Presentations for Sept. 12, 2023 Board of Directors Meeting
Item 5e: Monthly Operations, Ridership & Recovery Report
FERRY SYSTEM PERFORMANCE ANALYSIS

September 12, 2023
BACKGROUND & OBJECTIVES:

➢ The Operations Division developed an Excel-based tool to track ferry on-time performance and service reliability.
➢ Tool utilizes daily vessel arrival and departure data generated by Swiftly, WETA’s real-time vessel tracking system.
➢ Performance tool will allow WETA to:
  ▪ Enhance ability to monitor and analyze on-time performance and reliability over time and in-depth by route, vessel, date, and other parameters.
  ▪ Identify opportunities for further improvements
  ▪ Monitor how performance compares to other major public ferry operators nationally and other regional transit operators
KEY PERFORMANCE METRICS:

- On-Time Performance: The percentage of total trips that arrived early, on-time, or less than five minutes after the scheduled arrival time.
- Service Reliability: The percentage of scheduled trips that were operated, after adjusting for trips cancelled.
- Late Trip: Any trip that arrives five minutes or more past the scheduled arrival time.
- Comparison to other Ferry Operations
  - Golden Gate Ferry
  - Washington State Ferries
  - Kitsap Transit
  - Staten Island Ferry
  - NYC Ferry
  - Massachusetts Bay Transportation Authority (MBTA) Ferry
ON-TIME VS. DELAYED & CANCELLED TRIPS: YTD JAN. – AUG. 2023

- Delayed Arrivals: 5 to 10 Min. Late, 2%
- Delayed Arrivals: Over 10 Min. Late, 1%
- Cancelled, 1%

Total On Time Trips, 97%
% OF TOTAL TRIPS ON-TIME BY ROUTE, WEEKDAYS VS. WEEKENDS

Vallejo
Oakland-Alameda
Alameda Seaplane
Richmond
Harbor Bay
South SF

Ave. Weekly
Weekdays
Weekends

Ave. 97%
% OF TOTAL TRIPS ON-TIME, PROVIDED & CANCELLED BY MONTH

- % of Trips On-Time
- % of Scheduled Trips Provided
- % of Scheduled Trips Cancelled
## On-Time Performance & Reliability by Month (Jan.-Aug. 2023)

<table>
<thead>
<tr>
<th>Month</th>
<th>% of Trips On-Time</th>
<th>% of Scheduled Trips Provided</th>
<th>% of Scheduled Trips Cancelled</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>96.7%</td>
<td>97.9%</td>
<td>2.1%</td>
</tr>
<tr>
<td>February</td>
<td>97.3%</td>
<td>99.6%</td>
<td>0.4%</td>
</tr>
<tr>
<td>March</td>
<td>97.3%</td>
<td>98.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td>April</td>
<td>97.5%</td>
<td>99.9%</td>
<td>0.1%</td>
</tr>
<tr>
<td>May</td>
<td>98.1%</td>
<td>99.9%</td>
<td>0.1%</td>
</tr>
<tr>
<td>June</td>
<td>97.2%</td>
<td>99.8%</td>
<td>0.2%</td>
</tr>
<tr>
<td>July</td>
<td>96.8%</td>
<td>99.7%</td>
<td>0.3%</td>
</tr>
<tr>
<td>August</td>
<td>95.1%</td>
<td>99.6%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Average (YTD)</td>
<td>97.0%</td>
<td>99.3%</td>
<td>0.7%</td>
</tr>
</tbody>
</table>
## WETA On-Time Performance & Reliability vs. Other Operators (2023 YTD)

<table>
<thead>
<tr>
<th>Service</th>
<th>% of Trips On-Time</th>
<th>% of Scheduled Trips Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golden Gate Ferry</td>
<td>96.6%</td>
<td>98.9%</td>
</tr>
<tr>
<td>WA State Ferries</td>
<td>83.7%</td>
<td>97.9%</td>
</tr>
<tr>
<td>Kitsap Transit Ferry</td>
<td>98.2%</td>
<td>98.5%</td>
</tr>
<tr>
<td>MBTA Ferry</td>
<td>99.2%</td>
<td>99.4%</td>
</tr>
<tr>
<td>NYC Ferry</td>
<td>83.3%</td>
<td>97.4%</td>
</tr>
<tr>
<td>Staten Island Ferry</td>
<td>94.3%</td>
<td>99.4%</td>
</tr>
<tr>
<td><strong>Ave. for All Comps</strong></td>
<td><strong>92.6%</strong></td>
<td><strong>98.6%</strong></td>
</tr>
<tr>
<td>WETA</td>
<td>97.3%</td>
<td>99.2%</td>
</tr>
<tr>
<td>BART</td>
<td>68.8%</td>
<td>n/a</td>
</tr>
<tr>
<td>MUNI</td>
<td>83.3%</td>
<td>n/a</td>
</tr>
<tr>
<td>AC Transit</td>
<td>74.0%</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Summary of Findings:

- WETA’s on-time performance and service reliability remains consistently high from month-to-month in 2023 (Jan.-Aug.).
- Year-to-date on-time performance averaged 97% systemwide.
- Year-to-date service reliability averaged 99% systemwide, with less than 1% of total trips cancelled.
- On-time performance is generally consistent for weekends and weekdays, and across routes, with minor variations from month-to-month.
- WETA has similar, if not higher, levels of on-time performance and reliability compared to other public ferry operators analyzed. WETA’s year-to-date on-time performance averaged 97% compared to 93% for other selected public ferry operators. WETA reliability averaged 99%, similar to other operators.
COMMON SERVICE DISRUPTION CAUSES & RESPONSES:

➢ Mechanical & electrical issues
  ➢ **B&G Response:** dispatch immediately attempts to locate and assign a backup vessel and crew to maintain service on impacted trips

➢ Crew member calls-in sick at last minute
  ▪ **B&G Response:** dispatch immediately calls staff crew for coverage

➢ Crew member injury or illness on job
  ▪ **B&G Response:** dispatch will arrange a replacement for the crew member. In severe cases, vessel may need to standby for arrival of paramedics
COMMON SERVICE DISRUPTION CAUSES & RESPONSES:

➢ Weather
  ▪ B&G Response: depends on conditions, safety is the priority

➢ Domino effect: initial service disruption can create additional service disruptions down the line

➢ Communication window: creating solutions inherently takes time as different individuals work together to solve problem
Item 7: Fleet Electrification & Systems Integrator Services
WETA ZET Transition
Electrical System Integrator Selection
Agenda

• Project Recap
• Electrical Integrator Summary
• Selecting an Integrator
• Next Steps
Phase 1 - Inner Central Bay
- Feasible with Current Vessel Technology
- Not Currently Feasible - TBD Future Technology Required

Phase 2 – Central Bay
- Feasible with Current Vessel Technology
- Operational Changes Required

Phase 3 – Long Run Central Bay
- Feasible with Current Vessel Technology
- Significant Operational Changes Required

Phase 4 – Long Runs
- Feasible with Current Vessel Technology
- Operational Changes Required

WETA Long Term Electrification Overview
WETA Long Term Electrification Overview

“Transition ferry operations on San Francisco Bay to zero-emission vessels”

Phases 1-3 will require:

6 x NEW & Converted Large Vessels

10 x NEW & Converted Medium Vessels

12 x NEW & Converted Charging Floats

5 x NEW Small Vessels
Initial Phase 1&2 Projects

- **2 x NEW Large Vessels**
  - Target Services: Alameda Seaplane and Oakland

- **3 x NEW Small Vessels**
  - Target Services: Treasure Island & Mission Bay

- **1 x NEW Universal Charging Float**
  - First downtown charging float
  - Designed to be future standard float configuration

- **1 x CONVERTED Treasure Island Charging Float**

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**Phase 1 - Inner Central Bay**

1. Treasure Island
2. Mission Bay

**Phase 2 – Central Bay**

3. Oakland/Alameda
4. Seaplane
5. Berkeley
Universal Charging Float

Historically a Mooring and Embarkation Structure

Now the Hub of the Electric Ferry System

Existing Float

New Float
Universal Charging Float

- Charging Stations
- Battery Energy Storage
- Large Vessel
- Small Vessel
- Power Electronics/ Switchboards
- Firefighting, Cooling Equipment
Why do we need an Electrical Integrator?
Why we need an Electrical System Integrator

- **New technology** – these systems are not yet standardized

- Electrical Integration at this level is **beyond the scope of expertise** of Naval Architects and Marine Engineering firms

- Subject Matter Expert level **Risk Mitigation**

- Systemwide **standardization** and **modularity** are critical to the success of the project

- Plan to embrace **future technologies**
What does the Electrical Integrator do?
Electrical System Integrator Tasks

• Responsible for specifying the vessel charging and electrical propulsion system
• Selects appropriate components (batteries, motors, power electronics)
• Ensures complete compatibility of the components
• Ensures the vessels and floats are constructed accordingly
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Selecting an Integrator
Key Criteria

**Experience** – Similar Projects

**Agnostic Approach** – Leverage the best available tech for each component (current and future)

**Sufficient Resources** – Financial and Staffing

**Regulatory Experience** – USCG / DNV and safety

**Small Vessel Specific** - understanding the space / weigh constraints of smaller vessels
Standout Proposal & Relevant Experience

Emphasis on **modularity** in approach

Emphasis on **understanding WETA’s system-wide long-term goals** for charging hubs, vessels

Proven track record with 100% Electric Fast Ferry propulsion

Proven track record with high powered DC, manual fast charging

Proven track record with battery-assisted charging systems
Operator: Kolumbus (Norway)
Electrical System Integrator: Wartsila
Passengers: 150
Service Speed: 27 kts
Charge Power: 2.3MW
Charge Technology: Manual DC Fast Charging
Modular Approach to Electrical System
Entered Service in 2022
Next Steps
Next Steps

- Stakeholder Working Group(s)
- Front End Engineering Design
- RFP-Level drawing packages
- RFPs for Construction
## Current Construction Phase Timelines

<table>
<thead>
<tr>
<th>Small Vessel Construction Project (3 Vessels)</th>
<th>Large Vessel Construction Project (2 Vessels)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 2024 Issue Construction RFP</td>
<td>Q1 2024 Issue Construction RFP</td>
</tr>
<tr>
<td>Q2 2024 Begin Construction</td>
<td>Q2 2024 Begin Construction</td>
</tr>
<tr>
<td>Q3 2025 Vessel 1 Target Completion</td>
<td>Q3 2026 Vessel 1 Target Completion</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Universal Charging Float Construction Project</th>
<th>Treasure Island Charging Construction Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 2024 Issue Construction RFP</td>
<td>Q2 2024 Issue Construction RFP</td>
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<td>Q1 2025 Universal Charging Float Target Completion</td>
<td>Q3 2025 Treasure Island Charging Float Target Completion</td>
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Thank you
The Board of Directors is currently in closed session.