



# **Presentations for June 13, 2024 Board of Directors Meeting**





## **Item 9: CCTA Expanded Ferry Service Feasibility Study**

# Feasibility Study for Ferry Service Expansion

San Francisco Bay Ferry | Water Emergency Transportation Authority  
Board Meeting  
June 13, 2024



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# Presentation Outline

#	Topic
1	Overview of the Project Scope, Schedule and Locations
2	Approach and Assumptions
3	Summary of Ferry Feasibility Evaluation
	<i><u>Benefits:</u> Demand Potential</i>
	<i><u>Costs:</u> Operating</i>
	<i><u>Costs</u> – Capital for Landside, Waterside, Operations and Maintenance Facility and Vessel Procurement (City Specific)</i>
4	Stakeholder Engagement and Next Steps

# Feasibility Study Partners and Technical Team



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TRANSPORTATION AUTHORITY**



TRI DELTA TRANSIT



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# **Overview of the Project Scope, Schedule and Locations**

# Project Scope and Schedule

Develop and evaluate the feasibility of a plan for services from proposed ferry terminals in Hercules, Martinez, Pittsburg, and Antioch to the San Francisco Ferry Terminal.

## Task 1

September 2023

### Data Collection & Methodology Development

- Collect data
- Create a methodology for evaluating ferry service
- Develop study goals based on stakeholder input

## Task 2

October 2023

### Evaluation of Ferry Service Feasibility & Operational Analysis

- Evaluate proposed ferry service using methodology in Task 1
- Proposed ferry service locations will have their performance evaluated

## Task 3

December 2023

### Preliminary Cost and Funding Feasibility Analysis

- Analysis of cost and funding availability through grants and local resources for the top performing ferry service locations

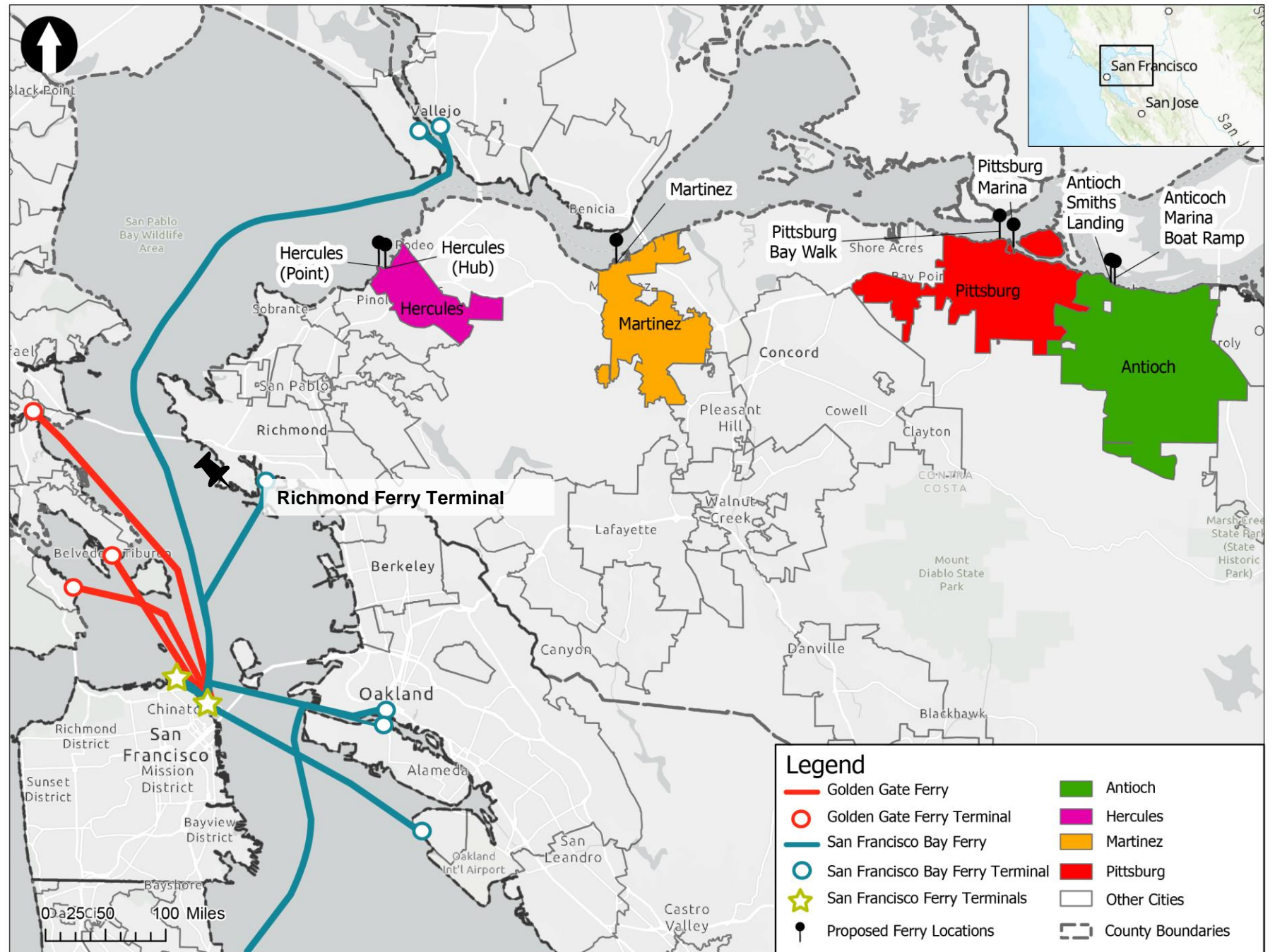
## Task 4

Spring 2024

### Final Ferry Feasibility Study

- Compile and document the findings in Tasks 1-3

# Overview of Contra Costa County Ferry Terminal Locations





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# Approach and Assumptions

# Initial Ferry Service Assessment Approach

*A simple Benefit/Cost Analysis*

## Benefits

- Demand Potential
- Additional transit connections for Equity Priority Communities
- Indirect benefits from nearby development
- Waterfront access
- Reducing car trips to SF
  - Greenhouse Gas reduction
  - Road congestion reduction

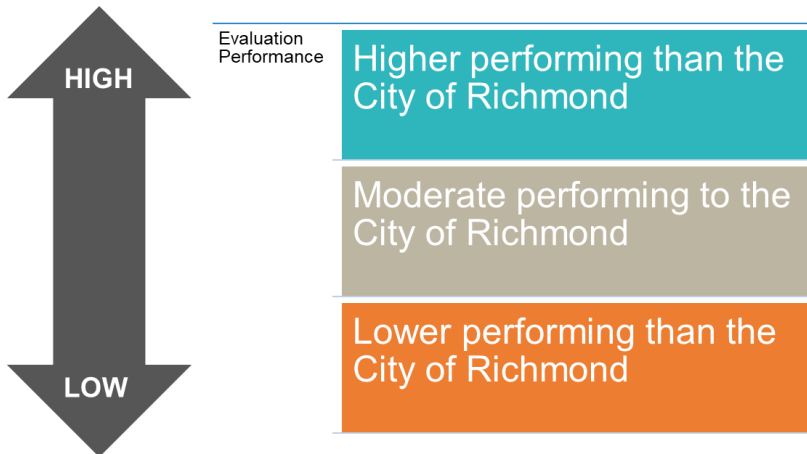
## Costs
























- Operating costs
- Capital costs
  - Landside Costs
  - Waterside costs
  - Operations and Maintenance Facility
- Vessel Procurement
- Initial and Annual Maintenance Dredging

# Demand Potential

## Initial Ferry Feasibility Assessment

- Existing and planned conditions at the proposed ferry terminal are evaluated against the current existing Richmond ferry terminal



 Demand Potential	City of Richmond	Ferry Location 1
• Travel Demand to SF Ferry Terminal <sup>1</sup>		
• Transit travel times		
• Transit time competitiveness		
• Residents within 3/4-mile walkshed		
• Jobs within 3/4-mile walkshed		
• Residential density		
• Job density		
• Existing transit connections		
• Existing active transportation connections		
• Planned transit connections		
• Planned active transportation connections		

Notes: Travel Demand to SF Ferry Terminal is for 2022

# Ferry Terminal Capital Cost Approach

## Landside

- Reference the 2015 CCTA Financial Feasibility Study to escalate costs to 2023 \$
- Infrastructure costs to be informed by existing Cities' studies

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## Waterside

- The City of Richmond Ferry Terminal will serve as baseline for waterside infrastructure costs
- Additional Evaluation for facilities options for a Prop SF and Dorado Vessel

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## Cost Share in a New Maintenance Facility

- Assumes one operations maintenance facility to serve all County proposed ferry locations
- Cost estimate is based on the Carlene H. Johnson North Bay Operations and Maintenance Facility

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**Capital  
Costs for  
Proposed  
Terminal**

# Terminal Dredging Cost Approach & Assumptions

## Initial Dredging

- Channel width and depth required by vessels determines dredging cost
- Depth needed for each vessel:
  - *12 feet for WETA Dorado*
  - *10 feet for Prop SF Billie J*
- Channel width assumed to be 100 feet
- Channel depths include sedimentation allowances, extreme low tides, vessel movements
- Dredging is “new work” suitable only for upland disposal (more expensive)

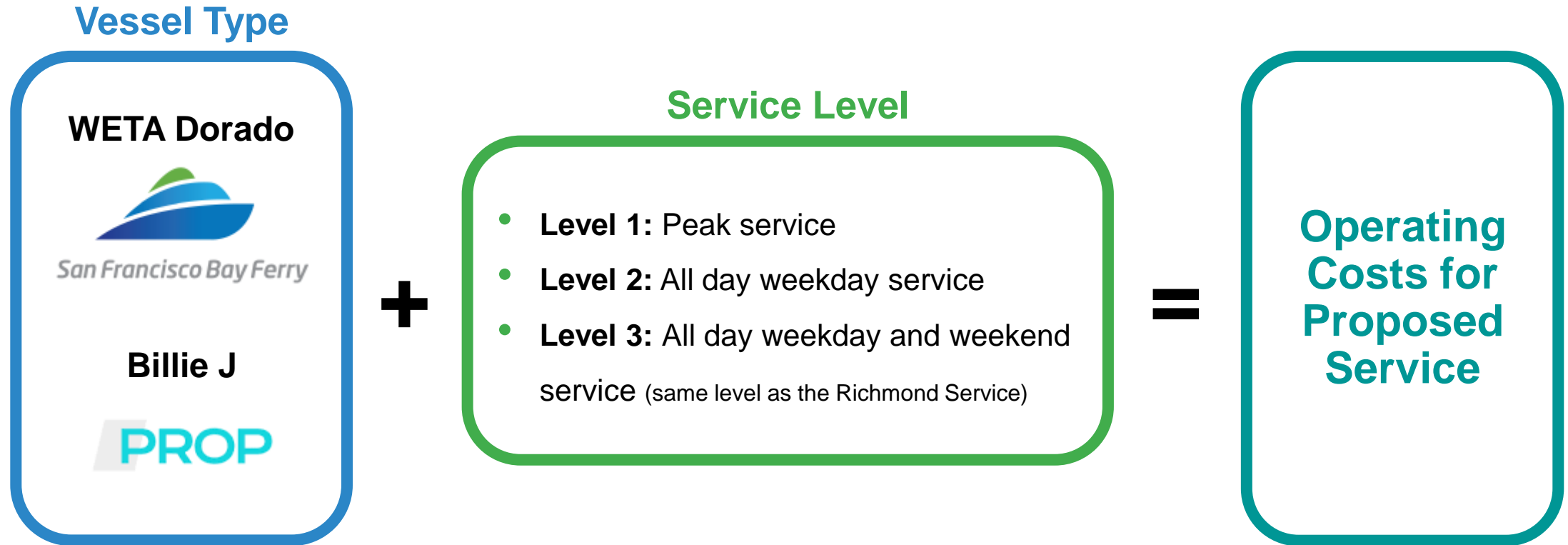
## Annual Maintenance Dredging

- Keeps channel clear for navigation
- Assumes in-water (less expensive) disposal of dredged material
- Assumes annual sedimentation rates (no sedimentation analysis performed)
- Marina site maintenance not included

### Overall Dredging Assumptions:

1. The cost of dredging, transportation, and disposal of sedimentation is measured in cost per cubic yard
2. Assumes no marina entrance or breakwater modifications
3. Assumes no heavy contamination and upland disposal

# Ferry Service and Operating Costs Approach



## Service Assumptions:

1. The service plans are based on a direct service between San Francisco Ferry Terminal and the origin Cities. Other service options, such as adding stops, can be feasible but were not analyzed.
2. Emergency service capacity is available in the WETA model, not in the Prop SF model
3. Operating costs are based on one vessel per trip
4. Prop SF Vessel may require additional service to accommodate the ridership demand.
5. Schedules include dwell times for boarding and off-boarding, crew movements, and breaks.

# Vessels Options and Procurement Costs

## WETA Vessel: Dorado Vessel



- **Passenger Capacity:** 320
- **Bike Capacity:** 25
- **Max Speed:** 32 knots
- **Vessel Purchase Cost:** \$21 million
- **Ownership:** WETA and operated by contractor

### Notes:

1. Vessel Types were recommended by WETA. They represent the currently available and approved vessels. The vessel choices for the actual service can be different as new products becoming available.
2. The average speed is contingent on the route
3. Bike capacity is based on the existing vessels and can be customized.

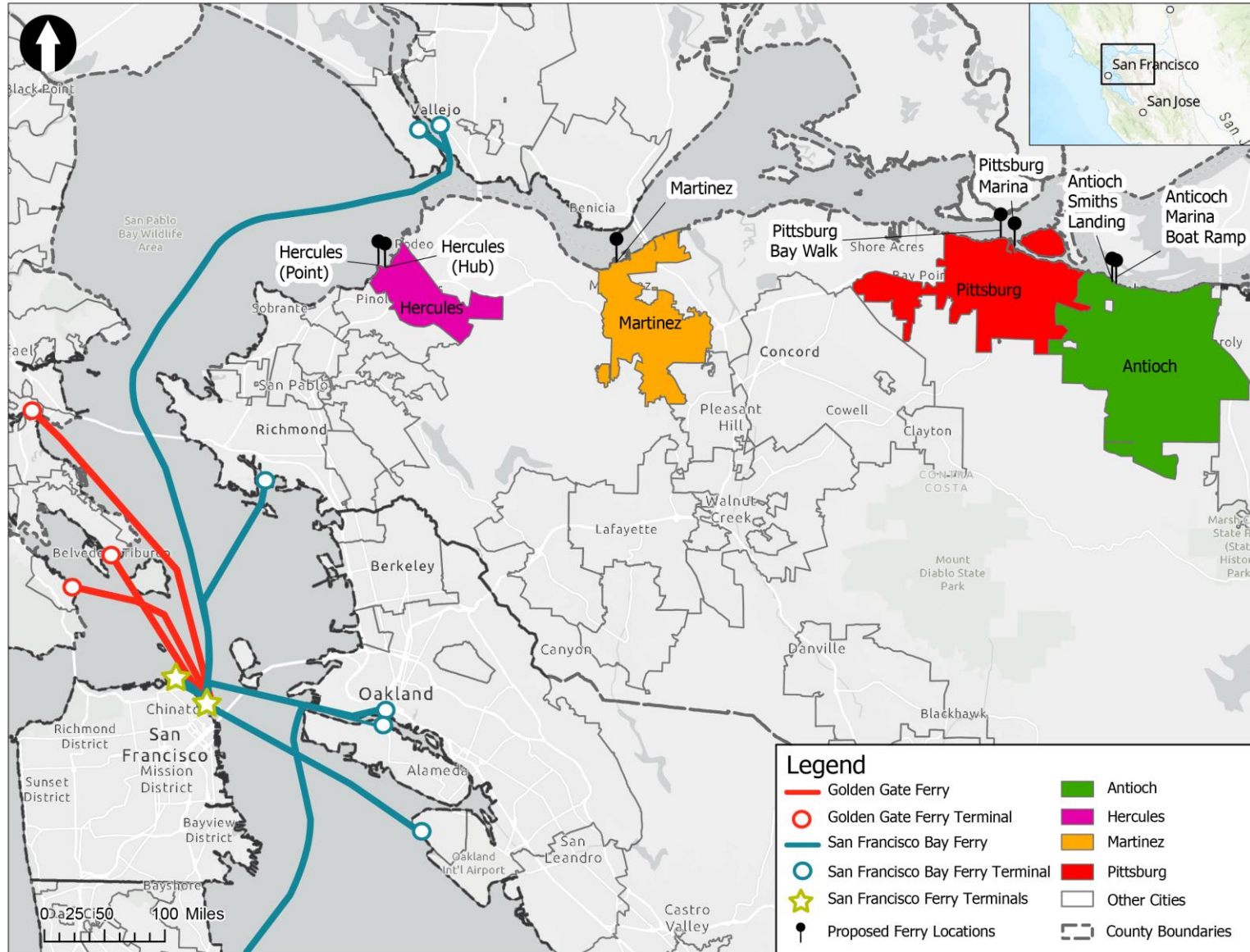
## Prop SF Vessel: Billie J



- **Passenger Capacity:** 70
- **Bike Capacity:** 8
- **Max Speed:** 38 knots
- **Vessel Purchase Cost:** \$3 million
- **Ownership:** Prop SF and operated by Prop SF under contract with WETA

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# Summary of Ferry Feasibility Evaluation





# Ferry Service Travel Time Estimates and Vessel Requirements

	Richmond	Hercules	Martinez	Pittsburg	Antioch
Travel Time	35 min	48 min	60 min	85 min	90 min
Peak Vessels	3	3	4	7	7


## Source & Assumptions:

Travel time between the SF Ferry Terminal and the Cities | Does not include dwell times




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WETA Proposed travel times for the CCTA Expanded Ferry Study | WETA operating under the assumption that the speed of the vessels are similar

# Benefits of Demand Potential Scorecard

Ferry Feasibility Criteria		Hercules		Martinez	Pittsburg		Antioch	
		The Hub	The Point	Martinez Marina	Bay Walk	Marina	Smith's Landing	Marina Boat Ramp
<b>Demand Potential</b> 	Travel Demand to SF Ferry Terminal	Orange	Orange	Orange	Orange	Orange	Orange	Orange
	Ferry travel times	Light Green	Light Green	Light Green	Orange	Orange	Orange	Orange
	Transit time competitiveness	Teal	Teal	Orange	Orange	Orange	Orange	Orange
	Residents in 15 min walkshed	Teal	Light Green	Orange	Orange	Orange	Teal	Teal
	Jobs in 15 min walkshed	Orange	Orange	Light Green	Orange	Orange	Light Green	Light Green
	Residential density	Orange	Orange	Light Green	Teal	Teal	Teal	Teal
	Job density	Orange	Orange	Teal	Light Green	Light Green	Light Green	Light Green
	Transit connections	Teal	Orange	Teal	Orange	Teal	Teal	Teal
	Active transportation connections	Light Green	Orange	Light Green	Orange	Orange	Orange	Orange
	Planned transit connections	Teal	Teal	Light Green	Light Green	Teal	Light Green	Light Green
	Planned active transportation connections	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green

**Legend**

- Higher performing than the City of Richmond 
- Moderate performing to the City of Richmond 
- Lower performing than the City of Richmond 

# Summary of Annual Operating Costs by Service Type

Type of Service	Service Level 1 <i>Peak service only</i>		Service Level 2 <i>All day weekday</i>		Service Level 3 <i>All day weekday &amp; weekend</i>	
Operator	WETA	Prop SF	WETA	Prop SF	WETA	Prop SF
<b>Hercules</b> <i>(Proposed One-Way Trips)</i>	\$16.8M (20)	\$10.6M (24)	\$21.0M (25)	\$12.3M (25)	\$24.2M (25 weekday & 10 weekend)	\$13.7M (25 weekday & 10 weekend)
<b>Martinez</b> <i>(Proposed One-Way Trips)</i>	\$16.8M (16)	\$10.6M (20)	\$29.3M (28)	\$12.3M (28)	\$32.6M (27 weekday & 8 weekend)	\$13.7M (27 weekday & 8 weekend)
<b>Pittsburg</b> <i>(Proposed One-Way Trips)</i>	\$25.1M (9)	\$14.1M (12)	\$58.6M (21)	\$24.6M (21)	\$65.2M (21 weekday & 6 weekend)	\$27.4M (21 weekday & 6 weekend)
<b>Antioch</b> <i>(Proposed One-Way Trips)</i>	\$25.1M (9)	\$14.1M (12)	\$58.6M (21)	\$24.6M (21)	\$65.2M (21 weekday & 6 weekend)	\$27.4M (21 weekday & 6 weekend)

**Richmond Service**  
*All day weekday & weekend*

FY2023- 24  
\$10.2M  
(28 weekday & 10 weekend)

**Source Notes:** Additional services in Service Level 1 for Prop SF to accommodate for vessel size capacity. | Number of Round trips have been rounded up | 2023 USD \$ | Annual Maintenance dredging is assumed to be \$3 M for the Point location and \$3.5 for the Hub location. | The Vessel procurement costs include a 20% spare ratio for the cost of 3 vessels | Cost figures have been rounded.

Prop SF assumed operating expenses include maintenance and repairs. However, the assumed costs do not include vessel purchase/lease costs and the cost of a maintenance facility. Assumes the Billie J Vessel

# Capital Costs – Hercules

Location	The Point		The Hub	
Operator	WETA	Prop SF	WETA	Prop SF
<b>Landside Costs</b>	\$8.6 M	\$8.6 M	\$2.4 M	\$2.4 M
<b>Waterside Costs</b>	\$31.4 M	\$31.4 M	\$34 M	\$34 M
<b>Initial Dredging</b>	\$10.9 M	\$6.9 M	\$14.2 M	\$9.6 M
<b>Operations and Maintenance Facility</b>	\$9.9 M	N/A	\$9.9 M	N/A
<b>Total Terminal Costs</b>	<b>\$60.8 M</b>	<b>\$46.9 M</b>	<b>\$60.5 M</b>	<b>\$46.1 M</b>
<b>Vessel Purchase Costs</b> <i>(3 vessels)</i>	\$75.6 M	\$10.8 M	\$75.6 M	\$10.8 M

**Source Notes:** Landside includes utilities, pavement, landscaping, and site civil | Waterside costs: piles, float and shelter items, construction, cost of pier, gangway

\*Proportional Share of Operations and Maintenance Facility: Only applicable to the WETA Dorado Vessel with an estimated cost of \$9.9 M | Annual Maintenance dredging is assumed to be \$3 M for the Point location and \$3.5 for the Hub location

2023 USD \$ | Cost figures have been rounded.

2 Prop SF assumed operating expenses include maintenance and repairs. However, the assumed costs do not include vessel purchase/lease costs and the cost of a maintenance facility.

# Capital Costs – Martinez

Location	Martinez Marina	
Operator	WETA	Prop SF
<b>Landside Costs</b>	\$617 K	\$617 K
<b>Waterside Costs</b>	\$34 M	\$34 M
<b>Initial Dredging</b>	\$1.1 M	\$730 K
<b>Operations and Maintenance Facility</b>	\$9.9 M	N/A
<b>Total Terminal Costs</b>	<b>\$46 M</b>	<b>\$35.4 M</b>
<b>Vessel Purchase Costs</b> <i>(4 vessels)</i>	\$101.8 M	\$14.4 M

**Source Notes:** Landside includes utilities, pavement, landscaping, and site civil | Waterside costs: piles, float and shelter items, construction, cost of pier, gangway  
 \*Proportional Share of Operations and Maintenance Facility: Only applicable to the WETA Dorado Vessel with an estimated cost of \$9.9 M | Annual Maintenance dredging is assumed to be \$210K | The Vessel procurement costs include a 20% spare ratio for the cost of 4 vessels| 2023 USD \$ | Cost figures have been rounded.

# Capital Costs – **Pittsburg**

Location	Bay Walk		Marina	
	Operator	WETA	Prop SF	WETA
<b>Landside Costs</b>	TBD	TBD	\$390 K	\$390 K
<b>Waterside Costs</b>	TBD	TBD	\$34 M	\$34 M
<b>Initial Dredging</b>	TBD	TBD	\$0	\$0
<b>Operations and Maintenance Facility</b>	TBD	TBD	\$9.9 M	N/A
<b>Total Terminal Costs</b>	<b>TBD</b>	<b>TBD</b>	<b>\$44.3 M</b>	<b>\$34.4 M</b>
<b>Vessel Purchase Costs</b> <i>(7 vessels)</i>	TBD	TBD	\$176.4 M	\$25.2 M

**Source Notes:** Landside includes utilities, pavement, landscaping, and site civil | Waterside costs: piles, float and shelter items, construction, cost of pier, gangway  
 \*Proportional Share of Operations and Maintenance Facility: Only applicable to the WETA Dorado Vessel with an estimated cost of \$9.9 M | Annual Maintenance dredging is assumed to be \$3 M for the Point location and \$3.5 for the Hub location  
 2023 USD \$ | Cost figures have been rounded.

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2 Prop SF assumed operating expenses include maintenance and repairs. However, the assumed costs do not include vessel purchase/lease costs and the cost of a maintenance facility.

# Capital Costs – Antioch

Location	Smith's Landing		Marina Boat Ramp	
Operator	WETA	Prop SF	WETA	Prop SF
<b>Landside Costs</b>	\$277 K	\$277 K	\$273 K	\$273 K
<b>Waterside Costs</b>	\$34 M	\$34 M	\$34 M	\$34 M
<b>Initial Dredging</b>	\$0	\$0	\$0	\$0
<b>Operations and Maintenance Facility</b>	\$9.9 M	N/A	\$9.9 M	N/A
<b>Total Terminal Costs</b>	<b>\$44.2 M</b>	<b>\$34.3 M</b>	<b>\$44.2 M</b>	<b>\$34.3 M</b>
<b>Vessel Purchase Costs (7 vessels)</b>	\$176.4 M	\$25.2 M	\$176.4 M	\$25.2 M

**Source Notes:** Landside includes utilities, pavement, landscaping, and site civil | Waterside costs: piles, float and shelter items, construction, cost of pier, gangway  
 \*Proportional Share of Operations and Maintenance Facility: Only applicable to the WETA Dorado Vessel with an estimated cost of \$9.9 M | Annual Maintenance dredging is assumed to be \$0 2023 USD \$ | Cost figures have been rounded.

2 Prop SF assumed operating expenses include maintenance and repairs. However, the assumed costs do not include vessel purchase/lease costs and the cost of a maintenance facility.

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# **Stakeholder Engagement and Next Steps**



# WETA Pilot Program

- **WETA set aside \$2 million in Fiscal Year 2023-24 Budget for pilot services**
- **WETA Board subcommittee was formed in 2023 to guide staff work on future pilot projects.**
- **WETA anticipates a formal guidance document for pilots to come out in the next 1-2 years.**
- **Recent/Upcoming pilot projects:**
  - Alameda Landing-Oakland Pilot: Service will start in Summer 2024 and run for 2 years. This was made possible by funding provided by the City of Alameda and public-private partnerships.
  - SF-South SF Pilot: Service was implemented as a part of the Alameda Main St. refurbishment project using resources freed up by the temporary terminal closure due to construction at the terminal. Duration was under 3 months.
  - Sea Change Hydrogen Vessel Pilot: This vessel will begin revenue service in 2024 on the Pier 41 route. Funding was identified for this through both public-private partnerships as well as state grant funds.
  - WETA anticipates a formal guidance document for pilots to come out in the next 1-2 years.
- **Next Steps: Potential WETA/CCTA partnership for developing a screening process for pilot service**



**Questions?**