



# M495 – Fast Ferry Passenger Service Business Plan

## Final Presentation

Northern Virginia Regional  
Commission

Tim Payne, Senior Principal

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**N** NELSON  
NYGAARD

# Project Overview



# Project Purpose

- Continue to work with stakeholders interested in the project
- Build on previous work to create a business plan for implementing passenger ferry service on the Potomac
- Identify a business case for passenger ferry routes that adds diversity and resilience to the transportation system in the NCR while adding value to burgeoning waterfront development
- Build a financial model to test various aspects of service and capital investment and the influence on overall cost
- Identify a governance structure that could carry the business plan into implementation

# M-495 Commuter Fast Ferry Stakeholder Group

## Federal Government

U.S. Maritime Administration  
U.S. Federal Transit Authority  
U.S. Federal Highway Administration  
U.S. Department of Homeland Security  
Federal Emergency Management Administration  
U.S Coast Guard  
National Park Service, U.S. Department of Interior  
National Oceanic and Atmospheric Administration  
U.S. Army Corps of Engineers  
U.S. Fish & Wildlife Service

## Military

Naval District Washington (NDW)  
Fort Belvoir  
Joint Base Anacostia-Bolling (JBAB)  
Marine Corps Base Quantico  
Naval Support for Indian Head & Dahlgren

## State & Local Government

DC City Council  
DC Department of Transportation  
Virginia Department of Transportation  
Virginia Dept. of Rail & Public Transportation  
Virginia Rail Express  
Virginia Marine Resources  
Arlington County Department of Planning  
Fairfax County Board of Supervisors and Planning  
Department  
Prince William Department of Planning and  
Transportation  
Maryland Department of Transportation  
Prince George's County, Maryland  
Town of Indian Head, Maryland  
Charles County, Maryland Department of  
Economic Development

## Private Industry

Business Improvement  
Districts (BIDS)  
Hornblower  
New York Cruise Lines  
Penrose Group  
IDI Rivergate  
The Wharf  
Occoquan Marina  
Belmont Bay Marina  
Peterson Company  
MGM & National Harbor  
Metal Shark Boats  
Bush Construction Corp.  
Washington Gas  
DC Water  
JBG Smith  
Stantec Inc.  
Phoenix Infrastructure  
Group

## Associations (Local and National)

Transportation Research  
Board  
Metropolitan Washington  
Airports Authority  
National Capital Planning  
Commission  
Passenger Vessel Association  
Anacostia River Keepers  
Anacostia Trust  
DC Sail  
Alexandria Citizen  
Association  
Woodbridge Civic  
Association

## Universities

George Mason University  
Virginia Tech  
University of Maryland

**The Stakeholder Group provides the expertise and funding required to publish studies, advocate support, and engage citizens and the media in support of commuter fast ferry service in the National Capital Region**

# Previous Work Highlights



## M-495 Infrastructure Gap Analysis (NVRC, 2019)

- 11 Terminals examined
- Extended market analysis of Woodbridge to JBAB and DC

## Market Analysis Report (NVRC, 2015)

- Identified 6 corridors potentially commercially viable
- Utilized phone survey

## Service Study and Route Proving Exercise (Prince William County, 2009)

- Examined 13 terminals and running times between terminals
- Recommended further study to assess market

## Ferry Feasibility Study (VDOT, 2001)

- Recommended Woodbridge to Navy Yard route
- Service must operate at competitive speeds

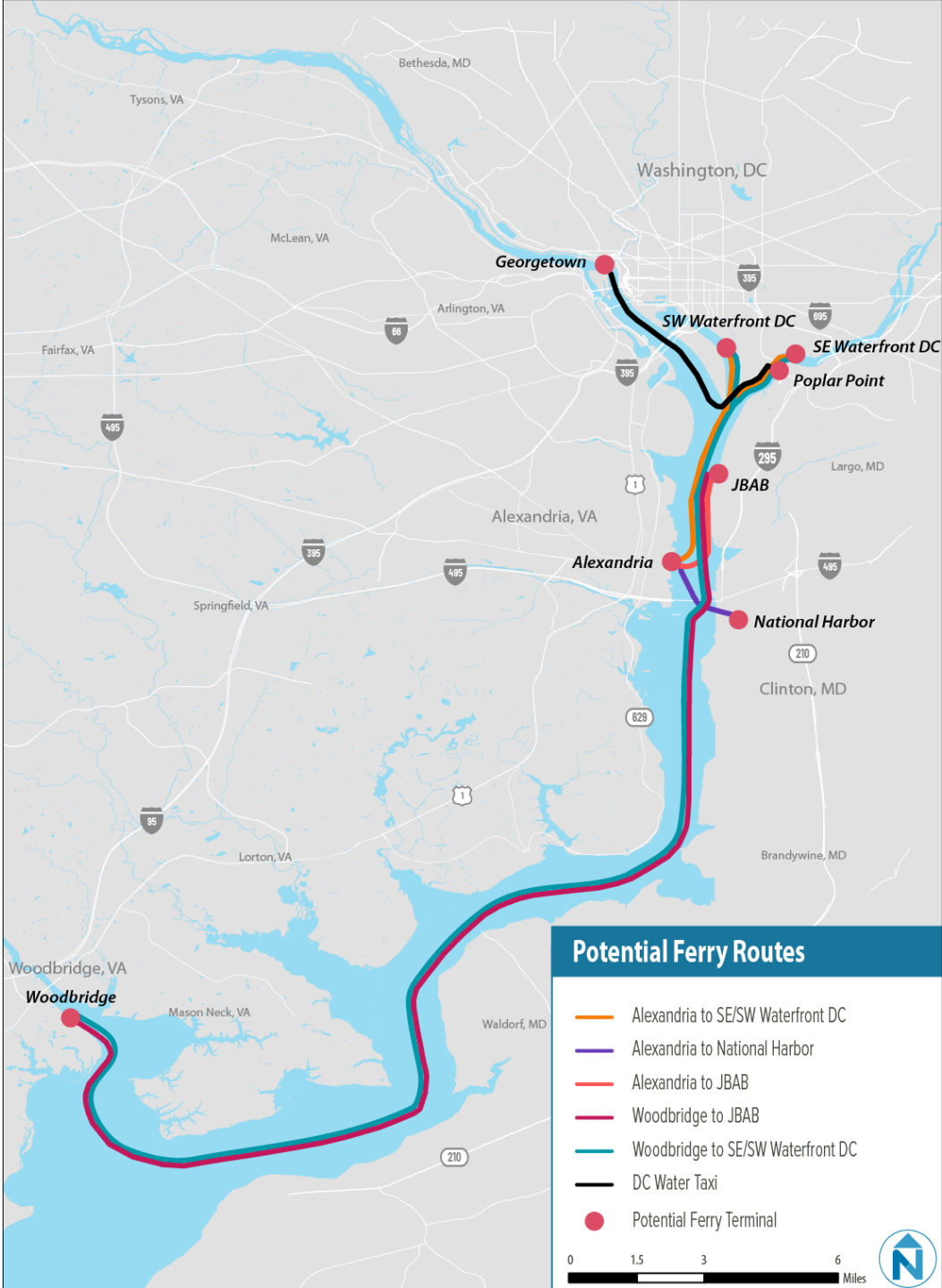
# Project Results

# Candidate Routes & Routes Selected for Study

TIER 1

TIER 2

ID	Origin	Destination
1	Alexandria	SE/SW Waterfront DC
2	Alexandria	National Harbor
3	Alexandria	JBAB
4	Georgetown	Poplar Point(DC River Circulator)
5	Woodbridge	SE/SW Waterfront DC
6	Woodbridge	JBAB
7	Charles County	Quantico
8	Charles County	SE/SW Waterfront DC
9	Charles County	Fort Belvoir
10	Charles County	JBAB
11	Crystal City	Poplar Point
12	SE/SW Waterfront DC	Crystal City
13	SE/SW Waterfront DC	Pentagon
14	SE/SW Waterfront DC	National Airport
15	Spotsylvania	Quantico
16	Stafford County	SE/SW Waterfront DC
17	Woodbridge	National Harbor
18	Woodbridge	Alexandria
19	Woodbridge	National Airport





# Woodbridge / JBAB

## ESTIMATED DEMAND

Varies based on fare, travel time, and service frequency:

**85 to 839 daily riders**

## OPERATING COST

Varies based on vessel size, speed and number:

1 VESSEL

Time b/w Sailings

2 HRS

**\$10.7M Annual Ops Cost**

2 VESSELS

Time b/w Sailings

1 HR

**\$20.5M Annual Ops Cost**

## CAPITAL COST

Varies based on type and size of vessel fleet, final terminal upgrade costs, final dredging costs

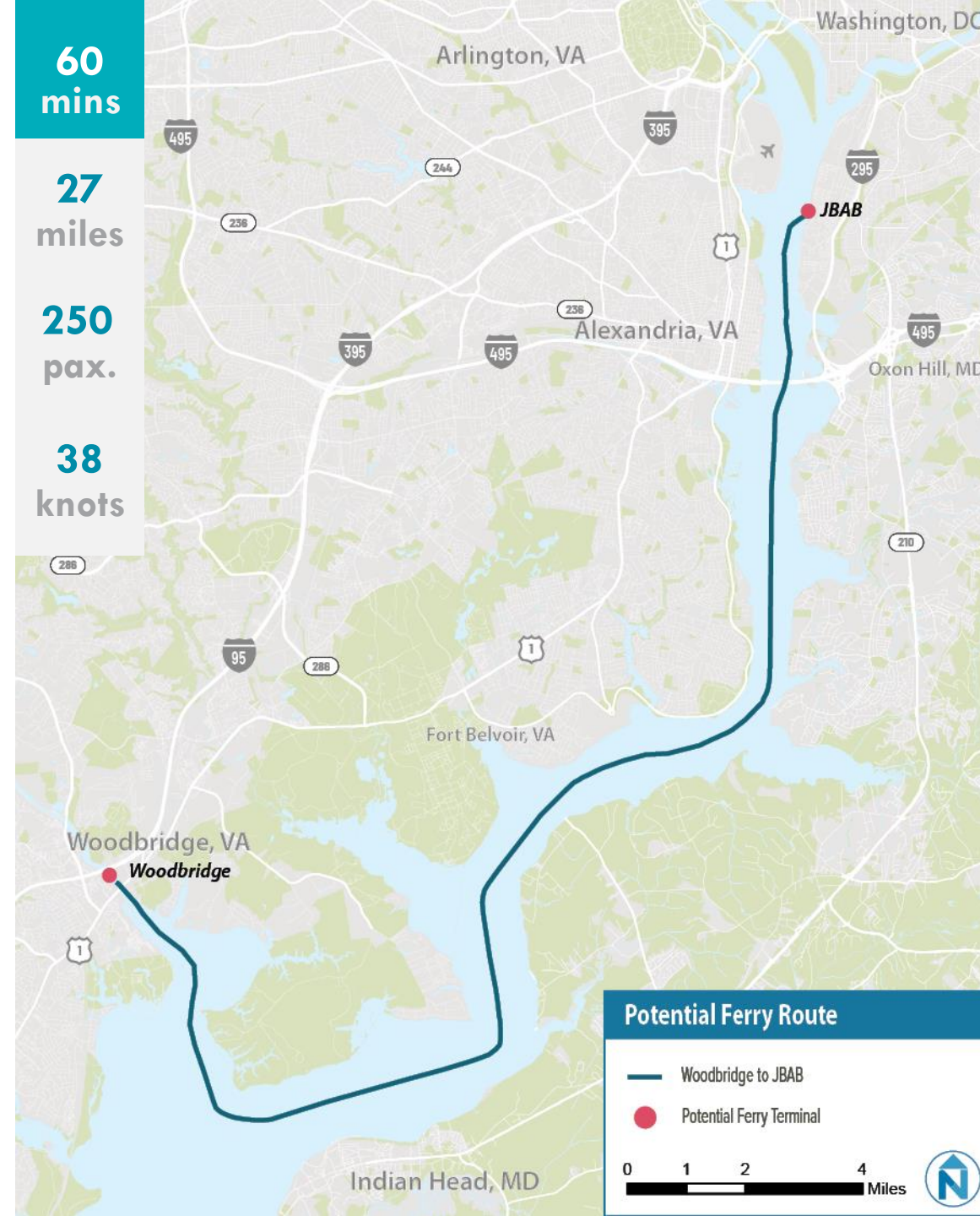
**\$23.5M - \$53.5M**

60  
mins

27  
miles

250  
pax.

38  
knots





# Charles County / JBAB

## ESTIMATED DEMAND

Varies based on fare, travel time, and service frequency:

**2 to 14 daily riders**

## OPERATING COST

Varies based on vessel size, speed and number

1 VESSEL

Time b/w

Sailings

1 HR 40 MIN

**\$7.6M Annual Ops Cost**

2 VESSELS

Time b/w

Sailings

50 MIN

**\$14.6M Annual Ops Cost**

## CAPITAL COST

Varies based on type and size of vessel fleet, final terminal upgrade costs, final dredging costs

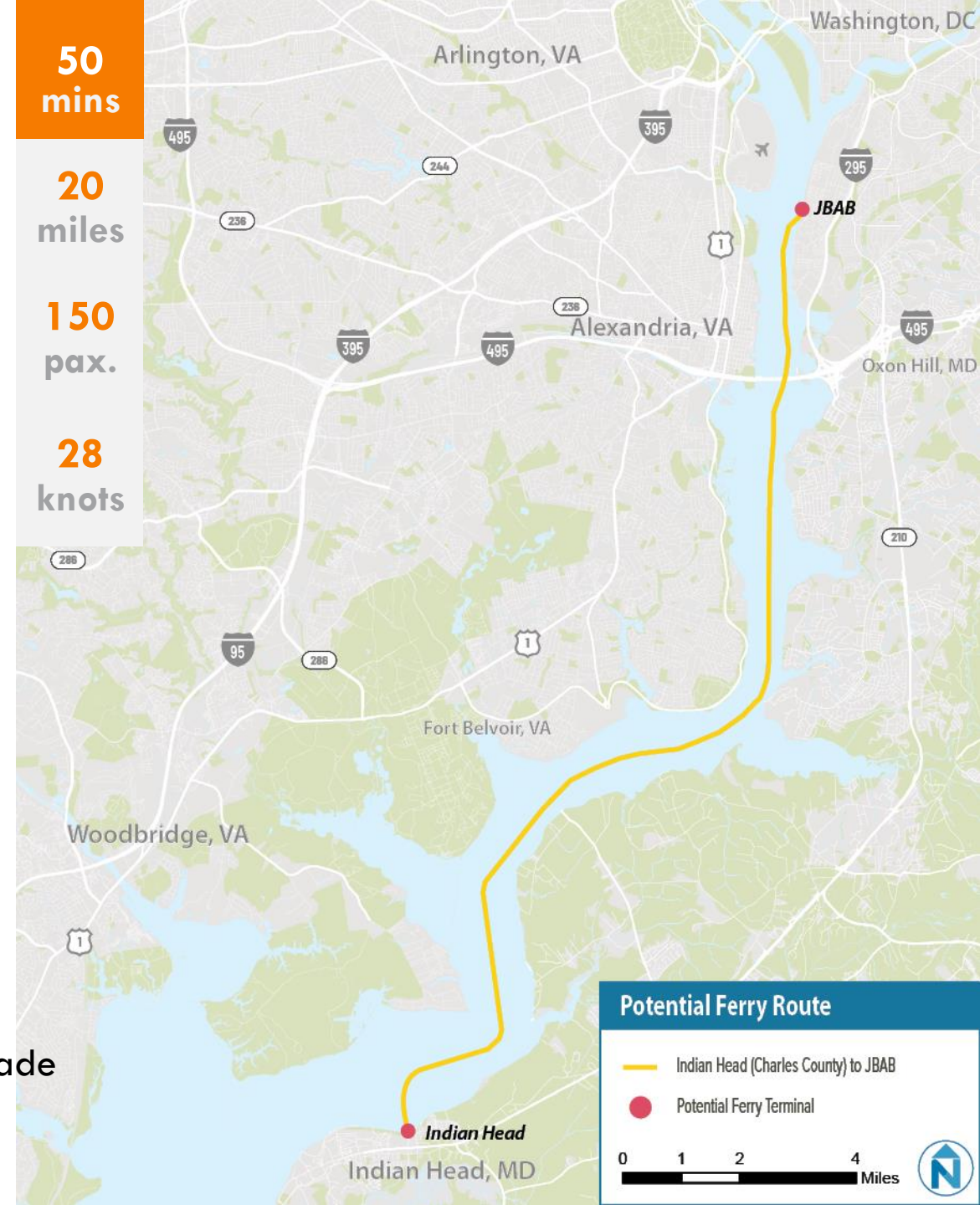
**\$25.6M - \$47.8M**

50  
mins

20  
miles

150  
pax.

28  
knots



# DC River Circulator

- Georgetown
- The Wharf
- Buzzard Point
- Poplar Point
- Nationals Park
- The Yards



# DC River Circulator

## ESTIMATED DEMAND

Varies based on fare, travel time, and service frequency:

**600 to 1,000 daily riders – 4 stops**

## OPERATING COST – 4 stops

Varies based on vessel size, speed and number

4 VESSELS  
2 VESSELS

Time b/w

Sailings

1 HR

**\$2.2M Annual Ops Cost**

Time b/w

Sailings

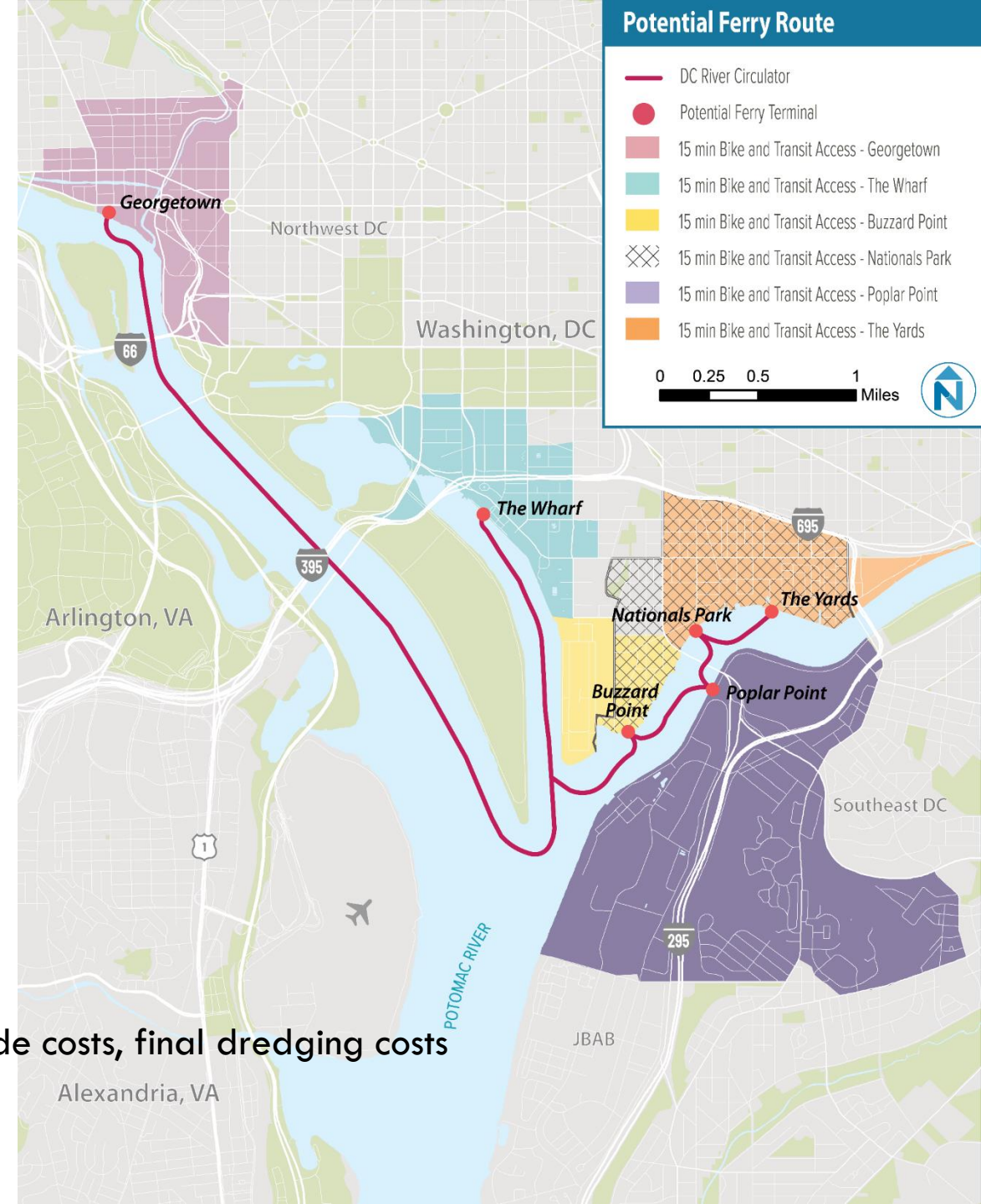
30 MIN

**\$3.7M Annual Ops Cost**

## CAPITAL COST – 4 stops

Varies based on type and size of vessel fleet, final terminal upgrade costs, final dredging costs

**\$11.0M - \$32.0M**





# Financial Summary

<b>Annual Ridership Required at Recovery of OPEX</b>	<b>Woodbridge to JBAB (Fare Price: \$10.00) Two vessels</b>	<b>Charles County to JBAB (Fare Price: \$5.00) One vessel</b>	<b>DC River Circulator (Fare Price: \$5.00) Four vessels - Four stops</b>
Farebox Recovery with estimated ridership	25%	2%	44%
Annual Operating Subsidy Required	\$23 million	\$6 million	\$2.2 million

# Lo/No Emissions Vessels

# Lo/No Emission Considerations

## Technology Maturity

- **Electrification**
  - Diesel vs. Hybrid vs. Electric
  - Energy Density
- **Hydrogen**
  - Immature distribution network
  - Immature technology development in marine environment

## Route Specific Applicability

- High speed requirements
- Terminal power availability
- Grid capacity



# Lo/No Emission Considerations

## International Context

- High level of government investment and subsidy directly into lo/no emissions technology
- Current examples with different operating parameters

## US Regulatory Context

- Build America
- Risk adverse/slower to adopt
- Current grant funding available

# Examples of Lo/No Emission Vessels

Ferry / Location	Passenger	Propulsion System	Route Speed	Trip Time	Length
MS Medstraum <sup>1</sup> Stavenger, Norway	147	All Electric	23 knots (1hr ) Max: 27 knots	~35-40 minutes	~ 6 miles
Ika Rere <sup>2</sup> Wellington, NZ	132	All Electric	20 knots	~ 35 minutes	~6.5 miles
Sea Change <sup>3</sup> San Francisco, CA	75	Hydrogen Fuel Cell	~12 knots; ~20 knots w/batteries	~15 minutes	~ 2 miles



## Next Steps

# What happens to this project?

- In the “sounding sessions” team has been actively seeking interest in assuming project leadership. So far there is no certainty, but some hope.
- No secured funding source(s). Without funding, project stops.
- Project documentation will be wrapped up tomorrow.
- High likelihood the project will be moved onto back burner until leadership interest can be established.
- Much like an orchestra, without a maestro, the performance does not happen or lacks the appeal of quality music.

**Questions? / Comments?**



**Tim Payne**

[tpayne@nelsonnygaard.com](mailto:tpayne@nelsonnygaard.com)

**Emily Oaksford**

[eoaksford@nelsonnygaard.com](mailto:eoaksford@nelsonnygaard.com)