would be reduced to a **less than significant** level.

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3.4 ARCHAEOLOGICAL, HISTORICAL, AND TRIBAL CULTURAL RESOURCES

This section analyzes and evaluates the potential impacts of the proposed project on known and unknown cultural resources. Cultural resources include districts, sites, buildings, structures, or objects generally older than 50 years and considered to be important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. They include prehistoric resources, historic-period resources, and "tribal cultural resources" (the latter as defined by Assembly Bill [AB] 52, Statutes of 2014, in CEQA Section 21074).

Archaeological resources are locations where human activity has measurably altered the earth or left deposits of precontact or historic-period physical remains (e.g., stone tools, bottles, former roads, house foundations). Historical (or built-environment) resources include standing buildings (e.g., houses, barns, outbuildings, cabins) and intact structures (e.g., dams, bridges, roads, districts), or landscapes. A cultural landscape is defined as a geographic area (including both cultural and natural resources and the wildlife therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. Tribal cultural resources are sites, features, places, cultural landscapes, sacred places and objects, with cultural value to a tribe.

Two comment letters regarding cultural resources were received in response to the NOP (see Appendix A). The State Lands Commission requested that the ~~Draft~~ EIR evaluate the potential impact on submerged cultural resources; note that title to all abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in the tide and submerged lands in California; and include mitigation to direct activities in case of an inadvertent discovery. The Native American Heritage Commission (NAHC) submitted a letter that outlined the requirements under CEQA with regards to tribal cultural resources, especially AB 52 and Senate Bill (SB 18); while SB 18 does not apply to the project because there is not a general plan amendment associated with the project (which is the trigger for SB 18 compliance), SB 18 is not a CEQA requirement and therefore is not discussed in this section. AB 52 compliance is described below.

3.4.1 Regulatory Setting

FEDERAL

National Register of Historic Places

The National Register of Historic Places (NRHP) is the nation's master inventory of known historic properties. It is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level.

The formal criteria (36 CFR 60.4) for determining NRHP eligibility are as follows:

1. The property is at least 50 years old (however, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP);
2. It retains integrity of location, design, setting, materials, workmanship, feeling, and associations; and
3. It possesses at least one of the following characteristics:

   Criterion A Is associated with events that have made a significant contribution to the broad patterns of history (events).

   Criterion B Is associated with the lives of persons significant in the past (persons).

Criterion C Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction (architecture).

Criterion D Has yielded, or may be likely to yield, information important in prehistory or history (information potential).

For a property to retain and convey historic integrity it must possess most of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. Location is the place where the historic property was constructed or the place where a historic event occurred. Integrity of location refers to whether the property has been moved since its construction. Design is the combination of elements that create the form, plan, space, structure, and style of a property. Setting is the physical environment of a historic property that illustrates the character of the place. Materials are the physical elements that were combined or deposited during a particular period and in a particular pattern or configuration to form a historic property. Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. Feeling is a property's expression of the aesthetic or historic sense of a particular period. This is an intangible quality evoked by physical features that reflect a sense of a past time and place. Association is the direct link between the important historic event or person and a historic property. Continuation of historic use and occupation help maintain integrity of association.

Listing in the NRHP does not entail specific protection or assistance for a property but it does guarantee consideration in planning for federal or federally assisted projects, eligibility for federal tax benefits, and qualification for federal historic preservation assistance. Additionally, project effects on properties listed in the NRHP must be evaluated under CEQA.

The National Register Bulletin series was developed to assist evaluators in the application of NRHP criteria. For example, National Register Bulletin #36 provides guidance in the evaluation of archaeological site significance. If a property cannot be placed within a particular theme or time period, and thereby lacks "focus," it will be unlikely to possess characteristics which would make it eligible for listing in the NRHP. Evaluation standards for linear features (such as roads, trails, fence lines, railroads, ditches, and flumes) are considered in terms of four related criteria that account for specific elements that define engineering and construction methods of linear features: (1) size and length, (2) presence of distinctive engineering features and associated properties, (3) structural integrity, and (4) setting. The highest probability for NRHP eligibility exists in the intact, longer segments, where multiple criteria coincide.

Secretary of the Interior's Standards

The *Secretary of the Interior's Standards for the Treatment of Historic Properties* (Secretary's Standards) provide guidance for working with historic properties. The Secretary's Standards are used by lead agencies to evaluate proposed rehabilitative work on historic properties. The Secretary's Standards are a useful analytic tool for understanding and describing the potential impacts of proposed changes to historic resources. Projects that comply with the Secretary's Standards benefit from a regulatory presumption that they would not result in a significant impact on a historic resource.

In 1992 the Secretary's Standards were revised so they could be applied to all types of historic resources, including landscapes. They were reduced to four sets of treatments to guide work on historic properties: Preservation, Rehabilitation, Restoration, and Reconstruction. The four distinct treatments are defined as follows:

- **Preservation** focuses on the maintenance and repair of existing historic materials and retention of a property's form as it has evolved over time.
- **Rehabilitation** acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property's historic character.
- **Restoration** depicts a property at a particular period of time in its history, while removing evidence of other periods.
- **Reconstruction** recreates vanished or nonsurviving portions of a property for interpretive purposes.

The Secretary of the Interior's Standards for Rehabilitation are as follows:

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

STATE

California Register of Historical Resources

All properties in California that are listed in or formally determined eligible for listing in the NRHP are also listed in the California Register of Historical Resources (CRHR). The CRHR is a listing of State of California resources that are significant in the context of California's history. It is a statewide program with a scope and with criteria for inclusion similar to those used for the NRHP. In addition, properties designated under municipal or county ordinances are also eligible for listing in the CRHR.

California Points of Historical Interest are sites, buildings, features, or events that are of local (city or county) significance. Points of Historical Interest designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the CRHR. California Historical Landmarks are sites, buildings, features, or events that are of statewide significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Nominated by the State Historic Resources Commission, all properties listed as a California Historical Landmark are automatically listed on the CRHR. All landmarks must address one of the following criteria for designation:

1. The first, last, only, or most significant of its type in the state or within a large geographic region (Northern, Central, or Southern California).
2. Associated with an individual or group having a profound influence on the history of California.

3. A prototype of, or an outstanding example of a period, style, architectural movement, or method of construction or is one of the more notable works or the best surviving work in a region of a pioneer architect, designer, or master builder.

A historical resource must be significant at the local, state, or national level under one or more of the criteria defined in the CCR Title 15, Chapter 11.5, Section 4850 to be included in the CRHR. The CRHR criteria are tied to CEQA because any resource that meets the criteria below is considered a significant historical resource under CEQA. As noted above, all resources listed in or formally determined eligible for listing in the NRHP are automatically listed in the CRHR.

The CRHR uses four evaluation criteria:

Criterion 1. Is 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. Is associated with the lives of persons important to local, California, or national history.

Criterion 3. Embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of a master; or possesses high artistic values.

Criterion 4. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

Similar to the NRHP, a historical resource must meet one of the above criteria and retain integrity to be listed in the CRHR. The CRHR uses the same seven aspects of integrity used by the NRHP.

California Environmental Quality Act

CEQA requires public agencies to consider the effects of their actions on "historical resources," and "unique archaeological resources." Pursuant to CEQA Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether projects would have effects on unique archaeological resources.

Historical Resources

"Historical resource" is a term with a defined statutory meaning (CEQA Section 21084.1; State CEQA Guidelines Sections 15064.5[a] and [b]). Under State CEQA Guidelines Section 15064.5(a), historical resources include the following:

1) A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in, the CRHR (PRC Section 5024.1).

2) A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g), will 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 that 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 historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource will be considered by the lead agency to be historically significant if the resource meets the criteria for listing in the CRHR (PRC Section 5024.1).

4) The fact that a resource is not listed in or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to PRC Section 5020.1[k]), or identified in a historical resources survey (meeting the criteria in PRC Section 5024.1[g]) does not preclude a lead agency from determining that the resource may be a historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

Unique Archaeological Resources

CEQA also requires lead agencies to consider whether projects will affect unique archaeological resources. CEQA Section 21083.2(g) states that "unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Tribal Cultural Resources

CEQA also requires lead agencies to consider whether projects would affect tribal cultural resources. CEQA Section 21074 states:

a) "Tribal cultural resources" are either of the following:
   1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
      A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
      B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
   2) 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

CEQA Section 21080.3

AB 52, signed by the California governor in September 2014, established a new class of resources under CEQA: "tribal cultural resources," defined in CEQA Section 21074. Pursuant to CEQA Sections 21080.3.1, 21080.3.2, and 21082.3, lead agencies undertaking CEQA review must, upon written request of a California Native American tribe, begin consultation before the release of an EIR, negative declaration, or mitigated negative declaration. CEQA Sections 21080.3.1 and 21080.3.2 state that within 14 days of determining that a project application is complete, or to undertake a project, the lead agency must provide formal notification, in writing, to the tribes that have requested notification of proposed projects in the lead agency's jurisdiction. If it wishes to engage in consultation on the project, the tribe must respond to the lead agency within 30 days of receipt of the formal notification. The lead agency must begin the consultation process with the tribes that have requested consultation within 30 days of receiving the request for consultation. Consultation concludes when either (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process, provisions under CEQA Section 21084.3(b) describe mitigation measures that may avoid or minimize the significant adverse impacts. Examples include:

(1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

(2) Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

   (A) Protecting the cultural character and integrity of the resource

   (B) Protecting the traditional use of the resource

   (C) Protecting the confidentiality of the resource.

(3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

(4) Protecting the resource.

<u>CEQA Section 21083.2</u>

Treatment options under CEQA Section 21083.2(b) to mitigate impacts on archaeological resources include activities that preserve such resources in place in an undisturbed state. CEQA Section 21083.2 states:

(a) As part of the determination made pursuant to Section 21080.1, the lead agency shall determine whether the project may have a significant effect on archaeological resources. If the lead agency determines that the project may have a significant effect on unique archaeological resources, the environmental impact report shall address the issue of those resources. An environmental impact report, if otherwise necessary, shall not address the issue of nonunique archaeological resources. A negative declaration shall be issued with respect to a project if, but for the issue of nonunique archaeological resources, the negative declaration would be otherwise issued.

(b) If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. Examples of that treatment, in no order of preference, may include, but are not limited to, any of the following:

   (1) Planning construction to avoid archaeological sites.

   (2) Deeding archaeological sites into permanent conservation easements.

   (3) Capping or covering archaeological sites with a layer of soil before building on the sites.

   (4) Planning parks, greenspace, or other open space to incorporate archaeological sites.

(c) To the extent that unique archaeological resources are not preserved in place or not left in an undisturbed state, mitigation measures shall be required as provided in this subdivision.

(d) Excavation as mitigation shall be restricted to those parts of the unique archaeological resource that would be damaged or destroyed by the project.

(e) In no event shall the amount paid by a project applicant for mitigation measures required pursuant to subdivision (c) exceed the following amounts:

   (1) An amount equal to one-half of 1 percent of the projected cost of the project for mitigation measures undertaken within the site boundaries of a commercial or industrial project.

   (2) An amount equal to three-fourths of 1 percent of the projected cost of the project for mitigation measures undertaken within the site boundaries of a housing project consisting of a single unit.

   (3) If a housing project consists of more than a single unit, an amount equal to three-fourths of 1 percent of the projected cost of the project for mitigation measures undertaken within the site boundaries of the project for the first unit plus the sum of the following:

(A) Two hundred dollars ($200) per unit for any of the next 99 units.

(B) One hundred fifty dollars ($150) per unit for any of the next 400 units.

(C) One hundred dollars ($100) per unit in excess of 500 units.

(f) Unless special or unusual circumstances warrant an exception, the field excavation phase of an approved mitigation plan shall be completed within 90 days after final approval necessary to implement the physical development of the project or, if a phased project, in connection with the phased portion to which the specific mitigation measures are applicable. However, the project applicant may extend that period if he or she so elects. Nothing in this section shall nullify protections for Indian cemeteries under any other provision of law.

Public Resources Code Section 5024

The California Legislature enacted PRC Sections 5024 and 5024.5 as part of a larger effort to establish a state program to preserve historical resources. These sections of the code require state agencies to take a number of actions to ensure preservation of state-owned historical resources under their jurisdictions. These actions include evaluating resources for NRHP eligibility and California Historical Landmark eligibility, maintaining an inventory of eligible and listed resources, and managing these historical resources so that that they will retain their historic characteristics.

PRC Section 5024(f) requires state agencies to submit to the State Historic Preservation Officer (SHPO) for comment documentation for any project having the potential to affect historical resources under its jurisdiction listed in or potentially eligible for inclusion in the NRHP, or are registered or eligible for registration as California Historical Landmarks. SHPO has 30 days after receipt of the notice for review and comment.

California Native American Historical, Cultural, and Sacred Sites Act

The California Native American Historical, Cultural, and Sacred Sites Act (PRC Section 5097.9) applies to both state and private lands. The act requires, upon discovery of human remains, that construction or excavation activity cease and that the county coroner be notified. If the remains are those of a Native American, the coroner must notify NAHC, which notifies and has the authority to designate the most likely descendant of the deceased. The act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

Health and Safety Code Section 7050.5

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If they are determined to be those of a Native American, the coroner must contact NAHC.

Public Resources Code Section 5097

PRC Section 5097 specifies the procedures to be followed if human remains are unexpectedly discovered on nonfederal land. The disposition of Native American burials falls within the jurisdiction of NAHC. Section 5097.5 of the code states:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

California Shipwreck and Historic Maritime Resources Program

PRC Sections 6309, 6313, and 6314 pertain to the California State Lands Commission's Shipwreck and Historic Maritime Resources Program in the following ways. All abandoned shipwrecks and all submerged archaeological sites and historic resources on or in the tide and submerged lands of California are under the jurisdiction of the SLC (PRC Section 6313[a]). PRC Section 6314 prohibits unauthorized removal or damage to submerged archaeological or historic resources, including shipwrecks, aircraft, and Native American sites. The SLC may grant permits for salvage operations, including archaeological investigations, on submerged archaeological or historic sites when the proposed activity is justified by an educational, scientific, or cultural purpose, or there is a need to protect the integrity of the site or the resource (PRC Section 6313[d]). Recreational diving that does not disturb the subsurface or remove artifacts from a submerged archaeological site or historic resource does not require a permit (PRC Section 6309[g]).

LOCAL

Cal Maritime is part of the CSU, which is a statutorily and legislatively created, constitutionally authorized state entity. As explained in the "California State University Autonomy" section in the introduction to Chapter 3 of this EIR, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, Cal Maritime does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes. This evaluation is also intended to be used by local agencies for determining, as part of their permit processes, the project's consistency with local plans, policies, and regulations.

Solano County General Plan

The following policies and implementation programs from the Solano County General Plan related to the identification and protection of cultural resources are relevant to the project (Solano County 2008):

- **Policy RS.P-38**: Identify and preserve important prehistoric and historic structures, features, and communities.
- **Policy RS.P-39**: Tie historic preservation efforts to the County's economic development pursuits, particularly those relating to tourism.
- **Policy RS.P-40**: Consult with Native American governments to identify and consider Native American cultural places in land use planning.

Implementation Program RS.I-25: Require cultural resources inventories of all new development projects in areas identified with medium or high potential for archeological or cultural resources. Where a preliminary site survey finds medium to high potential for substantial archaeological remains, the County shall require a mitigation plan to protect the resource before issuance of permits. Mitigation may include:

- Having a qualified archaeologist present during initial grading or trenching (monitoring);
- Redesign of the project to avoid archaeological resources (this is considered the strongest tool for preserving archaeological resources);
- Capping the site with a layer of fill; and/or
- Excavation and removal of the archaeological resources and curation in an appropriate facility under the direction of a qualified archaeologist.
- Alert applicants for permits within early settlement areas to the potential sensitivity. If significant archaeological resources are discovered during construction or grading activities, such activities shall cease in the immediate area of the find until a qualified archaeologist can determine the significance of the resource and recommend alternative mitigation. Related Policies: RS.P-38, RS.P-40.

Implementation Program RS.I-26: Work with federal and state agencies to identify, evaluate, and protect the county's important historic and prehistoric resources. Programs administered by such agencies may include:

- California Historic Landmarks
- California Points of Historical Interest
- California Register of Historic Resources
- National Register of Historic Places
- State Historic Building Code

Implementation Program RS.I-27: Refer to the state Senate Bill 18 guidelines and requirements regarding cultural resources. Programs the County will engage in may include:

- ensuring local and Native American governments are provided with information early in the planning process,
- working with Native American governments to preserve and protect Native American cultural sites by designating them as open space where possible,
- providing management and treatment plans to preserve cultural places, and
- working with Native American groups to manage their cultural places.

Implementation Program RS.I-28: Protect and promote the county's historic and prehistoric resources by:

- providing educational programs to the public, staff, and commissions that promote awareness of the county's history and the value in preserving historic or prehistoric resources; and
- exploring and developing historic or prehistoric sites that can be used appropriately as visitor-oriented destinations.

Implementation Program RS.I-29: Develop historic preservation programs and development guidelines to prevent the loss of significant historic buildings and structures. This should be done in conjunction with Program SS.I-16.

City of Vallejo General Plan 2040

The following policies and actions from the City of Vallejo General Plan 2040 (City of Vallejo 2017) related to the identification and protection of cultural resources are relevant to the project:

Policy NBE-1.9: Cultural Resources. Protect and preserve archaeological, historic, and other cultural resources.

- **Action NBE-1.9A**: Continue to require that land use activities comply with State requirements and follow best practices to ensure that cultural resources are not impacted and that appropriate agencies and technical experts are involved in the evaluation and protection of resources and sites.
- **Action NBE-1.9B**: Maintain a dialogue with local Native American groups regarding sensitive cultural resources in Vallejo.
- **Action NBE-1.9C**: Support protection and formal designation of the Sacramento-San Joaquin Delta region.

Policy NBE-1.10: Historic Resources. Encourage the protection, rehabilitation, and reuse of historic buildings and structures.

- **Action NBE-1.10A**: Seek funding to update the City's historic resources inventory.
- **Action NBE-1.10B**: Require the identification and protection of all on-site historic resources in conjunction with any proposed development, in compliance with all applicable City provisions (including the Downtown Specific Plan Historical Resource Assessment) and State and federal guidelines for the treatment of historic Properties
- **Action NBE-1.10C**: Participate in federal and State programs that offer funding and economic incentives for the restoration and preservation of qualified historic buildings, including:
  - The federal historic preservation tax credit for qualified rehabilitation projects;
  - Reduced development fees for projects that comply with the State Historical Building Code (SHBC) and the Secretary of the Interior's Standards;
  - The Mills Act Property Tax Abatement Program;
  - Income tax deductions for qualified donations of historic preservation easements; and
  - Transfer of Development Rights.

3.4.2 Environmental Setting

PRECONTACT OVERVIEW

The following context is taken from the archaeological report that was prepared for the Cal Maritime Waterfront Master Plan (Natural Investigations Company 2024).

Human occupation in northwest California is generally subdivided into distinct time periods, each of which is marked by various adaptive patterns and geographical distributions (Table 3.4-1). Early studies of cultural change in the Bay Area and the Sacramento-San Joaquin Delta facilitated the development of the Central California Taxonomic System described below.

Table 3.4-1 Archaeological Time Period and Patterns in the North Bay Area

Temporal Period	Cultural Pattern	Timeframe
Early Holocene (Lower Archaic)	Borax Lake Pattern	8000-3500 calibrated before current era (BCE)
Early Period (Middle Archaic)	Mendocino Pattern	3500-500 calibrated BCE
Middle Period (Upper Archaic)	Berkeley Pattern	500 calibrated BCE – 1000
Later Period (Emergent)	Augustine Pattern	1000 to Historic Contact

Source: Natural Investigations Company 2024.

Early Holocene (Lower Archaic)

Archaeological evidence is rare for occupation in the San Francisco Bay Area dating earlier than 6,000 years ago during the Early Holocene when sea levels were dramatically lower than today. It is likely that sea-level rise and Holocene alluvial deposits, which are up to 33 feet (10 meters) thick in some locations around the Bay region, buried many precontact sites in this area.

The oldest archaeological component known in the region was identified at a buried site at Los Vaqueros Reservoir in eastern Contra Costa County. A radiometric date of 7920 cal BCE is associated with an artifact deposit containing handstones, millingstones, cobble-core tools, and projectile points, as well as the remains of a variety of animals and plants. The earliest documented human grave in the region was found at a companion site at Los Vaqueros, dated to 6570 cal BCE.

The earliest radiocarbon dates in the general area are from the Duncan’s Landing site on the Sonoma County coast. The deposits at the rock shelter, comprised mostly of mussel shell with some fish, bird and pinniped, produced a basal date of 7000 cal BCE. Inland at the Spring Lake site near present-day Santa Rosa, a large proportion of the wide-stemmed projectile points and other flaked stone tools dating to this period were made from Borax Lake obsidian, the source of which is near Clear Lake in Lake County.

Early Period (Middle Archaic)

This period saw the emergence of new technologies that reflect increases in sedentism, mortuary complexity, and regional trade. Mortars and pestles are first documented in the San Francisco Bay Area shortly after 4000 cal BCE at one of the Los Vaqueros sites. By 1500 cal BCE, mortars and pestles may have been used to the exclusion of millingstones and handstones at sites in Alameda County, including the West Berkeley site, and in Contra Costa County. The results of archaeobotanical analysis at Los Vaqueros site indicate that mortars, pestles, and core-cobble tools were used to process manzanita, gray pine, acorn, wild cucumber, and various small seeds.

In addition to new millingstone technology, there is archaeological evidence for the first cut shell beads found in mortuary contexts in the Bay Area during this period. The earliest known Olivella rectangle beads with drilled perforations date to 4,800 years ago and are from a burial at Los Vaqueros Reservoir site. Haliotis rectangle beads are documented in a 5,590-year-old burial at Sunnyvale in Santa Clara County. These rectangular bead types continued to be used until at least 2,800 years ago.

The archaeological record indicates variations of forager economies persisted for much of the Early Period in the Bay Area. The use of obsidian from Borax Lake changed to use of chert from the Black Hills Santa Rosa locality and obsidian from Napa Valley. This more localized forager lifeway, which replaced the Borax Lake Pattern, is identified as the Mendocino Pattern. About 1500 cal BCE, the lower Berkeley Pattern spread into the Napa Valley and later to Santa Rosa. This cultural pattern is characterized by a collector-oriented economy with a more sedentary lifestyle. Residential midden sites also contain flexed burials and cobble mortars.

Middle Period (Upper Archaic)

The earliest assemblages attributable to the Berkeley Pattern, which is found throughout the San Francisco Bay Area during the Late Holocene, include the lower levels of the West Berkeley site in Alameda County and the University Village site in San Mateo County. Artifacts typical of the Berkeley Pattern include spire-lopped Olivella shell beads, bone tubes and beads, bird-bone whistles, quartz crystals, serrated mammal scapulas, and ground bone awls. Projectile points are commonly contracting stemmed and lanceolate types, some of which are made from obsidian, although chert appears to have remained the dominant toolstone in Contra Costa County. Burials are variable flexed and semi-flexed with inconsistent orientation, and there is an increase in mortuary items, particularly during the late Middle Period, compared to few mortuary items identified during the Early Period in Bay Area sites.

Mortars and pestles continued to be the exclusive grinding tools at bayshore sites but were accompanied by millingstones and handstones at interior locations. Subsistence remains from Los Vaqueros sites indicate acorns and other large nuts and seeds were an important part of the diet but that small seeds were of greater significance than in earlier times. Evidence also suggests that bedrock mortar stations were first established around the Bay Area roughly 1,300 years ago.

Faunal analyses indicate the diet during this period was rich and varied, with a variety of small and large mammals, fish, and birds, as well as mussel, oyster, and clam, depending on location. Of note, interior sites in Contra Costa County contained a substantial quantity of marine invertebrates. Large accumulations of shellfish remains, or "shellmounds," formed over hundreds, or even thousands, of years through accretion at village sites fronting the Bay that were reused seasonally or year-round. Numerous shellmounds contain hundreds of burials as well as ceremonial items, house floors, hearths and storage pits, indicating they were used as burial, ceremonial, and residential places. The well-known Emeryville shellmound and Ellis Landing site also date to this period.

Late Period (Emergent)

The Augustine Pattern in the Bay Area follows the "golden age of shell mound communities" of the Berkeley Pattern. A number of changes in subsistence, foraging, and land use patterns that begin to reflect the use pattern known from Historic Period Native American groups in the area is evident. The pattern is identified by the introduction of bow and arrow technology, the use of harpoons, and tubular tobacco pipes. There is an increase in the intensity of subsistence exploitation that correlates directly with population growth, and greater emphasis is placed on the procurement and processing of vegetal foods, especially acorns, as evidenced in the increase of milling tools, especially the mortar and pestle. Both coiled and twined basketry were used as domestic and ceremonial items.

Population size and the number of settlements increased during this period, although the large shellmound villages of the Berkeley Pattern were apparently no longer favored residential places and many were abandoned. The dry conditions during the Medieval Climatic Anomaly, which produced droughts across the West between about 650–850 and 1150–1250 may be related to the abandonment of shellmound villages as primary residential. Settlement strategies were apparently reorganized and focused on a dispersed pattern, with the establishment of both coastal and interior habitation areas, coinciding with the exploitation of seasonally available resources.

This period ushers in a time of status differentiation and the rise of secret societies and cults and associated traits. Exchange networks, with the use of clamshell disk beads as a form of currency, expanded during this period. Exchange items included magnesite, steatite, Olivella beads, and obsidian. Compared to the Middle Period, the use and occurrence of shell beads with burials blossomed. Haliotis banjo pendants may represent the introduction and spread of the Kuksu religion, beginning during the transition from the Middle to Late Period in the Bay Area. The magnitude of non-dietary Olivella shells in coastal sites during the Late Period, coupled with a concomitant increase of the shells in mortuary contexts throughout central California during this period, attests to the rise of both exchange networks and status differentiation, with coastal peoples supplying the shells to the interior groups.

In north San Francisco Bay, hopper mortars, toggle harpoons, clamshell disk beads, magnesite tube beads, and secondary cremation all appear prior to evidence for them in the central or south Bay Area. The archaeological record to date indicates manufacture of clamshell disk beads was concentrated inland, not on the coast, including on the Santa Rosa Plain about 19 miles inland. This form of currency was also manufactured at a site in the Berryessa Valley some 50 miles inland and 140 miles inland in the lower Sacramento Valley. The record also indicates use of obsidian at the Napa Valley Glass Mountain quarries decreased considerably with the appearance of the bow and arrow.

Submerged Precontact Archaeological Sensitivity

San Francisco Bay did not yet exist when Native Americans first occupied the region more than 11,000 years ago, because the Pacific Ocean was approximately 131 feet lower than it is today. Over the next several thousand years, rising sea levels transformed the terrestrial landscape of the San Francisco Bay into the tidal estuary and marsh that existed in the project vicinity historically. Because the size and shape of the Bay has changed over time, any attempt to model the locations of precontact sites must take into account the timing and extent of these large-scale landscape changes (Far Western 2024).

Assuming that precontact people did occupy areas that are now submerged below sea level, they probably located themselves near the channels of freshwater streams and rivers, or near the margins of lakes and estuaries, just as they did in later time periods. Based on the documented rate of Holocene sea-level rise, elevations of precontact bay margins were calculated at 500-year increments. Former stream centerlines were generated from the submerged elevation model, with small tributaries removed and remaining streams connected to historic-era terrestrial water sources to create a plausible network. This assessment indicates that a few small portions of the project site have an elevated (high or highest) sensitivity for submerged precontact sites. These are primarily near shore portions of the former estuary that are now covered in artificial fill, and a small offshore area where a watercourse is modeled to have flowed through the pre-bay landscape. Additionally, one small portion in the southeastern project site extends onto what was historically land. This area is underlain by an ancient landform and is therefore modeled to have the lowest potential for buried precontact sites (Far Western 2024).

ETHNOHISTORY

The following ethnography is taken from the archaeological report that was prepared for the Cal Maritime Waterfront Master Plan (Natural Investigations Company 2024).

Prior to the arrival of Euro-Americans in the region, California was inhabited by groups of Native Americans speaking more than 100 different languages and occupying a variety of ecological settings. The project site is within the ethnographic territory of the Southern Wintun or Patwin, who are members of the widespread Penutian language family, which was prevalent throughout California during the late precontact and historic era (e.g., 1800).

Patwin are the southernmost division of Wintuan groups, a distinction primarily based on linguistic variation. Patwin are members of California Penutian linguistic stock, and they occupied the southwest portion of the Sacramento Valley, from the lower hills of the eastern North Coast Ranges to the Sacramento River, and from Princeton south to San Pablo and Suisun Bays. Patwin are comprised of numerous different tribal groups with separate dialects, but anthropologists usually separate Patwin into two primary subdivisions: Hill Patwin and River Patwin. A few ethnographers also identify Southern Patwin, but there is scant data regarding this group and their territory. Regardless, Patwin culture appears to be relatively similar between the groups and ethnographers have stated that the geographic variation across Patwin territory only produced minor cultural divergences of custom within the overall uniformity of the group. Hill Patwin occupied the lower, eastern slopes of the southern North Coast Range and River Patwin occupied the west side of the lower Sacramento River below the mouth of the Feather River and the lower reaches of Cache Creek and Putah Creek in the Sacramento Valley. They were composed of three dialect groups: Colusa or Koru', Grimes or Saka, and Knights Landing or Yo'doi.

Information specifically addressing Patwin political and social organization is scant, particularly for River Patwin, though there is sufficient ethnographic data to provide a description of Patwin culture. Patwin were organized into tribelets, which were usually composed of a principal village and a few satellite settlements. Tribelets were small, autonomous, and sometimes bounded by the limits of a small drainage. Each tribelet had a head chief and each village had a chief who administered its economic and ceremonial activities. The position of chief was usually inherited through the male line, but village elders occasionally chose some chiefs. The chief possessed political, ceremonial, and economic powers and enjoyed high prestige. He was the "commissioner" of crops, determined annual harvesting times, allocated lands to family groups, organized resource expeditions (e.g., hunting and wood gathering), and served as the primary distributor of resources.

Patwin subsistence relied on hunting, fishing, and gathering a wide variety of plant resources that were located within their territory. Acorns were a major part of their diet and were obtained from hill and mountain oaks communally owned by the tribelet. Other easily gathered resources included blackberries, elderberries, wild grapes, new tule shoots, roots and bulbs, honey, salt (acquired from burning salt grass), and tobacco. Ethnographic records indicate that large game (e.g., deer, tule elk, antelope) was captured using nets or were shot using bows-and-arrows. Fish were also a prime resource for River Patwin, and certain fishing sites were privately owned. Fish (e.g., salmon, sturgeon, perch, chub, sucker, hardhead, pike, and trout) and other riverine resources (e.g., turtles and mussels) were caught with bone fishhooks, nets, seines, and weirs. Food resources were generally stored in bins and granaries, which were made of sticks set into the ground and roofed with tules.

Patwin manufactured a variety of utilitarian and ceremonial/luxury items, including baskets, stone tools, mortars and pestles, shell beads, and clothing. Shell beads were manufactured for personal adornment and as a medium of exchange. Clothing was generally minimal; men went without any covering, and women wore skirts or aprons of tule or shredded bark. Other clothing included fur blankets (e.g., rabbit pelts) and leather robes, which were sewn together using bone needles and strings of wild hemp. River Patwin also built tule balsa boats to facilitate river travel and acquisition of fish resources.

Patwin traded for various commodities and subsistence resources using clamshell disc beads as a medium of exchange. The worth of disc beads was determined by the length of the string of beads rather than by the quality of individual beads. Initially, River Patwin obtained finished shell beads from Hill Patwin, who obtained them from their Pomo neighbors. In the historic period, however, River Patwin traded for whole shells from the Pacific coast and made beads themselves. Obsidian was obtained from sources in the southern North Coast Ranges, primarily Napa Valley. Not all external relationships were friendly, particularly with the Napa Valley region, and conflicts with Napa Valley groups probably affected the ability of River Patwin to acquire obsidian from the area.

Euroamerican Contact

Mission registers provide the earliest historic accounts of Patwin. Several missions, including Mission San Jose, established in 1797, and Mission Dolores and Mission Sonoma, established in 1823, bordered Patwin territory. Consequently, Euroamerican contact with Patwin occurred by at least 1800. The influx of European and Spanish explorers and settlers during the 1830s and 1840s rapidly changed Patwin demography. The second quarter of the nineteenth century encompasses the Mexican Period (ca. 1821-1848) in California. This period is an outgrowth of the Mexican Revolution, and its accompanying social and political views, which affected the mission system across California. In 1833, the missions were secularized and their lands divided among the Californios as land grants called ranchos. These ranchos facilitated the growth of a semi-aristocratic group that controlled the larger ranchos. Local Native American populations, who were essentially used as forced labor, accomplished work on many of these large tracts of land. Indeed, Native American groups across California were forced into a marginalized existence as peons or vaqueros on large ranchos.

Simultaneously with the exploration of the Central Valley and the flanks of the Sierra Nevada, trails were being blazed across the plains and mountains facilitating the westward migration of Euroamericans. Groups such as the 1841 Bartleson-Bidwell Party and the 1844 Stevens-Murphy Party typify these early immigrants. The commencement of the Mexican-American War in 1846 also affected the exploration and development of California, including the identification of new trails across the Sierra Nevada.

The discovery of gold at Sutter's Mill in Coloma in 1848, however, was the catalyst that caused a dramatic alteration of both Native American and Euroamerican cultural patterns in California. Once news of the discovery of gold spread, a flood of Euroamericans entered the region, and gravitated to the area of the "Mother Lode." Initially, the Euroamerican population grew slowly, but soon exploded as the presence of large deposits of gold was confirmed in the Sacramento area. The population of California quickly swelled from an estimated 4,000 Euroamericans in 1848 to 500,000 in 1850. The large influx of Euroamerican immigrants had a positive effect on growth and economic development in California, but a negative effect on Native American cultures. Indeed, the discovery of gold in California marked the beginning of a relatively rapid decline of both Native American populations and culture.

The latter half of the nineteenth and early twentieth century witnessed an ongoing and growing immigration of Euroamericans into the project area, which was accompanied by regional cultural and economic changes. These changes are highlighted by the urban development of the project area.

HISTORIC SETTING

The following history is taken from the historic resource evaluation report that was prepared for the Cal Maritime boathouse (Appendix F).

History of Morrow Cove Prior to 1940

Located at the mouth of the Carquinez Strait, Morrow Cove is now the southernmost tip of Vallejo, but until the construction of the Carquinez Bridge in 1927 this area remained remote from the growing city of Vallejo. Prior to the construction of the Carquinez Bridge, several ferries and automobile ferries operated along the Strait to allow navigation from Vallejo to the East Bay. Early automobile ferries that operated along the Strait include the Martinez-Benicia Ferry & Transportation Company in 1913, the Rodeo-Vallejo Ferry Company in 1918, and the Six-Minute Ferry in 1919, which operated between Morrow Cove and the town of Crockett. Unfortunately, the Six-Minute Ferry's terminal at Morrow Cove was destroyed by a landslide in 1922. The Rodeo-Vallejo Ferry Company acquired the holdings of the Six-Minute Ferry and expanded its ferry business, which transported over one million passengers annually in approximately 400,000 vehicles in 1923 and 1924.

The automobile ferry business was highly successful, but many drivers still chose to take the land route, consisting of an additional 30 miles, to avoid waiting for the ferry which struggled to meet the demand. Therefore, the owners of the Rodeo-Vallejo Ferry Company began to plan for the construction of a toll bridge to cross the Carquinez Strait and formed the American Toll Bridge Company. When the Carquinez Bridge opened in 1927, with its two main spans of 1,100 feet each, it had the second longest cantilever spans in the country and the fourth longest in the world. In addition to its status as an engineering marvel, when completed, the Carquinez Bridge shortened the route from Sacramento to the Bay Area and was integrated into the transcontinental Lincoln Highway.

In the late 1920s, it appears that Morrow Cove had already become popular as a local fishing spot for bass, which feed in the area. By the early 1930s, the American Toll Bridge Company (who developed the Carquinez Bridge) sought to expand the appeal of the area and create a popular recreation area that would serve the citizens of Vallejo, the residents of the larger Bay Area who could now easily reach Morrow Cove for a day of leisure, and the tourists moving along the Lincoln Highway route. In 1933, the American Toll Bridge Company undertook a number of improvements, including landscaping the cove and installing a dance platform, playgrounds, picnic areas, and bathing facilities. Fishing clubs sprung up along the shoreline, and the cove even had a small café to provide refreshments. Enhancing the swimming area was a significant artificial breakwater, in the form of two abandoned ships: the Bangor, a sailing schooner, and the Contra Costa, a ferryboat that transported railcars.

At the beginning of US involvement in World War II in December 1941, the California Department of Public Works issued an order to restrict access to Morrow Cove due to its proximity to the base of the Carquinez Bridge, which was seen as a strategic link between the "lower bay region and the Vallejo-Mare Island defense area." This protective measure against possible sabotage of the bridge closed Morrow Cove to swimmers and fishermen in the 1940s. It is likely that public access to Morrow Cove remained restricted throughout World War II and allowed for this area to be considered as a possible location for the future Cal Maritime campus.

History of Cal Maritime

Cal Maritime was established by legislation called the California Nautical School Act of 1929; it made possible the formation of a state-owned school to train engineering and deck officers of the US Merchant Marine. In 1931, after 2 years of preparations, the first group of midshipmen were enrolled at the California Nautical School's temporary campus at the US Navy Coaling Station near Tiburon. But the school soon faced serious financial and political problems and was in danger of being shut down. Only through the efforts of many dedicated supporters were these attempts successfully circumvented and minimal funding was continued by the state.

With World War II looming, the Navy needed the Tiburon coaling station, and the California Nautical School had to look for another location. After more than 1 year of searching and after the consideration of many sites for a campus, the Board of Governors of the school decided on Morrow Cove in Vallejo. The people of Vallejo were much in favor of the proposition and gave the school some greatly needed support.

The future of the California Nautical School began to look much better with the growing demand for Merchant Marine seamen in the early 1940s. It was during this period that the California Nautical School was renamed the California Maritime Academy. However, there were many delays and problems in trying to secure the estimated $2.5 million needed to develop the Morrow Cove site. In 1942, the Wartime Shipping Administration took over the university and through this agency, the original construction plans for Morrow Cove were revived.

Although the school was displaced from its Tiburon campus due to World War II, Cal Maritime continued to serve a critical role in the training and supplying of officers during the war. The educational program, which had introduced a 3-year program for students to qualify for a Merchant Marine officer's license, was shortened to 18 months to supply trained officers more quickly. Eleven graduates lost their lives in the line of duty during the war and were remembered at a dedication ceremony for Mayo Hall in 1946. Immediately after World War II, the 3-year program was restored, and the traditional training cruises were resumed. The school's annual training cruises, which provide students with hands-on experience navigating, piloting, maintaining, and running a ship, are held on the Cal Maritime Training Ship (T.S.), currently the T.S. Golden Bear III, which is on long-term loan from MARAD. The university has had four training ships: T.S. Golden State (1931–1946), T.S. Golden Bear I (1946–1971), T.S. Golden Bear II (1971–1995), and T.S. Golden Bear III (1996–present). When not involved in the various cruises, the training ship is docked at the wharf adjacent to the boathouse and provides additional educational facilities.

Despite the university's role in helping supply a trained Merchant Marine both during and outside of the war effort, Cal Maritime and the other state-run maritime academies were under threat of budget cuts and closures in the 1950s and in the 1970s. This was partially due to their complicated financial position where funding was supplied both from the federal government and each respective state legislature. In 1954, discussions on the need to crew the United States' vastly enlarged naval fleet strongly supported the ongoing funding of these institutions by the federal and state legislatures. In both instances, the value of these maritime academies was seen as essential to meeting the personnel needs of the Merchant Marine, the Coast Guard, and the Naval Reserve, in addition to staffing allied shipping industries—all industries that support the long-term maritime defense capabilities of the nation.

Other notable milestones in Cal Maritime's history include the acceptance of women to the school in 1973, the establishment of a 4-year college degree in the mid-1970s, and the full academic accreditation of the school in 1977. In 1995, Cal Maritime became the 22nd campus of the CSU system, officially becoming California State University Maritime Academy.

Project Site History

Morrow Cove was one of the many sites that was visited during the search for a new campus for Cal Maritime in the early 1940s. In December 1940, a survey party of administrators from Cal Maritime visited Morrow Cove, which had some piers, structures, and the remnants of the Bangor sailing schooner and the Contra Costa ferryboat.

As early as 1941, the 67-acre area along the shore of Morrow Cove was approved as the location of the new Cal Maritime campus; but acquiring funding and navigating the political situation during World War II delayed the school's occupation of the site. While piles were driven for a new pier as early as 1941, the site was not suitably completed for occupation by the school until August 1943. At this time, the T.S. Golden State was able to dock at the new wharf, and several temporary buildings provided facilities for students and teachers. The site was developed in earnest in 1943 while the land was cleared, leveled, and graded and 330,000 cubic yards of earth were relocated from higher on the site to fill in a portion of the cove. At this time, the remnants of the hull of the Bangor were buried in the area that was infilled. Attempts to remove the hull of the Contra Costa, including refloating, towing, dredging, and dynamiting, all failed, and elements of the hull remain extant and can be seen at low tide. This process of infill extended the shoreline westward into the bay and created 12 additional acres of flat land along the shore. Permanent structures were then added through phased construction.

The construction program to erect permanent buildings on the campus was announced in early 1944 and started in September 1945 with the laying of a cornerstone for a gymnasium and natatorium (now called Mayo Hall). This permanent building plan followed the guidance of a Master Development Plan developed by the California Department of Public Works, Division of Architecture, that proposed a symmetrical arrangement of buildings and pavilions that flanked a central Drill Field located along the shoreline. The Master Development Plan showed a "Boat Shed" at the location of—and with a similar footprint to—the sail loft portion of the existing boathouse; a separate sail loft building was proposed to be located north of the Boat Shed. The Master Development Plan appears to have helped guide the placement of some of the early facilities of the campus. However, the boathouse—as it was constructed with its L-shaped footprint—did not adhere to the Master Development Plan. It was designed in 1945 and completed in 1946.

When completed, the boathouse was used for "instruction in manila and wire splicing, canvas work, boat overhaul, and the reeving of blocks and tackles." The campus remained relatively open along its southern end until the erection of Dwyer Hall, which was completed in 1960 and was the first large campus building located near the boathouse. Since that time, a number of new buildings have been erected at the campus, including the replacement of Dwyer Hall. Today, two modular buildings are located just east of the boathouse—for Marine Programs and Naval Science—and the Simulation Center and the Steam Plant Simulator are located just north of that.

Shipwreck History

Within the bustling backdrop of maritime trade and transit in the Carquinez Strait, a review of past maritime-related incidents in the project vicinity is warranted. The sparsity of previously identified submerged cultural resources within the vicinity of the project is somewhat unexpected despite the extensive history of industry, commerce, and transportation within the narrow confines of the Strait. While numerous incidents and mishaps have transpired in the Carquinez Strait since the mid-nineteenth century, many were of minor consequence. Often, instances resulting in vessel sinkings were swiftly resolved through salvage efforts, refurbishments, and reinstatement back into service. Only a handful of submerged sites have been investigated in the region and even fewer have resulted in formal investigation and documentation. Based on archival research, three vessels now reside or may have once resided within the project site and include: the train ferry *Contra Costa*, sailing schooner *Bangor*, and another unknown wreck (Far Western 2024).

Contra Costa

Southern Pacific Railroad Company's shipyard in Oakland launched *Contra Costa*, a wooden-hulled side paddlewheel double ended steam powered train transfer ferry, in 1914 for service between Port Costa and Benicia. The ferry played a crucial role providing regular 24-hour service for passenger and freight trains between a one-mile gap in transcontinental and commuter rail service across the Carquinez Straights during the early twentieth century. It was a partner and successor to the ageing ferry *Solano*, which opened the ferry connection between Port Costa and Benecia in 1879. *Contra Costa's* registered dimensions were 414.3 feet in length, 67.2 feet in breath, and 18.5 in depth with a gross tonnage of 4,483. At the time of *Contra Costa's* launch, it was the "largest steam ferry boat in the world" and likely the "biggest wooden-hulled ferry ever built." To transport the train locomotives and railcars, *Contra Costa's* strongly built main deck was equipped with four tracks spaced at 12-foot intervals, enabling it to handle a range of configurations. Its layout facilitated the loading and transportation of up to 36 freight cars and two locomotives or 24 passenger cars and two locomotives with an average of 46 trips per day. During the short trip travelers had access to a restaurant, bar, and waiting rooms to pass the time. Over a one-year period in 1919, *Contra Costa* and *Solano* carried a combined total of 25,038 passengers, making the ferries a sound investment for the Southern Pacific Railway Company (Far Western 2024).

After 16 years of service, the *Contra Costa* and *Solano* ferries were retired in 1930 after the opening of the Benecia-Martinez Bridge. This new bridge provided an avenue for trains to make their trip uninterrupted over the water and ferry service was no longer needed. The retired ferries underwent a process of partial scrapping, but their large wooden hulls were spared. By 1932, *Contra Costa's* hull had been stripped and beached in Morrow Cove on the shoals of Carquinez Straights, repurposed as a fishing platform for anglers. This transition marked a notable chapter in the vessel's history, as it shifted from its role in transportation to becoming a fixture in the recreational landscape. The decision to utilize *Contra Costa's* hulk—a ship that is afloat, but incapable of going to sea—as a fishing platform was part of a broader initiative aimed at capitalizing on Morrow Cove's natural amenities and strategic location along the Carquinez Strait. The development of the cove into a recreational destination included the establishment of San Francisco Surf Fishing Club along with fishing wharves, picnic grounds, and a "bathing beach." Morrow Cove's reputation as a prime location for catching fish, especially striped bass, further enhanced its appeal to anglers, as noted in several historical accounts (Far Western 2024).

In 1941, Morrow Cove was chosen to be the site of the California Maritime Academy and the completion of a new $25,000 dock for the state training ship. Due to wartime demands and the high cost of demolition, the *Contra Costa* was left in place. In 1947, after an incident involving a child slipping from the *Contra Costa's* hulk and drowning, plans were made to dynamite the hulk. The intention was to blast the ferry's hull into sections, drag them to shore, burn them, and remove them, along with two other nearby vessels including *Bangor*. Historical efforts to remove *Contra Costa* were only partially successful as its above water structure was dramatically reduced by the work in 1947 but its presence on aerial photos and nautical charts after that time indicates the ferry's remains are still present but eventually became fully submerged likely due to natural processes (Far Western 2024).

<u>Schooner Bangor</u>

In 1891, the Peter Matthew shipyard, in Eureka, California, launched the four-masted wooden-hulled schooner *Bangor*. *Bangor's* design was that of a typical West Coast lumber schooner with one deck, an elliptical stern, and a billethead. Its early career focused on transporting lumber along the West Coast servicing ports such as Vancouver, Canada, Port Townsend, Everett, Port Ludlow, and Seattle, Washington or San Francisco, Los Angeles, San Diego, and Oakland, California. *Bangor's* moment of fame was being chartered to Universal Film Company in 1923 for the movie *Storm Daughter*. The announcement of the movie included an overview and notable trips of the schooner's career citing that the schooner, "sailed the South Pacific and to this day holds the record of 40 days for a windjammer from Pago Pago, Samoa to San Francisco with a cargo of copra." After filming *Bangor* was reportedly dismasted and seemly abandoned off Redwood City until being chosen by the American Toll Bridge Company, along with three other older schooners, to be protection for the middle span of the Carquinez Bridge. They served at that function until a permanent fender system was built in 1930 (Far Western 2024).

It is unclear when and why *Bangor* ultimately ended up next to the ferry *Contra Costa* in Morrow Cove. A 1936 photograph shows *Bangor* sitting almost touching *Contra Costa* with its four masts still standing and hull intact to the main deck. By 1946, *Bangor's* masts are no longer present, but its hull is intact with portions of its deck houses still standing. A 1949 US Coast and Geodetic T-sheet, developed from 1941 survey data, shows Morrow Cove with a "grounded ferry" (assumed to be *Contra Costa*) with a "grounded vessel" (assumed to be *Bangor*) at its northern end and an unidentified wreck (US Coast and Geodetic Survey). The T-sheet appears to be the last time *Bangor* is indicated on any maps or known photographs (Far Western 2024).

<u>Unidentified Shipwreck</u>

The 1949 US Coast and Geodetic T-sheet, developed from 1941 survey data, shows Morrow Cove with three maritime resources present, a "grounded ferry" (assumed to be *Contra Costa*), a "grounded vessel" (assumed to be *Bangor*, and a "wreck" to the northwest of the other two. The presence of a third unnamed vessel in the area was also included on a 1946 US Coast and Geodetic Survey nautical chart of Mare Island Straight and during the work in 1947 to remove *Contra Costa* and *Bangor* with dynamite. These are the only two historical sources that mention a third shipwreck in Morrow Cove (Far Western 2024).

Until a permanent fender system was installed on the Carquinez Bridge in 1930, schooner *Bangor* along with three other schooners were used for protection for the middle span. The other schooners were the 162-foot-long *Philippine* (built in 1899), the 184-foot-long *Forester* (built in 1900), and *Caroline*. It is possible, like *Bangor*, one of those schooners also ended up in Morrow Cove but it is unknown if its remains are still present or of another unidentified vessel (Far Western 2024).

RECORDS SEARCHES, SURVEYS, AND CONSULTATION

On October 3, 2022, a records search of the project site and the area within 0.5-mile radius of the site was conducted by Natural Investigations Company at the Northwest Information Center (NWIC), at Sonoma State University. The following information was reviewed as part of the records search:

- NRHP and CRHR,
- Historic Property Data File for Solano County,
- Archaeological Determinations of Eligibility,
- Built Environment Resources Directory,
- California Inventory of Historical Resources,
- California Historical Landmarks,
- California Points of Historical Interest, and
- Historical General Land Office land plat maps.

Three previous surveys were identified in the project area. No previously recorded cultural resources were identified on the project site. Thirteen previous surveys and four previously recorded cultural resources were identified in the 0.5-mile search radius. The previously recorded cultural resources included three buildings and structures and a precontact shellmound.

Terrestrial Archaeological Survey

The project site occupies approximately 25 acres, but the land portion includes only approximately 5 acres (i.e., the site of pipe replacements and the access roads) of the total project site. The remaining 20 acres are submerged and are addressed in the underwater survey. An intensive-level pedestrian survey was conducted for the approximately 5-acre land portion of the project site by Natural Investigations Company on November 14, 2022, using transects spaced no greater than 15 meters apart.

The pedestrian survey examined the entire project site for cultural material (e.g., flaked stone tools, toolmaking debris, stone milling tools, or fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions and features indicative of the former presence of structures or buildings (e.g., postholes, foundations), or historic-era debris (e.g., metal, glass, ceramics). Ground visibility across the project site varied from moderate (25–50 percent) due to annual grasses, weeds, and riprap to poor (0–30 percent) along the wharf portion of the project site due to structures, asphalt, gravel, and hardscaping. No archaeological sites or any evidence to suggest the presence of buried deposits of cultural resources were identified during Natural Investigation Company's investigation.

Underwater Archaeological Survey

The November 2023 field survey was conducted as a phased approach involving side scan sonar to map the study area and identify targets, followed by a sub-bottom profile survey, and investigating select anomalies using a remote operated vehicle. No diver visual surveys were conducted as part of the current phase of the project. The maritime survey study area was slightly smaller than the project site, restricted only by the ability of the support vessel to safely access the area with the equipment. Comprehensive coverage was completed for an area encompassing approximately 35 acres, 70 percent of the project site. Due to the shallowness of the water directly adjacent to the shoreline, depths of approximately four feet or shallower were not surveyed. Additionally, survey work was not conducted immediately surrounding or below the boathouse or pier due to obstructions limiting access (Far Western 2024).

The purpose of the remote operated vehicle targeted inspection was to investigate the hull of the *Contra Costa,* re-located during the acoustic surveys and to obtain environmental information about the underwater environment (e.g., visibility, bottomland habitat, current strength). As expected, visibility was generally poor but imagery was sufficient to identify individual ribs and used in concert with remote sensing data to suggest that at least portions of the hull are intact. The acoustic survey identified the remains of a dolphin, located approximately 200 feet east of the southern corner of Cal Maritime's L-shaped pier. Other acoustic targets were identified within the project site but were determined during the survey to be either non-cultural in origin (i.e., natural rock substrate) or of modern origin (i.e., construction, operating debris from within and immediately around the Boat Basin. While depicted immediately north of the *Contra Costa* on historical maps and photographs, the survey did not identify the possible remains of *Bangor* (Far Western 2024).

<u>Contra Costa Eligibility</u>

Although the history of the train ferry, *Contra Costa,* is relatively well-known, the site had not previously been formally recorded. Based on the remote sensing survey data, the remains of the hull are roughly oriented north/south, at a diagonal and directly adjacent to the current shoreline near the center of Morrow Cove. Estimated site boundaries, which is concurrent with the outer extents of the hull minus the northern extent, measures approximately 380 feet long by 95 feet wide. As the overall dimensions of the vessel measured 433 feet long by 116 feet wide, what appears to be represented is about 88 percent of the overall length and about 82 percent of maximum width (beam). Based on the sub-bottom profiler data, it appears that the hull extends below the silt line about five feet, representing approximately 26 percent of the maximum original depth (amidship). Imagery from both side scan sonar and remote operated vehicle clearly indicate that what remains of the hull is relatively intact. The vessel maintains its overall shape with interior framing that appears to be undisturbed. Vertical elements are visible throughout the structure (Far Western 2024).

Far Western used NRHP criteria to evaluate the significance of the *Contra Costa*. The NRHP is discussed in more detail above in Section 3.4.1, "Regulatory Setting." *Contra Costa*, shipwreck and remains, are potentially eligible for listing in the NRHP as an individual property at the state level of significance. Based on the level of knowledge about the site at this time, *Contra Cos*ta may qualify under Criterion A as a commercial vessel used for maritime transportation with San Francisco Bay and may also qualify under Criterion D as the archeological site that has yielded or is likely to yield information important in history. *Contra Costa's* period of significance is 1914 (launch year) to 1930 (end of use as a ferry) (Far Western 2024). Because the *Contra Costa* is recommended eligible for listing in the NRHP under Criteria A and D, it is also recommended eligible for the CRHR under corresponding Criteria 1 and 4.

Eligibility for listing on the NRHP and the CRHR rests on twin factors of significance and integrity. A resource must have both significance and integrity to be considered eligible. Loss of integrity, if sufficiently great, will become more important than the historical significance a resource may possess and render it ineligible. Likewise, a resource can have complete integrity, but if it lacks significance, it must also be considered ineligible. Overall, the *Contra Costa* retains integrity to its 1914 to 1930 period of significance (Far Western 2024).

- *Contra Costa's* archaeological remains reside within Morrow Cove, the historically documented final place of its disposition after its use as a train ferry. As such, the property retains integrity of **location**.
- *Contra Costa* reflects the design of a wooden-hulled double-ended ferry. The ferry's archaeological remains contain a well-preserved lower hull with identifiable construction details including its outer hull planking, frames, deck beams, bulkheads, and associated structural fastenings. The property retains integrity of **design**.
- The setting of Morrow Cove has seen changes since *Contra Costa* was brought there in the 1930s for use as a place for recreational pursuits, and the once sparsely developed area is now the site of Cal Maritime. *Contra Costa* is in the same physical environment where it played a historic role, within sight of its former ferry route, therefore it retains integrity of **setting**.
- *Contra Costa* retains the physical elements used in its construction and use, and its archaeological remains provide information on the ferry's construction, use, and any modifications associated with its career. As concretions develop over time, particularly around the metal components, as has been done on *Contra Costa*, the degradation slows considerably, and materials will last hundreds of years underwater in a stable state. The property retains integrity of **materials**.

- Integrity of workmanship is preserved as *Contra Costa* retains its original hull through archaeological and historical evidence. Workmanship is especially evidenced by the hull design, with large ceiling timbers and its hog posts, chains, and masts to counteract the cargo weight. The property retains integrity of **workmanship**.
- *Contra Costa's* archaeological remains have the physical characteristics and qualities of a historic wooden-hulled ferry as built and then abandoned. An archaeologist documenting the site will recognize key features, such as a reinforced heavily built hull made of West Coast timber in the form of a double-ended ferry. The partially buried but intact lower hull located in the shallow waters of Morrow Cove, at its place of disposition in the 1930s, gives a sense of its career and ultimate fate as a recreational attraction. The property retains integrity of **feeling**.
- *Contra Costa* retains integrity of association as a wooden-hulled train ferry, conveyed through the archaeological evidence combined with historical photographs and archival sources of information. The property retains integrity of **association**.

Built Environment Survey

Page & Turnbull was retained to conduct the build environment assessment. Eight buildings are located in the project site; of these, six are not of age (younger than 50 years of age) to be evaluated for NRHP- or CRHR-listing. The metal fabrication workshop, while of age, is a prefabricated building which are generally not eligible for listing in the CRHR or NRHP; the building has therefore been recommended not eligible (Appendix G.) The survey was conducted on September 18 and November 22, 2021, to document the boathouse building. The Cal Maritime boathouse was completed in 1946 and was designed in a utilitarian style by the California Department of Public Works, Division of Architecture, as one of the first permanent buildings of the new Cal Maritime campus. The boathouse is located along Morrow Cove near the Carquinez Strait at the south end of the campus. The boathouse is L-shaped in plan, with the primary entrance located along the south end of the building which sits on land, while the north end of the building projects over the water of Morrow Cove to allow for boat slips along the north end of the west façade. NRHP, CRHR, and California Historic Landmark criteria were used to evaluate the significance of the boathouse (Appendices F and G).

Boathouse Eligibility

The boathouse, as one of the earliest permanent structures established at the campus, appears to be significant for individual listing in the NRHP/CRHR under Criterion A/1 (Events) as a building that was critical to the development and success of the new campus and demonstrates the recognition of the importance of Cal Maritime in the support of national maritime industries. The boathouse also serves an important role in directly demonstrating the connection of the campus to the waterfront in a way that other early permanent buildings on the campus do not. The boathouse does not appear to be significant for listing in the NRHP/CRHR under Criterion B/2 as it does not have any direct associations with any individuals significant to history, or under Criterion C/3 as it is without noteworthy architectural qualities. When NRHP/CRHR Criterion D/4 (Information Potential) does relate to built resources, it is relevant for cases when the building itself is the principal source of important construction-related information. Although the analysis of the boathouse for eligibility under Criterion D/4 was beyond the scope of the Page & Turnbull report, construction details of the boathouse have been fully documented, therefore it is not likely to yield any additional important information about our history and does not appear to be significant under D/4 (Appendix F).

As stated previously, eligibility for NRHP- and CRHR-listing rests on twin factors of significance and integrity. A resource must have both significance and integrity to be considered eligible. Overall, the boathouse retains all seven aspects of integrity such that it conveys its significance under Criterion A/1, with a period of significance of 1946 (Appendix F).

- The boathouse retains integrity of **location**, as it has remained situated at its location of original construction since 1946.
- The boathouse largely retains integrity of **setting**. While many additional structures have been erected on the campus since the completion of the Boathouse, the Boathouse has retained its original connection to the shoreline of Morrow Cove and is closely associated with the maritime activities that take place along the wharf, including the docking of the training ship.

- The boathouse has remained largely unaltered since its erection in 1946. The building retains its overall form, massing, and material palette, and therefore its original **design** as a 1946 boathouse.
- While the building has been reroofed with asphalt shingles, and its original double-hung wood windows have been replaced with vinyl sash, the building retains its overall integrity of **materials** with wood shingle and vertical wood siding, original wood doors, timber pier foundations, and internal steel framing.
- The boathouse was designed to serve a utilitarian function as an active boathouse for Cal Maritime and has minimal decorative features. The boathouse retains its original materials and design elements that demonstrate the **workmanship** of the period.
- The boathouse retains integrity of **feeling** as a working boathouse that was completed in 1946 to serve the students of Cal Maritime and provides an essential connection between the school and the waterfront of Morrow Cove.
- The boathouse retains its integrity of **association** with the early period of construction of the Cal Maritime campus and the maritime purpose of the Academy through the retention of the Boathouse's materials, design, setting, and feeling.

The boathouse does not appear to be eligible for individual listing as a California Historical Landmark under any criteria. The boathouse is not the first, last, only, or most significant of its type in the state or within Northern California and does not carry the necessary level of significance to be recommended as eligible for listing as a California Historical Landmark under Criterion 1. The boathouse does not have a significant association with any individual person or group having a profound influence on the history of California; therefore, it does not appear to be eligible under Criterion 2. Finally, the boathouse is not a prototype of nor an outstanding example of a period, style, architectural movement, or method of construction. It is not a notable work nor a best surviving example of a pioneer architecture, designer, or master builder of the region. Therefore, the boathouse does not appear eligible for listing as a California Historical Landmark under Criterion 3 (Appendix F).

Boathouse Character-Defining Features

For a property to be eligible for CRHR, NRHP, or California Historical Landmark, the essential physical features (or character-defining features) that enable the property to convey its historic identity must be evident. These distinctive character-defining features are the physical traits that commonly recur in property types and/or architectural styles. To be eligible, a property must clearly contain enough of those characteristics to be considered a true representative of a particular type, period, or method of construction, and these features must also retain a sufficient degree of integrity. Characteristics can be expressed in terms such as form, proportion, structure, plan, style, or materials (Appendix F).

The character-defining exterior features of the boathouse include:

- waterfront location with close relationship to the wharf;
- building partially extends over the water;
- one-story volume with a cross-gable roof;
- dock at the west side of the sail loft portion of the boathouse;
- wood walkway along the southwest edge of the building;
- mixture of shingle cladding and vertical wood cladding;
- original wood doors with an applied cross-brace pattern;
- large, gridded arrangements of fixed windows;
- evenly spaced window openings with the character of one-over-one double-hung window type along the south and west façades of the sail loft portion of the boathouse; and
- large opening for boat slips.

The character-defining interior features of the boathouse include:

- two main volumes consisting of the sail loft and the transverse wing;
- organization of the transverse wing with its work platform, boat slips, and elevated rear storage aisle;
- original wood flooring throughout the building, including wood steps;
- original wood doors with applied cross brace pattern (including the barn door between the sail loft and the transverse wing, and the door to the kitchen, originally the canvas locker); and
- wood railing and metal ladders between the elevated rear storage aisle and the boat slips.

Features that are not character-defining features of the boathouse consist of alterations that have been made to the building since its construction in 1946. These include:

- replacement windows (vinyl replacement windows are not historic),
- non-original doors installed at the south and east façades,
- non-original windows installed at the east façade of the sail loft,
- new openings with aluminum slider windows located at the east façade of the transverse wing, and
- in-wall air conditioning unit at the west façade.

Tribal Cultural Resources

Sacred Lands File Search
A search of the NAHC Sacred Lands File was completed November 14, 2022. The results of the search were negative.

Native American Consultation
Pursuant to AB 52, Cal Maritime mailed notification letters to the following 13 tribal representatives on November 20, 2023:

- Lloyd Mathiesen, Chairperson; Chicken Ranch Rancheria of Me-Wuk Indians
- Corrina Gould, Chairperson; Confederated Villages of Lisjan Nation
- Charlie Wright, Chairperson; Cortina Rancheria - Kletsel Dehe Band of Wintun Indians
- Bunny Tarin, Tribal Administrator; Guidiville Rancheria of California
- Michael Derry, Historian; Guidiville Rancheria of California
- Cosme Valdez, Chairperson; Nashville Enterprise Miwok-Maidu-Nishinam Tribe
- Katherine Perez, Chairperson; North Valley Yokuts Tribe
- Timothy Perez; North Valley Yokuts Tribe
- Gene Whitehouse, Chairperson; United Auburn Indian Community of the Auburn Rancheria
- Jesus Tarango, Chairperson; Wilton Rancheria
- Steven Hutchason, THPO; Wilton Rancheria
- Dahlton Brown, Director of Administration; Wilton Rancheria
- Anthony Roberts, Chairperson; Yocha Dehe Wintun Nation

Yocha Dehe responded on January 23, 2024, requesting formal consultation. On March 15, 2024, Cal Maritime provided Yocha Dehe with the terrestrial and underwater archaeological reports and consultation was initiated on April 4, 2024.

Lisjan Nation responded on March 11, 2024, requesting a copy of the NWIC and Sacred Lands File searches any archeological reports. On March 15, 2024, Cal Maritime provided Yocha Dehe with the terrestrial and underwater archaeological reports and stated that electronic or hard copies of the Draft and Final EIRs could be provided upon completion. Lisjan Nation requested formal consultation on March 28, 2024.

Tribal consultation will continue throughout preparation of the EIR.

3.4.3 Impacts and Mitigation Measures

METHODOLOGY

The impact analysis for archaeological and tribal cultural resources is based on the findings and recommendations of the *Cultural Resources Assessment for the California State University Maritime Academy, Waterfront Master Plan, Solano County, California* (Natural Investigations Company 2024) and the *Underwater Cultural Resources Survey and Evaluation Report for the California State University Maritime Academy Waterfront Master Plan, Solano County, California* (Far Western 2024); the impact analysis for tribal cultural resources is supplemented by the conclusions of tribal consultation under AB 52. The impact analysis for historical resources is based on the findings and recommendations of the *Cal Maritime Boathouse Historic Resource Evaluation, Vallejo, California* (Appendix F) and the *Cal Maritime Waterfront Master Plan Project: Section 106 Technical Report* (Appendix G). The analysis is also informed by the provisions and requirements of federal, state, and local laws and regulations that apply to cultural resources.

CEQA Section 21083.2(g) defines a "unique archaeological resource" as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following CRHR-related criteria: (1) that it contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; (2) that it as a special and particular quality, such as being the oldest of its type or the best available example of its type; or (3) that it is directly associated with a scientifically recognized important precontact or historic event or person. An impact on a resource that is not unique is not a significant environmental impact under CEQA (State CEQA Guidelines Section 15064.5[c][4]). If an archaeological resource qualifies as a resource under CRHR criteria, then the resource is treated as a unique archaeological resource for the purposes of CEQA.

CEQA Section 21074 defines "tribal cultural resources" as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" that are listed or determined eligible for listing in the CRHR, listed in a local register of historical resources, or otherwise determined by the lead agency to be a tribal cultural resource.

In addition, according to State CEQA Guidelines Section 15126.4(b)(1), if a project adheres to the Secretary of the Interior's Standards for the Treatment of Historic Properties, the project's impact "will generally be considered mitigated below the level of a significance and thus is not significant."

For the purposes of the impact discussion, "historical resource" is used to describe built-environment historic-period resources. Archaeological resources (both precontact and historic-period), which may qualify as "historical resources" pursuant to CEQA, are analyzed separately from built-environment historical resources.

THRESHOLDS OF SIGNIFICANCE

An impact on cultural resources would be significant if implementation of the project would:

- cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5 of the State CEQA Guidelines;
- cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the State CEQA Guidelines;

- cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC 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; or
- disturb any human remains, including those interred outside of formal cemeteries.

ISSUES NOT DISCUSSED FURTHER

All potential archaeological, historical, and tribal cultural resources issues identified in the significance criteria are evaluated below.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.4-1: Cause a Substantial Adverse Change in the Significance of a Historical Resource

The Cal Maritime boathouse has been recommended as eligible for listing in the NRHP/CRHR under Criterion A/1. Modifications to a historic structure could adversely affect its historic status. There would be no impact on historical resources as a result of Phases One or Three; the impact on the boathouse during Phase Two would be **potentially significant**.

The Waterfront Master Plan includes three phases of development over the next 10 years focusing on upgrades to in-water infrastructure; renovation and development of waterfront buildings; enhancement of waterfront open space and connectivity; and expansion of site-serving utilities. There is one historical resource within the project site, the boathouse. Renovations to the boathouse are included in Phase Two of the project.

Phase One

Phase One of the proposed project focuses on upgrades to in-water infrastructure and the Marine Yard, as well as expansion of site-serving utilities. It will include demolition and replacement of the main pier and work on the trestle, Boat Basin 1 and the floating docks, Marine Yard, vessel, and utility systems. No historic resources would be demolished or modified as a result of Phase One activities. Therefore, there would be no impact on historic resources as a result of Phase One.

Phase Two

Phase Two of the proposed project would focus on project objectives to rehabilitate the boathouse, expand and optimize the boat basin, redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space and enhance public access, and safeguard waterfront resilience and ecological functioning. It will include work on the boathouse, Boat Basin 2, Marine Yard, and shoreline. The boathouse is a historic resource as it has been recommended eligible for listing on the NRHP and CRHR.

As described in Chapter 2, “Project Description,” Phase Two would address needed seismic upgrades and tectonic modifications of the existing structure, as well as sediment removal. The primary entrance would be reverted to its originally intended use as a sail loft. Interior upgrades would involve a new barrier-free Americans with Disabilities Act–compliant lift servicing the split ground-floor level. Restroom, mechanical, electrical, and plumbing systems would also be improved. Although limited redesign and reconfiguration of the lower-level woodworking and vessel service/demonstration areas are proposed, overall, most of the spaces would be protected and preserved to maintain their historic value.

Although designs are not finalized at this time and this is being evaluated at a programmatic level, the modifications as proposed would not alter any of the character-defining features identified above that qualify the historical resource for inclusion in the NRHP or CRHR. The project complies with the *Secretary of the Interior’s Standards for Rehabilitation* (Far Western 2024). Additionally, because this is a state-owned historic property, Cal Maritime is required to consult with SHPO under PRC 5024.5. Through this consultation, adherence to the Secretary of the

Interior's Standards would be confirmed. Nevertheless, because consultation has not occurred and modifications to a historic structure could adversely affect its historic status, this impact would be potentially significant.

Phase Three

Phase Three of the proposed project would focus on objectives to redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. It will include work on the Marine Programs Multi-Use Building, marine hydrokinetic (MHK) barge, row house, central waterfront esplanade and canopy, and shoreline. No historic resources would be demolished or modified as a result of Phase Three activities. Therefore, there would be no impact on historic resources as a result of Phase Three.

Summary

There is one historical resource within the project site, the boathouse. There would be no impact on this historical resource as a result of Phases One or Three because renovations to the boathouse are included in Phase Two. The impact on the boathouse during Phase Two would be **potentially significant**.

Mitigation Measures

Mitigation Measure 3.4-1: Comply with the Secretary of the Interior's Standards for Rehabilitation

Prior to implementation of any modifications to the boathouse, Cal Maritime shall consult with SHPO under PRC 5024.5. This consultation shall confirm that alterations to the boathouse comply with the *Secretary of the Interior's Standards for Rehabilitation*.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-1 would reduce the impact on historic resources to a **less-than-significant level** because it requires compliance with the Secretary of the Interior's Standards for Rehabilitation. According to State CEQA Guidelines Section 15126.4(b)(1), if a project adheres to the Secretary's Standards, the project's impact on historic resources "will generally be considered mitigated below the level of a significance and thus is not significant."

Impact 3.4-2: Cause a Substantial Adverse Change in the Significance of a Known Historic Era Archaeological Resource (Shipwreck)

Project-related ground-disturbing activities could result damage to the shipwreck *Contra Costa*. The shipwreck has been recommended eligible for listing in the NRHP and CRHR, and therefore is a significant archaeological resource as defined in State CEQA Guidelines Section 15064.5. Phase 2 of the project consists of dredging which would result in substantial damage to the *Contra Costa*; this impact would be **significant**.

Far Western's November 2023 field survey consisted of side scan sonar to map the study area and identify targets, followed by a sub-bottom profile survey, and investigating select anomalies using a remote operated vehicle. Aside from the *Contra Costa*, the survey identified non-cultural materials (i.e., natural rock substrate) or materials of modern origin (i.e., construction, operating debris from within and immediately around the Boat Basin). While depicted immediately north of the *Contra Costa* on historical maps and photographs, the survey did not identify the possible remains of *Bangor* or any other shipwrecks (Far Western 2024).

As described previously, *Contra Cos*ta appears eligible under Criterion A as a commercial vessel used for maritime transportation with San Francisco Bay and under Criterion D as the archeological site that has yielded or is likely to yield information important in history. Because the *Contra Costa* is recommended eligible for listing in the NRHP under Criteria A and D, it is also recommended eligible for the CRHR under corresponding Criteria 1 and 4.

Phase One

Phase One of the proposed project focuses on upgrades to in-water infrastructure and the Marine Yard, as well as expansion of site-serving utilities. It will include demolition and replacement of the main pier and work on the trestle, Boat Basin 1 and the floating docks, Marine Yard, vessel, and utility systems. The *Contra Costa* is located outside of these areas and would not be demolished or modified as a result of Phase One activities. Therefore, there would be no impact as a result of Phase One.

Phase Two

Phase Two of the proposed project would focus on project objectives to rehabilitate the boathouse, expand and optimize the boat basin, redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space and enhance public access, and safeguard waterfront resilience and ecological functioning. As described in Chapter 2, "Project Description," Phase Two components would include expansion of the existing boat basin to create Boat Basin 2. Creation of Boat Basin 2 is needed to optimize movement and storage of Cal Maritime's fleet of vessels, as well as for training and on-water instruction for cadets. Approximately 30,000 cubic yards of dredge material is anticipated to be excavated as part of this phase; this would include dredging in the location of the *Contra Costa*.

Although the boundaries for dredging are not finalized at this time and this is being evaluated at a programmatic level, dredging in the location of the *Contra Costa* would result in damage to this shipwreck. It is not known if the entirety of the *Contra Costa* would need to be removed, however destroying any features that qualify the archaeological resource for inclusion in the NRHP and CRHR would adversely affect its historic status. This would be a significant impact.

Phase Three

Phase Three of the proposed project would focus on objectives to redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. It will include work on the Marine Programs Multi-Use Building, MHK barge, row house, central waterfront esplanade and canopy, and shoreline. The *Contra Costa* is located outside of these areas and would not be demolished or modified as a result of Phase Three activities. Therefore, there would be no impact as a result of Phase Three.

Summary

The shipwreck *Contra Costa* has been recommended eligible for listing in the NRHP and CRHR, and therefore is a significant archaeological resource as defined in State CEQA Guidelines Section 15064.5. There would be no impact on this archaeological resource as a result of Phases One or Three because dredging in the location of the shipwreck is included in Phase Two. The impact on the *Contra Costa* during Phase Two would be **significant**.

Mitigation Measures

Mitigation Measure 3.4-2: SHPO Consultation and Programmatic Agreement

Prior to implementation of Phase 2 activities, Cal Maritime shall consult with SHPO under PRC 5024.5 related to the *Contra Costa*, because it is a state-owned historic property. Through SHPO consultation under PRC 5024.5, a programmatic agreement shall be developed, outlining preservation/recovery options for the shipwreck. Based on the finalized dredging boundaries and identification of the portions of the *Contra Costa* to be removed, these preservation/recovery options are expected to include: documentation of the shipwreck through a data recovery plan in coordination with the Research Center of the San Francisco Maritime National Historical Park; salvaging portions of the shipwreck, possibly in coordination with the Maritime Museum at the San Francisco Maritime National Historical Park; or development of an interpretive display at a publicly accessible portion of Cal Maritime.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-2 would reduce impacts to the shipwreck *Contra Costa*, a NRHP- and CRHR-eligible archaeological resource. However, the project would remove either the whole or a portion of the shipwreck, resulting in the loss of this archaeological resource. This mitigation measure would not reduce the impacts to a less-than-significant level; therefore, the project would result in a **significant and unavoidable** impact.

Impact 3.4-3: Cause a Substantial Adverse Change in the Significance of Previously Undiscovered Archaeological Resources

Results of the records search and pedestrian survey did not result in the identification of archaeological resources within the project site. Although the project site has a low sensitivity for subsurface resources, it remains possible that project-related ground-disturbing activities could result in discovery or damage of yet undiscovered archaeological resources as defined in State CEQA Guidelines Section 15064.5 or CEQA Section 21083.2(g). This impact would be **potentially significant**.

The NWIC records search revealed that no precontact or historic-period archaeological sites have been previously documented within the project site or within a one-half-mile radius. The pedestrian survey found no anthropogenic soils (i.e., midden), above ground features, or concentrations of shell, bone, or lithic materials that would have indicated the presence of a precontact indigenous archaeological deposit. Additionally, no unique archaeological resources as defined in CEQA Section 21083.2(g) or archaeological resources as defined in State CEQA Guidelines Section 15064.5 were identified during the survey.

As related to the terrestrial portion of the project site, it is in a disturbed context (i.e., fill material and submerged concrete columns along the length of the project site) (Natural Investigations Company 2024). The sensitivity analysis for the underwater archaeological survey indicates that only a few small portions of the project site have an elevated sensitivity for submerged precontact sites. These are primarily near shore portions of the former estuary that are now covered in artificial fill, and a small offshore area where a watercourse is modeled to have flowed through the pre-bay landscape. Additionally, one small portion in the southeastern project site extends onto what was historically land. This area is underlain by an ancient landform and is therefore modeled to have the lowest potential for buried precontact sites (Far Western 2024).

Phase One

Phase One of the proposed project focuses on upgrades to in-water infrastructure and the Marine Yard, as well as expansion of site-serving utilities. It will include demolition and replacement of the main pier and work on the trestle, Boat Basin 1 and the floating docks, Marine Yard, vessel, and utility systems. These ground-disturbing construction activities could result in the discovery or damage of yet undiscovered archaeological resources, which could result in a significant impact.

Phase Two

Phase Two of the proposed project would focus on project objectives to rehabilitate the boathouse, expand and optimize the boat basin, redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space and enhance public access, and safeguard waterfront resilience and ecological functioning. It will include work on the boathouse, Boat Basin 2, Marine Yard, and shoreline. These ground-disturbing construction activities could result in discovery of or damage to yet-undiscovered archaeological resources, which could result in a significant impact.

Phase Three

Phase Three of the proposed project would focus on objectives to redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. It will include work on the Marine Programs Multi-Use Building, MHK barge, row house, central waterfront esplanade and canopy, and shoreline. These ground-disturbing construction activities could result in discovery or damage of yet undiscovered archaeological resources which could result in a significant impact.

Summary

Although the project site has a low sensitivity for subsurface resources, all phases of project construction could encounter previously undiscovered or unrecorded archaeological sites and materials during preconstruction or construction-related ground-disturbing activities. These activities could damage or destroy previously undiscovered unique archaeological resources. This impact would be **potentially significant**.

Mitigation Measures

Mitigation Measure 3.4-3: Halt Ground-Disturbing Activity upon Discovery of Subsurface Archaeological Features
Prior to the start of any ground-disturbing activities, a qualified archaeologist meeting the US Secretary of the Interior guidelines for professional archaeologists shall be retained to develop a construction worker awareness brochure. This brochure shall be distributed to all construction personnel and supervisors who may have the potential to encounter cultural resources. The topics to be addressed in the Worker Environmental Awareness Program shall include, at a minimum:

- types of cultural resources expected in the project area;
- what to do if a worker encounters a possible resource;
- what to do if a worker encounters bones or possible bones; and
- penalties for removing or intentionally disturbing cultural resources, such as those identified in the Archaeological Resources Protection Act.

If any precontact or historic-era subsurface archaeological features or deposits (e.g., ceramic shard, trash scatters), including locally darkened soil ("midden"), which may conceal cultural deposits, are discovered during construction, all ground-disturbing activity within 100 feet of the resources shall be halted, and a qualified professional archaeologist shall be retained to assess the significance of the find. If the qualified archaeologist determines the archaeological material to be Native American in nature, Cal Maritime shall contact the appropriate California Native American tribes. A tribal representative from a California Native American tribe that is traditionally and culturally affiliated with the project area may make recommendations for further evaluation and treatment as necessary and provide input on the preferred treatment of the find. If the find is determined to be significant by the archaeologist or the tribal representative (i.e., because it is determined to constitute a unique archaeological resource or a tribal cultural resource, as appropriate), the archaeologist and tribal representative, as appropriate, shall develop, and Cal Maritime shall implement, appropriate procedures to protect the integrity of the resource and ensure that no additional resources are affected. Procedures may include but would not necessarily be limited to preservation in place (which shall be the preferred manner of mitigating impacts on archaeological and tribal sites), archival research, subsurface testing, or contiguous block unit excavation and data recovery (when it is the only feasible mitigation, and pursuant to a data recovery plan). No work at the discovery location (i.e., within 100 feet of the discovered resource[s] unless a lesser buffer distance is determined appropriate by a qualified professional archaeologist) shall resume until necessary investigation, evaluation, and protection of the resource has been conducted.

<u>Significance after Mitigation</u>
Implementation of Mitigation Measure 3.4-3 would reduce impacts associated with archaeological resources to a **less-than-significant** level because it would require the performance of professionally accepted and legally compliant procedures for the discovery and protection of previously undocumented significant archaeological resources.

Impact 3.4-4: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource

Tribal consultation under AB 52 has not resulted in the positive identification of a tribal cultural resource as defined by PRC Section 21074. However, excavation activities associated with project construction may disturb or destroy previously undiscovered significant subsurface tribal cultural resources. This impact would be **potentially significant**.

Neither the NAHC Sacred Lands File search nor the NWIC record search indicated the presence of indigenous sites within the project site or within a 0.5-mile radius. As related to the terrestrial portion of the project site, it is in a disturbed context (i.e., fill material and submerged concrete columns along the length of the project site) and the terrestrial archaeological survey did not reveal any indication of indigenous archaeological sites (Natural Investigations Company 2024).

The sensitivity analysis for the underwater archaeological survey indicates that only a few small areas of the project site have a potentially elevated sensitivity for submerged indigenous sites. These are primarily near-shore portions of the former estuary that are now covered in artificial fill, and a small offshore area where a watercourse is modeled to have flowed through the pre-bay landscape. Additionally, one small portion in the southeastern project site extends onto what was historically land. This area is underlain by an ancient landform and is therefore modeled to have the lowest potential for buried precontact sites (Far Western 2024).

Phase One

Phase One of the proposed project focuses on upgrades to in-water infrastructure and the Marine Yard, as well as expansion of site-serving utilities. It will include demolition and replacement of the main pier and work on the trestle, Boat Basin 1 and the floating docks, Marine Yard, vessel, and utility systems. Although the project area overall is considered to have low sensitivity for precontact sites, it remains possible that these ground-disturbing construction activities could result in the discovery or damage of yet undiscovered tribal cultural resources, which could result in a significant impact.

Phase Two

Phase Two of the proposed project would focus on project objectives to rehabilitate the boathouse, expand and optimize the boat basin, redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space and enhance public access, and safeguard waterfront resilience and ecological functioning. It will include work on the boathouse, Boat Basin 2, Marine Yard, and shoreline. Although the project area overall is considered to have low sensitivity for precontact sites, it remains possible that these ground-disturbing construction activities could result in the discovery or damage of yet undiscovered tribal cultural resources, which could result in a significant impact.

Phase Three

Phase Three of the proposed project would focus on objectives to redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. It will include work on the Marine Programs Multi-Use Building, MHK barge, row house, central waterfront esplanade and canopy, and shoreline. Although the project area overall is considered to have low sensitivity for precontact sites, it remains possible that these ground-disturbing construction activities could result in the discovery or damage of yet undiscovered tribal cultural resources, which could result in a significant impact.

Summary

Although no indigenous materials are known or considered likely to be present within the project site based on research and consultation to date, all phases of project construction could encounter previously undiscovered or unrecorded indigenous materials during preconstruction or construction-related ground-disturbing activities. These activities could therefore damage or destroy previously undiscovered tribal cultural resources. This impact would be **potentially significant**.

Mitigation Measures

Mitigation Measure 3.4-4.a: Worker Environmental Awareness Program for Tribal Cultural Resources

Prior to initiating landside construction-related ground-disturbing activities, representatives of either of the two tribes that participated in formal consultation under AB 52 shall have the opportunity to train construction contractors engaged in ground disturbance activities regarding tribal cultural values and tribal cultural resource potential as those relate to the project site, and of the regulatory protections afforded those resources under CEQA.

The initial training shall be conducted by the on-site Native American monitor and can be incorporated into the project's construction safety training or in conjunction with the Worker Environmental Awareness Program for Archaeological Resources in accordance with Mitigation Measure AR-C. A supplemental briefing shall be provided to all new construction personnel that are engaged in ground-disturbing activities and may consist of reviewing presentation slides or viewing a recording.

Construction contractors shall also be informed of the required procedures to be undertaken in the event of discovery of unanticipated resources that require evaluation as potential tribal cultural resources, such leaving artifacts *in situ*, informing a construction supervisor, the Native American monitor(s), and the university in the event that tribal cultural resources are discovered during ground-disturbing activities.

Examples of ground-disturbing activities include:

- Clearing
- Excavating, digging, trenching, and grading
- Land leveling
- Equipment and materials staging and laydown
- Soil stockpiling
- Landside placement of temporary structures including construction trailers

Mitigation Measure 3.4-4.b: Native American Construction Monitoring

Construction monitoring shall be conducted by a qualified Native American monitor representing either of the two tribes that participated in formal consultation under AB 52. Archaeological monitoring shall be provided by an entity separate and distinct from that providing Native American monitoring. The tribal cultural monitor shall observe ground-disturbing activities, maintain logs of all activities monitored, and make documentation available to the university and any consulting Native American tribal representatives who request a record of the logs. The log shall contain at a minimum: a brief description of the locations and activities monitored; a description of tribal cultural resources encountered; and a description of the treatment of those resources. The logs shall be submitted to the university within 4 weeks of the completion of monitoring.

Mitigation Measure 3.4-4.c: Treatment of Tribal Cultural Resources

Avoidance and preservation in place are the preferred treatment for tribal cultural resources, should such resources be discovered. In the event of discovery, the university shall attempt avoidance, if possible, through such measures such as restricting work to disturbed soil or limiting the depth of excavations to avoid potential tribal cultural resources. If a significant tribal cultural resource as defined by PRC Section 21074 is identified within the project site, the university shall prepare a treatment plan and share it for review and comment by the Native American tribe(s) engaged in consultation prior to the beginning of the ground-disturbing activities within the boundaries of the resource.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-4.a through 3.4-4.c would reduce impacts on tribal cultural resources in the case of a discovery to a **less than significant** level by requiring appropriate awareness, construction monitoring, and treatment and proper care of significant tribal cultural resources, in collaboration and accordance with tribe(s) that participated in formal consultation under AB 52.

Impact 3.4-5: Disturb Human Remains

Based on documentary research, no evidence suggests that any precontact or historic-period marked or un-marked human interments are present within or in the immediate vicinity of the project site. However, ground-disturbing construction activities could uncover previously unknown human remains. Compliance with California Health and Safety Code Section 7050.5 and PRC Section 5097 would make this impact **less than significant**.

Based on documentary research, no evidence suggests that any precontact or historic-period marked or un-marked 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.

Phase One

Phase One of the proposed project focuses on upgrades to in-water infrastructure and the Marine Yard, as well as expansion of site-serving utilities. It will include demolition and replacement of the main pier and work on the trestle, Boat Basin 1 and the floating docks, Marine Yard, vessel, and utility systems. These ground-disturbing construction activities could uncover previously unknown human remains. However, with compliance with California Health and Safety Code Section 7050.5 and PRC Section 5097, this impact would be less than significant.

Phase Two

Phase Two of the proposed project would focus on project objectives to rehabilitate the boathouse, expand and optimize the boat basin, redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space and enhance public access, and safeguard waterfront resilience and ecological functioning. It will include work on the boathouse, Boat Basin 2, Marine Yard, and shoreline. These ground-disturbing construction activities could uncover previously unknown human remains. However, with compliance with California Health and Safety Code Section 7050.5 and PRC Section 5097, this impact would be less than significant.

Phase Three

Phase Three of the proposed project would focus on objectives to redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. It will include work on the Marine Programs Multi-Use Building, MHK barge, row house, central waterfront esplanade and canopy, and shoreline. These ground-disturbing construction activities could uncover previously unknown human remains. However, with compliance with California Health and Safety Code Section 7050.5 and PRC Section 5097, this impact would be less than significant.

Summary

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 Section 7050.5 and PRC Section 5097.

These statutes require that, if human remains are discovered, potentially damaging ground-disturbing activities in the area of the remains shall be halted immediately, and the appropriate County coroner shall be notified immediately. If the remains are determined by the coroner to be Native American, NAHC shall be notified within 24 hours and the guidelines of NAHC shall be adhered to in the treatment and disposition of the remains. Following the coroner’s findings, 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, if present, 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 Section 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. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.5 ENERGY

This section was prepared pursuant to CEQA Guidelines Section 15126 and Appendix F of the CEQA guidelines, which require that EIRs include a discussion of the potential energy impacts of projects. The analysis considers whether California State University (CSU) Maritime (Cal Maritime) Waterfront Master Plan EIR would result in inefficient, wasteful, and unnecessary consumption of energy.

Comments received in response to the notice of preparation of the EIR included concerns regarding energy consumption during project operation.

3.5.1 Regulatory Setting

Energy conservation is embodied in many federal, state, and local statutes and policies. At the federal level, energy standards apply to numerous products (e.g., the U.S. Environmental Protection Agency's [EPA] EnergyStar™ program) and transportation (e.g., fuel efficiency standards). At the state level, Title 24 of the California Code of Regulations sets forth energy standards for buildings. Further, the State provides rebates/tax credits for installation of renewable energy systems and offers the Flex Your Power program promotes conservation in multiple areas. At the local level, individual cities and counties establish policies in their general plans and climate action plans (CAPs) related to the energy efficiency of new development and land use planning and to the use of renewable energy sources.

FEDERAL

Energy Policy and Conservation Act, and IE Standards

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to conserve oil. Pursuant to this act, the National Highway Traffic and Safety Administration, part of the U.S. Department of Transportation (DOT), is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

The Corporate Average Fuel Economy (CAFE) program was established to determine vehicle manufacturers' compliance with the government's fuel economy standards. Compliance with the CAFE standards is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the country. The U.S. Environmental Protection Agency calculates a CAFE value for each manufacturer based on the city and highway fuel economy test results and vehicle sales. Based on information generated under the CAFE program, DOT is authorized to assess penalties for noncompliance.

Energy Policy Act of 1992 and 2005

The Energy Policy Act (EPAct) of 1992 was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in EPAct. Federal tax deductions are allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs. The EPAct of 2005 provides renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 is designed to improve vehicle fuel economy and help reduce US dependence on oil. It represents a major step forward in expanding the production of renewable fuels, reducing dependence on oil, and confronting global climate change. The Energy Independence and Security Act of 2007 increases 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, which represents a nearly fivefold increase over current levels; and reduces US demand for oil by setting a national fuel economy standard of 35 miles per gallon by 2020—an increase in fuel economy standards of 40 percent.

By addressing renewable fuels and the CAFE standards, the Energy Independence and Security Act of 2007 builds upon progress made by the Energy Policy Act of 2005 in setting out a comprehensive national energy strategy for the 21st century.

STATE

Warren-Alquist Act

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the CEC. The act established state policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures. The California Public Utilities Commission regulates privately owned utilities in the energy, rail, telecommunications, and water fields.

State of California Energy Action Plan

CEC is responsible for preparing the state energy plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The current plan is the 2003 California Energy Action Plan (2008 update). The plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure needs; and encouragement of urban design that reduces vehicle miles traveled (VMT) and accommodates pedestrian and bicycle access.

Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to Assembly Bill (AB) 2076 (Chapter 936, Statutes of 2000), CEC and the California Air Resources Board (CARB) prepared and adopted a joint agency report in 2003, *Reducing California's Petroleum Dependence*. Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita VMT (CEC and CARB 2003). A performance-based goal of AB 2076 was to reduce petroleum demand to 15 percent below 2003 demand by 2030.

Integrated Energy Policy Report

Senate Bill (SB) 1389 (Chapter 568, Statutes of 2002) required CEC to "conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Energy Commission shall 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" (PRC Section 25301[a]). This work culminated in the Integrated Energy Policy Report (IEPR).

CEC adopts an IEPR every two years and an update every other year. The 2021 IEPR is the most recent IEPR. The 2021 IEPR provides a summary of priority energy issues currently facing the State, outlining strategies and recommendations to further the State's goal of ensuring reliable, affordable, and environmentally responsible energy sources. The report contains an assessment of major energy trends and issues within California's electricity, natural gas, and transportation fuel sectors. The report provides policy recommendations to conserve resources, protect the environment, ensure reliable, secure, and diverse energy supplies, enhance the state's economy, and protect public health and safety. Topics covered in the 2021 IEPR include building decarbonization, coordination between state energy agencies, decarbonizing the State's natural gas system, increasing transportation efficiencies, improving energy reliability and an assessment of the California Energy Demand Forecast (CEC 2022a).

Renewables Portfolio Standard

The State passed legislation referred to as the Renewables Portfolio Standard (RPS) that requires increasing use of renewable energy to produce electricity for consumers. California utilities are required to generate 33 percent of their electricity from renewables by 2020 (SB X1-2 of 2011); 52 percent by 2027 (SB 100 of 2018); 60 percent by 2030 (also SB 100 of 2018); and 100 percent by 2045 (also SB 100 of 2018). On September 16, 2022, SB 1020 was signed into law. This bill supersedes the goals of SB 100 by requiring that eligible renewable energy resources and zero-carbon resources supply 90 percent of all retail sales of electricity to California end-use customers by December 31, 2035, 95 percent of all retail sales of electricity to California end-use customers by December 31, 2040, 100 percent of all retail sales of electricity to California end-use customers by December 31, 2045, and 100 percent of electricity procured to serve all state agencies by December 31, 2035.

Senate Bill 350: Clean Energy and Pollution Reduction Act of 2015

The Clean Energy and Pollution Reduction Act of 2015 (SB 350) requires that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by December 31, 2030. It also establishes energy efficiency targets that achieve statewide, cumulative doubling of the energy efficiency savings in electricity and natural gas end uses by the end of 2030.

Assembly Bill 1007: State Alternative Fuels Plan

AB 1007 (Chapter 371, Statues of 2005) required CEC to prepare a state plan to increase the use of alternative fuels in California. CEC prepared the State Alternative Fuels Plan in partnership with CARB and in consultation with other state, federal, and local agencies. The plan presents strategies and actions California must take to increase the use of alternative nonpetroleum fuels in a manner that minimizes the costs to California and maximizes the economic benefits of in-state production. The plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuel use, reduce greenhouse gas (GHG) emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

California Building Energy Efficiency Standards (Title 24, Part 6 and Part 11)

The energy consumption of new residential and nonresidential buildings in California is regulated by the State's Title 24, Part 6, Building Energy Efficiency Standards (California Energy Code). CEC updates the California Energy Code every 3 years with more stringent design requirements for reduced energy consumption, which results in the generation of fewer GHG emissions. The current California Energy Code will require builders to use more energy-efficient building technologies for compliance with increased restrictions on allowable energy use. The core focus of the building standards has been efficiency, but the 2019 Energy Code ventured into onsite generation by requiring solar photovoltaic (PV) on new homes, providing significant GHG savings. The most recent is the 2022 California Energy Code which advances the onsite energy generation progress started in the 2019 California Energy Code by encouraging electric heat pump technology and use, establishing electric-ready requirements when natural gas is installed, expanding solar PV system and battery storage standards, and strengthening ventilation standards to improve indoor air quality. The CEC estimates that the 2022 California Energy Code will save consumers $1.5 billion and reduce GHGs by 10 million metric tons (MMT) of carbon dioxide-equivalent (CO_2e) over the next 30 years (CEC 2022b).

The California Green Building Standards Code, referred to as CalGreen, was added to Title 24 as Part 11, first in 2009 as a voluntary code, which then became mandatory effective January 1, 2011 (as part of the 2010 California Building Standards Code). The current version is the 2022 CalGreen Code, which took effect on January 1, 2023. As compared to the 2019 CalGreen Code, the 2022 CalGreen Code strengthened sections pertaining to EV and bicycle parking, water efficiency and conservation, and material conservation and resource efficiency, among other sections of the CalGreen Code. The CalGreen Code sets design requirements equivalent to or more stringent than those of the California Energy Code for energy efficiency, water efficiency, waste diversion, and indoor air quality. These codes are adopted by local agencies that enforce building codes and used as guidelines by State agencies for meeting the requirements of Executive Order (EO) B-18-12.

AB 1279 and 2022 Scoping Plan for Achieving Carbon Neutrality

On September 16, 2022, the State legislature passed AB 1279 which codified stringent emissions targets for the State of achieving carbon neutrality and an 85 percent reduction in 1990 emissions level by 2045. CARB released the Final 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) on November 16, 2022, as also directed by AB 1279 (CARB 2022). The 2022 Scoping Plan traces the pathway for the State to achieve its carbon neutrality and an 85 percent reduction in 1990 emissions goal by 2045 using a combined top down, bottoms up approach using various scenarios. CARB adopted the 2022 Scoping Plan on December 16, 2022.

Senate Bill 375 of 2008

SB 375, signed into law in September 2008, aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. It requires metropolitan planning organizations (MPOs) to adopt a Sustainable Communities Strategy or Alternative Planning Strategy, showing prescribed land use allocation in each MPO's Regional Transportation Plan. CARB, in consultation with the MPOs, is to provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks for 2020 and 2035. Implementation of SB 375 will have the co-benefit of reducing California's dependency on fossil fuels and making land use development and transportation systems more energy efficient.

California Energy Efficiency Action Plan

The 2019 California Energy Efficiency Action Plan has three primary goals for the State: double energy efficiency savings by 2030 relative to a 2015 base year (per SB 350), expand energy efficiency in low-income and disadvantaged communities, and reduce GHG emissions from buildings. This plan provides guiding principles and recommendations on how the State would achieve those goals. These recommendations include:

- identifying funding sources that support energy efficiency programs,
- identifying opportunities to improve energy efficiency through data analysis,
- using program designs as a way to encourage increased energy efficiency on the consumer end,
- improving energy efficiency through workforce education and training, and
- supporting rulemaking and programs that incorporate energy demand flexibility and building decarbonization. (CEC 2019). California State University

California State University

California State University Sustainability Policy

In the Spring of 2022, The California State University (CSU) Board of Trustees adopted the revised version of the CSU system-wide Sustainability Policy which was updated from the 2014 version and became effective March 23, 2023. The policy aims to reduce the environmental impact of construction and operation of buildings and to integrate sustainability across the curriculum. The CSU Sustainability Policy established the following goals related to energy:

- reduce GHG emissions 80 percent below 1990 levels by 2040,
- procure 60 percent of energy supply from renewable sources by 2030,
- increase on-site energy generation from 32 to 80 megawatts by 2030, and
- promote use of alternative fuels and transportation programs.

Energy Use Index

Energy use is the primary metric used by the CSU to track progress toward energy conservation goals, referred to as the Energy Use Index (EUI). EUI represents total annual electricity and natural gas use per square foot of building space, measured in British thermal units per square foot. To normalize this metric between different CSU campuses, the square footage is adjusted to prorate or remove buildings and structures that are very low or zero energy users, such as parking structures, stadiums, and farm buildings such as barns and storage sheds. The last two CSU Executive

Orders on energy and sustainability (i.e., 917 of 2004, 987 of 2006) established goals to reduce British thermal units per square foot by 15 percent over two consecutive 5-year periods.

Executive Order 987

Executive Order 987 is the CSU Policy Statement on Energy Conservation, Sustainable Building Practices, and Physical Plant Management. Cal Maritime operates under this Executive Order, which sets minimum efficiency standards for new construction and renovations, and establishes operating practices intended to ensure CSU buildings are used in the most energy efficient and sustainable manner possible while still meeting the programming needs of Cal Maritime.

California State University Maritime 2017 Physical Master Plan

The 2017 Physical Master Plan (Master Plan) for Cal Maritime serves as a guidebook that defines the spatial implications and vision for Cal Maritime's growth. The Master Plan covers all aspects of the campus's development, including student enrollment growth, overall campus land use and design, building capacity and placement, circulation and infrastructure, and sustainability. The Master Plan includes goals which are intended to guide the continued development of Cal Maritime. Additionally, Chapter 6 of the Master Plan includes various fundamental green building strategies that will be considered by Cal Maritime in finalizing project design. Strategies related to energy consumption are as follows:

- Climate Sensitive Building Envelope. A well-designed building envelope should respond to the local climate to help a building use less energy while making occupants more comfortable.
- Green Roofs and Cool Roofs. Both cool roofs and green roofs help to reduce a building's energy use and contribution to the heat island effect by reflecting or absorbing solar energy. Green roofs are roofs covered in vegetation that absorbs the sun's energy for photosynthesis, protecting the roof membrane and cooling overall building temperature. Cool roofs are constructed with materials that reflect solar energy, protecting the roof membrane and also cooling overall building temperature.
- Daylighting. Daylighting refers to the effective organization of apertures (windows, skylights, etc.) that allow natural light to infiltrate a building's interior and negate the need for excessive artificial lighting. Buildings that incorporate effective and sustainable daylighting strategies serve occupant lighting needs while remaining aware of climate dynamics that can negatively and positively impact thermal comfort.
- Solar Shading and Glare Control. Solar shading and glare controls help to provide visual and thermal comfort within a building. Shading strategies include louvers, vertical fins, and overhangs. Glare control strategies include light shelves and baffles. All of these strategies can be used both internally and externally on buildings and may be adjustable or fixed in place depending upon climate and usage.
- Renewable Energy Generation. On site renewable energy generation can be achieved with solar photovoltaics and wind turbines. Renewable energy generation should be considered as a contribution to a campus micro-grid.
- Green Insulation Materials. Green insulation helps lower a building's energy usage by preserving indoor temperatures and reducing heating and cooling requirements. There are many examples of green insulation materials such as recycled denim cotton and corkwood.
- Geothermal Heating and Cooling. Geothermal systems take advantage of stable underground temperatures to heat and cool systems. This typically works by piping water through and underground looped system that exchanges heat between a building, a heat pump, and the earth. This provides heating, cooling, and hot water with a higher degree of efficiency that traditional systems.
- Rotary Air to Air Heat Exchangers. These devices capture incoming air and use recycled exhaust to preheat the air on cold days, utilizing what would otherwise be wasted exhaust energy.
- Stack Ventilation. Stack ventilation helps to passively move air through a building using temperature differences from inside and outside the building. The system works by taking cool air inside of the building through low inlet openings and allowing hotter exhaust air to escape through high outlet openings. These systems help to reduce energy required for mechanical exhaust systems in addition to the energy required for thermal comfort.

- **Rainwater Harvesting And "Greywater" Recycling**. The capture of water that would otherwise be wasted can help to decrease a buildings use of potable water. Rainwater harvesting and "greywater" recycling are two methods of capturing water for reuse. Rainwater harvesting involves the collection and use or rainwater from roofs for applications such as landscape irrigation and toilet flushing. Rainwater is typically directed from a building's roof into above or below grade cisterns or storage tanks. Greywater reuse involves the collection of gently used water from plumbing fixtures for reuse in landscape irrigation and toilet flushing.
- **Energy Efficient Fixtures.** Usually combined with sensors; energy efficient fixtures can help to reduce a building's lifetime energy consumption. Examples include LED lighting, occupancy sensors, and automatic shut-off controls.
- **Water Conserving Fixtures.** Sensored and low-flow plumbing fixtures help conserve water and increase efficiency.
- **Locally Sourced and Recycled Materials.** Building and construction materials can help minimize negative environmental impacts and increase a buildings overall sustainability. Examples include sustainably harvested wood framing and flooring, carpet made from recycled content, and recycled insulation.
- **Cogeneration (Microgrid).** Cogeneration, also known as Combined Heat and Power (CHP), is the process of creating electrical energy and harvesting the waste heat energy. By taking advantage of the wasted heat, this technology is more efficient than standard electrical power generation equipment. The buildings most suited to this technology are 24/7 buildings like residence halls, computer labs, or natatoriums.
- **Grey and Black Water.** On-site greywater treatment involves collecting sewer effluent, referred to as greywater, from plumbing fixtures such as showers, lavatories, and laundry facilities, and treating the greywater through settling, filtration, and chlorine dosing for reuse in non-potable fixtures, such as toilets and urinals, landscape irrigation, or cooling towers. preliminary calculations for the full campus expansion show that collecting and treating greywater from the proposed new residence halls could yield approximately 15,000 to 20,000 gallons of recycled water per day, roughly 40% of the projected expansion potable water demand.
- **Photovoltaics.** Photovoltaics or (PV) creates electrical energy by harnessing the power of the sun. Roof infrastructure should be allotted for photovoltaic systems as part of the 2032 Campus Master Plan build-out for each building.

LOCAL

Cal Maritime is part of the CSU, which is a statutorily- and legislatively-created and constitutionally authorized entity of the State of California, and therefore the project site is owned by the CSU. As explained in Chapter 3 of this Draft EIR, in the "California State University Autonomy" section, as a state agency, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, this EIR does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes.

City of Vallejo 2040 General Plan

Adopted by the City Council in August 2017, the City of Vallejo General Plan 2040 (2040 General Plan) was developed to emphasize economic development, historic preservation, arts and culture, and community health. The City Council's goals for the 2040 General Plan included protecting and improving on the City's existing physical, social, and economic conditions as well as promoting sustainability and improving the efficacy of non-automobile transportation in Vallejo. The policies and actions of the 2040 General Plan Update which relate to energy that would apply to the project include:

- **Policy NBE-1.7 Green Infrastructure.** Encourage the installation of green infrastructure, including tools such as permeable pavement, rain gardens, constructed wetlands, grassy swales, rain barrels and cisterns, and green roofs, to treat stormwater, attenuate floods, increase groundwater recharge, and reduce urban heat islands.
- **Policy NBE-1.15 Energy Efficiency**. Support measures to reduce energy consumption and increase energy efficiency in residential, commercial, industrial, and public buildings.

- **Policy NBE-1.16 Solid Waste Reduction.** Promote reduction of the production of solid waste throughout Vallejo.
- **Policy CP-1.12 Clean Air.** Protect the community from harmful levels of air pollution.

City of Vallejo Climate Action Plan

The City of Vallejo prepared a climate action plan (CAP) which was finalized in 2012. The City of Vallejo CAP (Vallejo CAP) serves as the city's road map to becoming a more sustainable community. The Vallejo CAP was developed to enable the City of Vallejo to reduce GHG emissions, adapt to climate change, and improve the economic, environmental, and physical health of the community. The Vallejo CAP prioritizes changes related to green building practices, energy efficiency, transit-oriented development, mixed-use, higher density development, recycling and composting, water conservation, and renewable energy. Specifically, this CAP identifies policies that will achieve the state-recommended GHG reduction target of 15 percent below 2008 levels by the year 2020. It was also determined that conformance with the (then) state goal of 80 percent below 1990 levels by 2050 would require a 64 percent reduction below the city's 2012 business-as-usual levels by 2035.

The Vallejo CAP includes a consistency checklist which is intended to aid in streamlining the CEQA process for projects which can show consistency with the CAP and, in doing so, determine a project's consistency with state GHG reduction goals. However, because crucial laws and regulations, such as AB 1279 and EO B-48-18, have been passed and implemented since the development of the Vallejo CAP, the GHG reduction goals and strategies within the CAP have since become outdated and do not align with more recent strategies developed for the purpose of meeting current state GHG reduction goals. For this reason, the Vallejo CAP is not used in this analysis.

3.5.2 Environmental Setting

Energy Facilities and Services in the Project Area

The Pacific Gas and Electric (PG&E) provides electrical service to the Cal Maritime site via 12.47 kilovolt (kV) feeders that also serve other sites. The site distribution system comprises the main 12 kV / 1200 amps (A) switchgear, overhead and underground lines, outdoor building transformers, and building services/meters. Backup power is limited to a diesel generator for classroom buildings, communications hut 1, and the administration building, while the sanitary sewer pump station has City provided backup power. The Training Ship Golden Bear (TSGB) has its own generators. In addition, life safety systems utilize batteries and uninterruptible power supply units in various buildings for backup power.

Shore power infrastructure, also known as cold-ironing or alternative marine power, enables ships to turn off their engines while at berth and connect to local electric power. Shore power infrastructure consists of four main elements: (1) incoming electrical power supply to substation transformers and switchgear; (2) on-site power distribution and control (load transformer and switchgear); (3) transmission lines and equipment that comprise the cable management system, providing the essential linkage from the substation to the vessel; and (4) vessel power supply connection point(s). Shore power systems are present for the TSGB.

Energy Types and Sources

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. One-third of energy commodities consumed in California is natural gas In 2022, renewable resources, including hydroelectric power and small-scale, customer-sited solar power, accounted for 49 percent of California's in-state electricity generation. Natural gas fueled another 42 percent while nuclear power supplied almost all the rest (EIA 2023). In 2021, PG&E provided its customers with 47.7 percent eligible renewable energy while 4 percent, 9 percent and 39 percent of energy were sourced from large-scale hydroelectric, natural gas, and nuclear, respectively (CEC 2022c). The contribution of in- and out-of-State power plants depends on the precipitation that occurred in the previous year, the corresponding amount of hydroelectric power that is available, and other factors.

Alternative Fuels

A variety of alternative fuels are used to reduce demand for petroleum-based fuel. The use of these fuels is encouraged through various Statewide regulations and plans (e.g., Low Carbon Fuel Standard, AB 32 Scoping Plan).

Conventional gasoline and diesel may be replaced (depending on the capability of the vehicle) with many transportation fuels, including:

- biodiesel,
- electricity,
- ethanol (E-10 and E-85),
- hydrogen,
- natural gas (methane in the form of compressed and liquefied natural gas),
- propane,
- renewable diesel (including biomass-to-liquid),
- synthetic fuels, and
- gas-to-liquid and coal-to-liquid fuels.

California has a growing number of alternative fuel vehicles through the joint efforts of CEC, CARB, local air districts, federal government, transit agencies, utilities, and other public and private entities. As of August 2023, California contained over 16,000 alternative fueling stations (AFDC 2023).

Energy Use for Transportation

In 2021, the transportation sector comprised the largest end-use sector of energy in the State totaling 37.8 percent (EIA 2023). On-road vehicles use about 90 percent of the petroleum consumed in California. CEC reported retail sales of 159 million and 30 million gallons of gasoline and diesel, respectively, in Solano County in 2022 (the most recent data available) (CEC 2023). The California Department of Transportation (Caltrans) projects that 463 million gallons of gasoline and diesel will be consumed in Solano County in 2030 (Caltrans 2008).

Energy Use and Climate Change

Scientists and climatologists have produced evidence that the burning of fossil fuels by vehicles, power plants, industrial facilities, residences, and commercial facilities has led to an increase of the earth's temperature. For an analysis of GHG production and the project's impacts on climate change, refer to Section 3.7 "Greenhouse Gas Emissions and Climate Change."

3.5.3 Impacts and Mitigation Measures

METHODOLOGY

Energy would be consumed by equipment and vehicles used during construction and routine maintenance activities. Construction-related energy consumption by the project, measured in gallons of gasoline and gallons of diesel fuel, were calculated using the proposed phasing of the project, emission factors and methodologies from the California Emissions Estimator Model (CalEEMod) version 2022.1.1.20 computer program, and emission factor from CARB's EMission FACtors (EMFAC), and harbor craft emissions inventory model. Operations-related energy consumptions is discussed qualitatively. Detailed calculations, modeling inputs, and results can be found in Appendix D.

THRESHOLDS OF SIGNIFICANCE

The following significance criteria are based on Appendices F (Energy Conservation) and G of the CEQA Guidelines, under which the project would have a significant adverse energy impact if it would:

- result in the wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources during project construction or operation; or

- conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

ISSUES NOT DISCUSSED FURTHER

All issues related to energy listed under the significance criteria above are addressed in this section.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.5-1: Wasteful, Inefficient, or Unnecessary Consumption of Energy, During Project Construction or Operation

Implementation of the project and associated construction/renovation of on-campus buildings would result in the consumption of additional energy supplies during construction in the form of gasoline and diesel fuel. However, this energy expenditure would not be wasteful, because construction would be temporary, and would not require additional capacity or increased peak or base period demands for electricity or other forms of energy. University operations as a result of Waterfront Master Plan implementation would not result in additional energy consumption, as the project would not increase student enrollment or employment. The proposed improvements would increase electricity consumption, and the marine hydrokinetic barge proposed in Phase Three would increase the use of renewable energy at the campus. While an increase in electrical power would be required for operation of the NSMV, the increase would not be substantial, and the project would not result in the wasteful, inefficient, or unnecessary consumption of energy during project construction or operation. This impact would be **less than significant**.

To evaluate project-related fuel consumption, proposed construction activities are discussed below (by phase), then a qualitative discussion regarding operational energy consumption and project consistency with relevant plans is provided.

Phase One

Phase One of the project would focus on Cal Maritime's readiness for the arrival of the NSMV. Phase One would involve construction activities associated with demolition and reconstruction of the main pier, reinforcement (and possible replacement) of the existing trestle, dredging of the boat basin, installation of floating docks, expansion and upgrading of the Marine Yard, existing vessels, and utility systems (See Table 2-1 for more details). These upgrades would be limited primarily to demolition, material movement, and minor infrastructure upgrades, resulting in fuel consumption from the use of heavy-duty construction equipment (harbor craft and offroad). Fuel consumption from these activities for all three phases are summarized below in Table 3.5-1. The NSMV would be larger (21,000 horsepower) and more modern than the existing TSGB (17,000 horsepower, built in 1989). Modern vessels are typically more fuel efficient than older vessels. Thus, the NSMV would result in lower fuel consumption than the exiting TSGB.

While PG&E has confirmed its ability to serve the project, the existing electrical system on campus does not appear to have adequate capacity to accommodate the additional power needed for the NSMV; available capacity would need to be confirmed based on final load calculations and coordination with PG&E (Motschall, pers. comm., 2024). Should upgrades be required, existing shore power systems are present for the TSGB that could be upgraded to meet requirements of the NSMV. Initial estimates of power-connected demand for the NSMV are approximately 4,828 kVA. To meet this projected demand, construction of a new substation adjacent to the existing substation would be required, along with improvements to associated electrical equipment as well as installation of new switchgear, transformers, and panels. Upgrades to the electrical system that supports the pier, the ship, and the boathouse may require accessing the point of connections of electrical lines using trenching and excavation. The extent of this work is yet to be determined by PG&E; however, excavation and trenching would be within the limits of the 2,500 square feet of impermeable surface disturbance area proposed for Phase One. Should replacement of PG&E overhead distribution lines be required to accommodate the additional energy demand, this would be completed by PG&E and would not require any additional ground disturbance (Motschall, pers. comm., 2024).

<u>Phase Two</u>

Phase Two of the project would focus on project objectives to rehabilitate the boathouse, expand and optimize the boat basin, redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. Phase Two components would include expansion of the existing boat basin to create Boat Basin 2, renovation of the boathouse, and other shoreline improvements. These upgrades would be limited primarily to demolition, material movement, and minor infrastructure upgrades, resulting in fuel consumption from the use of heavy-duty construction equipment (harbor craft and offroad). Fuel consumption from these activities for all three phases are summarized below in Table 3.5-1.

<u>Phase Three</u>

Phase Three of the project would redevelop the existing Marine Yard, further increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. New classrooms, outdoor learning spaces, and a new Marine Programs Multi-Use Building would be constructed. A marine hydrokinetic barge and linking trestle, which would provide up to 10 megawatts of renewable energy to the campus are also considered during this phase. This phase would also focus on improvement of the campus-coastline linkage and open spaces and a heightened level of resilience to climate- and storm-related stresses. These upgrades would be limited primarily to demolition, material movement, and minor infrastructure upgrades, resulting in fuel consumption from the use of heavy-duty construction equipment (harbor craft and offroad). Fuel consumption from these activities for all three phases are summarized below in Table 3.5-1.

Table 3.5-1 Construction Energy Consumption by Source

Source	Diesel (Total Gallons)	Gasoline (Total Gallons)
Equipment	135,476	-
Marine Vessels	174,339	-
Trucks	4,401	-
Workers	-	63,611
Total	**314,217**	**63,611**

Source: Calculations by Ascent Environmental in 2023.

Energy use would be required during construction of each phase of the Waterfront Master Plan implementation. Most of the construction-related energy consumption would be associated with off-road equipment, marine equipment, and the transport of equipment and materials using on-road haul trucks. The one-time energy expenditure required to construct development under the Waterfront Master Plan would be nonrecoverable. Additional gasoline and diesel would be consumed for worker commute trips associated with project construction. Fuel consumption is summarized in Table 3.5-1.

The energy needs for construction would be spread throughout the project area and over the course of implementation of the Waterfront Master Plan. Although construction activities would require fuel and other energy sources, the energy needs for construction would be temporary and would not increase energy demand in a wasteful or inefficient manner. There would be no atypical construction-related energy demand associated with the development, because construction would follow standard practices related to energy consumption. There is no evidence to suggest that nonrenewable energy would be consumed in a wasteful, inefficient, or unnecessary manner when compared to other construction activity in the region. In addition, on-road gasoline and diesel fuel consumption associated with construction activity decrease every year as the vehicle fleet becomes more fuel-efficient over time. There is no basis to conclude that construction would be wasteful of fuel or other energy resources; therefore, it is assumed that only the necessary amount of fuel would be consumed to complete construction under the Waterfront Master Plan.

<u>Summary</u>

Implementation of the Waterfront Master Plan would result in energy consumption from construction activities. The project would not increase student population or campus employment. Therefore, there would be no increase in fuel consumption associated with operation of the campus.

Construction energy would be a one-time energy expenditure required to construct new/modernized facilities as part of the Waterfront Master Plan and would not include atypical construction-related energy demand. As noted above, Waterfront Master Plan implementation would not introduce new natural gas infrastructure or use above existing conditions and would include renewable energy (marine hydrokinetic barge) in Phase Three.

According to Appendix F of the State CEQA Guidelines, the means to achieve the goal of conserving energy include decreasing overall per capita energy consumption, decreasing reliance on oil, and increasing reliance on renewable energy sources. Construction and operation under the Waterfront Master Plan would not involve activities that conflict with goals of decreasing per capita energy consumption, reliance on fossil fuels (gasoline and diesel), or increasing uses of renewable energy sources, or that would result in wasteful, inefficient, or unnecessary consumption of energy. For these reasons, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.5-2: Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency

Onsite renewable energy generation from the implementation of project, would result in an increase in renewable energy use, which would directly support the goals and strategies in the State's Energy Efficiency Action Plan and the CSU Sustainability Policy. Construction and operating project buildings in compliance with the 2019 (or as updated) California Energy Code would improve energy efficiency compared to buildings built to earlier iterations of the code. Therefore, construction and operation of the project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. This impact would be **less than significant**.

<u>All Phases</u>

Relevant plans that pertain to the efficient use of energy include the state's 2022 Scoping Plan; the Energy Efficiency Action Plan, which focuses on energy efficiency and building decarbonization (CEC 2019); as well as the CSU Sustainability Policy, which seeks to increase on-site renewable energy generation, exceed RPS requirements, increase energy efficiency, and provide alternative transportation and use alternative fuels to meet GHG reduction goals (CSU 2022).

The 2022 Scoping Plan identified key actions necessary to achieve the state's goals, including moving to zero-emission transportation; phasing out the use of fossil gas for heating homes and buildings; providing communities with sustainable options for walking, biking, and public transit to reduce reliance on cars; continued investment in solar powered–infrastructure, wind turbine capacity, and other resources that provide clean, renewable energy to displace fossil-fuel fired electrical generation; and scaling up new renewable energy options that are available or may be available in the future.

Consistent with the priorities identified in the 2022 Scoping Plan, the Waterfront Master Plan includes onsite renewable energy and energy efficiency, which are all features that reduce fossil fuel use, increase renewable energy use, and increase overall energy efficiency through efficient building design.

Further and as discussed in Impact 3.5-1, although implementation of the Waterfront Master Plan has the potential to result in the overall increase in consumption of energy resources during construction and operation of new buildings and facilities, the CSU has adopted numerous sustainability, renewable energy, and energy conservation policies. Implementation of the Waterfront Master Plan would ensure various energy conservation and generation features would be incorporated into new development including the installation of renewable energy features, installation of energy efficient appliances, or other similar CSU standards, which would align with the Energy Efficiency Action Plan and CSU Sustainability Policy. Therefore, the project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Impacts would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.6 GEOLOGY, SOILS, AND MINERAL RESOURCES

This section describes the existing geologic and seismic conditions of the proposed project site, its vicinity, and attendant hazards associated with these issues based on a review of US Geological Survey (USGS) and the California Geological Survey (CGS) technical maps and guides, the Natural Resources Conservation Service (NRCS) Soil Survey, previous EIRs for the project site, background reports prepared for nearby plans and projects, and published geologic literature. This section describes the existing geologic conditions of the project area and identifies applicable federal, State, and local plans, policies, laws, and regulations. The analysis evaluates potential impacts of the project related to soil and geologic stability, loss of mineral resource availability, and loss of significant paleontological resources and provides recommended mitigation measures for significant or potentially significant impacts. Changes in deposition, erosion, or siltation that may modify the hydrological characteristics of the site are discussed in Section 3.9, "Hydrology and Water Quality." Cumulative impacts related to geology and soils are addressed in Chapter 4, "Cumulative Impacts."

No comments regarding geology and soils or mineral or paleontological resources were received during the Notice of Preparation (NOP) public comment period.

3.6.1 Regulatory Setting

FEDERAL

National Earthquake Hazards Reduction Act

In October 1977, the U.S. Congress passed the Earthquake Hazards Reduction Act to reduce the risks to life and property from future earthquakes in the United States. To accomplish this, the act established the National Earthquake Hazards Reduction Program (NEHRP). The mission of NEHRP includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improved building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improved mitigation capacity; and accelerated application of research results. The NEHRP designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns several planning, coordinating, and reporting responsibilities.

Surface Mining and Reclamation Act of 1975

The Surface Mining and Reclamation Act of 1975 (PRC Sections 2710–2796) provides for the classification of nonfuel mineral resources in the state to show where economically significant mineral resources occur or are likely to occur. Classification is carried out under the Mineral Land Classification Project under the direction of the State Geologist. Once lands have been classified, they may be designated by the State Mining and Geology Board as mineral-bearing areas of statewide or regional significance if they are in areas where urban expansion or other irreversible land uses may occur that could restrict or preclude future mineral extraction. Designation is intended to prevent future land use conflicts and occurs only after consultation with lead agencies and other stakeholders.

CGS developed guidelines for the classification and designation of mineral lands. These guidelines contain information on what are known as Mineral Resource Zones (MRZs), which together make up a system of classifying lands based on their economic importance. The MRZ system consists of four categories into which lands may be classified based on the degree of available knowledge about the resource, and the level of economic significance of the resource. These zones are described as follows:

- MRZ-1: areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence;
- MRZ-2: areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence;

- MRZ-3: areas containing mineral deposits for which the significance cannot be determined from available data; and
- MRZ-4: areas where available information is inadequate for assignment of any other MRZ category.

STATE

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (Public Resources Code [PRC] Section 2621-2630) intends to reduce the risk to life and property from surface fault rupture during earthquakes by regulating construction in active fault corridors, and by prohibiting the location of most types of structures intended for human occupancy across the traces of active faults. The act defines criteria for identifying active faults, giving legal support to terms such as active and inactive, and establishes a process for reviewing building proposals in Earthquake Fault Zones. Under the Alquist-Priolo Act, faults are zoned and construction along or across these zones is strictly regulated if they are "sufficiently active" and "well-defined." A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for purposes of the act as within the last 11,000 years). A fault is considered well defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment (Bryant and Hart 2007). Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults. The law addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards.

Seismic Hazards Mapping Act

The intention of the Seismic Hazards Mapping Act (SHMA) of 1990 (PRC Section 2690–2699.6) is to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including ground shaking, liquefaction, and seismically induced landslides. The act's provisions are similar in concept to those of the Alquist-Priolo Act: The State is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones. Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development.

California Building Code

The California Building Code (CBC) (California Code of Regulations, Title 24) is based on the International Building Code. The CBC has been modified from the International Building Code for California conditions, with more detailed and/or more stringent regulations. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the CBC. The CBC identifies seismic factors that must be considered in structural design. Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, while Chapter 18A regulates construction on unstable soils, such as expansive soils and areas subject to liquefaction. Appendix J of the CBC regulates grading activities, including drainage and erosion control. The CBC contains a provision that provides for a preliminary soil report to be prepared to identify "…the presence of critically expansive soils or other soil problems which, if not corrected, would lead to structural defects." (CBC Chapter 18 §1803.1.1.1).

Paleontological Resources

Paleontological resources are classified as nonrenewable scientific resources and are protected by state statute (PRC Chapter 1.7, Section 5097.5, Archeological, Paleontological, and Historical Sites, and Appendix G of the State CEQA Guidelines). No state or local agencies have specific jurisdiction over paleontological resources or require a paleontological collecting permit to allow for the recovery of fossil remains discovered because of construction-related earth-moving on state or private land on a project site.

LOCAL

Cal Maritime is part of the CSU, which is a statutorily- and legislatively-created and constitutionally-authorized entity of the State of California, and therefore the project site is owned by the CSU. As explained Chapter 3 of this Draft EIR, in the "California State University Autonomy" section, as a state agency, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, this EIR does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes.

City of Vallejo General Plan 2040

The following goals, policies, and actions from the City of Vallejo General Plan 2040 (City of Vallejo 2017) are relevant to geology, soils, and mineral resources on the project site:

GOIAL NBE-5 Hazard Protection: Protect life and property from natural and human-made hazards.

- Action NBE-5.1C: Coordinate with emergency response agencies, nearby cities, community groups, and private enterprise in developing comprehensive disaster preparedness, assistance, and post-disaster recovery plans.
- Policy NBE-5.2: Community Preparedness. Increase public awareness of City emergency preparedness programs and resources.
- 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.
- Action NBE-5.3B: Continue to require development to comply with building and safety codes and continue to route plans and drawings to all relevant City departments for review.
- Policy NBE-5.4: Project Location and Design. Prohibit development in any area where it is determined that the potential risk from natural hazards cannot be mitigated to acceptable levels.
- Action NBE-5.4A: Continue to require geotechnical studies for land use proposals to determine engineering measures that may be necessary to adequately mitigate any seismic, flooding, sea level rise, landslide, erosion, or related risk.
- Action NBE-5.4B: Continue to require drainage and erosion control measures for landslide-prone or geologically hazardous hillside areas to minimize risks to downhill areas.
- Action NBE-5.4D: Locate public facilities that are critical to health and safety (such as police and fire stations, and water and sewer facilities) so as to minimize potential impacts from hazards.
- Action NBE-5.4E: Work with property owners to facilitate the retrofitting of existing structures to reduce the potential for damage during earthquakes.
- Policy NBE-5.5: Hazard Awareness. Promote public awareness of hazards and resources available to help property and business owners improve safety and prepare for emergencies.
- Action NBE-5.5A: Continue to partner with neighborhood and community organizations to conduct emergency preparedness exercises.

City of Vallejo Municipal Code

Title 16, Zoning Ordinance, of the City of Vallejo Municipal Code identifies development requirements for the City's zoning districts. These requirements regulate several aspects of development that affect visual character, such as building heights, landscaping, signage, yards, and lot coverage.

The following chapters and section of the Zoning Ordinance are applicable to aesthetics:

- Chapter 12.04: Building Code Adopted. This chapter adopts the CBC 2022 Edition, Parts 1 and 2, including appendices F, G, H, I, J, N, O, and P. It establishes and adopts as the rules, regulations, provisions, and conditions of the CBC as the building code for the City of Vallejo to govern the construction and maintenance of buildings;

to safeguard life, health, property, and public welfare, and provide for issuance of permits and collection of fees and penalties for violation within the city.

- **Chapter 12.40: Excavations, Grading and Filling**. This chapter provides regulations related to earth-moving activities. It establishes provisions to protect public safety, general welfare and the city's natural resources, related to earthwork, and sets forth minimum requirements for grading in order to preserve and enhance the natural beauty of the land, streams and shorelines and; reduce or eliminate hazards such as mass wasting, mud flows, rock falls, settlement, erosion, siltation and flooding.

California State University Seismic Requirements

The California State University (CSU) Seismic Requirements (CSU 2020) include specific requirements for the construction of new buildings and the rehabilitation of existing buildings to ensure that all CSU buildings provide an acceptable level of earthquake safety, per the California Building Code. The policy adopted by the CSU Board of Trustees in 1993 supplements the requirements of the California Building Code and is provided below.

> It is the policy of the Trustees of the California State University that to the maximum extent feasible by present earthquake engineering practice to acquire, build, maintain, and rehabilitate buildings and other facilities that provide an acceptable level of earthquake safety for students, employees, and the public who occupy these buildings and other facilities at all locations where University operations and activities occur. The standard for new construction is that it meets the life safety and damageability objectives of Title 24 provisions; the standard for existing construction is that it provides reasonable life safety protection, consistent with that for typical new buildings. The California State University shall cause to be performed independent technical peer reviews of the seismic aspects of all construction projects from their design initiation, including both new construction and remodeling, for conformance to good seismic resistant practices consistent with this policy. The feasibility of all construction projects shall include seismic safety implications and shall be determined by weighing the practicality and cost of protective measures against the severity and probability of injury resulting from seismic occurrences.

The CSU Seismic Requirements describe the framework used to implement the Board of Trustees' Seismic Policy. All new construction is required to meet the life, safety, and damage objectives of Title 24 of the California Building Code, while the standard for rehabilitating existing structures is that reasonable life safety protection is provided, consistent with that for typical new structures.

Geotechnical investigations are required by the CSU Seismic Requirements to assess and classify a building site's soils. Any geotechnical investigation conducted for future developments shall include consideration of all seismically induced site failure hazards, including liquefaction, differential settlement, lateral spreading, landslides, and surface faulting. As the CSU has determined campus-specific seismic design ground motion parameters to be used for new and modification of existing buildings that supersede those given in the California Building Code, geotechnical investigations do not require additional site exposure work for determining seismic design requirements. These seismic design ground motion parameters are used by the geotechnical engineer during project design.

Independent technical peer reviews shall be conducted concerning the seismic aspects of all construction projects from their design initiation, including both new construction and remodeling, for conformance with good seismic-resistant practice consistent with this policy. The CSU Seismic Review Board is charged with implementing the independent peer review requirements and advises CSU on structural engineering issues for specific projects.

3.6.2 Environmental Setting

GEOLOGY

The project site is within the Cal Maritime campus, which is located within the Coast Ranges geomorphic province, a relatively geologically young and seismically active region. The Coast Ranges extend from near the California-Oregon border to southern California. The only major break in the Coast Range mountains is the depression containing the San Francisco Bay, where the project site is located. Based on USGS regional mapping of the San Francisco Bay region, most of the project site is underlain by Upper (late) Cretaceous-age (100.5 to 66 million years ago) Great Valley Complex sedimentary rocks—sandstone, siltstone, and mudstone—with the project site primarily overlain by artificial fill (NRCS 2023).

In Morrow Cove, the Great Valley Complex is overlain by fluvial and estuarine mud deposits. There is a sharp contrast between the Great Valley Complex bedrock in the Carquinez Strait and these overlying soft deposits due to glacial period erosion of the upper layers of the Great Valley Complex and later deposition of the soft sediments. The existing pier where the TGSB is docked is footed in Great Valley Complex bedrock, which primarily consists of sandstone in this area.

The Great Valley Complex, because of its nature as a sedimentary complex, has the potential to bear host to fossils of Upper Cretaceous age, and has yielded abundant fossils in multiple formations associated with Upper Cretaceous. The University of California Museum of Paleontology (UCMP) fossil database indicates that the Great Valley Complex contains a diverse and abundant assemblage of fossils that includes microfossils, plant remains, invertebrate marine creatures, and vertebrates. The microfossils are particularly important, as unique assemblages of microfossils, especially benthic (bottom-dwelling) and planktonic (free-floating) foraminifera, that are abundant in some of the shales are used to assign ages to the rocks. The Moreno Formation, which is stratigraphically contemporary with beds at the project site, has yielded such microfossils. Invertebrate fossils found in the Great Valley Sequence include various bivalves, gastropods, and even coiled ammonites. Vertebrate fossils have been found also, mainly in the Chico and Moreno Formations in the uppermost part of the sequence, and include fish, flying reptiles (pterosaurs), and a variety of marine reptiles, including turtles, mosasaurs, plesiosaurs, and ichthyosaurs.

TOPOGRAPHY AND DRAINAGE

The approximately 31-acre project site is located along the Morrow Cove waterfront at the mouth of the Carquinez Straight. The project site generally slopes southwestward. The ground surface elevation of the project site ranges from below sea level (where underwater structures would be installed) to 160 feet above sea level. The project site is located north of the Carquinez Strait, which is the geologic and hydrologic feature that links Suisun Bay and the Sacramento River Delta to San Pablo Bay.

The bottom of Morrow Cove below the existing pier is estimated to be approximately 13 to 40 feet below mean low water level, while the cove itself deepens gently to the south. Pier pilings are driven into bedrock at elevations that range from approximately 50 to 90 feet below mean low water level, which is relatively shallow.

SOILS

Regional soil mapping indicates that most of the project site is classified as "made land," indicating that it is manmade fill. Natural soil complexes that comprise the original, unaltered soil horizon have been truncated, mixed, or otherwise altered within areas of fill. Where native soils still exist, soil types would be expected to be like those of nearby areas, consisting of those identified in Table 3.6-1 (NRCS 2023). In their unaltered state, most of these soils have low to moderate shrink-swell potential, but rarely can have high shrink-swell characteristics. These soils are susceptible to a variety of soil risk factors such as shallow hardpan, shallow bedrock, caving, flooding, and low strength. Construction on these soils generally requires design features that reduce or eliminate structural damage or failure risks. Therefore, while made land is generally composed of construction fill materials that would be appropriate for building, it is important to consider that natural soils would likely be mixed with fill and therefore some of the original characteristics of these soils would be retained in the fill horizon.

Dibble – Los Osos Clay Loam Soil (9 to 30 percent slopes/30 to 50 percent slopes): This soil type consists primarily of the Dibble soil series, which is a moderately deep, well-drained soil that has formed from weathered shale, sandstone, and semi-consolidated densic (that is, unaltered or largely unweathered) material. While this soil is typically well-drained, it has a characteristic low permeability. Within the project site, linear extensibility is measured at 3.6 percent/5.7 percent (see discussion of, "Expansive Soils," below). The geomorphic occurrence of this soil is mostly on foothills and fan remnants. Its climatological occurrence is in areas with a mean annual precipitation of 16 to 40 inches per year and a mean annual air temperature of 63 degrees Fahrenheit. This soil is ideal for grazing and is typically vegetated with annual grasses and oaks. The Los Osos clay is closely related and exhibits similar soil characteristics.

Table 3.6-1 Summary of Soil Characteristics

Soil Series	Texture and Drainage Characteristics	Shrink-Swell Potential	Risk and Restrictive Soil Features for Building-Site Development
Dibble	Silt loam; well-drained, low to high runoff potential, slow permeability	Moderate	Building development is restricted by slope, moderately expansive soils, and depth to soft bedrock
Los Osos	Clay loam; well-drained, low to high runoff potential, slow permeability	Moderate	Building development is restricted by slope, moderately expansive soils, and depth to soft bedrock
Made Land	Mine spoil or earthy fill	Not applicable	None

Source: NRCS 2023.

Expansive Soils

Expansive soils (also known as shrink-swell soils) are soils that contain expansive clay minerals that can absorb substantial amounts of water. The presence of these clay minerals makes the soil prone to large changes in volume in response to changes in water content. When an expansive soil becomes wet, water is absorbed and it increases in volume, and as the soil dries it contracts and decreases in volume. This repeated change in volume over time can produce enough force and stress on buildings, underground utilities, and other structures to damage foundations, pipes, and walls.

One measure of the shrink-swell potential of soils is linear extensibility. Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. The volume change is reported as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent, moderate if 3 to 6 percent, high if 6 to 9 percent, and very high if more than 9 percent. The linear extensibility of the dominant soil component for the soil mapping units within the project area as determined by the NRCS soil survey is identified above (NRCS 2023). Where native soils still exist, soils will exhibit the characteristics of the dominant soil series and will be largely affected by the clay content of the native soil. All mapped native soil types in the project area have linear extensibility below 6 percent. In areas dominated by fill material, or "made land," shrink-swell potential would be expected to be low, because these soils have been engineered for building purposes. NRCS does not rate fill material for linear extensibility and does not generally identify this material as susceptible to expansion. As stated above, most of the project area is "made land," which means that the upper layers of the soil profile that could affect the placement of structures or other types of development would have a reduced risk associated with expansive soils relative to their native counterparts in the project site.

SEISMICITY

The project site is located within a very seismically active region. Most seismic activity is generated along fault lines, which are fractures in the Earth's crust along which rocks on one side are displaced relative to those on the other side due to shear and compressive crustal stresses. Most faults are the result of repeated displacement that may have taken place suddenly and/or by slow creep (Bryant and Hart 2007).

The state of California has a classification system that designates faults as either active, potentially active, or inactive, depending on how recently displacement has occurred along them. Faults that show evidence of movement within the last 11,000 years (the Holocene geologic period) are considered active, and faults that have moved between 11,000 and 1.6 million years ago (comprising the later Pleistocene geologic period) are considered potentially active. Active local and regional faults within the vicinity of the project area Rodgers Creek Fault, Berryessa Fault, Calaveras Fault, Concord-Southern Green Valley Fault, Great Valley Fault, Greenville Fault, Hayward (North and South) Fault, Mount Diablo Fault, San Gregorio Fault, or West Napa Fault.

The amount of energy released when rocks displace along an active fault and produce an earthquake is known as the magnitude. Magnitude scales, like the moment magnitude and Richter scales, measure the size of the earthquake at its source. An earthquake has one magnitude, and it does not depend on where it is measured; it is always the same for a given earthquake.

Seismic Hazards Zones

The project site is located within the Benicia Quadrangle, mapped pursuant to SMHA. As discussed above, under SMHA, surface fault rupture and other earthquake-related hazards, including ground shaking, liquefaction, and seismically induced landslides are required to be mapped for all areas within California. There are no seismic hazards that have been mapped within the Benicia Quadrangle (CGS 2023). While these hazards have not been mapped pursuant to SHMA, there is nevertheless the possibility for some degree of risk associated with these hazards (with the exception of surface fault rupture), as the area is in fact seismically active and therefore susceptible to each of these to some degree. These hazards are discussed in relation to the project site in more detail below.

Surface Fault Rupture

Surface rupture is the surface expression of movement along a fault. Structures built over an active fault can be torn apart if the ground ruptures. The potential for surface rupture is based on the concepts of recency and recurrence. Surface rupture along faults is generally limited to a linear zone a few meters wide. The Alquist-Priolo Act (see the Regulatory Setting discussion above) was created to prohibit the location of structures designed for human occupancy across, or within 50 feet of, an active fault, thereby reducing the loss of life and property from an earthquake. Surface rupture generally can be assumed to occur along an active or potentially active major fault trace. There are no known active or potentially active faults that cross the project site.

Ground Shaking

Ground shaking is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake and is normally the major cause of damage during seismic events. The intensity of seismic shaking, or strong ground motion, during an earthquake is dependent on the distance and direction from the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions of the surrounding area. Ground shaking could potentially result in the damage or collapse of buildings and other structures. The Modified Mercalli Intensity scale (MMI) is the most used scale for measurement of the subjective effects of earthquake intensity (Table 3.6-2 provides a summary of observed effects and their corresponding MMI). The MMI scale is based on observable earthquake damage. From a scientific standpoint, the magnitude scale (described above) is based on seismic records while the MMI scale is based on observable data which can be subjective. Thus, while the magnitude scale is considered scientifically more objective and therefore more accurate, the MMI scale represents a more accurate description of the actual physical effects of an earthquake.

The project site has the potential to be subject to strong (MMI VII or greater) ground shaking generated by an earthquake on the Rodgers Creek Fault, Berryessa Fault, Calaveras Fault, Concord-Southern Green Valley Fault, Great Valley Fault, Greenville Fault, Hayward (North and South) Fault, Mount Diablo Fault, San Gregorio Fault, or West Napa Fault.

Table 3.6-2 The Modified Mercalli Scale of Earthquake Intensities

Summary of Observed Effects	Intensity Category
Not felt except by a very few under especially favorable circumstances.	I
Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.	II
Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration is like passing of truck. Duration estimated.	III
During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.	IV
Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.	V
Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.	VI
Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.	VII
Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.	VIII
Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	IX
Some well-built wooden structures are destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	X
Few, if any, (masonry) structures remain standing. Bridges destroyed. Board fissures in the ground. Underground pipelines are completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	XI
Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on the ground surface. Lines of sight and level are distorted.	XII

Liquefaction and Lateral Spreading

Liquefaction is a phenomenon in which loose, saturated, granular soil deposits lose a large portion of their shear strength due to excess pore water pressure buildup. An earthquake typically causes increases in pore water pressure and therefore liquefaction. Liquified soils—as the name suggests—behave like a liquid during seismic shaking and re-solidify when shaking stops. The potential for liquefaction is highest in areas with a shallow groundwater table and loose, fine, sandy soils.

Lateral spreading (also known as expansion) is the horizontal movement or spreading of soil toward an “open face,” such as a streambank, the open side of fill embankments, or the sides of levees. It often occurs in response to liquefaction of soils in an adjacent area. Saturated soils are a necessary condition for liquefaction; therefore, soil layers in areas where the groundwater table is at or near the surface have higher liquefaction potential than those in which the water table is deeper. The potential for failure from lateral spreading is therefore also highest in areas where there is a high groundwater table, where there are relatively soft and recent alluvial deposits, and where there is an open face towards which sediments can move.

Regional studies by the U.S. Geological Survey for the Bay Area provide information on Quaternary deposits and liquefaction susceptibility in the area. Based on these regional studies; the Association of Bay Area Governments has mapped the project site as a very high liquefaction hazard area, which is noted in mapping provided by the City of Vallejo in the General Plan (City of Vallejo 2017). Therefore, based on regional studies, liquefaction and lateral spreading is a concern. However, because the depth to bedrock is shallow, and because most of the soil at the project site is identified as made land (i.e., construction fill material), the potential for liquefaction (and therefore lateral spreading) to occur at the project site is not as high as indicated by regional mapping. Additionally, during the pier replacement in 1999, Cal Maritime commissioned seismic retrofitting of portions of Morrow Cove to include stone columns inserted into the shoreline embankment to stabilize landward soils from lateral spreading. Because the original soil horizons contained soils that were susceptible to liquefaction, this characteristic was not eliminated during the placement of fill to build the campus. The stone columns essentially provide support for landward soils from sliding into Morrow Cove in the event of an earthquake.

Mass Wasting and Landslides

Mass wasting refers to the collective group of processes that characterize down slope movement of rock and unconsolidated sediment overlying bedrock. These processes include landslides, slumps, rockfalls, flows, and creeps. Many factors contribute to the potential for mass wasting, including geologic conditions as well as the drainage, slope, and vegetation of the site. Mass wasting events are often triggered by seismic activity, but can also be triggered by weather, erosion, volcanism, or development. Slope failure can occur as either rapid movement of large masses of soil (landslide) or slow, continuous movement (creep) on slopes of varying steepness. Solano County has identified the entire Cal Maritime campus as a potential landslide hazard zone (Solano County 2008).

Tsunamis

A tsunami is a series of extremely long waves caused by a large and sudden displacement of the ocean, usually the result of an earthquake below or near the ocean floor. This force creates waves that radiate outward in all directions away from their source, sometimes crossing entire ocean basins. Unlike wind-driven waves, which only travel through the topmost layer of the ocean, tsunamis move through the entire water column, from the ocean floor to the ocean surface. Most tsunamis are caused by earthquakes on converging tectonic plate boundaries. The largest risk of tsunamis is subduction-type earthquakes, but a strike-slip fault (like those prevalent along the San Andreas Fault System) can also produce tsunami waves. According to the Global Historical Tsunami Database, since 1900, over 80 percent of tsunamis were likely generated by earthquakes. However, tsunamis can also be caused by landslides, volcanic activity, certain types of weather, and—possibly—near-earth objects (e.g., asteroids, comets) that encounter the ocean in whole or in part.

A tsunami only becomes hazardous when it approaches land. As a tsunami enters shallow water near coastal shorelines, it slows to 20 to 30 mph. The wavelength decreases, the height increases, and currents intensify. Thus, the highest risk areas for tsunami are coastal areas. Most tsunamis are less than 10 feet high when they impact shore, but in extreme cases, they can exceed 100 feet, if they approach shore near their source. A tsunami may come onshore like a fast-rising flood or a wall of turbulent water, and a large tsunami can flood low-lying coastal areas more than a mile inland. Rushing water is incredibly powerful; just six inches of fast-moving water can knock adults off their feet, and 12 inches can carry away a small car. Tsunamis can be particularly destructive because of their speed and the volume of water involved. Tsunami waves are also dangerous as they return to the sea as they can carry debris and, potentially, people with them.

The project site is in a low-lying coastal area that is subject to potentially large earthquakes generated by local and regional faulting; therefore, the site could be susceptible to tsunamis resulting from a strong seismic event.

MINERAL RESOURCES

The California Department of Conservation Division of Mines and Geology has developed guidelines for the classification and designation of mineral lands, known as Mineral Resource Zones (MRZs), and retains publications of the Surface Mining and Reclamation Act (SMARA) Mineral Land Classification Project dealing with mineral resources in California.

The project site is located within a mapped MRZ and is designated MRZ-1, areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence (Miller and Busch 2013).

3.6.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The examination of geology, soils, and mineral resources is based on information obtained from reviews of:

- the project description;
- available literature, including documents published by the City of Vallejo, the Solano County, State and federal agencies, and published information dealing with geotechnical conditions in the project area;
- applicable elements from the Solano County General Plan and City of Vallejo General Plan; and
- Preliminary Geotechnical Recommendations prepared for the proposed project (Appendix H).

THRESHOLDS OF SIGNIFICANCE

An impact related to geology, soils, and mineral resources is considered significant if implementation of the proposed project would do any of the following:

- directly or indirectly expose people or structures to potential substantial adverse impacts, including the risk of loss, injury, or death through the rupture of a known earthquake fault, strong seismic shaking, seismic-related ground failure, soil liquefaction, or landslides;
- result in substantial soil erosion or the loss of topsoil;
- locate project facilities 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-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- locate project facilities on expansive soil, creating substantial direct or indirect risks to property;
- have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater;
- directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;
- 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; and/or
- 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.

ISSUES NOT DISCUSSED FURTHER

Mineral Resources

The project site is not located within a mapped mineral resource zone; therefore, there would be no loss in the availability of a known mineral resource of value to the region and the residents of the state. Additionally, there are no locally important mineral resource recovery sites delineated or otherwise identified in the Physical Master Plan (Cal Maritime 2017) or City of Vallejo General Plan. Therefore, no impact on mineral resources would occur, and this topic is not further addressed in this EIR.

Alquist-Priolo Earthquake Fault Zone

The project site is not located in an Alquist-Priolo Earthquake Fault Zone and no known mapped fault rupture traces are present on the site (Bryant and Hart 2007; Jennings and Bryant 2010). The closest fault is the Rodgers Creek Fault, located approximately 8 miles northwest of the project site (Jennings and Bryant 2010). The Rodgers Creek Fault does not extend into the project site. Therefore, there would be no impact related to potential fault rupture, and this topic is not further addressed in this EIR.

Septic Tanks

No septic tanks or other alternative wastewater disposal systems would be used for the project. Therefore, there would be no impact related to the ability of soils to support septic tanks or other alternative systems, and this topic is not further addressed in this EIR.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.6-1: Expose People or Structures to Seismic Hazards, Including Ground Shaking, Seismic-Related Ground Failure, Liquefaction and Lateral Spreading, and Tsunami

Strong seismic ground shaking could be generated at the project site by locally active faults. The potential impacts from seismic ground shaking would be reduced by adherence to the design and materials standards set forth in the current CBC and through compliance with the CSU seismic policy. The CSU process for managing seismic safety issues associated with building design and construction provides a higher level of design review and more oversight of construction than for private sector development projects that are subject to local code and policy. The protections for seismic-related ground shaking and secondary seismic hazards including seismic-related ground failure, landslides, mass wasting, liquefaction, and lateral spreading are also robust, because the CBC and CSU seismic requirements involve mandatory preparation of a geotechnical engineering report prepared by a licensed engineer that would include design standards to reduce or eliminate the effects of these hazards. While Morrow Cove is within a tsunami hazard zone, as mapped by CGS (Bott and Wilson 2022), it is near the interior limit of the mapped zone where the threat of hazard would be lowest, assuming a tsunami approach from the open ocean through the mouth of San Francisco Bay. Moreover, the updated tsunami hazard maps are based on probabilistic tsunami inundation modeling results using a nearly 1,000 year-return period, which means that such inundation would have an extremely remote—approximately one-tenth of one percent—chance of occurring in any given year (CGS 2022). As a result, the overall impact for seismically related hazards would be **less than significant**.

Phase One

Implementation of Phase One would involve waterside development in the lower campus area. Phase One of the project would focus on Cal Maritime's readiness for the arrival of the NSMV. During Phase One, preparations for the arrival of the NSMV would be made, followed by the arrival, docking, and operation of the ship. To prepare for the arrival of the NSMV, the current main pier would be demolished, and a longer, wider pier would be constructed to accommodate the size of the new NSMV. The existing trestle would need to be extended or, if the existing trestle is found to be defective, replaced. While demolition and the construction of in-water and landside project improvements in anticipation of the NSMV's arrival are underway, the TSGB along with one tugboat and one small passenger boat (or T-boat) would be temporarily relocated to the Suisun Bay Reserve Fleet (SBRF), which would not involve any landside facility or infrastructure improvements at the project site.

The risk of potentially severe consequences associated with seismic activity is uniformly high for all structures and individuals in all areas of the San Francisco Bay Area. All structures in the Bay Area could potentially be affected by ground shaking in the event of an earthquake along any of the regional active faults. The amount of ground shaking would depend on the magnitude of the earthquake, the distance from the epicenter, and the type of earth materials affected. Very strong (MM VIII and higher) ground shaking could occur during implementation of Phase One during a forecasted earthquake on the Rodgers Creek Fault, and slightly lower levels of shaking could be generated at the project site by movement on other nearby faults, including from the Calaveras Fault, Concord-Southern Green Valley Fault, Great Valley Fault, Greenville Fault, Hayward (North and South) Fault, Mount Diablo Fault, San Gregorio Fault, or West Napa Fault. This level of seismic shaking would be expected to cause slight damage in specially designed structures; considerable damage and possible partial collapse in structures of typical design; and substantial damage in poorly built structures as indicated in Table 3.6-2, above. The newly built pier and trestle extension, as well as other in-water improvements, would be exposed to this degree of ground shaking in the event of a future earthquake and could potentially experience damage as a result. However, the pier and the trestle extension would be new (or rehabilitated if the trestle is improved and not replaced) structures built to current standards following both the CBC and CSU seismic requirements. Updates to engineering and design standards since construction of the existing pier would ensure that the new structures would be less prone to damage—and therefore—safer, than the existing structures. Consequently, hazards created by ground shaking in the event of an earthquake would be low from implementation of Phase One activities, and this impact would therefore be less than significant.

Secondary seismic hazards including seismic-related ground failure, landslides, mass wasting, liquefaction and lateral spreading would be considered low, because the Phase One work is primarily in-water work and adjacent to a portion of the campus that has a shallow grade (the project site). Therefore, development associated with Phase One buildout would not be expected to expose people or structures to a substantial risk associated with secondary seismic hazards. Additionally, implementation of Phase One would not alter the ground surface in such a manner as to exacerbate risks associated with seismic-related ground failure, landslides, mass wasting, or liquefaction and lateral spreading. Therefore, impacts related to secondary seismic hazards would be less than significant.

The risk of loss, injury, or death involving a tsunami generated by local or regional seismic activity could be disastrous. Implementation of Phase One of the project would accommodate a larger ship (the NSMV) at the project site, which would have the capacity to generate a greater degree of landside damage during a tsunami than a smaller ship (the TGSB); additionally, there would be capacity for a larger number of vessels at the project site with project implementation.

During a tsunami, waves generated by seismic activity would approach shore, and the tsunami wavelength decreases, the height increases, and coastal currents would intensify. Water would rise within the project area, which could potentially inundate new Phase One structures such as the pier and trestle and would raise floating structures and watercraft with the rising water. Because tsunamis are powerful, there is the potential for damage or destruction to landside parts of the project area, or for injury or death to individuals in low-lying coastal areas if watercraft and other debris are forced inland with rising waters. Tsunamis are very rare events, however, and the most destructive of these are generated from earthquakes at subduction zones across the Pacific Ocean (e.g., Alaska, Russia, and Japan). While Morrow Cove is within a tsunami hazard zone, as mapped by CGS (Bott and Wilson 2022), it is near the interior limit of the mapped zone where the threat of hazard would be lowest, assuming a tsunami approach from the open ocean through the mouth of San Francisco Bay. If one were to occur, it would enter the narrow Bay mouth, and its size and energy would dissipate as it made its way to the interior of the Bay. Moreover, the updated CGS tsunami hazard maps are based on probabilistic tsunami inundation modeling results using a nearly 1,000-year return period, which means that such inundation would have an extremely remote—approximately one-tenth of one percent—chance of occurring in any given year (CGS 2022).

Phase Two

Phase Two of the project would focus on activities that are not critical to support the arrival of the NSMV but that are important for Cal Maritime's educational mission and expansion of cadet instruction, including expansion of the boat basin to create Boat Basin 2 and a new pier with breakwater and installation of additional slips and berths for Cal Maritime's boat fleet and other vessels currently located off-site and/or planned for future acquisition. Phase Two would also include rehabilitating the boathouse, demolishing the Marine Programs and Naval Science modular buildings, linking campus buildings to waterfront open space, and enhancing public access, and safeguarding waterfront resilience and ecological functioning through shoreline enhancements. The breakwater of Boat Basin 2 would be approximately 18,000 square feet, extending approximately 450 feet offshore. A total of 10,800 square feet of additional floating slips/berthing area (approximately 26 slips/berthing positions) would be provided. Following construction, Boat Basin 2 would encompass approximately 200,000 square feet, or 4.6 acres. Shoreline enhancements between the boathouse and new pier, including improvements along the existing pedestrian path, would provide recreational opportunities.

As described under Phase One, there is the potential for strong seismic ground-shaking, secondary seismic hazards, and tsunamis within the project site. Activities under Phase Two of the proposed project would also be exposed to these seismic hazards. Phase Two involves additional waterside activities, as well as landside activities; these activities would accommodate additional vessels in Boat Basin 2, demolition of the Marine Programs and Naval Science Modular structures, shoreline enhancements, and rehabilitate the boathouse. Generally, risks associated with ground shaking and secondary seismic hazards would be the same as those described above under Phase One, with the exception that some landside activities would also occur. Risks associated with tsunami hazards for Phase Two are also accurately characterized by the discussion of impacts under Phase One, above.

While the potential for damage to structures or injury to individuals during strong seismic ground shaking cannot be eliminated, implementation of Phase Two would include the demolition and removal of modular buildings that were not designed or constructed using contemporary earthquake engineering standards, which potentially reduces the seismic risk in the project area. Boathouse rehabilitation would be designed, constructed, and carried out in accordance with CSU seismic policy and in compliance with the current CBC guidelines, which would require preparation of and adherence to the recommendations identified in a geotechnical engineering report(s) that would address foundation designs and other measures related to geological and geotechnical hazards from seismic shaking (e.g., force from ground shaking, mass wasting, liquefaction, and unstable soils.

Phase Three

Phase Three of the proposed project would focus on objectives to redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. This phase would also include improvements to the level of resilience to climate and storm-related stresses, as well as campus-coastline experiences and open spaces. A marine hydrokinetic barge and linking trestle are also included in Phase Three. The Marine Programs Multi-Use Building would replace the existing obsolete trailers and Marine Programs and Naval Science modulars that are currently adjacent to the boat basin. The building area would be approximately 20,300 square feet, and the building would be two stories in height. Classrooms and outdoor learning spaces would be added in support of the Marine Programs Multi-Use Building.

Phase Three would involve the design and construction of buildings that would be conducted under the guidance of the CSU system; local agencies would not have authority over plans or inspections during the construction period (as identified above under the "Local" regulations section). The Marine Programs Multi-Use Building and other structures implemented under Phase Three would be designed, constructed, and carried out in accordance with CSU seismic policy and in compliance with the current CBC guidelines, which require preparation of and adherence to the recommendations identified in geotechnical engineering report(s) that would address foundation designs and other measures related to geological and geotechnical hazards from seismic shaking (e.g., force from ground shaking, mass wasting, liquefaction, and unstable soils), as described for the boathouse retrofitting under Phase Two, above. The current CBC (section 1803A.6) and CSU seismic policy require that geotechnical engineering reports be prepared for new construction projects like those proposed under Phase Three. The geotechnical engineering report would identify the degree to which site soils may retain liquefaction and lateral spreading properties in the areas of made land where structures would be placed in connection with Phase Three of the project, and would recommend additional reinforcement or additional stone columns, as a potential stabilization measure to minimize damage from seismic activity.

Risks associated with seismic activity from buildout of Phase Three project components would be the same as or similar to those associated with Phases One and Two, as described above. Therefore, the discussion of Phase One and Phase Two impacts above also characterizes the risks associated with seismic hazards from implementation of Phase Three.

Summary

As discussed above, very strong (MMI VIII) to strong (MMI VII) ground shaking could occur at the project site during expected earthquakes on the Rodgers Creek Fault and other regional active faults. The potential impacts from seismic ground shaking would be reduced by adherence to the design and materials standards set forth in the current CBC and through compliance with the CSU seismic policy. The current CBC (section 1803A.6) and CSU seismic policy require that geotechnical engineering reports be prepared for new construction projects like those proposed for this project. After development of schematic design (early in the design process), a peer reviewer from the Seismic Recommendations Board (of the CSU) would review the plans for each phase of the project for compliance with the CSU seismic policy. Revisions would be made as necessary to ensure compliance. The CSU process for managing seismic safety issues associated with building design and construction provides more expert peer review and oversight of construction than for private sector development projects. The protections for seismic-related ground shaking and secondary seismic hazards including landslides, mass wasting, liquefaction, and lateral spreading are robust with implementation of all phases of the project. The level of potential risk associated with a tsunami event related to a large earthquake either regionally or further afield is low based on probability of occurrence, the location of the site toward the interior of the Bay, and historic records. The overall impact for seismically related hazards would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.6-2: Cause Damage to Structures or Result in Injury or Death from Development on Expansive Soils

Implementation of the project involves construction of structures in areas that are expected to potentially contain soil components with shrink-swell potential. However, all construction would comply with the current CBC and CSU seismic requirements. As part of compliance with CBC and CSU seismic requirements, a geotechnical engineering report would be prepared by a California Registered Civil Engineer or Geotechnical Engineer as part of project planning for each element of the project, as prescribed by CSU seismic policy, and would contain recommendations for development in areas that contain soils with high shrink-swell potential, or other hazardous soil conditions. Recommendations of the site-specific geotechnical study (e.g., design of foundations, retaining walls, grading practices) would be implemented for each phase of the proposed project. Therefore, the risk of damage from development on expansive, or otherwise hazardous soils would be **less than significant**.

Phase One

Phase One of the project would focus on Cal Maritime's readiness for the arrival of the NSMV. To prepare for the arrival of the NSMV, the current main pier would be demolished, and a longer, wider pier would be constructed to accommodate the size of the new NSMV. The existing trestle would need to be extended, and potentially replaced, if the existing trestle is found to be defective. While demolition and the construction of in-water and landside project improvements in anticipation of the NSMV's arrival are underway, the TSGB along with one tugboat and one small passenger boat would be temporarily relocated to the SBRF, which would not involve any landside facility or infrastructure improvements at the SBRF site. Because the activities associated with Phase One are primarily in-water activities, there is little potential for soil hazards such as expansive soils to interact with this phase of the project and this impact is less than significant. Moreover, as mentioned above under impact 3.6-1 and consistent with CSU seismic policy, a geotechnical engineering report would be prepared for elements of the project, as prescribed by CSU seismic policy; the recommendations of which Cal Maritime would be required to comply with to ensure impacts related to geological hazards would remain less than significant.

Phase Two

Phase Two of the project would focus on activities that are not critical to support the arrival of the NSMV but that are important for Cal Maritime's educational mission and the future expansion of cadet instruction, including expansion of the boat basin to create Boat Basin 2 and a new pier with breakwater and installation of additional slips and berths for Cal Maritime's boat fleet and other vessels currently located off-site and/or planned for future acquisition. Phase Two would also include rehabilitating the boathouse, demolishing the Marine Programs and Naval Science modular buildings, linking campus buildings to waterfront open space, and enhancing public access, and safeguarding waterfront resilience and ecological functioning through shoreline enhancements. A total of approximately 26 new slips/berthing positions would be provided in this phase. Shoreline enhancements between the boathouse and new pier, including improvements along the existing pedestrian path, would provide recreational opportunities.

As described under Phase One, Phase Two would involve in-water work that would be unlikely to be affected by unstable soil conditions. The landside activities carried out during Phase Two would not involve the construction of structures that could be affected by expansive soils. Pathways and other shoreline enhancements are not generally load-bearing and susceptible to the effects of shrink-swell soils. Moreover, the areas in which this work is proposed are areas of fill, or made land, which by virtue of its source material and lack of slope has a relatively low potential to exhibit hazardous soil conditions. Demolition of existing structures would also not have an effect with respect to soil conditions and structural stability, because demolition does not involve placement of structures. In addition, as mentioned above under impact 3.6-1 and consistent with CSU seismic policy, a geotechnical engineering report would be prepared for elements of the project, as prescribed by CSU seismic policy; the recommendations of which Cal Maritime would be required to comply with to ensure impacts related to geological hazards would remain less than significant. Therefore, this impact would be less than significant.

Phase Three

Phase Three of the proposed project would focus on objectives to redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. This phase would also include improvements to the level of resilience to climate and storm-related stresses, as well as campus-coastline experiences and open spaces. A marine hydrokinetic barge and linking trestle are also included in Phase Three. The Marine Programs Multi-Use Building would replace the existing obsolete trailers and Marine Programs and Naval Science modulars that are currently adjacent to the boat basin. The building area would be approximately 20,300 square feet, and the building would be two stories in height. Classrooms and outdoor learning spaces would be added in support of the Marine Programs Multi-Use Building.

The Marine Programs Multi-Use Building and other structures implemented under Phase Three would be designed, constructed, and built in compliance with the current CBC and CSU guidelines, which require preparation of and adherence to the recommendations identified in geotechnical engineering report(s) that would address excavations, foundation designs, and other measures related to geological and geotechnical hazards associated with expansive soils and other hazardous soil conditions. The current CBC (section 1803A.6) and CSU seismic policy require that geotechnical engineering reports be prepared for new construction projects like those proposed under Phase Three. Risks associated with expansive soils from buildout of Phase Three project components would therefore be minimal and this impact would be less than significant.

Summary

Because a geotechnical engineering report would identify site-specific design-level geotechnical and structural recommendations that would be required to be implemented for each phase of the project, and because waterside project components are unlikely to interact with expansive soils or other hazardous soil conditions, impacts related to expansive soils during implementation of the project would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.~~7~~6-3: Loss of a Unique Paleontological Resource

No paleontological resources are known to exist within the project site. However, the geologic unit underlying the project site is the Great Valley Complex; this sequence of sedimentary lithologic units has yielded paleontologically significant fossils in California. Excavations in previously undisturbed geological units could therefore affect undiscovered paleontological resources. This impact would be potentially **significant**.

Phase One

Phase One of the project would focus on Cal Maritime's readiness for the arrival of the NSMV. To prepare for the arrival of the NSMV, the current main pier would be demolished, and a longer, wider pier would be constructed to accommodate the size of the new NSMV. The existing trestle would need to be extended, and potentially replaced, if the existing trestle is found to be defective. While demolition and the construction of in-water and landside project improvements in anticipation of the NSMV's arrival are underway, the TSGB along with one tugboat and one small passenger boat would be temporarily relocated to the SBRF, which would not involve any landside facility or infrastructure improvements at the SBRF site. Because the activities associated with Phase One are primarily in-water activities, and there are no landside structures or excavations associated with Phase One, there would not be excavations for Phase One activities in previously undisturbed geological units, and this impact would be less than significant.

Phase Two

Phase Two of the project would focus on activities that are not critical to support the arrival of the NSMV but that are important for Cal Maritime's educational mission and expansion of cadet instruction, including expansion of the boat basin to create Boat Basin 2 and a new pier with breakwater and installation of additional slips and berths for Cal Maritime's boat fleet and other vessels currently located off-site and/or planned for future acquisition. Phase Two would also include rehabilitating the boathouse, demolishing the Marine Programs and Naval Science modular buildings, linking campus buildings to waterfront open space, and enhancing public access, and safeguarding waterfront resilience and ecological functioning through shoreline enhancements. Shoreline enhancements between the boathouse and new pier, including improvements along the existing pedestrian path, would provide recreational opportunities. None of these activities would require substantial excavations within the project site, and none of the activities would require excavations in previously undisturbed geological units. This impact would therefore be less than significant.

Phase Three

The UCMP records show no unique geologic features, fossil-bearing strata, or paleontological sites within the project site. However, review of geologic mapping indicates the project site is underlain by Upper Cretaceous sedimentary sandstones and shales of the Central Valley Complex, which has yielded paleontologically significant fossils elsewhere in California. Paleontological sites are also known to occur in similar-age rock units outside the project site but within Solano County. Microfossils, plant remains, invertebrate marine creatures, and vertebrates are known to occur within the strata of Great Valley Complex formations. The microfossils are particularly important, as unique assemblages of microfossils, especially benthic (bottom-dwelling) and planktonic (free-floating) foraminifera, that are abundant in some of the shales are used to assign ages to the rocks. Age-dating is an important tool that can reveal the geological history of an area and how it formed. Ground-disturbing activities in previously undisturbed geological units have potential to affect previously undiscovered paleontological resources. This could occur during Phase Three of project implementation because the Marine Programs Multi-Use Building would involve construction and ground disturbance that could potentially destroy unknown paleontological resources, this impact is significant.

Mitigation Measures

Mitigation Measure 3.6-3a: Paleontological Sensitivity Training for Construction Personnel

Prior to construction commencing on the Marine Programs Multi-Use Building under Phase Three and before initiating earthmoving activities, Cal Maritime shall provide training for construction personnel involved with earthwork at the site of excavations. The training will educate construction workers about the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and the proper stop-work and CSU-approved notification procedures to follow if fossils are encountered.

Mitigation Measure 3.6-3b: Inadvertent Discovery of Potential Paleontological Resources

During construction of the Marine Programs Multi-Use Building under Phase Three, if a paleontological resource is inadvertently discovered during project-related soil disturbance, regardless of the depth of work or location, work must be halted within 30 feet of the find and a qualified paleontologist notified immediately so that an assessment of its potential significance can be undertaken. Coordination with experts on resource recovery and curation of specimens and/or other measures will be considered, as appropriate, after assessment and consultation with the qualified paleontologist.

Significance after Mitigation

Implementation of Mitigation Measures 3.6-3a and 3b would reduce potentially significant impacts on undiscovered paleontological resources by providing paleontological resource training to construction workers and halting work in the event of an inadvertent discovery. Training would require that if paleontological resources are encountered, they would be properly identified and avoided or handled appropriately. In addition, in the event of an inadvertent discovery halting work and contacting a qualified paleontologist would allow avoidance or treatment. Therefore, implementation of this mitigation measure would reduce impacts to unique paleontological resources to a **less-than-significant** level.

3.7 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

This section presents a summary of regulations applicable to greenhouse gas (GHG) emissions; a summary of climate change science and GHG sources in California; quantification of GHG emissions generated by the project and discussion about their contribution to global climate change in accordance with the 2023 State CEQA Guidelines.

No comments pertaining to GHG emissions were received during the notice of preparation public review period. Comments were received that expressed concern about project facilities potentially being affected by sea-level rise. Campus preparedness for sea-level rise is described in Chapter 2, "Project Description," and is discussed in Section 3.8, "Hazards and Hazardous Materials."

Greenhouse Gas Emissions Overview

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code § 38505(g), for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (see also California Code of Regulations Title 14, §15364.5). Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted into the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are the predominant GHGs emitted as the result of human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases such as HFCs, PFCs, and SF_6 (IPCC 2007). Refer to Section 3.7.2, Environmental Setting, below for further information.

3.7.1 Regulatory Setting

FEDERAL

Supreme Court Ruling – Carbon Dioxide is an Air Pollutant

In *Massachusetts et al. v. Environmental Protection Agency et al.*, 549 U.S. 497 (2007), the Supreme Court of the United States ruled that CO_2 is an air pollutant as defined under the federal Clean Air Act and that the U.S. Environmental Protection Agency (EPA) has the authority to regulate GHG emissions.

In 2010, EPA started to address GHG emissions from stationary sources through its New Source Review permitting program, including operating permits for "major sources" issued under Title V of the federal Clean Air Act.

National Highway Traffic Safety Administration

The National Highway Traffic Safety Administration (NHTSA) regulates vehicle emissions through the Corporate Average Fuel Economy (CAFE) Standards. On April 2, 2018, the EPA administrator announced a final determination that the current standards should be revised. On August 2, 2018, the U.S. Department of Transportation and EPA proposed the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE Rule), which would amend existing CAFE standards for passenger cars and light-duty trucks by increasing the stringency of the standards by 1.5 percent per year from models 2021 through 2026.

The CAA grants California the ability to enact and enforce stricter fuel economy standards through the acquisition of an EPA-issued waiver. Each time California adopts a new vehicle emission standard (see discussion under "State" below for specific California standards), the state applies to EPA for a waiver for those standards. However, Part One of the SAFE Rule, which became effective on November 26, 2019, revoked California's existing waiver to implement its own vehicle emission standard. Part Two of the SAFE Rule established a standard to be adopted and enforced nationwide (84 Federal Register [FR] 51310). Pending several legal challenges to Part One of the SAFE Rule and administrative turnover, on December 21, 2021, the NHSTA published its CAFE Preemption Rule, which finalizes the repeal of the SAFE Rule Part 1 allowing California to continue procuring a waiver from EPA through the CAA to enforce more stringent emissions standards. Also, on April 1, 2022, the Secretary of Transportation unveiled new CAFE standards for 2024–2026 model year passenger cars and light-duty trucks. These new standards require new vehicles sold in the US to average at least 40 miles per gallon and apply to all states except those that enforce stricter standards.

STATE

Statewide GHG Emission Targets and Climate Change Scoping Plan

Reducing GHG emissions in California has been the focus of the State government for approximately two decades. GHG emission targets established by the State legislature include reducing statewide GHG emissions to 1990 levels by 2020 (AB 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (SB 32 of 2016). Executive Order (EO) S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. This target was superseded by AB 1279, which codifies a goal for carbon neutrality and reduce emissions by 85 percent below 1990 levels by 2045. These targets are in line with the scientifically established levels needed in the U.S. to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius (United Nations 2015).

CARB adopted the *Final 2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan) on December 16, 2022, which traces the State's the pathway to achieve its carbon neutrality and an 85 percent reduction in 1990 emissions goal by 2045 using a combined top-down, bottom-up approach under various scenarios. It identifies the reductions needed by each GHG emission sector (e.g., transportation [including off-road mobile source emissions], industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste) to achieve these goals.

The state has also passed more detailed legislation addressing GHG emissions associated with transportation, electricity generation, and energy consumption, as summarized below.

Transportation-Related Standards and Regulations

As part of its Advanced Clean Cars program, CARB established more stringent GHG emission standards and fuel efficiency standards for fossil fuel–powered on-road vehicles than EPA. In addition, the program's zero-emission vehicle (ZEV) regulation requires battery, fuel cell, and plug-in hybrid electric vehicles (EVs) to account for up to 15 percent of California's new vehicle sales by 2025 (CARB 2018a). In August 2022, CARB adopted the ACC II program, which sets sales requirements for ZEVs to ultimately reach the goal of 100 percent ZEV sales in the state by 2035.

EO B-48-18, signed into law in January 2018, requires all State entities to work with the private sector to have at least 5 million ZEVs on the road by 2030, as well as 200 hydrogen-fueling stations and 250,000 EV-charging stations installed by 2025. It specifies that 10,000 of these charging stations must be direct-current fast chargers.

CARB adopted the Low Carbon Fuel Standard (LCFS) in 2007 to reduce the carbon intensity (CI) of California's transportation fuels. Low-CI fuels emit less CO_2 than other fossil fuel–based fuels such as gasoline and fossil diesel. The LCFS applies to fuels used by on-road motor vehicles and off-road vehicles, including construction equipment (Wade, pers. comm., 2017).

In addition to regulations that address tailpipe emissions and transportation fuels, the state legislature has passed regulations to address the amount of driving by on-road vehicles. Since passage of SB 375 in 2008, CARB requires metropolitan planning organizations (MPOs) to develop and adopt sustainable communities strategies (SCSs) as a component of the federally-prepared regional transportation plans (RTPs) to show reductions in GHG emissions from passenger cars and light-duty trucks in their respective regions for 2020 and 2035 (CARB 2018b). These plans link land use and housing allocation to transportation planning and related mobile-source emissions. The Metropolitan Transportation Association/Association of Bay Area Governments (MTC/ABAG) serves as a combined entity fulfilling the MPO requirements for the counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. Under the most recent targets of SB 375 (i.e., achieve a 10-percent and 19-percent below

2005 per capita reduction in automobile emissions by 2020 and 2035, respectively), MTC/ABAG completed and adopted its most recent RTP/SCS, Plan Bay Area 2050, in 2021 (MTC/ABAG 2021).

Legislation Associated with Electricity Generation

The State has passed legislation requiring the increasing use of renewables to produce electricity for consumers. California utilities are required to generate 33 percent of their electricity from renewables by 2020 (SB X1-2 of 2011); 52 percent by 2027 (SB 100 of 2018); 60 percent by 2030 (also SB 100 of 2018); and 100 percent by 2045 (also SB 100 of 2018). These targets were superseded by SB 1020 which promulgated the state's renewable energy targets to meet 95 percent of retail electricity by 2035, 95 percent by 2040, and 100 percent by 2045, working in tandem with AB 1279's goals of achieving carbon neutrality by 2045.

Building Energy Efficiency Standards (Title 24, Part 6)

The energy consumption of new residential and nonresidential buildings in California is regulated by the California Energy Code. The code was established by CEC in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption and provide energy-efficiency standards for residential and nonresidential buildings. CEC updates the California Energy Code every 3 years, typically including more stringent design requirements for reduced energy consumption, which results in the generation of fewer GHG emissions.

The 2022 California Energy Code went into effect on January 1, 2023. The 2022 California Energy Code advances the onsite energy generation progress started in the 2019 California Energy Code by encouraging electric heat pump technology and use, establishing electric-ready requirements when natural gas is installed, expanding solar photo voltaic (PV) system and battery storage standards, and strengthening ventilation standards to improve indoor air quality. CEC estimates that the 2022 California Energy Code will save consumers $1.5 billion and reduce GHGs by 10 million metric tons of carbon dioxide equivalent (MMTCO$_2$e) over the next 30 years (CEC 2021).

California Green Building Standards (Title 24, Part 11)

The California Green Building Standards, also known as CALGreen, is a reach code (i.e., optional standards that exceed the requirements of mandatory codes) developed by CEC that provides green building standards for statewide residential and nonresidential construction. The current version is the 2022 CALGreen Code, which took effect on January 1, 2023. As compared to the 2019 CalGreen Code, the 2022 CalGreen Code strengthened sections pertaining to EV and bicycle parking, water efficiency and conservation, and material conservation and resource efficiency, among other sections of the CalGreen Code. The CALGreen Code sets design requirements equivalent to or more stringent than those of the California Energy Code for energy efficiency, water efficiency, waste diversion, and indoor air quality. These codes are adopted by local agencies that enforce building codes and used as guidelines by state agencies for meeting the requirements of EO B-18-12.

CALIFORNIA STATE UNIVERSITY

California State University Sustainability Policy

In the Spring of 2022, the California State University (CSU) Board of Trustees adopted an update to the CSU system-wide Sustainability Policy (CSU 2022), which was first adopted in 2014 with subsequent updates in 2019 and 2020. The policy aims to reduce the environmental impact of construction and operation of buildings and to integrate sustainability across the curriculum. The CSU Sustainability Policy established the following goals related to GHG emissions:

- procure 60 percent of energy supply from renewable sources by 2030;
- reduce GHG emissions 80 percent below 1990 levels by 2040;
- increase on-site energy generation from 32 to 80 megawatts by 2030;
- reduce per-capita landfill waste by 50 percent by 2030 and 80 percent by 2040;
- reduce water use by 10 percent by 2030;

- promote use of alternative fuels and transportation programs;
- procure goods that are recycled, recyclable, or reusable; and
- integrate sustainability across the curriculum.

CSU Executive Order 987

Executive Order 987 is the CSU Policy Statement on Energy Conservation, Sustainable Building Practices, and Physical Plant Management. Cal Maritime operates under this Executive Order, which sets minimum efficiency standards for new construction and renovations, and establishes operating practices intended to ensure CSU buildings are used in the most energy efficient and sustainable manner possible while still meeting the programmatic needs of the University.

California State University Maritime 2017 Physical Master Plan

California State University Maritime (Cal Maritime) developed the 2017 Physical Master Plan (Master Plan) which serves as a guidebook that defines the spatial implications and vision for Cal Maritime's growth. The Master Plan covers all aspects of the campus's development, including student enrollment growth, overall campus land use and design, building capacity and placement, circulation and infrastructure, and sustainability. The Master Plan includes goals which are intended to guide the continued development of Cal Maritime. Chapter 6 of the Master Plan includes various fundamental green building strategies that should be considered at Cal Maritime to pursue sustainability. Strategies which relate to GHGs are as follows:

- **Climate Sensitive Building Envelope.** A well-designed building envelope should respond to the local climate to help a building use less energy while making occupants more comfortable.
- **Green Roofs and Cool Roofs.** Both cool roofs and green roofs help to reduce a building's energy use and contribution to the heat island effect by reflecting or absorbing solar energy. Green roofs are roofs covered in vegetation that absorbs the sun's energy for photosynthesis, protecting the roof membrane and cooling overall building temperature. Cool roofs are constructed with materials that reflect solar energy, protecting the roof membrane and also cooling overall building temperature.
- **Daylighting.** Daylighting refers to the effective organization of apertures (windows, skylights, etc.) that allow natural light to infiltrate a building's interior and negate the need for excessive artificial lighting. Buildings that incorporate effective and sustainable daylighting strategies serve occupant lighting needs while remaining aware of climate dynamics that can negatively and positively impact thermal comfort.
- **Solar Shading and Glare Control.** Solar shading and glare controls help to provide visual and thermal comfort within a building. Shading strategies include louvers, vertical fins, and overhangs. Glare control strategies include light shelves and baffles. All of these strategies can be used both internally and externally on buildings and may be adjustable or fixed in place depending upon climate and usage.
- **Renewable Energy Generation.** On site renewable energy generation can be achieved with solar photovoltaics and wind turbines. Renewable energy generation should be considered as a contribution to a campus micro-grid.
- **Green Insulation Materials.** Green insulation helps lower a building's energy usage by preserving indoor temperatures and reducing heating and cooling requirements. There are many examples of green insulation materials such as recycled denim cotton and corkwood.
- **Geothermal Heating and Cooling.** Geothermal systems take advantage of stable underground temperatures to heat and cool systems. This typically works by piping water through and underground looped system that exchanges heat between a building, a heat pump, and the earth. This provides heating, cooling, and hot water with a higher degree of efficiency that traditional systems.
- **Rotary Air to Air Heat Exchangers.** These devices capture incoming air and use recycled exhaust to preheat the air on cold days, utilizing what would otherwise be wasted exhaust energy.

- **Stack Ventilation.** Stack ventilation helps to passively move air through a building using temperature differences from inside and outside the building. The system works by taking cool air inside of the building through low inlet openings and allowing hotter exhaust air to escape through high outlet openings. These systems help to reduce energy required for mechanical exhaust systems in addition to the energy required for thermal comfort.
- **Rainwater Harvesting And "Greywater" Recycling.** The capture of water that would otherwise be wasted can help to decrease a building's use of potable water. Rainwater harvesting and "greywater" recycling are two methods of capturing water for reuse. Rainwater harvesting involves the collection and use or rainwater from roofs for applications such as landscape irrigation and toilet flushing. Rainwater is typically directed from a building's roof into above or below grade cisterns or storage tanks. Greywater reuse involves the collection of gently used water from plumbing fixtures for reuse in landscape irrigation and toilet flushing.
- **Energy Efficient Fixtures.** Usually combined with sensors; energy efficient fixtures can help to reduce a building's lifetime energy consumption. Examples include LED lighting, occupancy sensors, and automatic shut-off controls.
- **Water Conserving Fixtures.** Sensored and low-flow plumbing fixtures help conserve water and increase efficiency.
- **Locally Sourced and Recycled Materials.** Building and construction materials can help minimize negative environmental impacts and increase a building's overall sustainability. Examples include sustainably harvested wood framing and flooring, carpet made from recycled content, and recycled insulation.
- **Cogeneration (Microgrid).** Cogeneration, also known as Combined Heat and Power (CHP), is the process of creating electrical energy and harvesting the waste heat energy. By taking advantage of the wasted heat, this technology is more efficient than standard electrical power generation equipment. The buildings most suited to this technology are 24/7 buildings like residence halls, computer labs, or natatoriums.
- **Grey and Black Water.** On-site greywater treatment involves collecting sewer effluent, referred to as greywater, from plumbing fixtures such as showers, lavatories, and laundry facilities, and treating the greywater through settling, filtration, and chlorine dosing for reuse in non-potable fixtures, such as toilets and urinals, landscape irrigation, or cooling towers. preliminary calculations for the full campus expansion show that collecting and treating greywater from the proposed new residence halls could yield approximately 15,000 to 20,000 gallons of recycled water per day, roughly 40% of the projected expansion potable water demand.
- **Photovoltaics.** Photovoltaics (PV) create electrical energy by harnessing the power of the sun. Roof infrastructure should be allotted for photovoltaic systems as part of the 2032 Campus Master Plan build-out for each building.

LOCAL

Cal Maritime is part of the CSU, which is a statutorily- and legislatively-created and constitutionally authorized entity of the State of California, and therefore the project site is owned by the CSU. As explained in Chapter 3 of this ~~Draft~~ EIR, in the "California State University Autonomy" section, as a state agency, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, this EIR does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes.

Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) is the primary agency responsible for addressing air quality in the San Francisco Bay Area, including Solano County and the City of Vallejo, where the project is located. BAAQMD also recommends methods for analyzing project-related GHG emissions in CEQA analyses and recommends multiple GHG reduction measures for land use development projects. The BAAQMD's *2022 CEQA Guidelines* (CEQA Guide) provides a qualitative approach to assessing a project's cumulative contribution to climate change for CEQA analyses (BAAQMD 2022). The CEQA Guide is intended to be used to uniformly evaluate the significance of operation-related emissions from land use development projects. For land use development projects, BAAQMD recommends that, either as a project design feature or recommended mitigation, projects include the following measures:

- The elimination of on-site natural gas infrastructure to power appliances;
- The installation of EV charging stations meeting the Tier 2 requirements of the most recent version of Part 6 of the Title 24 California Building Code, CalGreen;
- No impacts from the unnecessary, wasteful, or inefficient use of energy resources; and
- Achievement of the VMT reductions established by the Governor's Office of Planning and Research for residential (15 percent from a regional average), commercial (15 percent from a regional average), and retail projects (no net increase from a regional average).

The CEQA Guide also provides guidance for assessing the significance of climate change impacts through a CAP or greenhouse gas reduction plan (GHGRP) consistency analysis using a qualified CAP or GHGRP. BAAQMD makes the direct connection between these two qualitative, performance-based options to a project's ability to demonstrate that it is doing its "fair share" in assisting the state in meeting the long-term GHG reduction target of achieving carbon neutrality by 2045, as mandated by AB 1279. Further, BAAQMD has not adopted GHG thresholds specific to the construction phase of projects; rather, BAAQMD recommends that GHG emissions be quantified for informational purposes and provides a list of recommended construction-related best management practices (BMP). Incorporation of construction BMPs would align with recommendations in the 2022 Scoping Plan.

City of Vallejo 2040 General Plan

Adopted by the City Council in August 2017, the City of Vallejo General Plan 2040 (2040 General Plan) (City of Vallejo 2013) was developed to emphasize economic development, historic preservation, arts and culture, and community health. The City Council's goals for the 2040 General Plan included protecting and improving on the City's existing physical, social, and economic conditions as well as promoting sustainability and improving the efficacy of non-automobile transportation in Vallejo. The policies and actions of the 2040 General Plan Update which relate to GHGs that would apply to the project include:

- **Policy NBE-1.7 Green Infrastructure.** Encourage the installation of green infrastructure, including tools such as permeable pavement, rain gardens, constructed wetlands, grassy swales, rain barrels and cisterns, and green roofs, to treat stormwater, attenuate floods, increase groundwater recharge, and reduce urban heat islands.
- **Policy NBE-1.15 Energy Efficiency**. Support measures to reduce energy consumption and increase energy efficiency in residential, commercial, industrial, and public buildings.
- **Policy NBE-1.16 Solid Waste Reduction.** Promote reduction of the production of solid waste throughout Vallejo.
- **Policy CP-1.12 Clean Air.** Protect the community from harmful levels of air pollution.

City of Vallejo Climate Action Plan

The City of Vallejo prepared a climate action plan (CAP) which was finalized in 2012. The City of Vallejo CAP (Vallejo CAP) serves as the city's road map to becoming a more sustainable community. The Vallejo CAP was developed to enable the City of Vallejo to reduce GHG emissions, adapt to climate change, and improve the economic, environmental, and physical health of the community. The Vallejo CAP prioritizes changes related to green building practices, energy efficiency, transit-oriented development, mixed-use, higher density development, recycling and composting, water conservation, and renewable energy. The Vallejo CAP is both a policy document and a quantitative analysis of the city's Training Ship Golden Bear emissions, a primary training platform used at the project site. Specifically, this CAP identifies policies that will achieve the state-recommended GHG reduction target of 15 percent below 2008 levels by the year 2020. It was also determined that conformance with the (then) state goal of 80 percent below 1990 levels by 2050 would require a 64 percent reduction below the city's 2012 business-as-usual levels by 2035.

The Vallejo CAP includes a consistency checklist which is intended to aid in streamlining the CEQA process for projects which can show consistency with the CAP and, in doing so, determine a project's consistency with state GHG reduction goals. However, because crucial laws and regulations, such as AB 1279 and EO B-48-18, have been passed and implemented since the development of the Vallejo CAP, the GHG reduction goals and strategies within the CAP have since become outdated and do not align with more recent strategies developed for the purpose of meeting current state GHG reduction goals. For this reason, the Vallejo CAP is not used in this analysis.

3.7.2 Environmental Setting

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Human-caused emissions of GHGs in excess of natural ambient concentrations are found 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. The Sixth Assessment Report contains Intergovernmental Panel on Climate Change's strongest warnings to date on the causes and impacts of climate change. Importantly, the report notes that, in terms of solutions, "We need transformational change operating on processes and behaviors at all levels: individual, communities, business, institutions, and governments. We must redefine our way of life and consumption" (IPCC 2021).

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 most pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with any certainty, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 55 percent are estimated to be sequestered through ocean and land uptake every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remain stored in the atmosphere (IPCC 2013: 467).

The quantity of GHGs in the atmosphere responsible for climate change is not precisely known, but it is enormous. No single project alone would measurably contribute to an incremental change in the global average temperature or to global or local climates or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

GREENHOUSE GAS EMISSION SOURCES

The City of Vallejo prepared a GHG inventory, with an inventory year of 2008, as part of the City of Vallejo's 2012 CAP. The city's GHG emissions by sector are presented in Table 3.7-1 below.

Table 3.7-1 City of Vallejo Greenhouse Gas Emissions by Sector 2008

Sector	2008 Metric Tons CO2e/yr	Percentage of Total
Residential	172,310	29%
Commercial/ Industrial	110,390	19%
Transportation	277,720	47%
Waste	14,640	2%
Water-Related	6,570	1%
Off-Road	6,410	1%
Total	**588,040**	**100%**

Notes: CO_2e/yr = carbon dioxide equivalent per year.
Source: City of Vallejo 2012.

As shown in Table 3.7-1, the transportation, residential, and commercial/industrial sectors are the largest GHG emission sectors in the City.

Cal Maritime is currently developing a CAP as part of Campus Energy and Sustainability Policy and aligned with the Physical Master Plan. The CAP will be a working document detailing CSU's Sustainability policy and actions taken by Cal Maritime to achieve a carbon neutral campus, enhance sustainability programs in curriculum, and support the campus community in its carbon reduction goals. The CAP is currently in progress and Cal Maritime has not prepared a campus-wide GHG inventory. However, GHG emission sources for the campus include the following: vehicle travel associated with student and employee commutes; business travel; stationary fuel combustion from backup power sources and the steam plant; electricity and natural gas consumption for building heating, cooling, and lighting on campus; indoor and outdoor water consumption; solid waste generation; and emissions from training vessels and training equipment.

EFFECTS OF CLIMATE CHANGE ON THE ENVIRONMENT

The global average temperature is expected to increase by 3 to 7°F by the end of the century, depending on future GHG emission scenarios (IPCC 2007). According to California's Fourth Climate Change Assessment, depending on future GHG emissions scenarios, average annual maximum daily temperatures in California are projected to increase between 3.6 and 5.8°F by 2050 and by 5.6 to 8.8°F by 2100 (OPR, CEC, and CNRA 2018).

Other environmental resources could be indirectly affected by the accumulation of GHG emissions and resulting rise in global average temperature. In recent years, California has been marked by extreme weather and its effects. Climate model projections for California demonstrate that impacts will vary throughout the state and show a tendency for the northern part of the state to become wetter while the southern portion of California to become drier (Pierce et al. 2018). According to California Natural Resources Agency's report, *Safeguarding California Plan: 2018 Update* (CNRA 2018), California experienced the driest four-year statewide precipitation on record from 2012 through 2015; the warmest years on average in 2014, 2015, and 2016; and the smallest and second smallest Sierra snowpack on record in 2015 and 2014 (CNRA 2018). Climate model projections included in California's Fourth Climate Change Assessment, demonstrate that seasonal summer dryness in California may be prolonged due to earlier spring soil drying and would last longer into the fall and winter rainy season. Increases in temperature are also predicted to result in changes to California's snowpack. Based on climate model projections, the mean snow water equivalent, a common measurement which indicates the amount of water contained within snowpack, in California is anticipated to decline to two-thirds of its historic average by 2050 and between less than half and less than one-third of historic average by 2100, depending on future emissions scenarios (OPR, CEC, and CNRA 2018).

Climate model projections demonstrate that California will experience variation in precipitation patterns as well. The Northern Sierra Nevada range experienced its wettest year on record in 2016 (CNRA 2018). With a shifting climate, California has been more susceptible to the adverse effects of atmospheric rivers, which are large scale, high-precipitation events that deposit above-average levels of rainfall to California's coasts within a short duration. These events have the capacity to overwhelm existing stormwater systems leading to localized flooding impacts.

Climate change is also projected to result in tertiary impacts on energy infrastructure throughout California. Changes in temperature, precipitation patterns, extreme weather events, and sea-level rise have the potential to affect and decrease the efficiency of thermal power plants and substations, decrease the capacity of transmission lines, disrupt electrical demand, and threaten energy infrastructure with the increased risk of flooding (CNRA 2018).

According to California's Fourth Climate Change Assessment, climate change will create impacts on the state's transportation network that will have 'ripple effects' including direct and indirect impacts on inter-dependent infrastructure networks as well as negative impacts on the economy. Without appropriate adaptations strategies for roadway materials (i.e., asphalt and pavement), researchers estimate that the median total cost to California for 2040-2070 will be between $1 billion and $1.25 billion (OPR, CEC, and CNRA 2018). The California Department of Transportation owns and operates more than 51,000 miles along 265 highways, as well as three of the busiest passenger rail lines in the nation. Sea level rise, storm surge, and coastal erosion are imminent threats to highways, roads, bridge supports, airports, transit systems and rail lines near sea level and seaports. Shifting precipitation patterns, increased temperatures, wildfires, and increased frequency in extreme weather events also threaten transportation systems across the state. Temperature extremes and increased precipitation can increase the risk of road and railroad track failure, decrease transportation safety, and increase maintenance costs (CNRA 2018). Modeling for flood events in California demonstrates that approximately 370 miles of highways are susceptible to flooding in a 100-year storm event by the year 2100 (OPR, CEC, and CNRA 2018).

Water availability and changing temperatures affect the prevalence of pests, disease, and species, which will directly impact crop development, forest health, and livestock production. Other environmental concerns include decline in water quality, groundwater security, and soil health (CNRA 2018). Vulnerabilities of water resources also include risks to degradation of watersheds, alteration of ecosystems and loss of habitat, (OPR, CEC, and CNRA 2018).

California's Fourth Climate Change Assessment also identifies the impacts climate change will have on public health and social systems. Average temperature increases in California are estimated to have impacts on human mortality, with 6,700 to 11,300 additional annual deaths in 2050, depending on higher or lower emissions scenarios (Ostro et al. 2011). Studies have also shown that impacts from climate change can also have indirect impacts on public health, such as increased vector-borne diseases, and stress and mental trauma due to extreme events, economic disruptions, and residential displacement (Gould and Dervin 2012; McMichael and Lindgren 2011; US Global Change Research Program 2016).

3.7.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

GHG emissions associated with the proposed project would be generated during both project construction and operation. Methods used to estimate levels of construction- and operation-related GHGs are described below, while modeling outputs sheets are provided in Appendix D.

Construction-Related Greenhouse Gas Emissions

Emissions would originate from construction of landside and waterside project components. Sources of emissions associated with landside activities would include exhaust from off-road construction equipment as well as exhaust from employees' vehicles and haul trucks (i.e., on-road vehicles). Sources of emissions associated with waterside activities would include exhaust from tugboats and barges that would be used to store and move equipment, materials, and personnel around the project site.

Emissions estimates were based on a combination of project-specific construction data (e.g., schedule, equipment types and numbers, and truck volumes) provided by the project proponent and industry standard and accepted software tools, techniques, and emission factors. Construction emissions from equipment, including cranes, excavators, and dozers were estimated using equipment emission factors and emission formulas from the California Emissions Estimator Model (CalEEMod), version 2022.1 (CAPCOA 2023). Emissions from haul trucks, concrete trucks, and worker commutes were estimated using a combination of emission factors and methodologies from CalEEMod and emission factors from CARB's EMFAC 2021 model. Emissions associated with the tugboats, workboats, and barges were estimated using emission rates from CARB's most recent harbor craft emissions inventory (CARB 2021).

For each phase, it was assumed there would be 200 total truck trips to haul debris to upland disposal over the entire phase. All construction equipment and harbor craft are assumed to be powered by engines that meet, at a minimum, the Tier 3 California Emissions Standards for off-road diesel engines.

Construction of Phase One is anticipated to occur over 21 months, starting in Summer 2025. Phases Two and Three are conceptual, and the specific timing of construction activities is unknown. Regardless, for purposes of analysis, it was assumed that Phase Two would begin in 2027, while Phase Three is assumed to begin in early 2030.

Operational Greenhouse Gas Emissions

As discussed in Chapter 2, "Project Description," the project would not change enrollment or student capacity on campus or alter projected growth of the university. The proposed project would not expand operations or result in additional enrollment, employment, or vehicle trips compared to existing conditions. The project would implement improvements along the waterfront and in-water infrastructure to prepare for arrival of the next generation of state-of-the-art training ships—the National Security Multi-Mission Vessel (NSMV)—as well as other upgrades to modernize the campus and improve the waterfront experience. None of these improvements would result in an increase in energy consumption, vehicle trips, equipment use, or vessel usage. Because long-term operational changes are minimal, operational emissions are discussed qualitatively.

THRESHOLDS OF SIGNIFICANCE

The issue of global climate change is inherently a cumulative issue because the GHG emissions of individual projects cannot be shown to have any material effect on global climate. Thus, the project's impact on climate change is addressed only as a cumulative impact.

State CEQA Guidelines Section 15064 and relevant portions of Appendix G recommend that a lead agency consider a project's consistency with relevant, adopted plans and discuss any inconsistencies with applicable regional plans, including plans to reduce GHG emissions. Under Appendix G of the State CEQA Guidelines, implementing a project would result in a cumulatively considerable contribution to climate change if it would:

- generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or
- conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

BAAQMD recommends methods for analyzing project-related GHG emissions in CEQA analyses and recommends multiple GHG reduction measures for land use development projects. The BAAQMD adopted Thresholds of Significance in their 2022 CEQA Guide (BAAQMD 2022). BAAQMD provides two pathways for determining the significance of a GHG impact. The first option available is to implement on-site project features including the elimination of on-site natural gas, implementation of EV chargers consistent with the most recent version of the CalGreen Code Tier 2 requirements and meeting the VMT goals of the California Governor's Office of Planning and Research (OPR) guidance in SB 743 for various land use types. The second option includes consistency with an applicable, qualified CAP. BAAQMD also recommends that construction emissions be removed from consideration when determining the significance of a climate change impact.

The intent of BAAQMD's thresholds is to assist local jurisdictions within the San Francisco Bay Area in providing the necessary infrastructure to further the state's long-term GHG reduction goals, specifically carbon neutrality by 2045. This goal is mirrored in the recently adopted AB 1279, which sets the goals of reducing 1990 levels of GHG emissions by 85 percent and achieve net zero carbon emissions by 2045. As the air district that regulates emissions of air pollution and GHG emissions in the SFBAAB, that also has the most progressive thresholds that align with the state's long-term GHG reduction goals, BAAQMD's thresholds have been applied here.

As discussed above in Section 3.7.1, "Regulatory Setting," the City of Vallejo prepared a CAP in 2012 that set reduction targets for 2020 and 2035. However, the GHG reduction strategies within the CAP are no longer considered current as they were not developed in-line with the most recent state GHG reduction goals. Therefore, BAAQMD's option (A) of including project design features will be applied in this analysis.

Pursuant to BAAQMD's guidance the project would not result in a significant climate change impact if it would meet the following criteria:

- The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).
- 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.
- Achieve a reduction in project-generated 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:
  - Residential projects: 15 percent below the existing VMT per capita
  - Office projects: 15 percent below the existing VMT per employee
  - Retail projects: no net increase in existing VMT
- Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.

ISSUES NOT DISCUSSED FURTHER

All issues pertaining to GHG emissions are discussed below.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.7-1: Generate Significant GHG Emissions

The project would result in GHG emissions during construction of all project phases from the use of offroad construction equipment, harbor craft, and on road vehicular emissions from construction workers and vendors. CSU would adhere to recommended construction BMPs that reduce GHG emissions to the extent feasible. Operations of the project would not result in new natural gas use, in fact, the project is expected to replace an existing steam boiler plant with a renewable hydrokinetic barge. Operations would not result in increased mobile-source GHG emissions because the project would not expand residential or employee capacity. The project would be consistent with BAAQMD's adopted thresholds, and thus would not generate GHG emissions that would cause a significant impact or conflict with an adopted GHG reduction plan. This impact would be **less than significant.**

To evaluate project generated GHG emissions, proposed construction activities are discussed below (by phase), then a qualitative discussion regarding operational GHGs and project consistency with BAAQMD and CSU policy is provided.

<u>Construction</u>

Phase One

Phase One would involve construction activities associated with demolition and reconstruction of the main pier, reinforcement (and possible replacement of the existing trestle, Boat Basin and Floating Docks, Marine Yard, existing Vessels, and Utility Systems (See Table 2-1 for more details). These upgrades would be limited primarily to demolition, material movement, and minor infrastructure upgrades, resulting in exhaust emissions from the use of heavy-duty construction equipment (harbor craft and offroad). Emissions from these activities are summarized below in Table 3.7-2.

Phase Two

Phase Two of the project would focus on project objectives to rehabilitate the boathouse, expand and optimize the boat basin, redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. Phase Two components would include expansion of the existing boat basin to create Boat Basin 2, renovation of the boathouse, and other shoreline improvements. These upgrades would be limited primarily to demolition, material movement, and minor infrastructure upgrades, resulting in exhaust emissions from the use of heavy-duty construction equipment (harbor craft and offroad). Emissions from these activities are summarized below in Table 3.7-2.

Phase Three

Phase Three of the project would redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. New classrooms, outdoor learning spaces, and a new Marine Programs Multi-Use Building would be constructed. A marine hydrokinetic barge and linking trestle, which would provide up to 10 megawatts of renewable energy to the campus are also considered during this phase. This phase would also focus on improvement of the campus-coastline linkage and open spaces and a heightened level of resilience to climate- and storm-related stresses. These upgrades would be limited primarily to demolition, material movement, and minor infrastructure upgrades, resulting in exhaust emissions from the use of heavy-duty construction equipment (harbor craft and offroad). Emissions from these activities are summarized below in Table 3.7-2.

Table 3.7-2 Summary of Construction-Related GHG Emissions by Project Phase

Project Phase	$MTCO_2e$[1]
Phase One	1,230
Phase Two	905
Phase Three	1,652
Total	3,786

Notes: $MTCO_2e$= metric tons of carbon dioxide equivalent.

[1] Emissions include harbor craft exhaust, on-land offroad (equipment) exhaust, and on-land onroad mobile sources. See Appendix G for model inputs and outputs.

To reduce GHG emissions associated with construction activities, Cal Maritime and its construction contractors would employ the following construction BMPs during construction activities:

- use US EPA SmartWay certified trucks for deliveries and equipment transport;
- reduce electricity use in construction offices by using LED bulbs, powering off computers every day, and using high-efficiency heating and cooling units;
- recycle or salvage nonhazardous construction and demolition debris with the goal of recycling at least 15 percent more by weight than the diversion requirements in the most current version of Title 24, at the time of construction;
- use locally sourced or recycled materials for construction materials (goal of at least 20 percent based on costs for building materials and based on volume for roadway, parking lot, sidewalk and curb materials). Wood products used should be certified through a sustainable forestry program; and
- use low-carbon concrete, minimize the amount of concrete used and produce concrete on-site if it is more efficient and lower emitting than transporting ready-mix.

<u>Operation</u>

BAAQMD has adopted qualitative thresholds that apply to the operational phase of new land use development projects, as described in detail above under “Thresholds of Significance.” Projects that demonstrate consistency with these adopted thresholds would also be determined to be consistent with the GHG reduction objectives outlined in the 2022 Scoping Plan. That is, projects that are consistent with BAAQMD’s GHG thresholds, would be said to be contributing their fair share of GHG reduction from the land use sector of California’s economy, and thus would not result in a substantial increase in GHG emissions and would be consistent with the states adopted GHG reduction plan (i.e., 2022 Scoping Plan). The following discussion addresses how the project is consistent with BAAQMD’s 2022 CEQA Thresholds of Significance, the 2022 Scoping Plan, and CSU’s Sustainability Policy.

Building Energy

BAAQMD recommends that new projects undergoing CEQA review do not include on-site natural gas infrastructure. This threshold was derived based on the recommendations in the 2022 Scoping Plan to meet the State’s objectives of decarbonizing buildings pertaining to new land use development, understanding that the existing land use development in the State already uses natural gas. Thus, as population and energy demand increase across the State, curtailing the increase in nonrenewable energy sources is paramount to achieving the overall GHG reduction objectives for the State.

The existing land uses on the Cal Maritime campus currently use natural gas for building heating/cooling and water heating; however, these uses are existing and can be characterized as the part of the CEQA baseline, thus, would not constitute a new impact for evaluation. Moreover, the project does not include new residential uses or an increase in employment, and therefore, natural gas consumption associated with existing buildings would not increase. In addition, a marine hydrokinetic barge and linking trestle would be installed that would generate renewable energy (up to 10 MW), for onsite project use, which would potentially replace the existing steam plant, which may reduce emissions over time as renewable energy replaces non-renewable energy.

Considering that the project would not increase campus population and would increase the use of onsite renewable energy and remove the existing natural gas-powered steam plant, the project would be consistent with the intent of the BAAQMD CEQA thresholds and likewise the 2022 Scoping Plan's recommendation to decarbonize the building sector by increasing renewable energy sources and reducing natural gas use. The project also would be consistent with BAAQMD's guidance pertaining to building decarbonization.

VMT Reductions

BAAQMD also recommends that projects demonstrate that additional VMT introduced from project implementation meets OPR's reduction targets under SB 743. As discussed in Section 3.13, "Transportation/Traffic," the Waterfront Master Plan would not increase enrollment or employment, thus, would not increase daily vehicular trips or VMT. The project would be consistent with BAAQMD's VMT threshold.

Electric Vehicle Infrastructure and Mobile Source Electrification

As noted above, BAAQMD recommends that new development meet the Tier 2 voluntary requirements of the most recent CalGreen Code. The CalGreen Code applies to new residential and new non-residential development projects and prescribes the number and type of EV charging space requirements based on the number of proposed parking spaces. The project does not include new residential structures, population increases, or new parking facilities so this portion of the BAAQMD CEQA guidance does not apply to the project. There would be no requirements to include new EV parking for an existing use, such as the campus. Because the project does not include population or employment increases, it would not result in an increase in operational mobile source GHG emissions; thus, would not impede achievement of BAAQMD's or the State's objectives to reduce GHG emissions from the transportation sector.

CSU Sustainability Policy Consistency

As shown above in the "Regulatory Setting," CSU has adopted numerous sustainability policies that are also aligned with priority areas identified by CARB in the 2022 Scoping Plan, including the CSU Climate Action Plan, Energy Resilience and Procurement and Energy Conservation, and Transportation policies. These policies, which the project would comply with, include goals to reduce overall GHG emissions to 40 percent below 1990 levels by 2030, 80 percent by 2040, and achieve carbon neutrality by 2045. Policies related to energy resilience include goals to minimize the use of natural gas, procure clean electricity, and promote onsite clean energy - all actions that promote achievement of the state's priority to decarbonize buildings. Lastly, the project would not result in an increase in transportation-related GHG emissions, consistent with the state's priority to reduce emissions from the transportation sector.

Summary

The proposed improvements to the existing Cal Maritime Campus would result in GHG emissions from both construction and operation. Cal Maritime and its construction contractors would adhere to construction BMPs that would reduce GHG emissions from construction activities. Regarding operation of the project, there would be no student population or campus employment would increase. Likewise, natural gas consumption and mobile-source emissions would also not increase. The project would not result in new parking facilities or new land use development, requiring new EV charging spaces. The project would also include a new renewable energy source (i.e., marine hydrokinetic barge) that is expected to replace an existing nonrenewable steam plant. Because the project would be consistent with BAAQMD's Thresholds of Significance, it would also be consistent with the 2022 Scoping Plan and CSU's overarching sustainability policies. The project would not generate GHG emissions what would have a significant impact on the environment or conflict with an adopted applicable GHG policy or GHG reduction plan. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.8 HAZARDS AND HAZARDOUS MATERIALS

This section describes applicable laws and regulations related to hazards and hazardous materials and provides an analysis of the proposed project's potential to create a significant hazard to the public or the environment through routine use of hazardous materials or reasonably foreseeable upset and accident conditions involving the release of hazardous materials. This section also evaluates the potential for the project to result in conflicts with an adopted emergency response plan or to result in significant risks associated with wildfire. Air pollutants and associated health risks are discussed in Section 3.2, "Air Quality"; water quality and exposure to potential water pollutants are discussed in Section 3.9, "Hydrology and Water Quality"; and additional impacts related to wildfire are discussed in Section 3.15, "Wildfire." Topics related to hazards that have been dismissed from detailed analysis are also identified in this section.

No comments relating to hazards or hazardous materials were raised during the scoping period. See Appendix A for all notice of preparation comments received.

3.8.1 Definition of Hazardous Materials

A hazardous material is defined in California Health and Safety Code Section 25501 as any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include hazardous substances, hazardous waste, and any material that a handler or the administering agency could reasonably believe would be injurious to the health and safety of persons or harmful to the environment if released. Therefore, this section uses the term "hazardous materials" to refer to both hazardous substances and hazardous wastes.

Hazardous materials can pose a substantial present or future hazard risk to human health or the environment if improperly handled, stored, disposed of, remediated, or otherwise managed. Such materials may cause short-term or long-lasting health effects, ranging from temporary effects to permanent disability or death. For example, toxic substances can cause eye or skin irritation, disorientation, headache, nausea, allergic reactions, acute poisoning, chronic illness, or other adverse health effects if human exposure exceeds certain levels (the level depends on the substance involved). Carcinogens (substances known to cause cancer) are a special class of toxic substances. Examples of toxic substances include most heavy metals, pesticides, and benzene (a carcinogenic component of gasoline). Ignitable substances (e.g., gasoline, natural gas, and other petrochemicals) are hazardous because of their flammable properties. Corrosive substances (e.g., strong acids and bases, are chemically active and can damage other materials or cause severe burns upon contact. Reactive substances (e.g., explosives, pressurized canisters, and pure sodium metal, which react violently with water) may cause explosions or generate gases or fumes. Other types of hazardous materials include radioactive and biohazardous materials. The four basic exposure pathways through which an individual can be exposed to a chemical agent are inhalation, ingestion, bodily contact, and injection. The health effects of hazardous materials exposure are influenced by the dose to which a person is exposed, the frequency of exposure, the exposure pathway, and individual susceptibility. Exposure can be caused by accidental release during transportation, storage, or handling of hazardous materials or from disturbance of contaminated soil.

3.8.2 Regulatory Setting

FEDERAL

Management of Hazardous Materials

Various federal laws address the proper handling, use, storage, and disposal of hazardous materials, as well as require measures to prevent or mitigate injury to health or the environment if such materials are accidentally released. The US Environmental Protection Agency (EPA) is the primary agency responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. Applicable federal regulations pertaining to hazardous materials are contained in Code of Federal Regulations (CFR) Titles 29, 40, and 49. Hazardous materials, as defined in the CFR, are listed in 49 CFR 172.101. Management of hazardous materials is governed by the following laws:

- The Toxic Substances Control Act of 1976 (15 US Code [USC] Section 2601 et seq.) regulates the manufacturing, inventory, and disposition of industrial chemicals, including hazardous materials. Section 403 of the Toxic Substances Control Act establishes standards for lead-based paint hazards in paint, dust, and soil.
- The Resource Conservation and Recovery Act (RCRA) of 1976 (42 USC 6901 et seq.) is the law that created the framework for the proper management of hazardous and nonhazardous solid waste. The law describes the waste management program mandated by Congress that gave EPA authority to develop the RCRA program. EPA regulates certain types of waste under this program from the time the waste is generated until its final disposal ("cradle to grave").
- The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also called the Superfund Act or CERCLA) (42 USC 9601 et seq.) gives EPA authority to seek out parties responsible for releases of hazardous substances and ensure their cooperation in site remediation.
- The Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-499; USC Title 42, Chapter 116), also known as SARA Title III or the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), imposes hazardous materials planning requirements to help protect local communities in the event of accidental release.
- The Spill Prevention, Control, and Countermeasure (SPCC) rule includes requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The U.S. Coast Guard is the lead response agency for spills in coastal waters and deepwater ports. The rule requires specific facilities to prepare, amend, and implement SPCC plans. The SPCC rule is part of the oil pollution prevention regulation, which also includes the Facility Response Plan rule.

Universal Waste Regulations

EPA's universal waste regulations streamline the hazardous waste management standards for certain categories of hazardous waste that are commonly generated by a wide variety of establishments. The streamlined regulations promote the collection and recycling of universal waste, ease the regulatory burden on retail stores and other generators that wish to collect these wastes and on transporters of these wastes, and encourage the development of municipal and commercial programs to reduce the quantity of these wastes going to municipal solid waste landfills or combustors. The federal universal waste regulations are found in 40 CFR 273 and apply to five types of universal waste: batteries, pesticides, mercury-containing equipment, lamp ballasts, and aerosol cans.

Transport of Hazardous Materials

The US Department of Transportation (DOT) regulates transport of hazardous materials between states and is responsible for protecting the public from dangers associated with such transport. The federal hazardous materials transportation law, 49 USC 5101 et seq. (formerly the Hazardous Materials Transportation Act 49 USC 1801 et seq.), is the basic statute regulating transport of hazardous materials in the United States. Hazardous materials transport regulations are enforced by the Federal Highway Administration, the US Coast Guard, the Federal Railroad Administration, and the Federal Aviation Administration.

Worker Safety

The federal Occupational Safety and Health Administration (OSHA) is the agency responsible for ensuring worker safety in the handling and use of chemicals identified in the Occupational Safety and Health Act of 1970 (Public Law 91-596, 9 USC 651 et seq.). OSHA has adopted numerous regulations pertaining to worker safety, contained in CFR Title 29. These regulations set standards for safe workplaces and work practices, including standards relating to the handling of hazardous materials and those required for excavation and trenching.

STATE

Management of Hazardous Materials

In California, both federal and state community right-to-know laws are coordinated through the Governor's Office of Emergency Services. The federal law, SARA Title III or EPCRA, described above, encourages and supports emergency planning efforts at the state and local levels to provide local governments and the public with information about potential chemical hazards in their communities. Because of the community right-to-know laws, information is collected from facilities that handle (e.g., produce, use, store) hazardous materials above certain quantities. The provisions of EPCRA apply to four major categories:

- emergency planning,
- emergency release notification,
- reporting of hazardous chemical storage, and
- inventory of toxic chemical releases.

The corresponding state law is Chapter 6.95 of the California Health and Safety Code (Hazardous Materials Release Response Plans and Inventory). Under this law, qualifying businesses are required to prepare a hazardous materials business plan that identifies hazardous materials and hazardous waste management procedures and emergency response procedures, including emergency spill cleanup supplies and equipment. When the applicant begins to use hazardous materials at levels that reach applicable state and/or federal thresholds, the plan is submitted to the administering agency.

The California Department of Toxic Substances Control (DTSC), a division of the California Environmental Protection Agency (CalEPA), has primary regulatory responsibility over hazardous materials in California, working in conjunction with EPA to enforce and implement hazardous materials laws and regulations. As required by Section 65962.5 of the California Government Code, DTSC maintains a hazardous waste and substances site list for the state, known as the Cortese List. Individual regional water quality control boards (RWQCBs) are the lead agencies responsible for identifying, monitoring, and cleaning up leaking underground storage tanks. The San Francisco RWQCB has jurisdiction over the project site.

Certified Unified Program Agency

The Certified Unified Program Agency (CUPA) is a local agency certified by CalEPA to implement and enforce six state hazardous waste and hazardous materials regulatory management programs. Programs administered under the CUPA program include the California Accidental Release Program, hazardous materials business plans, Hazardous Waste and Hazardous Waste Treatment Programs, underground storage tanks, and Medical Waste Programs. Solano County Environmental Health Division (SCEHD) is the CUPA for the campus and enforces state and local regulations pertaining to hazardous waste generators and risk management prevention programs. The SCEHD is the lead agency overseeing the investigation of hazardous materials releases that have occurred on the campus. In addition, the SCEHD acts as lead agency to ensure proper remediation of leaking petroleum UST and other contaminated sites.

Transport of Hazardous Materials and Hazardous Materials Emergency Response Plan

The State of California has adopted DOT regulations for the movement of hazardous materials originating within the state and passing through the state; state regulations are contained in 26 California Code of Regulations (CCR). State agencies with primary responsibility for enforcing state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation (Caltrans). Together, these agencies determine container types used and license hazardous waste haulers to transport hazardous waste on public roads.

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local governments and private agencies. Response to hazardous materials incidents is one part of the plan. The plan is managed by the Governor's Office of Emergency Services, which coordinates the responses of other agencies in the project site.

Management of Construction Activities

Through the Porter-Cologne Water Quality Control Act and the National Pollutant Discharge Elimination System (NPDES) program, RWQCBs have the authority to require proper management of hazardous materials during project construction. For a detailed description of the Porter-Cologne Water Quality Control Act, the NPDES program, and the role of the San Francisco RWQCB, see Section 3.9, "Hydrology and Water Quality."

The State Water Resources Control Board (SWRCB) adopted the statewide NPDES General Permit in August 1999. The state requires that projects disturbing more than 1 acre of land during construction file a notice of intent with the RWQCB to be covered under this permit. Construction activities subject to the general permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. A stormwater pollution prevention plan (SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must identify best management practices (BMPs) designed to prevent construction pollutants from contacting stormwater and keep products of erosion from moving off-site into receiving waters throughout the construction and life of the project. The BMPs also must address source control and, if necessary, pollutant control.

Worker Safety

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations in the state. Cal/OSHA standards, which typically are more stringent than federal OSHA regulations, are presented in Title 8 of the CCR. Cal/OSHA conducts on-site evaluations and issues notices of violation to enforce necessary improvements to health and safety practices.

Title 8 of the CCR also includes regulations that provide for worker safety when blasting and explosives are used during construction activities. These regulations identify licensing, safety, storage, and transportation requirements related to the use of explosives in construction.

Fire Prevention

The Office of the State Fire Marshal supports the mission of the California Department of Forestry and Fire Protection by focusing on fire prevention. The Office of the State Fire Marshal provides support through a wide variety of fire safety responsibilities including: regulating buildings in which people live, congregate, or are confined, including the review of building plans for fire safety; by controlling substances and products which may, in and of themselves, or by their misuse, cause injuries, death and destruction by fire; by providing statewide direction for fire prevention within wildland areas; by regulating hazardous liquid pipelines; by developing and reviewing regulations and building standards; and by providing training and education in fire protection methods and responsibilities.

LOCAL

Cal Maritime is part of the CSU, which is a statutorily- and legislatively-created and constitutionally authorized entity of the State of California, and therefore the project site is owned by the CSU. As explained in Chapter 3 of this ~~Draft~~ EIR, in the "California State University Autonomy" section, as a state agency, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, this EIR does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes.

Solano County Office of Emergency Services

The Solano County Office of Emergency Services is responsible for creating and maintaining the Solano County Emergency Operations Plan. This plan establishes an emergency management organization and assigns functions and tasks consistent with California's Standardized Emergency Management System and the National Incident Management System. It provides for the integration and coordination of planning efforts in the Solano County Operational Area, which consists of the cities, towns, special districts, and unincorporated areas in the county. The intent of the Emergency Operations Plan is to provide direction on how to respond to an emergency from the outset through an extended response and into the recovery process.

Solano County Multi-Jurisdictional Hazard Mitigation Plan

The federal Disaster Mitigation Act of 2000 requires all local governments to create a disaster plan and update it every 5 years to qualify for hazard mitigation funding. The Multi-Jurisdictional Hazard Mitigation Plan is a countywide plan that identifies risks and ways to minimize damage from natural and human-caused disasters. The plan is a comprehensive resource document that serves many purposes, such as enhancing public awareness, creating a decision-making tool for management, promoting compliance with state and federal program requirements, enhancing local policies for hazard mitigation capability, and providing interjurisdictional coordination.

California State University Programs

Emergency Management Plan

The purpose of the Emergency Management Plan is to provide a response system for faculty, staff, and cadets in the case of major disasters affecting the campus, the TSGB, and surrounding areas. Various federal and state laws require the campus to have an emergency plan. This plan is intended to protect lives and property and to maintain an environment suitable for the orderly conduct of education. Cal Maritime tests emergency response and evacuations procedures at least once a year. All personnel designated to carry out specific responsibilities are expected to know and understand the policies and procedures outlined in the Emergency Management Plan. The response to any major disaster is conducted within the framework of the plan.

Hazardous Materials Business Plan

Facilities that use, store, or handle hazardous materials in quantities greater than 500 pounds, 55 gallons, or 200 cubic feet or extremely hazardous materials in quantities greater than threshold planning quantities are required to prepare a Hazardous Materials Business Plan for submission to the local CUPA. The Hazardous Materials Business Plan is required to contain facility maps, up-to-date inventories of hazardous materials and wastes, emergency response procedures, equipment, and employee training procedures. The California State University Maritime Academy (Cal Maritime) prepares and regularly updates the Hazardous Materials Business Plan. According to the current Hazardous Materials Business Plan, Cal Maritime stores hazardous materials and/or generates hazardous waste at various locations on the Cal Maritime campus.

Contingency Plan

All facilities that generate hazardous waste must prepare a Contingency Plan for submission to the local CUPA. The Contingency Plan identifies the duties of the facility Emergency Coordinator, and the identification and location of emergency equipment. It also includes reporting procedures for the facility Emergency Coordinator to follow after an incident. Cal Maritime's Contingency Plan is included as a part of the Hazardous Materials Business Plan.

Hazardous Waste Generator Requirements

Facilities that generate more than 100 kilograms per month of hazardous waste, or more than one kilogram per month of acutely hazardous waste, must be registered with the USEPA. DTSC administers hazardous waste generator registration in California.

Injury and Illness Prevention Plan

The California General Industry Safety Order requires that all employers in California prepare and implement an Injury and Illness Prevention Plan which should contain a code of safe practice for each job category, methods for informing workers of hazards, and procedures for correcting identified hazards.

Emergency Action Plan

The California General Industry Safety Order requires that all employers in California prepare and implement an Emergency Action Plan. The Emergency Action Plan designates employee responsibilities, evacuation procedures and routes, alarm systems, and training procedures. The Emergency Management Plan, discussed below, fulfills this requirement.

Fire Prevention Plan

The California General Industry Safety Order requires that all employers in California prepare and implement a Fire Prevention Plan. The Fire Prevention Plan specifies areas of potential hazard, persons responsible for maintenance of fire prevention equipment or systems, fire prevention housekeeping procedures, and fire hazard training procedures.

Hazard Communication Program

Facilities involved in the use, storage, and handling of hazardous materials are required by OSHA to prepare a Hazard Communication program. The purpose of the Hazard Communication program is to provide methods for the safe handling of hazardous materials, ensure proper labeling of hazardous materials containers, and ensure employee access to Safety Data Sheets.

Aboveground and Underground Storage Tanks

Facilities with aboveground or underground storage tanks must be permitted. Other plans, such as an SPCC Program, may be required depending on the size, location, and contents of the tank(s). All former aboveground storage tanks (ASTs) have been removed from the campus, and there are no longer any known underground storage tanks on the campus. Cal Maritime developed a SPCC while ASTs for bulk storage of petroleum products were present at the campus to prevent discharges from occurring and to prepare Cal Maritime to respond in a safe, effective, and timely manner to mitigate the impacts of discharge. All bulk storage tanks at Cal Maritime were registered with the state and local authorities and had permits required by the local fire code.

3.8.3 Environmental Setting

HISTORICAL ACTIVITIES

The campus has been in use for teaching and marine activities since 1943. The original main pier was constructed of treated timber in 1942 and was supported by treated wood pier pilings. Treated wood is wood that has been treated with a chemical preservative for protection against pests and environmental conditions. Examples include fence posts, sill plates, landscape timbers, pilings, guardrails, and decking. The preservative can include one or more of the following constituents: arsenic, chromium, copper, pentachlorophenol, or creosote. If treated wood waste is not properly disposed of, the chemicals it contains can contaminate surface water and groundwater. This contamination poses a risk to human health and the environment.

CURRENT SITE CONDITIONS

The TSGB is moored in the boat basin, which forms a natural portion of San Pablo Bay/Carquinez Strait. It is enclosed by the shore on the northeast and by the breakwater panels attached to the pier and catwalk on the south and west that protect it from the predominant wind waves from the west. The water depth in the basin increases rapidly from the south side into the Carquinez Strait as a result of scour from tidal currents. Sediment accumulates within the east side of the basin and requires maintenance dredging periodically to continue to accommodate operation of the waterfront facilities. During dredging in 2009, sediment from most of the basin area was suitable for aquatic disposal in the Carquinez Strait. However, the sediment within and near the boathouse had levels of contaminants that were not suitable for aquatic disposal and required disposal at an approved hazardous waste disposal facility. During previous maintenance dredging episodes, this area of contaminated sediment was avoided by dredging the affected areas to a finished elevation that avoided disturbance of contaminated sediments.

The original main pier was replaced in 1996 with a reinforced concrete pier supported on steel piles driven into the bay floor. The modern pier is thus constructed of coated steel pipe piles, driven into the subsurface, that support the concrete pier deck. Other components of the waterfront facility, including the trestle, walkways, breakwater, and wave screens, are constructed of coated and uncoated steel and concrete. The coated steel piles supporting the pier and other structures are modestly corroded (that is, the metals on the surface of the piles are oxidized), and the concrete pier deck exhibits minor deposits of calcium on its underside. These features of the existing structure are not classified as hazardous substances. Other steel components of the waterfront structures are also corroded to varying degrees.

Hazardous Materials Records Results

Information on hazardous materials and contaminated properties is maintained at the federal, state, and county level. The following databases were consulted to identify hazardous waste generators and handling sites within one-quarter mile of the project site:

- NEPAssist is a federal tool maintained by EPA that inventories any facility regulated by a federal hazardous waste program. It identifies sites regulated by RCRA; air pollution data; water dischargers covered by the NPDES; TRI, which contains information on toxic chemical releases and waste management reported by industries under SARA Title II; and Superfund sites covered by CERCLA.
- CalEPA maintains the State of California Hazardous Waste and Substances List (also known as the "Cortese List"). Government Code Section 65962.5 requires CalEPA to annually update the Cortese List. DTSC is responsible for providing a portion of the Cortese List information; the remaining information is provided by other state and local agencies.
- The EnviroStor database, managed by DTSC, lists brownfield sites, sites undergoing hazardous materials mitigation, sites with known contamination that may require further investigation, federal superfund sites, state response sites, voluntary cleanup sites, and school cleanup sites.
- SWRCB and the state's RWQCBs maintain GeoTracker, which is a data management system for sites that affect, or have the potential to affect, water quality in California, with emphasis on groundwater. GeoTracker contains records for sites that require cleanup, as well as permitted facilities, such as irrigated lands, operating permitted underground storage tanks, and land disposal sites. GeoTracker portals retrieve and compile records from multiple SWRCB programs and other agencies.

The NEPAssist database contains records identifying the project site as a hazardous waste generator that is regulated pursuant to RCRA (EPA 2023). The project site is also recorded in the GeoTracker database as a leaking underground storage tank site, but cleanup work on that contamination was completed, and the case has been closed since 1991 (SWRCB 2023).

On-Site Storage and Use of Hazardous Materials

Hazards in the region are both human-made and naturally occurring. Human-made hazards are generally associated with the potential risk of accidents from the use and transport of hazardous materials and waste to support the facility. Boat repair and maintenance activities at marinas create wastes that are considered hazardous and require proper handling. Typical wastes that are classified as hazardous, based on quantity, include oil, grease, diesel fuel, and oily bilge water; contaminated soil; gasoline; solvents, such as acetone, kerosene, and mineral spirits; strong acids and alkalines; and paint chips or leftover paint.

Universal Waste

The Cal Maritime campus is registered with EPA's RCRA program as a universal waste producer. The facility uses, stores, and disposes of batteries, pesticides, mercury-containing equipment, lamp ballasts, and aerosol cans, which are combined into a single waste permitting stream for the purpose of hazardous waste streamlining.

Lead

The site has been in use since 1943, which is before any regulations limiting or banning the use of lead in materials. Lead is a potentially hazardous material that can result in cardiovascular effects, increased blood pressure, and incidence of hypertension; decreased kidney function; reproductive problems; and nervous system damage. Lead can be found in old water pipes, solder, paint, and soils around structures painted with lead-based paints. Lead-based paints are likely present on buildings constructed before the late 1970s, when the quantity of lead in paints became regulated. Potentially hazardous exposure to lead can occur when lead-based paint is improperly removed from surfaces by dry scraping, sanding, or open-flame burning. Lead-based paints and coatings used on the exterior of buildings may have also flaked or oxidized and deposited into the surrounding soils. Lead may also be present in plumbing fixtures and piping for potable and nonpotable water sources.

Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) belong to a broad family of human-made organic chemicals known as chlorinated hydrocarbons. PCBs were domestically manufactured from 1929 until their manufacture was banned in 1979. They have a range of toxicity and vary in consistency from thin, light-colored liquids to yellow or black waxy solids. PCBs are highly persistent in the environment, and exposure to them can cause serious liver, dermal, and reproductive system damage. Because of their nonflammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications. Products that may contain PCBs include transformers, capacitors, and other electrical equipment; oil used in motors and hydraulic systems; and thermal insulation material.

Undocumented Fill Material

Fill material has been encountered in parts of campus during past geotechnical investigations. There is no existing documentation regarding the source, quality, or quantity of this material. It is common for fill material historically placed along the margins of San Francisco Bay to include construction debris; therefore, it is possible that this fill could be contaminated with hazardous substances.

3.8.4 Environmental Impacts and Mitigation Measures

METHODOLOGY

The following reports and data sources document potentially hazardous conditions at the project site and were reviewed for this analysis:

- materials provided by Cal Maritime;
- available literature, including documents published by federal, state, county, and City agencies; and
- applicable elements from the Waterfront Master Plan.

Project construction and operation were evaluated against the hazardous materials information gathered from these sources to determine whether any risks to public health and safety or other conflicts would occur.

THRESHOLDS OF SIGNIFICANCE

An impact related to hazards and hazardous materials would be significant if implementation of the project would:

- create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- 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 create a significant hazard to the public or the environment;
- 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, result in a safety hazard or excessive noise for people residing or working in the project area;

- impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

ISSUES NOT DISCUSSED FURTHER

The project site is not located within one-quarter mile of a school; the nearest school is Patterson Elementary School, which is approximately 0.65 mile from the northwestern boundary of the project site. The project site is also not located within the boundary of an airport land use plan, nor does it lie within 2 miles of a public airport or airstrip with public access. The nearest public use airport is the Napa County Airport, in Napa, located approximately 10 miles due north of the project site. These thresholds are therefore dismissed from further analysis.

The project site is not listed on the Cortese List pursuant to Government Code Section 65962.5. This threshold is therefore dismissed from further analysis. The site nearest to the project site that is included on the Cortese List is US Coast Guard Carquinez Housing located at 50, 52, 54, and 56 Seaport Drive, approximately 0.2 mile from the northeast corner of the project site.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.8-1: Expose Workers or the Public to Hazardous Substances from Routine or Upset Conditions

Project implementation, including both construction and long-term operation of the project, would involve the use, storage, and transport of hazardous materials (such as gasoline, diesel fuel, lubricating oil, grease, and solvents). Such materials could risk worker or public health through routine or accidental exposure. However, hazardous materials are comprehensively governed by existing regulations that require proper storage and handling, environmental management plans, spill contingency plans, employee and public noticing, and other emergency preventive and response measures to minimize the risk of accidental releases and related environmental impacts. As a matter of routine practice, the Cal Maritime campus implements hazardous waste management practices in accordance with applicable laws and regulations. This impact therefore would be **less than significant**.

<u>Phase One</u>

Phase One of the project would focus on Cal Maritime's readiness for the arrival of the NSMV. During Phase One, preparations for the arrival of the NSMV would be made, followed by the arrival, docking, and operation of the ship. To prepare for the arrival of the NSMV, the current main pier would be demolished, and a new longer, wider pier would be constructed to accommodate the size of the new NSMV, which is 25 feet longer than the TSGB. The existing trestle would need to be extended, and would at a minimum require structural upgrades, and potentially replacement, if the existing trestle is found to be defective. While demolition and the construction of in-water and landside project improvements in anticipation of the NSMV's arrival are underway, the TSGB along with one tugboat and one small passenger boat (or T-boat) would be temporarily relocated to the Suisun Bay Reserve Fleet (SBRF). As noted above, no landside facility or infrastructure improvements would be needed to accommodate the TSGB at the temporary berth.

Dredging activities would also be carried out in the boat basin to accommodate the facilities under Phase One. Impacts related to sediment disturbance, exposure, and potential contamination from waterside demolition and construction activities, including dredging, are addressed in the discussion of Impact 3.8-2, below. Phase One would also include other activities, such as the installation of new floating and training docks at the boat basin, upgrading of the Marine Yard, utility upgrades, and maintenance dredging of the existing boat basin and new dredging in the expanded boat basin.

Of the project phases, Phase One includes activities that are the most substantial and potentially disruptive with respect to the use of and potential exposure to hazardous materials. During this phase, the existing pier would be demolished, which would generate substantial waste. However, the existing pier, constructed in 1996, is chiefly steel and concrete, which are not classified as hazardous substances. Although the pier pilings and other ancillary pier structures, including the trestle, exhibit signs of corrosion, and calcium deposits have accumulated on the underside of the concrete deck, these substances are not acutely hazardous and would not present a unique hazard to workers demolishing or transporting this waste.

During pier construction and facility demolition activities, there would be a temporary increase in the use, storage, and disposal of hazardous materials commonly used at construction sites and in heavy equipment used for demolition (such as diesel fuel, lubricants, paints and solvents, and cement products containing strong basic or acidic chemicals), which would create the opportunity for accidents or upset conditions that could release these products, exposing people and the environment. During construction, all hazardous materials would be stored, handled, and disposed of according to the manufacturers' recommendations and in compliance with federal, state, and local regulations. Spills would be resolved in accordance with applicable regulations so that there would not be long-term exposure or potential for contaminant migration. Spills or releases of hazardous materials, including petroleum products, such as gasoline, diesel, and hydraulic fluid, regardless of quantity spilled, must be immediately reported if the spill has entered or threatens to enter a water of the state or has caused injury to a person or threatens injury to public health. Immediate notification must be made directly to the local emergency response agency or 911 and the Governor's Office of Emergency Services Warning Center. For nonpetroleum products, additional reporting may be required if the release exceeds federal reportable quantity thresholds over a release period of 24 hours, as detailed in California Health and Safety Code Section 25359.4 and Title 40, Section 302.4 of the CFR.

Pursuant to OSHA regulations (29 CFR Section 1910.120), standard accident training for cleaning small spills would be provided to all individuals before they begin to work with hazardous substances, and the appropriate types and amounts of spill cleanup materials and personal protective equipment would be immediately available. Additional requirements regarding hazardous materials labeling, containment, and covering set forth by the SWRCB Construction General Permit (2009-009-DWQ) would also be implemented during construction. Projects would be required to adhere to permit conditions and spill prevention plans prepared under SWRCB Construction General Permit to avoid spills and releases of hazardous materials and wastes and to address potential accidental release and cleanup. Pursuant to 40 CFR 112, an SPCC plan that identifies BMPs for spill and release prevention and provides procedures and responsibilities for the rapid, effective, and safe cleaning up and disposal of any spills or releases would be established. BMPs include, for example, designating and labeling special storage areas, preparing containment berms, covering staged materials to protect them from rain, and using concrete washout areas. As required pursuant to state and federal law, plans for notification and evacuation of site workers and nearby residents in the event of a hazardous materials release would be in place throughout construction activities.

Storage, transportation, and use of hazardous materials carried out in completion of Phase One activities are regulated by several federal, state, and local agencies that address hazards and potential chemical exposure to individuals employed in implementing the project. Regulations include those of OSHA, DOT, Cal/OSHA, DTSC, SWRCB, California Highway Patrol, Caltrans, and the Solano County Office of Emergency Services. All hazardous waste would be stored and handled in compliance with applicable federal and state laws and regulations. These regulations are extensive and govern every aspect of handling and storing hazardous materials at sites. Agencies routinely conduct compliance checks to ensure the proper handling, storage, and disposal of these materials.

Phase Two

Phase Two of the project would focus on activities that are not critical to support the arrival of the NSMV but that are important for Cal Maritime's educational mission and expansion of cadet instruction, including expansion of the boat basin to create Boat Basin 2 and a new pier (with the overwater component developed in Phase Three) through development of a new breakwater and installation of additional slips and berths for Cal Maritime's boat fleet and other vessels currently located off-site and/or planned for future acquisition. Phase Two would also include rehabilitating the boathouse, demolishing the Marine Programs and Naval Science modular buildings, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning through shoreline enhancements. The breakwater of Boat Basin 2 would be approximately 18,000 square feet, extending approximately 450 feet offshore. A total of 10,800 square feet of additional floating slips/berthing area (approximately 26 slips/berthing positions) would be provided. Following construction, Boat Basin 2 would encompass approximately 200,000 square feet, or 4.6 acres. Shoreline enhancements between the boathouse and new pier, including improvements along the existing pedestrian path, would provide recreational opportunities as well as design to ensure that these areas are able to serve the function as the campus's first line of defense against sea level rise.

The discussion above regarding impacts related to exposure to hazardous substances through routine use or through upset conditions during construction and operation of Phase One adequately describes the types of impacts that would be experienced during Phase Two. As with Phase One, Phase Two would similarly result in a temporary increase in the use, storage, and disposal of hazardous materials commonly used at construction sites and in heavy equipment used for demolition (such as diesel fuel, lubricants, paints and solvents, and cement products containing strong basic or acidic chemicals), which would create the opportunity for accidents or upset conditions that could release these products, exposing people and the environment. Additionally, as with Phase One, activities associated with implementation of Phase Two would require adherence to agency permits, as well as federal, state, and local laws, regulations, and applicable guidance relating to hazardous materials use, handling, storage, and transport.

Phase Three

Phase Three of the proposed project would focus on objectives to redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. This phase would also include improvements to the level of resilience to climate and storm-related stresses, as well as campus-coastline experiences and open spaces. A marine hydrokinetic barge and linking trestle are also included in Phase Three. The Marine Programs Multi-Use Building would replace the existing obsolete trailers and Marine Programs and Naval Science modulars that are currently adjacent to the boat basin. The building area would be approximately 20,300 square feet, and the building would be two stories in height. Classrooms and outdoor learning spaces would be added in support of the Marine Programs Multi-Use Building.

The discussion above regarding impacts related to exposure to hazardous substances through routine use or through upset conditions during Phase One adequately describes the types of impacts that would be experienced during Phase Three. As with Phase One, Phase Three would similarly result in a temporary increase in the use, storage, and disposal of hazardous materials commonly used at construction sites and in heavy equipment used for demolition (such as diesel fuel, lubricants, paints and solvents, and cement products containing strong basic or acidic chemicals), which would create the opportunity for accidents or upset conditions that could release these products, exposing people and the environment. Additionally, as with Phase One, construction during Phase Three would be required to adhere to agency permits, as well as federal, state, and local laws, regulations, and applicable guidance relating to hazardous materials use, handling, storage, and transport.

Ongoing Operation of the Cal Maritime Campus (All Phases)

Operation of the new pier and waterfront facilities, as well as new and upgraded landside facilities, would involve the use, storage, transport, and disposal of common household hazardous materials, such as cleaning products, solvents, petroleum products, landscaping chemicals and fertilizers, and other substances associated with the maintenance of vehicles, ornamental landscaped areas and recreational fields and the operation of academic and instructional programs. The use, storage, transport, and disposal of hazardous materials would be limited to common hazardous materials and materials necessary for academic and instructional programs. Science laboratories also store potentially hazardous laboratory materials. To maintain campus safety, Cal Maritime would implement its Emergency Management Plan and Injury and Illness Prevention Program and comply with guidance provided by the Certified Unified Program Agency to avoid exposure to hazardous materials and to respond appropriately if an accident happens. Additionally, review of future building designs by CSU building officials and the Office of the State Fire Marshal would ensure compliance with the California Building Code regulations related to the use, storage, and handling of hazardous materials.

Hazardous wastes would be collected and stored in designated locations in accordance with the Cal Maritime Hazardous Waste Management Program until a licensed hazardous waste contractor prepares the waste for segregation, packaging, and transport to an authorized hazardous waste disposal site. To avoid the release of hazardous materials during transport due to accidents involving motor vehicles transporting dangerous goods, the project would comply with DOT Office of Hazardous Materials Safety regulations for the safe transportation of hazardous materials, which are described in CFR Title 49. The project also would comply with Caltrans and other state regulations issued by Caltrans and other agencies through the Hazardous Waste Control Act (California Health and Safety Code Section 25100 et seq.), which regulates the identification, generation, transportation, storage, and disposal of materials deemed hazardous by the State of California. The California Highway Patrol enforces hazardous material and hazardous waste labeling and packing regulations. These regulations prevent leakage and spills of material in transit and provide detailed information to cleanup crews in the event of an accident.

Although project operation would involve the routine transport, use, and disposal of hazardous wastes generated by routine campus operations, campus operation would not change substantially with implementation of the proposed project, as compared to existing conditions. Storage, transportation, and use of hazardous materials under the proposed project would continue to be managed in accordance with applicable hazardous waste control regulations. As described above, applicable regulations include those of OSHA, DOT, Cal/OSHA, DTSC, SWRCB, California Highway Patrol, Caltrans, and the Solano County Office of Emergency Services. All hazardous waste would be stored and handled in compliance with applicable federal and state laws and regulations. These regulations are extensive and govern every aspect of handling and storing hazardous materials at sites. Agencies routinely conduct compliance checks to ensure the proper handling, storage, and disposal of these materials. Therefore, impacts related to the exposure of workers or the public to hazardous substances from routine or upset conditions during project operation would be less than significant.

Summary

With compliance with federal and state regulations and implementation of Cal Maritime plans and programs related to the use, storage, transport, and disposal of hazardous materials, implementation of the project would not expose the public or environment to substantial quantities of hazardous materials; therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.8-2: Result in Release of Hazardous Substances during In-Water Activities

Dredging activities carried out to accommodate the NSMV, as well as in-water demolition and construction work, could result in disturbance to contaminated seabed sediments and suspension of these sediments in the water column. Compliance with local, state, and federal regulatory requirements would reduce impacts related to the release of and exposure to hazardous materials during in-water project construction. However, the potential would remain for contaminated sediments to be encountered and released, and this impact would be **significant**.

This section focuses on impact related to the release of hazardous substances during in-water work. Impacts to water quality resulting from the release of hazardous substances are discussed in more detail in Section 3.9, Hydrology and Water Quality, of this EIR.

Phase One

Phase One of the project would focus on Cal Maritime's readiness for the arrival of the NSMV. During Phase One, preparations for the arrival of the NSMV would be made, followed by the arrival, docking, and operation of the ship. To prepare for the arrival of the NSMV, the current main pier would be demolished, and a new longer, wider pier would be constructed to accommodate the size of the new NSMV, which is 25 feet longer than the TSGB. Dredging activities would also be carried out in the boat basin to accommodate the facilities under this phase. The existing trestle would need to be extended, and would at a minimum require structural upgrades, and potentially replacement, if the existing trestle is found to be defective. Other activities, such as the installation of new floating and training docks at the boat basin, expansion and upgrading of the Marine Yard, utility upgrades, and dredging of the existing and expanded boat basin would also be part of Phase One. While demolition and the construction of in-water and landside project improvements in anticipation of the NSMV's arrival are underway, the TSGB along with one tugboat and one small passenger boat (or T-boat) would be temporarily relocated to the SBRF. As noted above, no landside facility or infrastructure improvements would be needed to accommodate the TSGB at the temporary berth.

Sediment-disturbing activities, such as dredging, pile removal and installation, and breakwater demolition and replacement, could encounter contaminated sediment and result in the release of contaminants into the environment, exposing the public to hazardous substances.

Up to approximately 60,000 cubic yards of dredged material is expected to be removed and either disposed of at designated underwater disposal locations, if the sediment is determined to be suitable for unconfined aquatic ocean disposal or dry-disposal at a landfill site. As described in Section 3.9.1, "Hydrology and Water Quality," dredging must occur in compliance with the Long Term Management Strategy Management Plan for the management of dredge materials, which requires that all dredging activities be approved through the Dredged Material Management Office's (DMMO) permitting process. As part of this process, the following permits would be required for the construction of Phase One: BCDC Major Permit; U.S. Army Corps of Engineers Section 404 Permit; and Section 401 Water Quality Certification issued by the RWQCB, as managed via the DMMO and individual permitting agencies. Together, these permits would implement a series of requirements for dredging and in-water construction. These requirements include preliminary and ongoing testing of dredge materials, constraints on dredge machinery and dredging work periods based on biological resources, and completion of a detailed alternatives analysis that identifies and supports implementation of alternatives to aquatic disposal of dredge materials. These alternatives may include upland disposal, on-site use, or wetland enhancement. Additionally, the application of dredging BMPs would be required under the indicated permitting scheme. BMPs may include, but would not be limited to, the following:

- Debris booms to control unintentional waste and debris from entering the water column;
- Mechanical dredge operational controls, including increased cycle time, elimination of multiple bites, and elimination of bottom stockpiling;
- Avoidance and proper disposal of contaminated sediments;
- Measures, such as silt curtains to avoid dispersal of contaminated sediments (if present) during dredging;
- Use of specialty equipment including pneuma pumps, closed buckets, large-capacity dredges, and use of precision dredging; and
- Work window restrictions to avoid impacts on sensitive resources.

Implementation of these BMPs along with the other permit conditions described above would minimize the potential release of contaminants and sediments contained in dredge materials and associated with dredge operations. Project-related dredging would not proceed until all permits (and applicable consultations for biological resources) are complete.

Other in-water work proposed as part of Phase One would also potentially result in the disturbance of buried contaminated sediment. As part of these in-water construction activities, spudding, an anchoring technique used to hold barges in position, may be required. When spuds are removed, covered contaminated sediments may be disturbed. Likewise, jetting, a technique used for pile installation or removal, could potentially result in the disturbance of covered contaminated sediments. Even if sediment-disturbing activities are proposed outside of areas where contaminated sediments were buried previously, water currents and general vessel maneuvers in the boat basin may disturb overlying sediments or modify the areas of contamination.

Phase Two

Phase Two of the project would focus on activities that are not critical to support the arrival of the NSMV but that are important for Cal Maritime's educational mission and expansion of cadet instruction, including expansion of the boat basin to create Boat Basin 2 and a new pier through development of a new breakwater and installation of additional slips and berths for Cal Maritime's boat fleet and other vessels currently located off-site and/or planned for future acquisition. Phase Two would also include rehabilitating the boathouse, demolishing the Marine Programs and Naval Science modular buildings, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning through shoreline enhancements.

The breakwater of Boat Basin 2 would be approximately 18,000 square feet, extending approximately 450 feet offshore. A total of 10,800 square feet of additional floating slips/berthing area (approximately 26 slips/berthing positions) would be provided. Following construction, Boat Basin 2 would encompass approximately 200,000 square feet, or 4.6 acres. Shoreline enhancements between the boathouse and new pier, including improvements along the existing pedestrian path, would provide recreational opportunities as well as design to ensure that these areas are able to serve the function as the campus's first line of defense against sea level rise. Approximately 30,000 cubic yards of dredged material would need to be removed from the boat basin to accommodate Phase Two.

The discussion above under Phase One regarding impacts related to in-water work, and the potential for contaminated sediment to be encountered and potentially released adequately describes the types of impacts that would be experienced during Phase Two. As with Phase One, Phase Two could similarly result in the disturbance of buried contaminated sediment. While activities under Phase Two would be required to be evaluated through a dredged material suitability study in consultation with the US Army Corps of Engineers and EPA as required by the Ocean Dumping Permit process, the unknown extent of contamination, as well as the potential for water currents and general vessel maneuvers in the boat basin to disturb overlying sediments or modify the areas of contamination could potentially result in disturbance to and release of contaminated sediment.

Phase Three

Phase Three of the proposed project would focus on objectives to redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. This phase would also include improvements to the level of resilience to climate and storm-related stresses, as well as campus-coastline experiences and open spaces. An MHK barge and linking trestle are also included in Phase Three. The Marine Programs Multi-Use Building would replace the existing obsolete trailers and Marine Programs and Naval Science modulars that are currently adjacent to the boat basin. The building area would be approximately 20,300 square feet, and the building would be two stories in height. Classrooms and outdoor learning spaces would be added to support the Marine Programs Multi-Use Building.

The discussion above under Phase One regarding impacts related to in-water work, and the potential for contaminated sediment to be encountered and potentially released adequately describes the types of impacts that would be experienced during Phase Three. As with Phase One, Phase Three could similarly result in the disturbance of buried contaminated sediment, albeit, to a substantially lesser degree, because Phase Three would not involve dredging, and the in-water structures associated with Phase Three are smaller in magnitude than those associated with Phase One. Nevertheless, because in-water work is proposed, including the MHK barge and linking trestle, the potential for encountering and releasing contaminated sediments exists.

Summary

In-water activities associated with the project could potentially result in disturbance to and release of contaminated sediment. Because the extent of sediment contamination in the boat basin is unknown, any sediment-disturbing construction activities could potentially suspend contaminated sediments, resulting in a release of hazardous materials into the environment, which would be a **significant** impact.

Mitigation Measures

Mitigation Measure 3.3-2g: Implement Sediment Testing and Dredging Controls

Significance after Mitigation

Prior to dredging activities in any phase of the project, Mitigation Measure 3.3-2g would require preparation of an assessment according to DMMO sediment sampling requirements to sample and analyze sediments within areas proposed to be dredged. The assessment would be required to be approved by DMMO before any dredging activities could occur and would also comply with all current standards and procedures for disposal including disposal of contaminated sediment. In addition, per Mitigation Measure 3.3-2g, prior to dredging in areas of contaminated sediment, a Dredge Operations Plan would be prepared based on the results of DMMO-required sediment sampling, and would include all necessary measures to contain, dispose of, and/or remediate contaminated sediments. Thus, materials would only be dredged and disposed of in accordance with procedures approved by the DMMO. By implementing the dredging and sediment management programs as outlined in Mitigation Measure 3.3-2g, environmental exposure to contaminated sediment would be limited, and this impact would be reduced to a **less-than-significant** level.

Impact 3.8-3: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan

The project would be integrated with local and regional emergency response systems, and the Cal Maritime Emergency Management Plan would be updated to reflect changes from implementation of the project. The project would therefore not conflict with or physically interfere with an adopted emergency response plan. This impact would be **less than significant**.

The Cal Maritime Emergency Management Plan provides a management tool to facilitate timely, effective, and coordinated emergency response and recovery activities that respond to a wide range of emergency events, allowing for adaptation as needed to address the unique needs of the specific emergency incident. It is designed to integrate campus emergency resources and procedures with those of response partner agencies (e.g., California Department of Forestry and Fire Protection, local police) while also providing for initial response from Cal Maritime in the event of hazard incidents. It is also consistent with the Federal Emergency Management Agency and California Office of Emergency Services mandates.

The Emergency Management Plan was updated in 2013, and the contents provide a framework and procedural guidance for all-hazard emergency management efforts, including evacuation. The plan does not prescribe evacuation routes from the campus and instead assigns police services and/or the Emergency Operations Center the task of determining and coordinating evacuation routes. Currently, emergency access to the campus primarily relies on Maritime Academy Drive, which defines the eastern boundary of the campus.

Phase One

Phase One of the project would focus on Cal Maritime's readiness for the arrival of the NSMV. During Phase One, preparations for the arrival of the NSMV would be made, followed by the arrival, docking, and operation of the ship. To prepare for the arrival of the NSMV, the current main pier would be demolished, and a new longer, wider pier would be constructed to accommodate the size of the new NSMV, which is 25 feet longer than the TSGB. The existing trestle would be extended, and would at a minimum require structural upgrades, and potentially replacement, if the existing trestle is found to be defective. Dredging activities would also be carried out in the boat basin to accommodate the facilities under this phase. Other activities, such as the installation of new floating and training docks at the boat basin, expansion and upgrading of the Marine Yard, utility upgrades, and dredging of the existing and expanded boat basin would also be a part of Phase One. As noted above, mooring of the TSGB at a temporary berth would not require any landside facility or infrastructure improvements.

Cal Maritime would update the existing Emergency Management Plan to reflect implementation of the project. Campus emergency response would be integrated into the emergency response and procedures of other local agencies and would be documented in the Emergency Management Plan. Therefore, development of upgraded and new Cal Maritime campus facilities would not affect the emergency management framework or procedural guidance or otherwise affect plans for campus evacuation.

Construction activities to implement Phase One of the Waterfront Master Plan could potentially require temporary closure of roadways or traffic lanes to accommodate construction access. Multiple parking lots and pedestrian walkways would be affected during construction of the project, and the waterfront section of Morrow Cove Drive would be subject to temporary closures. If deemed necessary, the project contractor would submit a Traffic Construction Plan (TCP) to the City of Vallejo for approval that would demonstrate appropriate traffic handling and safety procedures that would be implemented during construction activities. The TCP would be prepared before each phase of project implementation to minimize traffic impacts on affected roadways at and near the work site during demolition and construction. These plans would identify construction and public (if applicable) access points, procedures for notification of road closures, and a plan to deliver construction materials to work areas. Because there are no designated evacuation routes in the project area, in the event of an emergency, evacuation routes would be designated by campus and police services and/or the Emergency Operations Center to avoid areas of temporary road closures as identified in the construction traffic management plan. Effects associated with road closures would be expected to be minimal because only local roads (i.e., approximately one-half mile of waterfront bounded by Morrow Cove Drive and Maritime Academy Drive) would be affected by project implementation. In addition, Morrow Cove Drive is not identified as an evacuation route in the Cal Maritime Physical Master Plan. Therefore, its closure would not impair or otherwise affect evacuation procedures on the project site or campus.

Phase Two

Phase Two of the project focuses on activities that are not critical to support the arrival of the NSMV but that are important for Cal Maritime's educational mission and expansion of cadet instruction, including expansion of the boat basin to create Boat Basin 2 and a new pier through development of a new breakwater and installation of additional slips and berths for Cal Maritime's boat fleet and other vessels currently located off-site and/or planned for future acquisition. Phase Two would also include rehabilitating the boathouse, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning through shoreline enhancements. The breakwater of Boat Basin 2 would be approximately 18,000 square feet, extending approximately 450 feet offshore. A total of 10,800 square feet of additional floating slips/berthing area (approximately 26 slips/berthing positions) would be provided. Following construction, Boat Basin 2 would encompass approximately 200,000 square feet, or 4.6 acres. Shoreline enhancements between the boathouse and new pier, including improvements along the existing pedestrian path, would provide recreational opportunities as well as design to ensure that these areas are able to serve the function as the campus's first line of defense against sea level rise.

Phase Two would have minimal impacts related to interference with an adopted emergency response plan for the same reasons identified for Phase One, above. The existing Emergency Management Plan would be updated to reflect conditions following project implementation and would be integrated with other local and state agency emergency response. A construction traffic management plan developed for Phase Two would identify construction and public (if applicable) access points, procedures for notification of road closures, and a plan to deliver construction materials to work areas.

Phase Three

Phase Three of the proposed project would focus on objectives to redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. This phase would also include improvements to the level of resilience to climate and storm-related stresses, as well as campus-coastline experiences and open spaces. An MHK barge and linking trestle are also included in Phase Three. The Marine Programs Multi-Use Building would replace the existing obsolete trailers and Marine Programs and Naval Science Modulars that are currently adjacent to the boat basin. The building area would be approximately 20,300 square feet, and the building would be two stories in height. Classrooms and outdoor learning spaces would be added to support the Marine Programs Multi-Use Building.

Phase Three would have minimal impacts related to interference with an adopted emergency response plan for the same reasons identified for Phase One, above. The existing Emergency Management Plan would be updated to reflect conditions following project implementation and would be integrated with other local and state agency emergency response. A construction traffic management plan developed for Phase Three would identify construction and public (if applicable) access points, procedures for notification of road closures, and a plan to deliver construction materials to work areas.

Summary

The project would not impair implementation of or physically interfere with an adopted emergency response plan, because it would not affect the emergency management framework or procedural guidance or otherwise affect plans for campus evacuation. Cal Maritime would update the Emergency Management Plan to reflect implementation of the project and campus emergency response would be integrated into the emergency response and procedures of other local agencies. In addition, a construction traffic management plan would be prepared before each phase of project implementation to minimize traffic impacts on affected roadways at and near the work site during demolition and construction. Each plan would identify construction and public (if applicable) access points, procedures for notification of road closures, a plan to deliver construction materials to work areas, and emergency personnel access routes during road closures. Consequently, the project would not interfere with an adopted emergency response plan. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.8-4: Expose People or Structures to the Risk of Loss, Injury, or Death Involving Wildland Fires

The project site is not located in an area of high wildland fire risk, and the project would not involve development that would exacerbate wildland fire risk; require the installation or maintenance of infrastructure that would exacerbate wildfire risk; cause a significant risk of loss, injury, or death involving wildland fires; or expose people or structures to significant post-fire risks, including postfire flooding or landslides. Consequently, the risk of exposure to wildland fire hazards is low. This impact would be **less than significant**.

The project site is not located in a State Responsibility Area or on lands classified as having high fire hazard severity or very high fire hazard severity (CAL FIRE 2023). The site is developed, relatively flat to gently sloping in a southwesterly direction. It is primarily composed of open water habitat in San Pablo Bay and includes developed areas, riprap shoreline, landscaping, and a vegetated hillside (see Figure 3.3-1 in Section 3.3, “Biological Resources”). The project site contains approximately 15.8 acres of open water habitat in San Pablo Bay; approximately 3.4 acres of developed areas, including developed areas on land (e.g., paved roads, parking areas, walkways, buildings) and in the bay (e.g., boathouse, piers, the TSGB, boat docks); approximately 1.3 acres of riprap shoreline; and 0.9 acre of landscaped area (e.g., lawns, ornamental shrubs, and ornamental trees). An approximately 0.6-acre area of steep hillside in the southeastern corner of the project site contains grassland, as well as some native shrub species, including California sagebrush and toyon. This hillside is disturbed and contains transmission towers, a staircase, roads, and footpaths. It continues east of the project site and ends abruptly where it is bounded by I-80 and the Carquinez Bridge toll plaza. The closest Very High Fire Hazard Severity Zone is located approximately 8 miles south of the project site in the hills surrounding the San Pablo and Briones Reservoirs (CAL FIRE 2023). Moderate and High Fire Hazard Severity Zones extend northward from this area to the Carquinez Strait.

Although the project site is not located in a State Responsibility Area or in a high or very high fire hazard severity area, the project site is populated with highly flammable vegetation and was recently damaged as a result of a wildfire originating near the Carquinez Bridge. The site also supports students, faculty, staff, and visitors who could be exposed to some level of risk associated with wildland fire (e.g., grass fires in adjacent or nearby developed or undeveloped areas or degraded air quality from regional wildfires).

Phase One

Phase One of the project would focus on Cal Maritime's readiness for the arrival of the NSMV. During Phase One, preparations for the arrival of the NSMV would be made, followed by the arrival, docking, and operation of the ship. To prepare for the arrival of the NSMV, the current main pier would be demolished, and a new longer, wider pier would be constructed to accommodate the size of the new NSMV, which is 25 feet longer than the TSGB. Dredging activities would also be carried out in the boat basin to accommodate the facilities under this phase. The existing trestle also would be extended, and would at a minimum require structural upgrades, and potentially replacement, if the existing trestle is found to be defective. Other activities, such as the installation of new floating and training docks at the boat basin, expansion and upgrading of the Marine Yard, utility upgrades, dredging of the existing and expanded boat basin. As noted above, mooring of the TSGB at a temporary berth would not require any landside facility or infrastructure improvements.

Utility upgrades would be necessary to meet the requirements of in-water enhancements associated with the main pier and the NSMV, as well as planned shoreline buildings. Utility upgrades would be necessary for shore power and water systems supporting the vessel. Medium voltage and other support infrastructure are accounted for in the boat basin expansion. Utility upgrades that would occur during Phase One include relocation of the existing substation and transformer facilities; relocation of some electrical utility lines; potable water line expansion to the main pier and associated expansion of existing fire hydrant and back-check valves; installation of a shore power transformer, switch gear, and cable management system; relocation, rerouting, and potential expansion of the existing dock boiler, gas supply, and metering; and sitewide lighting upgrades. The utility infrastructure (e.g., electrical, natural gas) are planned to be undergrounded and therefore would not exacerbate fire risks.

Implementation of the project would maintain existing land uses, including academic and support buildings, housing, recreation facilities, surface parking, and open space. As development of the project proceeds, the Division of the State Architect and the Office of the State Fire Marshal would perform an access compliance review on new and upgraded facilities and a fire and life safety review, respectively, before approval of individual building design.

As evaluated in Section 3.13, "Transportation," project development would be designed, constructed, and maintained to comply with applicable local, regional, state, and federal requirements related to emergency access and evacuation, and as discussed above for Impact 3.8-3, the project would not impair implementation of or physically interfere with an adopted emergency response plan. All development would be located in already-developed areas and would therefore avoid areas with steep slopes with difficult firefighting terrain or the potential for postfire hazards, such as flooding and landslides. Lastly, the Carquinez Strait and the I-80 corridor provide natural and constructed barriers to wildfire spread, both from and into the project site.

Phase Two

Phase Two of the project would focus on activities that are not critical to support the arrival of the NSMV but that are important for Cal Maritime's educational mission and expansion of cadet instruction, including expansion of the underwater basin to create Boat Basin 2 and a new pier through development of a new breakwater and installation of additional slips and berths for Cal Maritime's boat fleet and other vessels currently located off-site and/or planned for future acquisition. Phase Two would also include rehabilitating the boathouse, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning through shoreline enhancements. The breakwater of Boat Basin 2 would be approximately 18,000 square feet, extending approximately 450 feet offshore. A total of 10,800 square feet of additional floating slips/berthing area (approximately 26 slips/berthing positions) would be provided. Following construction, Boat Basin 2 would encompass approximately 200,000 square feet, or 4.6 acres. Shoreline enhancements between the boathouse and new pier, including improvements along the existing pedestrian path, would provide recreational opportunities as well as design to ensure that these areas are able to serve the function as the campus's first line of defense against sea level rise.

Phase Two would increase water, wastewater, and electrical services to planned shoreline buildings. Implementation of project components under Phase Two would maintain existing land uses, including academic and support buildings, housing, recreation facilities, surface parking, and open space. As development of the project proceeds, the Division of the State Architect and the Office of the State Fire Marshal would perform an access compliance review on new and upgraded facilities and a fire and life safety review, respectively, before approval of individual building design.

As evaluated in Section 3.13, "Transportation/Traffic," project development would be designed, constructed, and maintained to comply with applicable local, regional, state, and federal requirements related to emergency access and evacuation, and as discussed above for Impact 3.8-3, the project would not impair implementation of or physically interfere with an adopted emergency response plan. All development would be located in already-developed areas and would therefore avoid areas with steep slopes with difficult firefighting terrain or the potential for postfire hazards, such as flooding and landslides. Lastly, the Carquinez Strait and the I-80 corridor provide natural and constructed barriers to wildfire spread, both from and into the project site

<u>Phase Three</u>

Phase Three of the proposed project would focus on objectives to redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. This phase would also include improvements to the level of resilience to climate and storm-related stresses, as well as campus-coastline experiences and open spaces. An MHK barge and linking trestle are also included in Phase Three. The Marine Programs Multi-Use Building would replace the existing obsolete trailers and Marine Programs and Naval Science Modulars that are currently adjacent to the boat basin. The building area would be approximately 20,300 square feet, and the building would be two stories in height. Classrooms and outdoor learning spaces would be added to support the Marine Programs Multi-Use Building. For Phase Three, allowances for increased water, wastewater, and electrical services to planned shoreline buildings would also be anticipated.

As with Phase One, Phase Three would increase water, wastewater, and electrical services to planned shoreline buildings. Implementation of project components under Phase Three would maintain existing land uses, including academic and support buildings, housing, recreation facilities, surface parking, and open space. As development of the project proceeds, the Division of the State Architect and the State Fire Marshal would perform an access compliance review on new and upgraded facilities and a fire and life safety review, respectively, before approval of individual building design.

As evaluated in Section 3.13, "Transportation/Traffic," project development would be designed, constructed, and maintained to comply with applicable local, regional, state, and federal requirements related to emergency access and evacuation, and as discussed above for Impact 3.8-3, the project would not impair implementation of or physically interfere with an adopted emergency response plan. All development would be located in already-developed areas and would therefore avoid areas with steep slopes with difficult firefighting terrain or the potential for postfire hazards, such as flooding and landslides. Lastly, the Carquinez Strait and the I-80 corridor provide natural and constructed barriers to wildfire spread, both from and into the project site.

<u>Summary</u>

Implementing the project would not exacerbate wildfire risk; require the installation or maintenance of infrastructure that would exacerbate wildfire risk; cause a significant risk of loss, injury, or death involving wildland fires; or expose people or structures to significant postfire risks. Therefore, the impact related to wildland fire hazards would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.9 HYDROLOGY AND WATER QUALITY

This section identifies the regulatory context and policies related to hydrology and water quality, describes the existing hydrologic conditions at the project site, and evaluates potential hydrology and receiving water-quality impacts of the proposed project. Potential effects on the capacity of City of Vallejo water-supply, sewer/wastewater, and drainage/stormwater facilities are addressed in Section 3.14, "Utilities and Service Systems."

No comments pertaining to water quality were received during the notice of preparation public review period. Comments were received that expressed concern about project facilities potentially being affected by sea-level rise. Campus preparedness for sea-level rise is described in Chapter 2, "Project Description," and is discussed below and in Section 3.8, "Hazards and Hazardous Materials." See Appendix A for all NOP comments received.

3.9.1 Regulatory Setting

The federal, state, and local regulations described below are relevant to hydrology and water quality. Their specific applicability to the proposed project is discussed under "Environmental Impacts" below.

FEDERAL

Clean Water Act

The U.S. Environmental Protection Agency (EPA) is the lead federal agency responsible for water quality management. The Clean Water Act (CWA) is the primary federal law that governs and authorizes water quality control activities by EPA as well as the states. Several sections of the CWA pertain to the regulation of impacts on waters of the United States. "Waters of the United States" consist of all surface waters, such as navigable waters and their tributaries; certain hydrologically connected wetlands; and all impoundments of these waters. Various elements of the CWA also address water quality. These are discussed below.

CWA Water Quality Criteria/Standards

Pursuant to federal law, EPA has published water quality regulations under Title 40 of the Code of Federal Regulations (CFR). Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the act, water quality standards consist of designated beneficial uses of the water body in question and criteria that protect the designated uses. Section 304(a) requires EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. As described in the discussion of state regulations below, the State Water Resources Control Board (State Water Board) and its nine regional water quality control boards (RWQCBs) have designated authority in California to identify beneficial uses and adopt applicable water quality objectives under the CWA.

CWA Section 303(d) Impaired Waters List

Under Section 303(d) of the CWA, states are required to develop lists of water bodies that do not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries). Section 303(d) requires that the state develop a total maximum daily load (TMDL) for each of the listed pollutants. The TMDL is the amount of the pollutant that the water body can receive and still comply with water quality objectives. The TMDL is also a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. In California, implementation of TMDLs is achieved through water quality control plans, known as Basin Plans, of the State RWQCBs. (See "State Plans, Policies, Regulations, and Laws," below.)

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the CWA to regulate municipal and industrial discharges to surface waters of the United States. NPDES permit regulations have been established for broad categories of discharges including point source waste discharges and nonpoint source stormwater runoff. Each NPDES permit identifies limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits.

“Nonpoint source” pollution originates over a wide area rather than from a definable point. Nonpoint source pollution often enters receiving water in the form of surface runoff and is not conveyed by way of pipelines or discrete conveyances. Two types of nonpoint source discharges are controlled by the NPDES program: discharges caused by general construction activities and the general quality of stormwater in municipal stormwater systems. The goal of the NPDES nonpoint source regulations is to improve the quality of stormwater discharged to receiving waters to the maximum extent practicable. The RWQCBs in California are responsible for implementing the NPDES permit system. (See “State Plans, Policies, Regulations, and Laws,” below).

Section 401 of the CWA requires applicants who pursue a federal permit for an activity that may result in the discharge of a pollutant to waters of the United States to obtain Water Quality Certification. Water Quality Certification requires that the water quality impacts associated with the proposed activity (generally dredging or the placement of fill materials into waters of the United States) be evaluated. In California, Water Quality Certifications are issued by the RWQCBs for all projects to be permitted under CWA Section 404.

Dredge/Fill Permitting

Section 404 of the CWA requires that a permit be secured from the U.S. Army Corps of Engineers (USACE) prior to placing dredged or fill materials into waters of the United States.

Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 (RHA) requires that any work affecting the course, location, conditions, or capacity of navigable waters of the United States must first secure a permit from the USACE. Types of work requiring such a permit include the placement of structures within such waters and activities such as dredging or pile driving.

National Flood Insurance Act

The Federal Emergency Management Agency (FEMA) is tasked with responding to, planning for, recovering from and mitigating against disasters. The Federal Insurance and Mitigation Administration within FEMA is responsible for administering the National Flood Insurance Program (NFIP) and administering programs that aid with mitigating future damages from natural hazards.

FEMA prepares Flood Insurance Rate Maps (FIRMs) that delineate the regulatory floodplain to assist local governments with the land use planning and floodplain management decisions needed to meet the requirements of NFIP. Floodplains are divided into flood hazard areas, which are areas designated per their potential for flooding, as delineated on FIRMs. Special Flood Hazard Areas are the areas identified as having a one percent chance of flooding in each year (otherwise known as the 100-year flood). In general, the NFIP mandates that development is not to proceed within the regulatory 100-year floodplain if the development is expected to increase flood elevation by 1 foot or more.

STATE

California Porter-Cologne Act

California’s primary statute governing water quality and water pollution issues with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the State Water Board and each of the nine RWQCBs power to protect water quality and is the primary vehicle for implementation of California’s responsibilities under the Clean Water Act. The applicable RWQCB for the proposed project is the San Francisco Bay RWQCB. The State Water Board and the San Francisco RWQCB have the authority and responsibility to adopt plans and policies, regulate discharges to surface and groundwater, regulate waste disposal sites, and require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substances, sewage, or oil or petroleum products. The Porter-Cologne Act covers "waters of the state," which are more broadly defined than waters of the United States. Porter-Cologne Act jurisdiction applies to waters in both natural and artificial channels as well as other surface waters and wetlands that are not considered waters of the United States.

Under the Porter-Cologne Act, each RWQCB must formulate and adopt a water quality control plan (known as a "Basin Plan") for its region. The Basin Plan for the San Francisco Bay Region includes a comprehensive list of waterbodies within the region and detailed language about the components of applicable Water Quality Objectives (WQOs). The Basin Plan recognizes natural water quality, existing and potential beneficial uses, and water quality impairments associated with human activities throughout the San Francisco Bay region. Through the Basin Plan, the San Francisco Bay RWQCB executes its regulatory authority to establish WQOs. The Basin Plan includes both narrative and numerical WQOs designed to provide protection for all designated and potential beneficial uses in all its principal streams and tributaries. WQOs are used to determine whether the beneficial uses of the water body are being attained. Applicable beneficial uses pertinent to the project site include non-contact and contact water recreation, and preservation and enhancement of wildlife, fish, and other aquatic resources. Water bodies that do not attain one or more of the beneficial uses designated for them in the Basin Plan are placed by the State Water Board on the impaired waters list in accordance with CWA Section 303(d), described previously. TMDLs are prepared by the RWQCB to address individual impairments, as per CWA requirements. More information on the beneficial uses, water quality objectives, and the 303(d) impairments that apply to the project are provided below under "Environmental Setting."

The Porter-Cologne Act also requires projects that discharge, or propose to discharge, waste materials that could affect water quality to file a Report of Waste Discharge (ROWD) with the applicable RWQCB. The RWQCB also issues waste discharge requirements (WDRs), manages groundwater quality, and issues water quality certifications for dredging and other projects.

NPDES General Construction Stormwater Permit

The State Water Board adopted the current statewide NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities in September 2022 (Order 2022-0057-DWQ) (Construction General Permit). The state requires that projects disturbing one or more acre of land during construction file a Notice of Intent with the RWQCB to be covered under this permit. Construction activities subject to the General Permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non stormwater discharges to storm sewer systems and other waters. A stormwater pollution prevention plan (SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must include best management practices (BMPs) designed to prevent construction pollutants from contacting stormwater and keep products of erosion from moving off-site into receiving waters throughout the construction and life of the project; the BMPs must address source control and, if necessary, pollutant control. The SWPPP must be based on the construction design specifications detailed in the final design plans of a project and site-specific hydrology, slope, and soil characteristics.

NPDES General Small Municipal Separate Storm Sewer Systems Permit

CWA Section 402 mandates permits for discharges from municipal separate storm sewer systems (MS4s). Phase I MS4 regulations cover municipalities with more than 100,000 residents, certain industrial processes, and larger-site (5 acres and up) construction activities. Phase II small MS4 regulations require stormwater management plans to be developed by municipalities with fewer than 100,000 residents and construction activities that disturb 1 to 5 acres of land. In 2013, the State Water Board adopted a Statewide Phase II Small MS4 General Permit to efficiently regulate discharges from numerous qualifying MS4s under a single permit. Small MS4s are characterized as either "traditional" (across a municipality) or "non-traditional" (separate campus facilities). Stormwater is runoff from rain or snow melt that runs off surfaces such as rooftops, paved streets, highways, or parking lots and can carry with it pollutants such as oil, pesticides, herbicides, sediment, trash, bacteria, and metals. The runoff can then drain directly into a local stream, lake, or bay. Often, the runoff drains into storm drains which eventually drain untreated into a local waterbody. The Cal Maritime campus is identified as a "non-traditional" MS4 in the Phase II Small MS4 General Permit. The General Permit requires the covered permittees to develop and implement programs and measures, including BMPs, to reduce the discharge of pollutants in stormwater discharges to the maximum extent possible.

Non-traditional small MS4s are required to effectively prohibit non-stormwater discharges through the system, detect and eliminate illicit discharges and connections to the MS4, respond to spills and prohibit disposal of materials into the MS4, and require all vendors and contractors to minimize the discharge of pollutants to the MS4 through the installation, implementation, and maintenance of BMPs. In addition, permittees covered under the General Permit must develop and implement an education and outreach program, a public involvement and participation program, a construction site runoff control program, and a post-construction stormwater management program.

The post-construction stormwater management program must include the implementation of site design measures for all projects that create and/or replace between 2,500 and 5,000 square feet of impervious surfaces. Projects that create and/or replace 5,000 square feet or more of impervious surfaces must implement low impact development design standards addressing site planning/design, stormwater pollutant source control, runoff reduction, stormwater treatment, and hydromodification management.

Waste Discharge Requirements for Dewatering

CWA Section 402 also includes WDRs for dewatering activities. Although small amounts of construction-related dewatering are covered under the Construction General Permit, the San Francisco Bay RWQCB has regulations specific to dewatering activities that typically involve reporting and monitoring requirements. If dewatering to storm drains that lead to the San Francisco Bay occurs as part of the project, the contractor is required to comply with San Francisco Bay RWQCB requirements.

Surface and Submerged Lands Lease Agreement

The California State Lands Commission (CSLC) has exclusive jurisdiction over all of California's tidelands and submerged lands as well as the beds of naturally navigable rivers and lakes, sovereign lands, swamp and overflow lands, and state school lands (proprietary lands). CSLC has statutory authority (Division 6 of the California Resources Code) to approve appropriate uses for public property rights within these sovereign lands, such as water-borne commerce, navigation, fisheries, open space, recreation, or other recognized public trust purposes.

CSLC management responsibilities include activities within submerged lands (from the mean high-tide line) as well as activities within an area 3 nautical miles offshore. These activities include oil and gas development, harbor development and management oversight, construction and operation of offshore pipelines or other facilities, dredging, reclamation, use of filled sovereign lands, topographical and geological studies, and other activities that occur on these lands. CSLC also surveys and maintains the title records of all state sovereign lands and settles issues regarding title and jurisdiction. The proposed project would require CSLC approval to expand the existing Cal Maritime lease area to accommodate the project.

Dredged Material Management Office

The Dredged Material Management Office (DMMO) is a joint program of the San Francisco Bay Conservation and Development Commission (BCDC), San Francisco Bay RWQCB, State Lands Commission (CSLC), San Francisco District U.S. Army Corps of Engineers, and the U.S. Environmental Protection Agency (EPA). The DMMO is a single point of entry for dredging applications and the disposal permitting process. DMMO applications are jointly reviewed by the agencies at bi-weekly meetings before issuing their respective authorizations (U.S. Army Corps of Engineers, 2023).

The Long Term Management Strategy (LTMS) for the Placement of Dredged Material in the San Francisco Bay Region was created by the U.S. Army Corps of Engineers in partnership with the EPA, BCDC, and the San Francisco Bay RWQCB to manage dredging and disposal in an economically and environmentally sound manner, maximize the beneficial use of dredged material, and develop a coordinated permit application review process for dredging and disposal projects. The 2001 LTMS Management Plan established a 12-year "glide path" for achieving the overall goal of reducing in-Bay disposal to approximately 1.25 million cubic yards per year. To meet the compliance with the LTMS, dredging operations must be approved through the DMMO's permitting process (U.S. Army Corps of Engineers, 2001). A product of the LTMS is the 2021 San Francisco Bay Dredger's Handbook, which provides detailed guidance concerning the permit process, sediment characterization, dredge spoils placement, and post-dredge submittals.

California Water Code

The California Water Code is enforced by the California Department of Water Resources (DWR). The mission of DWR is "to manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments." DWR is responsible for promoting California's general welfare by ensuring beneficial water use and development statewide.

Groundwater Management

Groundwater Management is outlined in the California Water Code, Division 6, Part 2.75, Chapters 1-5, Sections 10750 through 10755.4. The Groundwater Management Act was first introduced in 1992 as Assembly Bill (AB) 3030 and has since been modified by Senate Bill (SB) 1938 in 2002, AB 359 in 2011, and the Sustainable Groundwater Management Act (SB 1168, SB 1319, and AB 1739) in 2014. The intent of the Acts is to encourage local agencies to work cooperatively to manage groundwater resources within their jurisdictions and to provide a methodology for developing a Groundwater Management Plan.

The Sustainable Groundwater Management Act of 2014 (SGMA) became law on January 1, 2015, and applies to all groundwater basins in the state (Water Code Section 10720.3). By enacting the SGMA, the legislature intended to provide local agencies with the authority and the technical and financial assistance necessary to sustainably manage groundwater within their jurisdiction (Water Code Section 10720.1). Pursuant to the SGMA, any local agency that has water supply, water management or land use responsibilities within a groundwater basin may elect to be a "groundwater sustainability agency" for that basin (Water Code Section 10723). The project site is not located within the jurisdiction of a groundwater sustainability agency.

REGIONAL

Bay Conservation and Development Commission

The Bay Conservation and Development Commission (BCDC) has permitting authority for most projects in San Francisco Bay and along the shoreline, which is defined in the McAteer-Petris Act to include Bay waters up to the mean high-water line and the area 100 feet landward of and parallel to the mean high-water line of San Francisco Bay. Under the McAteer-Petris Act, an agency or individual must secure a permit from BCDC if it proposes to place fill, dredged sediment, or dredged materials in San Francisco Bay or certain tributaries within BCDC jurisdiction. Most activities within the 100-foot shoreline band are also subject to a permit from the BCDC. The type of permit issued depends on the nature and scope of the proposed activities.

Regional Monitoring Program for Water Quality in San Francisco Bay

The Regional Monitoring Program for Water Quality in San Francisco Bay (RMP) is an innovative collaboration between the San Francisco Estuary Institute (SFEI), the San Francisco Bay RWQCB, and the regulated discharger community. Since 1993, the RMP has provided information that regulators and decision-makers need to manage the Bay's water quality effectively. The RMP is a partnership of regulatory agencies and the regulated community, a developer and implementer of long-term monitoring plans, a producer of a world-class dataset on estuarine contaminants, and a provider of information targeted at the highest priority questions faced by Bay water quality managers. According to the RMP, "*RMP monitoring determines spatial patterns and long-term trends in contamination through sampling of water, sediment, bivalves, bird eggs, and fish, and evaluates toxic effects on sensitive organisms and chemical loading to the Bay. The Program combines RMP data with data from other sources to provide for comprehensive assessment of chemical contamination in the Bay.*"

LOCAL

Cal Maritime is part of the CSU, which is a statutorily and legislatively created, constitutionally authorized state entity. As explained in the "California State University Autonomy" section in Chapter 3 of this EIR, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, Cal Maritime does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes. This evaluation is also intended to be used by local agencies for determining, as part of their permit processes, the project's consistency with local plans, policies, and regulations.

Solano County General Plan

The Solano County General Plan (Solano County 2008) includes goals and policies that are relevant to the project. These include measures that are meant to protect sensitive resources, water quality, and hydrology. The Solano County General Plan includes the following policies related to hydrology and water quality:

- **Policy RS.P-28: Resources.** Protect the unique scenic features of Solano County, particularly hills, ridgelines, wetlands, and water bodies.
- **Policy RS.P-65: Resources - Water Quality.** Require the protection of natural water courses.
- **Policy RS.P-68: Resources - Water Quality.** Protect existing open spaces, natural habitat, floodplains, and wetland areas that serve as groundwater recharge areas.
- **Policy RS.P-70: Resources - Water Quality.** Protect land surrounding valuable water sources, evaluate watersheds, and preserve open space lands to protect and improve groundwater quality, reduce polluted surface runoff, and minimize erosion.
- **Policy RS.P-71: Resources - Water Quality.** Ensure that land use activities and development occur in a manner that minimizes the impact of earth disturbance, erosion, and surface runoff pollutants on water quality.
- **Policy RS.P-73: Resources - Water Quality.** Use watershed planning approaches to resolve water quality problems. Use a comprehensive stormwater management program to limit the quantity and increase the water quality of runoff flowing to the county's streams and rivers.
- **Policy RS.P-74: Resources - Water Quality,** Identify naturally occurring and human-caused contaminants in groundwater in new development

City of Vallejo General Plan

The City of Vallejo General Plan 2040 (City of Vallejo 2017) includes goals, policies, and action items that are relevant to the project. These include measures that are meant to protect sensitive resources, water quality, and hydrology. The City of Vallejo General Plan 2040 includes the following policies related to hydrology and water quality:

- **Policy CP-1.13: Clean Water**. Provide a safe, adequate water supply citywide.
- **Policy CP-1.15: Water Quality**. Maintain and improve water quality in a way that provides public and environmental health benefits.
- **Policy NBE-1.1**: 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.
- **Policy NBE-1.2**: Ensure that adverse impacts on sensitive biological resources, including sensitive natural communities are avoided and mitigated to the greatest extent feasible as development takes place.
- **Policy NBE-1.4: Waterway Restoration**. Restore riparian corridors and waterways throughout the City.
- **Policy NBE-1.14: Waterway Conservation**. Promote water conservation through a range of proactive City efforts.
- **Policy NBE-5.6: Flood Control Planning**. Protect the community from potential flood events.
- **Policy NBE-5.7: Design for Stormwater Control**. Encourage new development and redevelopment to minimize the area of new roofs and paving.
- **Policy NBE-5.9: Sea Level Rise**: Plan for sea level rise and participate in regional adaptation efforts for areas of Vallejo at risk from sea level rise.

3.9.2 Environmental Setting

HYDROLOGY AND DRAINAGE

Regional Hydrology

The project site has a Mediterranean climate, characterized by dry, cool summers and mild and moderately wet winters. The area receives, on average, approximately 21 inches of rainfall per year, with most occurring from November through April.

The project site is located in the San Francisco Bay at the foot of the Carquinez Bridge and is situated directly northwest of the mouth of the Carquinez Strait, which connects the Bay with the Sacramento-San Joaquin Delta. The Cal Maritime campus is oriented along the approximately half-mile of waterfront of Morrow Cove within the San Francisco Bay. The project site is within the jurisdiction of the San Francisco Bay RWQCB. The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) describes the region as follows:

> *The San Francisco Bay Region (Region) is 4,603 square miles, roughly the size of the State of Connecticut, and characterized by its dominant feature, 1,100 square miles of the 1,600 square mile San Francisco Bay Estuary (Estuary), the largest estuary on the west coast of the United States, where fresh waters from California's Central Valley mix with the saline waters of the Pacific Ocean. The Region also includes coastal portions of Marin and San Mateo counties, from Tomales Bay in the north to Pescadero and Butano Creeks in the south.*
>
> *The Estuary conveys the waters of the Sacramento and San Joaquin rivers into the Pacific Ocean. Located on the central coast of California, the Bay system functions as the only drainage outlet for waters of the Central Valley. It also marks natural topographic separation between the northern and southern coastal mountain ranges. The Region's waterways, wetlands, and bays form the centerpiece of the United States' fourth-largest metropolitan region, including all or major portions of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma counties.*
>
> *Because of its highly dynamic and complex environmental conditions, the Bay system supports an extraordinarily diverse and productive ecosystem. Within each section of the Bay lie deepwater areas that are adjacent to large expanses of very shallow water. Salinity levels range from hypersaline to fresh water, and water temperature varies throughout the Bay system. These factors greatly increase the number of species that can live in the Estuary and enhance its biological stability.*

The Sacramento and San Joaquin Rivers, which enter the Bay system through the Delta at the eastern end of Suisun Bay, contribute almost all the freshwater inflow to the Bay. Many small rivers and streams also convey fresh water to the Bay system. Flows in the region are highly seasonal, with more than 90 percent of the annual runoff occurring during the winter rainy season between October and April.

Local Hydrology

The project site consists of the waterfront portions of the Cal Maritime campus along the shores of San Francisco/San Pablo Bay. The campus's shoreline comprises the shoreline of Morrow Cove and is maintained by Cal Maritime as open space. Public access to the shoreline is allowed under the terms of a permit granted to Cal Maritime from the BCDC in 1977. Hydrology in the area consists generally of ephemeral surface runoff that is collected in storm drains and conveyed to outfalls into the Bay. In the southernmost portion of the site closest to the entrance to the Carquinez Strait, runoff flows directly into the Bay without first being captured in catch basins and conveyed via storm drains.

Storm drains at Cal Maritime were originally installed and maintained by the Vallejo Sanitation and Flood Control District. Ownership and maintenance responsibility was transferred to Cal Maritime when the campus was purchased in 1943. Due to the history of various uses and owners of the campus property, original as-built drawings are not available for the storm drains. The existing Cal Maritime storm drain collection system consists of gravity pipes and surface flow.

The shoreline sits approximately 15 feet above mean sea level (MSL), is armored with riprap, and a corresponding narrow band of land designated as Zone VE on the Flood Insurance Rate Map (FIRM) published by the Federal Emergency Management Agency (FEMA 2024) indicates that the area has a one (1) percent chance or greater of flooding in any given year (see "Flood Conditions" below for additional detail).

The shoreline of Cal Maritime's campus has been hardened by manmade improvements, such as riprap. Cal Maritime's campus has existing landscaping that extends past the boundary of the FEMA Base Flood Elevation designation. This landscaping acts as an additional buffer between potential flooding and Cal Maritime's on-land buildings and structures. The shoreline to the north and south of Cal Maritime is generally less armored than the shoreline of the campus, although some riprap armament is present in both directions up and down the shore. Overwater structures are present within the open waters of the project site and are comprised of the main pier that berths the TSGB, a mooring dolphin, floating docks, and a boat house structure.

Stormwater Drainage

Vallejo Flood & Wastewater District (VFWD) is responsible for managing stormwater quantity (flood control) and quality in Vallejo. However, most of the stormwater generated on the Cal Maritime campus is managed by the Cal Maritime campus separately from the VFWD system under the State Water Resources Control Board (SWRCB) Small MS4 General Permit.

The majority of stormwater from the from the project site flows either into smaller catchment basins with small outfalls distributed along the shoreline, or as sheet flow directly into Morrow Cove. Stormwater runoff from the majority of the northeast portion of the campus is directed toward an open drainage channel along Maritime Academy Drive. The open channel flows into an underground storm drainage system once it reaches the lower campus. The underground storm drain system flows beneath the existing Administration Building, Classroom Building, Faculty Office Building, and Library, before discharging into Morrow Cove. The open stormwater drainage channel along Maritime Academy Drive, which accepts runoff from I-80 (including runoff from the hillsides above and below I-80), much of the campus, the Carquinez Heights neighborhood to the west, and undeveloped hillsides to the northwest, has flooded during past storm events (Dudek 2022).

Flood Conditions

FEMA identifies regions susceptible to potential flooding during a 1 percent annual probability (100-year) flood incident or 0.2 percent annual probability (500-year) flood event. Within certain areas falling under the 100-year flood category, FEMA establishes a Base Flood Elevation (BFE). On the FIRM map panels, the zones prone to flooding from a 100-year flood event are designated as Zone A. For Zone A regions where a specific BFE is defined, flood-prone zones are more precisely labeled as Zone AE. Additionally, locations classified as Zone V face the risk of inundation not only from a 100-year flood event but also from heightened dangers stemming from storm-driven waves reaching at least 3 feet in height. Comparable to Zone AE, Zone VE indicates the assignment of a BFE for Zone V.

The project site is located within Zone VE (FEMA 2024), which is classified as a coastal area with a 1 percent or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26 percent chance of flooding over a 30-year period. The BFE for the project area is between 11 and 12 feet.

Groundwater Hydrology

Portions of the city of Vallejo overlie the Napa-Sonoma Lowlands groundwater basin (RWQCB). However, the project site lies to the south, outside of this basin. Given the site's location along the shore of the Bay and the relatively steep hillsides that slope toward the Bay, the geologic and soil characteristics of the site are not conducive to the formation of aquifers.

WATER QUALITY

Surface Water Quality

The project site is located adjacent to the San Pablo Bay portion of the greater San Francisco Bay, whose waters are addressed under the RWQCB San Francisco Bay Basin Plan. Beneficial uses form the cornerstone of water quality protection under the Basin Plan. Once beneficial uses are designated, appropriate water quality objectives can be established, and programs that maintain or enhance water quality can be implemented to ensure the protection of beneficial uses. The designated beneficial uses, together with water quality objectives, form water quality standards.

The existing beneficial uses identified in Table 2-1 of the Basin Plan for San Pablo Bay (RWQCB 2023) include human consumption, aquatic life, wildlife, and recreation. The full list of existing beneficial uses for San Pablo Bay and associated objectives or TMDL's is presented in Table 3.9-1 (SWRCB 2022).

Constituents or pollutants in stormwater runoff vary with surrounding land uses, impervious surface area, and topography as well as with the intensity and frequency of rainfall or irrigation. Stormwater runoff generated at the onset of the wet season, or the "first-flush," typically contains the highest pollutant concentrations. The project site is located within a developed area where most of the ground surface is covered by pavement (roads and parking lots) and structures (office, boathouse). Street surfaces are the primary source of pollutants in stormwater runoff in urban areas. Common sources of stormwater pollution in the project vicinity include construction sites, parking lots, large landscaped areas, and household and industrial sites. Grading and earthmoving activities associated with new construction can accelerate soil erosion. Grease, oil, hydrocarbons, and metals deposited by vehicles and heavy equipment can accumulate on streets and paved parking lots. From there, they are carried into storm drains by runoff.

On the most recent 2020-2022 303(d) list, San Pablo Bay is listed as a Category 5 water quality segment where standards for pollutants are not met and a TMDL is required but not yet completed for at least one pollutant. The pollutants in San Pablo Bay and their TMDL status are presented in Table 3.9-2 (SWRCB 2022). The pesticides chlordane, dieldrin, and DDT, which is no longer permitted for use, are listed as 303(d) impairments in San Pablo Bay. Paints, solvents, soap products, and other toxic materials may be inadvertently or deliberately deposited in storm drains in residential and industrial areas. Trash, as well as some metals, including lead, zinc, mercury, and silver, are also listed as 303(d) impairments. Trash can threaten aquatic life and recreational beneficial uses, as designated by the Basin Plan. Trash and litter can collect in storm drain inlets and ultimately be discharged into nearby waterways.

Stormwater flows from the project site directly into San Pablo Bay and does not flow into the Vallejo municipal stormwater system. The quality of stormwater discharges from the project site is governed by the Phase II Small MS4s General Permit. Vessel waste is an additional water quality concern at facilities located along the shoreline. The Basin Plan notes that BCDC permits for marina construction encourage the installation of pumpout facilities, dockside sewers, and restrooms to reduce vessel waste discharge.

Table 3.9-1 Beneficial Uses of San Pablo Bay

Beneficial Use (CODE)	Beneficial Use Attained?	Objectives	TMDL
Industrial Service Supply (IND)	Yes	Floating material	No
Commercial and Sport Fishing (COMM)	Yes	Dissolved oxygen, pH, salinity, turbidity, settleable matter, oil/grease, toxicants	No
Shellfish Harvesting (SHELL)	Yes	Bacteria (National Shellfish Sanitation Program, Manual of Operation), Mercury, Cadmium, Radioactive isotopes	Yes - Mercury
Estuarine Habitat (EST)	Yes	Salinity, dissolved oxygen, pH, temperature, turbidity	No
Fish Migration (MIGR)	Yes	Temperature, salinity, suspended matter, copper	No

Beneficial Use (CODE)	Beneficial Use Attained?	Objectives	TMDL
Preservation of Rare and Endangered Species (RARE)	Yes	Dissolved oxygen, pH, salinity, turbidity, settleable matter, oil/grease, toxicants, specific criteria for endangered species	No
Fish Spawning (SPWN)	Yes	Dissolved oxygen, temperature	No
Wildlife Habitat (WILD)	Yes	Dissolved oxygen, pH, salinity, turbidity, settleable matter, oil/grease, toxicants	No
Water Contact Recreation (REC1)	Yes	Bacteria, chlorophyll a (algal growth)	No
Noncontact Water Recreation (REC2)	Yes	Habitats, color, chlorophyll a (algal growth)	No
Navigation (NAV)	Yes	None?	No

Source: CA State Water Resources Board 2022.

Table 3.9-2 San Pablo Bay 303(d) List of Water Quality Impairments 2020-2022

Pollutant	TMDL Status
Chlordane	TMDL still required
DDT	TMDL still required
Dieldrin	TMDL still required
Dioxin compounds	TMDL still required
Furan compounds	TMDL still required
Invasive species	TMDL still required
Mercury	Being addressed by USEPA approved TMDL
PCB’s and dioxin-like PCB’s	Being addressed by USEPA approved TMDL
Selenium	Being addressed by USEPA approved TMDL

Source: CA State Water Resources Board 2022.

Groundwater Quality

Groundwater quality can be affected by many factors, but the chief controls on the characteristics of groundwater quality are the source and chemical composition of recharge water, properties of the host sediment, and history of discharge or leakage of pollutants. In 1991, 1994 and 1996, releases of petroleum hydrocarbons occurred at the Cal Maritime campus during the removal of three underground storage tanks from Dwyer Hall, the Simulation Center, and the New Pier Mooring Anchor. Testing was performed in response to the Solano County Department of Resource Management, Environmental Health Division (SCEHD) at six monitoring wells on the Cal Maritime Campus. Testing results found that in two groundwater monitoring wells (MW-1-NP and MW-3-OB), total petroleum hydrocarbons as diesel (TPHd) and benzene were present in concentrations that exceeded their respective Maximum Contaminant Levels (MCLs). MW-1-NP was located within the marine yard, and MW-3-OB was located within an existing parking lot adjacent to planned project improvements.

Dredging and Sediment Quality

Suspended sediments and turbidity, terms that are often used interchangeably, are key components of the estuarine system. The term “suspended sediments” refers to the actual sediment component in the water column. “Turbidity” refers to several different suspended particulates, including plankton and sediments. Most nearshore environments, particularly estuaries, tend to have higher levels of turbidity or suspended sediment loads than environments located farther offshore because of discharges from rivers, drainages, and the relatively shallow nature of the environment. Sediments in shallow regions of the estuary are highly susceptible to resuspension from wind, tides, and freshwater flows as well as subsequent shifting to deeper channels of the Bay. The water depths along the waterfront and existing pier are relatively shallow, on the order of 5 to 15 feet. Suspended sediment loads are strongly influenced by nearshore discharges and wind- and wave-generated sediment disruption.

Regular maintenance dredging occurs at the project site for navigational purposes and has typically been undertaken every 8-10 years. The volumes of dredged material from the last two dredging events have ranged from 13,327 cubic yards (CY) in 2010 to 9,902 CY in 2019 (CE Engineering 2009, Dutra 2019). Dredge materials (spoils) have been disposed of at the Carquinez Strait Dredged Material Disposal Site in accordance with DMMO requirements. Routine dredging at the project site boat basin last occurred in 2009 and 2019. The boat basin was dredged to USACE permitted dredged depth of 11 feet below mean low water, which included a 1-foot overdredge allowance.

Previous dredging samples from sediment cores collected at the boat basin on June 19, 2009 showed elevated levels of polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) in composite samples (Dixon 2009). According to an Addendum to the Sediment Characterization Report by the Dixon Marine Services, Inc. dated October 28, 2009 elevated PAH levels were detected in an individual composite sample at levels exceeding the San Francisco Estuary Institute (SFEI) comparison concentrations. The composite sample was located directly in front of the boathouse, which was supported by, and partially constructed out of creosote treated timbers. According to Dixon Marine Services, the elevated levels of PAHs found in the sediment core sample are likely attributable to the creosote treated timbers in the boathouse, as analytical results indicated that PAH concentrations decreased significantly farther away from the boathouse. Ultimately, the necessary permits issued by the San Francisco Bay RWQCB and the National Oceanic and Atmospheric Administration (NOAA) did allow dredging at the site and discharging of dredged material in compliance with annual and seasonal volume target limits for disposal at in-Bay sites set in the Basin Plan.

A report titled *Results of Chemical, Physical and Biological Testing of Sediments from the California Maritime Academy Boat Basin* (Haley & Aldrich 2019) documented the dredging work that occurred at the project site in 2019 and the results of sediment testing from this location. A Tier III sediment quality evaluation was conducted by Haley & Aldrich, Inc. (Haley & Aldrich) in accordance with the approved Sampling and Analysis Plan (Haley & Aldrich 2019). Haley & Aldrich conducted physical, chemical, and biological analyses with sediment samples collected on March 19, 2019, from the Cal Maritime boat basin and the disposal site in accordance with federal and regional guidelines. Individual samples in the area of concern were also analyzed separately for PCBs due to elevated concentrations of PCBs from previous dredging at the site in 2010.

All chemical contaminants measured in the Cal Maritime boat basin sediment composite were at concentrations consistent with or below Bay ambient sediment concentrations. The boat basin composite sample also met the in-Bay disposal suitability criteria for the benthic and water column toxicity. However, PCBs were detected at elevated concentrations in three individual samples collected within the vicinity of the boat house and were not suitable for unconfined aquatic disposal (Haley & Aldrich 2019).

3.9.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Evaluation of potential hydrologic and water quality impacts is based on a review of existing documents and studies that address water resources in the vicinity of the project as well as various project-specific studies, reports, and other publicly available information. Information obtained from these sources was reviewed and summarized to describe existing conditions and to identify potential environmental effects, based on the standards of significance presented in this section. In determining the level of significance, the analysis assumes that the project would comply with relevant federal, state, and local laws, ordinances, and regulations.

THRESHOLDS OF SIGNIFICANCE

An impact on hydrology or water quality is considered significant if implementation of the project would do any of the following:

- violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;
- substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would
  - result in substantial erosion or siltation on- or off-site;
  - result in flooding on-site or off-site;
  - create or contribute runoff water that would exceed the capacity of existing or planned stormwater- drainage systems or provide substantial additional sources of polluted runoff;
  - impede or redirect flood flows
- in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; and/or
- conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

ISSUES NOT DISCUSSED FURTHER

All issues applicable to hydrology and water quality listed under the significance criteria above are addressed in this section.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.9-1: Violate Any Water Quality Standards or Waste Discharge Requirements or Otherwise Degrade Surface or Ground Water Quality

In-water activities, including dredging, removal of piles, and in-water construction conducted during all project phases would have the potential to affect surface water quality. Increases in the area of impervious surfaces from shoreline improvements would also have the potential to affect water quality. These project elements have the potential to degrade surface water quality through the release of sediment and increase in urban stormwater flows, therefore would result in **significant impacts** on water quality and the attainment of water quality standards.

Phase One

Phase One of the project would include dredging the reconfigured footprint of the existing boat basin to ensure navigational safety for vessels utilizing the existing and proposed future expanded boat basin. Approximately 40,000 cubic yards of materials would be dredged from the boat basin during Phase One. Dredging would occur through clamshell or mechanical dredging. Phase One would also include creosote pile removal, replacement of the main pier and trestle, and minor improvements to landside utilities.

Construction Impacts

Turbidity and Landside Soil Disturbance

Dredging of the boat basin and other in-water work associated with pier demolition and reconstruction, creosote pile removal, installation of navigational aids, and trestle upgrade or replacement would disturb the sediments in the Bay, which could affect water quality through increased turbidity. Turbidity from pile removal and driving for the new pier elements is likely to be limited to a small area (approximately 150-200 ft of the pile) and would typically dissipate within one hour or would be swept away and diluted by tidal exchange (USFWS 2013). Thus, turbidity from pile driving activities is expected to be less than significant. Turbidity associated with mechanical dredging typically spreads further than for pile installation and removal due to the volume of bottom substrates that are disturbed. Studies of turbidity in San Francisco Bay showed that turbidity associated with dredging typically diminish to background levels within a radius of approximately 600 feet within one tidal cycle for singular events (U.S. Army Corps of Engineers 2015). The actual distance suspended sediment caused by the project would move is dependent upon multiple factors (e.g., tide, river outflows, wind condition) but the previous studies provide a guide to potential effects.

The waters of the San Francisco Bay and Delta are highly turbid under natural conditions and experience high fluctuations in turbidity. Therefore, and because project-generated dredging would be localized and temporary, dredging related turbidity is not anticipated to substantially increase local or regional turbidity beyond that present under baseline conditions. Additionally, landside ground disturbance would be extremely limited during Phase One as it only involves improvements to existing utility systems, which would result in less than 2,500 square feet of land disturbance. Because Phase One of the project would disturb less than 1 acre of land, coverage under the NPDES General Construction Stormwater Permit would not be required. Therefore, impacts related to sediment disturbance would be less than significant.

Release of Debris and Contaminants during Construction

In-water construction requires specialized mechanical equipment including vibratory or impact pile driving hammers, drilling equipment, tugboats, cranes, floating barges, and dredging equipment. These larger pieces of equipment require generators or compressors to run equipment, and a variety of petroleum and plant-based fuels or lubricants (greases, oils, coolants, hydraulic fluid, fuels, cement washout, and other construction-related contaminants), many of which can be toxic to aquatic ecosystems if spilled and introduced accidentally. Similarly, debris from construction or demolition of in-water structures can enter the aquatic environment and may itself be contaminated with lubricants or preservatives. Landside construction close to the shoreline carries a similar risk of introducing contaminants like greases, oils, coolants, etc. from construction equipment to be discharged into the Bay through sheet flow or conveyance via stormwater infrastructure. Introduction of such materials could cause degradation of water quality.

Some elements of the proposed project, such as making connections between precast elements of the pier decking and the structural piles, would also require cast in place concrete for above-water structures. Cast in place concrete, when done over water, can result in unintentional spilling of concrete into the water column. No cast in place concrete is proposed within the water column and the potential for concrete to enter the water column is minimal, limited to incidental drips if concrete escapes the form work used for casting.

The potential also exists for the release of contaminants during proposed dredging activities. Portions of the areas proposed for dredging in the expanded boat basin have never been dredged before and the condition of sediments in those area has not been previously evaluated. If contaminated sediments are present in areas of new dredging, there is potential for contaminated materials to be introduced to the water column. Additionally, previous maintenance dredging of the existing boat basin identified PCBs within the sediments surrounding the boathouse that exceed concentrations that are acceptable for disposal of dredged material in the Bay or for beneficial reuse. These contaminants are presumed to be still present; and, if not managed appropriately, these materials could be mobilized during dredging, releasing them into the water column and potentially spreading contaminated sediment to areas that are currently not affected by elevated levels of these elements resulting in significant impacts to water quality.

As described in Section 3.9.1 above, dredging must occur in compliance with the LTMS Management Plan for the management of dredge materials, which requires that all dredging activities be approved through the DMMO's permitting process. As part of this process, the following permits would be required for the construction of Phase

One: BCDC Major Permit; U.S. Army Corps of Engineers Section 404 Permit; and Section 401 Water Quality Certification issued by the RWQCB, as managed via the DMMO and individual permitting agencies. Together, these permits would implement a series of requirements for dredging and in-water construction. These requirements include preliminary and ongoing testing of dredge materials, constraints on dredge machinery and dredging work periods based on biological resources, and completion of a detailed alternatives analysis that identifies and supports implementation of alternatives to aquatic disposal of dredge materials. These alternatives may include upland disposal, on-site use, or wetland enhancement. Additionally, the application of dredging BMPs would be required under the indicated permitting scheme. BMPs may include, but would not be limited to, the following:

- Debris booms to control unintentional waste and debris from entering the water column;
- Mechanical dredge operational controls, including increased cycle time, elimination of multiple bites, and elimination of bottom stockpiling;
- Avoidance and proper disposal of contaminated sediments;
- Measures, such as silt curtains to avoid dispersal of contaminated sediments (if present) during dredging;
- Use of specialty equipment including pneuma pumps, closed buckets, large-capacity dredges, and use of precision dredging; and
- Work window restrictions to avoid impacts on sensitive resources.

Implementation of these BMPs along with the other permit conditions described above would minimize the potential release of contaminants and sediments contained in dredge materials and associated with dredge operations. Project-related dredging would not proceed until all permits (and applicable consultations for biological resources) are complete.

Former development along the shorelines of San Francisco and San Pablo Bay has left remnant maritime structures, especially pile complexes, along many shorelines. Many of these structures are built using creosote treated timbers, a substance which delays decay of the wooden timbers, but is also toxic to fish and marine life. Creosote timbers are also currently incorporated into the existing fender system along the existing Cal Maritime pier. Removing creosote treated wood has been identified as a high priority for mitigation by the San Francisco Bay Institute as it provides benefits to the ecosystem by removing sources of toxins that spread beyond the footprint of the piles themselves. However, improper removal of piles can result in the release of toxins. While sediments disturbed and turbidity created through the removal process is expected to be minimal and dissipate as described above. However, if remnants of piles are not properly removed then the source of creosote would remain and potentially continue to release creosote into the aquatic environment.

The temporary berthing of TGSB at Suisun Bay Reserve Fleet could potentially discharge contaminants into the bay waters from leaking oil, diesel, etc. Regular maintenance of the ships as under existing operational conditions would continue be performed to prevent any leaks.

Overall, the construction of Phase One could result in potential pollutant mobilization associated with dredging and creosote pile removal. Phase One of the project would have a potentially significant impact with respect to degrading surface water quality and violating water quality standards.

Post-Construction Operations

Except for an expansion of the future maintenance dredging footprint, operations following completion of Phase One construction would not be substantially different than baseline conditions. Landside construction activities associated with Phase One would not disturb more than 2,500 square feet of impervious surface area and thus would have no impact to landside post-construction stormwater volume or water quality. Phase One would not require the implementation of site design measures specified in the Phase II Small MS4s General Permit. Phase One would substantially improve the management of stormwater on overwater structures compared to existing conditions through incorporation of stormwater cisterns.

Phase One is not anticipated to result in a substantial increase in ship and boat traffic compared to existing conditions. Although the boat basin is being expanded, the expansion is primarily oriented towards better managing existing ship traffic and is not intended to increase the number of ships utilizing the basin. The NSMV will be a newer vessel and newer vessels typically require less maintenance than older vessels. Therefore, the potential for introduction of fuel, oil and other potential marine equipment related operation and maintenance would be minimal.

As noted above, the only substantial change in operations for Phase One would be an expansion of the maintenance dredging area in future years to maintain navigability in the expanded boat basin. Future maintenance dredging would follow the same procedures, permits, and best practices as under current operational conditions. As discussed above, there is a risk to water quality from dredging in areas that are not currently dredged given the uncertainty surrounding the sediment quality in those areas. Additionally, the potential to release the known PCB contaminated sediments from the area surrounding the boat house will remain a risk with future maintenance dredging. Potentially significant impacts associated with future dredging from Phase One operations would be the same as those associated with Phase One construction. Potential dredging in areas of contaminated sediments has the potential to result in a condition which leaves those sediments exposed to the water column after completion of dredging. This would result in potential long-term exposure of contaminated sediments to the water column, which would result in a significant impact.

Phase Two

Phase Two components include the creation of a second boat basin (Boat Basin 2) through development of a new pier with breakwater and installation of approximately 26 slips and berthing areas for Cal Maritime's fleet of work boats, tugboats, small passenger boats, and other vessels currently located off site and/or planning for future acquisition. Boat Basin 2 would encompass approximately 200,000 square feet of area or 4.6 acres. Approximately 30,000 cubic yards of dredge material is anticipated to be dredged as part of this phase, a portion of which would require special handling due to the presence of contaminated sediments under and around the boathouse.

Construction Impacts3

Phase Two of the project would create similar construction impacts to those discussed above for Phase One, primarily associated with in-water construction and dredging for the new Boat Basin 2 and pier with breakwater. Similar to Phase One, dredging of previously undredged sediments could result in the release of unknown contaminants, which would result in a significant impact to water quality.

Unlike Phase One, Phase Two would likely disturb more than 1 acre of land, thus requiring coverage under the General Construction Stormwater Permit and the requirement to employ BMPs to reduce the exposure of pollutants to stormwater runoff. Construction stormwater BMPs could include installation of silt fence, catchment basin sediment capture, use of straw wattles, and similar erosion and sedimentation controls to minimize water quality impacts. Implementation of these required and standardized controls would mean that construction related soil disturbance from landside activities would result in a less than significant impact to water quality.

Overall, the construction of Phase Two could result in potential pollutant mobilization associated with dredging and in-water construction. Phase Two of the project would have a potentially significant impact with respect to degrading surface water quality and violating water quality standards.

Post-construction Operations

Phase Two improvements would likely increase the extent of landside impervious areas; therefore, a landside increase in discharge to the existing stormwater system, is expected. Improvements to the marine yard, shoreline, and rehabilitation/reconstruction of the existing boathouse would likely disturb more than 2,500 square feet of impervious surface area on the landside, triggering the requirement to incorporate the Phase II Small MS4 General Permit site design measures, such as directing runoff to landscaped areas or use of permeable paving, into the plans and thus minimizing pollutant delivery to stormwater runoff. While Phase Two would result in an overall increase in landside impervious area, requirements to include landscape elements to detain and treat stormwater runoff may have a beneficial impact on water quality compared to existing conditions. In addition, the Phase Two Boat Basin 2 and new pier with breakwater would expand the extent of the overwater impervious area. The potential increase in stormwater resulting from the additional impervious area would be addressed with on-pier stormwater filtration systems. The on-pier overwater stormwater filtration systems would be sized according to the square footage of the overwater impervious area.

Operation of Boat Basin 2 is likely to entail an increase in boat traffic compared to existing conditions, with associated potential for release of petroleum pollutants into the Bay. The addition of new facilities for Boat Basin 2 is estimated to more than double the current number of slips in the vicinity of the project site. However, this area of the Carquinez Strait currently supports substantial boat and ship traffic. The increase in boat traffic supported by project-generated docking capacity would be minor compared to existing conditions. Though the number of vessels is expected to increase from 10 to 23, vessel traffic within the project vicinity, including the Sacramento-Stockton Deepwater Shipping Channel, is orders of magnitude higher than the projected increase in boat traffic resulting from Phase Two. The Port of Stockton supports between 230 and 300 industrial ships per year, and when combined with the Port of Sacramento, service more than 350 ships per year (Port of Stockton 2022). As such, impacts to water quality from increases in ship and boat traffic resulting from Phases Two and Three are expected to be less than significant compared to existing conditions.

Finally, similar to Phase One, Phase Two would result in an expanded area of maintenance dredging compared to existing conditions and could result in long term exposure of contaminated sediments after dredging if dredging is completed in areas of contaminated sediment. Therefore, maintenance dredging associated with Phase Two components would result in a significant impact.

Phase Three

Phase Three components include the development of a marine programs multi-use building and harbor control tower, construction of a floating row house, deployment of a marine hydrokinetic barge, and general shoreline and waterfront improvements.

Construction Impacts

Phase Three of the project would create similar landside construction impacts to those of Phase Two, primarily associated with construction of the new multi-use building and shoreline improvements. Phase Three would also likely disturb more than 1 acre of land, thus requiring coverage under the General Construction Stormwater Permit and the requirement to employ BMPs to reduce the exposure of pollutants to stormwater runoff. Like Phase Two, Phase Three has the potential to incorporate design elements into the shoreline alterations to improve stormwater quality, such as use of pervious surfaces like landscaping. Phase Three would not entail substantial in-water work, and potential construction related impacts to water quality associated with minor increases in turbidity similar to those expected from pile driving during placement of in-water and shoreline habitat, public access improvements and the marine hydrokinetic barge, would be minimal.

Post-construction Operations

Landside improvements associated with Phase Three would likely disturb more than 2,500 square feet of impervious surface area, triggering the requirement to incorporate the Phase II Small MS4 General Permit site design measures into the plans and thus minimizing pollutant delivery to stormwater runoff during project operation. The MS4 permit requires features such as pervious pavers and treatment swales, designed to manage flow and provide water quality treatment for new and/or replaced impervious surface, which would improve stormwater treatment and management compared to existing conditions. Accounting for required compliance with the MS4 permit, Phase Three would result in a less than significant impact with regard to stormwater.

The marine hydrokinetic barge would be anchored close to shore, upstream of the main pier and NSMV. While the specific design and operations of the hydrokinetic barge are not known at this time, it is anticipated that this system could operate similarly to other aquatic based electric generation, via a turbine which is driven by the movement of water. As the turbine rotates from the natural movement of water, a generator could be powered to create electricity. The turbine could be turned via rotating surface paddles, or directly from wave and currents below the waterline. In both cases, flow of water across the turbine blade or paddle, drives a generator which produces electricity. That electricity is then sent via a transmission line back to the shore and into the power grid. Because the paddles would be sufficiently distant from bottom sediment, this process is not expected to result in any water quality impact. The use of substances on the barge that could represent potential pollutants would be similar to those used on the existing TSGB and proposed NSMV and would not create any new impacts to water quality.

Similar to Phases One and Two, construction and operations of Phase Three would have potentially significant impacts to water quality due to the risk of hazardous material spills during construction and operations.

Summary

Phase One and Phase Two could result in potential pollutant mobilization associated with dredging and creosote pile removal, resulting in **significant impacts** related to water quality. In-water work proposed for Phase Three is minimal and would result in **less than significant impacts** because no substantial disturbance of in-water sediment would occur. While Phases Two and Three would result in improved conditions with regard to stormwater compared to existing conditions, all phases of the project would result in a **significant** impact on water quality as a result of dredging and potential hazardous materials spills.

Mitigation Measures

Mitigation Measure 3.3-2d: Implement Spill Prevention and Control

Mitigation Measure 3.3-2f: Implement Dust and Debris Control

Mitigation Measure 3.3-2g: Implement Sediment Testing and Dredging Controls

Mitigation Measure 3.3-2h: Use Appropriate Creosote Pile Removal and Disposal Methods

Significance after Mitigation

Implementation of Mitigation Measure 3.3-2d and -2f would reduce the potential impacts on surface water, stormwater, and groundwater by requiring measures to reduce the likelihood that contaminants from operating equipment and debris from construction would be reduced by implementing spill prevention practices and cleanup procedures, catchment systems for over-water areas, and dust control. With the implementation of these measures, the potential impacts of landside activities on surface water and stormwater would be reduced to less than significant.

Implementation of Mitigation Measures 3.3-2f, -2g, and -2h would reduce potential impacts on surface water from in-water construction work by requiring measures to reduce the likelihood that contaminants from dredging and creosote pile removal would be reduced by regular sediment testing, the use of silt curtains, and fragment retrieval for pile removal. With the implementation of these measures the potential impacts of in-water work on surface water would be reduced to less than significant.

Implementation of MS4 permit requirements would reduce potential impact on stormwater from landside construction work by implementing measures to reduce the likelihood that construction of impervious surfaces would increase stormwater by following the Stormwater Management Plan implemented by the campus. With the implementation of these measures the potential impacts of landside work on stormwater would be reduced to less than significant.

In sum, implementation of Mitigation Measures 3.3-2d, and -2f through -2h would reduce impacts related to the water quality standards, waste discharge requirements, and surface or ground water quality to a **less than significant** level for all project phases.

Impact 3.9-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

Project activities conducted during implementation of Phases One, Two, and Three would not use groundwater, would not result in structures or surfaces that would interfere with groundwater recharge, and would not draw upon existing groundwater supply. Therefore, the project would have **a less than significant impact** on groundwater resources.

Natural groundwater recharge occurs primarily from infiltration of rainfall, landscape irrigation, and leakage of water and sewer and pipes. New impervious areas can reduce infiltration capacities so that more precipitation runs off into storm sewers or nearby surface waters instead of infiltrating and recharging the underlying aquifer. However, the project would not substantially interfere with groundwater recharge because it would not increase groundwater demand or substantially decrease the size of groundwater recharge areas. Operation of the proposed project would not use groundwater and therefore would not deplete groundwater supplies.

Phase One

The project site does not overlie any regional groundwater basins; therefore, the project would not interfere with groundwater recharge. Phase One consists primarily of in-water infrastructure work that would not alter the drainage pattern of the landside campus. Therefore, the amount of impervious surface area would remain constant in Phase One and would not impede groundwater recharge. No groundwater supplies would be directly affected by Phase One project components either during construction or in post-construction operation; thus, Phase One work would result in a less than significant impact on groundwater supply and groundwater recharge.

Phase Two

Construction Impacts

Development of the various landside components of Phase Two could require the dewatering of shallow groundwater during excavation work, which could result in a temporary reduction in shallow groundwater volumes but would not result in a loss of water quantity that would substantially deplete groundwater supplies. Compliance with the terms of the SWRCB Construction General Permit would be required to reduce potential impacts. Additionally, the project site is not located within a defined groundwater supply basin and groundwater at the site is not used for water supply. The water supply for construction activities, such as dust control, concrete mixing, and washing would be sourced from nearby hydrants and existing surface supplies and/or trucked to the site and would have a less than significant impact on groundwater supplies or recharge.

Post-construction Operations

Depending on the final design of the components in Phase Two, opportunities to increase groundwater infiltration may exist and be incorporated into project plans via stormwater treatment areas, such as bio-retention areas/large-feature rain gardens, and other landscape features. Therefore, the ongoing operational impact on groundwater supplies and recharge would be less than significant.

Phase Three

Construction Impacts

Like Phase Two, development of the various landside components of Phase Three could require the dewatering of shallow groundwater during excavation work, which could result in a temporary reduction in groundwater volumes but would not result in a loss of water quantity that would substantially deplete groundwater supplies. Compliance with the terms of the General Construction Permit would be required to reduce potential impacts. In the event that groundwater is encountered during construction, dewatering would be conducted on a one-time or temporary basis during the construction phase and would not substantially deplete groundwater supplies. Additionally, the project site is not located within a defined groundwater supply basin and groundwater at the site is not used for water supply. The water supply for construction activities such as dust control, concrete mixing, and washing would be sourced from nearby hydrants and existing surface supplies and/or trucked to the site. The proposed marine hydrokinetic barge would have no impact with respect to groundwater.

Post-construction Operations

Phase Three would not substantially interfere with groundwater recharge because it would not increase groundwater demand or significantly decrease the size of groundwater recharge areas following construction completion. Depending on the final design of the components in Phase Three, opportunities to increase groundwater infiltration may exist and be incorporated into project plans. Additionally, stormwater treatment areas, such as bio-retention areas/large-feature rain gardens, and other landscape features and open space areas, would allow for increased groundwater infiltration. Furthermore, shoreline improvements, including planting vegetation, would slow water, allowing it to percolate into the ground, thereby providing increased benefits for groundwater recharge. The operation of the project would not utilize groundwater supplies and therefore would not substantially deplete groundwater supplies. Therefore, the project's impact on groundwater supplies and recharge would be less than significant.

Summary

Phase One of the proposed project would have no impact to groundwater because no dewatering would occur, and no impervious surfaces over land would be changed. Project impacts on groundwater supplies and recharge under Phases Two and Three would be **less than significant** because compliance with a dewatering permit is required to reduce any potential impacts associated with dewatering during construction. No mitigation is required.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.9-3: **Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion, siltation or flooding on- or off-site; create or contribute runoff water that would exceed the capacity of existing or planned stormwater-drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows.** ~~The proposed project would result in less than significant impacts to flooding based on compliance with MS4 permit requirements.~~

Landside improvements associated would result in less than significant impacts from localized changes to drainage patterns surrounding new landside facilities. However, the project would have the potential to result in impacts related to erosion, sedimentation and sediment dynamics from Phases Two and Three activities. This would be a **significant impact**.

Phase One

Construction Impacts

In-water work associated with Phase One of the project would include dredging the existing boat basin and the expanded boat basin, removing the existing pier, and constructing the new pier as well as possible replacement of the existing trestle to accommodate the NSMV. Phase One consists primarily of in-water infrastructure work and would not alter the drainage pattern of the landside campus. There would be no impacts to landside drainage as a result of Phase One components. No flood flows would be generated, impeded, or redirected from construction of Phase One. Additionally, the operation of the pier and boat basin following construction would not generate, impede, or redirect flood flows. Phase One would not contribute new stormwater flows to an existing storm drainage system. Therefore, there would be no impact to flood flows from Phase One improvements.

Post-construction Operations

A Coastal Evaluation of San Pablo Bay was prepared by WSP, Inc. (2023) for Phase One of the project. The WSP study found that, while Phase One improvements would result in some minor and localized changes to sediment dynamics, flow patterns, and wave energy, the changes would not result in any adverse effects due to erosion of the shoreline or changes to sediment bed dynamics. As described in Chapter 2, "Project Description," the new pier and improved/replaced trestle would be elevated above existing elevations to accommodate projected sea level rise in the project area. The pier would be designed such that in the worst-case scenario of a 100-year flood plus 2060 sea level rise and king tide plus 2060 sea level rise conditions, water levels would be at or below the new pier's elevation. As an added security measure, the utilities currently underneath the pier also would be elevated. During future project phases, the design of shoreline improvements would incorporate design criteria to ensure that these areas are able to serve the function as the campus's first line of defense against sea level rise. Potential impacts resulting from changes to flow, wind and wave patterns would be less than significant.

Phase Two

Construction Impacts

Phase Two components include the creation of a second boat basin (Boat Basin 2) and would involve expansion of the existing approximately 80,000 square-foot boat basin through development of a new pier with breakwater and installation of approximately 26 slips and berthing areas for Cal Maritime's fleet of work boats, tugboats, small passenger boats, and other vessels currently located off site and/or planning for future acquisition. Construction of Phase Two would consist of both in-water work and landside improvements, which could result in temporary impacts on drainage and stormwater runoff during construction. Because the project would need to comply with the requirements of the General Construction Permit, including implementation of stormwater management BMPs during construction, Phase Two would have a less than significant impact on drainage and runoff during the construction phase.

Post-construction Operations

The landside components could result in minor alterations to localized drainage patterns associated with grading for new landside facilities. Compliance with building code requirements in combination with stormwater flow management requirements of the MS4 permits would mean that these minor localized alterations would be less than significant. The in-water components of Phase Two have the potential to alter flow and wave patterns such that those patterns result in increased erosion or adverse changes to sediment bed dynamics along the shoreline. These changes have the potential to result in significant impacts with regard to sedimentation and erosion. Compliance with applicable requirements of the General Construction Stormwater Permit and Phase II Small MS4s General Permit, coupled with implementation of Mitigation Measures 3.9-1a and 3.9-1b (see above) would address pollution concerns involving erosion and siltation and other polluted stormwater runoff. No flood flows would be generated, impeded, or redirected as a result of the construction or operation of Phase Two of the project. Phase Two could result in a minor increase in flows to existing storm drain systems on campus. Compliance with flood flow detention requirements of the MS4 permit would likely result in an improvement to stormwater management from Phase Two as compared to existing conditions. Therefore, Phase Two would result in a less than significant impact on flood flows. However, because of the uncertainty surrounding the potential effects of Phase Two in-water project elements on existing sediment dynamics, flow and wave patterns the project is considered to have a potentially significant impact on erosion and siltation.

Phase Three

Construction Impacts

Phase Three components include the development of a marine programs multi-use building and harbor control tower, construction of a floating row house, deployment of a marine hydrokinetic barge, and general enhancements to the campus shoreline and waterfront. Phase Three consists of both in-water work and landside improvements. Similar to Phase Two, the landside components could result in minor alterations to localized drainage patterns. Compliance with applicable requirements of the General Construction Stormwater Permit and Phase II Small MS4s General Permit, coupled with implementation of Mitigation Measures 3.9-1 and 3.9-2 (see above) would address pollution concerns involving erosion and siltation and other polluted stormwater runoff, reducing potential impacts to less than significant levels.

Post-construction Operations

No flood flows would be generated, impeded, or redirected as a result of the construction or operation of Phase Three of the project. Similar to Phase Two, Phase Three could result in a minor increase in flows to existing storm drain systems on campus. Compliance with flood flow detention requirements of the MS4 permit would likely result in an improvement to stormwater management from Phase Three as compared to existing conditions. Therefore, Phase Three would result in a less than significant impact to flood flows. In-water elements of Phase Three consist of minor installations associated with shoreline public access improvements, the rowhouse, habitat enhancements, and the marine hydrokinetic barge. While these in-water elements are small in comparison with Phases One and Two, they may result in potentially significant impacts with regard to shoreline erosion and sediment dynamics.

<u>Summary</u>

There would be no impact to flood flows from Phase One, and Phases Two and Three would result in less than significant impacts to flooding based on compliance with MS4 permit requirements. Phase One would have no impact to landside drainage patterns. Landside improvements associated with Phases Two and Three would result in less than significant impacts from localized changes to drainage patterns surrounding new landside facilities. While Phase One would have a less than significant impact on erosion, sedimentation and sediment dynamics, Phases Two and Three have the potential to result in a **significant impact** with regard to erosion, sedimentation and other sediment dynamics.

Mitigation Measures

Mitigation Measure 3.3-2d: Implement Spill Prevention and Control

Mitigation Measure 3.3-2f: Implement Dust and Debris Control

Mitigation Measure 3.9-1: Coastal Evaluation Study and Implementation of Design Control Measures

Prior to construction of in-water elements as part of Phases Two and Three, a Coastal Evaluation Study shall be prepared by a qualified coastal engineer. The study shall evaluate whether or not proposed in-water elements, such as piers, docks, breakwaters and other similar permanent structures will result in changes to sediment dynamics, currents, and wave patterns such that erosion or siltation of on-site or off-site shoreline areas and navigational channels would occur. The study will include recommendations regarding design control measures to address potential adverse effects resulting from changes to sediment dynamics, currents, and wave patterns which may affect shoreline areas and navigational channels.

If the Coastal Evaluation Study finds that proposed in-water elements could result in changes to sediment dynamics, currents, and wave patterns such that erosion or siltation of on-site or off-site shoreline areas and navigational channels would occur, the project shall implement design control measures to avoid and minimize those adverse effects, such as:

- Erosion control measures such as rip rap or bioengineered methods to control shoreline erosion.
- Project design modifications such as reconfiguration of in-water elements to lessen the adverse effects, or inclusion of additional elements such as breakwaters or similar structures to control, avoid and minimize potential adverse shoreline or navigational channel erosion or siltation.

<u>Significance after Mitigation</u>

Implementation of Mitigation Measures 3.3-2d, -2f, and 3.9-1 would reduce the potential impacts on pollution concerns by requiring measures to reduce the likelihood of erosion and siltation and other polluted stormwater runoff for landside activities for Phase Two and Three to a **less than significant level**.

Implementation of Mitigation Measure 3.9.3 would reduce the potential impact of changes in sediment dynamics, currents, or wave patterns (erosion and siltation) from the installation of the new boat basin and floating row house in Phase Two and Three to a **less than significant** level.

Impact 3.9-4: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

The project is located within Zone VE, a coastal area with a 1 percent chance or greater of flooding, and within a tsunami zone. All project phases could result in the release of pollutants due to project inundation resulting in a **significant** impact.

The project is located within Zone VE (FEMA 2024), which is classified as a coastal area with a 1 percent or greater chance of flooding and an additional hazard associated with storm waves. The site is also located in a tsunami zone.

<u>Phase One</u>

Construction Impacts

Under current conditions, both landside and in-water infrastructure carry the risk of contributing pollutants to the Bay during a flood or tsunami. If project site flooding were to occur during construction, sediments and equipment contaminants have the potential to enter bay waters. Though the potential is remote, this would be a potentially significant impact.

Post-construction Operations

The proposed pier improvements associated with Phase One would improve the storage and control of potential pollutant sources compared to existing conditions, as utilities would be reoriented to the top of the pier, providing better access for monitoring and maintenance, and pier stormwater infrastructure would be improved with the addition of cisterns. In addition, the conditions of on-shore storage facilities for hazardous materials will be improved. With these improvements, Phase One would result in a less than significant impact with regard to the release of pollutants resulting from flood or tsunami.

<u>Phase Two</u>

Construction Impacts

Phase Two components include the creation of a second boat basin (Boat Basin 2) and would involve expansion of the existing approximately 80,000 square-foot boat basin through development of a new pier with breakwater and installation of approximately 26 slips and berthing areas for Cal Maritime's fleet of work boats, tugboats, small passenger boats, and other vessels currently located off site and/or planning for future acquisition. Phase Two would consist of both in-water work and landside improvements, the construction of which, if it was to occur during a flood event or tsunami, could create the potential for sediments and other contaminants to enter bay waters. This would be a potentially significant impact.

Post-construction Operations

Maritime activities require the storage of potentially hazardous materials in proximity to the shoreline. If not properly contained and managed, these materials could be released into the environment in the event of a flood or tsunami. Similarly, classroom facilities and labs could store potentially hazardous chemicals in flood or tsunami zones. However, compliance with applicable requirements of the General Construction Stormwater Permit and Phase II Small MS4s General Permit would reduce pollution impacts involving inundation and other polluted stormwater runoff. The landside components could place facilities and land uses on the site that, without proper management, could pose a risk of release of pollutants from inundation resulting in a potentially significant impact.

<u>Phase Three</u>

Construction Impacts

Phase Three components include the development of a marine programs multi-use building and harbor control tower, construction of a floating row house, deployment of a marine hydrokinetic barge, and general enhancements to the campus shoreline and waterfront. Phase Three would consist of both in-water work and landside improvements, the construction of which, if it were to occur during a flood event or tsunami, could create the potential for sediments and other contaminants to enter bay waters. This would be a potentially significant impact.

Post-construction Operations

Maritime activities require the storage of potentially hazardous materials in proximity to the shoreline. If not properly contained and managed, these materials could be released into the environment in the event of a flood or tsunami. Similarly, classroom facilities and labs could store potentially hazardous chemicals in flood or tsunami zones. The landside components could place facilities and land uses on the site that, without proper management, risk the release of pollutants due to inundation resulting in a potentially significant impact.

<u>Summary</u>

Because the project site is within flood and tsunami zones, implementation of all three phases of the project could result in the release of pollutants due to project inundation. Phase One would reduce this risk compared to existing conditions, resulting in a less than significant impact. However, impacts related to the release of contaminants during implementation of Phases Two and Three of the project would be **significant**.

Mitigation Measures

Mitigation Measure 3.3-2d: Implement Spill Prevention and Control

Mitigation Measure 3.3-2f: Implement Dust and Debris Control

Mitigation Measure 3.9-2: Hazardous Material Storage Facilities

For all phases of the project, all permanent storage facilities for potentially hazardous materials shall be located on land and shall be designed to be resilient to flood events through incorporation of measures such as secondary containment, stable foundations that avoid buoyancy of storage facilities during floods, and access and entry ways that can be securely locked and secured.

<u>Significance after Mitigation</u>

Implementation of Mitigation Measures 3.3-2d, 3.3-2f, and 3.9-2, which would require implementation of spill prevention and control measures, dust and debris control measures, and hazardous materials storage controls, would reduce the potential impacts of flooding on the release of pollutants to a **less than significant** level.

Impact 3.9-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

No sustainable groundwater management plan is in effect for the project site; therefore, the project would not conflict with such a plan. All project phases could result in potential impacts to water quality and hydrology during construction and operations. Because such impacts could result in a conflict with or obstruct implementation of the Water Quality Control Plan for the San Francisco Bay Basin, this impact would be **significant.**

No sustainable groundwater management plan is in effect for the project site. As discussed previously, the Basin Plan contains water quality standards applicable to the project. As discussed above in Impact 3.9-1, all project phases have the potential to result in significant impacts to water quality during construction and operation. While the project would not result in the introduction of facilities that increase the potential for significant water quality impacts or require modifications to the Basin Plan prior to approval, the potential for degradation of water quality during both construction and operation would result in a **significant impact**.

Mitigation Measures

Mitigation Measure 3.3-2d: Implement Spill Prevention and Control

Mitigation Measure 3.3-2f: Implement Dust and Debris Control

Mitigation Measure 3.3-2g: Implement Sediment Testing and Dredging Controls

Mitigation Measure 3.3-2h: Use Appropriate Creosote Pile Removal and Disposal Methods

<u>Significance after Mitigation</u>

Implementation of Mitigation Measure 3.3-2d and -2f would reduce the potential impacts on surface water, stormwater, and groundwater by requiring measures to reduce the likelihood that contaminants from operating equipment and debris from construction would be reduced by implementing spill prevention practices and cleanup procedures, catchment systems for over-water areas, and dust control. With the implementation of these measures, the potential impacts of landside activities on surface water and stormwater would be reduced to less than significant.

Implementation of Mitigation Measures 3.3-2f, -2g, and -2h would reduce potential impacts on surface water from in-water construction work by requiring measures to reduce the likelihood that contaminants from dredging and creosote pile removal would be reduced by regular sediment testing, the use of silt curtains, and fragment retrieval for pile removal. With the implementation of these measures the potential impacts of in-water work on surface water would be reduced to less than significant.

Implementation of MS4 permit requirements would reduce potential impact on stormwater from landside construction work by implementing measures to reduce the likelihood that construction of impervious surfaces would increase stormwater by following the Stormwater Management Plan implemented by the campus. With the implementation of these measures the potential impacts of landside work on stormwater would be reduced to less than significant.

With implementation of these mitigation measures and adherence to all permit requirements, the project would not conflict with or obstruct implementation of the Basin Plan, and this impact would be reduced to a **less than significant** level.

3.10 LAND USE AND PLANNING

This land use analysis evaluates whether implementing the proposed project would physically divide an existing community or result in impacts related to conflicts with applicable land use plans and policies intended to avoid or mitigate environmental effects. The physical environmental effects associated with construction and operation of the project, many of which pertain to issues of land use compatibility (e.g., noise, aesthetics, air quality), are evaluated in other sections of Chapter 3 of this ~~Draft~~ EIR. This section describes the existing land use conditions on and in the vicinity of the campus and evaluates potential land use and planning policy-related impacts that could occur with implementation of the Waterfront Master Plan. The relationship of the proposed Waterfront Master Plan to land use plans and policies of the City of Vallejo is also discussed for informational purposes.

No comments related to land use and planning were received in response to the notice of preparation (NOP). See Appendix A for all NOP comments received.

3.10.1 Regulatory Setting

FEDERAL

No federal plans, policies, regulations, or laws related to land use are applicable to the project.

STATE

State Planning and Zoning Laws

California Government Code Section 65300 et seq. establishes the obligation of cities and counties to adopt and implement general plans. The general plan is a comprehensive, long-term, and general document that describes plans for the physical development of a city or county and of any land outside its boundaries that, in the city's or county's judgment, bears relation to its planning. Cities typically identify a "sphere of influence" in their general plans; these are areas outside the city corporate boundaries that make up the probable future boundary and service area of the city. The general plan addresses a broad range of topics, including at a minimum land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support the city's or county's vision for the area.

The State Zoning Law (California Government Code Section 65800 et seq.) establishes that zoning ordinances, which are laws that define allowable land uses within a specific zone district, are required to be consistent with the general plan. Local general plan policies and zoning ordinances, as they relate to the project, are summarized below. As discussed in greater detail below, Cal Maritime is not subject to municipal land use enactments; however, local plans and policies are discussed in this section for informational purposes.

State Lands Commission

The State Lands Commission (Commission) monitors sovereign land granted in trust by the California Legislature to approximately 70 local jurisdictions that generally consist of prime waterfront lands and coastal waters. The Commission protects and enhances these lands and natural resources by issuing leases for use or development, providing public access, and resolving boundaries between public and private lands. Through its actions, the Commission secures and safeguards the public's access rights to natural navigable waterways and the coastline and preserves irreplaceable natural habitats for wildlife, vegetation, and biological communities. The Commission also protects state waters from marine invasive species introductions and prevents oil spills by providing the best achievable protection of the marine environment at all marine oil terminals in California and offshore oil platforms and production facilities. These efforts would protect surrounding Bay wetlands, improve public access to the shoreline, and continue enhancing the San Francisco Bay Trail.

Public Trust Doctrine

The Commission manages sovereign and public trust lands, including coastal tidelands, all navigable rivers, streams, and lakes, and is charged with ensuring a balance between the development of resources and their preservation in accordance with the requirements of the Public Trust Doctrine. The Public Trust Doctrine protects sovereign lands, such as tide and submerged lands and the beds of navigable waterways, for the benefit, use and enjoyment of the public. These lands are held in trust by the State of California for the statewide public and for uses that further the purposes of the trust. The hallmark of the Public Trust Doctrine is that trust lands belong to the public and are to be used to promote publicly beneficial uses that connect the public to the water (CLSC 2023).

The State Department of Education was granted sovereign salt marsh, tide and submerged lands underlying the area of Morrow Cove adjacent to Cal Maritime in trust 1945 for the use and benefit of the California Maritime Academy. Located in the City of Vallejo, the Academy is one of only seven degree-granting maritime academies in the United States and the only one on the West Coast (CLSC 2023).

Cal Maritime Physical Master Plan

The Cal Maritime Physical Master Plan is a guidebook that defines the spatial implications and vision for Cal Maritime's next phase of growth. The Physical Master Plan is a 15-year blueprint that covers all aspects of the campus's development, including student enrollment growth, overall campus land use and design, building capacity and placement, circulation and infrastructure, and sustainability (Cal Maritime 2017). One of the primary goals of the Physical Master Plan is to create an efficient circulation network that emphasizes mobility and prioritizes the pedestrian experience while accommodating vehicular needs and parking realities. Chapter 2 of the Physical Master Plan discusses Cal Maritime facilities' primary land uses and facility types.

McAteer-Petris Act

The McAteer-Petris Act (California Government Code Section 66000 et seq.), first enacted in 1965, created the San Francisco Bay Conservation and Development Commission (BCDC), a state planning and regulatory agency with authority over the San Francisco Bay. BCDC is charged with preparing a plan (the San Francisco Bay Plan [Bay Plan]) to protect the San Francisco Bay and shoreline and provide for appropriate development and public access. The act directs BCDC to exercise its authority to issue or deny permit applications for placing fill, dredging, or changing the use of any land, water, or structure in the area of its jurisdiction (i.e., San Francisco Bay waters and a 100-foot band above the shoreline). Pursuant to the McAteer-Petris Act, BCDC has designated certain areas within the 100-foot shoreline band for specific priority uses, including ports, water-related industry, water-oriented recreation, airports, and wildlife refuges. BCDC has authority to grant or deny permits for development or other actions in the priority use areas based on Bay Plan policies pertaining to priority use.

San Francisco Bay Conservation and Development Commission

As noted above, BCDC is dedicated to the protection and enhancement of San Francisco Bay and to the encouragement of its responsible use. Pursuant to the McAteer-Petris Act, BCDC is designated as the agency responsible for the protection of the bay and its natural resources and for the regulation of the development of the bay and shoreline to their highest potential with a minimum of bay fill. It is necessary to obtain BCDC approval before undertaking any work within 100 feet of the bay shoreline; filling the bay or certain tributaries of the bay; dredging; and/or conducting any filling, new construction, major remodeling, and substantial change in use. BCDC's coastal management program as it applies to the project site is based on the provisions and policies of the McAteer-Petris Act and the Bay Plan, as well as BCDC's administrative regulations.

San Francisco Bay Plan

The Bay Plan is a policy tool implemented by BCDC that, under the provisions of the McAteer-Petris Act, allows 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—an area that includes all of the bay, a shoreline band 100 feet from the water, and salt ponds, managed wetlands, and certain waterways associated with the bay. The Bay Plan stipulates, "Any public agency or private owner holding shoreline land is required to obtain a permit from the Commission before proceeding with [shoreline] development" (BCDC 2020).

The Bay Plan contains development guidelines that are specific for subareas of the bay, including land in and around the campus. Specifically, the document calls for the provision of public access along the Carquinez Strait shoreline and on bluff tops with views overlooking the Carquinez Strait, and the preservation of views of the water. The Bay Plan also recommends that urban development be clustered so as to maximize bay views and conserve natural landscape features (BCDC 2020). The following policies of the Bay Plan are relevant to Cal Maritime:

- Shoreline Protection Policy 5: Adverse impacts to natural resources and public access from new shoreline protection should be avoided. Where significant impacts cannot be avoided, mitigation or alternative public access should be provided.
- Recreation Policy 3: Recreational facilities, such as waterfront parks, trails, marinas, live-aboard boats, non-motorized small boat access, fishing piers, launching lanes, and beaches, should be encouraged and allowed by the Commission, provided they are located, improved, and managed consistent with the required standards.
- Public Access Policy 2: In addition to the public access to the Bay provided by waterfront parks, beaches, marinas, and fishing piers, maximum feasible access to and along the waterfront and on any permitted fills should be provided in and through every new development in the Bay or on the shoreline, whether it be for housing, industry, port, airport, public facility, wildlife area, or other use, except in cases where public access would be clearly inconsistent with the project because of public safety considerations or significant use conflicts, including unavoidable, significant adverse effects on Bay natural resources. In these cases, in lieu access at another location, preferably near the project, should be provided.
- Public Access Policy 6: Whenever public access to the Bay is provided as a condition of development, on fill or on the shoreline, the access should be permanently guaranteed. This should be done wherever appropriate by requiring dedication of fee title or easements at no cost to the public, in the same manner that streets, park sites, and school sites are dedicated to the public as part of the subdivision process in cities and counties. Any public access provided as a condition of development should either be required to remain viable in the event of future sea level rise or flooding, or equivalent access consistent with the project should be provided nearby.
- Public Access Policy 7: Public access improvements provided as a condition of any approval should be consistent with the project and the physical environment, including protection of Bay natural resources, such as aquatic life, wildlife and plant communities, and provide for the public's safety and convenience. The improvements should be designed and built to encourage diverse Bay-related activities and movement to and along the shoreline, should permit barrier free access for persons with disabilities to the maximum feasible extent, should include an ongoing maintenance program, and should be identified with appropriate signs.
- Public Access Policy 8: In some areas, a small amount of fill may be allowed if the fill is necessary and is the minimum absolutely required to develop the project in accordance with the Commission's public access requirements.
- Public Access Policy 9: Access to and along the waterfront should be provided by walkways, trails, or other appropriate means and connect to the nearest public thoroughfare where convenient parking or public transportation may be available. Diverse and interesting public access experiences should be provided which would encourage users to remain in the designated access areas to avoid or minimize potential adverse effects on wildlife and their habitat.
- Public Access Policy 10: Roads near the edge of the water should be designed as scenic parkways for slow-moving, principally recreational traffic. The roadway and right-of-way design should maintain and enhance visual access for the traveler, discourage through traffic, and provide for safe, separated, and improved physical access to and along the shore. Public transit use and connections to the shoreline should be encouraged where appropriate.
- Appearance, Design, and Scenic Views Policy 2: All bayfront development should be designed to enhance the pleasure of the user or viewer of the Bay. Maximum efforts should be made to provide, enhance, or preserve views of the Bay and shoreline, especially from public areas, from the Bay itself, and from the opposite shore. To this end, planning of waterfront development should include participation by professionals who are

knowledgeable of the Commission's concerns, such as landscape architects, urban designers, or architects, working in conjunction with engineers and professionals in other fields.

- **Other Uses of the Bay and Shoreline Policy 2:** Accessory structures such as boat docks and portions of a principal structure may extend on piles over the water when such extension is necessary to enable actual use of the water, e.g., for mooring boats, or to use the Bay as an asset in the design of the structure.

Special area plans are subject to the same procedures for public notice, hearing, and voting as other amendments or changes in the Bay Plan policies and maps. Special area plans that have been adopted by the Commission and are specified by area on the appropriate Bay Plan maps. The Suisun Marsh Protection Plan was adopted by the Commission in 1976 and submitted to the Legislature and the Governor as required under provisions of the Nejedly-Bagley-Z'berg Suisun Marsh Preservation Act of 1974. The Suisun Marsh Protection Plan has as its objectives the preservation and enhancement of the quality and diversity of the 85,000-acre aquatic and wildlife habitats of the area and to assure retention of upland areas adjacent to the Marsh in uses compatible with its protection.

The Protection Plan was designed to be a more specific application of the general, regional policies of the San Francisco Bay Plan and to supplement such policies where appropriate because of the unique characteristics of the Suisun Marsh. The Suisun Marsh Preservation Act of 1977 established primary and secondary management areas and directed the establishment of procedures for carrying out provisions of the Plan and the Act in those areas. The Act specifies that appropriate policies of the San Francisco Bay Plan and the Suisun Marsh Protection Plan shall apply to the Commission's area of jurisdiction and that if a conflict occurs between the two Plans the policies of the Suisun Marsh Protection Plan shall control. Public access to and preservation of the Morrow Cove shoreline park area are maintained through a permit granted by BCDC to Cal Maritime in 1977.

LOCAL

Cal Maritime is part of the CSU, which is a statutorily- and legislatively-created and constitutionally authorized entity of the State of California, and therefore the project site is owned by the CSU. As explained in Chapter 3 of this ~~Draft~~ EIR, in the “California State University Autonomy” section, as a state agency, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, this EIR does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes.

City of Vallejo General Plan

The 2040 Vallejo General Plan, which was most recently amended in 2017, establishes the goals and policies guiding land use and development in the City’s Planning Area. Land use, transportation systems, environmental concerns, and economic and equity goals are discussed in the General Plan. The City of Vallejo General Plan Land Use Element provides policies to address land use and planning in the city and to guide sustainable development that meets their land use and planning needs (City of Vallejo 2017). As noted above, Cal Maritime is not subject to municipal land use enactments, such as the City of Vallejo General Plan; however, local plans and policies are discussed in this section for informational purposes and to acknowledge that Cal Maritime considers local policies, when appropriate and when feasible. The following policies related to land use and planning are relevant to the project:

- **Policy CP-1.7: Green Space.** Promote community physical and mental health through provision and preservation of the urban forest, natural areas, and “green” infrastructure (i.e., best practices water management).
- **Policy CP-3.4: Parks.** Plan for and provide parkland and facilities to support Vallejo’s recreational needs.
- **Policy NBE-1.6: Open Space.** Conserve and enhance natural open space areas in and adjacent to Vallejo and its waterfront.
- **Policy NBE-2.4: Play to Strengths.** Capitalize on Vallejo’s maritime tradition, higher education presence, and historic downtown to keep and attract land use activities that contribute positive energy to the community.

- **Policy NBE-4.1: Waterfront Focus.** Prioritize public access and recreational and water-dependent uses along the waterfront while minimizing adverse effects on the natural environment.
- **Policy NBE-4.3: Trails.** Support development and implementation of a comprehensive plan for trails that provides access to the waterfront.
- **Policy NBE-4.4: Visual Continuity.** Foster a cohesive and distinctive visual experience along the waterfront.
- **Policy NBE-4.5: Waterfront Stewardship.** Manage commercial areas of the waterfront so as to contribute to the overall sustainable fiscal health of the City.
- **Policy EET-1.4: Higher Education.** Capitalize on Vallejo's role as host to multiple institutions of higher education and their important place in the community and economy.
- **Policy EET-2.4: Prepared and Versatile Workforce.** Increase community workforce preparedness for a wide variety of sectors, including arts and culture, health care, high tech, maritime, and manufacturing.

Other policies provided in the General Plan pertain to specific issue areas (e.g., visual resources) and are provided in other sections of this EIR where appropriate.

South Gateway Area/South Vallejo

The campus of Cal Maritime sits at the southern gateway to Vallejo. The General Plan supports the continued expansion of the campus at this location and encourages residential development along Sonoma Boulevard from the campus to McLane Street, with mixed-use urban villages providing shops and services for local residents at the Magazine Street and Lemon Street intersections. The General Plan supports community gardens and smaller-scale urban farms in this area, where local residents can grow fresh, healthy food for their families. A completed San Francisco Bay Trail helps connect Cal Maritime and nearby areas with key destinations in Vallejo.

City of Vallejo Zoning Ordinance

The City of Vallejo's Zoning Ordinance establishes zoning guidelines for the City and contains development standards to ensure orderly development that is consistent with the character of existing neighborhoods (City of Vallejo 2019). The Zoning Ordinance implements the policies of the General Plan and other City plans, policies, and ordinances. The Cal Maritime campus is zoned as Public Facilities (PF) in the Vallejo Zoning Ordinance. According to the Vallejo Municipal Code, permitted uses under the PF district include state colleges and universities, community centers, and libraries, among many others.

San Francisco Bay Trail Plan

The San Francisco Bay Trail Plan is composed of policy guidelines for the routing, design, implementation, and protection of the San Francisco Bay Trail, a partially completed pedestrian and bike trail circumnavigating the San Francisco Bay. The trail is managed by the Bay Trail Project, a nonprofit organization, with the support of the Association of Bay Area Governments (MTC 2023). The San Francisco Bay Trail Plan states that the document is intended to complement, rather than supersede, the policy of local managing agencies (Policy #42). However, the plan urges local land management agencies to include references to the trail in their planning and policy documents (Policy #41) and to maintain and manage the trail after it is built (Policy #45). In addition, the San Francisco Bay Trail Plan encourages land management agencies to use a wide variety of funding options identified in the document when implementing bay trail segments in their jurisdictions (Policy #46) (MTC 2023).

A section of the San Francisco Bay Trail runs northeast through the south side of the campus. Ultimately the trail is proposed to run north along Sonoma Boulevard, connecting to the existing trail at Maritime Academy Drive to the south and Curtola Parkway to the north.

3.10.2 Environmental Setting

Land use planning is used to direct the amount, type, and location of different land uses and to coordinate anticipated development efforts for long-term efficiency of land uses and developed systems (e.g., circulation, infrastructure, and building space) within a planning area. This section describes the existing conditions related to land use and the existing land use designations at and near (within approximately 0.25 mile) of the project site.

CAL MARITIME CAMPUS

The campus is located in Solano County within the City of Vallejo, south of downtown, and east of the City of Benicia, as shown in Figure 2-2 in Chapter 2, "Project Description." The campus is accessible from I-80, which is located to the east. Maritime Academy Drive is the primary access road linking I-80 to the campus. The campus lies adjacent to Morrow Cove and the Carquinez Strait and faces west toward San Pablo Bay. These waters make up the northeast portion of the greater San Francisco Bay. A panoramic view of the bay to the west and the Carquinez Bridge to the southwest can be seen from the campus. The Cal Maritime campus is zoned as Public Facilities (PF) in the Vallejo Zoning Ordinance. According to the Vallejo Municipal Code, permitted uses under the PF district include state colleges and universities, community centers, and libraries, among many others.

Cal Maritime facilities contain 10 primary land use and facility types: Academic, Administration, Auditorium, Facilities, Library, Maritime Training, Recreation, Services, Staff Housing, and Student Housing. Academic land uses make up 24 percent of the developed area of the campus. Some of the largest academic facilities are the Classroom Building, the Engineering Building, and the Laboratory Building. Administration land uses make up 3 percent of all building area on campus and include the Administration Building and Physical Plant buildings. The Auditorium land use is reserved for the campus main Auditorium, which is mainly used for formal gatherings or ceremonies. Facilities uses make up 3 percent of all building area on campus and provide space for support staff and equipment, as well as the Shoreside Boiler, which allows the TSGB to access steam when moored (Cal Maritime 2017).

Maritime Training land uses are distinctive to the university's training commitments and requirements. They make up 15 percent of the building area on campus and include the Simulation Center, Steam Plant Simulator, and part of the Physical Education Facility. Recreation land uses include part of the new Physical Education Facility and make up 5 percent of all building area on campus. The Physical Education Facility is the new home for Keelhauler Athletics and serves as a recreation center, in addition to hosting various instructional and maritime-related activities. Services make up 16 percent of the developed area on campus and include buildings such as the Dining Center and Student Center. Staff Housing is limited to four structures on the upper west campus and includes the President's Residence. Student Housing uses make up 26 percent of all building area on campus and are mostly located on the upper west campus (Cal Maritime 2017).

PROJECT SITE

The project site is located in the southern portion of the City of Vallejo, at the southern edge of the existing Cal Maritime campus and is partially within the waters of Morrow Cove of San Pablo Bay. The project site itself and the surrounding lower campus are characterized by a narrow, flat valley between the two steep hillsides to the east and west of campus and a shoreline area that fluctuates in elevation in relation to tides. The shoreline, armored with rocky riprap, shown in Figure 3.1-5, has a downward slope from the shoreline to the water's surface. The project site includes Morrow Cove, the main pier and berth for the TSGB, boat basins, the boathouse, the Marine Yard, two instructional marine buildings, and a formal promenade along the waterfront.

The main pier and berth for the TSGB and adjacent boat basins are major features of the waterfront. The main pier was originally constructed of timber in 1942 but was later replaced with a reinforced concrete pier supported on steel piles driven into the bay bottom, which is the current structure of the pier. The TSGB ties up to the face of the pier when moored on the port side. The boat basin is enclosed by the shore of Morrow Cove to the northeast, and to the south and west, breakwater panels attached to the pier and catwalk protect the boat basin from the predominant wind waves, which come from the west. The boathouse, which was built alongside the pier in 1942, is a wooden framed building with wooden siding. The boathouse facility contains a large, open assembly area, seven offices, two unisex restrooms, utility and equipment rooms, a break room, wood and metal workshops, storage spaces, and a partially enclosed boat basin with three boat slips. Figure 3.1-2 provides an aerial view of the existing main pier, boat basin, boathouse, and TSGB.

The Marine Yard, located in the eastern portion of the project site east of the Marine Programs and Naval Science Modular buildings and boathouse and south of the Alumni Plaza, is secured by fencing and a guardhouse structure as part of Cal Maritime and port security requirements and Maritime Security levels identified by the US Coast Guard. Pedestrians and bicyclists can enter the Marine Yard through the security gate built into the fencing of the Marine Yard. The Marine Yard hosts a number of services and small buildings and structures, including 11 shipping containers, one prefabricated metal fabrication facility, one prefabricated dock boiler with metal access deck and foundations supporting the TSGB, one electrical substation and transformer equipment with slab on grade, one fire alarm panel, one fire hydrant and back-check valve, one monopole hosting emergency communications equipment, 35 parking stalls, boat trailers, and two mooring bollards associated with TSGB berthing. The Marine Yard is used for students to train with forklifts and ships' cranes for provisioning activities. Figure 3.1-3 provides a view of the secured portion of the Marine Yard from the outside, showcasing the fencing and guardhouse structure, whereas Figure 3.1-4 provides a view from the secured portion of the Marine Yard, showcasing the parking stalls and the shipping containers.

Outside the secured perimeter of the Marine Yard are the Marine Programs and Naval Science modular buildings, which include two prefabricated modular structures that sit directly north of the boathouse. Figure 3.1-5 provides an elevated view from the coastal hillside next to the campus, showing an overview of the TSGB, boat basin, boathouse, Marine Yard, and Marine Programs and Naval Science Modular buildings. The formal promenade along the waterfront of Morrow Cove is dominated by open lawn areas around the buildings located in the lower campus. Figure 3.1-6 provides a view looking west of the shoreline and waterfront esplanade.

Access to the project site is provided by Maritime Academy Drive, which intersects State Route 29/Sonoma Boulevard just north of I-80 entry/exit ramps. Maritime Academy Drive descends from the northern and western portions of the campus, directing traffic along the eastern edge of the lower portion of the campus before terminating at the campus pier. Vehicular traffic enters campus from Maritime Academy Drive to the north. Maritime Academy Drive and Morrow Cove Drive form a loop around the lower campus and provide access to the project site. Parking for staff, students and visitors is located both east and west of Maritime Academy Drive, north of the main portion of campus.

EXISITING LAND USES

The campus covers approximately 88 acres: 76 acres of land and 12 acres of waterways (Cal Maritime 2017). As described in Chapter 2, "Project Description," the campus is divided by topography into four main "zones," consisting of the lower campus, the upper east campus, the upper west campus, and the upper north campus. The Cal Maritime campus includes buildings and facilities that serve the primary academic and secondary support purposes of the Cal Maritime community. Most buildings are relatively low in scale, and none currently exceed three stories. In addition, the campus includes a working pier that moors the 499-foot TSGB, in addition to several smaller vessels and oceangoing craft.

The campus has 47 structures totaling approximately 397,018 square feet. Most of the campus buildings lie on flat, filled land adjacent to the bay, with the exception of the Upper Residence Hall, McAllister Hall, Staff Housing, the Physical Education Facility, the University Police Department, and support buildings. Academic and administrative land uses (e.g., classrooms, library, engineering buildings, Technology Center, Dining Center) are found on the flat, filled lands adjacent to the bay in the southwestern portion of campus. The Upper and Lower Residence Halls are located north of this flat area, each on a southward-facing hill slope. Faculty housing is located at the summit of this hill. Athletic fields, the McAllister Residence Hall, and two parking lots are located north of the faculty residence. Tennis and basketball courts are located along Maritime Academy Drive, the eastern border of campus. Additionally, along Maritime Academy Drive, north of the tennis and basketball courts are the University Police Department and the Physical Education and Aquatics Center. A large parking area and a group of campus-support buildings are located on a west-facing hillside immediately east of the central, flat portion of the campus. Existing land uses within the vicinity of Cal Maritime are as follows:

- **Areas to the North.** Country Lane Drive delineates the northern border of the main portion of the campus. To the north of Country Lane Drive is the Carquinez Highland Mobile Home Park and additional residential uses. A small portion of the campus extends north beyond Country Lane Drive, where the Physical Education Center is located. North of the Physical Education Center are the Motel 6 site, Carquinez Park, residential uses, and Grace Patterson Elementary School, a public elementary school in the Vallejo City Unified School District.
- **Areas to the East.** The I-80 corridor delineates the eastern border of the campus. East of I-80 are undeveloped hillsides and residential uses, as well as the Swanzy Reservoir.
- **Areas to the South.** Morrow Cove and Carquinez Strait lie southwest of the campus. Carquinez Strait is used for commercial shipping and water-oriented activities. The Town of Crockett is located on the southern shoreline of Carquinez Strait and faces the campus to the north.
- **Areas to the West.** Steep hillsides covered with scrub vegetation and grasses straddle the western border of the campus. The Crystal Pointe single-family residential development begins on the summit of these hills and continues to the west. The Coast Guard property identified as a potential acquisition site is also located in this area. Steep, scrub-covered bluffs extend westward from the campus. The bluffs end in a rocky shoreline and cut off formal pedestrian access to the west. Offshore, the waters of Carquinez Strait and Mare Island Strait merge and flow into San Pablo Bay.

MARITIME GROWTH AND LAND USE IN VALLEJO

In 1854, the US Navy established the first West Coast naval facility, on Mare Island, a development that helped spur local population, industrial, and commercial growth in Vallejo until the base closed in 1996. The City experienced strong growth throughout the 1980s, encouraged by local pro-growth policies, an abundance of vacant land, and available water and sewer infrastructure. During the 1980s, new housing construction occurred predominantly in northern areas of the city, around Six Flags Marine World and Blue Rock Springs Golf Course. More recently, housing has been developed on Mare Island and in the eastern areas of the city (Cal Maritime 2017).

Surrounding land uses include the Crystal Pointe neighborhood, consisting of single-family residences located beyond the northwestern boundary of the campus. East of the campus boundary are the Carquinez Bridge Vista Point, Carquinez Bridge, Livingstone’s Inspiration Park, the Bay Area Ridge Trail, and I-80. As noted above, the project site is primarily located on the waterfront and within Morrow Cove.

3.10.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

This discussion focuses on impacts related to land use and planning, including potential impacts caused by conflicts with plans, policies, and regulations adopted for the purpose of avoiding environmental effects. Please refer to Section 3.1,” Aesthetics,” for a discussion of consistency with pertinent City of Vallejo General Plan policies related to the protection of visual character and public views.

Evaluation of potential land use impacts is based on a review of the planning documents pertaining to the project area, including the Cal Maritime Physical Master Plan, and for informational purposes, the City of Vallejo General Plan and Land Use Code. In determining the level of significance, this analysis assumes that implementation of the Cal Maritime Waterfront Master Plan would comply with relevant local, state, and federal regulations related to land use. This includes compliance with City of Vallejo General Plan policies and zoning regulations, which the University would comply with to the extent practicable. For this analysis, policies “adopted for the purpose of avoiding or mitigating an environmental effect” are considered those that, if implemented and adhered to, would avoid or mitigate physical impacts on the environment. For each potential impact, the analysis compares the impact to the standards of significance listed below and determines the impact’s level of significance under CEQA. The reader is referred to the other sections of this EIR for evaluation of project consistency with City and state policies and regulations related to environmental issue areas beyond land use.

THRESHOLDS OF SIGNIFICANCE

A land use impact would be significant if implementation of the proposed project would:

- physically divide an established community or
- 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.

ISSUES NOT DISCUSSED FURTHER

Physically Divide an Established Community

The Cal Maritime Waterfront Master Plan would be developed in Morrow Cove and along the waterfront promenade on the Cal Maritime campus. Implementing the project would not create structures that could physically divide an established community. Proposed off-site improvements would include shoreline enhancements and pedestrian facilities that would occur within the existing waterfront. The project would have no impact related to the physical division of an established community. Therefore, this issue is not discussed further in this EIR.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.10-1: 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

The project would involve new and redeveloped facilities on the Cal Maritime waterfront and adjacent Morrow Cove. The project site has been identified by the Physical Master Plan as the most prominent feature of the Cal Maritime campus that supports teaching and recreational programming. Although the Physical Master Plan does not have any policies adopted for the purpose of avoiding environmental effects to conform to, the project would conform to the plan's land use map. The project would also comply with all applicable environmental regulatory requirements through the incorporation of project design features, recommended mitigation measures, and permit conditions. The project's compliance with such requirements is described in the analysis of resource impacts throughout Chapter 3 of this EIR. The project would not create a conflict with any plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. This Impact would be **less than significant**.

As part of the CSU, a statutorily and legislatively created, constitutionally authorized state entity, Cal Maritime is not subject to municipal regulations of surrounding local governments, such as the City of Vallejo General Plan or land use designations, for uses on property owned or controlled by Cal Maritime that are in furtherance of its education purposes. Therefore, potential project conflicts with these policies are discussed for informational purposes. Cal Maritime is required to comply with policies set forth by BCDC for the purpose of avoiding or mitigating environmental effects.

Phase One

Phase One of the project would focus on Cal Maritime's readiness for the arrival of the NSMV. Development of Phase One would involve demolition of the existing pier, construction of a new pier; reinforcement and extension of the trestle to a new length of 220 feet (with possible replacement of the existing trestle); installation of new floating and training docks at the boat basin; expansion and upgrading of the Marine Yard; utility upgrades; and maintenance dredging of the existing boat basin and new dredging in the expanded boat basin. During construction, the TSGB would be relocated to the Suisun Bay Reserve Fleet; however, this relocation would not result in any changes or impacts on land use, as no physical improvements would be required for this element of the project.

Expansion of the main pier and facility upgrades proposed as part of Phase One would develop land uses similar to those on the site before construction and project implementation. Refer to Figure 2-14-1 which presents a rendering of the proposed Phase One components. Construction and operation of the project's Phase I components would not conflict with plans, policies and regulation established to avoid or mitigate environmental impacts, as the project would conform to the Physical Master Plan, the Bay Plan, and to the extent feasible, the City of Vallejo General Plan. Although the Physical Master Plan does not have any policies adopted for the purpose of avoiding environmental effects to conform to, the project would conform to the plan's land use map.

The proposed project would be consistent with applicable Bay Plan policies set forth by the BCDC to ensure compliance with regional regulations and further emphasizing its commitment to environmental stewardship. Bay Plan policies, which apply to the Suisun Marsh Protection Plan, focus on the protection and enhancement of water-adjacent properties in the San Fracisco Bay for public access and recreation and protection of water quality and biological resources. The proposed project involves reconstruction, repair, and maintenance of facilities necessary to accommodate the arrival of the NSMV and continue cadet instruction and maritime education that already occurs at the project site and would continue under project conditions. In addition, Bay Plan policies focus on limitations to dredging, pile driving, and over-water coverage to minimize associated environmental impacts, including adverse effects on biological resources. As such, the proposed project would be consistent with Bay Plan policies that aim to mitigate potential environmental harm by adhering to strict limitations on activities such as dredging and pile driving, thereby contributing to the preservation and protection of local biological resources. More specifically, project development along the waterfront would comply with Bay Plan Shoreline Protection Policy 5, Recreation Policy 3, Public Access Policies 2, 6, 7, 8, 9, and 10, Appearance, Design, and Scenic Views Policy 2, Other Uses of the Bay and Shoreline Policy 2.

Additionally, while CSU is not required to adhere to City of Vallejo policies, the project generally would be consistent with applicable City policies adopted for the purpose of avoiding environmental impacts. More specifically, the proposed project would consider applicable local policies, such as General Plan Policies NBE-4.1 and NBE 4.3 through NBE-4.5, as well as the City of Vallejo's Zoning Ordinance. The project would also comply with applicable environmental regulatory requirements through the incorporation of project design features, recommended mitigation measures, and permit conditions. The physical impacts of the project are discussed throughout Chapter 3 of this EIR, and the specific ways in which the project would comply with specific regulatory requirements are discussed.

With adherence to existing plans policies and regulations, such as those set forth in the Bay Plan, the Suisun Marsh Protection Plan, which is subject to the same policies as the Bay Plan, the City of Vallejo General Plan, and applicable environmental regulatory requirements, the proposed project would avoid conflicts with applicable plans, policies, and regulations that have been adopted for the purposes of avoiding or mitigating environmental effects. Proposed development that would occur with Phase One of project implementation would be limited to within the campus boundaries and would consist of the essential elements required to meet Cal Maritime's readiness to receive the NSMV, and the project would be constructed and operated in a manner that is consistent with existing environmental protection plans, policies, and regulations. Therefore, Phase One project implementation would not conflict with any plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. This impact would be less than significant.

Phase Two

Phase Two of the project would focus on activities that are important for Cal Maritime's educational mission and expansion of cadet instruction, including expansion of the boat basin to create Boat Basin 2 and a new pier through development of a new breakwater and installation of additional slips and berths for Cal Maritime's boat fleet, and other vessels currently located off-site and/or planned for future acquisition. Phase Two would also include rehabilitating the boathouse, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning through shoreline enhancements. These improvements would address needed seismic upgrades and tectonic modifications of the existing structure and would maintain the site's existing use for maritime programs. Outside the MARSEC-secured perimeter, the Marine Yard would be enhanced to include a pedestrian-oriented plaza, providing a corridor to maintain vehicular/pedestrian connections. The development of Boat Basin 2 would constitute the largest modification of the site. Although Boat Basin 2 would be an addition to the area, the current functions and activities of the basin would remain unaffected by the introduction of Boat Basin 2.

Specifically, it would not introduce new land uses that are incompatible or conflicting with the surrounding environment. Refer to Figure 2-15 which presents a rendering of the completed Phase Two components.

These proposed Phase Two improvements would not result in changes to existing land uses, nor would they result in conflicts with plans, policies or regulations intended to minimize environmental effects. The project would be consistent with the intent of the Physical Master Plan, would comply with all appliable environmental regulatory requirements, including BCDC plans and policies, and would be consistent with City of Vallejo policies to the extent practicable. As noted above, compliance with environmental regulatory requirements pertaining to specific resources is discussed throughout the other sections in Chapter 3 of this EIR.

Proposed development that would occur with project implementation would be limited to within the campus boundaries and would consist of those necessary for the expansion of cadet instruction and maritime programs. Project development along the waterfront would comply with Bay Plan Shoreline Protection Policy 5, Recreation Policy 3, Public Access Policies 2, 6, 7, 8, 9, and 10, Appearance, Design, and Scenic Views Policy 2, Other Uses of the Bay and Shoreline Policy 2. As stated, Cal Maritime is not subject to municipal land use enactments, such as the City of Vallejo General Plan. However, the proposed Project would consider local policies, such as General Plan Policies NBE-4.1 and NBE 4.3 through NBE-4.5, as well as the City of Vallejo’s Zoning Ordinance. Therefore, Phase Two project implementation would not result in any changes to land use and would not conflict with any plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. This impact would be less than significant.

Phase Three

Phase Three of the proposed project would focus on additional redevelopment of the Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. This phase would also include improvements to the level of resilience to climate- and storm-related stresses, as well as campus-coastline experiences and open spaces. A marine hydrokinetic barge and linking trestle, which would be located to the far southeast side of campus anchored close to the shore, also would be included under Phase Three. The Marine Programs Multi-Use Building would replace the existing obsolete trailers and Marine Programs and Naval Science modulars that are currently adjacent to the boat basin. The building area would be approximately 20,300 square feet, and the building would be two stories in height. Classrooms and outdoor learning spaces will be incorporated in conjunction with the Marine Programs Multi-Use Building. Refer to Figure 2-20 which provides a rendering of the completed Phase Three components and the completed design of the proposed project.

As described above for Phases One Two, the Phase Three features would not result in a significant impact related to a conflict with plans, policies, or regulations intended to avoid or mitigate environmental impacts, because the components of Phase Three would be consistent with the intent of the Physical Master Plan, would comply with all appliable environmental regulatory requirements, including BCDC plans and policies, and would be consistent with City of Vallejo policies to the extent practicable. As noted above, compliance with environmental regulatory requirements pertaining to specific resources is discussed throughout the other sections in Chapter 3 of this EIR.

Phase Three would propose improvement to the existing riprap shoreline through the introduction of natural features including a subtidal living reef, and a rocky intertidal zone. Proposed development during Phase Three would consist of the expansion of the Maritime Programs Multi-Use Building and improvements to Cal Maritime waterfront. Project development along the waterfront would comply with Bay Plan Shoreline Protection Policy 5, Recreation Policy 3, Public Access Policies 2, 6, 7, 8, 9, and 10, Appearance, Design, and Scenic Views Policy 2, Other Uses of the Bay and Shoreline Policy 2. As stated, Cal Maritime is not subject to municipal land use enactments, such as the City of Vallejo General Plan. However, the proposed Project would consider local policies, such as General Plan Policies NBE-4.1 and NBE 4.3 through NBE-4.5, as well as the City of Vallejo’s Zoning Ordinance. These policies collectively emphasize aspects such as active transportation, green space promotion, parkland provision, downtown and waterfront development, and recreational and cultural facilities encouragement. The project's alignment with these policies reflects its compatibility with the city's broader vision for future land use and planning. Further, City policies encourage the development of open spaces and trails along the waterfront, which is one of the primary foci of Phase Three. Therefore, implementing Phase Three would not result in a significant impact related to conflicts with land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. This impact would be less than significant.

Summary

The project would provide improvements to the existing campus that would support existing programs and facilitate additional Cal Maritime programs on the existing campus that would enhance maritime tradition, higher education presence, and waterfront amenities. All phases of the project would comply with relevant plans, policies, and regulations, including City of Vallejo policies to the extent practicable. The project, therefore, would not create a conflict with any plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.11 NOISE AND VIBRATION

This section includes a summary of applicable regulations related to noise and vibration, a description of ambient-noise conditions, and an analysis of potential short-term construction and long-term operational-source noise impacts associated with the proposed project. Mitigation measures are recommended as necessary to reduce significant noise impacts. Additional data are provided in Appendix I, "Noise Measurement Data and Noise Modeling Calculations."

3.11.1 Regulatory Setting

FEDERAL

US Environmental Protection Agency Office of Noise Abatement and Control

The US Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate federal noise control activities. In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at more local levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to state and local governments. However, documents and research completed by the EPA Office of Noise Abatement and Control continue to provide value in the analysis of noise effects.

Federal Transit Administration

To address the human response to ground vibration, the Federal Transit Administration (FTA) has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines are presented in Table 3.11-1. In addition, FTA has also established construction vibration damage criteria, shown below in Table 3.11-2.

Table 3.11-1 Ground-Borne Vibration Impact Criteria for General Assessment

Land Use Category	GVB Impact Levels (VdB re 1 microinch/second) Frequent Events[1]	GVB Impact Levels (VdB re 1 microinch/second) Occasional Events[2]	GVB Impact Levels (VdB re 1 microinch/second)Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations.	65 [4]	65 [4]	65 [4]
Category 2: Residences and buildings where people normally sleep.	72	75	80
Category 3: Institutional land uses with primarily daytime uses.	75	78	83

Notes: GBV = ground-borne vibration; VdB = vibration decibels referenced to 1 microinch per second and based on the root mean square velocity amplitude.

1 "Frequent Events" is defined as more than 70 vibration events of the same source per day.

2 "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

3 "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.

4 This criterion is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define acceptable vibration levels.

Source: FTA 2018.

Table 3.11-2 FTA Construction Damage Vibration Criteria

Land Use Category	PPV, in/sec
Reinforced-concrete, steel, or timber (no plaster)	0.5
Engineered concrete and masonry (no plaster)	0.3
Nonengineered timber and masonry buildings	0.2
Buildings extremely susceptible to vibration damage	0.12

Notes: in/sec = inches per second; PPV = peak particle velocity.

Source: FTA 2018.

In addition to vibration criteria, FTA has established construction noise criteria for residential uses that are used in this analysis for all other types of noise-sensitive receptors identified. The FTA criteria are as follows, presented in A-weighted decibels (dBA) equivalent continuous sound level (L_{eq}) (defined in the "Acoustics Fundamentals" section, below):

- Daytime Residential: 90 dBA L_{eq}
- Nighttime Residential: 80 dBA L_{eq}

STATE

California General Plan Guidelines

The State of California General Plan Guidelines 2017, published by the California Governor's Office of Planning and Research (OPR) (OPR 2017), provides guidance for the compatibility of projects within areas of specific noise exposure. Acceptable and unacceptable community noise exposure limits for various land use categories have been determined to help guide new land use decisions in California communities. In many local jurisdictions, these guidelines are used to derive local noise standards and guidance. Citing EPA materials and the state Sound Transmissions Control Standards, the state's general plan guidelines recommend interior and exterior community noise equivalent level (CNEL) of 45 and 60 decibels (dB) for residential units, respectively (OPR 2017: 378).

California Building Code Sound Transmission Standards

Noise within habitable units that is attributable to external sources is regulated by the California Building Standards codified in CCR Title 24, Part 2, Chapter 12, Section 1206.04, Allowable Interior Noise Levels. These standards are enforceable at the time of construction or during occupancy and apply to habitable units. Under these standards, the interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metrics used to measure these levels can be day-night average sound level (L_{dn}) or CNEL, consistent with the local general plan. An acoustical analysis documenting compliance with the interior sound level standards shall be prepared for structures containing habitable rooms. Under PRC Section 25402.1(g), all cities and counties in the state are required to enforce the adopted California Building Code, including these standards for noise in interior environments.

LOCAL

Cal Maritime is part of the CSU, which is a statutorily- and legislatively-created and constitutionally authorized entity of the State of California, and therefore the project site is owned by the CSU. As explained in Chapter 3 of this ~~Draft~~ EIR, in the "California State University Autonomy" section, as a state agency, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, this EIR does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes.

City of Vallejo General Plan

Chapter 4 of the *Propel Vallejo General Plan 2040* (City of Vallejo 2017) includes noise policies that are applicable to the proposed project:

- **Policy NBE-5.13: Noise Control**. Ensure that noise does not affect quality of life in the community.
- **Policy NBE-5.14: Vibration Control**. Ensure that vibration does not affect quality of life in the community.
- **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 [Table NBE-1 of the General Plan, presented as Table 3.11-3 of this section].

Table 3.11-3 Maximum Allowable Noise Exposure, Transportation Noise Sources

Land Use	Noise Compatibility Standards (dBA, CNEL) Normally Acceptable[1]	Noise Compatibility Standards (dBA, CNEL) Conditionally Acceptable[2]	Noise Compatibility Standards (dBA, CNEL) Normally Unacceptable[3]	Noise Compatibility Standards (dBA, CNEL) Clearly Unacceptable[4]
Residential – Low Density Single-Family, Duplex, Mobile Homes	60 and under	55–70	70–75	75+
Residential – Multiple Family	65 and under	60–70	70–75	75+
Transient Lodging, Motels, Hotels	65 and under	60–70	70–80	80+
Schools, Libraries, Churches, Hospitals, Nursing Homes	70 and under	60–70	70–80	80+
Auditoriums, Concert Halls, Amphitheaters	NA	70 and under	NA	65+
Sports Arena, Outdoor Spectator Sports	NA	75 and under	NA	70+
Playgrounds, Neighborhood Parks	70 and under	67.5–75	NA	72.5+
Golf Courses, Riding Stables, Water, Recreation, Cemeteries	75 and under	70–80	NA	80+
Office Buildings, Businesses, Commercial, and Professional	70 and under	67.5–77.5	75+	NA
Industrial, Manufacturing, Utilities, Agricultural	75 and under	70–80	75+	NA

Notes: NA = not applicable.

1 Normally Acceptable: Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

2 Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the 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.

Source: City of Vallejo 2017.

City of Vallejo Municipal Code

The CSU Maritime Academy does not have its own noise standards; therefore, the Vallejo Municipal Code noise standards are utilized in this analysis. The City of Vallejo sets forth operational vibration and noise performance standards in Sections 16.502.08 and 16.502.09, respectively, under Chapter 16.502, Performance Standards, of the Vallejo Municipal Code (VMC). Performance standards from the VMC that are applicable to the project are summarized below.

Vibration Standard

Section 16.502.08, Vibration, of the VMC states that no use shall be operated in a manner that produces vibrations discernible without instruments at any point on the property line of the lot on which the use is located.

Stationary Noise Standards

Section 16.502.09(C)(2), of the VMC provides exterior noise standards for stationary noise sources per land use type. Applicable exterior noise standards to the project are summarized in Table 3.11-4, below.

Table 3.11-4 Allowable Noise Levels by Noise Zone

Noise Zoning Districts	Allowable Noise Level in dBA, L_{50} [1] Measured at Property Line or District Boundary	Allowable Noise Level in dBA, L_{50} [1] Measured at Any Boundary of a Residential Zone	Maximum Noise Level in dBA (level not to be exceeded more than 5 minutes in any hour) Between 10:00 p.m. and 7:00 a.m., Measured at Any Boundary of a Residential Zone
Single-Unit Residential	60	60	—
Multi-unit Residential	65	65	—
Commercial and Mixed-Use, Medical, Office	70	60	50 or ambient noise level
Light Industry	75	65	50 or ambient noise level
General Industry	75	65	50 or ambient noise level
Public Facilities and Community Use	65	60	50 or ambient noise level
Open Space and Recreational Districts	65	60	50 or ambient noise level

1 Level not to be exceeded more than 30 minutes in an hour (L_{50}).

Source: City of Vallejo 2023.

The exterior noise standards summarized in Table 3.11-5 shall be adjusted by 5 decibels for any noise that contains a steady, pure tone, such as a whine, screech, or hum, or an impulsive sound, such as hammering or riveting, or contains music or speech, as described in the following table.

Table 3.11-5 Maximum Noise Level Adjustments by Time and Type

Time and Type of Noise	Adjustment (Decibels)
Any type other than construction and related activities between 7:00 a.m. and 10:00 p.m.	+5
Noise of unusual impulsive character (e.g., hammering or drilling)	-5
Noise of unusual periodic character (e.g., hammering or screeching)	-5

Source: City of Vallejo 2023.

<u>Construction Noise Standards</u>

Section 16.502.09(D) of the VMC provides construction noise standards based on land use and time of day. It should be noted that hours may be modified with conditions imposed by any conditional use permit or variance. The most restrictive hours shall apply. Construction noise standards are summarized in Table 3.11-6, below.

Construction, demolition, and related loading/unloading activities that may generate noise exceeding levels in Table 3.11-6 shall be limited to hours between 7:00 a.m. and 7:00 p.m. in residential zoning districts and in any mixed-use district.

Table 3.11-6 Maximum Noise Level for Temporary Construction Activity

Time	RR, RLD	RMD, RHD, NMX, NC	Commercial (Including medical and office) and Industrial
Mobile Construction Equipment – nonscheduled, intermittent, and short term for less than 15 days			
Weekdays 7 a.m. to 6 p.m.	75 dBA	80 dBA	85 dBA
Saturdays 9 a.m. to 6 p.m.	60 dBA	65 dBA	70 dBA
Sundays and legal holidays	None	None	None
Stationary Construction Equipment			
Weekdays 7 a.m. to 6 p.m.	60 dBA	65 dBA	70 dBA
Saturdays 9 a.m. to 6 p.m.	60 dBA	65 dBA	70 dBA
Sundays and legal holidays	None	None	None

Notes: RR = Rural Residential; RLD = Residential Low Density; RMD = Residential Medium Density; RHD = Residential High Density; NMX = Neighborhood Mixed Use; NC = Neighborhood Commercial; dBA = A-weighted decibels.

Source: City of Vallejo 2023.

<u>Exemptions</u>

The following noise sources are exempt from Section 16.502.09 of the VMC are applicable to the project:

- **Transportation equipment.** Sounds from transportation equipment such as trucks and buses used primarily in the movement of goods and people to and from given premises and in connection with temporary construction or demolition work.
- **Time signals.** Signals produced by places of employment or worship and school recess signals providing no one sound exceeds 5 seconds in duration and no one series of sounds exceeds 24 seconds in duration.

3.11.2 Environmental Setting

ACOUSTIC FUNDAMENTALS

Prior to discussing the noise setting for the project, background information about sound, noise, vibration, and common noise descriptors is needed to provide context and a better understanding of the technical terms referenced throughout this section.

Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a human ear. Noise is defined as loud, unexpected, annoying, or unwanted sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz, or thousands of hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this large range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels.

Addition of Decibels

Because decibels are logarithmic units, SPLs cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness at the same time, the resulting sound level at a given distance would be 3 dB higher than if only one of the sound sources was producing sound under the same conditions. For example, if one idling truck generates an SPL of 70 dB, two trucks idling simultaneously would not produce 140 dB; rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level approximately 5 dB louder than one source.

A-Weighted Decibels

The decibel 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. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds within this range better than sounds of the same amplitude with frequencies outside of this range. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then an "A-weighted" sound level (expressed in units of A-weighted decibels [dBA]) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgment correlates well with the A-scale sound levels of those sounds. Thus, noise levels are typically reported in terms of A-weighted decibels. All sound levels discussed in this section are expressed in A-weighted decibels. Table 3.11-7 describes typical A-weighted noise levels for various noise sources.

Table 3.11-7 Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1,000 feet	— 100 —	
Gas lawn mower at 3 feet	— 90 —	
Diesel truck at 50 feet at 50 miles per hour	— 80 —	Food blender at 3 feet, Garbage disposal at 3 feet
Noisy urban area, daytime, Gas lawn mower at 100 feet	— 70 —	Vacuum cleaner at 10 feet, Normal speech at 3 feet
Commercial area, Heavy traffic at 300 feet	— 60 —	
Quiet urban daytime	— 50 —	Large business office, Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime	— 30 —	Library, Bedroom at night
Quiet rural nighttime	— 20 —	
	— 10 —	Broadcast/recording studio
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2013a: Table 2-5.

Human Response to Changes in Noise Levels

The doubling of sound energy results in a 3-dB increase in the sound level. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different from what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear can discern 1-dB changes in sound levels when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000–8,000 Hz) range. In general, the healthy human ear is most sensitive to sounds between 1,000 and 5,000 Hz and perceives both higher and lower frequency sounds of the same magnitude with less intensity (Caltrans 2013a: 2-18). In typical noisy environments, changes in noise of 1–2 dB are generally not perceptible. However, it is widely accepted that people can begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness (Caltrans 2013a: 2-10). Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound would generally be perceived as barely detectable.

Vibration

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery) or transient in nature (e.g., explosions). Vibration levels can be depicted in terms of amplitude and frequency, relative to displacement, velocity, or acceleration.

Vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root mean square (RMS) vibration velocity. PPV and RMS vibration velocity are normally described in inches per second (in/sec) or in millimeters per second. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings (FTA 2018: 110; Caltrans 2013a: 6).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a 1-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2018: 111; Caltrans 2013a: 7). This is based on a reference value of 1 microinch per second.

The typical background vibration-velocity level in residential areas is approximately 50 VdB. Ground vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2018:1 20; Caltrans 2013a: 27).

Typical outdoor sources of perceptible ground vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur to fragile buildings. Construction activities can generate sufficient ground vibrations to pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2018: 113).

Vibrations generated by construction activity can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations are generated by vibratory pile drivers, large pumps, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment. Table 3.11-8 summarizes the general human response to different ground vibration-velocity levels.

Table 3.11-8 Human Response to Different Levels of Ground Noise and Vibration

Vibration-Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Notes: VdB = vibration decibels referenced to 1 microinch per second and based on the root mean square velocity amplitude.

Source: FTA 2018: 120.

Common Noise Descriptors

Noise in our daily environment fluctuates over time. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors used throughout this section.

Equivalent Continuous Sound Level (L_{eq}): L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound level that occurs during the same period (Caltrans 2013b: 2-48). For instance, the 1-hour equivalent sound level, also referred to as the hourly L_{eq}, is the energy average of sound levels occurring during a 1-hour period and is the basis for noise abatement criteria used by the California Department of Transportation and FTA (Caltrans 2013b: 2-47; FTA 2018).

Maximum Sound Level (L_{max}): L_{max} is the highest instantaneous sound level measured during a specified period (Caltrans 2013b: 2-48; FTA 2018).

Day-Night Level (L_{dn}): L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-dB "penalty" applied to sound levels occurring during nighttime hours between 10 p.m. and 7 a.m. (Caltrans 2013b: 2-48; FTA 2018).

Community Noise Equivalent Level (CNEL): CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m. and a 5-dB penalty applied to the sound levels occurring during evening hours between 7 p.m. and 10 p.m. (Caltrans 2013b: 2-48). Many agencies and local jurisdictions in California often have established noise standards using the CNEL metric. The CNEL metric is not used by federal agencies and not commonly used in standards established by local communities outside of California.

Vibration Decibels (VdB): VdB is the vibration velocity level in decibel scale (FTA 2018: Table 5-1).

Peak Particle Velocity (PPV): PPV is the peak signal value of an oscillating vibration waveform. Usually expressed in inches per second (FTA 2018: Table 5-1).

Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which a noise level decreases with distance depends on the following factors:

Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Roads and highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources, thus propagating at a slower rate in comparison to a point source. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source (FTA 2018: 14).

Ground Absorption

The propagation path of noise from a source to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling provides additional attenuation associated with geometric spreading. Traditionally, this additional attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), additional ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the attenuate rate associated with cylindrical spreading, the additional ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance. This would hold true for point sources, resulting in an overall drop-off rate of up to 7.5 dB per doubling of distance.

Atmospheric Effects

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels, as wind can carry sound. Sound levels can be increased over large distances (e.g., more than 500 feet) from the source because of atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also affect sound attenuation.

Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receiver attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dB of noise reduction (Caltrans 2013b: 2-41; FTA 2018: 16). Barriers higher than the line of sight provide increased noise reduction. Vegetation between the source and receiver is rarely effective in reducing noise because it does not create a solid barrier unless there are multiple rows of vegetation (FTA 2018).

EXISTING NOISE ENVIRONMENT

Existing Noise- and Vibration-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels, and because of the potential for nighttime noise to result in sleep disruption. Additional land uses such as schools, transient lodging, historic sites, cemeteries, parks, and places of worship are also generally considered sensitive to increases in noise levels. Buildings or structures within these land use types are also considered vibration-sensitive in addition to commercial and industrial buildings where vibration would interfere with operations within the building (e.g., medical laboratories), including levels that may be well below those associated with human annoyance.

The nearest on-campus noise-sensitive receptors are the campus library and laboratory building, approximately 55 and 260 feet, respectively, east of the project boundary and the Lower Residence Halls approximately 215 feet northeast of the project boundary. The nearest off-campus sensitive receptors are the residences along Jade Circle, approximately 375 feet north of the project boundary, and the residences along Glen Cove View, approximately 1,410 feet east of the project boundary.

Existing Noise Sources and Ambient Levels

Ambient noise in the project area is primarily generated by vehicle traffic from I-80, approximately 0.2 mile east of the project site boundary. Existing traffic noise contours from I-80 in the project area were modeled using calculation methods consistent with the Federal Highway Administration (FHWA) Traffic Noise Model, Version 2.5 (FHWA 2004) and using 2021 average daily traffic volumes provided by Caltrans's Traffic Census Program (Caltrans 2021) and summarized in Section 3.13, "Transportation." Table 3.11-9 summarizes the modeled existing traffic noise levels at 100 feet from the freeway centerline, and lists distances to the 70, 65, and 60 CNEL traffic noise contours. For further details on traffic-noise modeling inputs and parameters, refer to Appendix I.

Table 3.11-9 Summary of Modeled Existing Traffic Noise Levels

Roadway Segment/Segment Description	CNEL at 100 Feet from Roadway Centerline	Distance (feet) from Roadway Centerline to CNEL Contour 75	Distance (feet) from Roadway Centerline to CNEL Contour 70	Distance (feet) from Roadway Centerline to CNEL Contour 65
Interstate 80	78.9	246	779	2,463

Notes: CNEL = community noise equivalent level.

All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow, and does not account for shielding of any type or finite roadway adjustments. All noise levels are reported as A-weighted noise levels. For additional details, refer to Appendix I for detailed traffic data, and traffic-noise modeling input data and output results.

Source: Data modeled by Ascent Environmental in 2023.

3.11.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Construction Noise and Vibration

To assess potential short-term (construction-related) noise and vibration impacts, sensitive receptors and their relative exposure were identified. Project-generated construction source noise and vibration levels were determined based on methodologies, reference emission levels, and usage factors from FTA's *Transit Noise and Vibration Impact Assessment Manual* methodology (FTA 2018) and FHWA's *Roadway Construction Noise Model User's Guide* (FHWA 2006). Reference levels for noise and vibration emissions for specific equipment or activity types are well documented and the usage thereof common practice in the field of acoustics.

Operational Noise

With respect to non-transportation (e.g., stationary) noise sources associated with project implementation, the assessment of long-term (operation-related) impacts was based on reference noise levels from equipment manufacture specifications and/or reference noise levels measured by Ascent staff for operational equipment and activities discussed in this analysis such as heating, ventilation, and air conditioning [HVAC] units, water pumps. Attenuated noise levels at sensitive receptors were estimated using standard noise attenuation rates and modeling techniques.

THRESHOLDS OF SIGNIFICANCE

State universities are exempt from local ordinances and standards and the CSU is the lead agency for its actions. Because CSU Maritime Academy has not adopted its own standards, the FTA construction noise thresholds are used in this analysis to assess impacts to sensitive receptors within the university campus. Off-campus sensitive receptors that are within the City of Vallejo will be subjected to City of Vallejo construction noise standards to determine an impact's significance. Therefore, a noise impact at a sensitive receptor would be significant if implementation of the project would result in any of the following:

On-Campus Receptors

- construction-generated noise levels that exceed FTA's criteria for loudest construction noise hour:
  - Residential: 90 dBA L_{eq} (day) and 80 dBA L_{eq} (night);

Off-Campus Receptors

- long-term (construction) noise levels that exceed the City of Vallejo noise standard of 60 dBA L_{eq} between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday and between 9:00 a.m. and 6:00 p.m. on Saturdays for residential land uses. No construction is allowed at any time on Sundays and legal holidays.

Both On- and Off-Campus Receptors

- construction-generated vibration levels that exceed FTA's recommended standards of 0.2 in/sec PPV for nonengineered timber and masonry (i.e., standard residential buildings) with respect to the prevention of structural building damage;
- construction-generated vibration annoyance levels that exceed the FTA vibration criterion of 80 VdB for infrequent events;
- on-site noise levels from stationary noise sources that exceed the VMC noise standards under Section 16.502.09 (see Table 3.11-4);

- for a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels; or
- for a project within the vicinity of a private airstrip, exposure of people residing or working in the project area to excessive noise levels.

ISSUES NOT DISCUSSED FURTHER

Airport Noise

The Napa County Airport and the Buchanan Field Airport are the closest airports to the project site. The Napa County Airport is a small, private airport located approximately 10 miles northeast of the project site, and the Buchanan Field Airport is a small airport located approximately 10.7 miles southeast of the project site. Therefore, the proposed project would not result in the exposure of people to excessive noise levels associated with airport activity within close proximity (i.e., 2 miles). The issue of noise levels associated with airport activity is not discussed further.

Operational Vibration

As described in Chapter 2, "Project Description," the project would result in operations typical of university and marine activity, and similar to existing operations. There would be no sources of excessive groundborne vibration associated with operation of the university campus that would be humanly perceptible at the nearest residential receptors. Examples of the types of projects that would generate substantial groundborne vibration include rail, underground transit, or heavy industrial uses. Because project operation would not generate such levels of what could be considered excessive groundborne vibration, vibration impacts are not discussed further.

Traffic Noise

As described in Chapter 2, "Project Description," the project would not change enrollment or student capacity on campus, result in an increase in faculty/staff on campus, or alter projected growth of the university; thus, implementing the project would not result in an increase in operation-related traffic or associated traffic noise. This issue is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.11-1: Create Substantial Temporary (Construction) Noise

Project-related construction activities would generate noise levels of up to 73.5 dBA L_{eq} at the nearest on-campus receptors and noise levels of up to 56.3 dBA L_{eq} at the nearest off-campus sensitive receptors within the City of Vallejo. These noise levels would not exceed the FTA or the City of Vallejo construction noise thresholds at on-campus or off-campus receptors, respectively. Therefore, this impact would be **less than significant**.

The project would include upgrades to and replacement of in-water infrastructure, renovation and development of waterfront buildings, enhancement of waterfront open space and connectivity, and expansion of site-serving utilities. Construction would occur in three phases over a span of approximately 10 years. Construction of Phase One is expected to occur over 21 months, from approximately summer 2025 to fall 2026. Phases Two and Three are conceptual at this time because detailed information related to construction activities is currently unknown. However, Phase Two is anticipated to be implemented over approximately 6 years commencing in 2027, after the arrival of the NSMV. Consistent with Section 16.502.09 of the VMC, construction activities would take place during the permissible hours of Monday through Friday 7:00 a.m. to 6:00 p.m., and on Saturdays from 9:00 a.m. to 6:00 p.m. Construction is prohibited on Sundays and legal holidays.

The types of heavy equipment used during project construction would include dozers, excavators, cranes, concrete mixing trucks, tugboats, barges, and workboats. Construction activity would not involve pile driving or blasting. Reference noise levels of construction equipment likely to be used in dredging and construction activities are summarized in Table 3.11-10 at a reference distance of 50 feet. This discussion focuses on impacts to land-side receptors; potential impacts on the aquatic environment are discussed in Section 3.3, Biological Resources, of this EIR.

Table 3.11-10 Noise Emission Levels from Construction Equipment

Equipment Type	Typical Noise Level (L_{max} dBA) at 50 feet
Backhoe	80
Concrete Mixer	85
Concrete Pump	82
Compactor	82
Crane/Lift, Mobile	83
Dozer	85
Dump Truck	84
Excavator	85
Flat Bed Truck	84
Loader	80
Generator	82
Grader	85
Paver	85
Roller	85
Pickup Trucks	54
Scraper	85
Tractor	84
Tugboat	87
Workboat	72

Notes: dBA = A-weighted decibels; L_{max} = maximum instantaneous noise levels.

Assumes all equipment is fitted with a properly maintained and operational noise control device, per manufacturer specifications. Noise levels listed are manufacture-specified noise levels for each piece of heavy construction equipment.

Sources: FTA 2018: 176; Epsilon 2006.

Construction noise can be characterized based on the type of activity and associated equipment needed and, in this analysis, is evaluated by considering noise levels associated with the likely combination of construction equipment required for each phase of project construction. The combined noise levels generated by construction activity would fluctuate depending on the type, number, and duration of use of vehicles and equipment. The effects of construction noise largely depend on the type of construction activities occurring on any given day; the noise levels generated by those activities; distances to noise-sensitive receivers; the presence of any noise-attenuating features, such as topography, vegetation, and existing structures; and existing ambient noise levels.

The noise-sensitive receivers nearest to the project site are different depending on the construction phase and subphase. Because construction activities will be spread across the entire project site during the expected construction periods, the noise exposure levels at individual receivers may fluctuate significantly during different construction phases. These fluctuations are influenced by the type of construction activity being carried out and the proximity of each receiver to the construction activity. For a comprehensive overview of the noise exposure levels at each receptor during all phases of construction, refer to Table 3.11-11. This table summarizes noise levels at specified receptors that would result from construction of elements of the project that would generate the highest noise exposure levels. Detailed calculations are provided in Appendix I.

Table 3.11-11 Noise Levels by Construction Phase at Each Receptor

Construction Phase [1]	Receptor[2]	Distance (feet)	dBA L_{eq}	Applicable Threshold dBA L_{eq} [5]	Exceeds Applicable Threshold?
Phase One (Marine Yard)	Lower Residential Hall	1,330	56.3	90	No
	Upper Residential Hall	1,470	55.5	90	No
	Staff Housing	1,810	53.6	90	No
	Northwest Residences	2,060	52.5	60	No
	Eastern Residences	1,600	**54.7**[3]	60	No
	Campus Library	870	60.0	90	No
	Campus Laboratory Building	630	*62.8*[4]	90	No
Phase One (Pier/Trestle)	Lower Residential Hall	1,300	57.5	90	No
	Upper Residential Hall	1,450	56.5	90	No
	Staff Housing	1,815	54.6	90	No
	Northwest Residences	1,920	**54.1**	60	No
	Eastern Residences	1,965	53.9	60	No
	Campus Library	860	61.1	90	No
	Campus Laboratory Building	725	*62.5*	90	No
Phase Two (Naval Modulars)	Lower Residential Hall	810	60.6	90	No
	Upper Residential Hall	955	59.2	90	No
	Staff Housing	1,300	56.5	90	No
	Northwest Residences	1,540	**55.1**	60	No
	Eastern Residences	1,925	53.1	60	No
	Campus Library	365	67.6	90	No
	Campus Laboratory Building	255	*70.7*	90	No
Phase Three (New Building)	Lower Residential Hall	1,215	57.1	90	No
	Upper Residential Hall	1,360	56.1	90	No
	Staff Housing	1,695	54.2	90	No
	Northwest Residences	1,970	52.9	60	No
	Eastern Residences	1,615	**54.6**	60	No
	Campus Library	760	61.2	90	No
	Campus Laboratory Building	520	*64.5*	90	No
Phase Three (Dredging)	Lower Residential Hall	550	63.3	90	No
	Upper Residential Hall	700	61.2	90	No
	Staff Housing	1,070	57.5	90	No
	Northwest Residences	1,225	**56.3**	60	No
	Eastern Residences	2,200	51.2	60	No
	Campus Library	170	*73.5*	90	No
	Campus Laboratory Building	725	60.9	90	No

Notes: dBA = A-weighted decibels; L_{eq} = hourly-average noise level; L_{max} = maximum instantaneous noise levels.

[1] Loudest and closest subphases were presented.

[2] On-campus receptors include Lower Residential Hall, Upper Residential Hall, staff housing, campus library, and campus laboratory building. Off-campus receptors include northwest residences and eastern residences.

[3] Italicized noise levels = loudest L_{eq} at on-campus receptor for that phase.

[4] Bolded noise levels = loudest L_{eq} at off-campus receptor for that phase.

[5] Applicable construction noise standards for the northwest and eastern residences are the City of Vallejo construction thresholds of 60 L_{eq} dBA. Applicable construction noise standards for the Lower and Upper Residential Halls, staff housing, and campus labs and library are the FTA construction standards of 90 dBA L_{eq} (day) and 80 dBA L_{eq} (night) for residential land uses and 100 dBA L_{eq} (day and night) for commercial/industrial land uses.

Source: Modeled by Ascent Environmental in 2023. Refer to Appendix I.

Phase One

Marine Yard On-Campus

The nearest on-campus receptors to the Marine Yard construction activities under Phase One is the campus laboratory building approximately 630 feet away. As shown in Table 3.11-11, the maximum noise generated at this receptor under Phase One would be up to 62.8 dBA L_{eq}. This would not exceed the FTA threshold of 90 dBA $L_{eq,}$ applied to on-campus receptors.

The nearest off-campus receptor are the residences are approximately 1,600 feet to the east (Waterview Terrace). Construction activities would generate noise levels of up to 54.7 dBA L_{eq} at these residences. Construction noise levels would not exceed the VMC construction noise threshold of 60 dBA L_{eq}, applied to off-site receptors at these residences.

Pier/Trestle

The nearest on-campus receptor to pier/trestle construction activities is the campus laboratory building approximately 725 feet away. As shown in Table 3.11-11, at that distance construction noise levels would generate up to 62.5 dBA L_{eq}. This would not exceed the FTA threshold of 90 dBA L_{eq} applied to on-campus receptors.

The nearest off-campus receptors to pier/trestle construction activities are the residential uses to the northwest along Jade Circle, approximately 1,920 feet away. As shown in Table 3.11-11, at that distance construction activities would generate noise levels of up to 54.1 dBA L_{eq}. Construction noise levels would not exceed the City of Vallejo's construction noise threshold of 60 dBA L_{eq} at these residences.

Phase Two

Naval Modulars

The nearest off-campus receptor to naval modular construction under Phase Two is the campus laboratory building approximately 255 feet. As shown in Table 3.11-11, construction activities would generate noise levels of up to 70.7 dBA L_{eq} at this receptor. This would not exceed the FTA threshold of 90 dBA L_{eq}.

The nearest off-campus receptors to naval modular construction activities under Phase Two are the residential uses to the northwest along Jade Circle, approximately 1,540 feet away. Construction activities would generate noise levels of up to 55.1 dBA L_{eq} at these residences. Construction noise levels would not exceed the City of Vallejo's construction noise threshold of 60 dBA L_{eq} at these residences.

Phase Three

New Building

The nearest off-campus receptor to new building construction under Phase Three is the campus library approximately 520 feet away. As shown in Table 3.11-11 construction activities would generate noise levels of up to 64.5 dBA L_{eq} at this receptor. This would not exceed the FTA threshold of 90 dBA L_{eq}.

The nearest off-campus receptors to new building construction under Phase Three are the residential uses to the northwest along Jade Circle, approximately 1,970 feet away. As shown in Table 3.11-11, construction activities would generate noise levels of up to 54.6 dBA L_{eq} at these residences. Construction noise levels would not exceed the City of Vallejo's construction noise threshold of 60 dBA L_{eq} at these residences.

Dredging

The nearest off-campus receptor to new dredging construction under Phase Three is the campus library approximately 725 feet away. As shown in Table 3.11-11, construction activities would generate noise levels of up to 73.5 dBA L_{eq} at the campus library. This would not exceed the FTA threshold of 90 dBA L_{eq}.

The nearest off-campus receptors to new dredging construction under Phase Three are the residential uses to the northwest along Jade Circle, approximately 1,225 feet away. As shown in Table 3.11-11, construction activities would generate noise levels of up to 56.4 dBA L_{eq} at these residences. Construction noise levels would not exceed the City of Vallejo's construction noise threshold of 60 dBA L_{eq}.

Other construction activities would occur such as marine yard upgrades, the observation docks, the row house, etc.; however, all the other construction activities occur farther away from the sensitive receptors and would use construction equipment as loud or less loud for the phases modeled. For the purpose of this analysis, only the construction activities that would cause the loudest impact to nearby sensitive receptors were shown above.

Summary

Project construction would occur during the permissible hours, per the VMC, of Monday through Friday 7:00 a.m. to 6:00 p.m., and on Saturdays from 9:00 a.m. to 6:00 p.m., thus conforming to daytime construction noise standards for the City of Vallejo and FTA apply (60 dBA L_{eq} and 90 dBA L_{eq}, respectively). As noted above, City of Vallejo noise standards were applied to the off-campus single-family homes situated along Jade Circle, northwest of the project site, as well as to the single-family homes along Waterview Terrace, east of the project site; and FTA noise standards were applied to on-campus sensitive receptors (e.g., the campus library, laboratory building, lower and upper residential halls, and staff housing). Construction noise modeling shows that noise levels would not exceed these noise thresholds at on-campus or off-campus sensitive receptors during any phase of construction. Thus, construction noise would not generate substantial temporary noise at sensitive receptors, and this impact would be **less than significant.**

Mitigation Measures

No mitigation is required for this impact.

Impact 3.11-2: Create Substantial Temporary (Construction) Vibration Levels

The use of heavy-duty construction equipment can generate levels of vibration that could result in disturbance to nearby sensitive residential land uses or structural damage. Vibration levels for each land phase would vary based on which piece of equipment was used and the distance to the nearest structure. Construction vibration would occur during daytime hours when people are less likely to be disturbed. Therefore, the potential for disturbance to nearby receivers is low. In addition, the FTA vibration criteria for residential uses (0.2 in/sec PPV for vibration damage and 80 VdB for human response) would not be exceeded at the nearest structure during any construction phase. This impact would be **less than significant**.

This discussion addresses vibration impacts to people and structures such as annoyance and architectural damage, respectively. Vibration could also result in impacts to aquatic wildlife; these are addressed in Section 3.3, Biological Resources, of this DEIR.

Construction activities generate varying degrees of temporary ground vibration, depending on the specific construction equipment used and activities involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effects of ground vibration may be imperceptible at the lowest levels, result in low rumbling sounds and detectable vibrations at moderate levels, and, at high levels, cause annoyance, sleep disturbance, or damage to nearby structures.

Pile driving and blasting are the types of construction activities that typically generate the highest vibration levels and, therefore, are of greatest concern when evaluating construction-related vibration impacts. However, pile driving and blasting would not occur during project construction. Table 3.11-12 presents vibration levels for typical pieces of equipment that would be used during project construction.

Based on reference vibration levels for typical construction equipment (Table 3.11-12), the pieces of equipment that could generate the greatest level of ground vibration would be an excavator for Phase One and a large bulldozer for Phases Two and Three, both which generate ground vibration levels of 0.089 in/sec PPV and 87 VdB at 25 feet (FTA 2018: 184). As noted above, potential impacts to aquatic wildlife are addressed in Section vibration impacts related to project construction are addressed in Section 3.3, Biological Resources, of this EIR. Table 3.11-13 shows the attenuated vibration levels at the nearest vibration sensitive receptors for each construction phase.

Table 3.11-12 Vibration Reference Levels for Construction Equipment

Equipment	PPV at 25 ft, in/sec	Approximate VdB at 25 ft
Vibratory roller	0.210	94
Large bulldozer	0.089	87
Excavator	0.089	87
Loaded truck	0.076	86
Small bulldozer	0.003	58

Notes: ft = feet; in/sec = inches per second; PPV = peak particle velocity; VdB = vibration decibels.

Source: FTA 2018: 184.

Table 3.11-13 Vibration Levels by Construction Phase

Phase	Equipment	Nearest Structure	Distance (feet)	PPV (in/sec)	VdB
One	Excavator	Boathouse	130	0.008	65.5
Two	Large Bulldozer	Machine Shop	55	0.027	76.7
Three	Large Bulldozer	Marine Programs Naval Science Building	85	0.014	71.1

Notes: ft = feet; in/sec = inches per second; PPV = peak particle velocity; VdB = vibration decibels.

Source: FTA 2018.

Phase One
As shown in Table 3.11-13, the structure nearest to Phase One construction would be the boathouse, located approximately 130 feet northwest of where construction is anticipated to take place. Construction vibration levels at the boathouse would be as high as 65.5 VdB and 0.008 in/sec PPV. Thus, construction related vibrations under Phase One would not exceed the FTA thresholds of 80 VdB and 0.2 in/sec PPV.

Phase Two
As shown in Table 3.11-13, the structure nearest to Phase Two construction would be the machine shop, located approximately 55 feet east of where construction is anticipated to take place. Construction vibration levels at the boathouse would be as high as 76.7 VdB and 0.027 in/sec PPV. Thus, construction related vibrations under Phase Two would not exceed the FTA thresholds of 80 VdB and 0.2 in/sec PPV.

Phase Three
As shown in Table 3.11-13, the structure nearest to Phase Three construction would be the boathouse, located approximately 85 feet west of where construction is anticipated to take place. Construction vibration levels at the boathouse would be as high as 71.1 VdB and 0.014 in/sec PPV. Thus, construction related vibrations under Phase Three would not exceed the FTA thresholds of 80 VdB and 0.2 in/sec PPV.

Summary
Phase Two is expected to cause the highest level of ground vibrations at 76.7 VdB. Considering FTA's criterion of 80 VdB for places where people sleep, vibration levels would not be expected to exceed the recommended levels and cause annoyance or sleep disturbance. Additionally, construction would not occur during times of day when people are more sensitive to disturbance. Regarding the potential for structural damage, based on the modeling conducted, vibration levels at the nearest existing structure would be 0.027 in/sec PPV and below the FTA's threshold for structural building damage of 0.2 in/sec PPV. Therefore, there would be a low potential for structural damage during any construction phase. This impact would be **less than significant**.

Mitigation Measures
No mitigation is required for this impact.

Impact 3.11-3: Create a Substantial Increase in Operational On-Site Noise

The project would involve the long-term operation of new noise sources and new noise-generating activities on the project site that may expose off-site noise-sensitive receivers to excessive noise levels. New operational noise sources would include mechanical equipment, such as new HVAC systems, and upgrades to the pumping station and increased vessel and marine activity. New project-related long-term operational noise sources would not exceed the VMC noise standards at the nearest off-site residential receptors. Therefore, this impact would be **less than significant**.

Noise sources associated with the project include HVAC systems in the utility room at the Vallejo Flood and Wastewater District (VFWD), replacing/upsizing the pumps at the VFWD, sanitary sewer pump station in the new multiuse building, and increased vessel and marine activities (more ship movement, docking, idling) associated with an increase in the number of docking stations. Noise from HVAC equipment and pumps are steady state noise sources, meaning that the frequency content and the loudness do not fluctuate much if at all over time. The L_{50} noise metric discloses the noise level that was exceeded 50 percent of the time during a measurement. If the noise level does not change much over time, as is the case for steady state noise sources, the L_{50} and L_{eq} would be about the same or within a fraction of a decibel of each other. Therefore, the L_{eq} is also represented of the L_{50} in the case of HVAC noise and pumps and reference L_{eq} noise levels are compared to the L_{50} VMC noise standard. Noise levels associated with these noise sources are discussed separately, below.

VFWD Sanitary Sewer Pump Station Pump Upsizing

Utility upgrades would be necessary to meet the requirements of in-water enhancements associated with the main pier and the arrival of the NSMV as well as future phases of development including new buildings along the water's edge. Discharge from the NSMV to the VFWD pump station may require upgrades which could include replacing/upsizing pumps.

Pumps can generate noise levels as high as 74 dBA L_{eq} at a distance of 50 feet (FHWA 2006). For a conservative analysis, three pumps are assumed to operate simultaneously. The combined noise level for three pumps would be 78.8 dBA at a distance of 50 feet. The nearest off-site sensitive receptor to the utility upgrades and new pump would be the residences along Waterview Terrace, approximately 1,550 feet east of the new pumping location. Noise levels from the three pumps would attenuate to 49 dBA L_{eq} at 1,550 feet. This is a conservative analysis as additional attenuating factures such as ground absorption and acoustical shieling from terrain and intervening buildings is not considered. This would not exceed the VMC daytime/nighttime noise standard of 60/50 dBA L_{50}.

HVAC Systems

New facilities developed as part of the project would include mechanical building equipment as part of the HVAC systems. Proposed HVAC systems would be installed as part of the utility upgrades at the VFWD pump station and in the electrical substation room on the ground floor of the proposed multi-use building. HVAC equipment can generate noise levels as high as 78 dBA L_{eq} at 3 feet (Lennox 2018). For a conservative analysis, two HVAC units were assumed to operate simultaneously. Without any intervening barriers, two HVAC unit–generated noise levels of 81 dBA L_{eq}. The nearest off-campus receptors are single-family residences located along Waterview Terrace, approximately 1,550 feet west of the nearest of the two HVAC systems at which noise levels would attenuate to 27 dBA L_{eq}. The nearest on-campus receptor is the laboratory building approximately 650 from the nearest HVAC units. At 650 feet HVAC noise levels would attenuate to 32 dBA L_{eq}. Therefore, both on- and off-campus receptors would not be exposed to noise generated by this equipment that exceeds the City's daytime and nighttime noise standards (60 dBA L_{eq} and 50 dBA L_{eq}, respectively) or create a substantial increase in operational on-site activities.

Ship Activity

The project includes upgrades to in-water infrastructure; renovation and development of waterfront buildings; enhancement of waterfront open space and connectivity, such as new piers and an upgraded/new trestle with new mooring dolphins, fender piles and catwalks; a boat basin and floating dock that will include 23 new berthing positions, a floating berthing area with 26 slips/berthing positions, and expansion of the Marine Yard, all of which aim to ensure physical capacity for the new ship and capacity for Cal Maritime's fleet of work boats, tugboats, small passenger boats, and other vessels currently located off-site and/or planned for future acquisition. Any increase noise associated with increased ship and boat activity at the project site would result from the new training vessel and with the use of additional slips. Because noise associated with the NSMV would replace that associated with the existing training vessel, and noise associated with the use of the new slips and berthing locations would largely accommodate vessels currently moored offsite, noise levels associated with ship engine start-up, travel within the cove, idling, and parking movements would not substantially increase over existing conditions.

The nearest off-site sensitive receptors to Morrow Cove, where existing ship activity occurs, are the residences on Jade Circle, approximately 430 feet northwest of the project site. Some ship activity is expected to increase at Morrow Cove due to the project. However, those residences are approximately 1,250 feet northwest of the proposed new basin where most of the new vessel activity will occur. The design of the new basin and berthing positions will increase the capacity of vessels in the cove. Additionally, any potential increase in marine operations would only occur during the day. Considering the distance between the ship activities and the residences (ranging from 430 feet to 1,250 feet), the elevation variances between the cove and the residences, and the fact that the increased vessel activity would be limited to daytime hours, it can be concluded that the increased vessel activity in Morrow Cove would not generate a substantial noise increase at the nearest residential receptors.

<u>Summary</u>
Implementation of this project would result in generation of noise from new and additional HVAC systems, pump stations, and ship activity in Morrow Cove. However, these noise sources and increased vessel activity would not be substantially louder or greater compared to existing conditions from existing vessel activity and existing HVAC and pump station noise levels. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.12 PUBLIC SERVICES AND RECREATION

This section provides an overview of existing public services on the campus and evaluates the potential for implementation of the project to affect the availability, service level, and capacity of public services (fire protection services, police protection services, solid waste disposal, parks and recreation, and public schools), and if such an effect is determined to occur, whether new or expanded facilities would be required that could result in a potentially significant impact on the environment. Other services provided regarding wildfires and wildland management are addressed in Section 3.15, "Wildfire." Other publicly provided utility services, such as water and wastewater treatment, stormwater management, and electricity and natural gas services, are addressed in Section 3.14, "Utilities and Service Systems."

During the public scoping period for the NOP, commenters expressed the desire to allow the existing main pier and the proposed new pier leading to Boat Basin 2 in the western portion of the project site to be accessible to the public for viewing purposes. These comments are addressed, as appropriate, in this section. See Appendix A for all NOP comments received.

3.12.1 Regulatory Setting

FEDERAL

Higher Education Opportunity Act

The Campus Fire Safety Right-to-Know Act in the Higher Education Opportunity Act was signed on August 1, 2008. Specifically, the legislation requires that a Fire Safety Report be distributed by the University containing statistics concerning the following in each on-campus student housing facility during the most recent calendar year for which data are available:

- The number of fires and the cause of each fire;
- The number of injuries related to a fire that resulted in treatment at a medical facility;
- The number of deaths related to a fire;
- The value of property damage caused by a fire;
- A description of each on-campus student housing facility's fire safety system, including the fire sprinkler system;
- The number of regular mandatory supervised fire drills;
- Policies or rules on portable electrical appliances, smoking, and open flames (such as candles); procedures for evacuation, and policies regarding fire safety education and training programs provided to students, faculty, and staff; and
- Plans for future improvements in fire safety, if determined necessary by such institution.

STATE

California Fire Code

The 2022 California Fire Code, which is codified at Part 9 of Title 24 of the CCR, which incorporates by adoption the 2021 International Fire Code, contains regulations related to construction, maintenance, and use of buildings. Topics addressed in the California Fire Code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire safety requirements for new and existing buildings and the surrounding premises. The California Fire Code contains specialized technical regulations related to fire and life safety. The California Building Standards Code, including the California Fire Code, is revised and published every 3 years by the California Building Standards Commission.

California Health and Safety Code

State fire regulations are set forth in Section 13000 et seq. of the California Health and Safety Code, which includes regulations for building standards (as set forth in the California Building Code); fire protection and notification systems; fire protection devices, such as extinguishers and smoke alarms; high-rise building and childcare facility standards; and fire-suppression training.

California Occupational Safety and Health Administration

In accordance with California Code of Regulations, Title 8 Sections 1270 "Fire Prevention" and 6773 "Fire Protection and Fire Equipment," the California Occupational Safety and Health Administration has established minimum standards for fire suppression and emergency medical services. The standards include guidelines on the handling of highly combustible materials, fire hose sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance and use of all firefighting and emergency medical equipment.

California Fire Plan

The California Fire Plan is the state's "road map" for reducing the risk of wildfire. The overall goal of the plan is to reduce total costs and losses from wildland fire in California through focused pre-fire management prescriptions and increased initial attack success. The current plan was finalized in 2010. The plan provides guidance to local jurisdictions in meeting state goals.

Uniform Fire Code (Title 24, Part 9)

The 2022 Uniform Fire Code (Fire Code) (California Code of Regulations, Title 24, Part 9) contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the Fire Code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire safety requirements for new and existing buildings and the surrounding premises. The Fire Code also contains specialized technical regulations related to fire and life safety.

California State Fire Marshal

The CSU is required to coordinate its building official authority with various other state and federal agencies in certain aspects, most notably with Office of the State Fire Marshal on fire and panic safety issues, including exiting, and with the Division of the State Architect on access compliance issues. The State Fire Marshal is responsible for review and approval of all capital construction projects on CSU campuses and other education institutions, including renovations and new construction. Review is conducted to verify compliance with California Code of Regulations Title 19; Title 24, Part 9, California Fire Code (CFC); and Title 24, Part 2, California Building Code. Facility construction documents are required to be submitted to the office for approval and granting of final occupancy.

LOCAL

Cal Maritime is part of the CSU, which is a statutorily- and legislatively-created and constitutionally authorized entity of the State of California, and therefore the project site is owned by the CSU. As explained in Chapter 3 of this ~~Draft~~ EIR, in the "California State University Autonomy" section, as a state agency, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, this EIR does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes.

City of Vallejo General Plan 2040

The following public services– and recreation-related policies from the City of Vallejo General Plan 2040 (City of Vallejo 2017) are relevant to the project:

Fire Protection

- **Policy CP-2.3: Fire Prevention and Response Services**. Ensure the provision of fire prevention and emergency response services that minimize fire risks and protect life and property.

Police Protection

- **Policy CP-2.1: Police Services**. Provide responsive, efficient, and effective police services that promote a high level of public safety.
- **Policy CP-2.2: Safer Urban Design**. Improve public safety and reduce demand for police service through project design enhancements in new development and public spaces.

Parks and Recreation

- **Policy CP-1.4: Active Recreation Facilities**. Ensure all Vallejo residents are served by convenient and safe active recreation facilities that meet the needs of all ages, abilities, and interest groups.
- **Policy CP-1.6: Active Transportation Network**. Promote the health benefits of walking and bicycling by providing a convenient and safe network of bicycle paths and routes, sidewalks, pedestrian paths, and trails, including connections with major destinations such as civic facilities, educational institutions, employment centers, shopping, and recreation areas.
- **Policy CP-3.4: Parks**. Plan for and provide parkland and facilities to support Vallejo's recreational needs.
- **Policy MTC-1.5: Regional Trail Network**. Continue to participate in efforts to complete the regional trail network through Vallejo.
- **Policy MTC-1.6: Public Access**. Promote public access to open space and trails.

The only regional recreational trail identified in the city's general plan is a section of the San Francisco Bay Trail which runs through campus and through the project area along the waterfront of Cal Maritime campus.

Bay Area Ridge Trail Council

The Bay Area Ridge Trail, which runs more than 400 miles around the San Francisco Bay Area, is overseen by the Bay Area Ridge Trail Council which operates over 400 miles of trails around the San Francisco Bay Area. The first trail segment was dedicated in 1989, and by 1995, the trail had grown to over more than 200 miles of dedicated trails (Bay Area Ridge Trail Council 2023a). The mission of the Bay Area Ridge Trail Council is to plan, promote, and sustain a connected hiking, cycling, and equestrian trail on the ridgelines around San Francisco Bay—linking people, parks, and open space.

The Cal Maritime campus is located east of the Carquinez Bridge and Crockett section of the trail. This stretch of the trail spans 2.8 miles one-way from Carquinez Park in Vallejo to Crockett Boulevard in Crockett. As shown in Figure 2-5, located in Chapter 2, "Project Description," the paved trail runs above the campus along the western edge of I-80 and the Carquinez Bridge, down onto Maritime Academy Drive. The trail travels north out of campus along Maritime Academy Drive and is not located within the project site boundaries (Bay Area Ridge Trail Council 2023b).

Cal Maritime Physical Master Plan

The Cal Maritime Physical Master Plan is a guidebook that defines the spatial implications and vision for Cal Maritime's next phase of growth. The Physical Master Plan is a 15-year blueprint that covers all aspects of the campus's development, including student enrollment growth, overall campus land use and design, building capacity and placement, circulation and infrastructure, and sustainability (Cal Maritime 2017). One of the primary goals of the Physical Master Plan is to create an efficient circulation network that emphasizes mobility and prioritizes the pedestrian experience while accommodating vehicular needs and parking realities. Chapter 2 of the Physical Master Plan discusses Cal Maritime facilities' primary land uses and facility types. Chapter 3 of the Physical Master Plan discussed Cal Maritime's projected enrollment growth and campus wide space needs.

3.12.2 Environmental Setting

FIRE PROTECTION

The Vallejo Fire Department (VFD) provides emergency first-responder services within the geographic boundaries of the City, including the Cal Maritime campus, and the East Vallejo Fire Protection District. The department consists of seven fire stations and 108 employees, who staff the Administration, Suppression, Training, and Prevention Divisions. The VFD averages more than 16,000 calls per year.

The Suppression Division consists of 99 firefighters, firefighter-paramedics, engineers, captains, and battalion chiefs. The staff are spread across three different shifts and six different stations to ensure coverage to citizens 24 hours a day, 7 days a week. Each shift is led by a battalion chief. The Suppression Division is also responsible for responding to hazardous materials incidents for scene management, confinement, and mitigation. The Fire Suppression Division of VFD responds to medical/rescue emergencies and provides first aid, cardiopulmonary resuscitation, and medical services to save lives and reduce the extent of injury. Other services offered by the division include assisting patients with disabilities, assisting the police, assisting with water evacuations, responding to lock-ins, and providing other rescue services (City of Vallejo n.d.).

The Fire Training Division provides training to VFD firefighters. This division ensures that VFD meets all state- and federally mandated training standards and provides progressive classes that help firefighters advance their skills. The VFD shares its training resources with neighboring fire departments (City of Vallejo n.d.).

The Fire Prevention Division provides public education inspection service, fire/life safety inspection, plan checking and permitting, fire reports, and investigations. In addition to serving the public in matters of fire prevention and fire safety, the Fire Prevention Division provides the business community with customer service regarding the safety of their business (City of Vallejo n.d.). Fire Station 22, located 1.6 miles away from the Cal Maritime campus, at 700 Fifth Street, is the first-responder fire station for calls from Cal Maritime. This station has three fire personnel on duty at all times, and its equipment includes two fire engines (one first-response and one reserve) and one patrol truck with a pump that responds with the engine and has the capacity to hold 200 gallons of water. Response time for Fire Station 22 is approximately 12 minutes for Code 3 (high-priority) calls.

If additional backup is needed, Fire Station 21, located at 1220 Marin Street, 3.3 miles from the campus, is the second response station for Cal Maritime. This station has a minimum of three fire personnel on duty at all times, and its equipment includes one engine and one 110-foot ladder truck. Additionally, the battalion chief responds from Fire Station 21 (Cal Maritime 2018).

According to the 2040 General Plan, VFD currently meets response time goals in much of the city, where incidents are generally clustered in proximity to higher call–volume fire stations. Current staffing and equipment levels allow for the provision of an adequate number of firefighters for smaller fires and common medical or rescue situations, but resources can become strained when there are simultaneous calls for service. The VFD participates in countywide and Statewide mutual aid programs with fire agencies in Solano County, Napa County, and Contra Costa County. These agreements with neighboring jurisdictions help ensure adequate response times in the outlying areas. Currently, VFD can dispatch firefighters to areas farthest from any station within 12 minutes of call receipt, which is generally adequate to stop serious fires from spreading to adjoining buildings and to provide medical treatment for non-critical patients (City of Vallejo 2016). When major incidents occur, VFD must deploy all its resources and depend on mutual-aid agreements with neighboring jurisdictions. In general, as a result of compliance with current fire and building codes and early fire response, Vallejo has experienced a relatively low level of fire loss (City of Vallejo 2017).

LAW ENFORCEMENT

Solano County Sherrif’s Office

The Solano County Sheriff’s Office is responsible for providing public safety services in the county including patrol, investigations, custody of adult offenders, and coroner services. The County Sheriff’s Office also provides a variety of support services including maintenance of criminal records, operation of the County jail, security at County court facilities, and dispatch of public safety personnel. Through comprehensive community, intergovernmental, and employee partnerships, the County Sheriff's Office provides effective law enforcement, safe, humane, secure jails, and security for the Superior Courts. The Sheriff's Office is divided into three major divisions: Public Safety, Administration, and Custody. These divisions work in close partnership with each other to provide a high level of service to the citizens of Solano County. In addition to specialty deputy sheriff positions including SWAT, marine patrol, criminal and coroner investigations, canine, narcotics enforcement, court services, bicycle enforcement, a crowd control team, and the service of civil process, the Sheriff's Office is staffed by correctional officers, sheriff service technicians, public safety dispatchers, evidence technicians, legal procedures clerks, and administrative staff (Solano County 2008).

Vallejo Police Department

The Vallejo Police Department (VPD) provides police protection services for Vallejo's 53 square miles in the incorporated City limits. VPD operates out of the Vallejo Police Station, located at 111 Amador Street. The facility 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. The Communications and Dispatch Unit provides public safety communications for police and fire, answering 9-1-1 calls and dispatching police, fire, and medical responses in the greater Vallejo area. The Community Services Unit, established at the end of 2013, 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. The City of Vallejo has not established a response time goal for the VPD. 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 (City of Vallejo 2016).

Cal Maritime Academy Police Department

The Cal Maritime Police Department (CMPD) provides 24-hours-a-day, year-round, protection for the campus community. CMPD is a fully vested police department, recognized by the California Police Officers Standards of Training. Police department personnel are the first responders to campus emergencies. The department handles all patrol, investigation, crime prevention education, emergency preparedness, and related law enforcement duties for the campus community. The CMPD currently employs a force of 10 sworn police officers with full arrest powers, eight civilian support employees, and a student assistant to assist with daily operations (Cal Maritime n.d.).

Primarily, CMPD makes arrests within its jurisdiction, the Cal Maritime campus. On-duty arrests generally are not made outside the jurisdiction except in cases of pursuit, while following up on crimes committed on the university campus or while assisting another agency. On-duty officers who discover criminal activity outside the jurisdiction of the university campus are advised, when circumstances permit, to consider contacting the agency having primary jurisdiction before attempting an arrest (CMPD 2021). The CMPD maintains a working relationship with all local, county, State, and federal law enforcement agencies. The CMPD has established an agreement with the Vallejo Police Department for the interagency provision of emergency services to the campus. In general, the campus experiences a low rate of crime (Cal Maritime 2018).

The CMPD Policy Manual contains information on the divisions within the CMPD. The Chief of Police is responsible for administering and managing the CMPD. There are two divisions in the CMPD: the Administration Division and the Operations Division.

SCHOOLS

The City of Vallejo is served by the Vallejo City Unified School District (VCUSD), which educates nearly 10,000 students in transitional kindergarten to grade 12 and adult education. In addition to the public schools, a number of private schools are located in the City of Vallejo. VCUSD operates 21 schools: 15 elementary and K-8 schools, one middle school, and two high schools, as well as a Virtual Academy for grades K-12, an Independent Study Academy for grades 6-12, and an adult school (Vallejo City Unified School District n.d.). As mentioned, there are several private schools in Vallejo offering primary and secondary education, including Mosaic Christian School, North Hills Chrisitan School, Shining Star Children's House, St. Basil's, St. Catherine of Siena School, St. Patrick-St. Vincent High School, St. Vincent Ferrer School, Starting Gate School, and Throne of Grace Academy (City of Vallejo 2016). In addition to Cal Maritime, Touro University, a higher education school, is located on Mare Island. Touro University occupies 44-acres and offers programs in three different colleges: Osteopathic Medicine, Pharmacy, and Education and Health Sciences. The Solano Community College also has a satellite campus located in Vallejo in the Bill Thurston Building on Columbus Parkway (Cal Maritime 2018).

The nearest schools to Cal Maritime consist of Patterson Elementary School and Glen Cove Elementary School. Patterson Elementary School is approximately .75 miles northwest of the project site, located at 1080 Porter Street. Glen Cove Elementary School is approximately 1.30 miles northeast of the project site, located at 501 Glen Cove Parkway.

LIBRARIES

Library services in the City of Vallejo are provided by the Solano County Library, which includes two branches in Vallejo: the John F. Kennedy Library at 505 Santa Clara Street and the Springstowne Library at 1003 Oakwood Avenue. The John F. Kennedy Library is operated on the second floor of a building owned by the City of Vallejo in the City Hall complex. The Springstowne Library serves Vallejo's eastside neighborhoods and is the smallest public library in the Solano County Library system (City of Vallejo 2016). Cal Maritime also provides library services via the university's library. The library space is composed of a number of different sub-categories, including stacks, study facilities, processing rooms, and service areas.

RECREATION

City of Vallejo

Recreational facilities in the vicinity of the project site include a portion of the Bay Area Ridge Trail, the San Francisco Bay Trail, Carquinez Park, Borges Ranch Park, the Norman C. King Community Center, and the CSU Physical Education and Aquatics Center. The San Francisco Bay Trail is a 500-mile trail that passes through all nine Bay Area counties, 47 cities, and across seven toll bridges throughout the Bay Area. As shown in Figure 2-5, located in Chapter 2, "Project Description," the paved trail runs above the campus along the western edge of I-80 and the Carquinez Bridge, down onto Maritime Academy Drive. The trail follows Maritime Academy Drive throughout the campus and traverses along the waterfront of the campus within project site boundaries (MTC n.d.). The Cal Maritime campus is located east of the Carquinez Bridge and Crockett section of the Bay Area Ridge Trail. This stretch of the trail spans 2.8 miles one-way from Carquinez Park in Vallejo to Crockett Boulevard in Crockett. Also shown in Figure 2-5, the paved trail runs above the campus along the western edge of I-80 and the Carquinez Bridge, down onto Maritime Academy Drive. The trail travels north out of campus along Maritime Academy Drive and is not located within the project site boundaries. Carquinez Park, located within less than 0.1-mile northwest of the campus, consists of a turfed hill with picnic tables, the Carquinez Bridge trailhead, and off-street parking within 6.3 acres. Borges Ranch Park, located approximately 5.10-mile north of the campus, consists of a multiuse field, picnic tables, and a playground with a play structure. Both parks are managed by the Greater Vallejo Recreation District. The Norman C. King Community Center is located at 545 Magazine Street, Vallejo, .30-mile northwest from campus.

Cal Maritime Campus

On the campus, recreational opportunities are provided through the CSU Physical Education and Aquatics Center, which is located at the entrance of campus north of the project site and operated by the university; small open spaces and integrated student life and recreation spaces throughout the campus; and along the waterfront promenade and maritime green area, which offer open areas for casual and passive recreation (Cal Maritime 2017).

3.12.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Evaluation of potential public services and recreation impacts was based on a review of documents pertaining to the proposed project, including the Propel Vallejo General Plan 2040, Cal Maritime Physical Master Plan, the City of Vallejo's Propel Vallejo General Plan Update and Sonoma Boulevard Specific Plan Draft Environmental Impact Report, and the California State University Maritime Academy Physical Master Plan Environmental Impact Report; and aerial review of the project area and surroundings through Google Earth. Impacts on public services and recreation that would result from the project were identified by comparing existing service capacity and facilities against future demand associated with project implementation.

THRESHOLDS OF SIGNIFICANCE

A public services and recreation impact would be significant if implementation of the project would:

- result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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:
  - fire,
  - police protection,
  - schools,
  - parks, and
  - other public facilities;
- increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

ISSUES NOT DISCUSSED FURTHER

Impacts on Schools and Other Public Services

The nearest schools to the project site are Patterson Elementary School and Glen Cove Elementary School. As noted above, Patterson Elementary School is located approximately .75 miles northwest from the site, and Glen Cove Elementary School is located approximately 1.30 miles northeast from the site. None of the local public schools would be affected by construction or operations associated with the project due to their distance from the project site. As stated in Chapter 2, "Project Description," the purpose of the proposed project is to redevelop the waterfront of Cal Maritime to accommodate the arrival of the NSMV and the anticipated academic and operational growth over the next 10 years. The project itself would not induce any population growth and would have no impact on the local public school system. Similarly, other local services systems, such as the public library system which includes the John F. Kennedy Library and Springstowne Library, would not experience an increase in resource demand nor impacts from construction. Therefore, implementing the project would not affect the services of local schools and other public services. These issues are not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.12-1: Result in Substantial Adverse Physical Construction-Related Impacts Associated with the Provision of or the Need for New or Physically Altered Fire and Police Facilities, to Maintain Acceptable Service Ratios

The project would involve redevelopment of Cal Maritime's waterfront to accommodate the arrival of the NSMV and anticipated academic and operational growth over the next 10 years. Implementation of the project would result in improvements to on-campus facilities which would be constructed in a developed area that is already receiving fire and police services. VFD, CMPD, and VPD would continue to provide fire protection and police services to the campus and the project site under an existing mutual aid agreement. The university also would be required to submit design plans of new buildings to the California State Fire Marshal for review and approval to ensure building designs comply with regulations related to fire protection services. Implementing the project would not increase the population of the campus and therefore would not require expanded services that would necessitate the construction of new or physically altered public services facilities. Therefore, this impact would be **less than significant**.

The project site is located within the limits of the Cal Maritime campus, and the project would not involve development outside the campus boundary. Through the three phases, the project would include redevelopment and construction of new facilities along the Cal Maritime waterfront. These facilities, described below, would be built to support the arrival of the NSMV and improve academic and operational functions of the campus. As discussed below, the project would not increase the on-campus population such that new or expanded facilities would be required; nor would it include the construction of new or expanded fire or police protection facilities.

<u>Phase One</u>

As discussed in Chapter 2, "Project Description," Phase One of the project would involve upgrades to in-water infrastructure, the Marine Yard, and other elements essential to meeting Cal Maritime's readiness for the arrival of the NSMV. To prepare for the arrival of the NSMV, the current main pier would be demolished, and a new longer, wider pier would be constructed to complement the size of the new NSMV. Structural upgrades and extension of the existing trestle would also be required. There is potential for the existing trestle to be demolished and replaced with a new trestle if the existing trestle is deemed structurally inadequate to meet the mooring forces of the NSMV. Other activities, such as the installation of new floating and training docks at the boat basin, expansion and upgrading of the Marine Yard, utility upgrades, and dredging of the main pier berth pocket and existing boat basin, would be included in construction activities for the arrival of the NSMV. The operation of the facilities under Phase One would not result in a substantial increase in the campus population or workforce and therefore would not increase the demand for local public services. As discussed in Section 3.8, Hazards and Hazardous Materials, the university would update the existing Emergency Management Plan to reflect implementation of the project to ensure that campus emergency response would be integrated into the emergency response and procedures of other local agencies.

<u>Phase Two</u>

Phase Two would focus on rehabilitating the boathouse, creating Boat Basin 2 and its new pier, adding new floating docks to Boat Basin 2, increasing hands-on instructional opportunities, demolishing the Marine Programs and Naval Science modular buildings, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning through shoreline enhancements. These aspects of Phase Two would result in temporary and permanent physical changes to the project site. The renovation of the boathouse would include upgrading and improving interior features, as well as restoring exterior elevations of the boathouse and integrating them into the adjacent waterfront and pedestrian gathering areas and campus site amenities. The primary entrance of the boathouse would be reverted to its intended use as a sail loft. The creation of Boat Basin 2 would involve the installation of approximately 26 slips and berthing areas for the university's fleet of marine vessels currently located off-site and/or planned for future acquisition. As with Phase One, operation of the facilities constructed under Phase Two would not require or create a substantial increase in the campus population or workforce and would not increase demand for local public services. Although the creation of Boat Basin 2 would increase the number of boat slips and berthing areas on the site, there is no evidence to suggest that the additional boat slips would result in an increased demand for police and fire services such that CMPD, VPD, and VFD would be unable to provide adequate service due to a lack of personnel and/or would need new or expanded service facilities. Additionally, as stated above under Phase One, implementation of the project would be included in an update to the existing Emergency Management Plan to ensure campus emergency response is included with the emergency response and procedures of the VPD and VFD. The project also would be required to comply with all applicable emergency access requirements, including Uniform Fire Code requirements, as well as being subject to review by the State Fire Marshal regarding fire and panic safety issues. This impact would be less than significant.

Phase Three

Phase Three would continue to focus on redevelopment of the Marine Yard, increasing hands-on instructional opportunities, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning, which would result in physical changes to the campus. Phase Three includes the construction of the Marine Programs Multi-Use Building, which would replace the obsolete trailers and Marine Programs and Naval Science Modulars. The building would include academic and administrative uses, such as a wet lab classroom on the main-floor and administrative offices on the first floor, as well as a 50- to 60-foot-tall lookout and Harbor Control Tower. A marine hydrokinetic barge and linking trestle also would be included under Phase Three. Phase Three of the project also would include construction of a floating, in water, row house that would be connected to Boat Basin 2; a central waterfront esplanade at the terminus of the major campus axis; creation of a shoreline transition zone, an intertidal zone, and living reefs; and construction of a public pier and lookout structure.

As with Phases One and Two, operation of the facilities constructed under Phase Three would not result in a substantial increase in the campus population or workforce and would not require an increase in resources from the local public services. The new Marine Programs Multi-Use Building would not create a need for increased faculty or staff and would be constructed to serve the existing projected increase in student enrollment. The building would be located within the campus boundary and be constructed in accordance with the campus height requirements and state and local building safety requirements and therefore would not result in an increased demand for services. The proposed shoreline improvements, including the new public pier and floating row house, could result in increased public presence on the waterfront portion of the campus. However, there is no evidence to suggest that these facilities would result in a substantial increase in the demand for public services to the extent that CMPD, VPD, and VFD would be unable to provide adequate service due to a lack of personnel and/or would need new or expanded service facilities. As stated above under Phase One, implementation of the project would be included in an update to the existing Emergency Management Plan to ensure campus emergency response is included with the emergency response and procedures of the VPD and VFD. The project would be required to comply with all applicable emergency access requirements, including Uniform Fire Code requirements, as well as being subject to review by the State Fire Marshal regarding fire and panic safety issues. For these reasons, this impact would be less than significant.

Summary

The project would introduce the construction, redesign, and enhancement of multiple structures on the project site to accommodate the arrival of the NSMV and anticipated campus growth. Although implementing the project would cause the expansion and addition of structures, the project site is in an already developed setting in the service area of local fire and police protection services that currently serve the project site. Operations of the project across all phases would not result in any increase in population, so it is reasonable to conclude that there would be no substantial increase in demand for fire and police services. Therefore, project implementation would not result in the need for new or physically altered facilities to maintain acceptable service ratios, response times, or other performance objectives. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.12-2: Result in Substantial Deterioration of Neighborhood and Regional Parks, or Require Construction or Expansion of Recreational Facilities

The project would involve redevelopment of Cal Maritime's waterfront to accommodate the arrival of the NSMV and anticipated academic and operational growth over the next 10 years. Implementation of the project would result in an increase in on-campus facilities which would be constructed in an already developed area. The proposed project would result in the improvement of the waterfront area and increased connectivity of the waterfront area to the campus and the San Francisco Bay Trail. Improvements to the waterfront, and San Francisco Bay Trail, would provide renovated and new passive recreational features for cadets and visitors of the campus to utilize. As a result, the project would not result in the substantial deterioration of or need for additional recreational facilities. I This impact would be **less than significant**.

The Cal Maritime campus contains public open spaces, a portion of the Bay Area Ridge Trail, the San Francisco Bay Trail, and the CSU Physical Education and Aquatics Center. The Bay Area Ridge Trail, as mentioned above, runs along the western edge of I-80 and the Carquinez Bridge, down onto Maritime Academy Drive. The trail travels north out of campus grounds on Maritime Academy Drive and would not be affected by the proposed project. The CSU Physical Education and Aquatics Center is located on the northern portion of campus, away from the waterfront, and would also not be affected by the proposed project. The Cal Maritime campus includes open spaces around the campus to support student life by providing areas for passive recreation. The proposed project would include vegetated open spaces and renovated pedestrian walkways along the waterfront aimed at improving connectivity and walking ability between the campus core and waterfront. The existing waterfront and proposed project site contain a portion of the San Francisco Bay Trail, which runs through the eastern side of campus along Maritime Academy Drive and connects the waterfront area to other parts of the trail network. Additionally, there are several recreational facilities that surround the campus, Carquinez Park, Borges Ranch Park, and the Norman C. King Community Center. Recreational services in the campus core would not be affected by the proposed project, and implementing the project would increase the amount of open space available for recreation. The San Francisco Bay Trail is the only public recreational facility that could be temporarily affected by the project, as described below.

Phase One

As discussed in Chapter 2, "Project Description," Phase One of the project would involve upgrades to in-water infrastructure, the Marine Yard, and other elements essential to meeting Cal Maritime's readiness for the arrival of the NSMV. To prepare for the arrival of the NSMV, the current main pier would be demolished, and a new longer, wider pier would be constructed to complement the size of the new NSMV. Structural upgrades and extension of the existing trestle would also be required, with the potential for the existing trestle to be demolished and replaced with a new trestle, in the event that a defect is detected on the existing trestle. Other activities, such as the installation of new floating and training docks at the boat basin, expansion and upgrading of the Marine Yard, utility upgrades, and dredging of the main pier berth pocket and existing boat basin, could cause temporary impacts related to interrupted access to the San Francisco Bay Trail during construction.

Construction activities related to the development of Phase One would require temporary road closures along the campus waterfront. As discussed in Section 3.8, Hazards and Hazardous Materials, a construction traffic management plan would be prepared before each phase of project implementation to minimize traffic impacts on affected roadways at and near the work site during demolition and construction. These plans would identify construction and public (if applicable) access points, procedures for notification of road closures, and a plan to deliver construction materials to work areas. In the event that portions of the San Francisco Bay Trail be inaccessible as a result of construction activities, such disruptions in access would be temporary. Once construction is completed, operation of the new and renovated facilities during Phase One would not restrict access to or affect the use of the San Francisco Bay Trail. Campus operation would otherwise be similar to existing operations and would not affect the recreational use of the trail or open spaces along the waterfront. Implementation of the project itself would not induce population growth, as the purpose of the project is to accommodate the arrival of the NSMV and the anticipated academic and operational growth over the next 10 years within the university. As a result of the project not inducing population growth, impacts associated with the deterioration of existing recreational facilities such as Carquinez Park, Borges Ranch Park, and the Norman C. King Community Center, and the recreational facilities located on campus, from Phase One are not expected to occur. Phase One does not consist of the construction or expansion of recreational facilities that could result in an adverse physical effect on the environment. Therefore, this impact would be less than significant.

<u>Phase Two</u>

Phase Two would focus on rehabilitating the boathouse; creating Boat Basin 2; implementing upland improvements to accommodate a new pier; adding new floating docks to Boat Basin 2; demolishing the Marine Programs and Naval Science modular buildings; linking campus buildings to waterfront open space and enhancing public access; and safeguarding waterfront resilience and ecological functioning through shoreline enhancements. These aspects of Phase Two would result in temporary and permanent physical changes to the project site. The renovation of the boathouse would include upgrading and improving interior features, as well as restoring exterior elevations of the boathouse and integrating them into the adjacent waterfront and pedestrian gathering areas and campus site amenities. The primary entrance of the boathouse would be reverted to its intended use as a sail loft. The creation of Boat Basin 2 would involve the installation of approximately 26 slips and berthing areas for the university's fleet of marine vessels currently located off-site and/or planned for future acquisition.

Construction efforts during Phase Two would require temporary partial or entire road and pedestrian walkway closures along the campus waterfront area, including sections adjacent to the San Francisco Bay Trail, which could affect access to the trial. Similar to Phase One, construction during this phase could lead to potential temporary closures to the trail itself where it borders the waterfront; however, as discussed in Section 3.8, Hazards and Hazardous Materials, a construction traffic management plan would be prepared before each phase of project implementation to minimize traffic impacts on affected roadways at and near the work site during demolition and construction. These plans would identify construction and public (if applicable) access points, procedures for notification of road closures, and a plan to deliver construction materials to work areas. However, in the event that portions of the San Francisco Bay Trail become closed due to construction activities, the closure would not be permanent, as construction activities associated with Phase Two would be temporary. Once construction is completed, the operation of the new and renovated facilities during Phase Two would not restrict access to or impact affect the use of the San Francisco Bay Trail. The physical environmental effects of construction of these planned facilities, beyond temporary disruption of access to the Bay Trail, are addressed throughout Chapter 3 of this EIR. Language about responding to sea level rise.

As with Phase One, operation of the facilities constructed during Phase Two would not increase the use of or damage the San Francisco Bay Trail. Access to the waterfront trail and connectedness to the campus would be improved, and along with the improvements to the resiliency and ecological quality of the waterfront, improvements made during Phase Two would not change the route of the waterfront portion of the San Francisco Bay Trail.

Phase Two would focus on establishing key elements for the upland zone, including the primary pedestrian path, planting, and the upland portion of the public pier, lookout, and waterfront plaza. Resting nodes with seating elements are envisioned along the major pedestrian path, along with a waterfront plaza, public pier, and lookout deck with a shade structure, fire pit, and other furnishings, further promoting passive recreational opportunities for cadets and visitors of the campus. With the completion of Phase Two, new and improved open space and passive recreational areas would be added to the campus to adequately serve the increase in student and staff projected in the university's Physical Master Plan. Given these proposed improvements, and because implementation of the project itself would not induce population growth, impacts associated with the deterioration of existing recreational facilities such as Carquinez Park, Borges Ranch Park, and the Norman C. King Community Center, Because Phase Two would introduce improved open space and passive recreation areas, it would increase recreational amenities on campus. Therefore, it is not anticipated that Phase Two to result in a substantial increase in demand or substantial degradation to neighborhood or regional parks or necessitate the construction of additional recreational facilities. Therefore, this impact would be less than significant.

<u>Phase Three</u>

Phase Three would continue to focus on redeveloping the Marine Yard, increasing hands-on instructional opportunities, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning, which would result in physical changes to the campus. Phase Three includes the construction of the Marine Programs Multi-Use Building, which would replace the obsolete trailers and Marine Programs and Naval Science Modulars. Additionally, a floating, in-water, row house would be constructed and connected to Boat Basin 2. As a further waterfront improvement and shoreline enhancement, a central waterfront esplanade would be located at the terminus of the major campus axis. The design for the esplanade envisions an iconic canopy structure featuring paving, fire pits, educational signage, and interactive furnishing elements. Amenities such as exterior light fixtures, integrated atmospheric misting, outdoor ceiling fans, built-in furniture, and gas barbeque equipment or fire pits would also be installed. Additional shoreline enhancements, including implementation of the transition zone, intertidal zone, living reefs, and new pier and lookout structures also would be included in this phase.

As with Phases One and Two, operation of the facilities constructed under Phase Three would not increase the amount of people frequenting the San Francisco Bay Trail and would not lead to an increase in damage to or degradation of the trail. Shoreline enhancements to the waterfront and improvements to accessibility from the rest of campus could potentially lead to benefits for the San Francisco Bay Trail. Similar to the potential impacts from operations of Phase Two, Phase Three would lead to an improved and more resilient ecosystem in the waterfront section of the San Francisco Bay Trail. Construction efforts during Phase Three would require temporary partial or entire road and pedestrian walkway closures along the campus waterfront area, including portions of the San Fransico Bay Trail. However, as discussed in Section 3.8, "Hazards and Hazardous Materials," a construction traffic management plan would be prepared before each phase of project implementation to minimize traffic impacts on affected roadways at and near the work site during demolition and construction. These plans would identify construction and public (if applicable) access points, procedures for notification of road closures, and a plan to deliver construction materials to work areas. In the event that portions of the San Francisco Bay Trail become closed due to construction activities, the closure would not be permanent, as construction activities associated with Phase Three would be temporary. Once construction is completed, the operation of the new and renovated facilities during Phase Three would not restrict access to or impact affect the use of the San Francisco Bay Trail.

As with the other project phases, implementation of Phase Three would not induce population growth and therefore would not lead to the deterioration of existing recreational facilities in the project area such as Carquinez Park, Borges Ranch Park, and the Norman C. King Community Center. This phase would introduce improved open space and increased recreational opportunities for Cal Maritime students, faculty and staff, and the general public, and would not result in a substantial increase in demand or substantial degradation to existing neighborhood or regional parks and recreational facilities or necessitate the construction of additional recreational facilities. This impact would be less than significant.

<u>Summary</u>

The project would introduce the construction, redesign, and enhancement of multiple structures on the project site to accommodate the arrival of the NSMV and planned campus growth. Although implementing the project would cause the expansion and addition of structures, the project site is in an already developed setting with the San Francisco Bay Trail as the only publicly utilized recreational asset within project site boundaries. Implementing the project would result in improved features surrounding the San Francisco Bay Trail and would provide additional open space to provide students and visitors additional opportunities for passive recreation. Operation of the project across all phases would not result in any increases in population and therefore would not contribute to increased and associated degradation of the trail or other nearby recreational facilities. Construction activities associated with the project across all three phases of the waterfront masterplan would occur over 10+ years. Project construction would include partial or full closure of roadways and pedestrian pathways along the campus waterfront, including the portion of the trail that runs along the border of Morrow Cove Road and the waterfront. Any closures would be temporary, and other portions of the San Francisco Bay Trail extending from either side of the project site would continue to be accessible. Surrounding recreational facilities located off campus, such as Carquinez Park, Borges Ranch Park, and the Norman C. King Community Center, would not experience impacts related to physical deterioration as a result of an increase in use, as the project would not induce population growth and would provide additional open space and other opportunities for passive recreation. While the project would result in the construction of new facilities, construction related physical impacts are further discussed throughout the resource sections in Chapter 3 of this EIR, and are not anticipated to result in substantial adverse physical effects. Thus, project implementation is not expected to result in substantial deterioration of neighborhood and regional parks or require construction or expansion of recreational facilities. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.13 TRANSPORTATION

This section identifies applicable regulatory requirements related to transportation and describes the existing transportation system on and in the vicinity of the project site. The transportation impact analysis presented in this section identifies the environmental effects that would result from implementation of the project. Consistent with the State CEQA Guidelines, this analysis addresses impacts associated with bicycle, pedestrian, and transit facilities; the generation of vehicle miles traveled (VMT); transportation hazards; and emergency access.

Comments regarding transportation received in response to the notice of preparation (NOP) expressed concern related to VMT impacts, alternative transportation access, and traffic safety. See Appendix A for all NOP comments received.

3.13.1 Regulatory Setting

FEDERAL

No federal plans, policies, regulations, or laws related to transportation would apply to the project. However, the following federal regulations are applicable to the way in which transit service is provided:

- Americans with Disabilities Act: prohibits discrimination based on disability;
- Title VI of the Civil Rights Act of 1964: prohibit discrimination based on race, color, and national origin; and
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.

STATE

Senate Bill 743

Senate Bill (SB) 743, passed in 2013, required the California Governor's Office of Planning and Research (OPR) to develop a new guideline that addresses transportation metrics under CEQA. Enacted as part of SB 743 (2013), Public Resources Code (PRC) Section 21099(b)(1) directed OPR to prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption proposed CEQA Guidelines addressing:

> criteria for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In developing the criteria, [OPR] shall recommend potential metrics to measure transportation impacts that may include, but are not limited to, vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated.

PRC Section 21099(b)(2) further provides that "[u]pon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion *shall not be considered a significant impact on the environment* pursuant to [CEQA], except in locations specifically identified in the guidelines, if any" (*emphasis* added).

In November 2017, OPR published its proposal for the comprehensive updates to the CEQA Guidelines, which included proposed updates related to analyzing transportation impacts pursuant to SB 743. The updated CEQA Guidelines were adopted on December 28, 2018, and according to Section 15064.3 of the new CEQA Guidelines, VMT replaced congestion as the metric for determining transportation impacts. The guidelines state that "lead agencies may elect to be governed by these provisions of this section immediately. Beginning July 1, 2020, the provisions of this section shall apply statewide."

To provide guidance to agencies implementing the new CEQA requirements, OPR published the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR Technical Advisory) in December 2018. The OPR Technical Advisory describes considerations agencies may use in selecting VMT metrics, calculation methodologies, and significance thresholds. It does not mandate the use of specific metrics, methodologies, or significance thresholds, because agencies have discretion to select those that are appropriate for the local land use and transportation context (OPR 2018).

California Manual on Uniform Traffic Control Devices, Part 6: Temporary Traffic Control

The California Manual on Uniform Traffic Control Devices (CA MUTCD), Part 6: Temporary Traffic Control provides principles and guidance for the implementation of temporary traffic control (TTC) to ensure the provision of reasonably safe and effective movement of all roadway users (e.g., motorists, bicyclists, pedestrians) through or around TTC zones while reasonably protecting road users, workers, responders to traffic incidents, and equipment. Additionally, this document notes that TTC plans and devices shall be the responsibility of the authority of a public body or official having jurisdiction for guiding road users.

CALIFORNIA STATE UNIVERSITY

California State University Transportation Impact Study Manual

The CSU Transportation Impact Study Manual (TISM) (Fehr & Peers 2019) provides guidance for addressing transportation-related impacts for projects on CSU campuses, including all lands owned by CSU, consistent with SB 743 and the CEQA Guidelines update. The TISM includes guidance for analyzing transportation impacts (including VMT), applicable significance thresholds, and recommended mitigation measures. It recommends the following thresholds of significance:

- Plan Conflict: The project would conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities.
- VMT Impacts:
  - Project Level: For projects that do not meet any of the VMT screening criteria described in the CSU TISM, which includes projects that generate no or few trips and are not anticipated to increase VMT per capita, analysis is required to determine whether the project would result in VMT per resident in excess of 15 percent below the existing regional, subregional, or citywide VMT per resident. VMT trip purposes for student, faculty, and staff housing are defined as Home-Based Work (Production & Attraction) + Home-Based Other (Production & Attraction).
  - Cumulative: The CSU TISM also requires evaluation of whether implementing the project would result in an increase or decrease in the regional, subregional, or citywide VMT per capita to determine whether implementing the project would result in significant cumulative impacts. Accordingly, the CSU TISM recommends evaluation of the VMT per resident under the with-project condition to determine whether VMT would be in excess of the citywide, regional, or subregional VMT per service population identified under the regional transportation plan/sustainable communities strategy condition.
- Hazard Impact: Implementing the project would substantially increase hazards related to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Emergency Access Impact: Implementing the project would result in inadequate emergency access.

California State University Sustainability Policy

The purpose of the CSU Sustainability Policy (CSU 2022) is to reduce the university's impact on the environment; educate students, faculty, and staff on sustainable practices; and incorporate sustainability principles and climate science into the university's educational offerings. The policy contains the following statement related to transportation:

- The CSU will encourage and promote the use of alternative transportation and/or alternative fuels to reduce GHG (greenhouse gas) emissions related to university-associated transportation, including commuter and business travel.

California State University Transportation Demand Management Manual

The CSU Transportation Demand Management Manual (Nelson Nygaard 2012) addresses the unique transportation needs of different campuses and provides a systemwide framework for implementing sustainable transportation programs. The manual contains a set of goals, criteria, and best practices to guide the provision of programs, tools, and strategies that encourage students, faculty, and staff to commute to and from campus using bus/rail transit, carpools, vanpools, bicycling, and walking to lessen reliance on single-occupant vehicle travel and reduce vehicle trips to campuses (Nelson Nygaard 2012). This manual is a resource designed to provide guidance in developing campus transportation demand management plans and the associated programs and policies.

Cal Maritime Physical Master Plan

The Cal Maritime Physical Master Plan is a guidebook that defines the spatial implications and vision for Cal Maritime's next phase of growth. The Physical Master Plan is a 15-year blueprint that covers all aspects of the campus's development, including student enrollment growth, overall campus land use and design, building capacity and placement, circulation and infrastructure, and sustainability (CSU Maritime Academy 2017). One of the primary goals of the Physical Master Plan is to create an efficient circulation network that emphasizes mobility and prioritizes the pedestrian experience while accommodating vehicular needs and parking realities. Chapter 8 of the Physical Master Plan identifies the following key strategic moves related to circulation:

- Create a pedestrian only Academic Core.
- Provide improved pedestrian routes throughout campus.
- Make most daily activities available within a ten-minute walk.
- Turn waterfront portion of Morrow Cove Drive into a pedestrian-centric "Waterfront Promenade."
- Decant personal vehicles out of the Academic Core.
- Provide parking at the campus perimeter.
- Implement a campus shuttle system.
- Provide emergency and service access throughout campus.
- Allow emergency and service vehicles to share the Waterfront Promenade with pedestrians.

LOCAL

Cal Maritime is part of the CSU, which is a statutorily- and legislatively-created and constitutionally authorized entity of the State of California, and therefore the project site is owned by the CSU. As explained in Chapter 3 of this ~~Draft~~ EIR, in the "California State University Autonomy" section, as a state agency, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, this EIR does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes.

City of Vallejo General Plan

The 2040 Vallejo General Plan, most recently amended in 2017, establishes the goals and policies guiding land use and development in the City's Planning Area (City of Vallejo 2017). Land use, transportation systems, environmental concerns, and economic and equity goals are discussed in the General Plan. Additionally, in November 2012, the City Council adopted a complete streets policy to improve use of the transportation network for all users and help reduce greenhouse gas emissions. The General Plan provides guidance in establishing a Complete Streets Overlay Network according to typologies that consider the context and prioritize travel modes for each street. The following policies from the 2040 Vallejo General Plan are related to the project:

- **Policy MTC-1.1: Regional Transit Connections**. Enhance regional transit service for residents, employees, and visitors.
- **Policy MTC-1.2: Transit Ridership**. Increase regional transit and ferry ridership to and from Vallejo, particularly by commuters and visitors.
- **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.
- **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.
- **Policy MTC-1.5: Regional Trail Network**. Continue to participate in efforts to complete the regional trail network through Vallejo.
- **Policy MTC-1.6: Public Access**. Promote public access to open space and trails.
- **Policy MTC-2.1: Safety First**. Prioritize pedestrian, bicycle, and automobile safety over traffic flow.
- **Policy MTC-2.2: Education**. Promote safety programs to educate all road users about risks and responsibilities.
- **Policy MTC-2.3: Emergency Response Routes**. Ensure adequate emergency vehicle access in all areas of Vallejo.
- **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.
- **Policy MTC-2.7: Complete Streets**. Increase accessibility for and use of streets by pedestrians, bicyclists, and transit riders.
- **Policy MTC-2.8: Transportation Demand Management**. Decrease dependence on single-occupant vehicles by increasing the attractiveness of other modes of transportation.
- **Policy MTC-2.9: Local Transit**. Encourage increased local transit ridership to work, school, shopping, and recreation.
- **Policy MTC-2.10: Senior and Limited Mobility Population**. Encourage provision of a variety of transportation services for seniors and community members with limited mobility.
- **Policy MTC-2.11: Sustainable Transportation**. Ensure that circulation improvements can be operated and maintained within existing and future resource limitations.
- **Policy MTC-2.12: Resource Efficiency**. Facilitate use of emerging vehicle technology to help reduce vehicle miles travelled and greenhouse gas emissions.
- **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.
- **Policy MTC-3.2: Local Transit**. Encourage improvements in citywide transit service that directly connect major destinations in Vallejo, including commercial districts, job centers, and projected growth areas.
- **Policy MTC-3.4: Walking, Biking, and Rolling**. Expand the local bicycle and trail network to provide safe, healthy, attractive options for non-motorized travel among destinations in Vallejo, including for wheelchair users.

City of Vallejo Traffic Control Plan Requirements

The City of Vallejo requires a traffic control plan (TCP) for all work performed within the public right-of-way. The basic objective of each TCP is to permit the contractor to work within the public right-of-way efficiently and effectively while maintaining a safe, uniform flow of traffic. Both construction work and the public must be given equal consideration when developing a TCP. Additionally, when considering the public, attention must be given to all types of travel through the work zone (i.e., vehicular, bicycle, and pedestrian). All TCPs must be in accordance with the most recent edition of the CA MUTCD (City of Vallejo 2010). The TCP requirements document includes several checklist items and standards that identify the City's protocol for construction work and the necessary elements required to submit a complete TCP.

3.13.2 Environmental Setting

This section describes the existing environmental setting, which is the baseline scenario against which project-specific impacts are evaluated. The environmental setting for transportation includes baseline descriptions for roadway, transit, bicycle, and pedestrian facilities.

ROADWAY SYSTEM

The project site is centrally located in the City of Vallejo with access to I-80. Local vehicular access to and from the project site is primarily provided by Sonoma Boulevard, Maritime Academy Drive, and Morrow Cove Drive. The following regional and local roadways serve the project site:

- **I-80** is a cross-country east-west highway that provides access to the Bay Area region. Locally, I-80 connects Solano County to Alameda and San Francisco Counties to the west and Yolo and Sacramento Counties to the east. In the project vicinity, I-80 generally consists of four to five travel lanes in each direction.
- **Sonoma Boulevard** is a bidirectional north-south roadway that provides access to the project site via I-80 and Maritime Academy Drive. It generally has two travel lanes in each direction with a posted speed limit of 45 miles per hour (mph).
- **Maritime Academy Drive** is a bidirectional north-south roadway providing direct access to the Cal Maritime campus. It provides one travel lane in each direction and has a posted speed limit of 30 mph.
- **Morrow Cove Drive** is a bidirectional north-south roadway providing direct access to the project site from the southern end of Maritime Academy Drive. It runs along the waterfront, providing enough right-of-way to allow for vehicular travel in each direction; however, there are no lane markings present. Morrow Cove Drive has a posted speed limit of 15 mph.

TRANSIT SYSTEM

Transit service operating in the vicinity of the project site is provided by Solano County Transit (SolTrans). SolTrans is a joint powers authority governed by a six-member Board of Directors composed of two representatives from both the City of Benicia and the City of Vallejo, Solano County's representative on the Metropolitan Transportation Commission (MTC), and a representative from the Solano Transportation Authority.

SolTrans provides local and SolanoExpress fixed routes and complementary paratransit throughout Solano County. In the vicinity of the project site, SolTrans operates Bus Route 3, which runs between the Vallejo Transit Center and South Vallejo. Bus Route 3 offers service Monday through Friday between 7:23 a.m. and 8:10 p.m. and weekend service between 8:45 a.m. and 6:10 p.m. Headways are approximately 30 minutes throughout the day. The nearest bus station to the project site is located approximately 1 mile north of the project site, on Sonoma Boulevard and Sandy Beach Road.

BICYCLE SYSTEM

The California Highway Design Manual (Caltrans 2020) identifies four primary types of bicycle facilities: Class I (bicycle paths, including shared-use paths), Class II (bicycle lanes), Class III (bicycle routes), and Class IV (separated bikeways):

- **Class I (Bicycle Path/Shared-Use Path)**—A facility with exclusive right-of-way with cross flows by vehicles minimized. Motor vehicles are prohibited from bicycle paths. Unless adjacent to an adequate pedestrian facility, Class I facilities are for the exclusive use of bicycles and pedestrians.

- **Class II (Bicycle Lane)**—A dedicated facility for bicyclists adjacent to motor vehicle traffic on streets. Class II facilities are identified with striping, pavement markings, and signage. The striping is intended to delineate the right-of-way assigned to bicyclists and motorists and to provide for more predictable movements by each.
- **Class III (Bicycle Route)**—On-street bicycle routes where bicycles and motor vehicles share the road. Class III facilities are identified with signage and may be indicated with pavement markings (e.g., "sharrows"). They are intended to provide continuity to other bicycle facilities (usually Class II facilities) or designate preferred routes through high-demand corridors. These routes are typically assigned to low-volume and/or low-speed streets.
- **Class IV (Separated Bikeway)**—Facility for the exclusive use of bicycles that is separated from adjacent vehicular traffic. The separation may include grade separation, flexible posts, inflexible barriers, or on-street parking. These facilities are also referred to as protected bicycle lanes or cycle tracks.

As of 2020, the City of Vallejo had 46 lane miles of bicycle facilities: 6 lane miles of shared-use paths, 22 lane miles of bicycle lanes, and 18 lane miles of bicycle routes (County of Solano 2020). In the vicinity of the project site, Class II bicycle facilities are located on the west side of Maritime Academy Drive between Sonoma Boulevard and Country Lane Drive. Additionally, the north end of the Carquinez Bridge Trail, a 2.2-mile Class I path, is located along Maritime Academy Drive just north of the project site.

PEDESTRIAN SYSTEM

The pedestrian network in Vallejo consists largely of sidewalk infrastructure supported by crossing treatments, multiuse paved trails, and unpaved recreational trails. As of 2020, the City of Vallejo had 515 miles of sidewalks, which include measurements of sidewalks on both sides of the street independently (County of Solano 2020). In the vicinity of the project site, sidewalks exist on the west side of Maritime Academy Drive. Additionally, there is a walking path located along the waterfront west of Morrow Cove Drive.

3.13.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

As detailed in Section 3.13.1, "Regulatory Setting," the CSU TISM provides guidance for assessing transportation impacts, including those related to VMT. The CSU TISM has identified types of projects that could be screened from a detailed VMT analysis because they are presumed to result in a less than significant impact. For CSU projects, the following types of projects would be screened from VMT assessment because of their VMT-reducing nature:

- local-serving retail that is less than 50,000 square feet or retail that is located wholly within the core of a CSU campus;
- childcare centers that serve students, faculty, and staff families;
- student services facilities;
- parking facilities that serve the campus demand and do not create "too much parking;"
- healthcare centers serving students, faculty, and staff;
- recreation/fitness/wellness centers that serve students, faculty, and staff; and
- projects generating less than 110 vehicle trips per day, as noted in the OPR Technical Advisory.

For all other project types, a VMT assessment would be required, as outlined in the CSU TISM (Fehr & Peers 2019: 3).

THRESHOLDS OF SIGNIFICANCE

The following thresholds of significance are based on Appendix G of the State CEQA Guidelines, the CSU TISM, and the OPR Technical Advisory. A transportation impact would be significant if implementation of the proposed project would:

- conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;
- conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b);
- substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- result in inadequate emergency access.

With respect to the issue of CEQA Guidelines Section 15064.3, Cal Maritime, as part of the CSU system, would consider a VMT impact to be significant if the project would:

- exceed the Master Plan CSU TISM significance threshold, specifically if project-generated VMT per service population exceeds a level 15 percent below existing regional, subregional, or citywide VMT per employee.

ISSUES NOT DISCUSSED FURTHER

VMT Analysis

As noted above, the CSU TISM establishes screening criteria for projects that are presumed to result in a less than significant VMT impact. As discussed above in the “Methodology” section and consistent with OPR’s Technical Advisory, the CSU TISM states that projects generating less than 110 vehicle trips per day can be screened from further VMT analysis (Fehr & Peers 2019: 3). As detailed in Chapter 2, “Project Description,” implementation of the three phases of the Waterfront Master Plan would not result in increased enrollment or student capacity, nor would it result in a related increase in staff and faculty employment. Phases 2 and 3 of the project would include construction of a new public pier, including upland improvements, which may attract additional public use of the site. However, the campus shoreline already is maintained as open space and allows public access, and the proposed project improvements are not expected to generate substantial new public use and associated VMT. Therefore, operation of the project is anticipated to generate less than 110 new vehicle trips per day and, thus, would not substantially increase VMT. Thus, the project would meet the screening criteria for small projects as established by the CSU TISM and OPR Technical Advisory. For this reason, the project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3. This issue is not discussed further.

Emergency Access

Implementation of the Waterfront Master Plan would not result in changes to site access and is intended to improve internal vehicular circulation. The Waterfront Master Plan would be compliant with all applicable emergency access requirements, including Uniform Fire Code requirements; thus, emergency access for development of the site would be subject to review by all appropriate responsible emergency service agencies. Additionally, all CSU projects are required to follow the State University Administrative Manual, which requires the State Fire Marshal to review all projects before they are implemented. Therefore, future projects under the Waterfront Master Plan, including Phase One, would be designed to meet applicable emergency access and design standards, and adequate emergency access would be provided. This issue is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.13-1: Conflict with a Program, Plan, Ordinance, or Policy Addressing the Circulation System, Including Transit, Roadway, Bicycle, and Pedestrian Facilities

Implementation of the proposed project would not substantially change main vehicular and pedestrian circulation identified or planned for in the 2017 Cal Maritime Physical Master Plan. Phases One, Two, and Three would include improvements to on-site pedestrian facilities, benefitting pedestrian circulation. None of the phases would alter, impair, or otherwise adversely affect existing transit facilities. Additionally, the proposed project would not interfere with the implementation of any planned pedestrian, bicycle, or transit facility. Therefore, implementation of the Waterfront Master Plan would not conflict with a program, plan, ordinance, or policy addressing the circulation system. This impact would be **less than significant**.

Phase One

As discussed in Chapter 2, "Project Description," Phase One of the project focuses on upgrades to in-water infrastructure, the Marine Yard, and other elements essential to meeting Cal Maritime's readiness for the arrival of the NSMV. To prepare for the ship's arrival, the existing main pier would be demolished, and a new longer, wider pier would be constructed to complement the size of the new NSMV. Structural upgrades and extension of the existing trestle would also be required, with the potential for full replacement of the trestle. Other Phase One components include the installation of new floating and training docks at the boat basin, expansion and upgrading of the Marine Yard, utility upgrades, and dredging of the existing and expanded boat basin. Additionally, temporary berth accommodations would be facilitated at the Suisun Bay Reserve Fleet (SBRF) to accommodate Phase One improvements and avoid any disruption in hands-on training and other shipboard programs. A shuttle or other form of transportation would be arranged to transport cadets and faculty/staff between the main campus and temporary mooring at SBRF.

One of the project's overall objectives is linking campus buildings with waterfront open space and enhancing public pedestrian and bicycle access to and along the activated waterfront. Phase One of the project, as proposed, would not modify existing off-site bicycle facilities or conflict with existing bicycle facilities. Additionally, the project would not interfere with the implementation of any planned bicycle facilities in the vicinity of the project site. Implementation of the Waterfront Master Plan would not change vehicular access to the project site and it would improve internal vehicular and pedestrian circulation. The Waterfront Master Plan in many ways is an additional implementing mechanism for many of the 2017 Cal Maritime Physical Master Plan's waterfront-linking features and elements (CSU 2022: 70). Therefore, Phase One of the project would be consistent with the 2017 Cal Maritime Physical Master Plan's goals related to pedestrian access, safety, and circulation and CSU's Sustainability Policy, which encourages the use of alternative modes of transportation and the Transportation Demand Management Manual.

According to the OPR Technical Advisory, "when evaluating impacts to multimodal transportation networks, lead agencies generally should not treat the addition of new transit users as an adverse impact" (OPR 2018: 19). As detailed in Chapter 2, "Project Description," implementation of the proposed project, including Phase One, would not result in increased student capacity or enrollment, nor would it result in increased employment of faculty and staff. Therefore, the project is not anticipated to generate any additional transit ridership. Thus, the SolTrans bus system would continue to have capacity sufficient to accommodate transit riders as it currently operates. Additionally, Phase One of the project would not physically disrupt any existing transit facility or interfere with the implementation of any planned transit service or facility. For these reasons, implementing Phase One of the project would not physically disrupt an existing facility or interfere with implementation of a planned facility, including bicycle, pedestrian, and transit facilities. Thus, this impact would be less than significant.

Phase Two

Phase Two would focus on rehabilitating the boathouse, creating Boat Basin 2 and its new pier, adding new floating docks to Boat Basin 2, increasing hands-on instructional opportunities, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning through shoreline enhancements.

Phase Two also includes redevelopment of the existing Marine Yard, including demolition of the existing Marine Programs and Naval Science modulars. As detailed in Chapter 2, "Project Description," the portion of the Marine Yard located outside the Maritime Security secured perimeter is envisioned as a pedestrian-oriented plaza with a strong connection to the existing adjacent simulation center plaza. The design would establish a new pedestrian connection between the renovated boathouse and the new Marine Programs and Naval Science Replacement Building (envisioned in Phase Three); create ample space for vehicular circulation, including truck turning radii; provide flexible functional space for demonstration and outdoor learning purposes; and create continuous visual and circulation shoreline linkages. Additionally, Phase Two involves shoreline upland zone improvements, including the primary pedestrian path; plantings; and the upland portion of a public pier, lookout, and waterfront plaza. This zone would provide a continuous and accessible east-west linkage for campus users. Resting nodes with seating elements are envisioned along the major pedestrian path. Language about responding to sea level rise.

One of the project's overall objectives is linking campus buildings with waterfront open space and enhancing public pedestrian and bicycle access to and along the activated waterfront. Phase Two of the project, as proposed, would not modify existing off-site bicycle facilities or conflict with existing bicycle facilities. The project would not interfere with the implementation of any planned bicycle facilities in the vicinity of the project site. As discussed above in the Phase One analysis, the proposed project would not change vehicular access to the site, and would improve internal vehicular and pedestrian circulation as planned in the 2017 Cal Maritime Physical Master Plan. The Waterfront Master Plan in many ways is an additional implementing mechanism for many of the 2017 Cal Maritime Physical Master Plan's waterfront linking features and elements (CSU 2022: 70). Therefore, Phase Two of the project would be consistent with the 2017 Cal Maritime Physical Master Plan's goals related to pedestrian access, safety, and circulation and CSU's Sustainability Policy, which encourages the use of alternative modes of transportation and the Transportation Demand Management Manual.

Phase Two of the project would not physically disrupt any existing transit facility or interfere with the implementation of any planned transit service or facility. Additionally, Phase Two improvements would not increase demand for transit ridership, because no increase in campus population is associated with this portion of the project. For these reasons, implementing Phase Two of the project would not physically disrupt an existing facility or interfere with the implementation of a planned facility, including bicycle, pedestrian, and transit facilities. Thus, this impact would be less than significant.

Phase Three

Phase Three would be a continuation of Phase Two. Like the earlier phase, Phase 3 would focus on redeveloping the existing Marine Yard, increasing hands-on instructional opportunities, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning. Phase Three includes construction of the Marine Programs Multi-Use Building, which would be located at the foot of the coastal hills on the eastern side of the lower campus. The Marine Programs Multi-Use Building would replace the existing obsolete trailers and the Marine Programs and Naval Science modulars, which are currently adjacent to the boat basin. Phase Three also involves further shoreline enhancements, including a secondary pedestrian path in the shoreline transition zone that would connect the shoreline upland zone to the water's edge, providing a waterfront experience and outdoor educational opportunities.

As noted above, one of the project's overall objectives is linking campus buildings with waterfront open space and enhancing public pedestrian and bicycle access to and along the activated waterfront. Phase Three of the project would not modify existing off-site bicycle facilities or conflict with existing bicycle facilities. The project would not interfere with the implementation of any planned bicycle facilities in the vicinity of the project site. As with Phases One and Two, the project would maintain external vehicular site access and improve internal vehicular and pedestrian circulation as planned for the 2017 Cal Maritime Physical Master Plan. The Waterfront Master Plan is an additional implementing mechanism for many of the 2017 Cal Maritime Physical Master Plan's waterfront linking features and elements (CSU 2022: 70). Therefore, Phase Three of the project would be consistent with the 2017 Cal Maritime

Physical Master Plan's goals related to pedestrian access, safety, and circulation and CSU's Sustainability Policy, which encourages the use of alternative modes of transportation and the Transportation Demand Management Manual.

Phase Three of the project would not physically disrupt any existing transit facility or interfere with the implementation of any planned transit service or facility, nor would it increase demand for transit ridership because there would be no increase in campus population. For these reasons, implementing Phase Three of the project would not physically disrupt an existing facility or interfere with implementation of a planned facility, including bicycle, pedestrian, and transit facilities. This impact would be less than significant.

Summary

The project would not physically disrupt an existing transit, roadway, bicycle, or pedestrian facility or interfere with the implementation of a planned transit, roadway, bicycle, or pedestrian facility. Phases One, Two, and Three involve pedestrian path improvements, which are consistent with CSU policies and plans that promote increased alternative transportation use and safety for walking and biking. Additionally, implementing the project would not increase demand that would exceed SolTrans bus system capacity, because implementation of the Waterfront Master Plan would not result in increased student capacity or enrollment, nor would it result in a related increase in staff and faculty employment. Therefore, implementation of the proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.13-2: Substantially Increase Hazards due to a Geometric Design Feature (e.g., Sharp Curves or Dangerous Intersections) or Incompatible Uses (e.g., Farm Equipment)

Implementation of the Waterfront Master Plan would not involve changes to the on-site transportation network that would result in an increase in hazards, nor would it result in alterations to public right-of-way. Phases One, Two, and Three would include pedestrian improvements that would increase safety for people walking and bicycling. Construction of all phases of the project would involve the hauling of materials and movement of heavy vehicles in the surrounding roadway network, potentially resulting in increased hazards. However, if needed, implementation of a TCP for each phase would ensure that proper precautions are met during construction activities. For these reasons, implementing the project would not result in an increase in hazards related to a design feature or incompatible use. This impact would be **less than significant**.

Phase One

Construction

Phase One construction activities would occur over 21 months beginning as early as summer 2025 and ending in fall 2026. Construction activities would take place 10–12 hours per day on weekdays with one day on weekends for maintenance activities. Staging of equipment and materials during construction would occur on-site and no off-site staging areas would be required.

The personal vehicles of construction workers, vehicles delivering equipment, vehicles hauling material, and other construction-related traffic would enter and leave the construction areas daily. Haul trips and equipment deliveries often use large trucks, which may temporarily increase risk of hazards on roadways in the vicinity of the project site during delivery and removal. Additionally, if project-related haul trips and the operation of heavy vehicles were to occur along roadways with constrained rights-of-way, implementation of the project could potentially result in an increase in roadway hazards related to incompatible uses. Although project construction would be performed on CSU property, the project contractor would be required to prepare and implement a TCP to address anticipated impacts on public rights-of-way as identified in the City's Traffic Control Plan Requirements (City of Vallejo 2010). The TCP would be submitted to the City of Vallejo Public Works Department for approval before construction of the project and would demonstrate appropriate traffic handling during construction activities for all work that could affect the traveling public (e.g., the transport of equipment and materials to the project site). Therefore, transportation hazards would be minimized during construction of Phase One.

Operations

Phase One focuses on preparing the university for the arrival of the new NSMV, replacing the existing main pier, making structural upgrades to, and extending the existing trestle (with the option of trestle replacement), dredging the existing and expanded boat basin, constructing new floating docks in the boat basin, expanding and upgrading the Marine Yard, and upgrading utilities. Implementing Phase One would not involve altering or redesigning any existing roadways or pedestrian facilities in a manner that would increase hazards. Rather, demolition and replacement of the existing pier and upgrades to the existing trestle would enhance the safety and experience for the cadets, faculty, and staff who would access the NSMV. Furthermore, California law dictates that all physical improvements to facilities in the state, including buildings and public areas located on the Cal Maritime campus, require the issuance of a building permit before construction, ensuring that all applicable safety standards are met. Therefore, because Phase One would have no effect on the existing transportation system and the project is subject to review, implementing Phase One would not substantially increase hazards related to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses.

Overall, Phase One implementation would not involve altering or redesigning the existing transportation network. It would involve the hauling of materials and navigation of heavy vehicles along the surrounding roadway network, which would cause disturbance to the transportation system and could potentially result in degraded safety and/or inconvenience to pedestrians, bicyclists, and motorists. However, preparation of a TCP would reduce safety hazards during construction for all modes of transportation. If it is determined that the existing trestle requires replacement, there would be no difference related to transportation hazards, either during project construction or operation, as compared to the analysis provided for the renovation and expansion of the existing trestle. For this reason, implementing Phase One would not substantially increase hazards related to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses. This impact would be less than significant.

Phase Two

Construction

The duration of the construction period for Phase Two is not currently known; however, Phase Two is anticipated to be implemented over approximately 6 years commencing in 2027 after the arrival of the NSMV. Like Phase One construction, the personal vehicles of construction workers, vehicles delivering equipment and hauling material, and other construction-related traffic would enter and leave the construction areas daily. Haul trips and equipment deliveries often use large trucks, which may temporarily increase risk of hazards on roadways in the vicinity of the project site during delivery and removal. Additionally, if project-related haul trips and the operation of heavy vehicles were to occur along roadways with constrained rights-of-way, implementation of the project could potentially result in an increase in roadway hazards related to incompatible uses. If deemed necessary, the project contractor would submit a TCP to the City for approval that would demonstrate appropriate traffic handling and safety procedures that would be implemented during construction activities. Therefore, transportation hazards would be minimized during construction of Phase Two.

Operations

Phase Two would focus on creating a new boat basin, Boat Basin 2, and a new pier associated with Boat Basin 2; making renovations to the existing boathouse; constructing floating docks at Boat Basin 2; constructing a pedestrian-oriented plaza in the Marine Yard; improving the shoreline with enhancing features; and demolishing the existing Marine Programs and Naval Science modulars. The redevelopment of the Marine Yard and shoreline upland zone improvements included in Phase Two would involve the implementation of pedestrian facilities, increasing safety and creating an inviting environment for bicyclists and people on foot. Phase Two would not involve altering or redesigning any public roadways; however, upgrades and improvements in the Marine Yard would create ample space for vehicular circulation, including truck turning radii. Thus, vehicular navigation through this portion of the project site would be improved. Phase Two would not result in a substantial change to the transportation circulation system on the project site. Additionally, any modifications to pedestrian or roadway design associated with Phase Two would be beneficial and would likely increase safety. Furthermore, California law dictates that all physical improvements to facilities in the state, including buildings and public areas located on the Cal Maritime campus, require the issuance of a building permit before construction, ensuring that all applicable safety standards are met. Therefore, implementing Phase Two would not substantially increase hazards related to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses.

Overall Phase Two implementation would not involve substantially altering or redesigning the existing transportation network, and pedestrian and vehicular circulation would be improved because of this portion of the project. Phase Two would involve the hauling of materials and navigation of heavy vehicles along the surrounding roadway network, which would cause disturbance to the transportation system and could potentially result in degraded safety and/or inconvenience to pedestrians, bicyclists, and motorists. However, preparation of a TCP would reduce safety hazards during construction for all modes of transportation. For this reason, implementing Phase Two would not substantially increase hazards related to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses. This impact would be less than significant.

<u>Phase Three</u>

Construction

Detailed information related to construction activities is currently not known; however, Phase Three construction would take place after Phase Two is implemented and as funding is available. Similar to Phases One and Two, it is anticipated that the personal vehicles of construction workers, vehicles delivering equipment and hauling material, and other construction-related traffic would enter and leave the construction areas daily. Haul trips and equipment deliveries often use large trucks, which may temporarily increase risks of hazards on roadways in the vicinity of the project site during delivery and removal. Additionally, if project-related haul trips and the operation of heavy vehicles were to occur along roadways with constrained rights-of-way, implementation of the project could potentially result in an increase in roadway hazards related to incompatible uses. If deemed necessary, the project contractor would submit a TCP to the City for approval that would demonstrate appropriate traffic handling and safety procedures that would be implemented during construction activities. Therefore, transportation hazards would be minimized during construction of Phase Three.

Operations

Phase Three would focus on creating the new Marine Programs Multi-Use Building, which would be set back into the hillside; replacing the current instructional buildings located in the Marine Yard; and adding classrooms and outdoor learning spaces and the Harbor Control Tower associated with the new instructional building. Phase Three would also focus on improving the university campus's shoreline, coastline, and open spaces by redesigning the waterfront with features that students and the public could enjoy for recreational purposes. Phase Three involves shoreline enhancements, including a proposed secondary pedestrian path; thus, implementation of Phase Three would increase safety and create an inviting environment for bicyclists and people on foot. Additionally, Phase Three would not involve altering or redesigning any public roadways. Phase Three would not result in a substantial change to the transportation circulation system on the project site. Any modifications to pedestrian facility design associated with Phase Three would be beneficial and would likely increase safety. Furthermore, California law dictates that all physical improvements to facilities in the state, including buildings and public areas located on the Cal Maritime campus, require the issuance of a building permit before construction, ensuring that all applicable safety standards are met. Therefore, implementing Phase Three would not substantially increase hazards related to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses.

Implementing Phase Three would not involve substantially altering or redesigning the existing transportation network, and pedestrian circulation would be improved as a result of this portion of the project. It would involve the hauling of materials and navigation of heavy vehicles along the surrounding roadway network, which would cause disturbance to the transportation system and could potentially result in degraded safety and/or inconvenience to pedestrians, bicyclists, and motorists. However, preparation of a TCP would reduce safety hazards during construction for all modes of transportation. For this reason, implementing Phase Three would not substantially increase hazards related to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses. This impact would be less than significant.

Summary

Overall, the project would not involve substantial changes to the transportation network on the project site and no alteration of public roadways. Rather, implementation of the project would increase safety for pedestrians navigating the waterfront. California law dictates that all physical improvements to facilities in the state, including buildings and public areas located on the Cal Maritime campus, require the issuance of a building permit before construction, ensuring that all applicable safety standards are met. Additionally, construction of Phases One, Two, and Three would be required to prepare and implement a TCP as needed to ensure that the hauling of materials and navigation of heavy vehicles along the surrounding roadway network would not result in degraded safety and/or inconvenience to pedestrians, bicyclists, and motorists on public right of way. Therefore, implementing the project would not substantially increase hazards during construction or operations. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.14 UTILITIES AND SERVICE SYSTEMS

This utilities and service systems analysis evaluates the availability of existing utility and infrastructure systems (water, wastewater, stormwater, solid waste, electricity, and natural gas) to serve the proposed project and the impact of the project on these systems. The physical environmental effects associated with construction and operation of the project, many of which pertain to issues of utilities compatibility (e.g., energy, greenhouse gas emissions and climate change, hydrology), are evaluated in other sections of Chapter 3 of this ~~Draft~~ EIR. This section describes the existing utilities and service systems on and in the vicinity of the campus and evaluates potential utilities and service system–related impacts that could occur with implementation of the Waterfront Master Plan. The relationship of the proposed Waterfront Master Plan to plans and policies related to utilities for the City of Vallejo is also discussed for informational purposes. The analysis is based on documents obtained from the City of Vallejo, the Vallejo Flood and Wastewater District (VFWD), personal communications with representatives of the City, and Pacific Gas and Electric Company (PG&E).

Two comments were received regarding utilities in response to the notice of preparation (NOP). One comment from the Vallejo Flood and Wastewater District relates to the effects of the project on existing VFWD infrastructure. Also, Caltrans commented that any utilities that are proposed, moved or modified within Caltrans' Right-of-Way should be shown on site plans and discussed in the EIR. See Appendix A for all NOP comments received.

3.14.1 Regulatory Setting

DOMESTIC WATER

Federal

<u>Safe Drinking Water Act</u>

As mandated by the Safe Drinking Water Act (Public Law 93-523), passed in 1974, the Environmental Protection Agency (EPA) regulates contaminants of concern to domestic water supply. Such contaminants are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated by EPA primary and secondary Maximum Contaminant Levels (MCLs). MCLs and the process for setting these standards are reviewed every three years. Amendments to the Safe Drinking Water Act enacted in 1986 established an accelerated schedule for setting drinking water MCLs. EPA has delegated responsibility for California's drinking water program to the State Water Resources Control Board Division of Drinking Water (SWRCB-DDW). SWRCB-DDW is accountable to EPA for program implementation and for adoption of standards and regulations that are at least as stringent as those developed by EPA.

State

<u>Urban Water Management Plan</u>

In 1983, the California Legislature enacted the Urban Water Management Planning Act (UWMPA) (California Water Code Sections 10610–10656). The UWMPA states that every urban water supplier that provides water to 3,000 or more customers, or that provides more than 3,000 acre-feet (af) of water annually, should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. This effort includes the adoption of an Urban Water Management Plan (UWMP) by every urban-water supplier and an update of the plan every 5 years on or before December 31, of every year ending in a five or zero. The UWMPA has been amended several times since 1983 with the most recent amendment occurring with Senate Bill (SB) 318 in 2004. The UWMPA and SB 610, described below, are interrelated; the UWMP is typically relied upon to meet the requirements for SB 610.

The City of Sacramento 2015 UWMP, adopted in June 2016, is based on the Sacramento 2035 General Plan.

California Safe Drinking Water Act

The SWRCB-DDW is responsible for implementing the federal SDWA and its updates, as well as California statutes and regulations related to drinking water. State primary and secondary drinking-water standards are promulgated in California Code of Regulations (CCR) Title 22, Sections 64431–64501.

The California Safe Drinking Water Act (CA SDWA) was passed in 1976 to build on and strengthen the federal SDWA. The CA SDWA authorizes DHS to protect the public from contaminants in drinking water by establishing maximum contaminant levels (MCLs) that are at least as stringent as those developed by EPA, as required by the federal SDWA.

California State University Sustainability Policy

In the Spring of 2022, The California State University (CSU) Board of Trustees adopted the revised version of the CSU system-wide Sustainability Policy which was updated from the 2014 version and became effective March 23, 2023. The policy aims to reduce the environmental impact of construction and operation of buildings and to integrate sustainability across the curriculum (California State University 2022). The CSU Sustainability Policy established the following policies related to water:

- **Policy D-5:** The CSU will monitor monthly energy and utility usage on all campuses and the Chancellor's Office and will prepare a systemwide annual report on energy utilization and greenhouse gas emissions. The Chancellor's Office will maintain a systemwide energy database in which monthly campus data will be compiled to produce systemwide energy reporting. Campuses will provide the Chancellor's Office the necessary energy and utility data, such as electricity and natural gas consumption; water and sewer usage; fuel consumed by fleet vehicles, boats, and ships; waste disposal for the systemwide database in a timely manner.
- **Policy D-6:** The CSU will monitor monthly energy and utility usage on all campuses and the Chancellor's Office and will prepare a systemwide annual report on energy utilization and greenhouse gas emissions. The Chancellor's Office will maintain a systemwide energy database in which monthly campus data will be compiled to produce systemwide energy reporting. Campuses will provide the Chancellor's Office the necessary energy and utility data, such as electricity and natural gas consumption; water and sewer usage; fuel consumed by fleet vehicles, boats, and ships; waste disposal for the systemwide database in a timely manner.
- **Policy E-1:** All CSU campuses shall pursue cost effective water resource conservation to reduce consumption by ten percent by 2030, as compared to a 2019 baseline, consistent with AB 1668 (California Water Code § 10609) including steps to develop sustainable, drought tolerant or native landscaping, reduce turf, install controls to optimize irrigation water use, reduce water usage in restrooms, showers, fountains and decorative water features, and promote the use of reclaimed/recycled water. In the event of a declaration of drought, the CSU will cooperate with the state, city, and county governments to the greatest extent possible to reduce water use.

Local

Cal Maritime is part of the CSU, which is a statutorily and legislatively created, constitutionally authorized state entity. As explained in the “California State University Autonomy” section in the introduction to Chapter 3 of this EIR, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, Cal Maritime does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes.

City of Vallejo General Plan

The 2040 Vallejo General Plan, which was most recently amended in 2017, establishes the goals and policies guiding utilities and development in the City’s Planning Area. Land use, transportation systems, environmental concerns, and economic and equity goals are discussed in the General Plan. Adopted by the City Counsel in August 2017, the Council’s goals for the 2040 General Plan included not only protecting and improving on the City’s existing physical, social, and economic conditions, but also to promote sustainability and improve the efficacy of non-automobile transportation in Vallejo (City of Vallejo 2017). The policies and actions of the 2040 General Plan Update which relate to utilities and domestic water that are relevant to the project include:

- **Policy CP-1.13: Clean Water**. Provide a safe, adequate water supply citywide.

- **Action CP-1.13A:** Periodically assess the need to repair or replace aging water supply infrastructure, and incorporate upgrades and improvements into the Capital Improvement Program as needed.
- **Action CP-1.13B:** Develop a plan to upgrade and finance water infrastructure improvements.
- **Action CP-1.13C:** Maintain a water rate structure that adequately funds water infrastructure maintenance and replacement projects as required by federal, State, and local regulations.
- **Action CP-1.13D:** Continue to provide information on water conservation best practices to residents and businesses in Vallejo.
- **Action CP-1.13E:** Support the efforts of federal, State, regional, and local agencies to clean up impaired water bodies in Vallejo.
- **Action CP-1.15A:** Require new development to incorporate site design, source control, and treatment measures to keep pollutants out of stormwater during construction and operational phases, consistent with City of Vallejo Municipal Ordinance.
- **Action CP-1.15B:** Encourage new development to incorporate low impact development (LID) strategies, such as rain gardens, filter strips, swales, and other natural drainage strategies, to the greatest extent feasible, in order to reduce stormwater runoff levels, improve infiltration to replenish groundwater sources, reduce localized flooding, and reduce pollutants close to their source.
- **Action CP-1.15C:** Consult with appropriate regional, State, and federal agencies to monitor water quality and address local sources of groundwater and soil contamination, including possible underground storage tanks, septic tanks, and industrial uses, as necessary, to achieve State and federal water quality standards.
- **Action CP-1.15D:** Require new development to connect to the Vallejo Sanitation and Flood Control District sewer system for treatment of wastewater rather than septic systems, which are not allowed.

- **Policy NBE-1.14:** Water Conservation. Promote water conservation through a range of proactive City efforts.
  - **Action NBE-1.14A:** Continue the Community-wide Water Conservation Program, including free residential water use surveys and audits, and water-use efficiency education in local schools.
  - **Action NBE-1.14B:** Continue to provide water customers with information on conservation techniques, services, devices, and rebates (including greywater use), including online and through in-person community outreach.
  - **Action NBE-1.14C:** Update the Green Building Standards Code to require the use of low flow plumbing fixtures, low volume irrigation systems, and drought-tolerant plant palettes.
  - **Action NBE-5.4D:** Locate public facilities that are critical to health and safety (such as police and fire stations, and water and sewer facilities) so as to minimize potential impacts from hazards.
  - **Action NBE-5.6B:** Collaborate with the Vallejo Sanitation and Flood Control District (VSFCD) and Solano County Water Agency (SCWA) to implement comprehensive flood control planning.
- **Policy NBE-5.7:** Design for Stormwater Control. Encourage new development and redevelopment to minimize the area of new roofs and paving.
  - **Action NBE-5.7A:** Provide informational materials that promote the use of permeable materials for driveways, streets, parking lots, sidewalks, and plazas.
  - **Action NBE-5.7B:** Continue to manage and maintain City-owned storm drainage infrastructure to avoid flooding and reduce the negative effects of stormwater runoff.

City of Vallejo Municipal Code

The City of Vallejo Municipal Code is a primary tool that shapes the form and character of physical development in Vallejo. The Municipal Code includes various directives pertaining to water supply and conservation issues. Most such directives are found in Title 11 (Water), which includes Subtitle I (Municipal Water System), and Subtitle II (Miscellaneous Water Regulations). Other directives are found in Title 12 (Buildings and Construction) and Title 16 (Zoning) (City of Vallejo 2023). As noted above, CSU is not subject to local government planning and land use plans, policies, or regulations; however, relevant City Municipal Code sections are discussed here for informational purposes. Selected Chapters in the Municipal Code pertaining to water supply and conservation issues are listed below:

- **Chapter 11.08: Municipal Water System General Rules**. The rules and regulations herein contained are adopted to govern the general operation of the Vallejo municipal water system to provide an efficient and economical water supply.
- **Chapter 11.54: Wasteful Water Use Prohibition Ordinance**. This regulation mandates that it is unlawful for any customer to intentionally wastewater and prohibits 1) runoff from properties for more than fifteen minutes, 2) use of potable water to wash sidewalks, driveways, parking lots, cars, boats, or trailers without a hose with a shutoff nozzle, and 3) use of potable water for dust control where nonpotable or recycled water is available.
- **Chapter 16.71: Water Efficient Landscaping Requirements**. This regulation meets the requirements of the State's WELO and requires submittal of a landscape documentation package for new or rehabilitated landscapes ranging in size from 1,500 to 5,000 square feet (depending on the project). The landscape documentation package must include a water efficient landscape worksheet, soil management report, landscape design plan, irrigation design plan, and a grading design plan with the goal of minimizing water irrigation rates and maximizing water irrigation efficiency.
- **Chapter 16.74: Energy and Water Conservation Regulations**. Section 16.74.030 - Water conservation guidelines, specifies all vegetation and landscaping required by the zoning regulations shall employ drought resistant species.

WASTEWATER AND STORMWATER

Federal

Clean Water Act

The Clean Water Act (CWA) is the primary federal law that protects our nation's waters, including lakes, rivers, aquifers, and coastal areas. Section 401 of the CWA requires that any applicant for a federal permit to conduct any activity, including the construction or operation of a facility that may result in the discharge of any pollutant, must obtain certification from the state. Section 303 of the CWA requires states to identify surface waters that have been impaired. Under Section 303(d), states, territories, and authorized tribes are required to develop a list of water quality segments that do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. Section 404 of the CWA established a permit program to regulate the discharge of dredged material into waters of the United States.

The CWA employs a variety of regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. Those portions of the CWA that relate to wastewater and stormwater discharges are discussed below.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established under the CWA to regulate municipal and industrial discharges to surface waters of the US. NPDES permit regulations have been established for broad categories of discharges including point source waste discharges and nonpoint sources (nonpoint source discharges are further discussed in Section 3.9, "Hydrology and Water Quality"). Each NPDES permit identifies limits on allowable concentrations and mass loadings of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that EPA must consider in setting effluent limits for priority pollutants.

NPDES permits cover various industrial and municipal discharges, including discharges from storm sewer systems in larger cities, stormwater generated by industrial activity, runoff from construction sites disturbing more than 1 acre, and mining operations. Point source dischargers must obtain a discharge permit from the proper authority (usually a state, sometimes EPA, a tribe, or a territory). So-called "indirect" point source dischargers are not required to obtain NPDES permits. "Indirect" dischargers send their wastewater into a public sewer system, which carries it to the municipal sewage treatment plant, through which it passes before entering any surface water.

The CWA was amended in 1987 with Section 402(p) requiring NPDES permits for nonpoint source (i.e., stormwater) pollutants in discharges. Stormwater sources are diffuse and originate over a wide area rather than from a definable point. The goal of the NPDES stormwater regulations is to improve the water quality of stormwater discharged to receiving waters to the "maximum extent practicable" using structural and nonstructural best management practices (BMPs). BMPs can include educational measures (e.g., workshops informing the public of what impacts can result when household chemicals are dumped into storm drains), regulatory measures (e.g., local authority of drainage-facility design), public-policy measures (e.g., labeling storm-drain inlets as to impacts of dumping on receiving waters) and structural measures (e.g., filter strips, grass swales, and detention ponds).

Section 402(p) of the federal CWA, as amended by the Water Quality Act of 1987, requires NPDES permits for stormwater discharges from municipal separate storm sewer systems (MS4s), stormwater discharges associated with industrial activity (including construction activities), and designated stormwater discharges, which are considered significant contributors of pollutants to waters of the United States. On November 16, 1990, EPA published regulations (CFR Title 40, Part 122) that prescribe permit application requirements for MS4s pursuant to CWA Section 402(p). On May 17, 1996, EPA published an Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems, which provided guidance on permit application requirements for regulated MS4s. The current MS4 permit under which the campus operates includes post-construction requirements under the following conditions:

- F.5.g. Post Construction Storm Water Management Program
  - Non-traditional Permittees with Regional Water Board approved post-construction storm water management requirements based on a watershed process approach. Post-Construction Storm Water Management Requirements based on Assessment and Maintenance of Watershed Processes, shall implement those postconstruction requirements in lieu of Section F.5.g. Post Construction Storm Water Management Program.
    - F.5.g.1. Site Design Measures
  - (i) Task Description – Within the second year of the effective date of the permit, the Permittee shall require implementation of site design measures for all projects that create and/or replace (including projects with no net increase in impervious footprint) between 2,500 square feet and 5,000 square feet of impervious surface, including detached single-family homes that are not part of a larger plan of development.
    - F.5.g.2. Low Impact Development (LID) Design Standards
  - (i) Task Description – Within the second year of the effective date of the permit, the Permittee shall implement standards to effectively reduce runoff and pollutants associated with runoff from development projects.
  - (ii) Implementation Level - The Permittee shall regulate all development projects that create and/or replace 5,000 square feet or more of impervious surface (Regulated Projects). The Permittee shall require these Regulated Projects to implement measures for site design, source control, runoff reduction, storm water treatment and baseline hydromodification management as defined in this Order.

  Regulated Projects do not include:

  (a) Interior remodels;

  (b) Routine maintenance or repair such as: exterior wall surface replacement, roof replacement or pavement resurfacing within the existing footprint.

State

California Water Code

California's Porter–Cologne Water Quality Control Act (1969), which became Division 7 (Water Quality) of the California Water Code, establishes the responsibilities and authorities of the nine RWQCBs and the SWRCB. Among other things, it directs each RWQCB to formulate and adopt a water quality control plan—known as a basin plan—for all areas within the region. The water quality objectives used for this study are primarily those set forth in the Basin Plan (San Francisco Region 2) adopted by the RWQCB. The Basin Plan defines existing and potential beneficial uses and water quality objectives for coastal waters, groundwater, surface waters, imported surface waters, and reclaimed waters in the basin.

State Water Resources Control Board

The State Water Resources Control Board (SWRCB) preserves, enhances, and restores the quality of California's water resources, and ensures the proper allocation and efficient use for the benefit of present and future generations. Wastewater generators must obtain a permit to discharge their wastewater. Pursuant to the federal Clean Water Act and California's Porter– Cologne Water Quality Control Act, the SWRCB regulates wastewater discharges to surface waters through our NPDES program. Some wastewater discharges are exempt from federal NPDES requirements, but California law may still apply. Under California law, the SWRCB requires Waste Discharge Requirements for some discharges in addition to those subject to NPDES permits. Permits contain specific requirements that limit the pollutants in discharges. They also require dischargers to monitor their wastewater to ensure that it meets all requirements. Wastewater dischargers must maintain their treatment facilities, and treatment plant operators must be certified. The SWRCB routinely inspects treatment facilities and strictly enforce permit requirements.

NPDES Permit for the Vallejo Flood and Wastewater District Water Treatment Plant

On May 8, 2019, the San Fransisco Bay RWQCB issued Waste Discharge Requirements (WDRs) Order No. R2-2019-0017 (NPDES No. CA 0038873) to the Vallejo Flood and Wastewater District (VFWD) for its Vallejo Flood and Wastewater District Wastewater Treatment Plant (VFWD WWTP), which treats wastewater from its service area before discharging it to the San Fransisco Bay. This is an NPDES self-monitoring permit that outlines performance standards for the effluent into the San Fransisco Bay. The water quality objectives established in the San Fransisco Bay RWQCB Basin Plan are protected, in part, by NPDES Permit No. CA 0038873.

The quality of the effluent that can be discharged to waterways within the San Fransisco Bay is established by the San Fransisco Bay RWQCB through WDRs that implement the NPDES permit. WDRs are updated at least every 5 years. A new permit must be issued in the event of a major change or expansion of the facility.

California Senate Bills 221 and 610

Two articles of legislation were passed that address the provision of water, Senate Bill (SB) 221 (codified at California Government Code Section 66473.7) and SB 610 (codified at California Water Code, Section 10910 et seq.). Both bills place requirements on individual projects and require cities and counties to consider water supplies and demands for a proposed project.

Water Code Section 10910 requires that cities and counties include a water supply assessment in the environmental impact report (EIR) for projects specified in California Water Code Section 10912. California Government Code Section 66473.7 requires the City of Vallejo to verify that there is a sufficient water supply as a condition of approval for residential subdivisions of 500 or more dwelling units and would include significantly less than 650,000 square feet of industrial floor area. Proof of a sufficient supply of water is not required for the proposed project since it does not include a residential component.

California Senate Bill 7

SB 7 (SB X7-7) was enacted in November 2009 to require all water suppliers to increase water-use efficiency. The legislation sets an overall goal of reducing per capita urban water use by 20% by December 31, 2020 (California Water Code Section 10608.20). To reach this goal, SB X7-7 requires each urban retail water supplier to report progress in meeting water-use targets (California Water Code Section 10608.40). The law also requires wholesale water suppliers to support their retail member agencies' efforts to comply with SB X7-7 through a combination of regionally and locally administered active and passive water conservation measures, programs, and policies, as well as the use of recycled water.

California State University Sustainability Policy

In the Spring of 2022, The California State University (CSU) Board of Trustees adopted the revised version of the CSU system-wide Sustainability Policy which was updated from the 2014 version and became effective March 23, 2023. The policy aims to reduce the environmental impact of construction and operation of buildings and to integrate sustainability across the curriculum (California State University 2022). The CSU Sustainability Policy established the following policies related to wastewater:

- **Policy D-6:** The CSU will monitor monthly energy and utility usage on all campuses and the Chancellor's Office and will prepare a systemwide annual report on energy utilization and greenhouse gas emissions. The Chancellor's Office will maintain a systemwide energy database in which monthly campus data will be compiled to produce systemwide energy reporting. Campuses will provide the Chancellor's Office the necessary energy and utility data, such as electricity and natural gas consumption; water and sewer usage; fuel consumed by fleet vehicles, boats, and ships; waste disposal for the systemwide database in a timely manner.

Local

City of Vallejo General Plan

The 2040 Vallejo General Plan, which was most recently amended in 2017, establishes the goals and policies guiding utilities and development in the City's Planning Area. Land use, transportation systems, environmental concerns, and economic and equity goals are discussed in the General Plan. Adopted by the City Counsel in August 2017, the Council's goals for the 2040 General Plan included not only protecting and improving on the City's existing physical, social, and economic conditions, but also to promote sustainability and improve the efficacy of non-automobile transportation in Vallejo (City of Vallejo 2017). As noted above, City policies are discussed herein for informational purposes, as CSU is not bound by local plans and policies. The policies and actions of the 2040 General Plan Update which relate to utilities and wastewater and stormwater that are relevant to the project include:

- **Action CP-1.7E:** Continue to implement green infrastructure practices that draw upon natural processes to address storm water drainage and flood control and potentially add to Vallejo's network of green spaces.
- **Action CP-1.15A:** Require new development to incorporate site design, source control, and treatment measures to keep pollutants out of stormwater during construction and operational phases, consistent with City of Vallejo Municipal Ordinance.
- **Action CP-1.15B:** Encourage new development to incorporate low impact development (LID) strategies, such as rain gardens, filter strips, swales, and other natural drainage strategies, to the greatest extent feasible, in order to reduce stormwater runoff levels, improve infiltration to replenish groundwater sources, reduce localized flooding, and reduce pollutants close to their source.
- **Action CP-1.15D:** Require new development to connect to the Vallejo Sanitation and Flood Control District sewer system for treatment of wastewater rather than septic systems, which are not allowed.
- **Policy NBE-1.4:** Waterway Restoration. Restore riparian corridors and waterways throughout the city.
- **Action NBE-1.4A:** Collaborate with GVRD, Vallejo Sanitation & Flood Control District (VSFCD), and other partners to evaluate creek conditions and restoration opportunities, and to develop policies covering setbacks from creeks, damage prevention, stewardship, nuisance abatement, public access, and other community and environmental concerns.
- **Action NBE-1.4C:** Work with VSFCD and GVRD, as appropriate, to maintain Lake Chabot, Lake Dalwigk, and other detention basins for stormwater management and for public recreational use.

- **Action NBE-5.4D:** Locate public facilities that are critical to health and safety (such as police and fire stations, and water and sewer facilities) so as to minimize potential impacts from hazards.

City of Vallejo Municipal Code

The City of Vallejo Municipal Code is a primary tool that shapes the form and character of physical development in Vallejo. The Municipal Code includes various directives pertaining to wastewater, stormwater, and conservation issues. Most such directives are found in Title 12 (Buildings and Construction) and Title 16 (Zoning) (City of Vallejo 2023). As noted above, City policies are discussed herein for informational purposes, as CSU is not bound by local plans and policies. Selected Chapters in the Municipal Code pertaining to water supply and conservation issues are listed below:

- **Chapter 11.54: Wasteful Water Use Prohibition Ordinance**. This regulation mandates that it is unlawful for any customer to intentionally wastewater and prohibits 1) runoff from properties for more than fifteen minutes, 2) use of potable water to wash sidewalks, driveways, parking lots, cars, boats, or trailers without a hose with a shutoff nozzle, and 3) use of potable water for dust control where nonpotable or recycled water is available.
- **Chapter 12.41: Stormwater Management and Discharge Control**. This regulation is intended to protect and enhance the water quality within Vallejo's watercourses, water bodies, and wetlands and carry out the conditions specified in the MRP that requires appropriate source control measures, site design measures, and stormwater treatment measures for new development and redevelopment projects within the city.
- **Chapter 12.50: Green Building Code**. Chapter 12.50 adopts and incorporates by reference the California Green Building Code as amended and appearing in the 2013 California Building Standards Code, and all its appendices, California Code of Regulations Title 24, Part 11, except such portions as are deleted, modified or amended; as the city green building code.

City of Vallejo 2020 Urban Water Management Plan

Urban water management plans (UWMPs) are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water suppliers are available to meet existing and future water demands. Urban water purveyors are required to prepare and update the UWMP every 5 years. The UWMPs address water supply, treatment, reclamation, and water conservation, and include a water shortage contingency plan.

The City of Vallejo's 2020 UWMP, adopted in February 2021, is the most recent UWMP for the City. The 2020 UWMP estimates water demands through the year 2045 based on unit water factors, housing and employment projections for the City, and projections for unaccounted water. The City's population has continued to grow and currently stands at about 125,000. Over the UWMP's planning horizon through 2045, population in the City's water service areas is expected to increase to over 150,000. This increase in urban population coupled with commercial and industrial users and several wholesale service contracts constitute the total water demand upon the City's water supplies. The City currently produces just over 20,000 acre-feet of treated water annually to meet this demand, with additional raw water services to City and wholesale customers that can demand nearly 6,000 acre-feet per year (AFY). The total projected water demand for the City of Vallejo in 2025 is 28,111AFY (City of Vallejo 2020).

The City's UWMP includes a Water Shortage Contingency Plan that addresses the short-term or emergency water management practices required during a drought or other shortage conditions. It includes a five-stage response program that consists of specific prohibitions, regulations, fines, penalties, and a rate structure to encourage the appropriate level of conservation. Each stage and set of prohibitions are tied to a water use reduction goal (Stage 1= 0% reduction, Stage II=10%, Stage III=20%, Stage IV=35%, Stage V=up to and above 50%). Though all five stages have both voluntary and mandatory components, none can be considered a rationing program because they do not strictly limit water use (City of Vallejo 2020).

Sanitary Sewer Management Plan

The Vallejo Sanitation and Flood Control District (VSFCD) Sanitary Sewer Management Plan (SSMP) was adopted in December 2008 and certain sections have been updated since then. The goal of the SSMP is to reduce blockages and sanitary sewer overflow occurrences in the VSFCD collection system. The SSMP consists of 10 sections, including the sanitary sewer overflow response plan; fats, oils, and grease control program; legal authority; measures and activities; design and construction standards; capacity management and measurement program; and communication and public outreach (City of Vallejo 2017).

SOLID WASTE

Federal

Resource Recovery and Conservation Act of 1976

The Resource Conservation and Recovery Act (RCRA; 42 U.S.C. 6901 et seq. (1976)) gives the EPA the authority to control hazardous waste from "cradle to grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of nonhazardous solid wastes. The 1986 amendments to RCRA enabled the EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

The federal Hazardous and Solid Waste Amendments are the 1984 amendments to RCRA that focus on waste minimization and phasing out land disposal of hazardous waste as well as corrective action for releases. Some of the other mandates of this law include increased enforcement authority for the EPA, more stringent hazardous waste management standards, and a comprehensive underground storage tank program.

State

State Agency Model Integrated Waste Management Act of 1999

Assembly Bill (AB 75) was passed in 1999, and the State Agency Model Integrated Waste Management Act (Chapter 764, Statutes of 1999, Strom-Martin) took effect on January 1, 2000. The State Agency Model Integrated Waste Management Act mandated that state agencies develop and implement an integrated waste management plan. The act also mandated that community service districts provide solid waste services report disposal and diversion information to the city, county, or regional agency in which the community service district is located. Provisions of the act require all state agencies and large state facilities to divert at least 50% of solid waste from landfills after 2004 and that each state agency and large facility submit an annual report to the California Department of Resources Recycling and Recovery (CalRecycle) summarizing its yearly progress in implementing waste diversion programs.

California Integrated Waste Management Act

The California Integrated Waste Management Act of 1989 (AB 939) required all California cities and counties to reduce the volume of waste deposited in landfills by 50 percent by the year 2000 and requires all California cities and counties to continue to remain at 50 percent or higher for each subsequent year. The purpose of AB 939 is to reduce the amount of solid waste generated and extend the life of landfills.

AB 939 requires each California city and county to prepare, adopt, and submit to California Department of Resources Recycling and Recovery (CalRecycle) a source reduction and recycling element (SRRE) that demonstrates how the jurisdiction will meet the act's mandated diversion goals. Each jurisdiction's SRRE must include specific components defined in PRC Sections 41003 and 41303. In addition, the SRRE must include a program for management of solid waste generated within the jurisdiction that is consistent with the following hierarchy: (1) source reduction, (2) recycling and composting, and (3) environmentally safe transformation and land disposal. Included in this hierarchy is the requirement to emphasize and maximize the use of all feasible source reduction, recycling, and composting options to reduce the amount of solid waste that must be disposed of by transformation and land disposal (PRC Sections 40051, 41002, and 41302).

CalRecycle Model Ordinance

Subsequent to the Integrated Waste Management Act, additional legislation was passed to assist local jurisdictions in accomplishing the goals of AB 939. The California Solid Waste Re-use and Recycling Access Act of 1991 (SB 1327) (PRC Sections 42900–42911) required CalRecycle to approve a model ordinance for adoption by any local government for the transfer, receipt, storage, and loading of recyclable materials in development projects by March 1, 1993. The act also required local agencies to adopt a local ordinance by September 1, 1993, or to allow the model ordinance to take effect.

California State University Sustainability Policy

In the Spring of 2022, The CSU Board of Trustees adopted the revised version of the CSU system-wide Sustainability Policy which was updated from the 2014 version and became effective March 23, 2023. The policy aims to reduce the environmental impact of construction and operation of buildings and to integrate sustainability across the curriculum (California State University 2022). The CSU Sustainability Policy established the following policies related to solid waste:

- Policy D-5: The CSU will monitor monthly energy and utility usage on all campuses and the Chancellor's Office and will prepare a systemwide annual report on energy utilization and greenhouse gas emissions. The Chancellor's Office will maintain a systemwide energy database in which monthly campus data will be compiled to produce systemwide energy reporting. Campuses will provide the Chancellor's Office the necessary energy and utility data, such as electricity and natural gas consumption; water and sewer usage; fuel consumed by fleet vehicles, boats, and ships; waste disposal for the systemwide database in a timely manner.
- Policy D-6: The CSU will monitor monthly energy and utility usage on all campuses and the Chancellor's Office and will prepare a systemwide annual report on energy utilization and greenhouse gas emissions. The Chancellor's Office will maintain a systemwide energy database in which monthly campus data will be compiled to produce systemwide energy reporting. Campuses will provide the Chancellor's Office the necessary energy and utility data, such as electricity and natural gas consumption; water and sewer usage; fuel consumed by fleet vehicles, boats, and ships; waste disposal for the systemwide database in a timely manner.
- Policy G-1: Campuses shall seek to reduce landfill bound waste to 50 percent of total campus waste by 2030, divert at least 80 percent from landfill by 2040, and move toward zero waste.
- Policy G-2: Campuses shall identify and implement cost effective opportunities for organics diversion, collection, and disposal and shall designate zero waste responsibilities for coordinating campus waste prevention, reduction and diversion efforts. Campuses will continue to report on all disposal activities using the CalRecycle State Agency Reporting Center (SARC) and are encouraged to coordinate and maintain a solid waste management plan as it is a requirement in the utility master plan.
- Policy G-3: The CSU will continue to reduce hazardous waste disposal while supporting the academic program.

Local

City of Vallejo General Plan 2040

The 2040 Vallejo General Plan, which was most recently amended in 2017, establishes the goals and policies guiding utilities and development in the City's Planning Area. Land use, transportation systems, environmental concerns, and economic and equity goals are discussed in the General Plan. Adopted by the City Counsel in August 2017, the Council's goals for the 2040 General Plan included not only protecting and improving on the City's existing physical, social, and economic conditions, but also to promote sustainability and improve the efficacy of non-automobile transportation in Vallejo (City of Vallejo 2017). As noted above, City policies are discussed herein for informational purposes, as CSU is not bound by local plans and policies. The policies and actions of the 2040 General Plan Update which relate to utilities and solid waste that are relevant to the project include:

- Policy NBE-1.16: Solid Waste Reduction. Promote reduction of the production of solid waste throughout Vallejo.
- Action NBE-1.16A: Continue to update the City's Construction/Demolition Waste Reuse and Recycling Ordinance as higher diversion rates become feasible, necessary, or required.
- Action NBE-1.16B: As funding allows, provide recycling receptacles in parks and public spaces, in addition to trash receptacles.

- **Action NBE-1.16C:** Continue to partner with CalRecycle and VALCORE Community Recycling to offer and promote backyard composting bins and free composting classes to Vallejo residents and to disseminate information about composting on the City's website.

City of Vallejo Municipal Code

The City of Vallejo Municipal Code is a primary tool that shapes the form and character of physical development in Vallejo. The Municipal Code includes various directives pertaining to solid waste and conservation issues. Most such directives are found in Title 7 (Public Health, Safety and Welfare) and Title 12 (Buildings and Construction) (City of Vallejo 2023). As noted above, City policies are discussed herein for informational purposes, as CSU is not bound by local plans and policies. Selected Chapters in the Municipal Code pertaining to water supply and conservation issues are listed below:

- **Chapter 7.44: Accumulation and Transportation**. This Chapter describes the responsibilities of every owner, proprietor, manager, or other person having charge or control of any commercial/industrial premises or residential premises within the city with respect to solid waste.
- **Chapter 7.48: Collection**. This Chapter describes responsibilities of the franchisee for collecting all solid waste, recyclables and green waste placed in compliance with this chapter from each residential, and/or, commercial/industrial business premises in accordance with a schedule which has been approved by the public works director.
- **Chapter 7.53: Construction and Demolition Debris Recycling Ordinance**. The purpose of Chapter 7.53 is to prescribe requirements designed to meet and further the goals of the California Integrated Waste Management Act of 1989, commonly referred to as AB 939 Chapter 7.06, Refuse and Garbage Collection Service Areas.
- **Chapter 12.50: Green Building Code**. Chapter 12.50 adopts and incorporates by reference the California Green Building Code as amended and appearing in the 2013 California Building Standards Code, and all its appendices, California Code of Regulations Title 24, Part 11, except such portions as are deleted, modified, or amended; as the city green building code.

City of Vallejo Construction and Demolition Debris Recycling Ordinance

Chapter 7.53 of the City's Municipal Code, the Construction and Demolition Debris Recycling Ordinance, is intended to meet the goals of the California Integrated Waste Management Act of 1989 (AB 939). The goal is to divert, by recycling or reuse, 50% or more of the materials (by weight) and 75% of concrete and asphalt. The ordinance applies to all demolition projects and all construction or renovation projects with a valuation of $50,000 or higher or projects equal to or greater than 5,000 square feet.

ENERGY

Refer to Section 3.5, "Energy," for plans, policies, regulations, or laws that are applicable to energy for the proposed project.

3.14.2 Environmental Setting

Public utilities in the project area are provided by various entities, as identified in Table 3.14-1 and discussed in detail below.

Table 3.14-1 Utilities Providers for the Project Area

Utility	Agency/Provider
Water Supply	City of Vallejo
Wastewater Collection and Conveyance	Vallejo Flood and Wastewater District
Wastewater Treatment	City of Vallejo
Stormwater Conveyance	Vallejo Flood and Wastewater District
Solid Waste Collection[1]	Vallejo Recycles
Electrical Service	PG&E
Natural Gas	PG&E

[1] Discussed in Section 4.14, "Public Services."

Source: Data compiled by Ascent Environmental in 2023.

WATER SUPPLY

Water is supplied to residents of the City of Vallejo, including CSUMA and surrounding areas, by the City of Vallejo Water Department and the Solano County Water Agency.

The City obtains almost all of its water from four general surface water sources: the Sacramento River watershed, the Solano Project from Putah Creek Watershed (which includes Lake Berryessa), the Wild Horse Creek watershed through Lake Madigan, Lake Frey, and the Green Valley Diversion, as well as the Upper Suisun Creek watershed through Lake Curry. Solano County Water Agency (SCWA) administers the Sacramento River and Solano Project supplies on behalf of the City. All water supplies derived from these sources are collectively managed to best meet the City's demands in different areas under changing hydrological and regulatory conditions (City of Vallejo 2017).

The City's Sacramento River watershed water supplies are derived from two sources – an appropriative water right license and a contract with Solano County Water Agency for State Water Project (SWP) water supplies. These water supplies are diverted from the Sacramento River watershed at the North Bay Aqueduct – an SWP facility located in Barker Slough. The water supplies from the Sacramento River watershed that are conveyed through the North Bay Aqueduct serve a significant portion of the City's wholesale and retail water demands in normal years (City of Vallejo 2020).

The supply source for the Solano Project is Lake Berryessa. Lake Berryessa is located in the Vaca Mountains in Napa County and formed by Monticello Dam. Lake Berryessa is a multi-purpose lake that makes up the Solano Project – a federal water project operated by the United States Bureau of Reclamation. Solano Project water is transported to the City's facilities through the Putah South Canal and provides a varying percentage of the City's total consumption depending on hydrological and regulatory conditions (City of Vallejo 2020). The City has a Participating Agency Contract with SCWA for Solano Project water supplies.

The City's Wild Horse Creek Watershed water assets include several pre-1914 appropriative water rights for water diversion and storage. These water assets are managed collectively to best utilize the existing reservoir capacity and supply reliability. More specifically, the three separate pre-1914 appropriative water rights are captured and stored in Lake Madigan and Lake Frey for eventual diversion at the Green Valley Diversion Dam for treatment and delivery to the Lakes Area. The City also has an unwritten exchange arrangement with Solano Irrigation District for the City which results in some additional Solano Project supply available to the Vallejo City System (City of Vallejo 2020).

Water from the Upper Suisun Creek watershed is diverted and stored in Lake Curry. Lake Curry supplies are not currently used due to lack of conveyance facilities to deliver Lake Curry water to the City of Vallejo. All water supplies derived from these sources are collectively managed in order to best meet the City's demands in different areas under changing hydrological, regulatory, and operational conditions, with each supply having unique provisions that impact their utility under varying regulatory and hydrological conditions (City of Vallejo 2017). For example, all of the City's water supplies may be reduced in dry conditions, but some of the water supplies allow for water storage in wetter conditions for the City's use in dry conditions. These sorts of management provisions embedded in each of the City's water supplies must be carefully considered to improve the collective utility of all of the City's water supplies.

Cal Maritime operations are accounted for in the current City of Vallejo UWMP, which describes SCWA's existing and projected water demands through 2045 (City of Vallejo 2020). The water demand growth shown in the UWMP is based on the estimated gallons per capita per day (GPCD) target and the projected population growth. Establishing a GPCD target is a requirement for the UWMP in accordance with the Water Conservation Act of 2009 (SB x7-7) so that each purveyor achieves a 20 percent reduction in water use by 2020. The target for SCWA is determined to be 124 gallons per capita per day in the 2020 UWMP, which is less than the SCWA's established target.

As shown in Table 3.14-2 below, the UWMP includes projections for water supply and demand through the year 2045. Based on the projections for normal and dry year conditions, the UWMP determines that the City of Vallejo would have adequate supply to meet the city's future water demand (City of Vallejo 2020). The City's current water supply exceeds the current yearly water demand within the city. The projected water demand through the year 2045 is also less than the projected supply through that year. The City's total reasonable supply in 2045 is approximately 33,095 AFY, which is 12 AFY greater than projected City demand in 2045.

Table 3.14-2 SCWA Single Dry Year Supply and Demand Comparison (AFY)

Single Dry Year	2025	2030	2035	2040	2045
Supply	31,585	31,588	31,590	33,093	33,095
Demand	29,113	30,207	31,443	33,079	33,083
Difference	2,472	1,381	147	14	12

Note: AFY = acre-feet per year.

Source: City of Vallejo 2020.

The water demands for single dry and multiple dry water years are listed in Table 3.14-3 below. Comparing the 2035 water supply presented in Table 3.14-2 with the water demands for year 3 from Table 3.14-3 reveals that the water reserves become severely depleted starting in the third year of a drought around 2035. Careful management of the City's water supplies during these conditions is extremely important. This extreme multi-year drought scenario helps the City evaluate actions it may need to undertake to assure customer water service reliability and to prepare customers for potential demand reduction circumstances. However, as explained for the single-dry year scenario, the second through fifth year demands might be lower if demand reduction mandates are imposed by the State (City of Vallejo 2020). Regarding single dry and multiple dry years, the City projects that water supplies would be adequate for Citywide demand except for in the third consecutive dry year, as shown below in Table 3.14-3: SCWA Water Demands in Five-Year Increments in Normal, Single Dry, and Multiple Dry Years.

Table 3.14-3 SCWA Water Demands in Five-Year Increments in Normal, Single Dry, and Multiple Dry Years (AFY)

Water Year	2025	2030	2035	2040	2045
Normal Year (see Table 5-2 of UWMP)	28,111	29,153	30,331	31,888	31,892
Single Dry Year (see Table 5-2 of UWMP)	29,113	30,207	31,443	33,079	33,083
Multiple Dry Year 1 (see Table 5-3 of UWMP)	29,113	30,207	31,443	33,079	33,083
Multiple Dry Year 2 (see Table 5-3 of UWMP)	29,263	30,357	31,543	33,080	78,107
Multiple Dry Year 3 (see Table 5-3 of UWMP)	29,413	30,507	31,643	33,081	33,083

Note: AFY = acre-feet per year.

Source: City of Vallejo 2020.

In addition to these water service reliability considerations, the City also has updated its Water Shortage Contingency Plan (WSCP) to address any potential water shortage conditions. During single-dry and multiple-dry years, depending on how the City manages its supply assets, demands may come close to exhausting supplies, which would trigger the

City's WSCP, which allows the City to reduce the water demands on its water system in shortage or catastrophic outage conditions. The measures contemplated in the updated WSCP include typical dry condition water management actions – like mandatory outdoor irrigation during evening, nights, and early mornings – imbedded into six water shortage categories (up to 10%, 11-20%, 21-30%, 30-40%, 40-50% and over 50%) (City of Vallejo 2020).

Importantly, in the event there were to be a catastrophic water outage in the City, water demands will be limited to use for health and safety purposes only. Combining the updated WSCP with the City's active water management of its supply portfolio provides additional buffer against unpredictable water conditions. In summary, the City of Vallejo's diverse surface water supply portfolio, its active management of its water supply portfolio, and its WSCP provide the City with stable and reliable water service to meet the City's current and 2045 projected water demands. This supply reliability encompasses normal, single dry, and five consecutive dry year scenarios (City of Vallejo 2020). The annual supply reliability determinations will be considered for future management and infrastructure changes. The City's diverse water supply portfolio requires coordinated water management between the City and its contract partners to render the supply reliable through 2045. The City will continue to evaluate monthly supply and demand conditions to assure long-term customer reliability throughout the year.

Groundwater Supply

The City does not have any groundwater supply sources and has no plans to develop groundwater supplies in the foreseeable future (City of Vallejo 2020). However, several of the SCWA's Solano Project and North Bay Aqueduct members have access to groundwater resources in Solano and Napa counties. The City could pay these users to access their groundwater resources in times of water shortage in exchange for delivery of allocated surface water assets coming through the North Bay Aqueduct or Solano Project. In return, the City could offset groundwater uses in times when it has surplus water deliveries from the Sacramento River watershed or Solano Project by delivering those surplus supplies to areas that would normally access groundwater (City of Vallejo 2020). The net water withdrawals from the groundwater basin would be equalized through the sharing of both types of water assets in times of shortage and surplus.

Water Treatment Plants

Three water treatment plants (WTPs) serve the City of Vallejo: Fleming Hill WTP, Green Valley WTP, and Travis Air Force Base WTP. The Fleming Hill WTP is a conventional 42 mgd treatment plant with ozonation (pre- and intermediate ozonation) that treats water supplied from Lake Berryessa (Solano Project) and from the Sacramento River Delta as delivered through the North Bay Aqueduct. Treated water from this plant is delivered to City customers. The Green Valley WTP was upgraded in 1998 and is a conventional 1.0 mgd plant that treats water from Lake Berryessa, Lake Frey, and Lake Madigan. Treated water from this plant is delivered to Vallejo Lakes Area customers. The campus is currently served by the VFWD, which utilizes the Fleming Hill WTP to treat water that is delivered from the Sacramento River Delta, Lake Berryessa, and Lake Curry, and it has a maximum design flow rate of 42 mgd (City of Vallejo 2017).

Water Supply Infrastructure

The City of Vallejo's water distribution system contains principal (transmission) water mains in the distribution system which range in size from 14 to 24 inches in diameter. Most of the distribution grid piping in the older sections of the City range in size from 4 to 8 inches in diameter; however, the newer areas are served by pipes 8 to 12 inches in diameter (City of Vallejo 2020).

A water main owned and operated by the City of Vallejo is located along Maritime Academy Drive. From this water main, there are two water systems that feed the campus. One is an existing 10-inch line that feeds the majority of the campus and is used for domestic water, fire water, and irrigation. The line connects to the city main at Maritime Academy Drive near the intersection of Residence Hall Road (Cal Maritime 2017). This water system also supplies water to the TS Golden Bear when it is currently docked. The second water line feeding the campus is a recently constructed water line that connects to the city main at Maritime Academy Drive and feeds the Physical Education complex.

STORMWATER

Stormwater drainage facilities within the city are provided by VFWD. The VFWD provides flood control protection services for Vallejo and operates and maintains over 250 miles of storm drainage piping, more than 10,000 catch basins, and nine stormwater pump stations within the city. The VFWD also protects land and residents from flooding damage through its storm drain system (VFWD 2023).

Stormwater on the project site generally drains to the northwest to the existing culvert system under Turner Parkway and it is then conveyed downstream to the outflow to the San Francisco Bay. Stormwater from the southerly portion of the project site and adjacent areas flows into the existing drainage system that parallels the southern project boundary. Stormwater from here is conveyed through a culvert under Admiral Callaghan Lane and I-80 and eventual outfall to the San Francisco Bay (City of Vallejo 2017).

The Cal Maritime campus is located north of Morrow Cove on the San Francisco Bay, west of Interstate 80 (Caltrans right of way), and southeast of the Carquinez Heights neighborhood in Vallejo, California. Hydrology in the area is generally ephemeral surface runoff that is collected in storm drains and conveyed to outfalls into the San Francisco Bay. Previous information identified two drainage areas upstream of the Administration Building where flooding has occurred.

The existing stormwater infrastructure at Cal Maritime varies from fairly new construction to original construction estimated to be 80+ years old. Currently, most runoff leaves the campus through a network of storm drains that outfall beyond the shoreline. A small amount of runoff is discharged directly into the bay along the shoreline. Under the current MS4 Permit, discharges through the storm drain network and along the shore are regulated under other sections of the permit that address facilities operation. These consist of source controls, containment, and other best management practices. An existing condition assessment, limited to observations of the surface and selected inlet and opened manholes, was recently conducted. As a part of an existing conditions assessment, a Stormwater Investigation Technical Memo (Appendix J) was produced to show the approximate location of major storm drain network features and landmarks within each drainage area. Based on that assessment, the highest priority condition observations are listed below.

1. Connection points from Caltrans storm drains to campus storm drains occurs at energy dissipator structures that appear to be in fair condition, however, the condition of the underground connection points to the campus storm drain are unknown and should be evaluated. See Appendix J, Attachment 2, Photo 1.
2. A storm drainpipe daylights into a ditch along Maritime Academy Drive between the university's pool complex and Country Lane Drive. The edge of the pipe is chipped, and 3 to 5 feet of the pipe are exposed at the discharge point. See Appendix J, Attachment 2, Photo 2.
3. Numerous inlets along Maritime Academy Drive and Upper Service Road appear to be completely clogged with sediment and may not be functional. See Appendix J, Attachment 2, Photo 3 and 4.
4. The elevated earthen ditch south of Residence Hall Road and north of Parking Lot A is breached on the east bank at a low point and discharges flow (including dry weather flow) into the adjacent grass area along Maritime Academy Drive. The lower grass area is saturated and can no longer be routinely maintained. See Appendix J, Attachment 2, Photo 5 and 6.
5. The earthen ditches along Maritime Academy Dr. have significant plant growth likely due to the present of water throughout the year. Aside from the low point issue mentioned above, the ditches appear to be in fair condition, however, the vegetation growth may limit capacity and contribute towards overflows during high flow events. See Appendix J, Attachment 2, Photo 7.

The visible above-ground storm drain network overall appears to be in fair condition and no major defects were observed aside from the breach in the elevated ditch, noted above as condition number four. Refer to Section 3.9, "Hydrology and Water Quality," for additional environmental setting information applicable to stormwater and hydrology for the proposed project.

WASTEWATER

Vallejo Flood & Wastewater District

The Vallejo Flood & Wastewater District (VFWD), located in southern-most Solano County along the northeast interior of the San Pablo Bay, is a special district created by an Act of California State Legislature May 19, 1952 (VFWD 2023). The VFWD provides wastewater treatment, collection, and disposal to the City of Vallejo and outlying areas, including Cal Maritime. The VFWD is not coterminous with the City of Vallejo and serves an area slightly larger encompassing unincorporated County areas and Mare Island. VFWD's net overall service area covers approximately thirty-six square miles. No satellite agencies discharge to the District's sewer system or wastewater treatment plant. VFWD owns and maintains all sewer mains within their service area (City of Vallejo 2020).

VFWD provides uninterrupted wastewater collection, treatment and disposal, and storm water transmission and pollution control services, generally on a 24-hour basis, to all customer connections within its boundary. The VFWD owns, maintains, and operates 375 miles of wastewater gravity mains, 30 wastewater pump stations and 11 miles of associated force mains, a secondary treatment wastewater treatment plant, and biosolids disposal facilities. The VFWD is also a member of the Bay Area Biosolids Coalition, and staff contributed to the whitepaper "Biosolids in the Baylands" that discusses beneficial use of biosolids as fertilizer in dry farming (VFWD 2023). VFWD has consistently had few Sanitary Sewer Overflows (SSOs). When evaluating Category 1 SSOs (the most serious), VFWD's Spill Rate Index, which is the number of spills per 100 miles of mainline pipe, is consistently below both the Bay Area average and the State of California average. The volume of spills per capita on an annual basis is also consistently below regional and state averages (City of Vallejo 2020).

The VFWD has a NPDES permit for discharging treated sewage into the Mare Island Strait. In January 2017, there were two separate violations of VFWD's NPDES discharge permit, one a chlorine violation (discharge violation) and one a blend composite collection failure (reporting violation). After these violations, VFWD implemented changes in its Standard Operating Procedures, particularly those related to storm event preparation, to ensure these same violations are not repeated. Since January 2017, there have been no violations of VFWD's NPDES discharge permit (City of Vallejo 2020).

The CSU-owned sanitary sewer system drains to a lift station that is owned and maintain by the VFWD. The lift station is located in the southwest portion of campus near the end of Morrow Cove Road. There are two sewer lines that drain to the lift station. One pipe enters from the east and serves buildings from the east portion of campus, and the second pipe which enters at the north and serves buildings from the north portion of campus. The Training Ship Golden Bear also discharges effluent to the sanitary sewer system when it is docked.

A 6-inch forced main line from the sanitary sewer lift station runs under the service road, across Parking Lot A and under Maritime Academy Drive. It continues towards the intersection of Country Lane Drive. At this intersection the line turns into a gravity sanitary sewer system, which drains to the Ryder Street Wastewater Treatment Plant (Ryder Street WWTP) (Cal Maritime 2017).

Ryder Street Wastewater Treatment Plant

All wastewater collected in the area served by the VFWD, which includes Cal Maritime's campus, is routed to the Ryder Street WWTP. The Ryder Street WWTP, which was constructed in 1957, discharges treated wastewater through two export pipelines, the Mare Island Strait Outfall and the Carquinez Strait Outfall. Only secondary-treated wastewater is discharged into Mare Island Strait; both primary and secondary-treated wastewater can be discharged in the Carquinez Strait (Cal Maritime 2017). The Ryder Street WWTP has a dry weather capacity of 15.5 mgd and a wet weather capacity of 60 mgd. Treatment consists of conventional secondary treatment with trickling filters, short-term aeration, chlorination, and dichlorination before treated effluent is discharged to the Carquinez Strait. The Ryder Street WWTP treats an average flow of 11.44 mgd (Cal Maritime 2017).

SOLID WASTE

Recology Vallejo provides solid waste, recycling, and yard waste collection services in the City and at Cal Maritime. Non-hazardous solid waste collected by Recology is transported to the Devlin Road Transfer Station, a regional facility operated by the Napa–Vallejo Waste Management Authority, where it is then sent to the Potrero Hills Landfill located in Suisun City. The Devlin Road facility has a permitted maximum daily throughput of 1,440 tons (CalRecycle 2023a). Recyclable materials and green waste are sorted and sent to various facilities. Solid waste that cannot be recycled is sent to the Keller Canyon Landfill, located at 901 Bailey Road in Pittsburg, Contra Costa County. The Keller Canyon Landfill has a permitted capacity of 75,018,280 cubic yards and a remaining capacity of 63,408,410 cubic yards. Currently, the landfill receives 3,500 tons of garbage a day, and the anticipated closing date of the landfill is December 31, 2030 (CalRecycle 2023a).

As discussed in the 2040 General Plan, in 2014 Vallejo's per capita solid waste disposal rate for residents was 3.7 pounds per day (ppd); the CalRecycle Target rate is 5.5 ppd per person. The City's per capita solid waste disposal rate for employees in 2014 was 14.5 ppd per employee; the CalRecycle target rate was 24.1 ppd (City of Vallejo 2020).

CalRecycle reports that in 2014 a total of 80,420 tons of solid waste from Vallejo was disposed at 18 different landfills (City of Vallejo 2020). Nearly 99 percent (98.7 percent, 79,396 tons) of Vallejo's solid waste in 2014 went to two of those facilities: Potrero Hills Landfill (75,564 tons) and Recology Hay Landfill (3,832 tons). CalRecycle reports similar results for unincorporated Solano County. Therefore, the 2040 General Plan analyzed the Sphere of Influence (SOI) to be represented in the landfill disposal data for unincorporated Solano County. Nearly 99 percent (98.6 percent, 18,264 tons) of unincorporated Solano County's solid waste went to two facilities: Potrero Hills Landfill (15,484 tons) and Recology Hay Landfill (2,780 tons). The City of Vallejo exceeds the state's CalRecycle targets for both residents and employees (City of Vallejo 2020).

Recology Hay Landfill

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 (CalRecycle 2023b).

Potrero Hills Landfill

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 (CalRecycle 2023c).

ENERGY

Electricity

PG&E provides all electric services in Vallejo. PG&E is an independent operator of power and generates, transmits, and distributes electricity to power lines, and charges connection and user fees for all new development. As described in Chapter 2, Project Description, PG&E provides electrical service to the Cal Maritime site via 12.47 kilovolt (kV) feeders that also serve other sites. The site distribution system comprises the main 12 kV / 1200 amps (A) switchgear, overhead and underground lines, outdoor building transformers, and building services/meters. Backup power is limited to a diesel generator for classroom buildings, communications hut 1, and the administration building, while the sanitary sewer pump station has City provided backup power. The TSGB has its own generators. In addition, life safety systems utilize batteries and uninterruptible power supply units in various buildings for backup power.

An overhead distribution circuit is routed along the east boundary of the campus. The main switchgear for the campus is located next to Parking Lot B. A second service line exists and serves the physical plant and operations building and is fed from the same overhead distribution line. The campus currently has limited emergency and back-up power. A diesel generator exists at the classroom building to supply power to the classroom building, communications hut 1, and the administration building (Cal Maritime 2017). Shore power infrastructure, also known as cold-ironing or alternative marine power, enables ships to turn off their engines while at berth and connect to local electric power. Shore power infrastructure consists of four main elements: (1) incoming electrical power supply to substation transformers and switchgear; (2) on-site power distribution and control (load transformer and switchgear); (3) transmission lines and equipment that comprise the cable management system, providing the essential linkage from the substation to the vessel; and (4) vessel power supply connection point(s). Shore power systems are present for the TSGB.

Natural Gas

Natural gas service is provided to the campus by PG&E, a publicly owned corporation regulated by the California Public Utilities Commission (CPUC). PG&E charges connection and user fees for all new development in addition to sliding rates for electrical and natural gas service based on use. Cal Maritime purchases about 160,000 therms of natural gas from PG&E each year. The gas is used for hot water boilers and for the kitchen in the dining center. The campus has also replaced three hot water boilers with new energy efficient units and advanced controllers. The installation of efficient showerheads to ultra-low flow shower heads has also decreased water consumption and hot water heating energy that comes from natural gas (Cal Maritime 2023).

The main campus gas line is a 6-inch line that reduces in size between 1- and 2-inches for most buildings. PG&E has recently installed a new gas line on Maritime Academy Drive and the gas distribution lines on campus were recently upgraded to polyethylene (PE) pipe (Cal Maritime 2017).

Energy Types and Sources

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. One-third of energy commodities consumed in California is natural gas. In 2022, renewable resources, including hydroelectric power and small-scale, customer-sited solar power, accounted for 49 percent of California's in-state electricity generation. Natural gas fueled another 42 percent while nuclear power supplied almost all the rest (EIA 2023). In 2021, PG&E provided its customers with 47.7 percent eligible renewable energy while 4 percent, 9 percent and 39 percent of energy were sourced from large-scale hydroelectric, natural gas, and nuclear, respectively (CEC 2022). The contribution of in- and out-of-State power plants depends on the precipitation that occurred in the previous year, the corresponding amount of hydroelectric power that is available, and other factors.

TELECOMMUNICATIONS

Telecommunication (e.g., phone and internet) facilities are provided to the project site through existing underground infrastructure facilities along roads within the campus. AT&T provides telecommunications service to the campus via two lines that run underground along Maritime Academy Drive to communications hut 1, located on the south side of the administration building. Inter-building internet and cable service was installed in 1999 by Scott Electric Company during a major utility infrastructure replacement project. Intra-building communication lines were installed in 2001 (Cal Maritime 2017). Additionally, the campus provides secured wireless network service for all faculty, staff, and students.

The campus currently provides 1 gigabyte (GB) of bandwidth for internet service, which meets the current campus need. There are two Data Centers on campus, one in the Classroom Building and one in the SIM Building (Cal Maritime 2017).

3.14.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

Water Demand

The evaluation of utility extension and service impacts is based on review of published information and reports from Cal Maritime, City of Vallejo Public Works Department, and utility service providers. The impact analysis considers whether capacity would be adequate to serve the project and whether infrastructure upgrades would be required that could result in physical environmental impacts. In determining the level of significance, the analysis assumes that the project would comply with relevant federal, state, and local ordinances and regulations. As discussed in Chapter 2, Project Description, implementation of the proposed project would not result in an increased demand for water.

Wastewater Treatment and Disposal

Impacts related to wastewater conveyance and treatment capacity were evaluated by considering the estimated increase in wastewater generated by the project and by determining whether the existing wastewater treatment and conveyance infrastructure would have capacity adequate to accommodate the increase. The Ryder Street WWTP has a dry weather capacity of 15.5 mgd and a wet weather capacity of 60 mgd. As of 2015 VFWD'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 (City of Vallejo 2017). In determining the level of significance, the analysis assumes that the project would comply with relevant federal, state, and local ordinances and regulations. As discussed in Chapter 2, Project Description, implementation of the proposed project would not result in an increased demand on the existing Cal Maritime sanitary sewer system.

Storm Drainage

Impacts associated with storm drainage could occur if the proposed project would require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. The campus' stormwater drainage system would not require improvements because the proposed project would not substantially increase stormwater flows. Therefore, the project would not need to implement changes or upgrades to the stormwater drainage system at the project site. The project would continue to comply with the campus' MS4 permit. Refer to Section 3.9, "Hydrology and Water Quality," for further analysis of water quality, drainage, groundwater, and flooding impacts.

Solid Waste

Evaluation of potential solid waste impacts is based on the estimated solid waste generation of construction and operation, as well as evaluation of existing and future capacity at landfills serving the project area. There is substantial remaining capacity in the landfills in the area serving local waste haulers, with a remaining capacity until at least 2048. In determining the level of significance, the analysis assumes that the project would comply with relevant federal, state, and local ordinances and regulations. Refer to Section 3.8, Hazards, for impacts related to sediment disturbance, exposure, and potential contamination from waterside demolition and construction activities, including dredging, as well as disposal of dredge material.

Electricity and Natural Gas

Impacts associated with electricity and natural gas could occur if the proposed project would require or result in the construction of new or expanded electricity and natural facilities, the construction of which could cause significant environmental effects. Refer to Section 3.5, "Energy," for the estimated energy demands of the project.

THRESHOLDS OF SIGNIFICANCE

A utilities and service systems impact would be significant if implementation of the proposed project would:

- require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
- result in insufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years;
- result in a determination by the wastewater treatment provider that serves or may serve the Project that it has inadequate capacity to serve the Project's projected demand, in addition to the provider's existing commitments;
- generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure;
- negatively affect the provision of solid waste services or impair the attainment of solid waste reduction goals; or
- fail to comply with federal, State, and local management and reduction statutes and regulations related to solid waste.

ISSUES NOT DISCUSSED FURTHER

Relocation or Construction of Utility Infrastructure

As discussed in Chapter 2, "Project Description," infrastructure improvements for the project (water supply, wastewater, stormwater, natural gas, electrical, and telecommunications) would be limited to on-site improvements. ~~Draft~~ EIR Sections 3.1 through 3.15 address the environmental impacts of the construction of on-site infrastructure improvements and describe mitigation measures to address identified significant impacts. No further analysis of project infrastructure improvements is necessary.

The operation of the NSMV would result in higher electricity demand than the operation of the exiting TSGB. Initial estimates of power-connected demand for the NSMV are approximately 4,828 kVA[1]. The existing electrical system on campus may not have adequate capacity to serve the proposed project. To meet this projected demand, construction of a new substation adjacent to the existing substation would be required, along with improvements to associated electrical equipment; switchgear, transformer, and panels, which may require excavating and trenching to access points of connection to the upgraded pier. The extent of this work is yet to be determined by PG&E; however, excavation and trenching would be within the limits of the 2,500 square feet of impermeable surface disturbance area proposed for Phase One. Environmental impacts associated with the anticipated excavation and trenching activities are considered in the ~~Draft~~ EIR Sections 3.1 through 3.15. Should replacement of PG&E overhead distribution lines be required to accommodate additional energy demand, this would be completed by PG&E and would not require any additional ground disturbance which could result in significant environmental effects (Motschall, pers. comm., 2024). This issue is not addressed further in this ~~Draft~~ EIR.

[1] A kVA is equal to 1,000 volt amps.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.14-1: Result in Insufficient Water Supplies

The City of Vallejo anticipates meeting its current and 2045 projected water demand based on projections from the 2020 UWMP (City of Vallejo 2020). While construction activities would require a minimal amount of water for activities in the upland areas, operation of the proposed project would not generate an increased demand for water since there would be no increase in student enrollment or campus staffing. Thus, no new or expanded water entitlements would be required to serve the proposed project. In addition, the City has a Water Shortage Contingency Plan to ensure water supplies will be sufficient to serve the campus and other planned growth in normal, dry, and multiple-dry years. Therefore, impacts on water supply would be **less than significant**.

As described above in Section 3.14.2, the City provides water service to the Cal Maritime campus and campus operations are accounted for in the City's UWMP. The entire campus, including the TSGB when it is in port, is within the service area of the Fleming Hill Water Treatment Plant and is served by a City-owned and operated water main that runs along Maritime Academy Drive. The existing Cal Maritime water distribution system is a combination of looped and dead-end lines, with PVC and transit pipe. Throughout the three phases, the project would include redevelopment and construction of new facilities along the Cal Maritime waterfront. These facilities, described below, would be built to support the arrival of the NSMV and the expected increased academic and operational functions of the campus.

The City's current water supply in a normal year is 35,695 acre-feet/year, and demand is 26,824 acre-feet/year (City of Vallejo 2020). Future demand projections in the 2020 UWMP are based on existing and planned development under the City's General Plan. When evaluated on an annual basis, the City of Vallejo's water supplies are generally capable of meeting the forecast water demands throughout the Vallejo Municipal Service area in normal years from 2020 through 2045 with active management of its supply portfolio. Importantly, as noted in the SCWA 2020 UWMP, the supply reliability has assumptions related to future hydrological, regulatory, and infrastructure conditions that will require further assessment in light of proposed land use plans and the City's water management. According to the UWMP, the average water use for the City's service area is projected to be 28,111 AFY in 2025, 30,331 AFY in 2035, and 31,892 AFY in 2045, and the City expects to meet its current and 2045 project water demands (City of Vallejo 2020). The proposed project would temporarily increase water demand at the project site due to the construction of the proposed Cal Maritime campus improvements. As mentioned above, the 2020 UWMP determined there is adequate supply to meet the City's projected water demand (including campus operations) from 2020 through 2045 during normal, single dry, and five consecutive dry years (City of Vallejo 2020). Furthermore, the 2020 UWMP sets forth water conservation measures as part of its water contingency plan, which is to be used by the City to respond to water shortage contingencies as they may arise.

Phase One

As discussed in Chapter 2, "Project Description," Phase One of the project would involve redevelopment to accommodate the arrival of the NSMV. To prepare for the arrival of the NSMV, the current main pier would be demolished, and a new longer, wider pier would be constructed to complement the size of the new NSMV. Other activities, such as reinforcement and extension of the trestle to a new length of 220 feet (with possible replacement of the existing trestle), installation of new floating and training docks at the boat basin, expansion and upgrading of the Marine Yard, utility upgrades, and dredging of the existing and expanded boat basin, would cause minor impacts related to water supply. During Phase One, water usage for construction activities in the upland areas would be limited to that used for construction workers, minor dust control, and other incidental uses. No element of project construction would require substantial water. Therefore, construction usage would be minimal and would not adversely impact water supply since the total upland disturbance area would be less than 2,500 square feet and limited to the Maintenance Yard. To minimize water use during project construction, the project would comply with CSU Sustainability Policy and City of Vallejo goals and policies related to water conservation to the extent feasible.

The operation of the facilities under Phase One would not result in an increase in the campus student population or workforce and therefore would not result in an increase demand for local public services, including water supply.

While the NSMV would be able to accommodate more students than the TSGB, thus shifting some maritime training and educational activities from campus classrooms to the NSMV, the water required to fill NSMV water storage tanks would come from water supply no longer needed on campus and would not generate a greater over demand for water. Thus, there would be no net increase in the volume of water demand generated on campus.

Given that there would be no substantial change in water use from existing conditions, neither construction nor operation of Phase One of the project would generate a demand for water that would result in insufficient water supplies.

Phase Two

Phase Two would include rehabilitating the boathouse, creating Boat Basin 2 and its new pier with breakwater, adding new floating docks to Boat Basin 2, increasing hands-on instructional opportunities, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning through shoreline enhancements. The creation of Boat Basin 2 would involve the installation of approximately 26 slips and berthing areas for the campus' fleet of marine vessels currently located off-site and/or planned for future acquisition. Similar to Phase One, Phase Two construction activities would require a minimal amount of water, primarily for work in the upland areas, and would not adversely impact water supply. As noted above, the project would comply with City of Vallejo goals and policies related to water conservation to the extent feasible to minimize water use during project construction.

As with Phase One, operation of the facilities constructed under Phase Two would not result in an increase in the campus student population or workforce and therefore would not increase demand for local public services, including water supply. Increasing the number of boat slips in Boat Basin 2 would also not significantly increase water demand. Additionally, Phase Two would also include plumbing system upgrades associated with the rehabilitation of the boathouse, which would result in more efficient water use for those systems.

As with Phase One, because there would be no substantial change in water use, neither construction nor operation of Phase Two would generate a demand for water that would result in insufficient water supplies.

Phase Three

Phase Three would continue to focus on redevelopment of the Marine Yard, increasing hands-on instructional opportunities, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning. Phase Three includes the construction of the Marine Programs Multi-Use Building, which would be located at the foot of the coastal hills on the eastern side of the lower campus. The Marine Programs Multi-Use Building would replace the obsolete trailers and Marine Programs and Naval Science Modulars, which are currently adjacent to the boat basin. The building area would be approximately 20,300 square feet and include academic and administrative uses, as well as a 50- to 60-foot-tall lookout and Harbor Control Tower. Classrooms and outdoor learning spaces would be added to the Marine Programs Multi-Use Building. A marine hydrokinetic barge and linking trestle, which would be located at the far southeast side of campus, anchored close to the shore, also would be included under Phase Three. As a further waterfront improvement and shoreline enhancement, a central waterfront esplanade would be located at the terminus of the major campus axis. Utilities such as exterior light fixtures, integrated atmospheric misting, outdoor ceiling fans, built-in furniture, and gas barbeque equipment or fire pits would also be considered. In terms of the continuation of shoreline enhancements, mass grading and the implementation of the transition zone, intertidal zone, and living reefs would be included, as well as piers and lookout structures.

Similar to Phases One and Two, Phase Three water usage for construction activities in the upland areas would be minor and would not adversely affect water supply, and the project would comply with City policies to the extent feasible to minimize water use during construction. As with Phases One and Two, operation of the facilities constructed under Phase Three would not result in an increase in the campus student population or workforce and therefore would not increase demand for local public services, including water supply. Additionally, the new Marine Programs Multi-Use Building would not create a need for increased faculty or staff and would be constructed to serve the existing projected increase in population.

As with Phases One and Two, given that there would be no increase in student enrollment or campus staffing, there would be no substantial change in water use for Phase Three. Therefore, neither construction nor operation of Phase Three of the project would generate a demand for water that would result in insufficient water supplies.

Summary

The campus is currently served by the VFWD, which utilizes the Fleming Hill WTP to treat water that is delivered from the Sacramento River Delta, Lake Berryessa, and Lake Curry, and it has a maximum design flow rate of 42 mgd (City of Vallejo 2017). Because there would be no increase in water usage for the proposed project, the need for treated water would be easily accommodated by the City's existing WTP.

Furthermore, the campus would not require new or expanded water entitlements to serve the proposed project because the proposed project's phases would not generate a demand for water that would result in insufficient water supplies during construction or operation. With implementation of the policies and actions listed above, in conjunction with State and local regulatory requirements, the impacts from construction and operation would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.14-2: Result in Impacts on Available Wastewater Treatment Capacity

The proposed project could generate a minor increase of wastewater during construction as a result of water usage, but this increase would not be substantial and would therefore result in a negligible impact related to wastewater treatment requirements. None of the three phases of the proposed project would create an increase in wastewater during operation because there would be no increase in enrollment or staffing beyond existing projections. Therefore, impacts related to wastewater treatment capacity would be **less than significant**.

Nearly all the Cal Maritime campus wastewater, including wastewater from the TSGB when it is in port, drains by gravity via a campus-owned collection system to a VFWD sanitary sewer pump station located at the western boundary of the Cal Maritime campus near the northern end of Morrow Cove. Given the greater size of the NSMV as compared to the TSGB, discharge infrastructure connecting the NSMV to the VFWD pump station may require upgrades, which could include replacing/upsizing pumps and/or increasing the wet well size. These improvements are part of the project and are considered in the ~~Draft~~ EIR Sections 3.1 through 3.15. The following discussion focuses on the wastewater generation resulting from the project.

Phase One

As discussed in Chapter 2, "Project Description," Phase One of the project focuses on upgrades to in-water infrastructure, the Marine Yard, and other elements essential to meeting Cal Maritime's readiness for the arrival of the NSMV. To prepare for the arrival of the NSMV, the current main pier would be demolished, and a new longer, wider pier would be constructed to accommodate the size of the new NSMV. Structural upgrades and extension of the existing trestle would also be required. There is potential for the existing trestle to be demolished and replaced with a new trestle, if the existing trestle is determined to be defective. Other activities, such as the installation of new floating and training docks at the boat basin, expansion and upgrading of the Marine Yard, utility upgrades, and dredging the existing and expanded boat basin, would not create impacts related to wastewater. There could be a minor increase in wastewater generation associated with water usage during construction, although this increase would not be substantial. Although the NSMV would accommodate a greater number of cadets and crew than the TSBG (295 for the TSGB versus 760 for the NSMV), the operation of the project would not result in increased wastewater generation because the operation of the facilities under Phase One would not result in an increase in the campus student population or workforce. As described above, water demand would not be increased overall because any increase in use associated with the NSMV would be balanced by an associated reduction in use on other parts of the campus. Therefore, with no overall increase in campus population, overall wastewater generation associated with the operation of Phase One would be similar to existing conditions on the campus.

Phase One improvements would not generate a substantial increase in wastewater during construction or operation and would therefore result in less than significant impacts related to wastewater treatment requirements.

Phase Two

Phase Two would include rehabilitating the boathouse, construction of Boat Basin 2 and its new pier and associated breakwater, addition of new floating docks to Boat Basin 2, creation of increased hands-on instructional opportunities, demolition the Marine Programs and Naval Science modular buildings, linkages of campus buildings to waterfront open space and enhancing public access and upgraded waterfront resilience and ecological functioning through shoreline enhancements. The creation of Boat Basin 2 would involve the installation of approximately 26 slips and berthing areas for the campus' fleet of marine vessels currently located off-site and/or planned for future acquisition. As with Phase One, Phase Two construction activities could result in a minor increase in wastewater generation associated with construction activities; however, this increase would not be substantial. Operation of the facilities constructed under Phase Two would not require an increase in the campus population or workforce and therefore would not increase wastewater generation. Increasing the number of boat slips would not impact wastewater generation, and the temporary occupation of boat slips would not affect wastewater beyond the current operations. The overall wastewater generation associated with the operation of Phase Two would be similar to existing conditions on the campus.

Similar to Phase one, Phase Two improvements would not generate a substantial increase in wastewater during construction or operation and would therefore result in less than significant impacts related to wastewater treatment requirements.

Phase Three

Phase Three, like Phase Two, would continue to focus on redeveloping the Marine Yard, increasing hands-on instructional opportunities, linking campus buildings to waterfront open space, and enhancing public access, and safeguarding waterfront resilience and ecological functioning. Phase Three includes the construction and addition of the Marine Programs Multi-Use Building, which would be located at the foot of the coastal hills on the eastern side of the lower campus. The Marine Programs Multi-Use Building would replace the obsolete trailers and Marine Programs and Naval Science Modulars, which are currently adjacent to the boat basin. Classrooms and outdoor learning spaces would be added to the Marine Programs Multi-Use Building. A marine hydrokinetic barge and linking trestle, which would be located at the far southeast side of campus, anchored close to the shore, would also be included in Phase Three. A floating row house would also be constructed and connected to Boat Basin 2. Utilities such as exterior light fixtures, integrated atmospheric misting, outdoor ceiling fans, built-in furniture, and gas barbeque equipment or fire pits would be considered. In terms of the continuation of shoreline enhancements, mass grading and the implementation of the transition zone, intertidal zone, and living reefs would be included, as well as piers and lookout structures.

Similar to Phases One and Two, Phase Three improvements would not increase wastewater generation during operation because there would be no increase in enrollment or change in how the campus operates. The new Marine Programs Multi-Use Building would not create a need for increased faculty or staff and would be constructed to serve the existing projected increase in population. As with Phases One and Two, Phase Three improvements also would not generate a substantial increase in wastewater during construction and would therefore result in less than significant impacts related to wastewater treatment requirements.

Summary

The proposed project would not generate a substantial increase in wastewater during construction or operation and would therefore result in less than significant impacts related to wastewater treatment requirements. None of the three phases would result in an increase in wastewater generation during operation because there would be no increase in enrollment or change in how the campus operates, and the new Marine Programs Multi-Use Building would not create a need for increased faculty or staff. Therefore, impacts would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.14-3: Result in Impacts on Solid Waste Facilities and Compliance with Regulations Related to Solid Waste

The proposed project would include construction that would increase the generation of construction material solid waste. Waste generated at the project site could be accommodated by several permitted haulers, and waste would be hauled to a permitted landfill for disposal as selected by the hauler. There is substantial remaining capacity in the landfills in the area serving local waste haulers, with remaining capacity until at least 2048. Therefore, because the project would not generate solid waste in excess of State or local standards or in excess of the capacity of the local infrastructure, adversely affect solid waste services, or affect the attainment of solid waste reduction goals, this impact would be **less than significant**.

Project construction would generate approximately 4,000 tons of solid waste per phase, which would be off-hauled by truck. The total solid waste generated from all three phases would be approximately 12,000 tons over the construction period. Solid waste collection service would be provided by Recology, with waste transported to either the Recology Hay Road Landfill, located approximately 28 miles northeast of the project site, or the Potrero Hills Landfill, located approximately 17 miles northeast from the project site.

As mentioned in Section 3.14.2 above, the Recology Hay Landfill has a permitted throughput capacity of 2,400 tons per day. Its remaining permitted capacity is 30,433,000 cubic yards (42,606,200 tons). It has an estimated cease operation date of January 1, 2077 (CalRecycle 2023b). The Potrero Hills Landfill has a permitted throughput capacity of 4,330 tons per day. Its remaining permitted capacity is 13,872,000 cubic yards (19,420,800 tons). It has an estimated cease operation date of February 14, 2048 (CalRecycle 2023c). The additional 12,000 tons of total construction debris from the proposed project would be accommodated within the existing Recology Hay Landfill and Potrero Hills Landfill, which both have sufficient remaining capacity.

Table 3.14-4 Landfills' Existing Daily Capacity And Estimated Closure Date

Landfill Facility	Daily Capacity (tons/day)	Estimated Closure Year
Recology Hay Road Landfill	2,400	2077
Potrero Hills Landfill	4,330	2048

Source: CalRecycle 2023b, 2023c.

Phase One

As discussed in Chapter 2, "Project Description," Phase One of the project would involve redevelopment to accommodate the arrival of the NSMV. To prepare for the arrival of the NSMV, the current main pier would be demolished, and a new longer, wider pier would be constructed to complement the size of the new NSMV. Other activities, such as reinforcement and extension of the trestle to a new length of 220 feet (with possible replacement of the existing trestle), installation of new floating and training docks at the boat basin, expansion and upgrading of the Marine Yard, utility upgrades, and dredging of the existing and expanded boat basin would create solid waste during construction.

Construction of Phase One would involve demolition and replacement of the pier, replacement of the floating docks in the boat basin, structural upgrades and possible replacement of the existing trestle, upgrades of all pier utilities, all of which would generate solid waste. Dredging activities would also be carried out in the boat basin to accommodate the facilities proposed under Phase One. Refer to Section 3.8, Hazards, for impacts related to sediment disturbance, exposure, and potential contamination from waterside demolition and construction activities, including dredging, as well as disposal of dredge material. Phase One improvements would generate a total of approximately 4,000 tons of solid waste from construction. Approximately 200 trucks would be used to import and export materials for each phase, with the assumption that all 200 trucks would include soil and demolition waste hauling, as well as material import. This would equate to approximately 8.7 tons of solid waste generated per day over the 21-month construction period. Solid waste collection service would be provided by Recology and transported to either the Recology Hay Road Landfill, located approximately 28 miles northeast from the project site or the Potrero Hills Landfill, located approximately 17 miles northeast from the project site.

Operation of Phase One facilities would not result in an increase in the campus population and would therefore not result in increased generation of solid waste. The project would comply with CSU Sustainability Policy and, to the extent feasible, City General Plan policies and actions to minimize impacts related to solid waste disposal capacity. Neither construction nor operation of Phase One improvements would generate solid waste that would be in excess of State or local standards or in excess of the capacity of the local infrastructure, such that the provision of solid waste services or the attainment of solid waste reduction goals would be negatively affected. This impact would be less than significant.

Phase Two

Phase Two would include rehabilitating the boathouse, creating Boat Basin 2 and its new pier and associated breakwater, addition new floating docks to Boat Basin 2, creation of increased hands-on instructional opportunities, demolition the Marine Programs and Naval Science modular buildings, linkages of campus buildings to waterfront open space and enhancing public access, and upgraded waterfront resilience and ecological functioning through shoreline enhancements. The creation of Boat Basin 2 would involve the installation of approximately 26 slips and berthing areas for the campus' fleet of marine vessels currently located off-site and/or planned for future acquisition.

Construction of Phase Two would involve the restoring, installing, and developing new capacities for Boat Basin 2, such as new docks, slips, berthing areas, and a new pier. Similar to Phase One, Phase Two improvements would generate approximately 4,000 tons of solid waste from construction. Approximately 200 trucks would be used to import and export materials for each phase, with the assumption that all 200 trucks would include soil and demolition waste hauling, as well as material import. This would equate to approximately 8.7 tons of solid waste generated per day over the 21-month construction period. Solid waste collection service would be provided by Recology and transported to either the Recology Hay Road Landfill or the Potrero Hills Landfill. As with Phase One, operation of the facilities constructed under Phase Two would not increase the campus population or workforce and would therefore not result in increased generation of solid waste. Increasing the number of boat slips and the periodic occupation of those slips would not significantly increase solid waste generation.

Similar to Phase One, Phase Two improvements would not result in an increase in the campus population and would not result in increased generation of solid waste. The project would comply with City General Plan policies and actions to the extent feasible to minimize impacts related to solid waste disposal capacity. Neither construction nor operation of Phase Two would generate solid waste in excess of State or local standards or in excess of the capacity of the local infrastructure, such that the provision of solid waste services or the attainment of solid waste reduction goals would be negatively affected. This impact would be less than significant.

Phase Three

Phase Three would continue to focus on redevelopment of the Marine Yard, increasing hands-on instructional opportunities, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning, which would result in physical changes to the campus. Phase Three includes the construction and addition of the Marine Programs Multi-Use Building, which would be located at the foot of the coastal hills on the eastern side of the lower campus. The Marine Programs Multi-Use Building would replace the obsolete trailers and Marine Programs and Naval Science Modulars, which are currently adjacent to the boat basin. Classrooms and outdoor learning spaces would be added to the Marine Programs Multi-Use Building. A marine hydrokinetic barge and linking trestle, which would be located at the far southeast side of campus, anchored close to the shore, would be included under Phase Three. Utilities such as exterior light fixtures, integrated atmospheric misting, outdoor ceiling fans, built-in furniture, and gas barbeque equipment or fire pits would also be considered. In terms of the continuation of shoreline enhancements, mass grading and the implementation of the transition zone, intertidal zone, and living reefs would be included, as well as a public pier and lookout structures.

Implementation of Phase Three would involve dismantling the existing trailers, which would generate solid waste. This process is part of the transition to the new Marine Programs Multi-Use Building, along with the construction of the marine hydrokinetic barge and connecting trestle. Similar to Phases One and Two, Phase Three improvements would generate a total of approximately 4,000 tons of solid waste from construction. Approximately 200 trucks would be used to import and export materials for each phase, with the assumption that all 200 trucks would include soil and demolition waste hauling, as well as material import. This would equate to approximately 8.7 tons of solid waste generated per day over the 21-month construction period. Solid waste collection service would be provided by Recology and transported to either the Recology Hay Road Landfill or the Potrero Hills Landfill.

Once operational, Phase Three would not generate an increase in solid waste during operation because there would be no increase in campus population or change in how the campus operates, and the new Marine Programs Multi-Use Building would not create a need for increased faculty or staff. The project would comply with CSU Sustainability Policy and, to the extent feasible, City General Plan policies and actions during project construction and operation to ensure minimize impacts related to solid waste disposal capacity.

Overall, neither construction nor operation of Phase Three improvements would generate solid waste that would be in excess of State or local standards or in excess of the capacity of the local infrastructure, such that the provision of solid waste services or the attainment of solid waste reduction goals would be negatively affected. This impact would be less than significant.

Summary

As discussed above under each phase, the project would generate solid waste during construction, but would not result in an increase in solid waste generation during operation because there would be no increase in campus population or change in how the campus operates. To minimize impacts related to solid waste disposal capacity during both project construction and operation, the project would comply with City General Plan policies and actions to the extent feasible. The proposed project would be served by the landfills with sufficient permitted capacity to accommodate the proposed project's solid waste disposal needs. Therefore, solid waste impacts from construction and operations of the proposed project would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.15 WILDFIRE

This section describes the existing wildfire risk on the project site and adjacent areas, the applicable regulations governing wildfire, and the potential for implementation of the project to exacerbate wildfire risk and associated hazards.

No comments relating to wildfire risks were raised during the scoping period. See Appendix A for all NOP comments received.

3.15.1 Regulatory Setting

FEDERAL

There are no federal regulations related to wildfire that apply to the project.

STATE

California Building Code

The California Building Standards Code (CBC) (California Code of Regulations, Title 24) provides minimum standards for the design and construction of buildings and structures in California. Minimum standards are organized under Part 1 to 12 and include code standards for buildings, mechanical, plumbing, energy, historical buildings, fire safety, and green building standards. State law mandates that local government enforce these regulations, or local ordinances, with qualified reasonably necessary and generally more restrictive building standards than provided in the CBC. Title 24 is applicable to all occupancies, or structures, throughout California, whether the local government takes an affirmative action to adopt Title 24.

California Fire Code

The California Fire Code (CFC) provides standards related to construction, maintenance, and use of buildings. Topics addressed in the CFC include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazard safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The CFC contains specialized technical regulations related to fire and life safety. It is located in Part 9 of Title 24 of the CCR.

CFC Chapter 49: Requirements for Wildland-Urban Interface Areas

CFC Chapter 49 provides minimum standards to increase building resistance to the intrusion of flame or embers projected by a vegetation fire and identifies performance and prescriptive requirements. Section 4906 provides hazardous vegetation fuel management requirements for buildings and structures located on land in a Very High Fire Hazard Severity Zone (FHSZ) in Local Responsibility Areas (LRAs) and land in a Moderate, High, or Very High FHSZs in State Responsibility Areas (SRAs). In addition, Section 4907 requires the local entity with jurisdictional authority over areas designated Very High FHSZ in LRAs to maintain defensible space near buildings and structures.

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CAL FIRE) is dedicated to the fire protection and stewardship of over 31 million acres of the state’s privately-owned wildlands. In addition, CAL FIRE provides emergency services in 36 of the state’s 58 counties via contracts with local governments. PRC Section 4291 gives CAL FIRE the authority to enforce 100 feet of defensible space around all buildings and structures on non-federal SRA lands, or non-federal forest-covered lands, brush-covered lands, grass-covered lands, or any land that is covered with flammable material. PRC Sections 4790–4799.04 provide the regulatory authority for CAL FIRE to administer the California Forest Improvement Program.

The PRC, beginning with Section 4427, includes fire safety statutes that restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment with internal combustion engines; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire suppression equipment that must be provided on site for various types of work in fire-prone areas. These requirements would apply to activities carried out in implementing the proposed project.

2019 Strategic Plan for California

The *2019 Strategic Plan* prepared by CAL FIRE and California Natural Resources Agency lays out central goals for reducing and preventing the impacts of fire in the state (CAL FIRE 2019). The goals are meant to establish, through local, state, federal, and private partnerships, a natural environment that is more resilient and human-made assets that are more resistant to the occurrence and effects of wildland fire. The goals of the *2019 Strategic Plan* include the following:

- improve core capabilities;
- enhance internal operations;
- ensure health and safety; and
- build an engaged, motivated, and innovative workforce.

In addition to the *2019 Strategic Plan,* individual CAL FIRE Units develop Fire Plans, which are major strategic documents that establish a set of tools for each CAL FIRE Unit for its local area. Updated yearly, Unit Fire Plans identify wildfire protection areas, initial attack success, assets and infrastructure at risk, pre-fire management strategies, and accountability within their unit's geographical boundaries. The Unit Fire Plan identifies strategic areas for pre-fire planning and fuel treatment as defined by the people who live and work locally. The plans include contributions from local collaborators and stakeholders and are aligned with other plans for the area.

Board of Forestry and Fire Protection

The Board of Forestry and Fire Prevention (Board) is a Governor-appointed body within CAL FIRE. It is responsible for developing the general forest policy of the state, determining the guidance policies of CAL FIRE, and representing the state's interest in federal forestland in California. Together, the Board and CAL FIRE work to carry out the California Legislature's mandate to protect and enhance the state's unique forest and wildland resources.

The Board is charged with developing policy to protect all wildland forest resources in California that are not under federal jurisdiction. These resources include major commercial and non-commercial stands of timber, areas reserved for parks and recreation, woodlands, brush-range watersheds, and all private and state lands that contribute to California's forest resource wealth. In addition, the Board is responsible for identifying Very High FHSZs in SRAs and LRAs. Local agencies are required to designate, by ordinance, Very High FHSZ, require landowners to reduce fire hazards adjacent to occupied buildings within these zones, and maintain defensible space (Government Code Sections 51179 and 51182). The intent of identifying areas with very high fire hazards is to allow CAL FIRE and local agencies to develop and implement measures that would reduce the loss of life and property from uncontrolled wildfires (Government Code Section 51176).

Emergency Response and Evacuation Plans

The State of California Emergency Plan was adopted on October 1, 2017, and describes how state government mobilizes and responds to emergencies and disasters in coordination with partners in all levels of government, the private sector, non-profits, and community-based organizations. The Plan also works in conjunction with the California Emergency Services Act and outlines a robust program of emergency preparedness, response, recovery, and mitigation for all hazards, both natural and human caused. All local governments with a certified disaster council are required to develop their own emergency operations plan (EOP) for their jurisdiction that meet state and federal requirements. Local EOPs contain specific emergency planning considerations, such as evacuation and transportation, sheltering, hazard specific planning, regional planning, public-private partnerships, and recovery planning. Because the treatable landscape is located dispersed within the state, it spans the jurisdiction of several local and regional EOPs.

LOCAL

Cal Maritime is part of the CSU, which is a statutorily- and legislatively-created and constitutionally authorized entity of the State of California, and therefore the project site is owned by the CSU. As explained in Chapter 3 of this ~~Draft~~ EIR, in the "California State University Autonomy" section, as a state agency, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, this EIR does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes.

Solano County

General Plan

The Solano County General Plan (General Plan) was adopted in 2008 and describes in Chapter 5, "Public Health and Safety," the County's policies and procedures to mitigate and respond to wildfires and evacuation routes in the county. The goals of the "Public Health and Safety" chapter address the County's desire to protect its residents, their property, and the environment from natural and human-caused hazards. They address the strategies of maintaining distance between hazards and humans, improving air quality on a regional scale, and promoting development that works with nature.

The "Disaster Preparedness" section of the "Public Health and Safety" chapter of the County General Plan refers to coordinated efforts to respond to both natural and human-caused disasters. The Solano County Office of Emergency Services (OES) prepares disaster plans for the county and coordinates required emergency services and facilities from all agencies and levels of government to meet emergency and disaster needs. Although this section and the "Public Facilities and Services" chapter overlap in some respects, the policies contained in the "Disaster Preparedness" section are primarily related to disaster situations, whereas those in the "Public Facilities and Services" chapter address ongoing facility needs and service standards.

Office of Emergency Services

OES oversees the development, establishment, and maintenance of programs and procedures to protect the lives and property of county residents from the effects of natural or human-caused disasters. Those disasters to which the County is subject and for which the office must train and properly respond include major fires. OES manages and coordinates disaster response, terrorism response, search and rescue missions, flood response, and other major emergencies within its sphere of influence. It works with City and County departments with fire suppression activities, evacuations, hazardous materials incidents, disaster exercises, planning, and use of resources through the Safety and Environmental Management Systems/Incident Command System. The County has responsibility to plan and designate evacuation and aid routes. The County identifies and maintains a comprehensive circulation system that is effective in allowing emergency access to and from all parts of the county and which provides alternative routes during unexpected events such as flooding, fires, or hazardous materials accidents that require evacuation. The County also maintains and updates countywide emergency operations and response plans including information on evacuation routes, inter-agency cooperation, and other specific recommendations and strategies for emergency response. Coordinate with emergency service providers (e.g., hospitals, fire departments, police, emergency shelters), schools and radio stations to provide a network that facilitates a timely and efficient disaster response. Include specific preparation for populations requiring special assistance.

Community Wildfire Preparedness Plan

Solano County released the Solano County Community Wildfire Protection Plan (CWPP) for public review from August 28 through September 18, 2023; the CWPP encompasses the project area. The CWPP represents a comprehensive effort to enhance the safety and resilience of local communities against the threat of wildfires.

California State University Programs

Maritime Academy Physical Master Plan

The Cal Maritime Physical Master Plan is a major comprehensive strategic planning effort that is intended to fulfill the campus vision, mission, and core values over the near- and long-terms. Within the Physical Master Plan, the Hazards and Hazardous Materials section provides an overview of potential hazards, including wildfires, on and near the campus and assesses potential impacts to public health and safety and the environment that could result from buildout of the proposed Master Plan. Mitigation measures to reduce significant impacts are identified, where appropriate. This section addresses wildland fire hazards and the campus emergency response plan procedures.

The Cal Maritime Emergency Management Plan was updated in 2013 and includes emergency response procedures for natural and manmade disasters in the campus vicinity. The plan does not designate specific evacuation routes from the campus, and instead assigns police services and/or the Emergency Operations Center (EOC) the task of determining and coordinating evacuation routes. Currently, emergency access to the campus primarily relies on Maritime Academy Drive, which defines the eastern boundary of the campus. Restricted emergency access is available via Ruby Lane, which leads to the northwestern portion of the campus.

Fire Prevention Plan

The California General Industry Safety Order requires that all employers in California prepare and implement a Fire Prevention Plan. The Fire Prevention Plan specifies areas of potential hazard, persons responsible for maintenance of fire prevention equipment or systems, fire prevention housekeeping procedures, and fire hazard training procedures.

Emergency Management Plan

The purpose of the Emergency Management Plan is to provide a response system for faculty, staff, and cadets in the case of major disasters affecting the campus, the TSGB, and surrounding areas. Various federal and state laws require the campus to have an emergency plan. This plan is intended to protect lives and property and to maintain an environment suitable for the orderly conduct of education. Cal Maritime tests emergency response and evacuations procedures at least once a year. All personnel designated to carry out specific responsibilities are expected to know and understand the policies and procedures outlined in the Emergency Management Plan. The response to any major disaster is conducted within the framework of the plan.

Emergency Action Plan

The California General Industry Safety Order requires that all employers in California prepare and implement an emergency action plan. The Emergency Action Plan designates employee responsibilities, evacuation procedures and routes, alarm systems, and training procedures. The Emergency Management Plan, discussed below, fulfills this requirement.

3.15.2 Environmental Setting

WILDFIRE REGIME

Wildfire behavior is a product of several variables, primarily weather, vegetation, topography, and human influences, that intermix to produce local and regional fire regimes that affect how, when, and where fires burn. The fire regime in any area is defined by several factors, including fire frequency, fire intensity, fire severity, and area burned. Areas at risk for extreme wildfires are designated by CAL FIRE as those lands with dense vegetation at risk of severe burning. CAL FIRE has mapped Very High FHSZs in Solano County to help responsible local agencies, such as the Vallejo Fire Department, identify measures to reduce the potential for loss of life, property, and resources from wildland fire. The highest current areas at risk for fires are found in western Solano County, in the foothills and mountainous watershed areas, and in grasslands located throughout the county. The proposed project is in an area where wildland fire hazard is ranked moderate. The proposed project is not within an SRA and is not mapped within or adjacent to a High or Very High FHSZ. The campus is however within the wildland urban interface (WUI)—the zone of transition between unoccupied land and human development. The WUI is considered an area where risks of wildfires are a potential concern. There are areas of dense trees and vegetation on many of the steep hillsides on campus. An approximately 0.6-acre area of steep hillside in the southeastern corner of the project site contains grassland, as well as some native shrub species, including California sagebrush and toyon. This hillside is disturbed and contains transmission towers, a staircase, roads, and footpaths. It continues east of the project site and ends abruptly where it is bounded by I-80 and the Carquinez Bridge toll plaza. The closest Very High FHSZ is located approximately 8 miles south of the project site in the hills surrounding the San Pablo and Briones Reservoirs (CAL FIRE 2023). Moderate and High FHSZs extend northward from this area to the Carquinez Strait; the crossing represents a fire break of approximately 0.6 miles distance from the project site. It is possible that under extreme fire weather conditions, embers from a fire on the south side of the Carquinez Strait could travel to the campus. Vegetation surrounding the campus has caught fire several times in recent years, in 2003, 2009, and in a larger event in 2019. The Glen Cove Fire in October of 2019 started as a brushfire east of the Carquinez Bridge and swept east to west, ultimately burning about 140 acres and resulting in evacuation of the Cal Maritime campus. Several vehicles, a maintenance shed, and storage containers were lost in the fire, as well as some equipment and trees along the hillside at the east edge of campus.

Wildfire Risk Reduction

With the expansion of development in the WUI, generally, and the threat that large, severe, intense wildfires pose; fire suppression remains one of the primary management techniques for more than 95 percent of wildfires in the United States (Schoennagel et al. 2017). Contemporary fire management practices include fuel management activities that are intended to reduce the intensity and severity of wildfires. Reduced intensity creates an environment where suppression efforts are more likely to be effective and can be conducted more safely in areas where wildfires are unwanted or threaten communities. Modern wildfire management practices may also encompass actions targeted at reducing human wildfire ignition through education programs.

Vegetation Management

Vegetation treatment is the primary approach to wildfire management because it can reduce the intensity and severity of wildfire, slowing fire movement and creating favorable conditions for firefighting to protect targeted, high-value resources (Carey and Schuman 2003; Prichard et al. 2010). Fuel reduction has proven successful where it is targeted at protecting specific resources in limited geographic areas, such as in areas of extreme fire danger or in the WUI (Loudermilk et al. 2014). Areas that are treated often exhibit different fire progression characteristics and reduced fire severity from areas that are not treated (Lydersen et al. 2017; Johnson and Kennedy 2019). Reduction in certain types of flammable vegetation (for example, removal of invasive plant species), or creation of fire breaks where vegetation is removed entirely, can assist in slowing or halting progression of wildland fires.

Land Use

Another important consideration for wildfire risk reduction is land use decision-making during development. The authority to approve land uses rests with local agencies, rather than with the state. The risk of damage, injury, and loss of life can increase by placing structures and occupied land uses in harm's way, when development is approved by cities or counties and implemented by property owners within fire hazard areas. While millions of California residents currently live in very high FHSZs, and adjacent to these areas within the WUI, making development decisions to avoid increasing residential uses in these hazard zones has been an important and growing topic for California land use planning.

3.15.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The analysis of environmental impacts on wildfire risk focuses on the potential for new or increased risks associated with wildfire, including impairment of an emergency response plan, exposing people or structures to uncontrolled fire, and postfire risks such as slope instability or landslides.

THRESHOLDS OF SIGNIFICANCE

Thresholds of significance are based on Appendix G of the State CEQA Guidelines. A treatment implemented under the proposed project would result in a significant impact related to wildfire if it would:

- impair an adopted emergency response plan or emergency evacuation plan;
- 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;
- 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; or
- 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.

ISSUES NOT DISCUSSED FURTHER

All the issues identified in the thresholds are evaluated below.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.15-1: Expose People or Structures to the Risk of Loss, Injury, or Death Directly from Wildland Fires or Post-Fire Flooding or Landslides

The project site is not located in an area of high wildland fire risk, and the project would not involve development that would exacerbate wildland fire risk; require the installation or maintenance of infrastructure that would exacerbate wildfire risk; cause a significant risk of loss, injury, or death involving wildland fires; or expose people or structures to significant post-fire risks, including postfire flooding or landslides. Consequently, the risk of exposure to wildland fire hazards is low. This impact would be **less than significant**.

The project site is not located in a State Responsibility Area or on lands classified as having high fire hazard severity or very high fire hazard severity (CAL FIRE 2023). The site is developed, relatively flat to gently sloping in a southwesterly direction. It is primarily composed of open water habitat in San Pablo Bay and includes developed areas, riprap shoreline, landscaping, and a vegetated hillside (see Figure 3.3-1 in Section 3.3, "Biological Resources"). The project site contains approximately 15.8 acres of open water habitat in San Pablo Bay; approximately 3.4 acres of developed areas, including developed areas on land (e.g., paved roads, parking areas, walkways, buildings) and in the bay (e.g., boathouse, piers, the TSGB, boat docks); approximately 1.3 acres of riprap shoreline; and 0.9 acre of landscaped area (e.g., lawns, ornamental shrubs, and ornamental trees). As discussed above, an approximately 0.6-acre area of steep hillside in the southeastern corner of the project site contains grassland, as well as some native shrub species, including California sagebrush and toyon. This hillside is disturbed and contains transmission towers, a staircase, roads, and footpaths. It continues east of the project site and ends abruptly where it is bounded by I-80 and the Carquinez Bridge toll plaza. The closest Very High Fire Hazard Severity Zone is located approximately 8 miles south of the project site in the hills surrounding the San Pablo and Briones Reservoirs (CAL FIRE 2023). Moderate and High FHSZs extend northward from this area to the Carquinez Strait; the crossing represents a fire break of approximately 0.6 miles distance from the project site. It is possible that under extreme fire weather conditions, embers from a fire on the south side of the Carquinez Strait could travel to the campus.

Although the project site does not have characteristics that make it uniquely susceptible to wildland fire, the project supports students, faculty, staff, and visitors who could be exposed to some level of risk associated with wildland fire (e.g., grass fires in adjacent or nearby developed or undeveloped areas or degraded air quality from regional wildfires).

Phase One

Phase One of the project would focus on Cal Maritime's readiness for the arrival of the NSMV. During Phase One, preparations for the arrival of the NSMV would be made, followed by the arrival, docking, and operation of the ship. To prepare for the arrival of the NSMV, the current main pier would be demolished, and a new longer, wider pier would be constructed to accommodate the size of the new NSMV, which is 25 feet longer than the current TSGB. Dredging activities would also be carried out in the boat basin to accommodate the facilities under this phase. The existing trestle would be extended to a new length of 220 feet (an increase of approximately 50 feet in length). Once construction activities of the pier are underway, it is possible the existing trestle may need to be fully replaced. Other activities, include the installation of new floating and training docks at the boat basin, expansion and upgrading of the Marine Yard, utility upgrades, and maintenance dredging of the existing boat basin and new dredging in the expanded boat basin. During construction, the TSGB would be relocated to the Suisun Bay Reserve Fleet; however, this relocation would not result in any changes or impacts on land use, as no physical improvements would be required for this element of the project.

Utility upgrades would be necessary to meet the requirements of in-water enhancements associated with the main pier and the NSMV, as well as planned shoreline buildings. Utility upgrades would be necessary for shore power and water systems supporting the vessel. Medium voltage and other support infrastructure are accounted for in the boat basin expansion. Utility upgrades that would occur during Phase One include relocation of the existing substation and transformer facilities; relocation of some electrical utility lines; potable water line expansion to the main pier and associated expansion of existing fire hydrant and back-check valves; installation of a shore power transformer, switch gear, and cable management system; relocation, rerouting, and potential expansion or removal of the existing dock boiler, gas supply, and metering; and sitewide lighting upgrades. Utility infrastructure (e.g., electrical, natural gas) are planned to be undergrounded and therefore would not exacerbate fire risks. Existing aboveground infrastructure that would be replaced as a part of the project would also be undergrounded.

Implementation of the project would maintain existing land uses, including academic and support buildings, housing, recreation facilities, surface parking, and open space. As development of the project proceeds, the Division of the State Architect and the Office of the State Fire Marshal would perform an access compliance review on new and upgraded facilities and a fire and life safety review, respectively, before approval of individual building design.

As evaluated in Section 3.13, "Transportation," project development would be designed, constructed, and maintained to comply with applicable local, regional, state, and federal requirements related to emergency access and evacuation, and as discussed in Section 3.8, "Hazards," in Impact 3.8-3, the project would not impair implementation of or physically interfere with an adopted emergency response plan. All development would be located in already-developed areas and would therefore avoid areas with steep slopes with difficult firefighting terrain or the potential for postfire hazards, such as flooding and landslides. Lastly, while it is possible for embers from grassland or other fires to be carried great distances by wind, as evidenced by the Glen Cove fire, the Carquinez Strait and the I-80 corridor provide some natural and constructed barriers to wildfire spread, both from and into the project site.

Phase Two

Phase Two of the project would focus on activities that are not critical to support the arrival of the NSMV but that are important for Cal Maritime's educational mission and expansion of cadet instruction, including expansion of the underwater basin to create Boat Basin 2 and a new pier through development of a new breakwater and installation of additional slips and berths for Cal Maritime's boat fleet and other vessels currently located off-site and/or planned for future acquisition. Phase Two would also include rehabilitating the boathouse, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning through shoreline enhancements. The breakwater of Boat Basin 2 would be approximately 18,000 square feet, extending approximately 450 feet offshore. A total of 10,800 square feet of additional floating slips/berthing area (approximately 26 slips/berthing positions) would be provided. Following construction, Boat Basin 2 would encompass approximately 200,000 square feet, or 4.6 acres. Shoreline enhancements between the boathouse and new pier, including improvements along the existing pedestrian path, would provide recreational opportunities.

Phase Two would increase water, wastewater, and electrical services to planned shoreline buildings. Implementation of project components under Phase Two would maintain existing land uses, including academic and support buildings, housing, recreation facilities, surface parking, and open space. As development of the project proceeds, the Division of the State Architect and the Office of the State Fire Marshal would perform an access compliance review on new and upgraded facilities and a fire and life safety review, respectively, before approval of individual building design.

As evaluated in Section 3.13, "Transportation," project development would be designed, constructed, and maintained to comply with applicable local, regional, state, and federal requirements related to emergency access and evacuation, and as discussed in Section 3.8, "Hazards," in Impact 3.8-3, the project would not impair implementation of or physically interfere with an adopted emergency response plan. All development would be in already-developed areas and would therefore avoid areas with steep slopes with difficult firefighting terrain or the potential for postfire hazards, such as flooding and landslides. Again, while it is possible for embers from grassland or other fires to be carried great distances by wind, as evidenced by the Glen Cove fire, the Carquinez Strait and the I-80 corridor provide natural and constructed barriers to wildfire spread, both from and into the project site.

<u>Phase Three</u>

Phase Three of the proposed project would focus on objectives to redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. This phase would also include improvements to the level of resilience to climate and storm-related stresses, as well as campus-coastline experiences and open spaces. A marine hydrokinetic barge (MHK) barge and linking trestle are also included in Phase Three. The Marine Programs Multi-Use Building would replace the existing obsolete trailers and Marine Programs and Naval Science Modulars that are currently adjacent to the boat basin. The building area would be approximately 20,300 square feet, and the building would be two stories in height. Classrooms and outdoor learning spaces would be added to support the Marine Programs Multi-Use Building. For Phase Three, allowances for increased water, wastewater, and electrical services to planned shoreline buildings would also be anticipated.

As with Phase One, Phase Three would increase water, wastewater, and electrical services to planned shoreline buildings. Implementation of project components under Phase Three would maintain existing land uses, including academic and support buildings, housing, recreation facilities, surface parking, and open space. As development of the project proceeds, the Division of the State Architect and the State Fire Marshal would perform an access compliance review on new and upgraded facilities and a fire and life safety review, respectively, before approval of individual building design.

As evaluated in Section 3.13, "Transportation," project development would be designed, constructed, and maintained to comply with applicable local, regional, state, and federal requirements related to emergency access and evacuation, and as discussed in Section 3.8, "Hazards," in Impact 3.8-3, the project would not impair implementation of or physically interfere with an adopted emergency response plan. All development would be in already-developed areas and would therefore avoid areas with steep slopes with difficult firefighting terrain or the potential for postfire hazards, such as flooding and landslides.

<u>Summary</u>

The nature of the project is to implement marine and waterfront improvements to ready the Cal Maritime campus to receive the NSMV and construct other enhancements that support the Cal Maritime mission. Implementing the project would not exacerbate wildfire risk; require the installation or maintenance of infrastructure that would exacerbate wildfire risk; cause a significant risk of loss, injury, or death involving wildland fires; or expose people or structures to significant postfire risks. Therefore, the impact related to wildland fire hazards would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.15-2: Substantially Impair an Adopted Emergency Response Plan or Evacuation Plan

The project would be integrated with local and regional emergency response systems, and the Cal Maritime Emergency Management Plan would be updated to reflect changes from implementation of the project. The project would therefore not conflict with or physically interfere with an adopted emergency response plan. This impact would be **less than significant**.

The Cal Maritime Emergency Management Plan provides a management tool to facilitate timely, effective, and coordinated emergency response and recovery activities that respond to a wide range of emergency events, allowing for adaptation as needed to address the unique needs of the specific emergency incident. It is designed to integrate campus emergency resources and procedures with those of response partner agencies (e.g., CAL FIRE, local police) while also providing for initial response from Cal Maritime in the event of hazard incidents. It is also consistent with the Federal Emergency Management Agency and California Office of Emergency Services mandates.

The Emergency Management Plan was updated in 2013, and the contents provide a framework and procedural guidance for all-hazard emergency management efforts, including evacuation. The plan does not prescribe evacuation routes from the campus and instead assigns police services and/or the Emergency Operations Center the task of determining and coordinating evacuation routes. Currently, emergency access to the campus primarily relies on Maritime Academy Drive, which defines the eastern boundary of the campus.

The Emergency Management Plan will include a mechanism for regular updates to reflect changes at the campus or vicinity, which could impair response to an emergency as changes at the campus because of the project could invalidate portions of the existing Emergency Response Plan. For example, utility shut-off locations and electrical substations may change because of new construction at the campus. New academic programs at Cal Maritime could potentially include the use of hazardous materials or require additional emergency response procedures not currently incorporated into the Emergency Management Plan. Construction activities could potentially require temporary closure of roadways or traffic lanes to accommodate construction materials and equipment and for work within roadways (e.g., utility work and road work). Because there are no designated evacuation routes from campus and police services and/or the EOC are tasked with determining and coordinating evacuation routes, evacuation routes would be designated to avoid areas of temporary road closures in the case of an emergency.

Construction activities related to the project could potentially require temporary closure of roadways or traffic lanes to accommodate construction materials and equipment and for work within roadways (e.g., utility work and road work). Because there are no designated evacuation routes from campus and police services and/or the EOC are tasked with determining and coordinating evacuation routes, evacuation routes would be designated to avoid areas of temporary road closures in the case of an emergency.

Phase One

Phase One of the project would focus on Cal Maritime's readiness for the arrival of the NSMV. During Phase One, preparations for the arrival of the NSMV would be made, followed by the arrival, docking, and operation of the ship. To prepare for the arrival of the NSMV, the current main pier would be demolished, and a new longer, wider pier would be constructed to accommodate the size of the new NSMV, which is 25 feet longer than the TSGB. The existing trestle would be extended, and would at a minimum require structural upgrades, and potentially replacement, if the existing trestle is found to be defective. Dredging activities would also be carried out in the boat basin to accommodate the facilities under this phase. Other activities, such as the installation of new floating and training docks at the boat basin, expansion and upgrading of the Marine Yard, utility upgrades, and existing boat basin would also be a part of Phase One. As noted above, mooring of the TSGB at a temporary berth would not require any landside facility or infrastructure improvements.

Cal Maritime would update the existing Emergency Management Plan to reflect implementation of the project. Campus emergency response would be integrated into the emergency response and procedures of other local agencies and would be documented in the Emergency Management Plan. Therefore, development of upgraded and new Cal Maritime campus facilities would not affect the emergency management framework or procedural guidance or otherwise affect plans for campus evacuation.

Construction activities to implement Phase One of the Waterfront Master Plan could potentially require temporary closure of roadways or traffic lanes to accommodate construction access. As discussed in Section 3.13, "Transportation," haul trips and equipment deliveries often use large trucks, which may temporarily increase risk of hazards on roadways in the vicinity of the project site during delivery and removal. Additionally, if project-related haul trips and the operation of heavy vehicles were to occur along roadways with constrained rights-of-way, implementation of the project could potentially result in an increase in roadway hazards related to incompatible uses. Although project construction would be performed on CSU property, the project contractor would be required to prepare and implement a TCP to address anticipated impacts on public rights-of-way as identified in the City's Traffic Control Plan Requirements (City of Vallejo 2010). The TCP would be submitted to the City of Vallejo Public Works Department for approval before construction of the project and would demonstrate appropriate traffic handling during construction activities for all work that could affect the traveling public (e.g., the transport of equipment and materials to the project site). Because there are no designated evacuation routes in the project area, in the event of an emergency, evacuation routes would be designated by campus and police services and/or the Emergency Operations Center to avoid areas of temporary road closures as identified in the construction traffic management plan. In addition, Morrow Cove Drive is not identified as an evacuation route in the Cal Maritime Physical Master Plan. Therefore, temporary closure of roadways would not impair or otherwise affect evacuation procedures on the project site or campus. Solano County General Plan identifies evacuation procedures and routes, including State Route 29 (SR 29)/Sonoma Boulevard and I-80. These major roadways can serve as countywide evacuation routes, and while they are not within the project boundary, they could be temporarily impacted by construction traffic traveling to and from the site. However, these impacts would be minimal and temporary, and would not affect traffic along these routes appreciably beyond the normal levels of travel that are experienced around campus; therefore, they would not be substantially impacted by the project.

Phase Two

Phase Two of the project focuses on activities that are not critical to support the arrival of the NSMV but that are important for Cal Maritime's educational mission and expansion of cadet instruction, including expansion of the boat basin to create Boat Basin 2 and a new pier through development of a new breakwater and installation of additional slips and berths for Cal Maritime's boat fleet and other vessels currently located off-site and/or planned for future acquisition. Phase Two would also include rehabilitating the boathouse, linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning through shoreline enhancements. The breakwater of Boat Basin 2 would be approximately 18,000 square feet, extending approximately 450 feet offshore. A total of 10,800 square feet of additional floating slips/berthing area (approximately 26 slips/berthing positions) would be provided. Following construction, Boat Basin 2 would encompass approximately 200,000 square feet, or 4.6 acres. Shoreline enhancements between the boathouse and new pier, including improvements along the existing pedestrian path, would provide recreational opportunities.

Phase Two would have minimal impacts related to interference with an adopted emergency response plan for the same reasons identified for Phase One, above. The existing Emergency Management Plan would be updated to reflect conditions following project implementation and would be integrated with other local and state agency emergency response. A construction traffic management plan developed for Phase Two would identify construction and public (if applicable) access points, procedures for notification of road closures, and a plan to deliver construction materials to work areas.

Phase Three

Phase Three of the proposed project would focus on objectives to redevelop the existing Marine Yard, increase hands-on instructional opportunities, link campus buildings to waterfront open space, enhance public access, and safeguard waterfront resilience and ecological functioning. This phase would also include improvements to the level of resilience to climate and storm-related stresses, as well as campus-coastline experiences and open spaces. An MHK barge and linking trestle are also included in Phase Three. The Marine Programs Multi-Use Building would replace the existing obsolete trailers and Marine Programs and Naval Science Modulars that are currently adjacent to the boat basin. The building area would be approximately 20,300 square feet, and the building would be two stories in height. Classrooms and outdoor learning spaces would be added to support the Marine Programs Multi-Use Building.

Phase Three would have minimal impacts related to interference with an adopted emergency response plan for the same reasons identified for Phase One, above. The existing Emergency Management Plan would be updated to reflect conditions following project implementation and would be integrated with other local and state agency emergency response. A construction traffic management plan developed for Phase Three would identify construction and public (if applicable) access points, procedures for notification of road closures, and a plan to deliver construction materials to work areas.

Summary

The project would not impair implementation of, or physically interfere with an adopted emergency response plan because it would not affect the emergency management framework or procedural guidance or otherwise affect plans for campus evacuation. Cal Maritime would update the Emergency Management Plan to reflect implementation of the project and campus emergency response would be integrated into the emergency response and procedures of other local agencies. In addition, a construction traffic management plan would be prepared before each phase of project implementation to minimize traffic impacts on affected roadways at and near the work site during demolition and construction. Each plan would identify construction and public (if applicable) access points, procedures for notification of road closures, a plan to deliver construction materials to work areas, and emergency personnel access routes during road closures. Consequently, the project would not interfere with an adopted emergency response plan. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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4 CUMULATIVE IMPACTS

4.1 INTRODUCTION TO THE CUMULATIVE ANALYSIS

This EIR provides an analysis of cumulative impacts of the proposed California State Maritime Academy (Cal Maritime) Waterfront Master Plan Project (project) taken together with other past, present, and probable future projects producing related impacts, as required by Section 15130 of the California Environmental Quality Act Guidelines (State CEQA Guidelines). The goal of such an exercise is twofold: first, to determine whether the overall long-term impacts of all such projects would be cumulatively significant; and second, to determine whether the incremental contribution to any such cumulatively significant impacts by the project would be cumulatively considerable, and thus significant. (See State CEQA Guidelines Sections 15130[a]–[b], Section 15355[b], Section 15064[h], and Section 15065[c]; and *Communities for a Better Environment v. California Resources Agency* [2002] 103 Cal. App. 4th 98, 120.) In other words, the required analysis intends first to create a broad context in which to assess cumulative impacts, viewed on a geographic scale beyond the project site itself, and then to determine whether the project's incremental contribution to any significant cumulative impacts from all projects is itself significant (i.e., cumulatively considerable).

Cumulative impacts are defined in State CEQA Guidelines Section 15355 as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." A cumulative impact occurs from "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (State CEQA Guidelines Section 15355[b]).

Consistent with State CEQA Guidelines Section 15130, the discussion of cumulative impacts in this EIR focuses on significant and potentially significant cumulative impacts. Section 15130(b) of the State CEQA Guidelines provides, in part, the following:

> [t]he discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

A proposed project is considered to have a significant cumulative effect if:

- the cumulative effects of past, present, and reasonably foreseeable future projects without the project are not significant and the project's considerable contribution is sufficient in combination with the other projects such that the cumulative effects would be significant; or
- the cumulative effects of past, present, and reasonably foreseeable future projects without the project are already significant and the project makes a considerable contribution to the effect.

The term "measurably" is subject to interpretation. The standards used herein to determine measurability are that the impact must be noticeable to a reasonable person or must exceed an established threshold of significance (defined throughout the resource sections in Chapter 3 of this EIR).

4.2 CUMULATIVE IMPACT ANALYSIS METHODOLOGY

According to Section 15130(b) of the State CEQA Guidelines, a cumulative impact analysis may be conducted using one of two methods: the list method, which includes "a list of past, present, and probable activities producing related or cumulative impacts"; or the plan method, which uses "a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact." To evaluate the cumulative impacts of the project, the analysis in this EIR uses both the list and plan approaches, as appropriate, for the cumulative topic being evaluated. The cumulative analysis for each topic indicates the geographic area and analytical approach used in the analysis.

The process of analyzing cumulative impacts first involves understanding the context of the cumulative conditions for each resource area. This involves determining the area of effect, or geographic scope, within which past, present, and reasonably foreseeable future projects, along with the project, have the potential to contribute to cumulative impacts. Generally, the geographic scope of the area affected by cumulative effects varies according to the issue area. The study area for each technical issue is described under the respective resource headings. An analysis of the significance of the cumulative effect from past, present, and reasonably foreseeable projects is conducted, which may be a qualitative analysis, or a deduction may be made based on relevant environmental documentation and studies. In the event a cumulative effect is identified, the project's incremental contribution to that cumulative effect must be analyzed. The project's individual impacts are assessed in the context of the cumulative impacts from past, present, and reasonably foreseeable future projects to determine if the project impacts are "cumulatively considerable" based on the its magnitude of contribution. If it is determined that the project's contribution to the cumulative effect is considerable, a cumulatively significant impact is identified, and mitigation is imposed.

4.2.1 Cumulative Projects List

Cal Maritime has identified 25 cumulative projects for this analysis. The projects identified in the project's cumulative context have had applications submitted or have been approved, are under construction, or have recently been completed. The cumulative projects identified are summarized in Table 4-1 and shown on Figure 4-1.

Table 4-1 Summary of Cumulative Projects

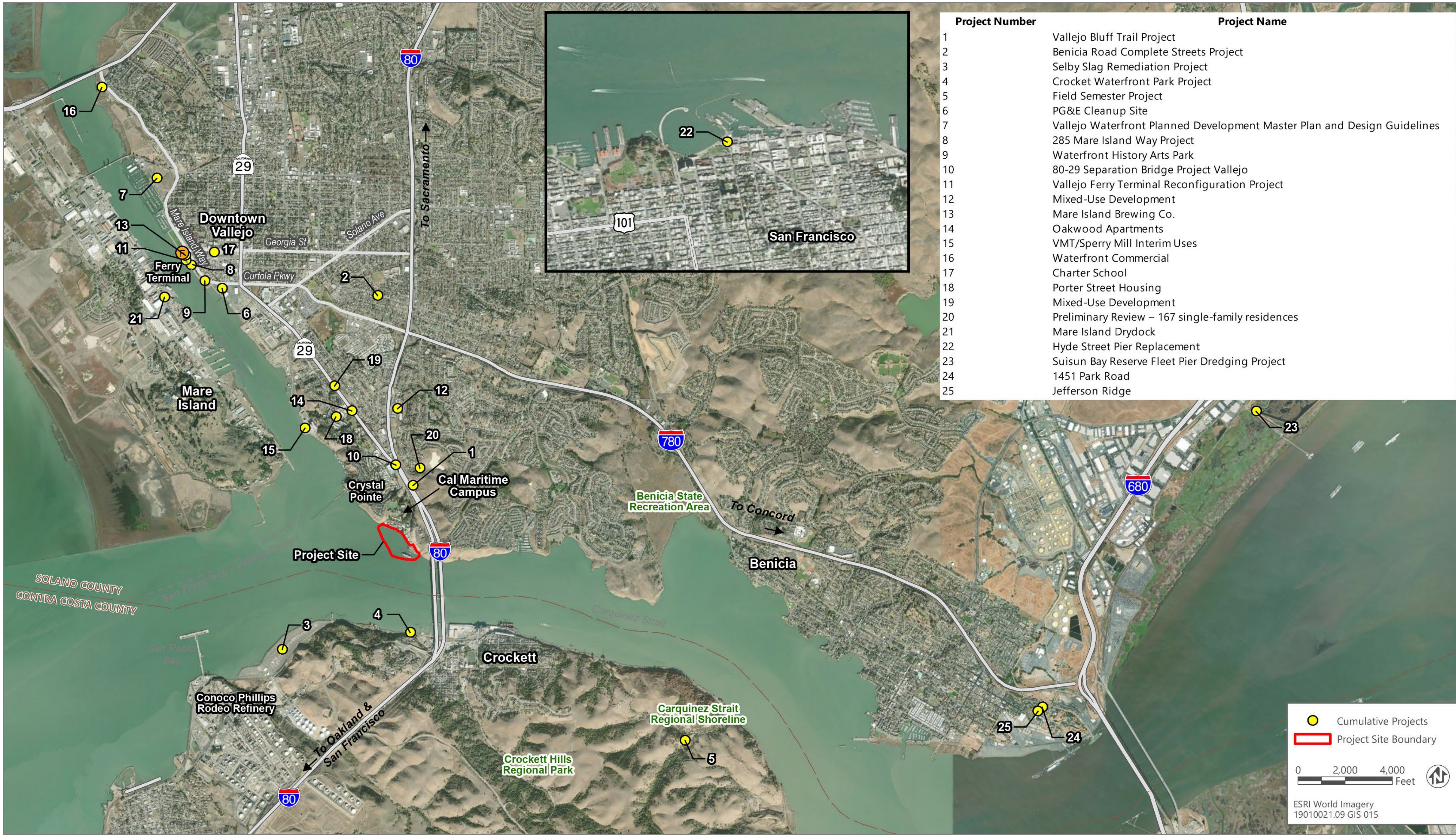
ID No.	Project Name	Location	Description	Approval Type	Status
Solano County					
1	Vallejo Bluff Trail Project	See Description	The proposed 1.97-mile trail would connect three existing trails (San Francisco Bay Trail, Bay Area Ridge Trail, California Delta Trail) near the north landing of the Carquinez Bridge. On the west side of I-80, the trail would run along Sonoma Boulevard south of Sequoia Avenue and pass directly under I-80. On the east side of I-80, the trail would run southward, near I-80, from the intersection of Sequoia Avenue and Lincoln Road East to a point near Carquinez Strait, where it would run east to connect with an existing trail.	Design Review, Caltrans Development Permit	Awaiting State Funding to Begin Phase 1 of 2
2	Benicia Road Complete Streets Project	Benicia Road, from Lemon Street to Beach Street	The Benicia Road Complete Streets Project is a landscape and beautification project on and around Benicia Road. The project seeks to revitalize the major thoroughfare with improved pedestrian, cyclist, and transit facilities in a multi-modal friendly environment. Details of this robust improvement project include a road diet, ADA compliant pedestrian walkways, and all new roadway striping. The project site is on Benicia Road, west of Highway 80, between the City/County limits on Beach and Lemon Streets.	Unknown	Initial Public Outreach
Contra Costa County					
3	Selby Slag Remediation Project	Unincorporated Contra Costa County (near Rodeo, on the shore of San Pablo Bay)	The project would address the remediation of historic contamination from a metal smelter that formerly operated on the Selby Slag Site. The project is being developed through a Remedial Action Plan (RAP) prepared per section 25356.1 of the California Health and Safety Code and the National Contingency Plan (Code of Federal Regulations Title 40, Part 300).	US Army Corps of Engineers, US Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Wildlife, San Francisco Bay Regional Water Quality Control Board, San Francisco Bay Conservation and Development Commission, Bay Area Air Quality Management District, Contra Costa County	Final EIR pending certification
4	Crocket Waterfront Park Project	1909 Dowrelio Drive, Crocket	The applicant requests approval of a Land Use Permit to establish a community park with connection to the waterfront.	Land Use Permit	Under Review; expected approval in 2024

ID No.	Project Name	Location	Description	Approval Type	Status
5	Field Semester Project	1 Plaza El Hambre	The project proposes to create a live-in campus for groups of 50 high school junior and seniors to attend for a semester. The campus consists of three contiguous parcels having a combined area of approximately 14.5 acres. The campus is focused on educating students on sustainable solutions to environmental challenges, and the educational curriculum would be supplemented by first-hand experience as students participate in restoring the Bull Valley Watershed through various hydrological projects. The project proposes renovations to the historic Port Costa Schoolhouse and would include 12 tent cabins, barn, ledge house, 2 guest cabins, bathing/restroom facilities, pavilion, docks, and floating lab improvements.	General Plan Amendment; Rezoning; Preliminary/Final Development Plan	Incomplete
City of Vallejo					
6	PG&E Cleanup Site	3 Curtola Parkway	The project comprises the remediation of the former PG&E gas manufacturing plant, which operated onsite from 1905 to 1930 and was finally dismantled in 1944; approximately 230,000 cubic yards of soils is undergoing environmental cleanup (either removing and/or treating in-place) on the 26-acre site	Temporary Use Permit	In-Progress, Ongoing
7	Vallejo Waterfront Planned Development Master Plan (PDMP) and Design Guidelines	Bound by Mare Island Strait, Mare Island Causeway, Downtown Vallejo, and Solano Avenue	The PDMP would encompass approximately 92 acres along the waterfront, adjacent to downtown Vallejo; the overarching concept is to have continuous access/open space along the Mare Island Strait waterfront between the extension of Solano Avenue to the south and Mare Island Causeway to the north, where more intense urban uses are set back from the waterfront edge to create a bridge between existing downtown land uses and the waterfront. The plan area would propose mixed land uses to allow for the revitalization of downtown Vallejo; this would include commercial, hotel, residential, public park and open space, research development/light industrial, public buildings uses, and traffic/circulation improvements.	Design Review Board, Planning Commission and City Council Approval; vesting tentative tract map; unit plan; final plan maps	Under Review; Submittal of Vesting Tentative Map in 2018 for Northern Waterfront
8	285 Mare Island Way Project	285 Mare Island Way	The project involves the redevelopment of a parcel near the existing ferry terminal and construct a new two-story building that would include a high-end restaurant, cultural center, and also offer olive oil and wine tasting.	Approval of Terms of Lease	Approved
9	Waterfront History Arts Park	Independence Park region, south of ferry terminal	The project involves the development of a historic park to include native shrubs, grasses, drought tolerant trees, walking trails, xeriscape, and sculpture of a submarine	Unknown	Proposed

ID No.	Project Name	Location	Description	Approval Type	Status
10	80-29 Separation Bridge Project Vallejo	State Route 29 and Interstate I-80 interchange	The project includes the removal of a 173-foot long bridge deck at the SR 19 and I-80 interchange and will be replaced with a new strengthened bridge deck and approach slabs; new construction will increase the vertical clearance of the bridge to 18.7 feet and new drainage inlets on the I-80 upstream and downstream of the bridge; in addition, construction include a Class 1 bicycle path on the northbound side of SR 29.	Approved	Under Construction
11	Vallejo Ferry Terminal Reconfiguration Project	Vallejo Ferry Terminal, 295 Mare Island Way	The rate of siltation in the NAPA River has drastically increased due to an increased dredging frequency from once ever four years to once every 1.5 to two years. The project would relocate the float away from the basin area where the heaviest accumulation of sediment occurs, thereby reducing the need to dredge frequently and save WETA up to approximately 21 million over the next 20 years.	Unknown	Proposed
12	Mixed-Use Development	148 East Lincoln Road	The project is a mixed-use development proposing to subdivide the parcel into 24 parcels with 21 homes, a dispensary, and vacant land.	General Plan Amendment	Incomplete
13	Mare Island Brewing Co.	289 Mare Island Way	The project includes a permanent outdoor dining area for Mare Island Brewing Company	Administrative Permit	Incomplete
14	Oakwood Apartments	Sonoma Boulevard and Magazine Street	The project proposes an apartment complex with 132 multi-family residential units, a rental office, clubhouse, and cabana.	Site Development; Use Permit; Minor Exception; Landscape Review; Environmental Document	Under Construction
15	VMT/Sperry Mill Interim Uses	790-800 Derr Street	The project includes the temporary vehicle and equipment parking, maintenance, and repair of automotive heavy equipment; temporary construction storage; and minor building materials assembly	Site Development	Incomplete
16	Waterfront Commercial	913 Wilson Avenue	The project proposes a 2,020 square-foot sales office with two tiny home park model recreational vehicles on cement pads for sales offices.	Development Review; Design Review; Landscape Review; Lot Line Adjustment; Variance	Complete
17	Charter School	241 Georgia Street	The project includes a new charter school in an existing commercial building located in downtown Vallejo approximately 34,819 square feet in dimension	Major Use Permit; Structure Use Permit	Incomplete
18	Porter Street Housing	961 Porter Street	The project is a density bonus project and would add an additional 122 units to an existing apartment complex. Twenty percent of the units will be reserved as affordable units.	Development Review; Design Review; Landscape Review; Lot Line Adjustment	Complete; Approved
19	Mixed-Use Development	600 Cherry Street	The project is an SB 35/Density Bonus project and consists of a mixed-use development for a 3,000 square-foot grocery store/community space and commercial kitchen. The project would provide nine income-restricted affordable housing units.	SB 35 Ministerial Review; Development Review; Design Review; Minor Use Permit; Landscape Review	Under Review

ID No.	Project Name	Location	Description	Approval Type	Status
20	Preliminary Review – 167 single-family residences	Swanzy Dam Road	The project includes a preliminary review for 167 detached single-family residences	Development Review; Design Review; Tentative Map	Under Review
City of Vallejo – Mare Island					
21	Mare Island Drydock	1180 Nimitz Avenue	Mare Island Dry Dock Company announced a $13 million dollar upgrade of its current facility to upgrade and expand repair operations for Naval ships	Parcel Map	Proposed
22	Hyde Street Pier Replacement	2905 Hyde Street, San Francisco	Four historic ships will be transported to Mare Island Naval Shipyard for the next three to four years while the Hyde Street Pier is replaced, under the terms of a lease for about 1,300 feet of Mare Island seawall. The ships will remain at Mare Island until mid-2026 if there is a delay in completing the work on the Hyde Street Pier, which should begin in early 2025.	Unknown	Approved
City of Benicia					
23	Suisun Bay Reserve Fleet Pier Dredging Project	2.5 miles northeast/upstream of Benicia-Martinez Bridge, on either side of the pier located at 2595 Lake Herman Road, in Benicia	The project involves mechanically dredging up to 91,300 cubic yards of sediment from either side of the facility's pier to a depth of -8 feet Mean Lower Low Water, with an additional 2 feet of overdredge allowance; the dredged sediment will be beneficially reused at Montezuma Wetlands Restoration Project or Cullinan Ranch Restoration Project to restore tidal wetlands for the endangered Salt Marsh Harvest Mouse and other endangered species.	Notice of Exemption (Class 1 and Class 4)	Under Construction
24	1451 Park Road	1451 Park Road	The project proposes the development of 17 housing units with associated off-street parking on a 0.56-acre parcel located at the northwest corner of Jefferson Street and Park Road in the Arsenal Historic District. The project proposes that 10 percent of housing units will be restricted as affordable housing to income-qualified households and below market rate.	SB 35 Ministerial Review	Conditionally Approved
25	Jefferson Ridge	Jefferson Ridge, northeast of Park Road and Adams Street	The project involves the development of 121 residential units, a 2,000 square-foot commercial building, associated parking spaces, and open space/recreation on a 7.9 acre site in the Arsenal Historic District. A total of 10 percent of the housing units will be reserved as affordable housing units.	SB 35 Ministerial Review	Conditionally Approved

Source: Caltrans 2023; CBS News Bay Area 2022; City of Benicia 2023a, 2023b; City of Vallejo 2013, 2023a-2023i; Glidden 2022; Hrvacevic 2023; Raskin-Zrihen 2018; Riley 2023; San Francisco Bay Ferry 2023; Solano County 2023.



Source: adapted by Ascent in 2023.

Figure 4-1 Cumulative Projects

4.3 CUMULATIVE IMPACT ANALYSIS

The discussion below evaluates the cumulative effects of the proposed project and related development, and the potential for the project to considerably contribute to those effects. For each resource area, an introductory statement is made regarding what would amount to a significant cumulative impact for that resource. The analysis then considers two separate impacts: (1) the significance of the cumulative effect of the project together with the effects past, present, and reasonably foreseeable projects; and (2) in the event a significant cumulative effect is identified, the project's incremental contribution to that cumulative effect.

The following sections describe cumulative effects in the geographic scope identified for each of the 15 environmental issue areas evaluated in this EIR. The analysis conforms with Section 15130(b) of the State CEQA Guidelines, which specifies that the "discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact."

This cumulative analysis assumes that all mitigation measures identified in Chapter 3 to mitigate project impacts are adopted and implemented, and all elements of the design build performance criteria that would minimize environmental effects are implemented. The analysis herein analyzes whether, after implementation of project-specific mitigation and performance criteria that minimize environmental effects, the residual impacts of the project would cause a cumulatively significant impact or would contribute considerably to existing/anticipated (without the project) cumulatively significant effects. Where the project would contribute, additional mitigation is recommended where feasible.

4.3.1 Aesthetics

The cumulative context for the assessment of impacts to aesthetics and visual resources is the immediate vicinity of view corridors, viewsheds, or scenic recourses in the around the project site.

SCENIC VISTAS

Cumulative projects would result in a significant cumulative impact related to scenic vistas if, in combination, they would block, obstruct, or substantially interrupt scenic views and/or resources. Scenic vistas in the vicinity of the project site includes the Carquinez Bridge and the Carquinez Vista Pointe to the east; San Pablo Bay/Carquinez Strait and the vista point in the Town of Crockett to the south; and the Crystal Pointe neighborhood to the west. Implementation of the project could result in visual changes during construction of all phases. Construction and operation of cumulative projects also would result in visual changes in the area resulting from activities such as removal of vegetation, development of vertical structures (e.g., buildings and utility infrastructure).

Cumulative projects listed in Table 4-1 include mixed use development (e.g., Projects No. 12 through 14) that could introduce new or taller structures to the area. The new or taller structures would have the potential to block, obstruct, or permanently interrupt scenic views or resources, resulting in a cumulative impact. As shown in Figure 4-1, the cumulative projects are not located sufficiently close to the project site to enter the same field of view as the project. As discussed in Section 3.1, "Aesthetics," implementation of the project would introduce the construction, redesign, and enhancement of multiple structures and facilities on the project site. Although the project would expand existing structures and introduce new structures, the visual quality of the project site would continue to be aligned with the unique academic and maritime operations of the university. The project would enhance and upgrade maritime facilities that would support the university's educational mission, consistent with the existing uses and surroundings of the university. Implementation of the project would not cause a substantial change in the current scenic vistas.

Therefore, the project's contribution to cumulative impacts related to scenic vistas would not be cumulatively considerable. The impact would be **less than significant**.

VISUAL CHARACTER OR QUALITY

Cumulative projects would contribute to a significant cumulative impact related to visual character or quality if, in combination, they would substantially degrade the existing visual character or quality of the site and its surroundings by introducing features that would detract from or conflict with existing visual character or quality. Cumulative projects identified in Table 4-1 include waterfront development (Project No. 7), redevelopment (Project No. 8), bridge replacement (Project No. 10) that could change the existing character or quality of surrounding communities. In combination, the project and cumulative projects could have the potential to contribute to a significant cumulative impact related to visual character or quality. However, as analyzed in Section 3.1 of this EIR, the project site is already developed with maritime and academic uses focused on cadet training in marine transportation, engineering, and technology. Implementation of the project elements on the project site would not be substantially different than what currently exists on campus. The improvements and additions of the project elements both in-water and landslide would not degrade the existing visual character or quality of the site and its surroundings. In addition, the project would follow the campus design principals and guidelines stated in the Physical Master Plan to establish consistency with the surrounding campus design. Therefore, the project's contribution to a cumulative impact related to visual character or quality would not be considerable. The impact would be **less than significant**.

LIGHT AND GLARE

Given the extent of past projects and new development that cumulative projects would introduce, there is an existing cumulative impact on light and glare. Discussion under Impact 3.1-3 of Section 3.1, "Aesthetics," states that the project would introduce new exterior lighting that would be visible at night from off-site vantages surrounding the project site, consisting of exterior building illumination and safety lighting along pedestrian paths near the waterfront. However, the project would only include the minimum amount of outdoor wayfinding and security lighting necessary to maintain safety and comfort. As shown in Figure 4-1, no cumulative projects are located near the project site. The closest cumulative project (Project No. 1) is located approximately 0.5 mile to the northeast of the project site. Project No. 1 is a trail improvement project, which would not include components that would result in light and glare impacts. In addition, existing landscaping and topography around the periphery of the project site would be maintained and enhanced through the provision of additional landscaping along the western edge of development to provide screening and minimize spillover effects on adjacent properties. Therefore, the project's contribution to an existing cumulative impact related to light or glare would not be cumulatively considerable. The impact would be **less than significant**.

4.3.2 Air Quality

The cumulative context for the assessment of impacts related to air quality is the San Francisco Bay Area Air Basin (SFBAAB). Potential cumulative air quality impacts would result when cumulative projects' emissions would combine to degrade air quality conditions below attainment levels for the SFBAAB, delay attainment of air quality standards, affect sensitive receptors, or subject surrounding areas to objectionable odors.

AIR QUALITY PLAN CONSISTENCY

The project and the cumulative projects would have the potential to result in a cumulative impact to air quality plans if they would conflict with or obstruct implementation of the 2017 Clean Air Plan. The project and the cumulative projects would be required to comply with existing federal, state, and local regulations, including the 2017 Clean Air Plan, which would preclude conflict with applicable air quality plans. Therefore, the project together with the cumulative projects would not result in a cumulative impact relative to consistency with air quality plans. This impact would be **less than significant**.

CRITERIA AIR POLLUTANTS AND OZONE PRECURSORS

Impact 3.2-2 in Section 3.2, "Air Quality," analyzed the cumulative impacts related to criteria air pollutants and ozone precursors that would contribute to the nonattainment status of the SFBAAB. As analyzed in Section 3.2, construction of the project would not exceed adopted Bay Area Air Quality Management District (BAAQMD) thresholds for criteria air pollutants and ozone precursors. Operation of the project would not increase student enrollment or employment, and the change in long-term emissions of criteria air pollutants would not exceed adopted BAAQMD thresholds. Thus, the project would not result in cumulatively considerably increases in criteria air pollutants and ozone precursors that would contribute to the nonattainment status of the SFBAAB. This impact would be **less than significant**.

CARBON MONOXIDE HOT SPOTS AND TOXIC AIR CONTAMINANTS

The project and the cumulative projects would have the potential to result in a significant cumulative impact associated with sensitive receptors if they would expose sensitive receptors to a substantial concentration of carbon monoxide (CO) or toxic air contaminants (TACs). The CO and TAC effects on sensitive receptors are discussed under Impacts 3.2-3 and 3.2-4 in Section 3.2, "Air Quality." The project improvements would not result in an increase in staff and faculty employment and would not generate substantial new public use and associated vehicle trips. Therefore, project-generated traffic volumes would not exceed BAAQMD's screening criteria established for evaluating CO impacts during operation and construction. Construction of the project would result in temporary, short-term emissions of TACs, particularly diesel particulate matters. However, TAC sources during construction would be transitory and short term, while the change in operational emissions would be minor and at a distance that would not expose sensitive receptor locations to substantial pollutants. Once operational, the new training vessel would be more modern than the existing vessel, likely resulting in a marginal to no change in TACs emissions. Therefore, the project would not result in significant impacts related to exposing sensitive receptors to a substantial concentration of CO or TACs. Although some cumulative projects (e.g., Projects No. 12, 14, and 17) would involve residential and school development that could locate more sensitive receptors near pollutant concentrations, the cumulative projects would be required to comply with emission thresholds for CO and TACs. Therefore, the project together with the cumulative projects would not result in a significant cumulative impact related to exposing sensitive receptors to a substantial concentration of CO or TACs. This impact would be **less than significant**.

ODORS

The project and the cumulative projects also would have the potential to result in a cumulative impact associated with objectionable odors if they would create objectionable odors or place sensitive receptors next to existing objectionable odors. Construction of the project and cumulative projects would involve the use of equipment with diesel engines. Exhaust odors from diesel engines may be considered offensive to some individuals. However, minor odors from the use of heavy-duty diesel equipment would be intermittent and temporary and would dissipate rapidly from the source with an increase in distance. Given the temporary nature of construction activities and the dispersion properties of odors resulting from heavy-duty diesel equipment, construction activities are not anticipated to result in an odor-related impact. Once operational, the project may introduce new odors to the area, associated with the operation of new training areas, research facilities, or diesel-related exhaust from delivery trucks. The new odor sources would be similar to existing sources that operate in and around the project site and are not considered operational sources of odors as defined by BAAQMD. The cumulative projects would involve mostly trail development, roadway and bridge development, remediation projects, and residential development, which are not typically associated with operational odors. Therefore, the project together with the cumulative projects would not result in a substantial incremental effect that would result in a significant cumulative impact related to odors. This impact would be **less than significant**.

4.3.3 Archaeological, Historical, and Tribal Cultural Resources

The geographic scope for the analysis of cumulative impacts to historical resources and historic era archaeological resources (shipwrecks) is the San Francisco Bay. The geographic scope for the analysis of cumulative impacts to precontact archaeological resources, tribal cultural resources, and human remains is the historic lands of the Patwin people. The Patwin occupied the southwest portion of the Sacramento Valley, from the lower hills of the eastern North Coast Ranges to the Sacramento River, and from Princeton south to San Pablo and Suisun Bays.

Because all significant cultural resources are unique and nonrenewable members of finite classes, meaning there are a limited number of significant cultural resources, all adverse effects erode a dwindling resource base. The loss of any one archaeological site could affect the scientific value of others in a region because these resources are best understood in the context of the entirety of the cultural system of which they are a part. The cultural system is represented archaeologically by the total inventory of all sites and other cultural remains in the region. As a result, a meaningful approach to preserving and managing cultural resources must focus on the likely distribution of cultural resources, rather than on a single project or parcel boundary.

The historic lands of the Patwin people have been affected by development since the establishment of the missions; several missions, including Mission San Jose, established in 1797, and Mission Dolores and Mission Sonoma, established in 1823, bordered Patwin territory. Former gold seekers and pioneers began settling in the area in the 1840s and 1850s, with rail and shipping industries following soon after. These activities have resulted in an existing significant adverse effect on historical resources, archaeological resources, tribal cultural resources, and human remains. Cumulative development, including projects described in Table 4-1, continues to contribute to the disturbance of cultural resources.

HISTORICAL RESOURCES

Cumulative destruction of significant historical resources from construction and past development and development planned in the northern California region would be a cumulatively significant impact. The project and the cumulative projects would have the potential to result in a considerable contribution to the existing cumulative impact if they would result in the loss of historical resources through the physical demolition, destruction, relocation, or alteration of a resource or its immediate surroundings such that the significance of a historical resource would be materially impaired. Though the potential effects of the cumulative projects listed on Table 4-1 on historical resources is unknown, one historical resource, the boathouse, is located within the project site. Implementation of Mitigation Measure 3.4-1 would ensure that the proposed project’s contribution to cumulatively significant historical resource impacts would not be considerable by requiring compliance with the Secretary of the Interior’s Standards for Rehabilitation. Therefore, with implementation of Mitigation Measure 3.4-1, the project would not have a considerable contribution to significant cumulative impacts related to historical resources. For this reason, the cumulative impact of the project related to historical resources would be **less than significant**.

HISTORIC ERA ARCHAEOLOGICAL RESOURCES

One historic era archaeological resource, the shipwreck *Contra Costa*, is located within the project site. Implementation of Mitigation Measure 3.4-2 would reduce the project’s impact, but not to a less-than-significant level. The project would result in significant and unavoidable impacts to historic era archaeological resources. Because all significant cultural resources are unique and nonrenewable members of finite classes, meaning there are a limited number of significant cultural resources, all adverse effects erode a dwindling resource base. For this reason, the contribution of the project to significant cumulative impacts on historic era archaeological resources would be considerable. The impact would be **significant and unavoidable**.

PRECONTACT ARCHAEOLOGICAL RESOURCES, TRIBAL CULTURAL RESOURCES, AND HUMAN REMAINS

No known unique precontact archaeological resources, tribal cultural resources, or human remains are located within the boundaries of the proposed project area; nonetheless, project-related earth-disturbing activities could damage undiscovered precontact archaeological resources, tribal cultural resources, or human remains. The proposed project, in combination with other development in the region, could contribute to ongoing substantial adverse changes in the significance of unique archaeological resources resulting from urban development and conversion of natural lands. Cumulative development could result in potentially significant precontact archaeological resource impacts. Implementation of Mitigation Measure 3.4-3 would ensure that the proposed project's contribution to cumulatively significant archeological resource impacts would not be considerable by requiring construction work to cease in the event of an accidental find and the appropriate treatment of discovered resources, in accordance with pertinent laws and regulations. With implementation of this mitigation measure, the proposed project's contribution to these impacts would be offset. Compliance with California Health and Safety Code Section 7050.5 and PRC Section 5097 would ensure that treatment and disposition of the remains occurs in a manner consistent with State guidelines and California Native American Heritage Commission guidance. For these reasons, the cumulative impact of the project related to precontact archaeological resources, tribal cultural resources, and human remains would be **less than significant**.

4.3.4 Biological Resources

The geographic scope for the assessment of impacts related to biological resources is Solano County and Contra Costa County. Sensitive habitats for biological resources in the vicinity of the project site and in the region have been modified over time as land has been developed and converted to urban uses. Future projects in the region, including cumulative projects described in Table 4-1, could continue to result in losses of sensitive habitats and sensitive species. Although individual projects would be required to mitigate for significant impacts on a project-by-project basis, they may result in residual impacts that combine with the existing adverse condition to create a significant cumulative condition related to special-status species and sensitive habitats.

SPECIAL-STATUS SPECIES

As discussed under Impact 3.3-1 and Impact 3.3-2 in Section 3.3, "Biological Resources," implementation of the project could result in potentially significant impacts to special-status plant species, special-status birds, special-status fish, Crotch bumble bee, monarch butterfly, and marine mammals. The project would implement Mitigation Measure 3.3-1 to conduct protocol-level surveys for special-status plants where they may occur, to implement avoidance measures, and to provide compensation for impacts on special-status plants. Implementation of Mitigation Measure 3.3-2a would require conducting focused surveys for nesting birds and implementing measures to avoid disturbance, injury, or mortality of the species if nests are detected. Implementation of Mitigation Measures 3.3-2b through 3.3-2m would require implementing measures to reduce the likelihood that invasive species would be introduced; performing in-water work during less sensitive periods; implementing a limited operating period for ground disturbance within the vegetated hillside portion of the project site, or conducting focused surveys for the species and implementing measures to avoid injury or mortality of crotch bumble bees if the limited operating period is not feasible; and, implementing spill and debris prevention, and measures to reduce the impacts from pile driving, pile disposal, dredging, and the hydrokinetic barge. With the implementation of these measures the potential impacts on special-status plants and wildlife species would be reduced to less than significant. Cumulative projects listed in Table 4-1 would be required to implement similar mitigation to avoid or reduce impacts to special-status species if present. Implementation of the aforementioned mitigation measures would reduce the project's impacts to special-status species such that the project's contribution would not be cumulatively considerable with cumulative projects in the area. As a result, the impact would be **less than significant**.

SENSITIVE HABITATS

All phases of the project would include in-water construction, shading of open water, and dredging that could result in loss or degradation of eelgrass beds which are a sensitive natural community. The project would implement Mitigation Measures 3.3-3 and 3.3-4, which require conducting focused surveys for eelgrass, implementing measures to compensate for degradation or loss of eelgrass beds, and incorporating design criteria that would prevent impeding fish movement. Implementation of Mitigation Measures 3.3-3 and 3.3-4 would reduce impacts on aquatic sensitive natural communities and other sensitive habitat to a less-than-significant level from all three phases of the project. Cumulative projects listed in Table 4-1 would also be required to implement similar mitigation to avoid or reduce impacts to sensitive habitats if present. Therefore, the project's contribution would not be cumulatively considerable with cumulative projects in the area. The impact would be **less than significant**.

WILDLIFE CORRIDORS AND NURSERY SITES

Project activities conducted during implementation of Phase One and Phase Three, if conducted during the portion of the year when fish may be migrating through the project site, could disrupt movement of migrating fish. Phase Two would include the creation of Boat Basin 2, its new pier with breakwater, and 26 additional slips and berthing areas that could result in trapping or impeding the migration of fish through the project site. Construction and maintenance dredging may disrupt use of eelgrass beds that may be used as nursery habitat for native fish species. Implementation of Mitigation Measure 3.3-2c and Mitigation Measure 3.3-4 would reduce potential impacts on aquatic wildlife movement corridors and native wildlife nursery sites to less than significant by requiring in-water work during construction and operations to be performed during less sensitive periods and requiring design criteria that would prevent impeding fish movement. Cumulative projects would be required to implement similar mitigation to avoid or reduce impacts to wildlife corridors and nursery sites if present Therefore, the project's contribution would not be cumulatively considerable with cumulative projects in the area. The impact would be **less than significant**.

4.3.5 Energy

The cumulative context for the assessment of impacts related to energy is the state of California including the PG&E service area and Cal Maritime campus.

WASTEFUL, INEFFICIENT, UNNECESSARY CONSUMPTION OF ENERGY RESOURCES

A cumulative impact would occur if the project in combination with the cumulative projects would result in potential significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy. Implementation of the project would result in the consumption of additional energy during construction in the form of gasoline and diesel fuel. However, this energy expenditure would not be wasteful, because construction would be temporary, and would not require additional capacity or increased peak or base period demands for electricity or other forms of energy. Once operational, the project would not result in additional energy consumption, as the project would not increase student enrollment or employment. In addition, the NSMV would be a more modern vessel than TSGB (built in 1989) and thus would result in lower fuel consumption than the existing TSGB. The marine hydrokinetic barge proposed in Phase Three would increase the use of renewable energy at the campus. Therefore, the project would not result in wasteful, inefficient, or unnecessary consumption of energy during project construction or operation. The project and the cumulative projects would be required to comply with the most current building codes, including requirements for achieving appropriate energy efficiency standards (e.g., Title 24 standards or better) and comply with general plan policies related to energy efficiency. Therefore, the project together with the cumulative projects would not result in a significant cumulative impact associated with wasteful, inefficient, or unnecessary consumption of resources. This impact would be **less than significant**.

STATE AND LOCAL PLANS FOR RENEWABLE ENERGY OR ENERGY EFFICIENCY

A cumulative impact would occur if the project in combination with the cumulative projects would result in conflict with a state or local plan for renewable energy or energy efficiency. As discussed under Impact 3.5-2 in Section 3.5, “Energy,” implementation of the project would directly support the goals and strategies in the State’s Energy Efficiency Action Plan and the CSU Sustainability Policy. Similarly, the cumulative projects would be required to demonstrate consistency with the State’s Energy Efficiency Action Plan during the approval process and would be required to comply with the most recent California Energy Code. Therefore, the project and the cumulative projects would not result in a cumulative conflict with state or local plans for renewable energy or energy efficiency. Therefore, the project together with the cumulative projects would not result in a significant cumulative impact related to conflict with appliable plans for renewable energy or energy efficiency. This impact would be **less than significant**.

4.3.6 Geology and Soils

Geological and soils impacts are site-specific rather than regional in nature and any cumulative projects would be subject to, at minimum, uniform site development and construction and regulatory standards relative to seismic and other geological conditions that are prevalent with the region, such as the California Building Code standards. As discussed in Section 3.6, “Geology and Soil,” the project would have less than significant impacts related to geology and soils with implementation of Mitigation Measure 3.6-3a (Paleontological Sensitivity Training for Construction Personnel) and Mitigation Measure 3.6-3b (Inadvertent Discovery of Potential Paleontological Resources). Therefore, the project would not make a considerable contribution to a cumulative geology and soils impact. This impact would be **less than significant**.

4.3.7 Greenhouse Gas Emissions and Climate Change

The issue of global climate change is inherently a cumulative issue because greenhouse gas (GHG) emissions of individual projects cannot be shown to have any material effect on global climate. Thus, the project’s impact on climate change is addressed only as a cumulative impact under Impact 3.7-1 in Section 3.7, “Greenhouse Gas Emissions and Climate Change.” As analyzed in Section 3.7, the project would result in GHG emissions during construction of all project phases from the use of offroad construction equipment, harbor craft, and on road vehicular emissions from construction workers and vendors. CSU would adhere to recommended construction best management practices that reduce GHG emissions to the extent feasible. Project operation would not result in new natural gas use. Operations would not result in increased mobile-source GHG emissions because the project would not expand student or employee capacity. The project would be consistent with BAAQMD’s adopted thresholds, and thus would not generate GHG emissions that would cause a significant impact or conflict with an adopted GHG reduction plan. Thus, the project contribution to GHG emissions and climate change would not be cumulatively considerably. This impact would be **less than significant**.

4.3.8 Hazards and Hazardous Materials

The cumulative context for the assessment of impacts related to hazards and hazardous materials is Solano County, Contra Costa County, and the immediate surrounding areas.

RELEASE OF HAZARDOUS SUBSTANCES

While it is possible that hazardous materials and/or conditions may be present within the project site and construction and long-term operation of the project would involve the use, storage, and transport of hazardous materials, hazardous materials are comprehensively governed by existing regulations that require proper storage and handling, environmental management plans, spill contingency plans, employee and public noticing, and other emergency preventive and response measures to minimize the risk of accidental releases and related environmental impacts. In addition, for in-water construction activities Mitigation Measure 3.8-2 (Implement a Dredging and

Sediment Management Program) would require implementing standard operating procedures and best management practices during dredging and require subsequent sampling of dredged material and underwater material in the area of disturbance for in-water construction. Implementation of Mitigation Measure 3.8-2 would reduce the project's potential impacts related to release of hazardous substances during in-water activities to less than significant.

Cumulative projects listed in Table 4-1 include remediation projects (e.g., Project No. 3 and Project No. 6) that would clean up contaminated sites. However, these projects would be subject to the same hazardous materials laws and regulations as the project and would be required to implement project-specific mitigation consistent with applicable laws and regulations to reduce any significant hazards and hazardous materials impacts. Based on the projected use types (e.g., trails, parks, and mixed-use), none of the other projects listed in Table 4-1 are considered to require the use of unusual or acutely hazardous materials and would likely use typical household-type cleaning products and maintenance products. Any hazardous materials stored on-site (at the project site and cumulative projects sites) would be used/stored in compliance with applicable federal and state laws related to the storage of hazardous materials, thereby limiting their potential contribution to be less than cumulatively considerable, similar to the project. Therefore, the project, in combination with the cumulative projects, would not result in a substantial incremental effect that would result in a significant cumulative impact related to hazardous materials. This impact would be **less than significant**.

EMERGENCY RESPONSE AND EVACUATION PLAN

A cumulative impact would occur if the project in combination with the cumulative projects would result in a regional impairment of emergency response or evacuation plans. As discussed under Impact 3.8-3 in Section 3.8, "Hazards and Hazardous Materials," Cal Maritime Emergency Management Plan provides a management tool to facilitate timely, effective, and coordinated emergency response and recovery activities that respond to a wide range of emergency events, allowing for adaptation as needed to address the unique needs of the specific emergency incident. Cal Maritime would update the Emergency Management Plan to reflect implementation of the project and campus emergency response would be integrated into the emergency response and procedures of other local agencies. In addition, a construction traffic management plan would be prepared before each phase of project implementation to minimize traffic impacts on affected roadways at and near the work site during demolition and construction. Implementation of the project would not impede or conflict with adopted emergency response and evacuation plans. Implementation of the cumulative projects would have the potential to impair the existing emergency and evacuation plans if authorities are not properly notified or emergency routes are blocked during construction. However, the cumulative projects would be required to comply with applicable emergency response and evacuation policies outlined in regulations such as the Federal Response Plan, the California Emergency Services Act, and local fire codes. Compliance with the existing regulations would likely reduce the potential of each to combine to produce a significant cumulative impact. Therefore, implementation of the project, in combination of the cumulative projects, would not result in a significant cumulative impact related to impediments and conflicts with adopted emergency response and evacuation plans. This impact would be **less than significant**.

WILDLAND FIRE

There is an existing significant cumulative impact associated with wildland fires in California because the frequent and intensive wildland fires in the state have exposed people and structures to a potentially significant loss of life and property and many areas in the region are considered High and Very High Fire Hazard Severity Zones (FHSZs). The project site is not located in an area of high wildland fire risk, and the project would not involve development that would exacerbate wildland fire risk; require the installation or maintenance of infrastructure that would exacerbate wildfire risk; cause a significant risk of loss, injury, or death involving wildland fires; or expose people or structures to significant post-fire risks, including postfire flooding or landslides (refer to Impact 3.8-4 in Section 4.8, "Hazards and Hazardous Materials"). The project impact related to wildland fire would be less than significant. Most of the cumulative projects are not located within a State Responsibility Area with a fire hazard severity rating, with the exception of Project No. 3, which is located within a Moderate Fire Hazard Severity Zone (CAL FIRE 2023). The cumulative projects are located in urbanized areas that are not anticipated to be subject to a high wildfire risk. In addition, cumulative projects would be developed in compliance with California Fire Code and compliance with local jurisdiction requirements, including the City of Vallejo, Solano County, and Contra Costa County, to ensure the adequate provision of fire protection. The risk of exposure to wildland fire hazards is low. Therefore, the project's contribution to an existing cumulative impact would not be cumulatively considerable. The impact would be **less than significant**.

4.3.9 Hydrology and Water Quality

The cumulative context for the assessment of impacts related to hydrology and water quality encompasses the drainage basins, watersheds, water bodies and groundwater basins that are tributary to the San Francisco Bay at the Carquinez Strait and confluence with the Napa River at Mare Island Strait. Hydrology and water quality for these areas are governed by the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan).

Construction activities across all phases of the proposed project like dredging for the boat basin disturbing sediment, release of debris and contaminants in runoff, increases in impervious surfaces, and increased boat operations are all likely sources for potential impacts affecting water quality and hydrology. These potential impacts would be reduced to less-than-significant levels through adherence with existing permit requirements and through implementation of Mitigation Measures 3.3-2d through 3.3-2h, and 3.9-1 (see Chapter 3.9). As discussed in Impact 3.9-2, the proposed project does not overlap with any known groundwater basins or a sustainable groundwater plan, but the proposed project permit requirements and mitigation measures are guided by and consistent with the Basin Plan and its standards for water quality in the project area.

SURFACE AND GROUNDWATER QUALITY

A cumulative impact would occur if the project in combination with the cumulative projects would result in a regional impairment of surface or groundwater quality. The project is located in an area of high maritime activity including shipping traffic in the Sacramento-Stockton Deepwater Shipping Channel, industrial and recreational maritime activities in Mare Island Strait, and individual port and maritime facilities in Crockett and Martinez. The project would not change the nature of land and water use at Cal Maritime, which is consistent with existing and future uses at those surrounding areas. Phase One of the project would replace existing infrastructure without a substantial change to the scope and nature of existing maritime activities. Phases Two and Three of the project would result in an increase in the scope of maritime activity beyond baseline conditions.

Construction and operational impacts related to in-water elements of the projects listed in Table 4-1 (including dredging for cumulative projects 5, 11, 21, 22, and 23) could all contribute to cumulative impacts to hydrology and water quality. These cumulative projects would all be required to comply with the same permit requirements and mitigation measures described for the proposed project and reduce individual impacts to less-than-significant levels. These requirements and minimization measures are governed by the Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region (LTMS). The LTMS is a regional plan administered by State and federal agencies specifically to manage potential cumulative effects of individual projects resulting from dredging. The LTMS, together with the Basin Plan, are also relied upon by those agencies for management measures to avoid and minimize potential cumulative effects of other non-dredging in-water projects in the region. Similarly, the statewide Industrial Stormwater Permit Program, General Construction Stormwater Permit, and Municipal Stormwater Permit Program require each individual project to implement measures to avoid and minimize potential adverse effects to water quality from stormwater related discharges. Required compliance with these regional and statewide plans would ensure avoidance and minimization of potential cumulative impacts for the project in combination with other projects listed in Table 4-1. Therefore, the project's contribution to an existing cumulative impact would not be cumulatively considerable. The impact would be **less than significant**.

DRAINAGE PATTERNS

A cumulative impact would occur if the project in combination with the cumulative projects would result in a regional impairment of drainage patterns resulting in increased potential for flooding and erosion in on-site or off-site locations. As described in Chapter 3.9, the Coastal Evaluation Study (WSP 2023) concluded that potential impacts to on- and off-site flooding, erosion and changes to sedimentation patterns would be less than significant. Mitigation Measure 3.9-1 would require a similar Coastal Evaluation Study to evaluate the future proposed Phase Two and Three designs to ensure that those designs would not adversely affect on- and off-site flooding, erosion and sedimentation patterns. The project does not propose any substantial changes to existing terrestrial drainage patterns. With implementation of Mitigation Measure 3.9-1, together with required compliance with the MS4 Stormwater Permit would ensure that the project's contribution to cumulative impacts related to drainage patterns would not be cumulatively considerable. The impact would be **less than significant**.

POLLUTANT RELEASE

A cumulative impact would occur if the project in combination with the cumulative projects would result in a regional impairment of surface or groundwater quality resulting from pollutant releases in the event of a major flood, tsunami, or seiche. The project's potential to result in a substantial release of pollutants is minimal in comparison with other heavy industrial maritime operations in the vicinity of the project. In addition, the project will implement Mitigation Measure 3.9-2 to further avoid and minimize the potential for hazardous materials release resulting from a major flood, tsunami or seiche. Given the project's limited risk for the release of hazardous materials, combined with implementation of Mitigation Measure 3.9-2, the project would not contribute to cumulatively considerable impairment of water quality from pollutant release in the event of a major flood, tsunami, or seiche. The impact would be **less than significant.**

4.3.10 Land Use and Planning

The cumulative context for the assessment of impacts related to land use and planning is Solano County and Contra Costa County. As discussed in Section 3.10.3, "Environmental Impacts and Mitigation Measures," of this EIR, the project would have no impact related to the physical division of an established community. Therefore, the project's contribution to this impact would not be cumulatively considerable. No cumulative impacts related to the physical division of an established community would occur.

CONFLICT WITH LAND USE PLANS, POLICES, OR REGULATIONS

A cumulative impact associated with conflicts with land use plans, policies, and regulations developed for the protection of environment would occur if the project, in combination with the cumulative projects, would conflict with existing land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental impact. However, as part of the CSU, a statutorily and legislatively created, constitutionally authorized state entity, Cal Maritime is not subject to municipal regulations of surrounding local governments, such as the City of Vallejo General Plan or land use designations, for uses on property owned or controlled by Cal Maritime that are in furtherance of its education purposes. Therefore, the following discussion related to potential conflicts with these policies is provided for informational purposes. Cal Maritime is required to comply with policies set forth by CSU and BCDC for the purpose of avoiding or mitigating environmental effects.

As discussed under Impact 3.10-1 in Section 3.10, "Land Use of Planning," of this EIR, implementation of the project would conform to the Physical Master Plan, the Bay Plan, and to the extent feasible, the City of Vallejo General Plan and City of Vallejo's Zoning Ordinance. Project development along the waterfront would comply with Bay Plan Shoreline Protection Policy 5, Recreation Policy 3, Public Access Policies 2, 6, 7, 8, 9, and 10, Appearance, Design, and Scenic Views Policy 2, Other Uses of the Bay and Shoreline Policy 2. Cumulative projects identified in Table 4-1 would be reviewed for compliance with land use plans, policies, or regulations developed for the protection of the environment prior to project approval. Therefore, implementation of the project, in combination with the cumulative projects, would not result in substantial incremental effect that would result in a significant cumulative impact related to conflicts with land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. The impact would be **less than significant**.

4.3.11 Noise and Vibration

Noise is typically considered a local impact because noise levels dissipate rapidly with increased distance from the source. For cumulative noise impacts to occur, noise sources must combine to result in increases in noise at the same receptor that otherwise would not experience the increase attributed to the combined (or cumulative) condition. Therefore, the cumulative context for the assessment of impacts related to noise is limited to areas surrounding the project site. As discussed in Section 3.11.3, "Environmental Impacts and Mitigation Measures," of this EIR, the project would have no impact related to airport noise, operational vibration, and traffic noise. Therefore, the project's contribution to these impacts would not be cumulatively considerable. No cumulative impacts related to airport noise, operational vibration, and traffic noise would occur.

CONSTRUCTION NOISE AND VIBRATION

Construction-related noise and vibration are typically considered localized impacts, affecting only receptors closest to construction activities. Therefore, unless construction of cumulative projects, including the project, occur in close proximity to each other (i.e., less than 500 feet) and at the same time, noise and vibration from individual construction projects have little chance of combining to create cumulative impacts. For these reasons, cumulative noise and vibration impacts from construction are generally less than significant.

As discussed under Impacts 3.11-1 and 3.11-2 in Section 3.11, "Noise," of this EIR, project construction would occur during permissible hours per the Vallejo Municipal Code. Construction noise modeling shows that noise levels would not exceed the thresholds at on-campus or off-campus sensitive receptors during all phases of construction. Construction vibration modeling shows that vibration levels would not be expected to exceed the recommended levels that could cause annoyance, sleep disturbance, or structural damage. Implementation of the project would result in less than significant impacts related to construction noise and vibration. As shown in Figure 4-1, none of the cumulative projects are located in the vicinity of the project site. Construction activities for the project would not readily combine with construction noise and vibration from the cumulative projects to result in a substantial increase in cumulative noise and vibration levels. Furthermore, the cumulative projects may not be in construction concurrently with the project. Therefore, the project construction noise and vibration would not be cumulatively considerable. These impacts would be **less than significant**.

OPERATIONAL NOISE

As discussed under Impacts 3.11-3 in Section 3.11, "Noise," of this EIR, the project would result in new operational noise sources, including mechanical equipment, new pumps at the Vallejo Flood and Wastewater District lift station, and increased vessel and marine activity. However, these noise sources and increased vessel activity would not be substantially louder or greater compared to existing conditions from existing vessel activity and existing mechanical equipment and pump station noise levels. Therefore, the project impact related to operational noise would be less than significant. New development associated with the cumulative projects listed in Table 4-1 would include residential development that would introduce new stationary equipment associated with building mechanical equipment, outdoor gathering areas, and parking facilities. However, noise from these sources would be localized and would not combine with noise sources from the project due to the distance between sources. Therefore, the project operational noise would not be cumulatively considerable. The impact would be **less than significant**.

4.3.12 Public Services and Recreation

PUBLIC SERVICES

The cumulative context for the assessment of impacts related to public services encompasses Vallejo Fire Department, Solano County Sheriff's Office, Vallejo Police Department, Cal Maritime Academy Police Department, Vallejo City Unified School District, and Solano County Library. Cumulative projects listed in Table 4-1 include residential development projects that would increase the concentration of people and structures within the public service jurisdictions which in turn increases demand for such services, resulting in cumulative impacts. The project would not induce any population growth and would have no impact on the local public school system and other local services systems, such as the public library system. Therefore, the project's contribution to impacts related to local schools and other public services would not be cumulatively considerable. No cumulative impacts related to local schools and other public services would occur.

As discussed under Impact 3.12-1 in Section 3.12, "Public Services and Recreation," of this EIR, implementation of the project would result in the expansion and addition of structures, but the project site is in an already developed setting in the service area of local fire and police protection services that currently serve the project site. Project operation across all phases would not result in any increase in population, so it is reasonable to conclude that there would be no substantial increase in demand for fire and police services. Project implementation would not result in the need for new or physically altered facilities to maintain acceptable service ratios, response times, or other performance objectives. The new development and growth listed in Table 4-1 would occur within existing developed areas where adequate public services currently exist. To the extent that any potential expansion of public facilities is required to accommodate new development and growth in the area, it is reasonable to assume that these would be expansions of existing facilities. Development projects listed in Table 4-1 could also be required to pay impact fees consistent with local jurisdiction requirements, including the City of Vallejo and Solano County, to ensure the adequate provision of public services in the future. Nonetheless, the project would not expand service areas nor is it anticipated to require additional facilities/services, and therefore, the impact of the project on public services would not be cumulatively considerable. The impact would be **less than significant**.

RECREATION

The cumulative context for the assessment of impacts related to recreation is the recreation facilities in Solano County, Contra Costa County, and Cal Maritime campus. Cumulative projects identified in Tabel 4-1 include residential development projects that would increase demand for recreation resources. However, these projects would require subsequent dedication of parklands and open space consistent with state and local polices, such as the Quimby Act. In addition, Table 4-1 also includes cumulative projects that would increase recreation facilities. For example, the Vallejo Bluff Trail Project (Project No. 1) would include a 1.97-mile trail connecting to three existing trails and the Crocket Waterfront Park Project (Project No. 4) would establish a new community park. The cumulative projects would increase the number of parklands, trails, and recreation facilities in Solano County. As discussed under Impact 3.12-2 in Section 3.12, "Public Services and Recreation," of this EIR, implementation of the project would result in improved features surrounding the San Francisco Bay Trail and would provide additional open space to provide students and visitors additional opportunities for passive recreation. Construction activities across three phases would occur over 10+ years, which would require partial or full closure of roadways and pedestrian pathways along the campus waterfront. However, any closure would be temporary and other portions of the San Francisco Bay Trail extending from either side of the project site would continue to be accessible. The project would not result in the substantial deterioration of or need for additional recreational facilities. Therefore, the project contribution to impacts related to recreation facilities would not be cumulatively considerable. The impact would be **less than significant**.

4.3.13 Transportation

The cumulative context for the assessment of impacts related to transportation is in Solano County and Contra Costa County. As discussed in Section 3.13.3, "Environmental Impacts and Mitigation Measures," of this EIR, the project would have no impact related to vehicle miles traveled and emergency access. Therefore, the project's contribution to these impacts would not be cumulatively considerable. No cumulative impacts related to vehicle miles traveled and emergency access would occur.

CONFLICT WITH A PROGRAM, PLAN, ORDINANCE OR POLICY ADDRESSING THE CIRCULATION SYSTEM

A cumulative impact would occur if the project together with the cumulative projects would conflict with plans, ordinances, or policies establishing measures of effectiveness for the performance of a circulation system. As discussed under Impact 3.13-1 in Section 3.13, "Transportation," of this EIR, all three phases of the project would involve pedestrian path improvements, but the improvements would be consistent with CSU policies and plans that promote increased alternative transportation use and safety for walking and biking. In addition, implementation of the project would not increase demand that would exceed the existing public transit system capacity, because the project would not increase student or staff population at the university. Therefore, the project would not result in a significant impact on the operation of the circulation system. Cumulative projects listed in Table 4-1 would include roadway improvements and mixed-use development that (e.g., Projects No.2, No. 5, and No. 12 through No. 14) have the potential to contribute to degraded traffic operations from the generation of vehicle trips during construction and operation. These cumulative projects would be subject to CEQA review and would be required to incorporate mitigation measures to minimize or avoid potential impacts to the extent feasible. Given the nature of the cumulative projects (e.g., roadway improvements, bridge replacement, and residential development), it is likely that impacts would be reduced to a less-than-significant level through implementation of traffic control plans and construction notifications. Therefore, the project, in combination with the cumulative projects, would not result in a substantial incremental effect that would result in a significant cumulative impact to plans, ordinances, or policies addressing the circulation system. The impact would be **less than significant**.

SUBSTANTIALLY INCREASE HAZARDS DUE TO A DESIGN FEATURE

In general, transportation hazards are site-specific and not cumulative in nature. As discussed above, the project would include pedestrian improvements that would increase safety for people walking and bicycling. Construction of all phases of the project would involve the hauling of materials and movement of heavy vehicles in the surrounding roadway network. A traffic control plan would be implemented, if needed, to ensure that proper precautions are taken during construction activities. The project would not involve changes to the on-site transportation network that would result in an increase in hazards, nor would it result in alterations to public right-of-way. Therefore, the impacts related to an increase in hazards due to a design feature would be less than significant. If cumulative projects listed in Table 4-1 involve changes to transportation network or alternation of public right-of-way (e.g., Project No. 2 and No. 10), they would be required to comply with Federal Highway Administration, American Association of State Highway and Transportation Officials, and California Department of Transportation current design criteria and standards. As such, no substantial increase hazards due to a design feature would occur. Therefore, the project, in combination with the cumulative projects, would not result in a substantial incremental effect that would result in a significant cumulative impact related to substantially increase hazards due to a design feature. The impact would be **less than significant**.

4.3.14 Utilities and Service Systems

The cumulative context for utility-related impacts is the service areas for each utility (e.g., water, wastewater, and solid waste). Future projects in the region, including projects described in Table 4-1, would result in increased utility service demands, but are assumed to comply with current building codes and efficiency requirements.

NEW OR EXPANDED UTILITY INFRASTRUCTURE

As discussed in Chapter 2, "Project Description," the project would include limited on-site infrastructure improvements. Sections 3.1 through 3.15 of the EIR address the environmental impacts of construction of on-site infrastructure improvements and describe mitigation measures to address identified significant impacts. If cumulative projects in Table 4-1 require construction of new or expanded utility infrastructure (e.g., cumulative projects No. 12, No. 14, and No. 16), they would also be required to identify mitigation measures to address identified significant impacts. Therefore, the project, in combination with the cumulative projects, would not result in a substantial incremental effect that would result in a significant cumulative impact utility infrastructure impact. The impacts would be **less than significant**.

WATER SUPPLIES

As noted in Section 3.14, "Utilities and Service Systems," water is supplied to the City of Vallejo, including the project site and surrounding areas, by the City of Vallejo Water Department and the Solano County Water Agency. The City of Vallejo Water Department and the Solano County Water Agency anticipates meeting current and 2045 projected water demand, but projections suggest that water reserves for the Solano County Water Agency would become constrained starting the third year of a multi-year drought scenario. However, implementation of State water consumption reduction mandates and the City of Vallejo Water Shortage Contingency Plan during potential water shortage conditions would provide additional buffer against unpredictable water conditions. Additionally, cumulative projects listed in Table 4-1 would not be constructed without demonstration of adequate water supplies. Nonetheless, because water supplies are likely to become constrained in future drought conditions, the combined effect of past, present, and reasonably foreseeable future projects is cumulatively significant. As discussed in Impact 3.14-1, project construction activities would require a minimal amount of water, primarily for work in the upland areas and would not adversely impact water supply. Operation of the project would not result in an increase in the campus student population or workforce and therefore would not increase demand for water supply. As a result, the project would not result in a cumulatively considerable contribution to cumulative water supply impacts. The impact would be **less than significant**.

WASTEWATER TREATMENT

As noted in Section 3.14, "Utilities and Service Systems," the Vallejo Flood & Wastewater District provides wastewater treatment, collection, and disposal to the City of Vallejo and outlying areas, including Cal Maritime. All wastewater collected in the area served by the Vallejo Flood & Wastewater District is routed to the Ryder Street Wastewater Treatment Plant for treatment. The Ryder Street Wastewater Treatment Plant has a dry weather capacity of 15.5 mgd, a wet weather capacity of 60 mgd, and treats an average flow of 11.44 mgd (Cal Maritime 2017). The Vallejo Flood & Wastewater District reports and tracks its plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system through its Sewer System Management Plan. Similar to other utility infrastructure and water supply, if cumulative projects in Table 4-1 require construction of new or expanded wastewater treatment capacity, they would be required to identify mitigation measures to address potentially significant impacts. Wastewater treatment capacity is sufficient to accommodate past and projected development and there is no significant cumulative impact relative to this issue. As discussed in Impact 3.14-2, the project could generate a minor increase of wastewater during construction due to minor increase in water usage during construction; however, the increase would not be substantial and would therefore result in a negligible impact related to wastewater treatment requirements. The project would not increase wastewater generation during operation because the project would not increase student and staffing population beyond existing university projection. As a result, the project would not result in a cumulatively considerable contribution to cumulative wastewater collection and treatment system impacts. The impact would be **less than significant**.

SOLID WASTE

Generally, the capacity of solid waste facilities in Solano County and the region is continually declining as cumulative development and ongoing disposal reduces remaining capacity. However, the project's solid waste generation would be served by multiple landfills in the region, including Recology Hay Road Landfill and Potrero Hills Landfill. The project would generate approximately 12,000 tons of solid waste during construction from all three phases. The landfills that receive waste generated at the project site are projected to have remaining capacity until at least 2048 (refer to Impact 3.14-3 in Section 3.14, "Utilities and Service Systems"). Once operational, the project would not increase solid waste generation beyond existing conditions. Therefore, the project contribution to the cumulative impacts on capacity of solid waste facilities would not be cumulatively considerable. The impact would be **less than significant**.

4.3.15 Wildfire

As discussed in Section 4.3.8, "Hazards and Hazardous Materials," above, there is an existing significant cumulative impact associated with wildland fires in the California because the frequent and intensive wildland fires in the state have exposed people and structures to a potentially significant loss of life and property. The project site is not located in an area of high wildland fire risk, and the project would not involve development that would exacerbate wildland fire risk; require the installation or maintenance of infrastructure that would exacerbate wildfire risk; cause a significant risk of loss, injury, or death involving wildland fires; expose people or structures to significant post-fire risks, including postfire flooding or landslides; or substantially impair an adopted emergency response plan or evacuation plan (refer to Impacts 3.15-1 and 3.15-2 in Section 3.15, "Wildfire,"). The project impacts related to wildfire would be less than significant. The cumulative projects are located in urbanized areas that are not anticipated to be subject to a high wildfire risk, as discussed above in Section 4.3.8. The risk of exposure to wildfire is low. The project's contribution to an existing cumulative impact would not be cumulatively considerable. Implementation of the project would not impede or conflict with adopted emergency response and evacuation plans (refer to Impact 3.6-2). Implementation of the cumulative projects would be required to comply with applicable emergency response and evacuation policies outlined in regulations such as the Federal Response Plan, the California Emergency Services Act, and local fire codes. Compliance with the existing regulations would ensure that the cumulative projects would not result in a significant impact. Therefore, implementation of the project, in combination of the cumulative projects, would not result in a substantial incremental effect that would result in a significant cumulative impact related to impediments and conflicts with adopted emergency response and evacuation plans. The cumulative impact related to wildfire would be **less than significant**.

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5 ALTERNATIVES

5.1 INTRODUCTION

The California Code of Regulations (CCR) Section 15126.6(a) (State CEQA Guidelines) requires EIRs to describe "… a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a range of potentially feasible alternatives that will avoid or substantially lessen the significant adverse impacts of a project, and foster informed decision making and public participation. An EIR is not required to consider alternatives that are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason." This section of the State CEQA Guidelines also provides guidance regarding what the alternatives analysis should consider. Subsection (b) further states the purpose of the alternatives analysis is as follows:

> Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code [PRC] Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The State CEQA Guidelines require that the EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be discussed, but in less detail than the significant effects of the project as proposed (CCR Section 15126.6[d]).

The State CEQA Guidelines further require that the "no project" alternative be considered (CCR Section 15126.6[e]). The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving a proposed project with the impacts of not approving the proposed project. If the no project alternative is the environmentally superior alternative, CEQA requires that the EIR "…shall also identify an environmentally superior alternative among the other alternatives." (CCR Section 15126[e][2]).

In defining "feasibility" (e.g., "… feasibly attain most of the basic objectives of the project …"), CCR Section 15126.6(f) (1) states, in part:

> Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

In determining what alternatives should be considered in the EIR, it is important to consider the objectives of the project, the project's significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by the lead agency's decision-making body, here the California State University Board of Trustees (Board). (See PRC Sections 21081.5, 21081[a] [3].)

5.2 CONSIDERATIONS FOR SELECTION OF ALTERNATIVES

5.2.1 Attainment of Project Objectives

In determining what alternatives should be considered in the EIR, the objectives of the project must be considered, as attainment of most of the basic objectives forms one of the tests of whether an alternative is feasible (see discussion above). Cal Maritime identified the follow project objectives, as previously described (see Chapter 2, "Project Description"):

- Upgrade Cal Maritime's in-water and landside facilities and infrastructure to accommodate berthing and operation of the NSMV, as follows:
  - Replace the main pier and potentially the existing trestle (or causeway) to accommodate the larger NSMV, meet heavy-weather mooring requirements, and allow access to the NSMV by trucks and equipment needed for operation and maintenance of the vessel.
  - Provide necessary new and upgraded infrastructure and utilities sized to support the NSMV.
  - Upgrade the existing marine yard to accommodate improved access, a staging area for ship supplies for the annual training cruise, training areas, support for embarkation and debarkation, and US Coast Guard–required port security measures.
- Upgrade and replace infrastructure to facilitate efficient waterfront operations important for Cal Maritime's educational mission and expansion of cadet instruction.
- Increase hands-on maritime instructional opportunities for cadets to move beyond traditional classroom experience and gain in-water experience.
- Allow for NSMV to operate as an extension of Cal Maritime facilities and provide maritime training and education for cadets.
- Expand and optimize the boat basin to allow simultaneous safe movement of more than two vessels for academic on-water instruction and recreational activities; accommodate Cal Maritime training and small recreational craft currently moored off-site because of lack of space; and accommodate an expanded Cal Maritime fleet of vessels, including a new replacement tug and oceanographic or similar research vessel.
- Dredge the existing and expanded boat basin to ensure depth sufficient to accommodate small vessel programs at the university.
- Ensure that the TSGB remains accessible for instructional use during Phase One implementation of the Waterfront Master Plan.
- Rehabilitate the boathouse in a manner that retains its historic integrity.
- Link campus buildings with waterfront open space and enhance public pedestrian and bicycle access to and along an activated waterfront.
- Ensure waterfront resilience, including the shoreline upland and transition zones that support public open space and recreational use, to climate and storm-related stresses.
- Protect ecological functioning along the waterfront, including upland, intertidal, and subtidal components.
- Allow the NSMV to be requisitioned by FEMA for emergency use, as needed.

5.2.2 Summary of Waterfront Master Plan Impacts

The Executive Summary chapter of this EIR presents a detailed summary of the potential environmental impacts of implementation of the Waterfront Master Plan. Overall, the Waterfront Master Plan would result in less than significant impacts after mitigation with respect to biological resources, cultural and tribal cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality; and significant and unavoidable project and cumulative impacts with respect to a historic era archaeological resource.

5.3 ALTERNATIVES CONSIDERED BUT NOT EVALUATED FURTHER

As described above, State CEQA Guidelines Section 15126.6(c) provides that the range of potential alternatives for the project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. Alternatives that fail to meet the fundamental project purpose need not be addressed in detail in an EIR. (*In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* (2008) 43 Cal.4th 1143, 1165-1167.)

In determining what alternatives should be considered in the EIR, it is important to acknowledge the objectives of the project, the project's significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by lead agency decision-maker(s). (See Pub. Resources Code, § 21081(a)(3).) At the time of action on the project, the decision-maker(s) may consider evidence beyond that found in this EIR in addressing such determinations. The decision-maker(s), for example, may conclude that a particular alternative is infeasible (i.e., undesirable) from a policy standpoint, and may reject an alternative on that basis provided that the decision-maker(s) adopts a finding, supported by substantial evidence, to that effect, and provided that such a finding reflects a reasonable balancing of the relevant economic, environmental, social, and other considerations supported by substantial evidence. (*City of Del Mar v. City of San Diego* (1982) 133 Cal.App.3d 401, 417; *California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 998.)

The EIR should also identify any alternatives that were considered by the lead agency but were rejected during the planning or scoping process and briefly explain the reasons underlying the lead agency's determination.

The following alternatives were considered by Cal Maritime but are not evaluated further in this ~~Draft~~ EIR.

5.3.1 Larger Pier Alternative

Under this alternative, Cal Maritime would construct a larger pier with a maximum length of 470 feet and width of 70 feet for berthing the NSMV, which would allow for a larger operational area on the pier in line with MARAD's desire for some degree of staging and loading of the NSMV during emergency deployment activities and also reduce the high levels of congestion that can occur on the existing pier. This alternative would require a wider linking area/trestle between the pier and the landside maintenance yard and relocation of the electrical substation, boiler building, and storage areas at the foot of the Main Pier. This alternative would include buildout of all other elements proposed in Phases One, Two, and Three.

This alternative was considered because of the potential for the need for a larger berthing area for a new training ship. However, construction of a substantially larger pier and linking trestle would require greater in-water and landside disturbance during construction, placement of additional piles, and result in additional over water shading. This alternative would result in potentially greater impacts on archaeological, historical, and tribal cultural resources, biological resources, geology and soils, hazards and hazardous materials, and hydrology and water quality.

Additionally, it was determined by Cal Maritime that the university does not require a pier larger than what is needed to support the berthing of the NSMV, and a 70-foot-wide linking trestle is not required to meet the educational requirements of the Cal Maritime programs. Cal Maritime prioritizes use of the trestle and pier for training and education of future mariners; the pier is not intended to serve as a commercial pier from which the NSMV would be outfitted for FEMA or humanitarian voyages. Moreover, the larger pier alternative would not reduce or avoid any significant adverse effects of the project as proposed. Therefore, it was rejected from further consideration.

5.3.2 Pier Replacement Only Alternative

The Pier Replacement Only Alternative would involve Cal Maritime constructing only the pier improvements absolutely necessary to accommodate the NSMV. Under this alternative, the existing boat basin would not be improved or expanded and none of the other improvements proposed in the Waterfront Master Plan would be completed. The pier would be replaced as described in Chapter 2, Project Description, and would involve demolition of the existing pier and construction of a new pier approximately 450 feet long and 50 feet wide (an increase of approximately 230 feet in length and 20 feet in width). The replacement pier would also be in the same location as the existing pier. In addition, only utility upgrades necessary to meet the requirements associated with operation of the NSMV would be completed. Under this alternative, the existing trestle also would not be replaced and only the minimal structural upgrades would be completed to accommodate the NSMV. The existing boat basin would not be expanded, and floating docks would not be replaced. Space would continue to be limited in the existing boat basin for Cal Maritime training and recreational vessels where only two vessels can safely move and operate simultaneously. Scheduling and timing of academic instruction would also continue to be constrained as a result of maintaining the existing boat basin. Improvements to the Marine Yard to allow for increased training opportunities as well as vehicle turning movements would also not occur. With replacement of the pier only to accommodate the NSMV, this alternative would result in reduced impacts on biological resources, cultural resources, geology and soils, hazards and hazardous materials, and hydrology and water quality. In addition, this alternative would avoid significant and unavoidable project-level and cumulative impacts related to a historic era archaeological resource (shipwreck). However, while implementation of this alternative would allow Cal Maritime to accommodate the NSMV, it would not meet many of the other basic project objectives, and thus this alternative was rejected from further consideration.

5.3.3 Temporary Berthing of TSGB at Mare Island

Under this alternative, Cal Maritime would temporarily berth the TSGB at Mare Island during construction of Phase One to allow for pier improvements at the university and to avoid any disruption in hands-on training and other shipboard programs. During preparation of this EIR, Cal Maritime contacted and coordinated with Mare Island to temporarily berth TSGB at Mare Island for the duration of construction of Phase One. This alternative would require dredging of approximately 20,000 cubic yards of sediment at the potential berth location to accommodate the TSGB. In addition, for cadets to be able to continue to receive instruction aboard the TSGB, Cal Maritime would need to lease approximately 25,000 square feet of landside space for instructional use. Similar to the proposed project, Cal Maritime would operate a shuttle between the main campus and temporary berth at Mare Island to transport cadets, faculty, and staff as needed. No landside facility or infrastructure (i.e., power, water supply, and sanitary sewer utilities) improvements would be needed to accommodate the TSGB beyond the installation of fenders along the dock to absorb the ship's impact when docking. However, at the conclusion of discussions with Mare Island it was determined that temporary berthing of TSGB at Mare Island would not be feasible because of structural and safety limitations of the berthing facilities at Mare Island. More specifically, the safety of the aging Mare Island facilities, potential security issues related to berthing the TSGB at Mare Island, and the limited mooring capacity at Mare Island were concerns. Additionally, power, fuel and waste infrastructure at Mare Island are insufficient to support both berth the TSGB and be in-port operation. Potential safety issues also were identified related to the travel related risks associated with students being required to leave campus to access the temporary berthing location at Mare Island. Therefore, this alternative was dismissed from further consideration.

5.3.4 No New Dredging

The No New Dredging Alternative would implement all the elements of the Waterfront Master Plan but would retain the existing maintenance dredging footprint only. Thus, this alternative would not result in the 40,000 cubic yards of new dredging anticipated from the expanded boat basin proposed in Phase One and would not result in the additional 30,000 cubic yards of dredge material in Phase Two for creation of Boat Basin 2. This alternative would reduce impacts on biological resources, cultural resources, hazards and hazardous materials, and hydrology and water quality, including avoiding significant and unavoidable project-level and cumulative impacts related to the historic era archaeological resource (shipwreck). However, it would not meet some of the project's basic objectives such as ensuring the existing boat basin's depth to accommodate the small vessel programs at the university; increasing the university's ability to provide cadets with greater in-water experience; and expanding and optimizing the existing boat basin's capabilities and allow for simultaneous safe movement of more than two vessels for academic on-water instruction and recreational activities. Therefore, this alternative was rejected from further consideration.

5.3.5 Off-Site Alternative

Under the Off-Site Alternative, no improvements would be made to the existing pier or the university's waterfront to accommodate the NSMV. Instead, the NSMV would be permanently berthed at the Suisun Bay Reserve Fleet (SBRF), which is a federal facility in Suisun Bay east of campus and under the jurisdiction of MARAD, and no improvements under the Waterfront Master Plan would be developed. Other than the proposed project site, the only possible location with sufficient space and infrastructure to accommodate a large vessel and student access and education capabilities is the proposed temporary berth location at the SBRF. This location could support Cal Maritime programs; however, Cal Maritime would be required to permanently operate a land-based shuttle between the main campus and the NSMV mooring at SBRF to transport cadets, faculty, and staff. Also, Cal Maritime would need to negotiate a long-term lease agreement with MARAD to operate the NSMV and run educational programs at the SBRF. Another shortcoming of this alternative is it is not equipped to manage hands-on maritime instruction for cadets because students are not licensed mariners and thus would not be permitted to operate some of the marine vessels they train on at the university. Also, SBRF does not the have the facilities in place to permanently berth the NSMV because it operates solely as an anchorage facility for reserve ships not in operation, that have been decommissioned, or awaiting disposal. While this alternative would avoid many of the proposed project's environmental impacts (e.g., to biological resources, cultural resources, geology and soils, hazards and hazardous materials, and hydrology and water quality), it would result in increased emissions and VMT from students, faculty and staff commuting daily to and from the SBRF. This alternative also would not meet some of the project's basic objectives such as upgrading Cal Maritime's in-water and landside facilities and infrastructure to accommodate berthing and operation of the NSMV and upgrading and replacing aging infrastructure to facilitate efficient waterfront operations important for Cal Maritime's educational mission and expansion of cadet instruction. In addition, this alternative would conflict with the mission of the NSMV and university objectives to allow the NSMV to operate as an extension of Cal Maritime facilities and education and training programs. Therefore, this alternative was rejected from further consideration.

5.4 ALTERNATIVES SELECTED FOR DETAILED ANALYSIS

The following alternatives are evaluated in this ~~Draft~~ EIR given their feasibility, ability to avoid or reduce project impacts, and consistency with project objectives.

- **Alternative 1: No Project–No Development Alternative** assumes no buildout of the Waterfront Master Plan and thus no arrival of the NSMV. The project site, pier, trestle, and other waterfront elements would remain in their current condition, there would be no delivery of the NSMV to the university, and the TSGB would remain as the cadets' primary experience for hands-on applied instruction until its retirement date.
- **Alternative 2: No Master Plan–Mooring Dolphin Only Alternative** assumes no buildout of the Waterfront Master Plan, maintaining the existing pier and trestle, and constructing four new mooring dolphins approximately 30 feet farther out in Morrow Cove to allow berthing of the NSMV at the university without upgrades to the existing pier.
- **Alternative 3: No Boat Basin 2 (Historic Preservation) Alternative** assumes development of all phases of the Waterfront Master Plan except Boat Basin 2.
- **Alternative 4: No Boathouse, Shoreline, or Public Access Improvements Alternative** assumes development of all components of the Waterfront Master Plan except the boathouse rehabilitation and the shoreline and public access improvements proposed in Phases Two and Three.

Further details on these alternatives are provided below.

5.4.1 Alternative 1: No Project–No Development Alternative

Under Alternative 1, the No Project–No Development Alternative, no action would be taken by Cal Maritime: the project site would remain unchanged from current conditions, and the NSMV would not be delivered to replace the TSGB. No improvements would be made to the pier or the waterfront, and the TSGB would remain as the cadets' primary experience for hands-on applied instruction until its retirement date (2030). After the TSGB is recalled in 2030, the Cal Maritime Academy would not be able to fulfill its mission to provide high-quality licensed officers and other personnel for the merchant marine and national maritime industries. Additionally, the purpose and need for the project would not be met: the new NSMV would not be able to moor at the university, and there would be no training ship for the university to provide hands-on instruction and training related to large craft navigation, maintenance, and other ship provisioning operations for the merchant marine and national maritime industries. This would ultimately eliminate the hands-on maritime educational component at Cal Maritime and for the CSU. Additionally, the existing pier would continue to deteriorate and no longer be able to safely moor or provide access to any vessels.

While the No Project – No Development Alternative would not meet the project objectives, as required by CEQA, the No Project – No Development Alternative is evaluated in this ~~Draft~~ EIR. Although it is acknowledged that under the No Project–No Development Alternative, there would be no discretionary action by the State and thus no impact, for purposes of comparison with the other action alternatives, conclusions for each technical area are characterized as "impacts" that are greater, similar, or less, to describe conditions that are worse than, similar to, or better than those of the proposed project.

AESTHETICS

As described in Section 3.1, Aesthetics, project impacts related to scenic vistas, scenic quality, and light and glare would be less than significant (see Impact 3.1-1 through Impact 3.1-3).

Impacts related to scenic vistas, scenic quality, and light and glare would be less than significant for Alternative 1. Visual changes would be reduced or eliminated as compared to the proposed project given that there would be no actions taken by Cal Maritime and the project site would remain unchanged from current conditions. No improvements would be made to the pier or waterfront, and the NSMV would not be delivered to replace the TSGB. No development of the project site under Alternative 1 would avoid any potential for impacts to scenic vistas, scenic quality or light and glare. However, without the improvements offered by the proposed project, the existing pier would continue to deteriorate, which could ultimately be unsightly, and it would no longer be able to safely moor or provide access to any vessels. As described in Section 3.1, Aesthetics, impacts of the project as proposed related to scenic vistas, scenic quality, and light and glare would be less than significant (see Impact 3.1-1 through Impact 3.1-3), so Alternative 1 would not serve to reduce any significant effects. Overall, aesthetic impacts under Alternative 1 would be less, as compared to the proposed project (*less impact*).

AIR QUALITY

As described in Section 3.2, Air Quality, proposed project impacts related to conflicts with the applicable air plan, criteria air pollutant emissions, exposure to substantial pollutant emissions, and emissions affecting a substantial number of people would be less than significant (see Impact 3.2-1 through Impact 3.2-5).

Impacts related to air quality would be less under Alternative 1 as compared to the proposed project. Impacts would be reduced as compared to the proposed project given that no development would be implemented under this alternative. Construction and operational emissions associated with this alternative would not exceed adopted BAAQMD thresholds or generate sources of odors as defined by BAAQMD. Overall, air quality impacts under Alternative 1 would be reduced, as compared to the proposed project (*less impact*).

BIOLOGICAL RESOURCES

As described in Section 3.3, Biological Resources, proposed project impacts related to special-status plant species would be reduced to less than significant with the implementation of Mitigation Measure 3.3-1 (see Impact 3.3-1). Proposed project impacts related to special-status wildlife species would be reduced to less than significant with the implementation of Mitigation Measure 3.3-2a through Mitigation Measure 3.3-2m (see Impact 3.3-2). Proposed project impacts related to adverse effects on essential fish habitat would be less than significant with implementation of Mitigation Measure 3.3-3 (see Impact 3.3-3) and proposed project impacts to wildlife corridors (aquatic) would be less than significant (see Impact 3.3-4) with implementation of Mitigation Measure 3.3-2c and Mitigation Measure 3.3-4. The proposed project would result in no impacts related to riparian and wetland habitat, terrestrial wildlife movement corridors or native wildlife nursery sites, or conflicts with policies and ordinances protecting biological resources or with an adopted HCP.

Because there would be no changes to the existing environment, Alternative 1 would result in no impact related to special-status plant and wildlife species, aquatic sensitive natural communities and other sensitive habitat wildlife movement corridors and native wildlife nursery sites. However, because the proposed project would result in less than significant effects to biological resources, Alternative 1 would not serve to reduce any such effects (*less impact*).

ARCHAEOLOGICAL, HISTORICAL, AND TRIBAL CULTURAL RESOURCES

As described in Section 3.4, Archaeological, Historical, and Tribal Cultural Resources, proposed project impacts related to historic resources (the Cal Maritime boathouse) would be reduced to less than significant with the implementation of Mitigation Measure 3.4-1 (see Impact 3.4-1). Implementation of Mitigation Measure 3.4-2 would reduce impacts to the shipwreck *Contra Costa*, a NRHP- and CRHR-eligible archaeological resource (see Impact 3.4-2), but not to a level that is less than significant. The proposed project would remove all or a portion of the shipwreck, resulting in the loss of this archaeological resource. The impact would be significant and unavoidable. Proposed project impacts related to unknown archaeological resources would be reduced to less than significant with the implementation of Mitigation Measure 3.4-3 (see Impact 3.4-3). Proposed project impacts related to tribal cultural resources would be reduced to less than significant with the implementation of Mitigation Measure 3.4-3 (see Impact 3.4-4). The proposed project would result in less than significant impacts related to human remains (Impact 3.4-5).

Under Alternative 1, impacts related to undiscovered archaeological resources, tribal cultural resources, and disturbance to human remains would be reduced as compared to the proposed project because no development or action would occur. As noted above, under the proposed project, modifications to a historic structure could adversely affect its historic status. Impacts to a historical resource, including to a historic era archaeological resource (shipwreck), would be reduced as compared to the proposed project under this alternative because no development or action, such as dredging, would occur. Therefore, the potential to impact historic resources would be correspondingly reduced (*less impact; significant and unavoidable historic era archaeological resource impact avoided*).

ENERGY

As described in Section 3.5, Energy, proposed project impacts related to wasteful, inefficient, or unnecessary consumption of energy and conflicts with or the obstruction of state or local plans for renewable energy or energy efficiency would be less than significant (see Impact 3.5-1 and Impact 3.5-2).

Under Alternative 1, no development or action would occur, as compared to the proposed project, which would result in reduced construction activities and fuel use during construction. During operation, because no development or action would occur, the number of vehicles trips to and from the project site would also be reduced. Because no development would occur under this alternative, Alternative 1 would require decreased energy demand compared to the proposed project (*less impact*).

GEOLOGY AND SOILS

As described in Section 3.6, Geology, Soils and Mineral Resources, proposed project impacts related to seismic hazards, soil erosion, unstable geologic units or soils, and expansive soils would be less than significant (see Impact 3.6-1 and Impact 3.6-2). Proposed project impacts related to paleontological resources would be reduced to less than significant with the implementation of Mitigation Measure 3.6-3a and Mitigation Measure 3.6-3b (see Impact 3.~~7~~6-3). The proposed project would result in no impacts related to earthquake fault rupture, septic tanks or alternative wastewater disposal systems, and the loss of availability of a known mineral resource or locally important mineral resource recovery site.

Impacts related to seismic hazards, soil erosion, unstable geologic units or soils, and expansive soils would be less under Alternative 1 as compared to the proposed project. Impacts would be further reduced as compared to the proposed project given no development or action would occur under this alternative (; less impact).

Impacts related to paleontological resources under Alternative 1 would also be reduced, as compared to the proposed project, as the potential to encounter paleontological resources would be reduced given that no ground disturbing activities would occur due to the lack of development or action under this alternative (*less impact*).

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

As described in Section 3.7, Greenhouse Gas Emissions and Climate Change, proposed project impacts related to the generation of greenhouse gas (GHG) emissions and conflicts with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases would be less than significant (see Impact 3.7-1).

Because no action would occur under Alternative 1, it would not result in GHG emissions. Similar to the proposed project, Alternative 1 would not result in increased mobile-source GHG emissions because the proposed project would not expand residential or employee capacity. This alternative would be consistent with BAAQMD's adopted thresholds, and thus would not generate GHG emissions that would cause a significant impact or conflict with an adopted GHG reduction plan. Overall, impacts related to GHG emissions under Alternative 1 would be reduced, as compared to the proposed project (*less impact*).

HAZARDS AND HAZARDOUS MATERIALS

As described in Section 3.8, Hazards, Hazardous Materials, proposed project impacts related to routine transport, use, or disposal of hazardous materials; upset and release of hazardous materials; emergency response; and wildfire hazards would be less than significant (see Impact 3.8-1, Impact 3.8-3 and Impact 3.8-4). Proposed project impacts related to the release of and exposure to hazardous materials during in-water proposed project construction would be reduced to less than significant with the implementation of Mitigation Measure 3.8-2 (see Impact 3.8-2). The proposed project would result in no impacts related to hazardous materials use near schools or airport safety.

Impacts related to hazards, hazardous materials, and wildfire would be less under Alternative 1 as compared to the proposed project. Hazardous materials are comprehensively governed by existing regulations that require proper storage and handling, environmental management plans, spill contingency plans, employee and public noticing, and other emergency preventive and response measures to minimize the risk of accidental releases and related environmental impacts. Because construction would not occur under this alternative, there would be no construction related hazards or hazardous materials impacts. Operations under this alternative would continue to comply with all applicable state and federal regulations. Overall, impacts would be reduced as compared to the proposed project given that no development would be implemented under this alternative (*less impact*).

HYDROLOGY AND WATER QUALITY

As described in Section 3.9, Hydrology and Water Quality, proposed project impacts related to water quality and the attainment of water quality standards would be less than significant with the implementation of Mitigation Measure

3.3-2d through 3.3-2h (see Impact 3.9-1). Proposed project impacts related to groundwater supplies and recharge would be less than significant (see Impact 3.9-2). Proposed project impacts related to substantially altering the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would: result in substantial erosion, siltation or flooding on- or off-site; create or contribute runoff water that would exceed the capacity of existing or planned stormwater- drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows (see Impact 3.9-3) would be less than significant with implementation of Mitigation Measure 3.3-2d, Mitigation Measure 3.3-2f, and Mitigation Measure 3.9-1. All project phases could result in the release of pollutants due to project inundation, however proposed project impacts would be less than significant with implementation of Mitigation Measure 3.3-2d, Mitigation Measure 3.3-2f, and Mitigation Measure 3.9-2. Proposed project impacts related to a conflict with or obstruction of implementation of a water quality control plan or sustainable groundwater management plan would be less than significant with implementation of Mitigation Measure 3.3-2d, Mitigation Measure 3.3-2f, 3.3-2g, and 3.3-2h.

Impacts related to hydrology and water quality would be less under Alternative 1, as compared to the proposed project, given that development or action would not be implemented under this alternative. Similar to the proposed project, Alternative 1 would not use groundwater, would not result in structures or surfaces that would interfere with groundwater recharge, and would not draw upon existing groundwater supply and would have a less than significant impact on groundwater resources. Overall, hydrology and water quality impacts under Alternative 1 would be reduced as compared to the proposed project (*less impact*).

LAND USE AND PLANNING

As described in Section 3.10, Land Use and Planning, proposed project impacts related to conflicts with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect would be less than significant (see Impact 3.10-1). The proposed project would result in no impacts related to physically dividing an established community.

Impacts related to land use and planning would also be less under Alternative 1 as compared to the proposed project. Like the proposed project, Alternative 1 would not physically divide an established community as it would not involve any development and would not otherwise result in the construction of physical barriers or removal or impairment of access to the campus or surrounding areas. Alternative 1 would also not conflict with relevant local general plan policies or the Physical Master Plan. Overall, impacts would be reduced as compared to the proposed project given that no development or action would be implemented under this alternative (*less impact*).

NOISE AND VIBRATION

As described in Section 3.11, Noise and Vibration, proposed project impacts related to temporary construction noise and vibration would be less than significant (see Impacts 3.11-1 and 3.11-2). Proposed project impacts related to permanent operational noise would be less than significant and long-term operational noise sources would not exceed the Vallejo Municipal Code noise standards at the nearest off-site residential receptors (see Impact 3.11-3). The proposed project would have no impacts related to airport noise, operational vibration, or traffic noise.

Alternative 1 impacts related to temporary construction noise and vibration would be less as compared to the proposed project. Construction noise and vibration impacts would be reduced as compared to the proposed project given that no development or action would occur under this alternative. Overall, construction noise and vibration under Alternative 1 would be reduced, as compared to the proposed project (*less impact*).

Operational impacts would also be reduced because long-term operational noise sources would not occur (*less impact*).

PUBLIC SERVICES AND RECREATION

As described in Section 3.12, Public Services and Recreation, proposed project impacts related to the provision of new or physically altered fire, police, parks and recreation facilities, and the physical deterioration of parks and recreation facilities would be less than significant (see Impact 3.12-1 and Impact 3.12-2). The proposed project would result in no impact related to schools or other public services.

Impacts related to public services and recreation would be less under Alternative 1 as compared to the proposed project. Alternative 1 would not result in any increase in population that would increase the demand for fire, police, and parks and recreation services, and would not result in the need for new or physically altered fire, police, schools and parks and recreation facilities that could cause significant environmental impacts. Alternative 1 would also not result in the physical deterioration of parks and recreation facilities, however, this alternative would not gain the benefits associated with shoreline enhancements and public access and ecological improvements proposed in Phases Two and Three. Overall, impacts would be reduced as compared to the proposed project given that no development would be implemented under this alternative (*less impact*).

TRANSPORTATION/TRAFFIC

As described in Section 3.13, Transportation, proposed project impacts related to conflicts with a program, plan, ordinance or policy addressing the circulation system, and an increase in hazards related to a design feature or incompatible use would be less than significant (see Impact 3.13-1 and Impact 3.13-2). The proposed project would result in no impacts related to VMT and emergency access.

Impacts related to transportation would be less under Alternative 1 as compared to the proposed project. Because no development of the waterfront would occur under this alternative, transportation impacts related to conflicts with a program, plan, ordinance or policy addressing the circulation system, and design hazards, would also be reduced. This alternative would not result in increased vehicle trips to and from the project site and would not result in changes to the current vehicular circulation, resulting in no impacts. Overall, impacts would be reduced as compared to the proposed project given that no development would be implemented under this alternative (*less impact*).

UTILITIES AND SERVICE SYSTEMS

As described in Section 3.14, Utilities and Service Systems, proposed project impacts related to adequacy of water supplies and wastewater treatment capacity, and solid waste would be less than significant (see Impact 3.14-1, Impact 3.14-2 and Impact 3.14-3). Infrastructure improvements for the proposed project (water supply, wastewater, stormwater, natural gas, electrical, and telecommunications) would be limited to on-site improvements. ~~Draft~~ EIR Sections 3.1 through 3.15 address the environmental impacts of the construction of on-site infrastructure improvements and describe mitigation measures to address identified significant impacts and were not discussed further in Section 3.14, Utilities and Service Systems.

Impacts related to utilities and service systems would be less under Alternative 1 as compared to the proposed project. Like the proposed project, Alternative 1 would not increase student enrollment or campus staffing. Thus, no new or expanded water entitlements would be required. Sufficient water supplies would be available to continue to serve existing project components under Alternative 1, as the City of Vallejo anticipates meeting its current and 2045 projected water demand based on projections from the 2020 UWMP. Alternative 1 would not generate an increase of wastewater during construction as no development would occur under this alternative. Similar to the proposed project, Alternative 1 would not create an increase in wastewater during operation because there would be no increase in enrollment or staffing beyond existing university projections. Therefore, impacts related to wastewater treatment capacity would be less than significant. Alternative 1 would not generate solid waste in excess of state standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. Overall, impacts would be reduced as compared to the proposed project given that no development would be implemented under this alternative (*less impact*).

WILDFIRE

As described in Section 3.15, Wildfire, proposed project impacts related to exposing people or structures to the risk of loss, injury, or death directly from wildland fires or post-fire flooding or landslides; or conflicts with or physically interfere with an adopted emergency response plan would be less than significant (see Impacts 3.15-1 and 3.15-2).

Impacts related to wildfire would be less under Alternative 1 as compared to the proposed project. Under this alternative, no construction would occur and university operations would continue to be integrated with local and regional emergency response systems. Alternative 1 would also not conflict with or physically interfere with an adopted emergency response plan. Overall, impacts would be reduced as compared to the proposed project under this alternative because no development would occur (*less impact*).

ABILITY TO MEET PROJECT OBJECTIVES

Alternative 1 would not meet any of the identified project objectives (see numbered objectives in Table 5-2). Conversely, this alternative would eliminate the hands-on maritime educational component at Cal Maritime and the CSU system, after the TSGB retires in 2030. Additionally, Cal Maritime would not be able to fulfill its mission to provide the highest quality licensed officers and other personnel for the merchant marine and national maritime industries. Under this alternative, the NSMV would not be delivered to replace the TSGB and the University would not upgrade infrastructure and facilities that support other campus and public waterfront-dependent program needs.

5.4.2 Alternative 2: No Master Plan–Mooring Dolphin Only Alternative

Under Alternative 2, the No Master Plan–Mooring Dolphin Only Alternative, no improvements under the Waterfront Master Plan would be constructed, and the existing pier, trestle, and waterfront would remain in its current condition. Instead, Cal Maritime would construct four new mooring dolphins approximately 30 feet farther out in Morrow Cove to provide NSMV berthing accommodations at the university without upgrades to the existing pier. Because no development would occur under this alternative, it would reduce impacts on biological resources, geology and soils, and hydrology and water quality. Given that less ground-disturbing and construction related activities would occur, the potential for impacts on biological resources, geology and soils, hazardous materials, and hydrology and water quality related to the development of Phases One, Two, and Three would not be implemented or occur. However, as a result of all Phase One, Two, and Three components not occurring under this alternative, impacts on aesthetics would be greater than the proposed project, as the scenic quality and character of the campus would deteriorate. Additionally, under this alternative, students would not have full-time immediate access to the ship and would need to be shuttled on water to gain access to the ship. Shuttling students on water to and from the ship would also limit emergency response capabilities in the event of an emergency or fire and would create gangway safety issues for obtaining access on to the ship. Also, this alternative would not meet the operational needs of the ship and University objectives for training and education in maritime activities such as training cadets in roll-on/roll-off functionality. In addition, because this alternative would have the NSMV moored further out in Morrow Cove with no direct access to the ship, it would not meet project objectives to update the existing marine yard to accommodate improved access, create a staging area for ship supplies for the annual training cruise, establish training areas, support embarkation and debarkation, and implement US Coast Guard–required port security measures.

AESTHETICS

As described in Section 3.1, Aesthetics, project impacts related to scenic vistas, scenic quality, and light and glare would be less than significant (see Impact 3.1-1 through Impact 3.1-3).

Impacts related to scenic vistas, scenic quality, and light and glare would be less under Alternative 2 as compared to the proposed project. Visual changes would be reduced or eliminated as compared to the proposed project given that no improvements under the Waterfront Master Plan would be constructed, and the existing pier, trestle, and waterfront would remain in its current condition. Similar to the proposed project overall, development of the mooring dolphins would not otherwise significantly impact scenic vistas, scenic quality or light and glare. Development of all components of Phase One, Phase Two, and Phase Three would not occur under this alternative which would reduce impacts to visual resources and light and glare (see Section 3.1, Aesthetics). However, without the improvements offered by the proposed project, the existing pier would continue to deteriorate, which could ultimately be unsightly, and it would no longer be able to safely moor or provide access to any vessels. Overall, aesthetic impacts under Alternative 2 would be reduced as compared to the proposed project (*less impact*).

AIR QUALITY

As described in Section 3.2, Air Quality, proposed project impacts related to conflicts with the applicable air plan, criteria air pollutant emissions, exposure to substantial pollutant emissions, and emissions affecting a substantial number of people would be less than significant (see Impact 3.2-1 through Impact 3.2-5).

Impacts related to air quality would be less under Alternative 2 as compared to the proposed project. However, impacts would be reduced as compared to the proposed project given that construction activities and emissions associated with all components of Phase One, Phase Two, and Phase Three under this alternative, would not occur. Alternative 2 would be consistent with BAAQMD's 2017 Clean Air Plan, however, on-campus improvements related to promoting pedestrian/bicycle modes of transportation and decreasing on-campus parking, consistent with objectives of the Clean Air Plan would not occur, reducing some benefits of the proposed project. Given the limits on development under Alternative 2, construction and operational emissions associated with this alternative also would not exceed adopted BAAQMD thresholds or generate sources of odors as defined by BAAQMD, as reported for the proposed project in Section 3.2, Air Quality. Overall, air quality impacts under Alternative 2 would be reduced, as compared to the proposed project (*less impact*).

BIOLOGICAL RESOURCES

As described in Section 3.3, Biological Resources, proposed project impacts related to special-status plant species would be reduced to less than significant with the implementation of Mitigation Measure 3.3-1 (see Impact 3.3-1). Proposed project impacts related to special-status wildlife species would be reduced to less than significant with the implementation of Mitigation Measure 3.3-2a through Mitigation Measure 3.3-2m) (see Impact 3.3-2). Proposed project impacts related to adverse effects on essential fish habitat would be less than significant with implementation of Mitigation Measure 3.3-3 (see Impact 3.3-3) and proposed project impacts to wildlife corridors (aquatic) would be less than significant (see Impact 3.3-4) with implementation of Mitigation Measure 3.3-2c and Mitigation Measure 3.3-4. The proposed project would result in no impacts related to riparian and wetland habitat, terrestrial wildlife movement corridors or native wildlife nursery sites, or conflicts with policies and ordinances protecting biological resources or with an adopted HCP.

Alternative 2 impacts related to special-status plant and wildlife species, aquatic sensitive natural communities and other sensitive habitat wildlife movement corridors and native wildlife nursery sites would be reduced as compared to the proposed project; however, implementation of Mitigation Measure 3.3-2b through Mitigation Measure 3.3-2j, Mitigation Measure 3.3-2l, Mitigation Measure 3.3-3, and Mitigation Measure 3.3-4 would still be required. Mitigation Measure 3.3-2b through Mitigation Measure 3.3-2j would implement invasive species management procedures, an in-water work window, spill prevention and control measures, environmental awareness training, dust and debris control measures, sediment testing and dredging controls, creosote pile removal and disposal methods, methods to reduce sound attenuation from pile installation, and reduce or compensate for shading of open waters for Impact 3.3-2, impacts towards special-status wildlife species and habitats. Additionally, Mitigation Measure 3.3-2l would also be applicable to Impact 3.3-2, which would reduce construction impacts on marine mammals. Mitigation Measure 3.3-3 would require focused surveys and compensate for loss of eelgrass and would be applicable to Impact 3.3-3, disturbance to or loss of aquatic sensitive natural communities and other sensitive habitat. Impact 3.3-4, impacts to aquatic wildlife movement corridors and native wildlife nursery sites, would be mitigated through Mitigation Measure 3.3-4, which would design in-water structures to be permeable to fish movement. Since all components of Phase

One, Phase Two, and Phase Three would not occur under this alternative, the impacts stated above would be reduced from the construction of the new mooring dolphins. However, similar to the proposed project, this alternative would still require mitigation for potential impacts related to special-status plant and wildlife species, aquatic sensitive natural communities and other sensitive habitat wildlife movement corridors and native wildlife nursery sites, which would then be mitigated to less than significant. However, impacts would be reduced as compared to the proposed project given the limits on development under this alternative *(less impact*).

ARCHAEOLOGICAL, HISTORICAL, AND TRIBAL CULTURAL RESOURCES

As described in Section 3.4, Archaeological, Historical, and Tribal Cultural Resources, proposed project impacts related to historic resources (the Cal Maritime boathouse) would be reduced to less than significant with the implementation of Mitigation Measure-3.4-1 (see Impact 3.4-1). Implementation of Mitigation Measure 3.4-2 would reduce impacts to the shipwreck *Contra Costa*, a NRHP- and CRHR-eligible archaeological resource (see Impact 3.4-2). However, the proposed project would remove either the whole or a portion of the shipwreck, resulting in the loss of this archaeological resource. Mitigation Measure 3.4-2 would not reduce the impacts to a less-than-significant level; therefore, the proposed project would result in a significant and unavoidable impact to a known historic era archaeological resource. Proposed project impacts related to an unknown archaeological resource would be reduced to less than significant with the implementation of Mitigation Measure 3.4-3 (see Impact 3.4-3). Proposed project impacts related to tribal cultural resources would be reduced to less than significant with the implementation of Mitigation Measure-3.4-3 (see Impact 3.4-4). The proposed project would result in less than significant impacts related to human remains (Impact 3.4-5).

Alternative 2 impacts related to an undiscovered archaeological resource and tribal cultural resources would be reduced as compared to the proposed project with implementation of Mitigation Measure 3.4-3. Construction of the mooring dolphins under this alternative may result in some underwater ground disturbing activities, which has the potential to result in discovery or damage of an undiscovered archaeological resource. Mitigation Measure 3.4-3 would reduce impacts associated with archaeological resources by requiring the performance of professionally accepted and legally compliant procedures for the discovery and protection of previously undocumented significant archaeological resources. Under the proposed project, modifications to a historic structure could adversely affect its historic status. However, impacts to a historical resource would be reduced as compared to the proposed project under this alternative since the restoration and rehabilitation of the boathouse proposed in Phase Two, which has been recommended as eligible for listing in the NRHP/CRHR under Criterion A/1 would not occur. Additionally, impacts related to the disturbance of human remains would continue to be less than significant, as compared to the proposed project, as ground disturbing activities would still occur through the construction of the mooring dolphins. Therefore, the potential to impact historic, archaeological, tribal cultural resources, as well as human remains, would be correspondingly reduced (less impact).

Impacts to a historical resource, including to a historic era archaeological resource (shipwreck), would be reduced as compared to the proposed project under this alternative since all components of Phase One, Phase Two, and Phase Three would not occur. Therefore, the potential to impact historic resources would be correspondingly reduced (*less impact; significant and unavoidable historic era archaeological resource impact avoided*).

ENERGY

As described in Section 3.5, Energy, proposed project impacts related to wasteful, inefficient, or unnecessary consumption of energy and conflicts with or the obstruction of state or local plans for renewable energy or energy efficiency would be less than significant (see Impact 3.5-1 and Impact 3.5-2).

Under Alternative 2, reduced development would occur, as compared to the proposed project, which would result in reduced construction activities and less fuel use during construction. During operation, all components of Phase One, Phase Two, and Phase Three would not occur under this alternative which would reduce the number of vehicle trips to and from the project site. This alternative would require slightly decreased energy demand during construction and operation compared to the proposed project due to the limit of development (*less impact*).

GEOLOGY AND SOILS

As described in Section 3.6, Geology, Soils and Mineral Resources, proposed project impacts related to seismic hazards, soil erosion, unstable geologic units or soils, and expansive soils would be less than significant (see Impact 3.6-1 and Impact 3.6-2). Proposed project impacts related to paleontological resources would be reduced to less than significant with the implementation of Mitigation Measure 3.6-3a and Mitigation Measure 3.6-3b (see Impact 3.~~7~~6-3). The proposed project would result in no impacts related to earthquake fault rupture, septic tanks or alternative wastewater disposal systems, and the loss of availability of a known mineral resource or locally important mineral resource recovery site.

Impacts related to seismic hazards, soil erosion, unstable geologic units or soils, and expansive soil would be less under Alternative 2 as compared to the proposed project. Without the necessary seismic upgrades and rehabilitation of the boathouse under Phase Two, this alternative would ultimately render the boathouse unsafe and unable to provide cadet training, vessel storage, or woodworking and vessel service/demonstration areas. However, impacts would be reduced as compared to the proposed project given that less development would be implemented under this alternative (*less impact*).

Impacts related to paleontological resources under Alternative 2 would also be reduced as compared to the proposed project, because the potential to encounter paleontological resources would be reduced given that no ground disturbing activities under this alternative would occur. Particularly, the development of the Marine Programs Multi-Use Building would not occur under this alternative, which would reduce impacts related to paleontological resources (*less impact*).

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

As described in Section 3.7, Greenhouse Gas Emissions and Climate Change, proposed project impacts related to the generation of greenhouse gas (GHG) emissions and conflicts with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases would be less than significant (see Impact 3.7-1).

Alternative 2 impacts related to GHG would be reduced as compared to the proposed project due to the exclusion of components proposed in Phase One, Two, and Three. Similar to the proposed project, Alternative 2 would not result in increased mobile-source GHG emissions because the proposed project would not expand residential or employee capacity. While this alternative would result in shuttling students to the NSMV, this alternative would be consistent with BAAQMD's adopted thresholds, and thus would not generate GHG emissions that would cause a significant impact or conflict with an adopted GHG reduction plan similar to the proposed project (*less impact*).

HAZARDS AND HAZARDOUS MATERIALS

As described in Section 3.8, Hazards, Hazardous Materials, proposed project impacts related to routine transport, use, or disposal of hazardous materials; upset and release of hazardous materials; emergency response; and wildfire hazards would be less than significant (see Impact 3.8-1, Impact 3.8-3 and Impact 3.8-4). Proposed project impacts related to the release of and exposure to hazardous materials during in-water proposed project construction would be reduced to less than significant with the implementation of Mitigation Measure 3.8-2 (see Impact 3.8-2). The proposed project would result in no impacts related to hazardous materials use near schools or airport safety.

Impacts related to hazards, hazardous materials, and wildfire would be similar to the proposed project under Alternative 2. Hazardous materials are comprehensively governed by existing regulations that require proper storage and handling, environmental management plans, spill contingency plans, employee and public noticing, and other emergency preventive and response measures to minimize the risk of accidental releases and related environmental impacts. While this alternative would limit emergency response capabilities in the event of an emergency or fire and would create gangway safety issues as a result of shuttling students, as under the proposed project, construction and operation under this alternative would comply with all requirements, be integrated with local and regional emergency response systems, and the Cal Maritime Emergency Management Plan would be updated to reflect changes from implementation of Alternative 2, similar to the proposed project (*similar impact*).

As under the proposed project, this alternative would include construction of new mooring dolphins which could similarly result in the disturbance of buried contaminated sediment. Alternative 2 impacts related to the release of and exposure to hazardous materials during in-water project construction would be similar to the proposed project and still require implementation of Mitigation Measure 3.8-2 (*similar impact*).

Operations under this alternative would continue to comply with all applicable state and federal regulations. Overall, impacts would be reduced as compared to the proposed project given that less development would be implemented under this alternative (*less impact*).

HYDROLOGY AND WATER QUALITY

As described in Section 3.9, Hydrology and Water Quality, proposed project impacts related to water quality and the attainment of water quality standards would be less than significant with the implementation of Mitigation Measure 3.3-2d through 3.3-2h (see Impact 3.9-1). Proposed project impacts related to groundwater supplies and recharge would be less than significant (See Impact 3.9-2). Proposed project impacts related to substantially altering the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would: result in substantial erosion, siltation or flooding on- or off-site; create or contribute runoff water that would exceed the capacity of existing or planned stormwater- drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows (see Impact 3.9-3) would be less than significant with implementation of Mitigation Measure 3.3-2d, Mitigation Measure 3.3-2f, and Mitigation Measure 3.9-1. All project phases could result in the release of pollutants due to project inundation, however proposed project impacts would be less than significant with implementation of Mitigation Measure 3.3-2d, Mitigation Measure 3.3-2f, and Mitigation Measure 3.9-2(see Impact 3.9-4). Proposed project impacts related to a conflict with or obstruction of implementation of a water quality control plan or sustainable groundwater management plan would be less than significant with implementation of Mitigation Measure 3.3-2d, Mitigation Measure 3.3-2f, 3.3-2g, and 3.3-2h (see Impact 3.9-5).

Impacts related to hydrology and water would be less under Alternative 2 as compared to the proposed project with implementation of Mitigation Measure 3.3-2d through 3.3-2h, and Mitigation Measure 3.9-1. Mitigation Measures 3.3-2d through 3.3-2h would implement spill prevention practices and cleanup procedures, dust and debris control measures, sediment testing and dredging controls, as well as using appropriate creosote pile removal and disposal methods for Impacts 3.9-1, 3.9-3, 3.9-4, and 3.9-5. Mitigation Measure 3.9-1 would require a Coastal Evaluation Study to evaluate whether in-water elements would result in sediment dynamics, currents, and wave patterns, which would reduce impacts related to Impact 3.9-3. Together, these Mitigation Measures would reduce significant impacts related to water quality and water quality standards, alteration of existing drainage patterns, release of pollutants due to project inundation, and conflict with a water quality control plan or sustainable groundwater management plan to less than significant. Additionally, impacts would be reduced as compared to the proposed project given that increases in the area of impervious surfaces components proposed in Phases One, Two, and Three that could have the potential to affect water quality would not be implemented under this alternative. Similar to the proposed project, Alternative 2 would not use groundwater, would not result in structures or surfaces that would interfere with groundwater recharge, and would not draw upon existing groundwater supply and would have a less than significant impact on groundwater resources. Overall, hydrology and water quality impacts under Alternative 2 would be reduced as compared to the proposed project (*less impact*).

LAND USE AND PLANNING

As described in Section 3.10, Land Use and Planning, proposed project impacts related to conflicts with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect would be less than significant (see Impact 3.10-1). The proposed project would result in no impacts related to physically dividing an established community.

Impacts related to land use and planning would be less under Alternative 2 as compared to the proposed project. Like the proposed project, Alternative 2 would not physically divide an established community as it would not involve any development and would not otherwise result in the construction of physical barriers or removal or impairment of access to the campus or surrounding areas. Alternative 2 would also not conflict with relevant local general plan policies or the Physical Master Plan. Overall, impacts would be reduced as compared to the proposed project given that less development associated with the components of Phases One, Two, and Three would be implemented under this alternative (*less impact*).

NOISE AND VIBRATION

As described in Section 3.11, Noise and Vibration, proposed project impacts related to temporary construction noise and vibration would be less than significant (see Impacts 3.11-1 and 3.11-2). Proposed project impacts related to permanent operational noise would be less than significant and long-term operational noise sources would not exceed the VMC noise standards at the nearest off-site residential receptors (see Impact 3.11-3). The proposed project would have no impacts related to airport noise, operational vibration, or traffic noise.

Alternative 2 impacts related to temporary construction noise and vibration would be less as compared to the proposed project. Construction noise and vibration impacts would be reduced as compared to the proposed project given that less construction activities associated with the components of Phases One, Two, Three would not occur under this alternative and the only construction that would occur would be the four new mooring dolphins. Overall, temporary construction noise and vibration under Alternative 2 would be reduced, as compared to the proposed project (*less impact*).

Operational impacts would be less than significant, similar to the proposed project, since long-term operational noise sources would not exceed the VMC noise standards at the nearest off-site residential receptors (*similar impact*).

PUBLIC SERVICES AND RECREATION

As described in Section 3.12, Public Services and Recreation, proposed project impacts related to the provision of new or physically altered fire, police, parks and recreation facilities, and the physical deterioration of parks and recreation facilities would be less than significant (see Impact 3.12-1 and Impact 3.12-2). The proposed project would result in no impacts related to schools or other public services.

Impacts related to public services and recreation would be less under Alternative 2 as compared to the proposed project. Alternative 2 would not result in any increase in population that would increase the demand for fire, police, and parks and recreation services, and would not result in the need for new or physically altered fire, police, schools and parks and recreation facilities that could cause significant environmental impacts. Alternative 2 would also not result in the physical deterioration of parks and recreation facilities, however, this alternative would not gain the benefits associated with shoreline enhancements and public access and ecological improvements proposed in Phases Two and Three. Overall, impacts would be reduced as compared to the proposed project given that less development would be implemented under this alternative (*less impact*).

TRANSPORTATION/TRAFFIC

As described in Section 3.13, Transportation, proposed project impacts related to conflicts with a program, plan, ordinance or policy addressing the circulation system, and an increase in hazards related to a design feature or incompatible use would be less than significant (see Impact 3.13-1 and Impact 3.13-2). The proposed project would result in no impacts related to VMT and emergency access.

Impacts related to transportation would be less under Alternative 2 as compared to the proposed project. Because development of Phases One, Two, and Three would not occur under this alternative, transportation impacts related to conflicts with a program, plan, ordinance or policy addressing the circulation system, and design hazards, would also be less than significant. Overall, impacts would be reduced as compared to the proposed project given that no development would be implemented under this alternative (*less impact*).

UTILITIES AND SERVICE SYSTEMS

As described in Section 3.14, Utilities and Service Systems, proposed project impacts related to adequacy of water supplies and wastewater treatment capacity, and solid waste would be less than significant (see Impact 3.14-1, Impact 3.14-2 and Impact 3.14-3). Infrastructure improvements for the proposed project (water supply, wastewater, stormwater, natural gas, electrical, and telecommunications) would be limited to on-site improvements. ~~Draft~~ EIR Sections 3.1 through 3.15 address the environmental impacts of the construction of on-site infrastructure improvements and describe mitigation measures to address identified significant impacts and were not discussed further in Section 3.14, Utilities and Service Systems.

Impacts related to utilities and service systems would be less under Alternative 2 as compared to the proposed project. Like the proposed project, Alternative 2 would not increase student enrollment or campus staffing. Thus, no new or expanded water entitlements would be required. Sufficient water supplies would be available to continue to serve existing project components under Alternative 2, as the City of Vallejo anticipates meeting its current and 2045 projected water demand based on projections from the 2020 UWMP. Alternative 2 would not generate an increase of wastewater during construction as limited development would occur under this alternative. Similar to the proposed project, Alternative 2 would not create an increase in wastewater during operation because there would be no increase in enrollment or staffing beyond existing university projections. Therefore, impacts related to wastewater treatment capacity would be less than significant. Alternative 2 would not generate solid waste in excess of state standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. Overall, impacts would be reduced as compared to the proposed project given that less development would be implemented under this alternative (*less impact*).

WILDFIRE

As described in Section 3.15, Wildfire, proposed project impacts related to exposing people or structures to the risk of loss, injury, or death directly from wildland fires or post-fire flooding or landslides; or conflicts with or physically interfere with an adopted emergency response plan would be less than significant (see Impacts 3.15-1 and 3.15-2).

Impacts related to wildfire would be less under Alternative 2 as compared to the proposed project. As under the proposed project, construction and operation under this alternative would occur on the same project site which is not located in an area of high wildland fire risk, and would not involve development that would exacerbate wildland fire risk; require the installation or maintenance of infrastructure that would exacerbate wildfire risk; cause a significant risk of loss, injury, or death involving wildland fires; or expose people or structures to significant post-fire risks, including postfire flooding or landslides. As under the proposed project, operations under this alternative would be integrated with local and regional emergency response systems, and the Cal Maritime Emergency Management Plan would be updated to reflect changes from implementation of the alternative. Alternative 2 would therefore not conflict with or physically interfere with an adopted emergency response plan. Overall, impacts would be reduced as compared to the proposed project given that less development would be implemented under this alternative (*less impact*).

ABILITY TO MEET PROJECT OBJECTIVES

Alternative 2 would partially but not fully meet most of the identified project objectives (see numbered objectives in Table 5-2). Specifically, while Alternative 2 would allow for arrival and berthing accommodations for the NSMV, it would not allow for upgrades to in-water and ~~landslide~~ landside facilities and infrastructure to fully accommodate berthing and operation of the NSMV (Objective 1). While the NSMV could be accommodated in-water, without the landside improvements the ship would need to run its motors 24 hours a day, 7 days a week at substantial cost, waste of energy, and emission of air pollutants. Alternative 2 would also not be able to upgrade and replace infrastructure to facilitate efficient waterfront operations important for Cal Maritime's educational mission and expansion of cadet instruction (Objective 2), expand and optimize the boat basin, accommodate Cal Maritime training and small recreational craft currently moored off-site because of lack of space, and accommodate an expanded Cal Maritime fleet of vessels, including a new replacement tug and oceanographic or similar research vessel (Objective 5), dredge the existing and expanded boat basin to ensure depth sufficient to accommodate small vessel programs at the university (Objective 6), ensure that the TSGB remains accessible for instructional use during Phase One implementation of the Waterfront Master Plan (Objective 7), rehabilitate the boathouse in a manner that retains its historic integrity (Objective 8), link campus buildings with waterfront open space and enhance public pedestrian and bicycle access to and along an activated waterfront (Objective 9), ensure waterfront resilience, including the shoreline upland and transition zones that support public open space and recreational use, to climate and storm-related stresses (Objective 10), or protect ecological functioning along the waterfront, including upland, intertidal, and subtidal components (Objective 11). Given that Alternative 2 would allow for arrival of the NSMV, and Phases One, Two, and Three would not occur, only Objectives 3, 4, and 12 would be met under this alternative.

5.4.3 Alternative 3: No Boat Basin 2 (Historic Preservation) Alternative

Under Alternative 3, No Boat Basin 2 (Historic Preservation) Alternative, buildout of the Waterfront Master Plan would occur as described, except that it would not include Boat Basin 2. By eliminating Boat Basin 2, this alternative also would not include the new 18,000 square-foot pier with breakwater meant to provide wind and wave protection for the operation of small craft and docked larger craft, or the additional slips and berthing areas for Cal Maritime's fleet of small passenger boats and other vessels currently located off-site and/or planned for future acquisition. This alternative would reduce the amount of in-water construction and dredging activities for Phase Two and thus reduce impacts on biological resources and geology and soils. It would also avoid the significant and unavoidable project-level and cumulative impacts related to historic era archaeological resource (shipwreck). However, as a result of all Phase One and Three components, and partial Phase Two components, occurring under this alternative, impacts on hydrology water quality would not be reduced. It would also not optimize movement and storage of Cal Maritime's fleet of vessels and would reduce opportunities for training and on-water instruction for cadets. In addition, this alternative would not achieve the project objective to expand and optimize the boat basin to allow simultaneous safe movement of more than two vessels for academic on-water instruction and recreational activities; accommodate Cal Maritime training and small recreational craft currently moored off-site because of lack of space; and accommodate an expanded Cal Maritime fleet of vessels, including a new replacement tug.

AESTHETICS

As described in Section 3.1, Aesthetics, Project impacts related to scenic vistas, scenic quality, and light and glare would be less than significant (see Impact 3.1-1 through Impact 3.1-3).

Impacts related to scenic vistas, scenic quality, and light and glare would be less under Alternative 3 as compared to the proposed project. However, impacts would be reduced as compared to the proposed project given that the creation of Boat Basin 2, new pier with breakwater or additional slips, and berthing areas for small passenger boats and other vessels currently located off-site and/or planned for future acquisition would not occur, which would reduce impacts to scenic vistas, scenic quality, and light and glare as a result of the stated components not being developed. Similar to the proposed project, development would occur in a currently developed area and would not otherwise significantly impact scenic vistas, scenic quality or light and glare. Development of all components of Phase One, construction of the boathouse and Marine Yard and shoreline improvements from Phase Two, and construction of the Marine Programs Multi-Use Building, harbor control tower, berthing for the MHK barge and linking trestle, row house and floating landing, and public access improvements from Phase Three that would still occur under this alternative would comply with design standards stated in the Physical Master Plan, and would be designed to meet current regulations and policies, which would reduce impacts to visual resources and light and glare (see Section 3.1, Aesthetics). Overall, aesthetic impacts under Alternative 3 would be reduced as compared to the proposed project (*less impact*).

AIR QUALITY

As described in Section 3.2, Air Quality, proposed project impacts related to conflicts with the applicable air plan, criteria air pollutant emissions, exposure to substantial pollutant emissions, and emissions affecting a substantial number of people would be less than significant (see Impact 3.2-1 through Impact 3.2-5).

Impacts related to air quality would be less under Alternative 3 as compared to the proposed project. Impacts would be reduced as compared to the proposed project given that construction activities and emissions associated with the creation of Boat Basin 2, new pier with breakwater, additional slips and berthing areas for small passenger boats and other vessels currently located off-site and/or planned for future acquisition under this alternative, would not occur. Given the limits on development under Alternative 3, construction and operational emissions associated with this alternative also would be consistent with BAAQMD's 2017 Clean Air Plan and would not exceed adopted BAAQMD thresholds or generate sources of odors as defined by BAAQMD, as reported for the proposed project in Section 3.2, Air Quality. Overall, air quality impacts under Alternative 3 would be reduced, as compared to the proposed project (*less impact*).

BIOLOGICAL RESOURCES

As described in Section 3.3, Biological Resources, proposed project impacts related to special-status plant species would be reduced to less than significant with the implementation of Mitigation Measure 3.3-1 (see Impact 3.3-1). Proposed project impacts related to special-status wildlife species would be reduced to less than significant with the implementation of Mitigation Measure 3.3-2a through Mitigation Measure 3.3-2m (see Impact 3.3-2). Proposed project impacts related to adverse effects on essential fish habitat would be less than significant with implementation of Mitigation Measure 3.3-3 (see Impact 3.3-3) and proposed project impacts to wildlife corridors (aquatic) would be less than significant (see Impact 3.3-4) with implementation of Mitigation Measure 3.3-2c and Mitigation Measure 3.3-4. The proposed project would result in no impacts related to riparian and wetland habitat, terrestrial wildlife movement corridors or native wildlife nursery sites, or conflicts with policies and ordinances protecting biological resources or with an adopted HCP.

Alternative 3 impacts related to special-status plant and wildlife species, aquatic sensitive natural communities and other sensitive aquatic habitat wildlife movement corridors and native wildlife nursery sites would be reduced as compared to the proposed project; however, implementation of all mitigation measures identified for the proposed project would still be required. Although the creation of Boat Basin 2, new pier with breakwater, additional slips and berthing areas for small passenger boats and other vessels currently located off-site and/or planned for future acquisition would not occur under this alternative, the disturbance area and potential for impacts to biological resources would be the same. Therefore, similar to the proposed project, this alternative would require mitigation for potential impacts related to special-status plant and wildlife species, aquatic sensitive natural communities and other sensitive aquatic habitat wildlife movement corridors, which would then be mitigated to less than significant. However, impacts would be reduced as compared to the proposed project given the limits on development under this alternative (*less impact*).

ARCHAEOLOGICAL, HISTORICAL, AND TRIBAL CULTURAL RESOURCES

As described in Section 3.4, Archaeological, Historical, and Tribal Cultural Resources, proposed project impacts related to historic resources (the Cal Maritime boathouse) would be reduced to less than significant with the implementation of Mitigation Measure-3.4-1 (see Impact 3.4-1). Implementation of Mitigation Measure 3.4-2 would reduce impacts to the shipwreck *Contra Costa*, a NRHP- and CRHR-eligible archaeological resource (see Impact 3.4-2). However, the proposed project would remove either the whole or a portion of the shipwreck, resulting in the loss of this archaeological resource. Mitigation Measure 3.4-2 would not reduce the impacts to a less-than-significant level; therefore, the proposed project would result in a significant and unavoidable impact to a known historic era archaeological resource. Proposed project impacts related to an unknown archaeological resource would be reduced to less than significant with the implementation of Mitigation Measure 3.4-3 (see Impact 3.4-3). Proposed project impacts related to tribal cultural resources would be reduced to less than significant with the implementation of

Mitigation Measure 3.4-3 (see Impact 3.4-4). The proposed project would result in less than significant impacts related to human remains (Impact 3.4-5).

Alternative 3 impacts related to an undiscovered archaeological resource and tribal cultural resources would be reduced to less than significant with Mitigation Measure 3.4-3. Mitigation Measure 3.4-3, which halt all ground-disturbing activities upon discovery of an archaeological feature, would be applicable to Impact 3.4-3 and Impact 3.4-4, reducing impacts to undiscovered archaeological and tribal cultural resources. Under the proposed project, modifications to a historic structure could adversely affect its historic status. However, impacts to a historical resource would be similar as compared to the proposed project under this alternative since the restoration and rehabilitation of the boathouse proposed in Phase Two, which has been recommended as eligible for listing in the NRHP/CRHR under Criterion A/1, would occur. Additionally, impacts related to the disturbance of human remains would continue to be less than significant, as compared to the proposed project, as ground disturbing activities would still occur under this alternative through the development of all Phase One and Three components and partial Phase Two components. Therefore, the potential to impact historic, archaeological, and tribal cultural resources, as well as human remains would be similar to the proposed project (*similar impact*).

Impacts to a historical resource, including to a historic era archaeological resource (shipwreck), would be reduced as compared to the proposed project under this alternative since dredging associated with the creation of Boat Basin 2 during Phase Two would not occur. Therefore, the potential to impact historic era archaeological resources (shipwreck) would be correspondingly avoided (*less impact; significant and unavoidable historic era archaeological resource impact avoided*).

ENERGY

As described in Section 3.5, Energy, proposed project impacts related to wasteful, inefficient, or unnecessary consumption of energy and conflicts with or the obstruction of state or local plans for renewable energy or energy efficiency would be less than significant (see Impact 3.5-1 and Impact 3.5-2).

Under Alternative 3, slightly reduced development would occur, as compared to the proposed project, which would result in reduced construction activities and less fuel use during construction. During operation, the creation of Boat Basin 2, new per with breakwater, additional slips and berthing areas for small passenger boats and other vessels currently located off-site and/or planned for future acquisition would not occur under this alternative which would reduce the number of vehicle trips to and from the project site. This alternative would require slightly decreased energy demand during construction and operation compared to the proposed project due to the limit of development (*less impact*).

GEOLOGY AND SOILS

As described in Section 3.6, Geology, Soils and Mineral Resources, proposed project impacts related to seismic hazards, soil erosion, unstable geologic units or soils, and expansive soils would be less than significant (see Impact 3.6-1 and Impact 3.6-2). Proposed project impacts related to paleontological resources would be reduced to less than significant with the implementation of Mitigation Measure 3.6-3a and Mitigation Measure 3.6-3b (see Impact 3.~~7~~6-3). The proposed project would result in no impacts related to earthquake fault rupture, septic tanks or alternative wastewater disposal systems, and the loss of availability of a known mineral resource or locally important mineral resource recovery site.

Impacts related to seismic hazards, soil erosion, unstable geologic units or soils, and expansive soil would be less under Alternative 3 as compared to the proposed project. The boathouse would still undergo necessary seismic upgrades and rehabilitation in Phase Two as compared to the proposed project. However, impacts would be reduced as compared to the proposed project given that less development would be implemented under this alternative (*less impact*).

Impacts related to paleontological resources under Alternative 3 would also be reduced; however, implementation of Mitigation Measure 3.6-3a and Mitigation Measure 3.6-3b would still be required. Impacts would be reduced, as compared to the proposed project, because the potential to encounter paleontological resources would be reduced given that less ground disturbing activities under this alternative would occur. Additionally, dredging activities associated with the creation of Boat Basin 2, new pier with breakwater, additional slips and berthing areas for small passenger boats and other vessels currently located off-site and/or planned for future acquisition would not occur (*less impact*).

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

As described in Section 3.7, Greenhouse Gas Emissions and Climate Change, proposed project impacts related to the generation of greenhouse gas (GHG) emissions and conflicts with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases would be less than significant (see Impact 3.7-1).

Alternative 3 impacts related to GHG would be slightly reduced as compared to the proposed project due to the exclusion of components including the creation of Boat Basin 2, new pier with breakwater, additional slips and berthing areas for small passenger boats and other vessels currently located off-site and/or planned for future acquisition. Similar to the proposed project, Alternative 3 would not result in increased mobile-source GHG emissions because the proposed project would not expand residential or employee capacity. This alternative would be consistent with BAAQMD's adopted thresholds, and thus would not generate GHG emissions that would cause a significant impact or conflict with an adopted GHG reduction plan similar to the proposed project (*less impact*).

HAZARDS AND HAZARDOUS MATERIALS

As described in Section 3.8, Hazards, Hazardous Materials, proposed project impacts related to routine transport, use, or disposal of hazardous materials; upset and release of hazardous materials; emergency response; and wildfire hazards would be less than significant (see Impact 3.8-1, Impact 3.8-3 and Impact 3.8-4). Proposed project impacts related to the release of and exposure to hazardous materials during in-water proposed project construction would be reduced to less than significant with the implementation of Mitigation Measure 3.8-2) (see Impact 3.8-2). The proposed project would result in no impacts related to hazardous materials use near schools or airport safety.

Impacts related to hazards, hazardous materials, and wildfire would be similar to the proposed project under Alternative 3. Hazardous materials are comprehensively governed by existing regulations that require proper storage and handling, environmental management plans, spill contingency plans, employee and public noticing, and other emergency preventive and response measures to minimize the risk of accidental releases and related environmental impacts. As under the proposed project, construction and operation under this alternative would comply with all requirements, be integrated with local and regional emergency response systems, and the Cal Maritime Emergency Management Plan would be updated to reflect changes from implementation of Alternative 3, similar to the proposed project (*similar impact*).

As under the proposed project, development of all components of Phase One, construction of the boathouse and Marine Yard and shoreline improvements from Phase Two, and construction of the Marine Programs Multi-Use Building, harbor control tower, berthing for the MHK barge and linking trestle, row house and floating landing, and public access improvements from Phase Three would occur, which could similarly result in the disturbance of buried contaminated sediment. Alternative 3 impacts related to the release of and exposure to hazardous materials during in-water project construction would also be similar to the proposed project and still require implementation of Mitigation Measure 3.8-2 (*similar impact*).

Operations under this alternative would continue to comply with all applicable state and federal regulations. Overall, impacts would be reduced as compared to the proposed project given that less development would be implemented under this alternative (*less impact*).

HYDROLOGY AND WATER QUALITY

As described in Section 3.9, Hydrology and Water Quality, proposed project impacts related to water quality and the attainment of water quality standards would be less than significant with the implementation of Mitigation Measure 3.3-2d through 3.3-2h (see Impact 3.9-1). Proposed project impacts related to groundwater supplies and recharge would be less than significant (see Impact 3.9-2). Proposed project impacts related to substantially altering the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would: result in substantial erosion, siltation or flooding on- or off-site; create or contribute runoff water that would exceed the capacity of existing or planned stormwater- drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows (see Impact 3.9-3) would be less than significant with implementation of Mitigation Measure 3.3-2d, Mitigation Measure 3.3-2f, and Mitigation Measure 3.9-1). All project phases could result in the release of pollutants due to project inundation, however proposed project impacts would be less than significant with implementation of Mitigation Measure 3.3-2d, Mitigation Measure 3.3-2f, and Mitigation Measure 3.9-2. Proposed project impacts related to a conflict with or obstruction of implementation of a water quality control plan or sustainable groundwater management plan would be less than significant with implementation of Mitigation Measure 3.3-2d, Mitigation Measure 3.3-2f, 3.3-2g, and 3.3-2h.

Impacts related to hydrology and water quality would be similar to the proposed project under Alternative 3 and would still require implementation of Mitigation Measure 3.3-2d through 3.3-2h, Mitigation Measure 3.9-1, and Mitigation Measure 3.9-2.Impacts would be similar as compared to the proposed project given that increases in the area of impervious surfaces from shoreline improvements proposed in Phases Two and Three that could have the potential to affect water quality would be implemented under this alternative. Similar to the proposed project, Alternative 3 would not use groundwater, would not result in structures or surfaces that would interfere with groundwater recharge, and would not draw upon existing groundwater supply and would have a less than significant impact on groundwater resources. Overall, hydrology and water quality impacts under Alternative 3 would be similar as compared to the proposed project (*similar impact*).

LAND USE AND PLANNING

As described in Section 3.10, Land Use and Planning, proposed project impacts related to conflicts with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect would be less than significant (see Impact 3.10-1). The proposed project would result in no impacts related to physically dividing an established community.

Impacts related to land use and planning would be less under Alternative 3 as compared to the proposed project. Like the proposed project, Alternative 3 would not physically divide an established community as it would involve new and redeveloped facilities on the Cal Maritime waterfront and adjacent Morro Cove and would not otherwise result in the construction of physical barriers or removal or impairment of access to the campus or surrounding areas. Alternative 3 would also not conflict with relevant local general plan policies or the Physical Master Plan. Overall, impacts would be reduced as compared to the proposed project given that less development associated with creation of Boat Basin 2, new pier with breakwater, additional slips and berthing areas for small passenger boats and other vessels currently located off-site and/or planned for future acquisition in Phase Two, would be implemented under this alternative (*less impact*).

NOISE AND VIBRATION

As described in Section 3.11, Noise and Vibration, proposed project impacts related to temporary construction noise and vibration would be less than significant (see Impacts 3.11-1 and 3.11-2). Proposed project impacts related to permanent operational noise would be less than significant and long-term operational noise sources would not exceed the VMC noise standards at the nearest off-site residential receptors (see Impact 3.11-3). The proposed project would have no impacts related to airport noise, operational vibration, or traffic noise.

Alternative 3 impacts related to temporary construction noise and vibration would be less as compared to the proposed project. Construction noise and vibration impacts would be reduced as compared to the proposed project given that the intensity of construction activities would be reduced because the creation of Boat Basin 2, construction of the new pier with breakwater, and creation of additional slips and berthing areas for small passenger boats and other vessels currently located off-site and/or planned for future acquisition in Phase Two would not occur under this alternative. Overall, temporary construction noise and vibration under Alternative 3 would be reduced, as compared to the proposed project (*less impact*).

Operational impacts would be less than significant, similar to the proposed project, since long-term operational noise sources would not exceed the VMC noise standards at the nearest off-site residential receptors. (*similar impact*).

PUBLIC SERVICES AND RECREATION

As described in Section 3.12, Public Services and Recreation, proposed project impacts related to the provision of new or physically altered fire, police, parks and recreation facilities, and the physical deterioration of parks and recreation facilities would be less than significant (see Impact 3.12-1 and Impact 3.12-2). The proposed project would result in no impacts related to schools or other public services.

Impacts related to public services and recreation would be similar to the proposed project under Alternative 3. While, Alternative 3 would result in the expansion and addition of structures, this alternative would not result in any increase in population that would increase the demand for fire, police, and parks and recreation services, and would not result in the need for new or physically altered fire, police, schools and parks and recreation facilities that could cause significant environmental impacts. Alternative 3 would also not result in the physical deterioration of parks and recreation facilities. This alternative would result in the expansion and addition of structures, however, the project site is already within a developed setting that is serviced by local fire and police services, as well as contains the San Franscisco Bay Trail which is the only publicly utilized recreational asset within the project site boundaries. Alternative 3 would not result in an increase in population that would contribute to an increased use or degradation of surrounding recreational facilities. Improvements to features surround the San Francisco Bay Trail and additional open space would still be implemented under this alternative. Overall, impacts would be similar as compared to the proposed project (*similar impact*).

TRANSPORTATION/TRAFFIC

As described in Section 3.13, Transportation, proposed project impacts related to conflicts with a program, plan, ordinance or policy addressing the circulation system, and an increase in hazards related to a design feature or incompatible use would be less than significant (see Impact 3.13-1 and Impact 3.13-2). The proposed project would result in no impacts related to VMT and emergency access.

Impacts related to transportation would be similar to the proposed project under Alternative 3. Development of Boat Basin 2, the new pier with breakwater, and additional slips and berthing areas for small passenger boats and other vessels currently located off-site and/or planned for future acquisition proposed in Phase Two would not occur under this alternative. However, transportation impacts related to conflicts with a program, plan, ordinance or policy addressing the circulation system, and design hazards, would continue to be less than significant under this alternative. Pedestrian path improvements proposed in Phases One, Two, and Three would still occur under this alternative and would comply with CSU policies and plans that promote increased alternative transportation use and safety for walking and biking. Additionally, the removal of the stated Phase Two components would result in less construction related traffic. Overall, impacts would be similar as compared to the proposed project, given that less development under this alternative would not significantly affect transportation related impacts (*similar impact*).

UTILITIES AND SERVICE SYSTEMS

As described in Section 3.14, Utilities and Service Systems, proposed project impacts related to adequacy of water supplies and wastewater treatment capacity, and solid waste would be less than significant (see Impact 3.14-1, Impact 3.14-2 and Impact 3.14-3). Infrastructure improvements for the proposed project (water supply, wastewater, stormwater, natural gas, electrical, and telecommunications) would be limited to on-site improvements. ~~Draft~~ EIR Sections 3.1 through 3.15 address the environmental impacts of the construction of on-site infrastructure improvements and describe mitigation measures to address identified significant impacts and were not discussed further in Section 3.14, Utilities and Service Systems.

Impacts related to utilities and service systems would be similar to the proposed project under Alternative 3. Like the proposed project, Alternative 3 would not increase student enrollment or campus staffing. Thus, no new or expanded water entitlements would be required. Sufficient water supplies would be available to continue to serve existing project components under Alternative 3, as the City of Vallejo anticipates meeting its current and 2045 projected water demand based on projections from the 2020 UWMP. Alternative 3 would not generate an increase of wastewater during construction as limited development would occur under this alternative. Similar to the proposed project, Alternative 3 would not create an increase in wastewater during operation because there would be no increase in enrollment or staffing beyond existing university projections. Therefore, impacts related to wastewater treatment capacity would be less than significant. Alternative 3 would not generate solid waste in excess of state standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. Overall, impacts would be similar as compared to the proposed project (*similar impact*).

WILDFIRE

As described in Section 3.15, Wildfire, proposed project impacts related to exposing people or structures to the risk of loss, injury, or death directly from wildland fires or post-fire flooding or landslides; or conflicts with or physically interfere with an adopted emergency response plan would be less than significant (see Impacts 3.15-1 and 3.15-2).

Impacts related to wildfire would also be similar to the proposed project under Alternative 3. As under the proposed project, construction and operation under this alternative would occur on the same project site which is not located in an area of high wildland fire risk, and would not involve development that would exacerbate wildland fire risk; require the installation or maintenance of infrastructure that would exacerbate wildfire risk; cause a significant risk of loss, injury, or death involving wildland fires; or expose people or structures to significant post-fire risks, including postfire flooding or landslides. As under the proposed project, operations under this alternative would be integrated with local and regional emergency response systems, and the Cal Maritime Emergency Management Plan would be updated to reflect changes from implementation of the alternative. Alternative 3 would therefore not conflict with or physically interfere with an adopted emergency response plan. Overall, impacts would be similar as compared to the proposed project (*similar impact*).

ABILITY TO MEET PROJECT OBJECTIVES

Alternative 3 would partially but not fully meet most of the identified project objectives (see numbered objectives in Table 5-2). Specifically, while Alternative 3 would allow for buildout of all components of Phase One and Phase Thee, Phase Two, it would not include the creation of Boat Basin 2, a new pier with breakwater, or additional slips and berthing areas for small passenger boats and other vessels currently located off-site and/or planned for future acquisition. However, Phase Two would include the renovation of the boathouse and Marine Yard and shoreline improvements. Alternative 3 would not be able to fully upgrade and replace infrastructure to facilitate efficient waterfront operations important for Cal Maritime's educational mission and expansion of cadet instruction (Objective 2), expand and optimize the boat basin to allow simultaneous safe movement of more than two vessels for academic on-water instruction and recreational activities, accommodate Cal Maritime training and small recreational craft currently moored off-site because of lack of space, and accommodate an expanded Cal Maritime fleet of vessels, including a new replacement tug and oceanographic or similar research vessel (Objective 5), or dredge the existing and expanded boat basin to ensure depth sufficient to accommodate small vessel programs at the university (Objective 6). Given that Alternative 3 would allow for development of all components of Phase One and Three, with partial development of Phase Two, Objectives 1, 3, 4, 7, 8, 9, 10, 11, and 12 would be met under this alternative.

5.4.4 Alternative 4: No Boathouse, Shoreline or Public Access Improvements Alternative

Under Alternative 4, the No Boathouse, Shoreline or Public Access Improvements Alternative, buildout of the Waterfront Master Plan would occur as described for the proposed project with the exception of Phase Two restoration and rehabilitation of the boathouse as well as Phases Two and Three enhancement and improvements to the shoreline and public access. Without the necessary seismic upgrades and rehabilitation of the boathouse, this alternative would ultimately render the boathouse unsafe and unable to provide cadet training, vessel storage, or woodworking and vessel service/demonstration areas. In addition, shoreline and public access improvements proposed in Phases Two and Three and shown on Figures 2-17, 2-20 and 2-21 would not be developed. Instead, this alternative would develop all components of Phase One; create Boat Basin 2 and Marine Yard improvements from Phase Two; and construct the Marine Programs Multi-Use Building, harbor control tower, berthing for the MHK barge and linking trestle, and row house and floating landing from Phase Three. While this alternative would reduce impacts on geology and soils, and hydrology water quality given that less ground disturbing activities with the potential to adversely impact paleontological resources and increases in the area of impervious surfaces from shoreline improvements proposed in Phases Two and Three that could have the potential to affect water quality would not be implemented. However, this alternative would not minimize impacts on historic resources or avoid significant and unavoidable project-level and cumulative impacts related to historic era archaeological resource (shipwreck). It also would not realize project objectives related to enhancing public access. Specifically, this alternative would not achieve project objectives to rehabilitate the boathouse in a manner that retains its historic integrity; link campus buildings with waterfront open space and enhance public pedestrian and bicycle access to and along an activated waterfront; ensure waterfront resilience to climate and storm-related stresses; and protect ecological functioning along the waterfront.

AESTHETICS

As described in Section 3.1, Aesthetics, proposed project impacts related to scenic vistas, scenic quality, and light and glare would be less than significant (see Impact 3.1-1 through Impact-3.1-3).

Impacts related to scenic vistas, scenic quality, and light and glare would also be less under Alternative 4 as compared to the proposed project. Visual changes would be reduced as compared to the proposed project given that Phase Two restoration and rehabilitation of the boathouse and Phase Three components including linking campus buildings to waterfront open space and enhancing public access, and safeguarding waterfront resilience and ecological functioning would not occur. Similar to the proposed project overall, development would occur in a currently developed area and would not otherwise significantly impact scenic vistas, scenic quality or light and glare. Development of all components of Phase One and Boat Basin 2, Marine Yard improvements from Phase Two, and construction of the Marine Programs Multi-Use Building, harbor control tower, berthing for the MHK barge and linking trestle, and row house and floating landing from Phase Three that would still occur under this alternative would comply with design standards stated in the Physical Master Plan, and be designed to meet current regulations and policies which would reduce impacts to visual resources and light and glare (see Section 3.1, Aesthetics). Overall, aesthetic impacts under Alternative 4 would be reduced as compared to the proposed project *(less impact)*.

AIR QUALITY

As described in Section 3.2, Air Quality, proposed project impacts related to conflicts with the applicable air plan, criteria air pollutant emissions, exposure to substantial pollutant emissions, and emissions affecting a substantial number of people would be less than significant (see Impact 3.2-1 through Impact 3.2-5).

Impacts related to air quality would be less under Alternative 4 as compared to the proposed project. Impacts would be reduced as compared to the proposed project given that construction activities and emissions associated with the restoration and rehabilitation of the boathouse proposed in Phase Two and enhancement and improvements to the shoreline and public access proposed in Phases Two and Three would not occur. Alternative 4 would be consistent with BAAQMD's 2017 Clean Air Plan, however, on-campus improvements related to promoting pedestrian/bicycle modes of transportation and decreasing on-campus parking, consistent with objectives of the Clean Air Plan would be removed, reducing some benefits of the proposed project. Given the limits on development under Alternative 4, construction and operational emissions associated with this alternative also would not exceed adopted BAAQMD thresholds or generate sources of odors as defined by BAAQMD, as reported for the proposed project in Section 3.2, Air Quality. Overall, air quality impacts under Alternative 4 would be reduced, as compared to the proposed project *(less impact)*.

BIOLOGICAL RESOURCES

As described in Section 3.3, Biological Resources, proposed project impacts related to special-status plant species would be reduced to less than significant with the implementation of Mitigation Measure 3.3-1 (see Impact 3.3-1). Proposed project impacts related to special-status wildlife species, would be reduced to less than significant with the implementation of Mitigation Measures 3.3-2a through 3.3-2m (see Impact 3.3-2). Proposed project impacts related to adverse effects on essential fish habitat would be less than significant with implementation of Mitigation Measure 3.3-3 (see Impact 3.3-3) and proposed project impacts to wildlife corridors (aquatic) would be less than significant (see Impact 3.3-4) with implementation of Mitigation Measures 3.3-2c and 3.3-4. The proposed project would result in no impacts related to riparian and wetland habitat, terrestrial wildlife movement corridors or terrestrial native wildlife nursery sites, or conflicts with policies and ordinances protecting biological resources or with an adopted HCP.

Alternative 4 impacts related to special-status plant and wildlife species, aquatic sensitive natural communities and other sensitive habitat wildlife movement corridors and native wildlife nursery sites would also be similar to the proposed project and still require implementation of the mitigation measures identified for the proposed project. Although the restoration and rehabilitation of the boathouse proposed in Phase Two as well as enhancement and improvements to the shoreline and public access proposed in Phases Two and Three would not occur under this alternative, the disturbance area and potential for impacts to biological resources would be the same. Therefore, similar to the proposed project, this alternative would require mitigation for potential impacts related to special-status plant and wildlife species, aquatic sensitive natural communities and other sensitive habitat aquatic wildlife movement corridors and native wildlife nursery sites, which would then be mitigated to less than significant. Therefore, this alternative would have biological resource impacts similar to those of the proposed project *(similar impact)*.

ARCHAEOLOGICAL, HISTORICAL, AND TRIBAL CULTURAL RESOURCES

As described in Section 3.4, Archaeological, Historical, and Tribal Cultural Resources, proposed project impacts related to historic resources (the Cal Maritime boathouse) would be reduced to less than significant with the implementation of Mitigation Measure 3.4-1 (see Impact 3.4-1). Implementation of Mitigation Measure 3.4-2 would reduce impacts to the shipwreck *Contra Costa*, a NRHP- and CRHR-eligible archaeological resource (see Impact 3.4-2). However, the proposed project would remove either the whole or a portion of the shipwreck, resulting in the loss of this archaeological resource. Mitigation Measure 3.4-2 would not reduce the impacts to a less-than-significant level; therefore, the proposed project would result in a significant and unavoidable impact to a known historic era archaeological resource. Proposed project impacts related to an unknown archaeological resource would be reduced to less than significant with the implementation of Mitigation Measure 3.4-3 (see Impact 3.4-3). Proposed project impacts related to tribal cultural resources would be reduced to less than significant with the implementation of Mitigation Measure 3.4-3 (see Impact 3.4-4). The proposed project would result in less than significant impacts related to human remains (Impact 3.4-5).

Alternative 4 impacts related to an undiscovered archaeological resource and tribal cultural resources would be reduced as compared to the proposed project, but would still require implementation of Mitigation Measure 3.4-3 to minimize impacts to unknown archaeological resources. Under the proposed project, modifications to a historic structure could adversely affect its historic status. However, impacts to a historical resource would be reduced as compared to the proposed project under this alternative since the restoration and rehabilitation of the boathouse proposed in Phase Two, which has been recommended as eligible for listing in the NRHP/CRHR under Criterion A/1, would not occur. Therefore, the potential to impact historic resources would be correspondingly avoided and reduced *(less impact)*.

However, Alternative 4 would not minimize or reduce impacts on historic resources or avoid significant and unavoidable project-level and cumulative impacts related to historic era archaeological resource (shipwreck) as Boat

Basin 2 proposed in Phase Two would still be constructed. While the reduced development footprint under Alternative 4 could result in reduced impacts on cultural resources, they would still be significant and unavoidable due to the potential unavoidable loss of an archaeological resource *(similar impact; still significant and unavoidable historic era archaeological resource impact)*.

ENERGY

As described in Section 3.5, Energy, proposed project impacts related to wasteful, inefficient, or unnecessary consumption of energy and conflicts with or the obstruction of state or local plans for renewable energy or energy efficiency would be less than significant (see Impact 3.5-1 and Impact 3.5-2).

Under Alternative 4, slightly reduced development would occur, as compared to the proposed project, which would result in reduced construction activities and less fuel use during construction. During operation, restoration and rehabilitation of the boathouse proposed in Phase Two would not occur under this alternative which would reduce the number of vehicle trips to and from the boathouse as it would ultimately render the boathouse unsafe and unable to provide cadet training, vessel storage, or woodworking and vessel service/demonstration areas. This alternative would require slightly decreased energy demand during construction and operation compared to the proposed project *(less impact)*.

GEOLOGY, SOILS, AND MINERAL RESOURCES

As described in Section 3.6, Geology, Soils and Mineral Resources, proposed project impacts related to seismic hazards, soil erosion, unstable geologic units or soils, and expansive soil would be less than significant (see Impact 3.6-1 and Impact 3.6-2). Proposed project impacts related to paleontological resources would be reduced to less than significant with the implementation of Mitigation Measures 3.6-3a and 3.6-3b (see Impact 3.~~7~~6-3). The proposed project would result in no impacts related to earthquake fault rupture, septic tanks or alternative wastewater disposal systems, and the loss of availability of a known mineral resource or locally important mineral resource recovery site.

Impacts related to seismic hazards, soil erosion, unstable geologic units or soils, and expansive soil would be less under Alternative 4 as compared to the proposed project. Without the necessary seismic upgrades and rehabilitation of the boathouse, this alternative would ultimately render the boathouse unsafe and unable to provide cadet training, vessel storage, or woodworking and vessel service/demonstration areas. However, impacts would be reduced as compared to the proposed project given that less development would be implemented under this alternative *(less impact)*.

Impacts related to paleontological resources under Alternative 4 would also be reduced; however, implementation of Mitigation Measures 3.6-3a and 3.6-3b would still be required. Impacts would be reduced, as compared to the proposed project, as the potential to encounter paleontological resources would be reduced given that less ground disturbing activities associated with enhancement and improvements to the shoreline and public access proposed in Phases Two and Three would be implemented under this alternative *(less impact)*.

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

As described in Section 3.7, Greenhouse Gas Emissions and Climate Change, proposed project impacts related to the generation of greenhouse gas (GHG) emissions and conflicts with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases would be less than significant (see Impact 3.7-1).

Alternative 4 impacts related to GHG would be slightly reduced as compared to the proposed project due to the exclusion of components including the restoration and rehabilitation of the boathouse proposed in Phase Two and enhancement and improvements to the shoreline and public access proposed in Phases Two and Three. Similar to the proposed project, Alternative 4 would not result in increased mobile-source GHG emissions because the proposed project would not expand residential or employee capacity. This alternative would be consistent with BAAQMD's adopted thresholds, and thus would not generate GHG emissions that would cause a significant impact or conflict with an adopted GHG reduction plan similar to the proposed project *(less impact)*.

HAZARDS AND HAZARDOUS MATERIALS

As described in Section 3.8, Hazards, Hazardous Materials, proposed project impacts related to routine transport, use, or disposal of hazardous materials; upset and release of hazardous materials; emergency response; and wildfire hazards would be less than significant (see Impact 3.8-1, Impact 3.8-3 and Impact 3.8-4). Proposed project impacts related to the release of and exposure to hazardous materials during in-water proposed project construction would be reduced to less than significant with the implementation of Mitigation Measure 3.8-2 (see Impact 3.8-2). The proposed project would result in no impacts related to hazardous materials use near schools or airport safety.

Impacts related to hazards, hazardous materials, and wildfire would be similar to the proposed project under Alternative 4. Hazardous materials are comprehensively governed by existing regulations that require proper storage and handling, environmental management plans, spill contingency plans, employee and public noticing, and other emergency preventive and response measures to minimize the risk of accidental releases and related environmental impacts. As under the proposed project, construction under this alternative would comply with all requirements, be integrated with local and regional emergency response systems, and the Cal Maritime Emergency Management Plan would be updated to reflect changes from implementation of Alternative 4, similar to the proposed project *(similar impact)*.

As under the proposed project, this alternative would include dredging for expansion of the boat basin and to create Boat Basin 2 which could similarly result in the disturbance of buried contaminated sediment. Alternative 4 impacts related to the release of and exposure to hazardous materials during in-water project construction would be similar to the proposed project and still require implementation of Mitigation Measure 3.8-2 *(similar impact)*.

Operations under this alternative would continue to comply with all applicable state and federal regulations. Overall, impacts would be reduced as compared to the proposed project given that less development would be implemented under this alternative *(less impact)*.

HYDROLOGY AND WATER QUALITY

As described in Section 3.9, Hydrology and Water Quality, proposed project impacts related to water quality and the attainment of water quality standards would be less than significant with the implementation of Mitigation Measures 3.3-2d through 3.3-2h (see Impact 3.9-1). Proposed project impacts related to groundwater supplies and recharge would be less than significant (see Impact 3.9-2). Proposed project impacts related to substantially altering the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would: result in substantial erosion, siltation or flooding on- or off-site; create or contribute runoff water that would exceed the capacity of existing or planned stormwater- drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows (see Impact 3.9-3) would be less than significant with implementation of Mitigation Measures 3.3-2d, 3.3-2f, and 3.9-1. All project phases could result in the release of pollutants due to project inundation, however, proposed project impacts would be less than significant with implementation of Mitigation Measures 3.3-2d, 3.3-2f, and 3.9-2. Proposed project impacts related to a conflict with or obstruction of implementation of a water quality control plan or sustainable groundwater management plan would be less than significant with implementation of Mitigation Measures 3.3-2d, 3.3-2f, 3.3-2g, and 3.3-2h.

Impacts related to hydrology and water would be less under Alternative 4, but would still require implementation of Mitigation Measures 3.3-2d through 3.3-2h, 3.9-1, and 3.9-2. Impacts would be reduced as compared to the project given that increases in the area of impervious surfaces from shoreline improvements proposed in Phases Two and Three that could have the potential to affect water quality would not be implemented under this alternative. Similar to the proposed project, Alternative 4 would not use groundwater, would not result in structures or surfaces that would interfere with groundwater recharge, and would not draw upon existing groundwater supply and would have a less than significant impact on groundwater resources. Overall, hydrology and water quality impacts under Alternative 4 would be reduced as compared to the proposed project *(less impact)*.

LAND USE AND PLANNING

As described in Section 3.10, Land Use and Planning, proposed project impacts related to conflicts with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect would be less than significant (see Impact 3.10-1). The proposed project would result in no impacts related to physically dividing an established community.

Impacts related to land use and planning would be less under Alternative 4 as compared to the proposed project. Like the proposed project, Alternative 4 would not physically divide an established community as it would involve new and redeveloped facilities on the Cal Maritime waterfront and adjacent Morrow Cove and would not otherwise result in the construction of physical barriers or removal or impairment of access to the campus or surrounding areas. Alternative 4 would also not conflict with relevant local general plan policies or the Physical Master Plan. Overall, impacts would be reduced as compared to the proposed project given that less development associated with the enhancement and improvements to the shoreline and public access proposed in Phases Two and Three, would be implemented under this alternative *(less impact)*.

NOISE AND VIBRATION

As described in Section 3.11, Noise and Vibration, proposed project impacts related to temporary construction noise and vibration would be less than significant (see Impacts 3.11-1 and 3.11-2). Proposed project impacts related to permanent operational noise would be less than significant and long-term operational noise sources would not exceed the VMC noise standards at the nearest off-site residential receptors (see Impact 3.11-3). The proposed project would have no impacts related to airport noise, operational vibration, or traffic noise.

Alternative 4 impacts related to temporary construction noise and vibration would be less as compared to the proposed project. Construction noise and vibration impacts would be reduced as compared to the proposed project given that less construction activities associated with the restoration and rehabilitation of the boathouse proposed in Phase Two and enhancement and improvements to the shoreline and public access proposed in Phases Two and Three. would occur under this alternative. Overall, temporary construction noise and vibration under Alternative 4 would be reduced, as compared to the proposed project *(less impact)*.

Operational impacts would be less than significant, similar to the proposed project, since long-term operational noise sources would not exceed the VMC noise standards at the nearest off-site residential receptors *(similar impact)*.

PUBLIC SERVICES AND RECREATION

As described in Section 3.12, Public Services and Recreation, proposed project impacts related to the provision of new or physically altered fire, police, parks and recreation facilities, and the physical deterioration of parks and recreation facilities would be less than significant (see Impact 3.12-1 and Impact 3.12-2). The proposed project would result in no impacts related to schools or other public services.

Impacts related to public services and recreation would be less under Alternative 4 as compared to the proposed project. Alternative 4 would not result in any increase in population that would increase the demand for fire, police, and parks and recreation services, and would not result in the need for new or physically altered fire, police, schools and parks and recreation facilities that could cause significant environmental impacts. Alternative 4 would also not result in the physical deterioration of parks and recreation facilities. Although Alternative 4 would not result in impacts to public services and recreation, benefits of the proposed project related to linking the campus buildings with waterfront open space and enhancing public pedestrian and bicycle access to and along an activated waterfront would not be realized. Further, with the removal of enhancement and improvements to the shoreline and public access during Phases Two and Three of the proposed project, this alternative would not ensure waterfront resilience, including the shoreline upland and transition zones that support public open space and recreational use, to climate and storm-related stresses. Overall, impacts would be reduced as compared to the proposed project given that less development would be implemented under this alternative *(less impact)*.

TRANSPORTATION

As described in Section 3.13, Transportation, proposed project impacts related to conflicts with a program, plan, ordinance or policy addressing the circulation system, and an increase in hazards related to a design feature or incompatible use would be less than significant (see Impact 3.13-1 and Impact 3.13-2). The project would result in no impacts related to VMT and emergency access.

Impacts related to transportation would be less under Alternative 4 as compared to the proposed project. Because restoration and rehabilitation of the boathouse proposed in Phase Two as well and enhancement and improvements to the shoreline and public access proposed in Phases Two and Three would not occur under this alternative, transportation impacts related to conflicts with a program, plan, ordinance or policy addressing the circulation system, and design hazards, would also be less than significant. Overall, impacts would be reduced as compared to the proposed project given that less development would be implemented under this alternative *(less impact)*.

UTILITIES AND SERVICE SYSTEMS

As described in Section 3.14, Utilities and Service Systems, proposed project impacts related to adequacy of water supplies and wastewater treatment capacity, and solid waste would be less than significant (see Impact 3.14-1, Impact 3.14-2 and Impact 3.14-3). Infrastructure improvements for the proposed project (water supply, wastewater, stormwater, natural gas, electrical, and telecommunications) would be limited to on-site improvements. ~~Draft~~ EIR Sections 3.1 through 3.15 address the environmental impacts of the construction of on-site infrastructure improvements and describe mitigation measures to address identified significant impacts and were not discussed further in Section 3.14, Utilities and Service Systems.

Impacts related to utilities and service systems would be less under Alternative 4 as compared to the proposed project. Like the proposed project, Alternative 4 would not result in an increase in student enrollment or campus staffing. Thus, no new or expanded water entitlements would be required. Sufficient water supplies would be available to serve project components under Alternative 4 as the City of Vallejo anticipates meeting its current and 2045 projected water demand based on projections from the 2020 UWMP. Alternative 4 could generate a minor increase of wastewater during construction as a result of water usage, but this increase would be reduced compared to the project and would therefore result in a negligible impact related to wastewater treatment requirements. Similar to the proposed project, Alternative 4 would not create an increase in wastewater during operation because there would be no increase in enrollment or staffing beyond existing university projections. Therefore, impacts related to wastewater treatment capacity would be less than significant. Alternative 4 would not generate solid waste in excess of state standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. Overall, impacts would be reduced as compared to the proposed project given that less development would be implemented under this alternative (*less impact*).

WILDFIRE

As described in Section 3.15, Wildfire, proposed project impacts related to exposing people or structures to the risk of loss, injury, or death directly from wildland fires or post-fire flooding or landslides; or conflicts with or physically interfere with an adopted emergency response plan would be less than significant (see Impacts 3.15-1 and 3.15-2).

Impacts related to wildfire would be similar to the proposed project under Alternative 4. As under the proposed project, construction and operation under this alternative would occur on the same project site which is not located in an area of high wildland fire risk, and would not involve development that would exacerbate wildland fire risk; require the installation or maintenance of infrastructure that would exacerbate wildfire risk; cause a significant risk of loss, injury, or death involving wildland fires; or expose people or structures to significant post-fire risks, including postfire flooding or landslides. As under the proposed project, operations under this alternative would be integrated with local and regional emergency response systems, and the Cal Maritime Emergency Management Plan would be updated to reflect changes from implementation of the alternative. Alternative 4 would therefore not conflict with or physically interfere with an adopted emergency response plan. Overall, although less development would be implemented under this alternative, impacts would be similar compared to the proposed project given that this alternative would occur on the same project site which is not located in an area of high wildland fire risk, and would not involve development that would exacerbate wildland fire risk (*similar impact*).

ABILITY TO MEET PROJECT OBJECTIVES

Alternative 4 would partially but not fully meet most of the identified project objectives (see numbered objectives in Table 5-2). Specifically, while Alternative 4 would allow for buildout of all components of Phase One, it would not include Phase Two restoration and rehabilitation of the boathouse as well as Phases Two and Three enhancement and improvements to the shoreline and public access. Alternative 4 would not be able to fully upgrade and replace infrastructure to facilitate efficient waterfront operations important for Cal Maritime's educational mission and expansion of cadet instruction (Objective 2), rehabilitate the boathouse in a manner that retains its historic integrity (Objective 8), link campus buildings with waterfront open space and enhance public pedestrian and bicycle access to and along an activated waterfront (Objective 9), or ensure waterfront resilience, including the shoreline upland and transition zones that support public open space and recreational use, to climate and storm-related stresses (Objective 10). Given that Alternative 4 would allow for development of all components of Phase One, with partial development of Phases Two and Three, Objectives 1, 3, 4, 5, 6, 7, and 12 would be met under this alternative.

5.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The CEQA Guidelines (Section 15126.6[a]) requires that an EIR's analysis of alternatives identify the "environmentally superior alternative" among all of those considered. Because the No Project–No Development Alternative (described above in Section 5.4.1) would avoid all adverse impacts resulting from construction and operation of the proposed project analyzed in Chapter 3, it is the environmentally superior alternative. However, the No Project–No Development Alternative would not meet the objectives of the project as presented above in Section 5.2. Table 5-2 below identifies the ability of each alternative to meet the project objectives.

Further, when the environmentally superior alternative is the No Project Alternative, the State CEQA Guidelines (Section 15126[e][2]) require selection of an environmentally superior alternative from among the other action alternatives evaluated. The analysis contained herein and the summary in Table 5-1 present a comparison of impacts between the proposed project and the alternatives. Alternative 1 (No Project Alternative) would reduce impacts in numerous impact categories and would reduce the significant and unavoidable cultural resources impact on historic resources and cumulative impacts related to historic era archaeological resource (shipwreck) to less than significant. Given that Alternative 1 is likely the environmentally superior alternative, the EIR must also identify an environmentally superior alternative among the other alternatives, as indicated previously. Alternatives 2, 3, and 4 would result in various environmental effects, some of which would be greater than with implementation of the project; some less, and some the same. Alternative 3 (No Boat Basin 2 (Historic Preservation) Alternative) has lesser impacts in numerous impact categories and would eliminate the significant and unavoidable historic era archaeological resource (shipwreck) impact since dredging associated with the creation of Boat Basin 2 during Phase Two would not occur.

As illustrated in Table 5-1, below, the No Boat Basin 2 (Historic Preservation) Alternative (Alternative 3) would be the environmentally superior action alternative because although the some environmental impacts would be similar to the proposed project, several significant impacts would be reduced and significant and unavoidable impacts would be completely avoided, due to the reduced degree of in-water construction and dredging activities for Phase Two, during the construction and operation of the project. Alternative 3 would partially but not fully meet most of the identified project objectives, as identified in Table 5-2. Alternative 3 would not be able to fully upgrade and replace infrastructure to facilitate efficient waterfront operations important for Cal Maritime's educational mission and expansion of cadet instruction (Objective 2), expand and optimize the boat basin to allow simultaneous safe movement of more than two vessels for academic on-water instruction and recreational activities, accommodate Cal Maritime training and small recreational craft currently moored off-site because of lack of space, and accommodate an expanded Cal Maritime fleet of vessels, including a new replacement tug and oceanographic or similar research vessel (Objective 5), or dredge the existing and expanded boat basin to ensure depth sufficient to accommodate small vessel programs at the university (Objective 6). Given that Alternative 3 would allow for development of all components of Phase One and Three, with partial development of Phase Two, Objectives 1, 3, 4, 7, 8, 9, 10, 11, and 12 would be met under this alternative.

Table 5-1 Summary of Environmental Effects of the Alternatives Relative to the Proposed Project

Environmental Topic	Proposed Project	Alternative 1: No Project – No Development Alternative	Alternative 2: No Master Plan– Mooring Dolphin Only Alternative	Alternative 3: No Boat Basin 2 (Historic Preservation) Alternative	Alternative 4: No Boathouse, Shoreline or Public Access Improvements Alternative
Aesthetics	LTS	<	>	<	<
Air Quality	LTS	<	<	<	<
Biological Resources	LTS/M	<	<	<	=
Archaeological, Historical, and Tribal Cultural Resources	SU	<	<	<	=
Energy	LTS	<	<	<	<
Geology, Soils, and Mineral Resources	LTS/M	<	<	<	<
Greenhouse Gas Emissions and Climate Change	LTS	<	<	<	<
Hazards and Hazardous Materials	LTS/M	<	=	<	<
Hydrology and Water Quality	LTS/M	<	<	=	<
Land Use and Planning	LTS	<	<	<	<
Noise	LTS	<	=	=	=
Public Services and Recreation	LTS	<	<	=	<
Transportation/Traffic	LTS	<	<	=	<
Utilities and Service Systems	LTS	<	<	=	<
Wildfire	LTS	<	<	=	=

Impact Status:

LTS = less-than-significant impact

LTS/M = LTS with mitigation

SU = Significant and Unavoidable

= - Impacts would be similar to those of the project.

< - Impacts would be less than those of the project.

> - Impacts would be greater than those of the project.

Source: Data compiled by Ascent Environmental in 2024.

Table 5-2 Ability of Alternatives to Meet Project Objectives

Project Objectives	Proposed Project	Alternative 1	Alternative 2	Alternative 3	Alternative 4
1. Upgrade Cal Maritime's in-water and landside facilities and infrastructure to accommodate berthing and operation of the NSMV, as follows: ▶ Replace the main pier and potentially the existing trestle (or causeway) to accommodate the larger NSMV, meet heavy-weather mooring requirements, and allow access to the NSMV by trucks and equipment needed for operation and maintenance of the vessel. ▶ Provide necessary new and upgraded infrastructure and utilities sized to support the NSMV. ▶ Upgrade the existing marine yard to accommodate improved access, a staging area for ship supplies for the annual training cruise, training areas, support for embarkation and debarkation, and US Coast Guard–required port security measures.	Meets Objective	Does Not Meet Objective	Does Not Meet Objective	Meets Objective	Meets Objective
2. Upgrade and replace infrastructure to facilitate efficient waterfront operations important for Cal Maritime's educational mission and expansion of cadet instruction.	Meets Objective	Does Not Meet Objective	Does Not Meet Objective	Partially Meets Objective	Partially Meets Objective
3. Increase hands-on maritime instructional opportunities for cadets to move beyond traditional classroom experience and gain in-water experience.	Meets Objective	Does Not Meet Objective	Meets Objective	Meets Objective	Meets Objective
4. Allow for NSMV to operate as an extension of Cal Maritime facilities and provide maritime training and education for cadets.	Meets Objective	Does Not Meet Objective	Meets Objective	Meets Objective	Meets Objective
5. Expand and optimize the boat basin to allow simultaneous safe movement of more than two vessels for academic on-water instruction and recreational activities; accommodate Cal Maritime training and small recreational craft currently moored off-site because of lack of space; and accommodate an expanded Cal Maritime fleet of vessels, including a new replacement tug and oceanographic or similar research vessel.	Meets Objective	Does Not Meet Objective	Does Not Meet Objective	Partially Meets Objective	Meets Objective
6. Dredge the existing and expanded boat basin to ensure depth sufficient to accommodate small vessel programs at the university.	Meets Objective	Does Not Meet Objective	Does Not Meet Objective	Partially Meets Objective	Meets Objective
7. Ensure that the TSGB remains accessible for instructional use during Phase One implementation of the Waterfront Master Plan.	Meets Objective	Does Not Meet Objective	Does Not Meet Objective	Meets Objective	Meets Objective
8. Rehabilitate the boathouse in a manner that retains its historic integrity	Meets Objective	Does Not Meet Objective	Does Not Meet Objective	Meets Objective	Does Not Meet Objective
9. Link campus buildings with waterfront open space and enhance public pedestrian and bicycle access to and along an activated waterfront.	Meets Objective	Does Not Meet Objective	Does Not Meet Objective	Meets Objective	Does Not Meet Objective
10. Ensure waterfront resilience, including the shoreline upland and transition zones that support public open space and recreational use, to climate and storm-related stresses.	Meets Objective	Does Not Meet Objective	Does Not Meet Objective	Meets Objective	Does Not Meet Objective
11. Protect ecological functioning along the waterfront, including upland, intertidal, and subtidal components.	Meets Objective	Does Not Meet Objective	Does Not Meet Objective	Meets Objective	Partially Meets Objective
12. Allow the NSMV to be requisitioned by FEMA for emergency use, as needed.	Meets Objective	Does Not Meet Objective	Meets Objective	Meets Objective	Meets Objective

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6 OTHER CEQA SECTIONS

This chapter includes discussions of various topics required by the California Environmental Quality Act (CEQA). These topics include Section 6.1, Effects Not Found to Be Significant; Section 6.2, Growth Inducement, Section 6.3, Significant and Unavoidable Adverse Impacts; and Section 6.4, Significant Irreversible Environmental Changes.

6.1 EFFECTS NOT FOUND TO BE SIGNIFICANT

Section 15128 of the CEQA Guidelines requires that an EIR briefly describe potential environmental effects from a proposed project that were determined not to be significant and therefore were not discussed in detail in the EIR. The environmental issues discussed in the following sections were determined not to be significant, and the reasons for the conclusion of non-significance are discussed in each section.

6.1.1 Agriculture and Forestry Resources

The project site is located in the City of Vallejo in an urbanized and developed area. There are no agricultural or forestry resources on the project site or designated within the City of Vallejo. Therefore, there would be no impact to agriculture and forestry resources and this issue is not discussed further.

6.1.2 Population and Housing

As stated in Chapter 2, "Project Description," the purpose of the proposed project is to redevelop the waterfront of Cal Maritime to accommodate the arrival of the NSMV and the planned academic and operational growth over the next 10 years. The project itself does not include any elements that involve the construction of additional student housing or propose an increase in projected student enrollment or would otherwise facilitate or induce population growth. As discussed in Chapter2, "Project Description," the twofold underlying purpose of the proposed project is to prepare the Cal Maritime campus waterfront for the arrival and subsequent operation of the NSMV and to upgrade infrastructure and facilities that support other campus and public waterfront-dependent program needs. These other program needs include hands-on campus instruction related to small and large craft navigation, maintenance, and other ship provisioning operations; small craft mooring and storage; and public recreational use. For these reasons, implementation of the project would not result in an increase in the local population, no new demand for housing and no direct or indirect impacts to population and housing would occur. Therefore, impacts would be less than significant, and this topic is not discussed further in this EIR.

6.2 GROWTH INDUCEMENT

California Environmental Quality Act (CEQA) Section 21100(b)(5) specifies that the growth-inducing impacts of a project must be addressed in an environmental impact report (EIR). Section 15126.2(d) of the State CEQA Guidelines provides the following guidance for assessing growth-inducing impacts of a project:

> Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

A project can induce growth directly, indirectly, or both. Direct growth inducement would result if a project involved construction of new housing. Indirect growth inducement would result, for instance, if implementing a project resulted in any of the following:

- substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises);
- substantial short-term employment opportunities (e.g., construction employment) that indirectly stimulates the need for additional housing and services to support the new temporary employment demand; and/or
- removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area).

Growth inducement itself is not an environmental effect but may foreseeably lead to environmental effects. If substantial growth inducement occurs, it can result in secondary environmental effects, such as increased demand for housing, demand for other community and public services and infrastructure capacity, increased traffic and noise, degradation of air or water quality, degradation or loss of plant or animal habitats, conversion of agricultural and open-space land to urban uses, and other effects.

6.2.1 Summary of Growth-Inducing Impacts

The State CEQA Guidelines require discussion in an EIR of the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. It is not assumed that growth in any area is beneficial or detrimental, consistent with the State CEQA Guidelines (CCR Section 15126.2[d]).

Environmental effects resulting from induced growth fit the CEQA definition of "indirect" effects in the State CEQA Guidelines (CCR Section 15358[a][2]). These indirect or secondary effects of growth may result in significant environmental impacts. CEQA does not require that the EIR speculate unduly about the precise location and site-specific characteristics of significant, indirect effects caused by induced growth, but a good-faith effort is required to disclose what is feasible to assess. Potential secondary effects of growth could include consequences – such as conversion of open space to developed uses, increased demand on community and public services and infrastructure, increased traffic and noise, degradation of air and water quality, or degradation or loss of plant and wildlife habitat – that are the result of growth fostered by the project.

6.2.2 Growth-Inducing Impacts of the Project

Typically, the growth-inducing potential of a project would be considered adverse if it fosters growth or a concentration of population above what is assumed in local and regional land use plans, or in projections made by regional planning authorities. Adverse growth impacts could also occur if a project provides infrastructure or service capacity to accommodate growth levels beyond those permitted by local or regional plans and policies.

The proposed project involves buildout of the Waterfront Master Plan which would implement improvements along Cal Maritime's waterfront and in-water infrastructure to prepare for arrival of the NSMV, as well as other upgrades to be constructed in three phases over the next 10+ years. The project is focused along Cal Maritime's shoreline and waterfront area including the main pier, maintenance yard, boat basin, boathouse, and shoreline. The project does not include any improvements to any other facilities, structures, or buildings at the Cal Maritime campus that would induce growth, nor would the project change enrollment or student capacity on campus or alter projected growth of the university. Therefore, the project would neither result direct in population growth nor include facilities that would indirectly induce population growth.

As discussed in Chapter 2 of this EIR, the twofold underlying purpose of the proposed project is to prepare the Cal Maritime campus waterfront for the arrival and subsequent operation of the NSMV and to upgrade infrastructure and facilities that support other campus and public waterfront-dependent program needs. These other program needs include hands-on campus instruction related to small and large craft navigation, maintenance, and other ship provisioning operations; small craft mooring and storage; and public recreational use. As such, implementation of the project would not create new opportunities for student housing, substantial new permanent employment opportunities, substantial short-term employment opportunities that indirectly stimulates the need for additional housing and services, or removal of an obstacle to additional growth and development. Therefore, the growth-inducing impacts of the project would be less than significant.

6.3 SIGNIFICANT AND UNAVOIDABLE ADVERSE IMPACTS

The State CEQA Guidelines Section 15126.2(b) requires EIRs to include a discussion of the significant environmental effects that cannot be avoided if the proposed project is implemented. As documented throughout Chapter 3 (project level impacts) and Chapter 4, "Cumulative Impacts," of this ~~Draft~~ EIR, after implementation of the recommended mitigation measures, most of the impacts associated with the proposed project would be reduced to a less-than-significant level. The proposed project, however, would result in significant and unavoidable project and cumulative impacts with respect to a historic era archaeological resource (shipwreck); that is, no feasible mitigation is available or the mitigation measures available were not sufficient to reduce the plan's impacts to a less-than-significant level.

6.4 SIGNIFICANT AND IRREVERSIBLE ENVIRONMENTAL CHANGES

The State CEQA Guidelines require a discussion of any significant irreversible environmental changes that would be caused by the project. Specifically, the State CEQA Guidelines section 15126.2(d) states:

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible, since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

Generally, a project would result in significant irreversible environmental changes if:

- the primary and secondary impacts would generally commit future generations to similar uses;
- the project would involve uses in which irreversible damage could result from any potential environmental accidents associated with the project;
- the project would involve a large commitment of nonrenewable resources; or
- the proposed consumption of resources is not justified (e.g., the project involves the wasteful use of energy).

Development under the proposed project would result in the continued commitment of the Cal Maritime campus to institutional uses, thereby precluding any other uses for the lifespan of the university. The California State University System's ownership of the campus represents a long-term commitment of the campus lands to an institutional use. Restoration of the campus to predeveloped conditions is not feasible given the degree of disturbance, the urbanization of the area, and the level of capital investment.

Resources that would be permanently and continually consumed by implementation of the project include water, electricity, natural gas, and fossil fuels; however, the consumption of these resources would not represent unnecessary, inefficient, or wasteful use of resources, as documented in Section 3.5, Energy, and Section 3.14, Utilities and Service Systems.

Buildout of the proposed project would result in a minor irreversible commitment of fossil fuel resources during construction for all phases of the project as well as for increases in boat use in the expanded Boat Basin 1 and the new Boat Basin 2. However, the NSMV would replace the TSGB with a more modern fuel and energy efficient ship and would result in lower fuel and energy consumption than the existing TSGB. Furthermore, the project would comply and be consistent with the goals and policies of the California State University Sustainability Policy which aims to reduce the environmental impact of construction and operation of buildings and to integrate sustainability across the California State University system, the Cal Maritime 2017 Physical Master Plan which includes various strategies for green building and pursuing sustainability at the university, as well as the Building Energy Efficiency Standards (Title 24, Part 6) and California Green Building Standards (Title 24, Part 11).

The CEQA Guidelines also require a discussion of the potential for irreversible environmental damage caused by an accident associated with the project. While the university uses, transports, stores, and disposes of hazardous wastes, as described in Section 4.8, Hazards and Hazardous Materials, the university complies with all applicable state and federal laws and existing university programs, practices, and procedures related to hazardous materials, which reduces the likelihood and severity of accidents that could result in irreversible environmental damage. Thus, the potential for the project to cause irreversible environmental damage from an accident or upset of hazardous materials is very low.

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Chapter 5 Alternatives

No references were cited in this chapter.

Chapter 6 Other CEQA Sections

No references were cited in this chapter.

GLOSSARY

- **Batter pile**: A pile driven at an angle with the vertical to resist a lateral force.
- **Breakwater**: the structure to protect vessels and infrastructure within the boat basin from damage from waves and currents.
- **Catwalk**: A narrow walkway (as along a bridge) and allows access to the mooring dolphins and other ancillary structures.
- **Cold-ironing**: Shore power infrastructure that enables ships to turn off their engines while at berth and connect to local electric power.
- **Dolphin**: A spar or buoy for mooring boats.
- **Floating dock**: a floating structure used to dock smaller boats
- **Gangway**: A movable bridge used in boarding or leaving a ship at a pier.
- **Headhouse**: The primary entrance to the boathouse.
- **Mooring bollards**: Paired vertical wooden or metal posts mounted aboard a ship or on a wharf, pier, or quay. They are used to secure mooring lines, ropes, hawsers, or cables.
- **Mooring dolphin**: A spar or buoy for mooring boats.
- **Pier**: The structure perpendicular to the shoreline to which a vessel is secured for the purpose of loading and unloading cargo.
- **Shoaling**: The process of water becoming shallow.
- **Trestle**: the structure that connects the pier to land. It is not used to moor vessels.
- **Walers**: Timber beams used to carry weight throughout the length of a pier to ensure that pressure is distributed evenly.
- **Wave baffles**: Sheet piles used as a breakwater.

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