Port of San Francisco
& Pasha Automotive Services
At Berth Port Plan

This At Berth Port Plan has been prepared pursuant Section 93130.14(b)(3) of the Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port.

1. GENERAL INFORMATION

Port Contact Name: Shannon Alford, Sr. Environmental Planner

Phone Number: 415-336-0888 (Cell) | Email: Shannon.Alford@sfport.com

Terminals Included in this Plan:

Name:

Pier 80

Geographic Boundary Coordinates:

Berths	Latitude	Longitude
A	37.74827051195101	122.38318784910142
B	37.748584396230996	122.3782740425806
C	37.75076458273299	122.37597807184815
D	37.75215579657744	122.37856372113094

2. TERMINAL DETAILS

Terminal details can be found on the subsequent pages.

2.1. **[Name of Terminal Operator – Pasha Automotive Services]**

Identification and description of which strateg(ies) the terminal will use for compliance:

Pasha Automotive Services ("PAS") and the Port of San Francisco ("POSF") plan to facilitate up to 3 compliance strategies at Pier 80 based on commercial viability: 1) barge-based or shoreside bonnet and/or 2) an alternative emission control strategy utilizing energy from hydrogen fuel cells for a vessel shore or barge-mounted power plug-in, and/or 3) a traditional shorepower system with successful federal funding.

Barge-Based or Shoreside Capture Control

The POSF and PAS may use a barge-based mobile emissions control system for emissions control if a CARB-approved barge-mounted capture control system exists for Ro/Ro vessels by 2025. A barge-based emissions control system is preferable to a shoreside system due to the anticipated low frequency of use/vessel calls; however, the POSF and PAS may consider a shoreside capture and control system if a barge-based system is not available. Due to the anticipated low frequency of use, neither the POSF nor PAS intend to purchase a barge-based capture and control system; rather, we anticipate that this type of barge and service will be provided by a third party under hourly fees.

Hydrogen Fuel Cell Technology

The POSF and PAS are jointly evaluating utilizing energy from hydrogen fuel cells for a vessel shore or barge-mounted power plug-in. Hydrogen fuel cells could be in a 20- or 40-foot container and delivered to the terminal by truck to provide vessels with shore power or delivered via a barge, if a CARB-approved hydrogen fuel cell barge exists for Ro/Ro vessels by 2025.

The POSF is currently supporting the Hornblower Group, a POSF tenant, on a maritime hydrogen demonstration project. In 2021, Hornblower Group, received an $8M grant from the U.S. Department of Energy to design, construct, and operate the first barge asset of its kind to produce green hydrogen using hydroelectric power to dispense to ferries and maritime vessels. This project will introduce the feasibility and viability of hydrogen production, storage, and fueling in a maritime context. An integrated system of green hydrogen production via electrolysis and hydrogen power generation via fuel cell, both mounted on a barge, is expected to bring commercial hydrogen technology to the maritime industry.

In 2022, the POSF will host the world's first commercial ferry powered by hydrogen fuel cells, the *Sea Change*, that will operate in the San Francisco Bay. Vessels like the *Sea Change* will benefit from having a secure and affordable supply of green hydrogen such as the hydrogen that will be produced by the Hornblower hydrogen demonstration project described above. The overarching goal of the Hornblower project is to leverage maritime users to stimulate a renewable maritime hydrogen ecosystem along the San Francisco Bay. POSF, PAS, and our technology partners will continue to evaluate whether hydrogen fuel cell technology is a viable solution for maritime vessel at-berth compliance.

Traditional Shorepower

At the time of this document submission, the POSF does not have shore power infrastructure in its annual budget for Pier 80 however, the POSF and PAS respectfully reserve the right to revisit traditional shore power (cold-ironing) as part of our compliance strategy if a grant opportunity is identified and funds are secured for infrastructure upgrades. Traditional shorepower is not a feasible compliance strategy due to the low frequency of vessels visits, anticipated construction costs and POSF budget constraints. Should this change in the next fiscal year(s) prior to the compliance start date for Ro/Ro vessels of January 1, 2025, POSF will advise CARB and work with PAS to mitigate any construction-related interruptions to operations.

Equipment purchases and/or construction that are in progress or must still be completed to reduce emissions:

- Barge-based or shore-side bonnet to capture vessel emissions.
- Hydrogen fuel cells delivered to the terminal by truck to provide vessels with shore power; there is no on-terminal infrastructure needed for this compliance strategy.
- Hydrogen fuel cell power plug-in delivered to the vessel via a dock side container of fuel cells or hydrogen barge; there is no on-terminal infrastructure needed for this compliance strategy.

Schedule for installing equipment and/or any necessary construction projects:

Project:	Estimated Completion Date:
1. Barge-based or shore side bonnet	1. December 2024
2. Hydrogen fuel cells for vessel plug-in	2. June 2024 (truck delivery); the Hornblower hydrogen barge project expects fueling to be available in 2024 with a projected project completion date of 2025.

Number of vessels expected to use this strategy (annual): Approximately 25

Division of responsibilities for enacting infrastructure:

Barge-Mounted of Shoreside Capture Control

For both the barge-based and shoreside capture and control scenarios, no capital investment would be needed since the service would be provided, operated, and maintained by a third party. PAS and/or the vessel would contract for and pay for the service.

Hydrogen Fuel Cell Technology

For both the barge-based and shoreside hydrogen fuel cell scenarios, no capital investment would be needed since the service would be provided, operated, and maintained by a third party. Under the hydrogen fuel cell shoreside scenario, PAS has a relationship with a hydrogen energy provider and would facilitate hydrogen delivery to the terminal via truck. PAS and/or the vessel would pay for the service.

For the hydrogen fuel cell barged-based scenario, PAS would contract for and facilitate delivery to the vessel at-berth. PAS and/or the vessel would pay for the service.

Traditional Shorepower Under this scenario, the POSF would install, maintain, and own the infrastructure. The vessels and/or PAS would pay for electricity from the system.	
Terminal Operator approval of responsibilities: Name: Chris Hamlin	Title: Senior Vice President
Signature: DocuSigned by: Chris Hamlin [illegible]	Date: 5/26/22

3. PORT-SPECIFIC BERTHING RESTRICTIONS

[write "none" if there are none; otherwise:]

Terminal:	Berthing Restriction:
1. Berth A	1. Currently used for DOD MARAD vessel berthing
2. Berth B	2. Currently used for DOD MARAD vessel berthing
3. Berth C	3. Current ro-ro berth
4. Berth D	4. Not available for ro-ro berthing due to shallow depth

4. SIGNATURES

The Port's responsible officer confirms by signing below that he/she has reviewed the division of responsibilities between the Port and the Terminal Operators that are identified in this At Berth Port Plan and agrees to them under penalty of perjury. The Port does not make any representations or attestations about the accuracy, feasibility, or legality of any of the Terminal Operators' proposed compliance strategies set forth in this At Berth Port Plan.

Name: Andre Coleman	Title: Maritime Director, Port of San Francisco
Signature: DocuSigned by: Andre Coleman 88EEB0B0BABB4A3...	Date: 5/26/22