



Presentations for Dec. 7, 2023 Board of Directors Meeting



Item 5a(ii): International Electric Ferry Innovations

Auckland's Better Ferry Future.



Presentation to WETA Board Meeting, San Francisco
7 December 2023





*“A developed country is not a place
where the poor have cars. It's where the
rich use public transportation”*

Gustavo Petro, as Mayor of Bogotá
(now President of Colombia)



EV MARITIME



EV MARITIME

Auckland, New Zealand



Auckland, New Zealand Commuter Ferry Service

1.8 M population
6 M passenger ferry journeys
27 fast passenger ferries
12 urban ferry destinations



EV MARITIME

Auckland, New Zealand Commuter Ferry Service

1.8 M population
6 M passenger ferry journeys
27 fast passenger ferries
12 urban ferry destinations
3.4 M gallons of diesel burned
6% public transport trip share
21% public transport emission share

EVM200 Electric Fast Ferry

2 vessels in build for Auckland Transport, launching 2024

Length	80' / 24 m
Form	Catamaran
Capacity	200 pax up to 24 bikes
Speed	25 knots
Range	20 nautical miles
Power	Battery electric
Batteries	1100 kWh Li-Ion
Recharge	2 x 1 MW MCS plugs
Propulsion	4 x HamiltonJet LTX



0% emissions 100% capable



EVM200 Platform

First two NZ vessels delivering 2024

Optimised **low wash** semi-displacement catamaran hull form

Enhanced operational reliability through dual redundant ships' systems to eliminate single point failure

Extensive PLC alarms, monitoring and control with live ship/shore link and remote data intelligence

Carbon fibre construction for light weight strength & longevity



4 x HamiltonJet LTX36 Waterjets for efficiency, reliability and manoeuvrability

Flexible power electronics package

Long range battery pack options up to 1500 kWh

Displacement reducing **active hydrofoil** option



Carbon Fibre Construction

Stronger, stiffer, lighter

40% structural weight reduction

Formable to complex shapes

Build more optimised hull shapes

Reduced internal structure

Reduced hull width for given interior space

Eliminates corrosion and fatigue

Up to double the life span, or more

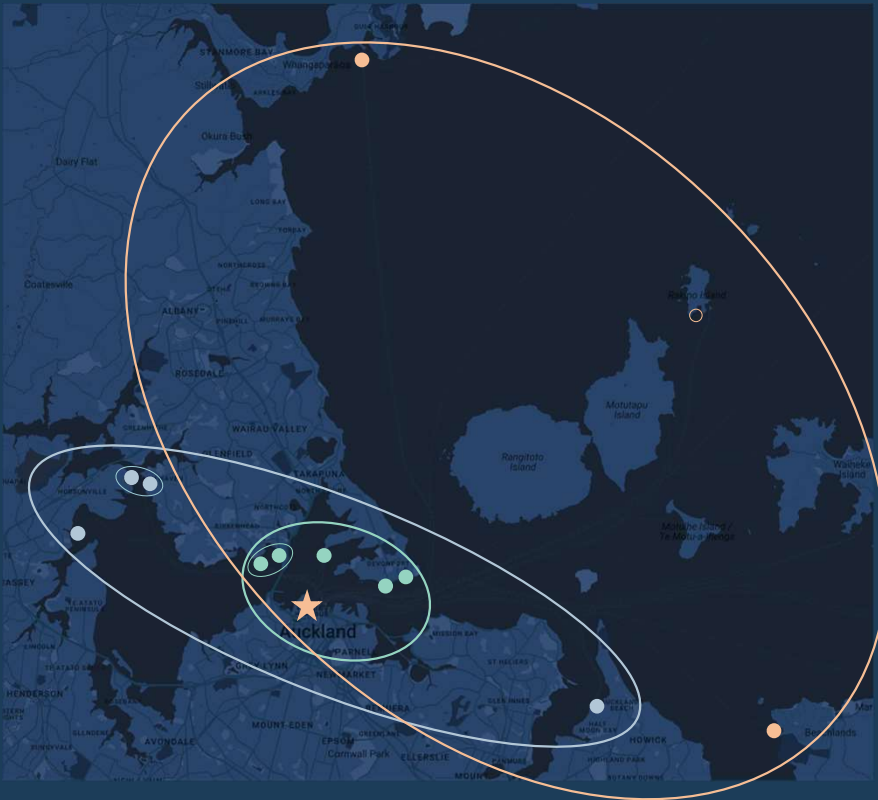
Enhanced Sustainability

Lower emissions (-20% embedded, -30% lifecycle)

Molds are suitable for multiple vessels



Auckland - ferries overview



9 commuter routes	sailings share	GHG share	dist. vs road	GHG vs bus	Charge mins
4 inner harbour (0-2 nm)	63%	16%	18%	< 1	1-2
3 mid harbour (2-8 nm)	21%	33%	58%	x 3	4-10
2 outer harbour (12-15 nm)	16%	51%	60%	x 4	18-25

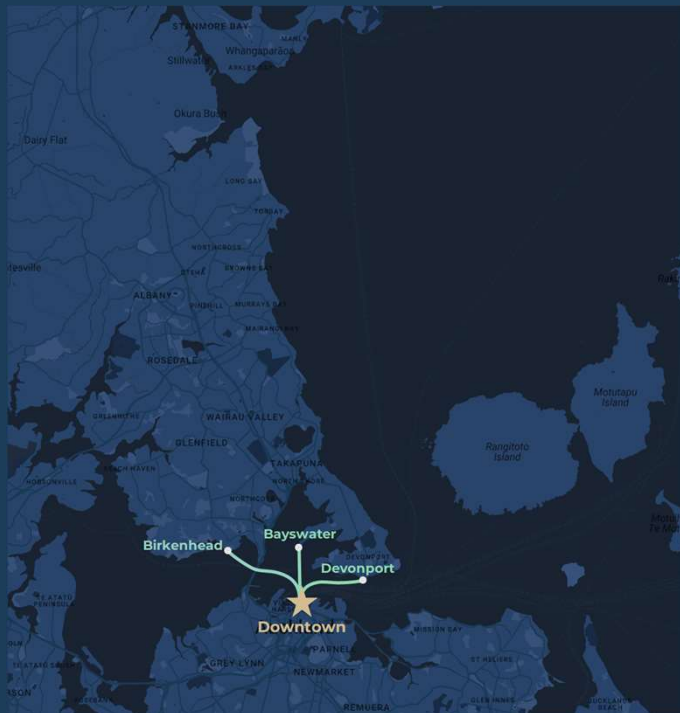
Emissions dominated by long, fast routes

Full electric vessels are viable for all routes

Outer harbour has schedule challenges, requiring more boats

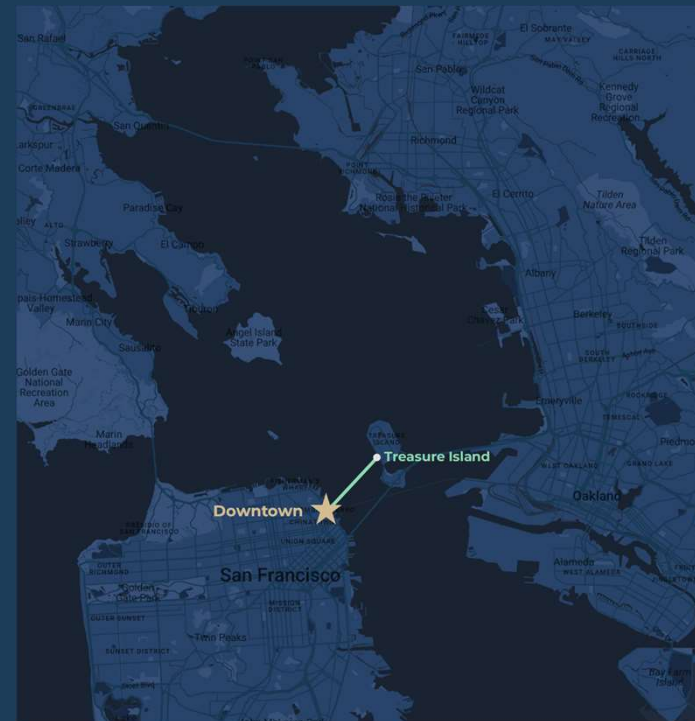
Economic benefits strongest for mid harbour routes

Auckland, New Zealand



Route	Distance	Duration	Max Speed
Bayswater	1.2 nm	10 mins	10 knots
Devonport	1.9	15	12
Birkenhead	2.3	11	23

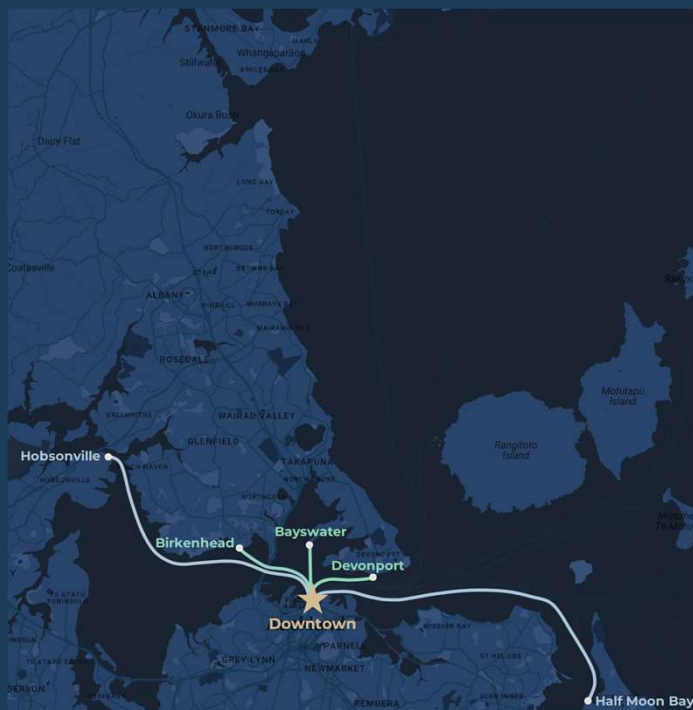
San Francisco, USA



Route	Distance	Duration	Max Speed
Treasure Island	1.5 nm	13 mins	10 knots

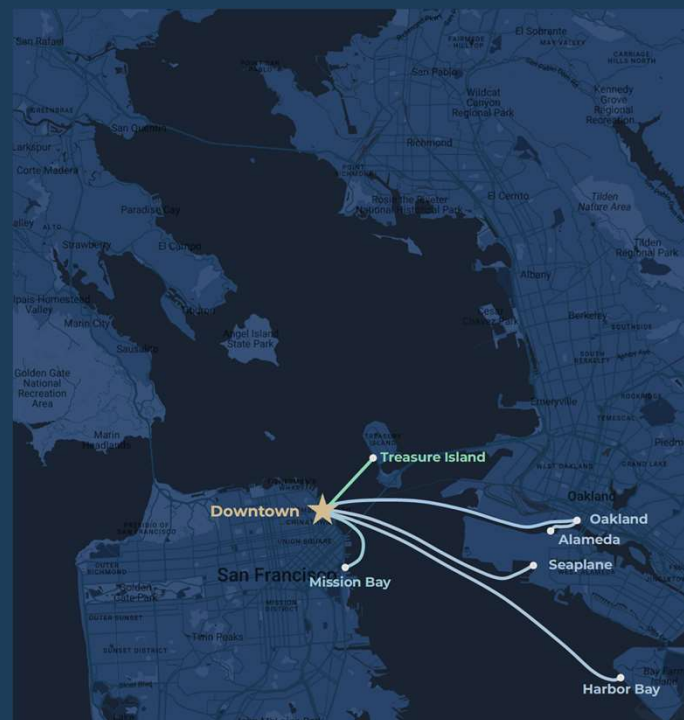
Recharge 2MW: **<4 min**
per one-way trip

Auckland, New Zealand



Route	Distance	Duration	Max Speed
Bayswater	1.2 nm	10 mins	10 knots
Devonport	1.9	15	12
Birkenhead	2.3	11	23
Hobsonville	7.9	30	23
Half Moon Bay	8.5	35	23

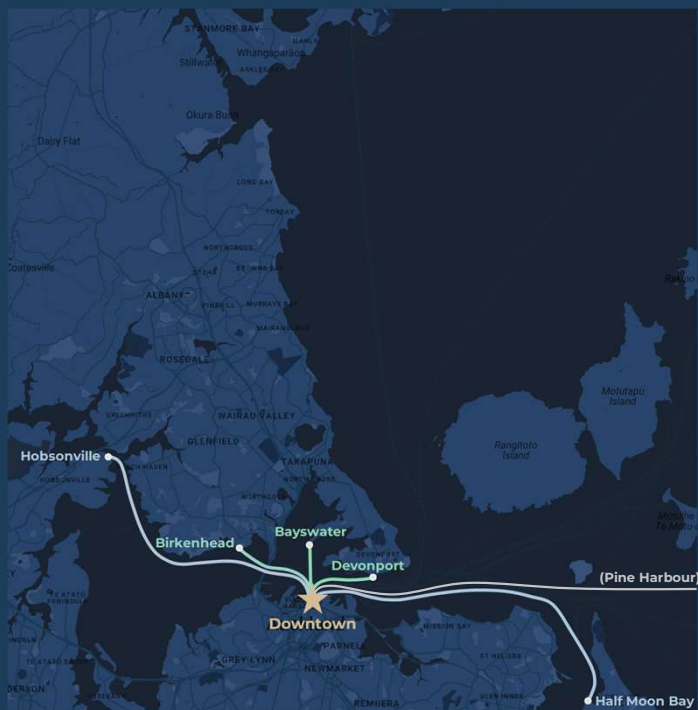
San Francisco, USA



Route	Distance	Duration	Max Speed
Treasure Island	1.5 nm	13 mins	10 knots
Mission Bay	2.1	17	23
Seaplane	4.9	20	23
Alameda/Oakland	6.2	35	23
Harbor Bay	7.4	25	23

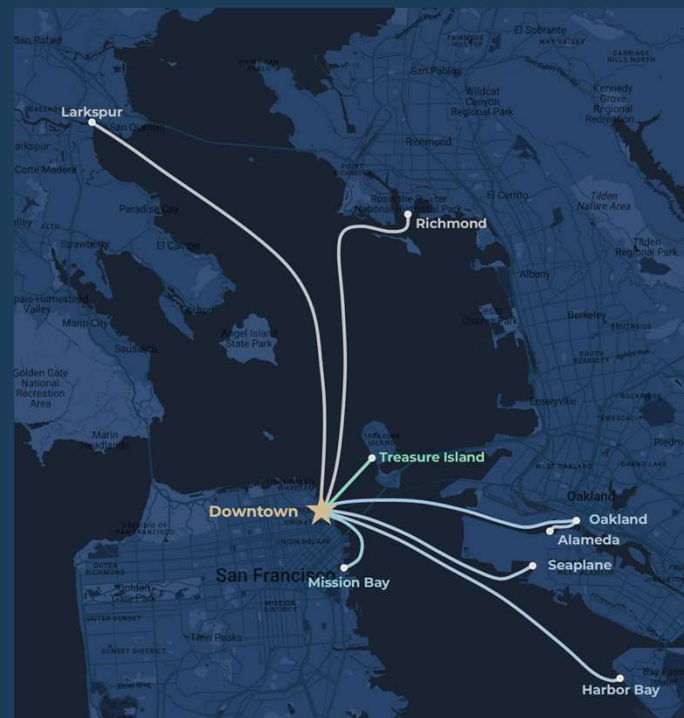
Recharge 2MW: **6-12 min**
per one-way trip

Auckland, New Zealand



Route	Distance	Duration	Max Speed
Bayswater	1.2 nm	10 mins	10 knots
Devonport	1.9	15	12
Birkenhead	2.3	11	23
Hobsonville	7.9	30	23
Half Moon Bay	8.5	35	23
Pine Harbor	12	35	30

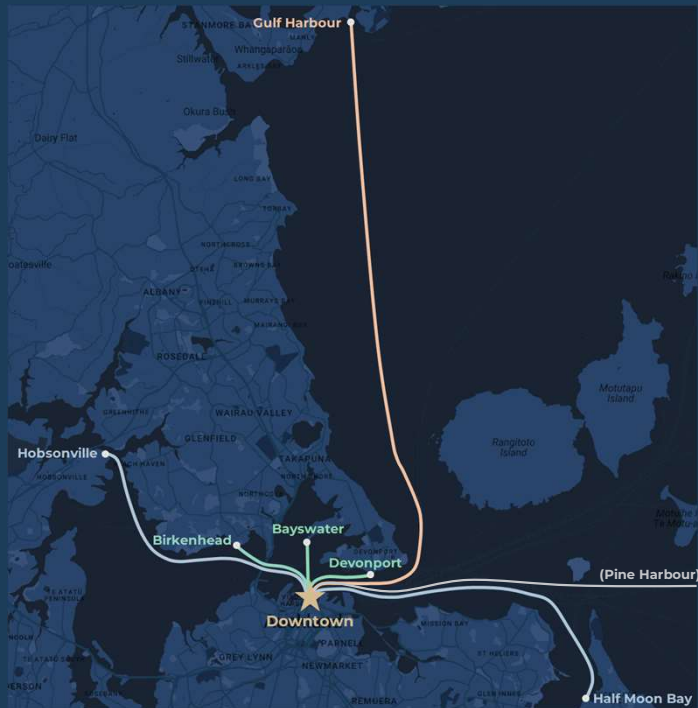
San Francisco, USA



Route	Distance	Duration	Max Speed
Treasure Island	1.5 nm	13 mins	10 knots
Mission Bay	2.1	17	23
Seaplane	4.9	20	23
Alameda/Oakland	6.2	35	23
Harbor Bay	7.4	25	23
Richmond	9.5	35	23
Larkspur	10	30	23

Recharge 2MW: **12-18 min**
per one-way trip

Auckland, New Zealand



Route	Distance	Duration	Max Speed
Bayswater	1.2 nm	10 mins	10 knots
Devonport	1.9	15	12
Birkenhead	2.3	11	23
Hobsonville	7.9	30	23
Half Moon Bay	8.5	35	23
Pine Harbor	12	35	30
Gulf Harbour	16.5	53	23

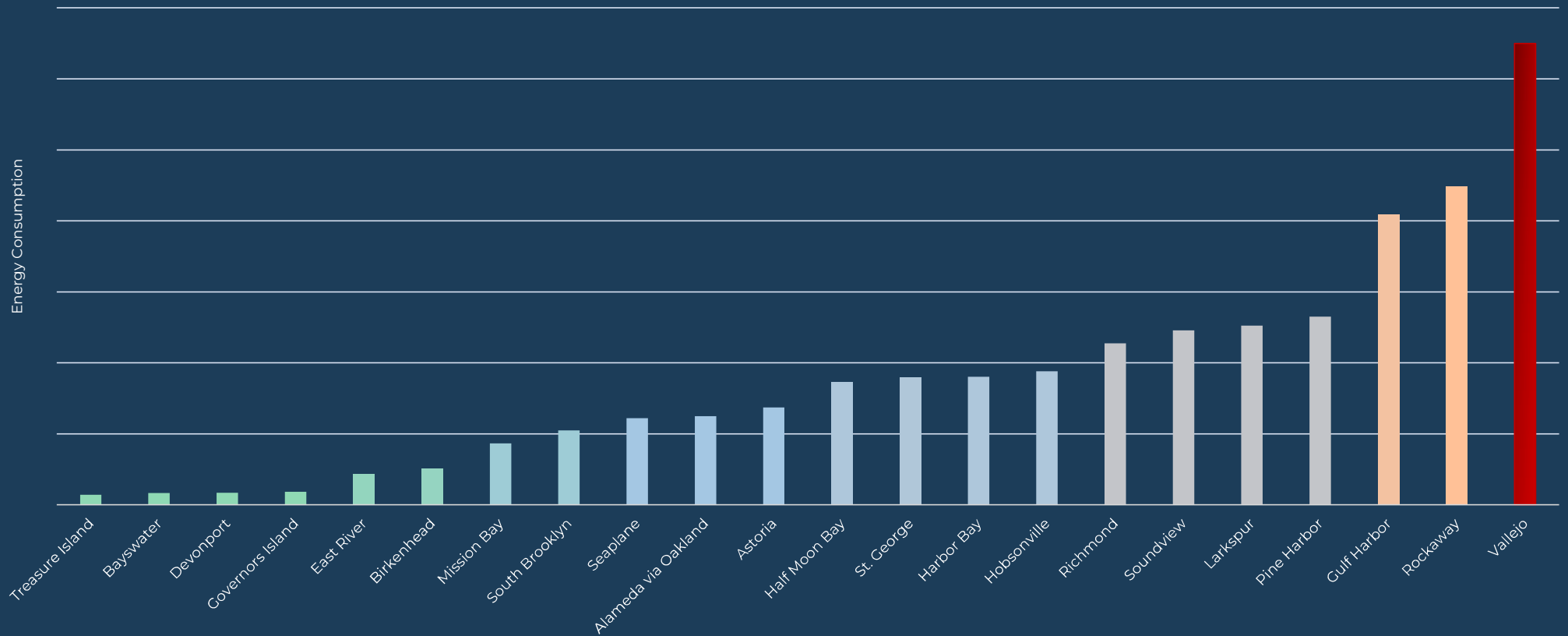
San Francisco, USA



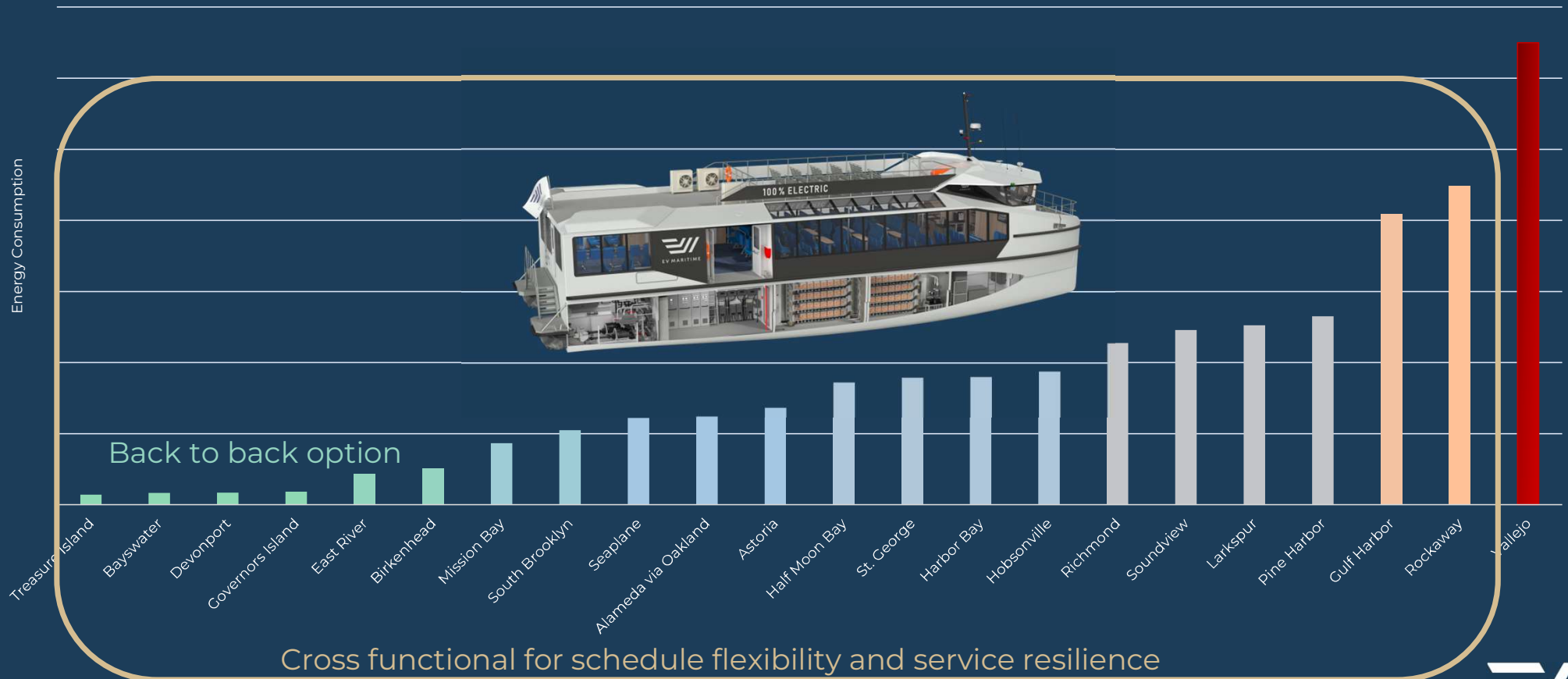
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Treasure Island	1.5 nm	13 mins	10 knots
Mission Bay	2.1	17	23
Seaplane	4.9	20	23
Alameda/Oakland	6.2	35	23
Harbor Bay	7.4	25	23
Richmond	9.5	35	23
Larkspur	10	30	23
Vallejo	25	60	30

Recharge 2MW: **25-30 min**
per one-way trip

Route Comparison: Energy Demand (if delivered by EVM200 platform vessels)



Route Comparison: Energy Demand (if delivered by EVM200 platform vessels)



Decarbonizing the harbour cities of the world.

Project initiation
Consultancy
Design
Naval Architecture

Analysis
Data Intelligence
Electrical Integration
Systems Engineering

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International Electric Ferry Innovations

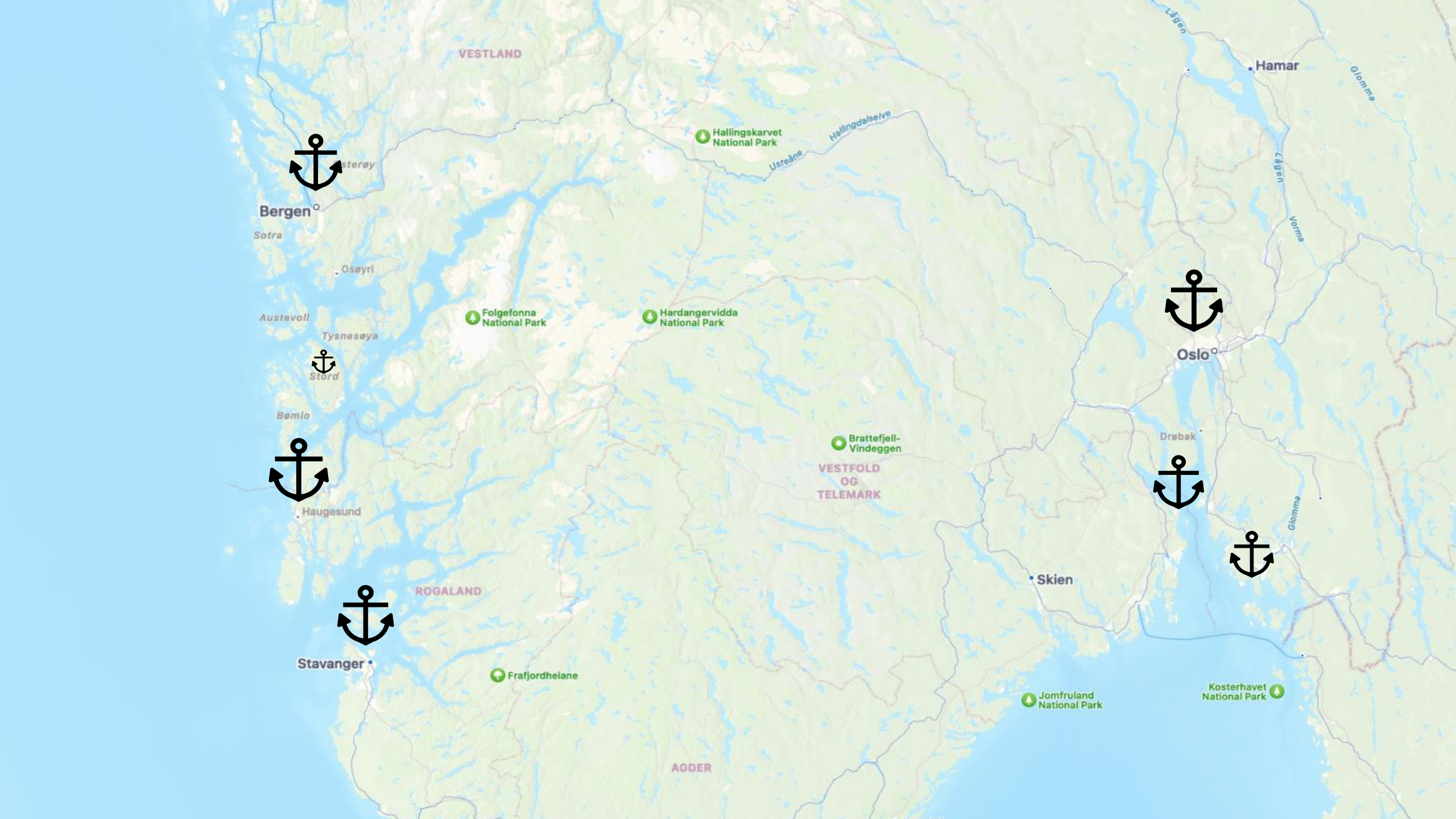
Green Maritime – Market Visit to Norway

October 2023

WETA Board of Directors Update

December 7, 2023





Bergen

Sotra

Osøyri

Austevoll

Tysnesøya



Stord

Bømlo



Haugesund



Stavanger

VESTLAND

Hallingskarvet
National Park

Folgefonna
National Park

Hardangervidda
National Park

Brattefjell-
Vindeggen

VESTFOLD
OG
TELEMARK

Frafjordheiane

AGDER

Jomfruland
National Park

Kosterhavet
National Park

Hamar



Oslo



Drøbak



Skien

Lågen

Glomma

Usselva

Vorma

Glomma

Bastø Electric

Operator : Basto Fosen

Type : Roll on/Roll Off

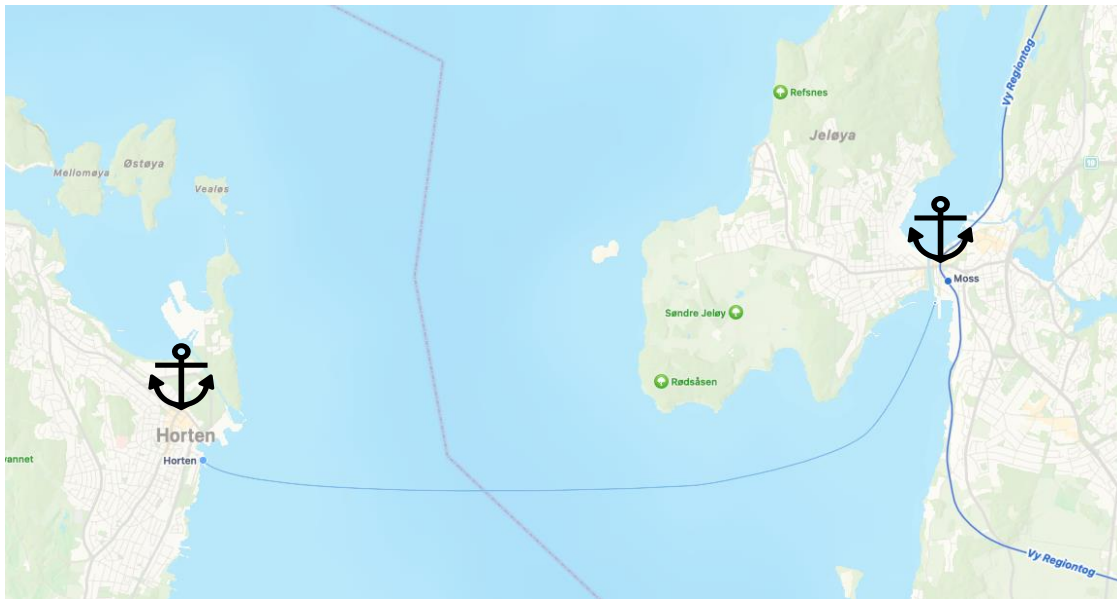
Capacity : 600 passengers and 200 cars or 24 trucks

Speed : 13 knots

Route Profile : 10km route between Horten and Moss

Trip time : ~30 minutes

Daily Trips : 20 to 24



Bastø Electric



HYKE SHUTTLE

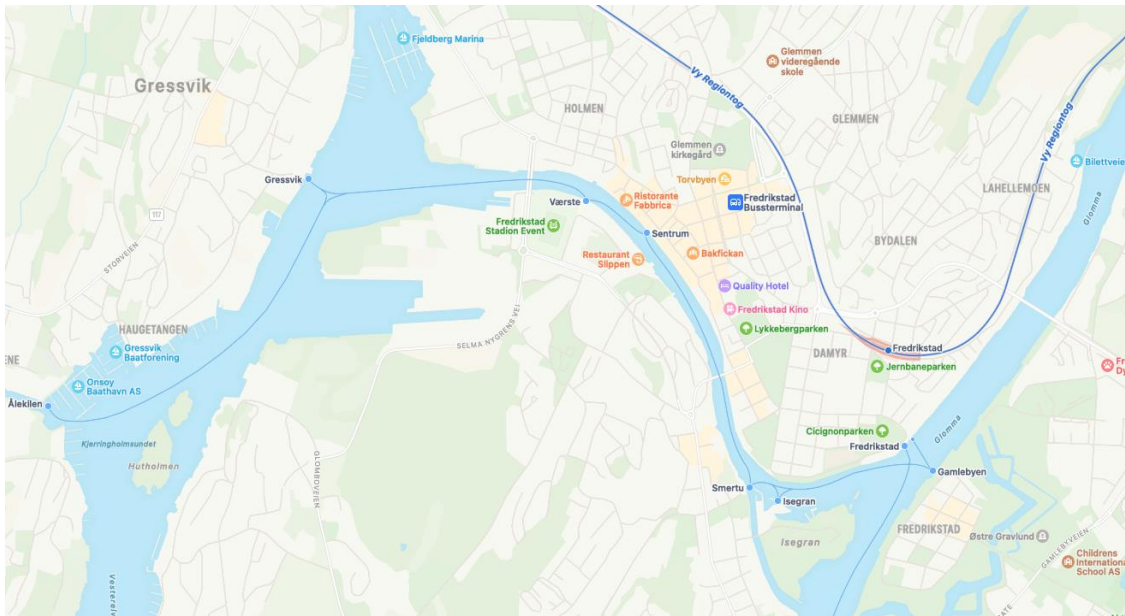
Type : Passenger

Capacity : 50 passengers

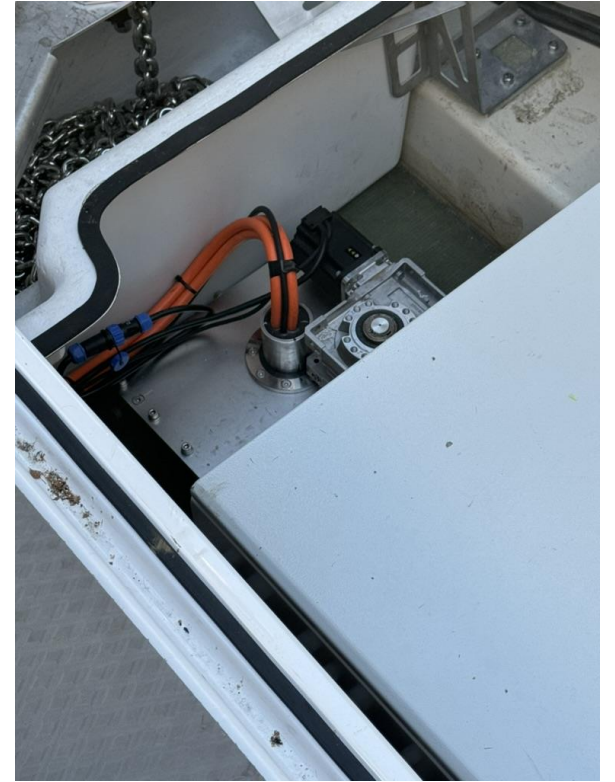
Speed : 15 knots (max)

Potential Route Profile : Local routes in protected waterways

4 Hyke Shuttles will be deployed at the 2024 Paris Olympics



HYKE SHUTTLE



MS MEDSTRAUM

Owner/Operator : Kolumbus

Integrator : Wärtsilä

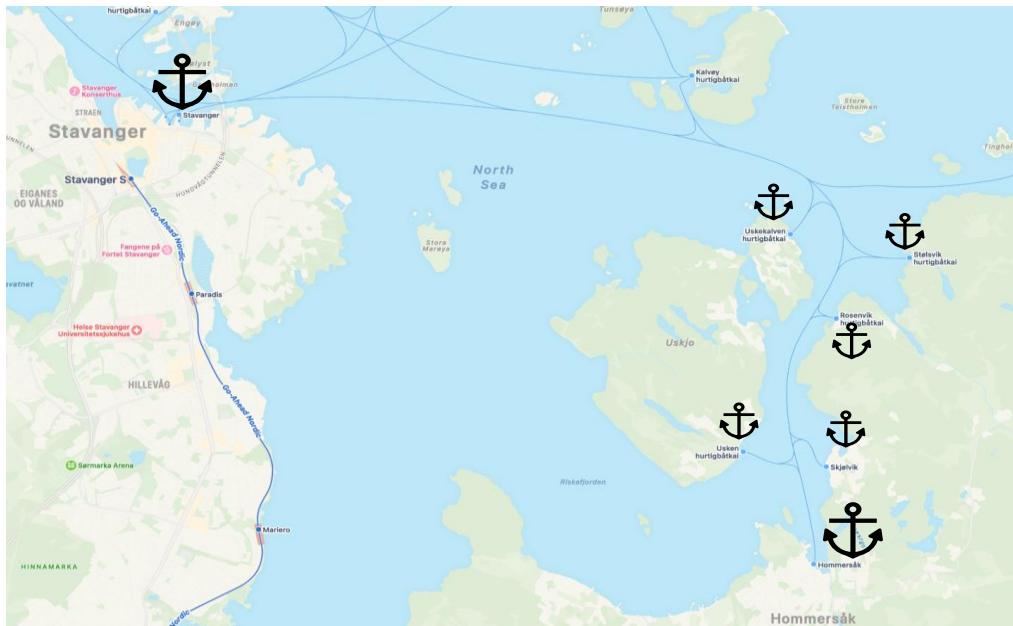
Type : Passenger

Capacity : 150 passengers

Speed : 23 to 27 knots

Cost : \$11 million

Route Profile : Fixed route with multiples stops (up to 12)



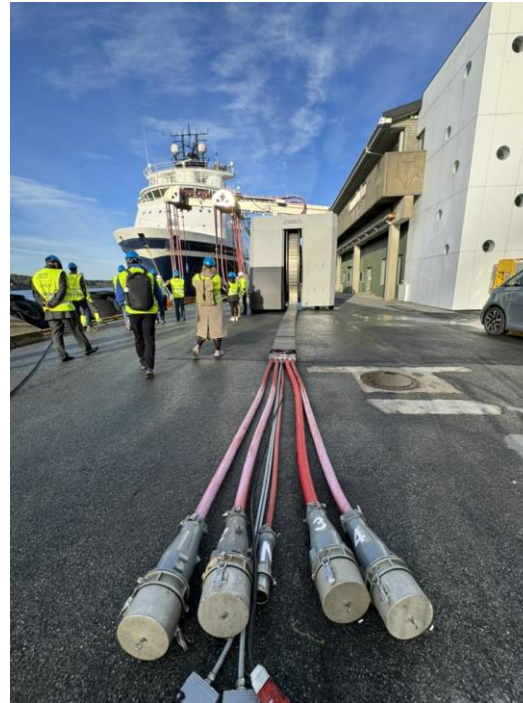
MS MEDSTRAUM



Infrastructure



Infrastructure



Q & A





Item 5a(iii): Main St. Alameda Construction Update

Construction Update:

**Alameda Main Street Ferry
Terminal Refurbishment
Project**

WETA Board of Directors

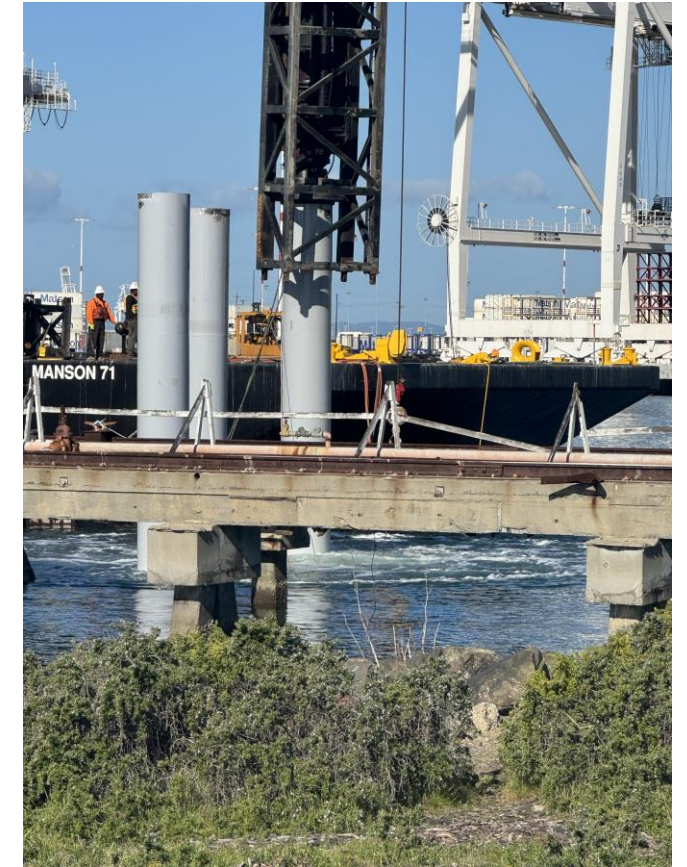
December 7, 2023



Dilapidated Pier Removal



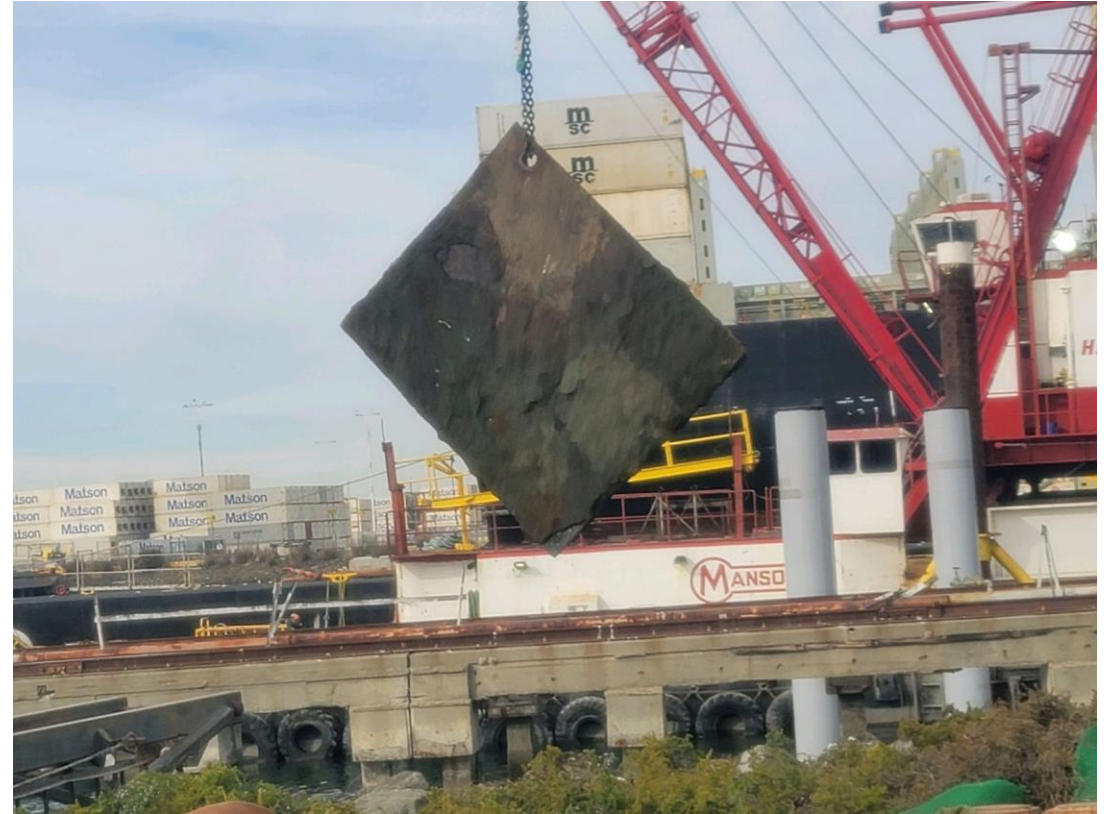
Waterside Pile Driving



Landside Pile Driving



Landside Pile Driving



Donut Fender Installation



New Bridge Support Structure



New Bridge and Gangway Outfitting



Passenger Float Fabrication



Passenger Float Launch



Q&A

