

Port of Richmond

Port Plan for Ocean-Going Vessels



Richmond, California
March 1, 2024



Charles Gerard and Robert Stevens
Port Director/ Contract Port Engineer
1322 Canal Boulevard
Richmond, CA 94802

I am the Port of Richmond's Responsible Official. This terminal plan was prepared under my supervision.

Charles Gerard

03.12.2024

Signature

Date

Charles Gerard
Port Director
City of Richmond, CA
Office: +1 510 620 6792
Mobile: +1 510 829 2253
Email: charles_gerard@ci.richmond.ca.us

Submitted to: shorepower@arb.ca.gov

CONTENTS

INTRODUCTION 1

POINT POTRERO MARINE TERMINAL 2

TERMINAL 2 6

TERMINAL 3 7

FIGURES

- Figure 1 – Point Potrero Marine Terminal
- Figure 2 – PPMT Shore Power Service
- Figure 3 – Cable Handling Equipment

INTRODUCTION

The Port of Richmond is a department of the City of Richmond that operates dry bulk, liquid bulk, break-bulk, and automobile processing facilities on the City's southern waterfront. The Port's property includes the Point Potrero Marine Terminal (Shipyard Number 3) as well as Terminals 2, and 3.

The land use of Richmond's southern waterfront specifically along the Harbor Channel and Santa Fe Channel are regulated by the City of Richmond's General Plan and Zoning Code in association with Metropolitan Transportation Commission and the Bay Conservation and Development Commission (BCDC) the San Francisco Bay Area Seaport Plan as Amended January 2012. BCDC reserves these areas for Port Priority Use.

Areas with Port Priority Use have excellent access to deep navigable waters as in 1996 Congress authorized deepening of the Harbor and Santa Fe channels from (-)35 to (-)38 feet at Mean Lower Low Water allowing for large vessels to enter. In addition, the Port has strong connectivity to both Union Pacific and the Burlington Northern Santa Fe railroads as well as roadways and interstates.

As described in the Seaport Plan, the Port of Richmond includes both the public and private terminals as Port Priority Use. The public terminals include the Point Potrero Marine Terminal as well as Terminals 2 and 3. There are nine other privately owned facilities along the Santa Fe Channel.

As required by the California Code of Regulations, terminal operators such as the Port of Richmond are required to submit a terminal plan that discusses how the terminal will comply with the requirements for ocean-going vessels to reduce oxides of nitrogen (NOx), reactive organic gases (ROG), particulate matter (PM), diesel particulate matter (DPM), and greenhouse gas (GHG) emissions from ocean-going vessels while docked at berth.

The Port is working to implement a shore power system at the Point Potrero Marine Terminal and Terminal 2. However, it is also reviewing various emissions capture devices such as those provided by STAX Engineering.

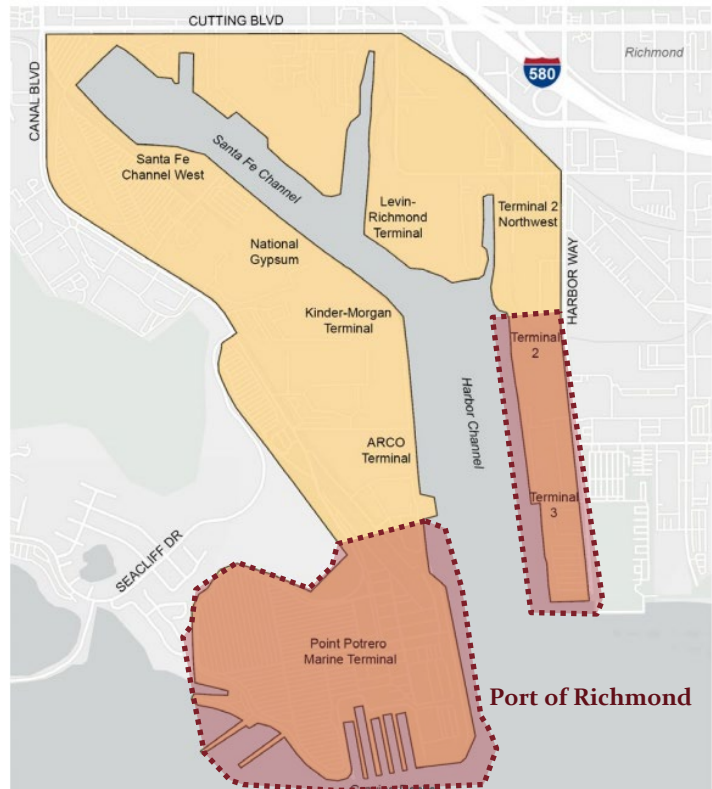


Figure 1. The Port of Richmond as described in the BCDC Sea Port Plan.

POINT POTRERO MARINE TERMINAL

Point Potrero Marine Terminal (PPMT) is the former Historic Shipyard Number 3 developed to construct Liberty and Victory Ships during World War II. The facility is located at the end of Canal Boulevard as shown in **Figure 1**. Its current configuration is similar to as constructed for the war effort as the graving basins, wharf, and several buildings still exist. PPMT has several tenants with most of the site occupied by Auto Warehousing Company (AWC).

AWC imports automobiles from Japan and China using the berth also known as piers 7 and 8 fronting the Harbor Channel. Based upon data from AWC, they received the following total number of ships over the last five years:

Year	Total Number of Vessels
2018	100
2019	92
2020	68
2021	52
2022	54
2023	73



Typical vessel that calls on PPMT about 1 to 2 times each week. Pictured here is the Dionne Leader, which is almost 700 feet in length.

The geographic location of the berth is at 37°54'26.76"N and 122°21'50.65"W.

The remaining tenants of the PPMT are marine construction and towing and do not export or import cargo.

The Port is working to implement emissions controls as required by January 1, 2025, for roll-on/roll-off (RORO) vessels. This regulation requires that all ships at berth connect to shore based electrical equipment to power a vessel's systems rather than operate onboard fossil fuel powered electrical generators. The IEC/IEEE CDV 80005-1 describes the high-voltage shore connection (HVSC) systems that are both onboard the ship and on shore, which supplies loads up to 6.5 million volt-amperes (MVA) at 11 thousand volts (kV).

The Port's concept plan to provide shore power service is shown in Figure 2. This will include a dedicated cable management system to connect the vessel to shore power as shown in Figure 3. AWC will reimburse the Port for the electricity used consistent with its current tariff.

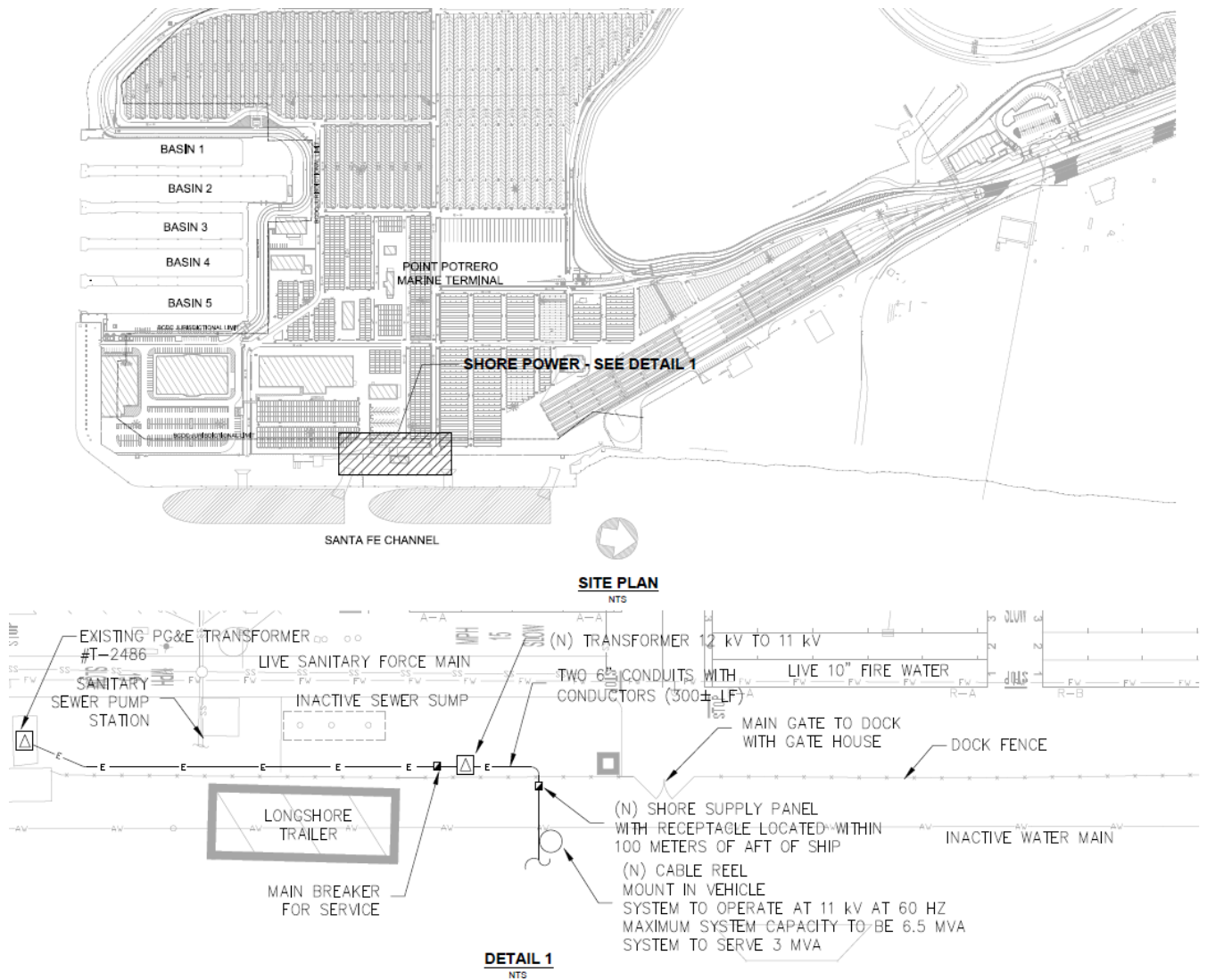


Figure 2. Proposed shore power connection at PPMT.



Figure 3. Proposed cable management system.

To support funding of the improvements, in late July 2022, the Port received \$1,003,250.00 in funding from the Bay Area Air Quality Management District (BAAQMD) from the Volkswagen Mitigation Trust Fund Zero Emission Freight and Marine Program Grant Agreement. In late 2022 and 2023, the Port issued two requests for proposals to complete the work. No vendors submitted. The Port contacted several vendors and found little interest in the project due to lack of available shore power equipment.

Consistent with the City's procurement policy, the Port contacted Rosendin Electric to review options and develop a proposal to complete the work. In February 2024, the City Council approved a contract with Rosendin Electric to finalize the design of the system and begin construction if the Port could acquire additional funding.

While coordinating with Rosendin Electric, the Port contacted Pacific Gas and Electric (PG&E) to understand upgrades required to support the shore power system. The Port learned that to support the project, PG&E would need to make major upgrades to conductors and electrical equipment between the Point Potrero Marine Terminal and its substation along Cutting Boulevard as shown in Figure 4. The Port is currently working with PG&E to refine the work and budget required to complete the upgrade to electrical service.



Figure 4. Proposed shore power connection at PPMT.

The Port has determined the budget to complete the shore power installation is about \$7.1 million. Currently, there is a \$6 million deficit to complete the work. The overall budget includes the following elements:

Item	Budget	Performed by
Final Engineering	\$120,000	Rosendin
Permits	\$10,000	Richmond
Shore Power Construction	\$2,149,197	Rosendin
Cable Management Equipment	\$1,051,550	Rosendin
Electrical transmission upgrade	\$3,500,000	Pacific Gas and Electric
Contingency	\$269,253	
Total	\$7,100,000	

Assuming the Port can secure additional funding, it expects the shore power installation to be completed as follows:

Task	Task Complete	Notes
Detailed Design	May 2024	Currently under contract
PG&E Coordination	September 2024	Working to finalize contract
Material Procurement and Construction	February 2025	Budget available to begin acquiring materials but not complete construction.
PG&E Construction	December 2025	Subject to PG&E
System Operational	February 2026	Allow 2 months of testing

The Port is responsible for installing electrical equipment. AWC will operate and maintain the electrical equipment installed by the Port at PPMT.

TERMINAL 2

Terminal 2 is generally shown in **Figure 1** and is located to the north of Terminal 3 on the east side of the Harbor Channel. The geographic location is 37°54'56.90"N 122°21'42.65"W. The berth length is about 650 feet.

The Port has leased this terminal to AAK (formerly California Oils) since the 1990s. The key infrastructure is the berth that allows vessels to discharge liquid bulk cargo. In the case of AAK, this is vegetable oil, which occurs about once per month. I

In general, one vessel per month calls Terminal 2 and stays at berth for a period of about one day. The following is a summary of vessels arriving at the terminal over the last several years.



Typical vegetable oil vessel (Azalea Galaxy) that calls Terminal 2.

Year	Total Number of Vessels	Quantity Metric Tons
2018	12	84,437
2019	11	66,196
2020	12	80,220
2021	12	81,236
2022	16	88,800
2023	14	66,550

While we are working with AAK to determine the electrical load required by their vessels, we believe it to be about 2,000 KW of electrical power at berth to maintain the ship’s operations. The Port plans to construct a shore power service similar to the system shown in Figure 2. However, this system is more complex than PPMT as there is limited electrical infrastructure at the berth. The ultimate installation will include conductors that plug into the vessel and connect to the Port’s electrical system. The AAK will reimburse the Port for the electricity used consistent with its current tariff.

Once funding is identified, the Port anticipates implementing the project over a two-year period that includes the following elements:

Item	Duration
Detailed Design	3 months
PG&E Coordination	12 months
Bidding and Council Approval	2 months
Procurement of Materials and Construction	12 months

The Port is responsible for installing the electrical equipment. AAK will operate and maintain the electrical equipment installed by the Port at Terminal 2.

TERMINAL 3

Terminal 3 is generally shown in **Figure 1** and is located along Harbour Way South on the east side of the Harbor Channel. The geographic location of the facility is 37°54'47.55"N 122°21'41.49"W.

The total area is approximately 15 acres. There is an existing concrete wharf that is 1,000 linear feet in length and generally serves lay berthing of vessels.

The existing terminal has the capacity for shore power at 480V/400A services. The Port has leased this facility to Terminal 3 Partners who are responsible for management of vessels at the site. Vessels typically dock at the facility for periods of up to two weeks.



The Port of Richmond's Terminal 3 looking toward the west.



Terminal 3 had 480V/400A shore power available for docked vessels.

Terminal 3 Partners is responsible for installing and operating the electrical equipment at Terminal 3.