



# M495 – Fast Ferry Passenger Service Business Plan

## Steering Committee 7

Northern Virginia Regional  
Commission

Tim Payne, Senior Principal

July 27, 2023

**N** NELSON  
NYGAARD



# Steering Committee Meeting 7 Agenda

- 1 Introduction**
- 2 Market Assessment for New Route**
- 3 Investor Sounding**
- 4 Next Steps**

# Introduction

# Welcome Everyone!



Please introduce yourself by  
adding your name and  
organization to the Teams chat


# Visit the updated website



For a refresher on what we've been up to, please visit the project website:

<http://potomaccommuterfastferry.com/>

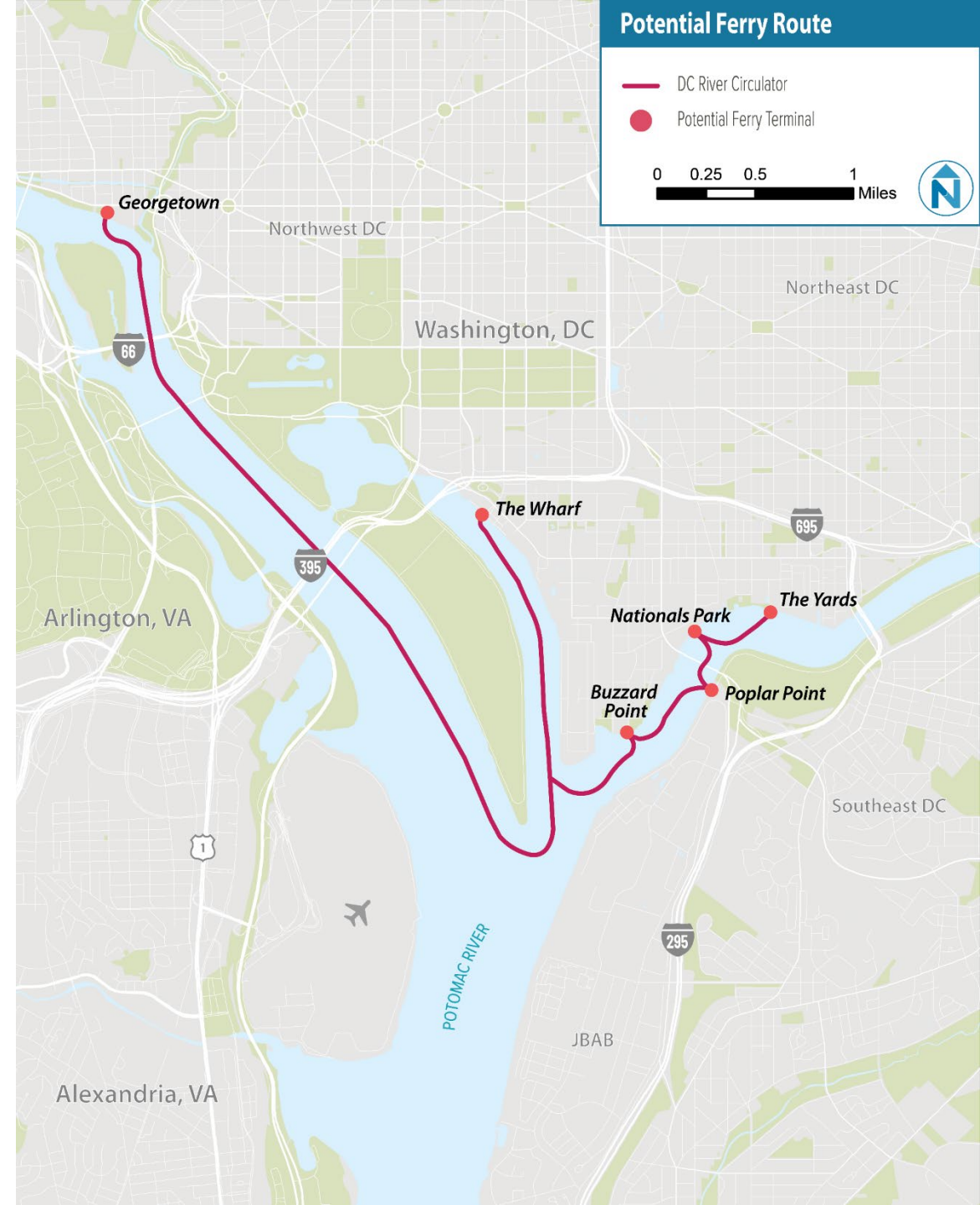
# Planned Stakeholder Meetings

| MEETING DATES  | TOPIC  |
|--|--|
| November 28 / Dec 1, 2022<br>Virtual   | Overview & Goal-Setting  |
| April 4 / April 6, 2023<br>Virtual   | Market Assessment for New Route  |
|  <b>July 27, 2023</b><br>Live/Virtual | <b>Update on Market Assessment</b><br><b>Update on Investor Sounding</b> |

# **New Route & Market Assessment**

# DC River Circulator

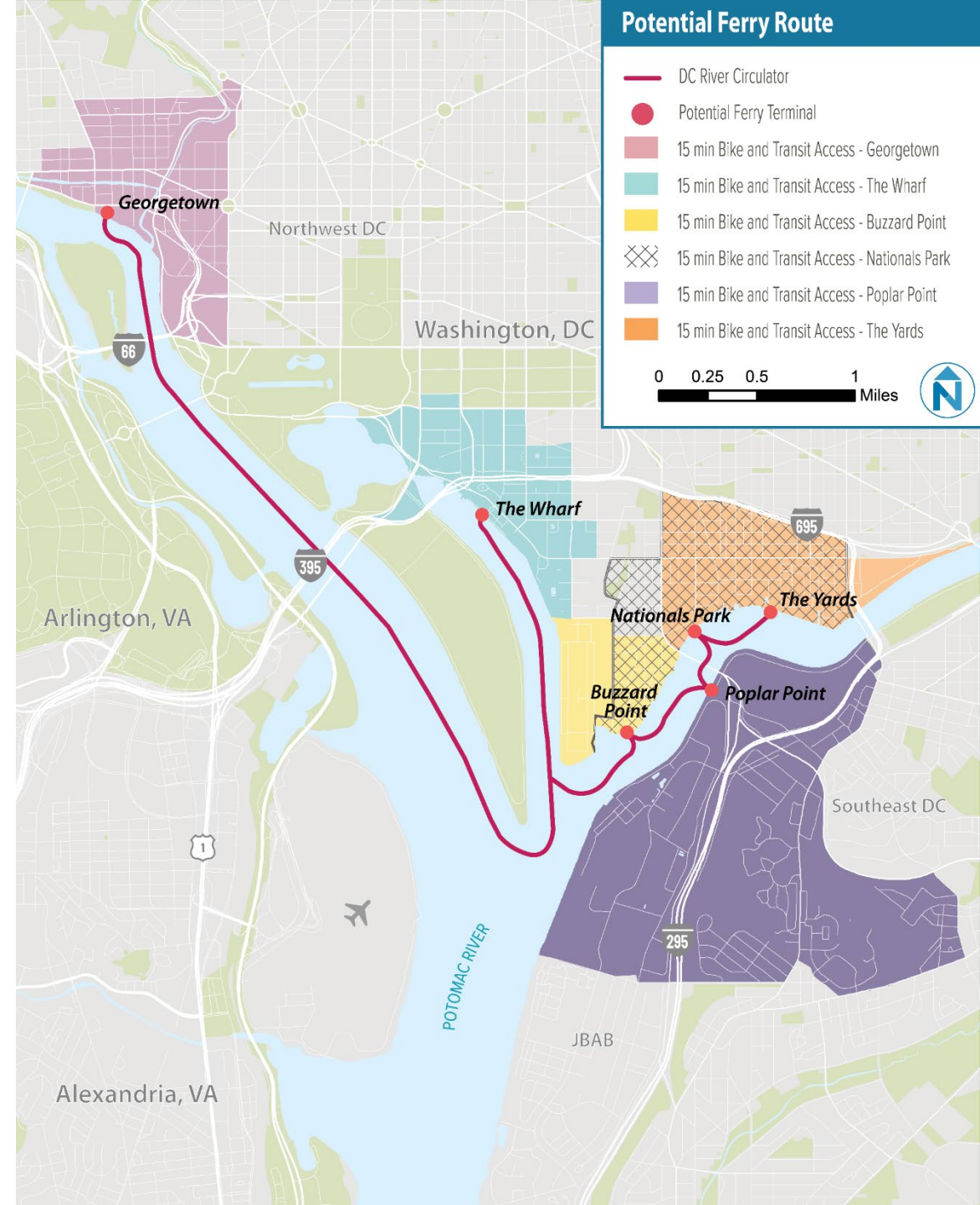
- Georgetown
- The Wharf
- Buzzard Point
- Poplar Point
- Nationals Park
- The Yards





# DC River Circulator

- **Georgetown**
  - Retail area and tourist destination, established neighborhood
- **The Wharf**
  - 3+ million SF development, 0.6 miles from L'Enfant Metro
- **Buzzard Point**
  - DC United Audi Field, future development to bring in the 1<sup>st</sup> phase of a 2 million SF development by 2025
- **Poplar Point**
  - Future development site, with potential shuttle connections to DHS HQ and JBAB
- **Nationals Park Landing**
  - Adjacent to Nationals Park and 0.4 miles from Navy Yard Metro station
- **The Yards**
  - Starting Phase II, two residential buildings, a waterfront public park, and low-cost incubator retail space



# Existing Travel Demand

| Origin →       |            |       |               |              |                |        |
|----------------|------------|-------|---------------|--------------|----------------|--------|
| Destinations ↓ | Georgetown | Wharf | Buzzard Point | Poplar Point | Nationals Park | Yards  |
| Georgetown     |            | 703   | 28            | 19           | 278            | 237    |
| Wharf          | 691        |       | 789           | 192          | 3,175          | 2,119  |
| Buzzard Point  | 15         | 1,076 |               | 222          | 6,902          | 2,332  |
| Poplar Point   | 33         | 192   | 200           |              | 683            | 490    |
| Nationals Park | 294        | 3,488 | 6,511         | 697          |                | 87,613 |
| Yards          | 259        | 1,993 | 2,017         | 517          | 87,743         |        |

\* Based on Streetlight all-day auto, pedestrian, and bike data from April 2022

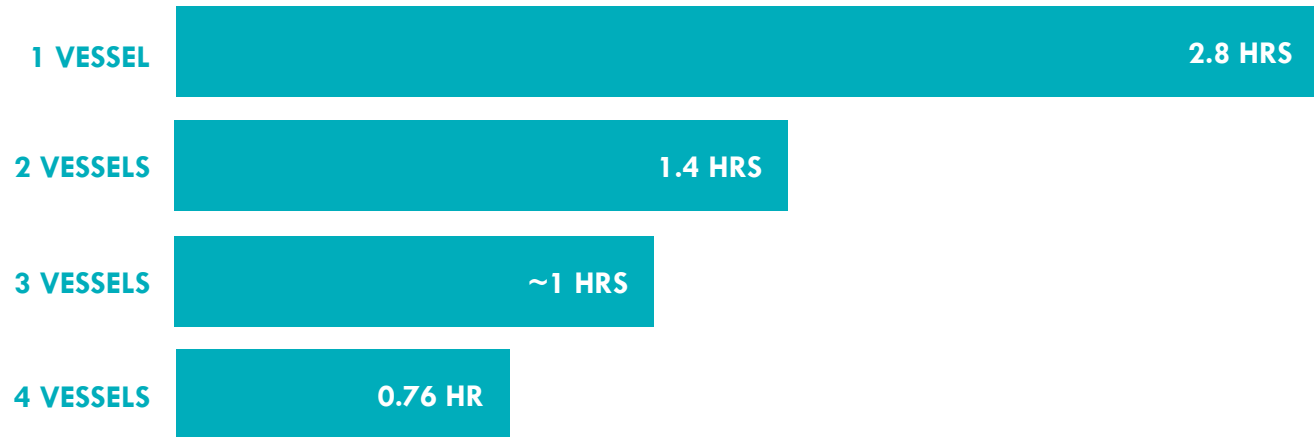
**211,508 daily trips total**

# DC River Circulator (6- Stops)

~84 min. transit time (one-way, end to end)

- Assumes low travel speed (20 knots) due to speed waiver and short distances
- Some terminals will require new or upgraded terminal facilities for safe operations

## Approx. Headways



# Partial Speed Waiver

- Vessel speeds are limited to 6mph in several locations along the Anacostia, Potomac and other waterways
  - Upstream of Memorial Bridge on Potomac River
  - Within the Washington Channel
  - Upstream of McNair Base on Anacostia River
- Vessel speeds and travel times have been updated to consider speed limits and assume approval of a partial speed limit waiver.



# Travel Times (River Circulator)

| Origin →       | Georgetown | Wharf | Buzzard Point | Poplar Point | Nationals Park | Yards |
|----------------|------------|-------|---------------|--------------|----------------|-------|
| Destinations ↓ | Georgetown | Wharf | Buzzard Point | Poplar Point | Nationals Park | Yards |
| Georgetown     |            | 32    | 49            | 62           | 73             | 84    |
| Wharf          | 32         |       | 17            | 30           | 41             | 53    |
| Buzzard Point  | 49         | 17    |               | 13           | 24             | 36    |
| Poplar Point   | 62         | 30    | 13            |              | 11             | 23    |
| Nationals Park | 73         | 41    | 24            | 11           |                | 11    |
| Yards          | 84         | 53    | 36            | 23           | 11             |       |

Note – All travel times listed above are in minutes



## Speed Limits and Waiver

- DC River Circulator
- Potential Ferry Terminal
- Speed Limit (< 6 mph)
- Recommended Area for Speed Limit Waiver

0 0.25 0.5 1 Miles



# Estimated Ridership

## MARKET SIZE

- **211,000** daily trips between the ferry catchment areas

## ESTIMATED DEMAND

\$2.00 fare

- **1,572** estimated daily riders (slow speeds with partial slowdown zone waiver)

\$5.00 fare

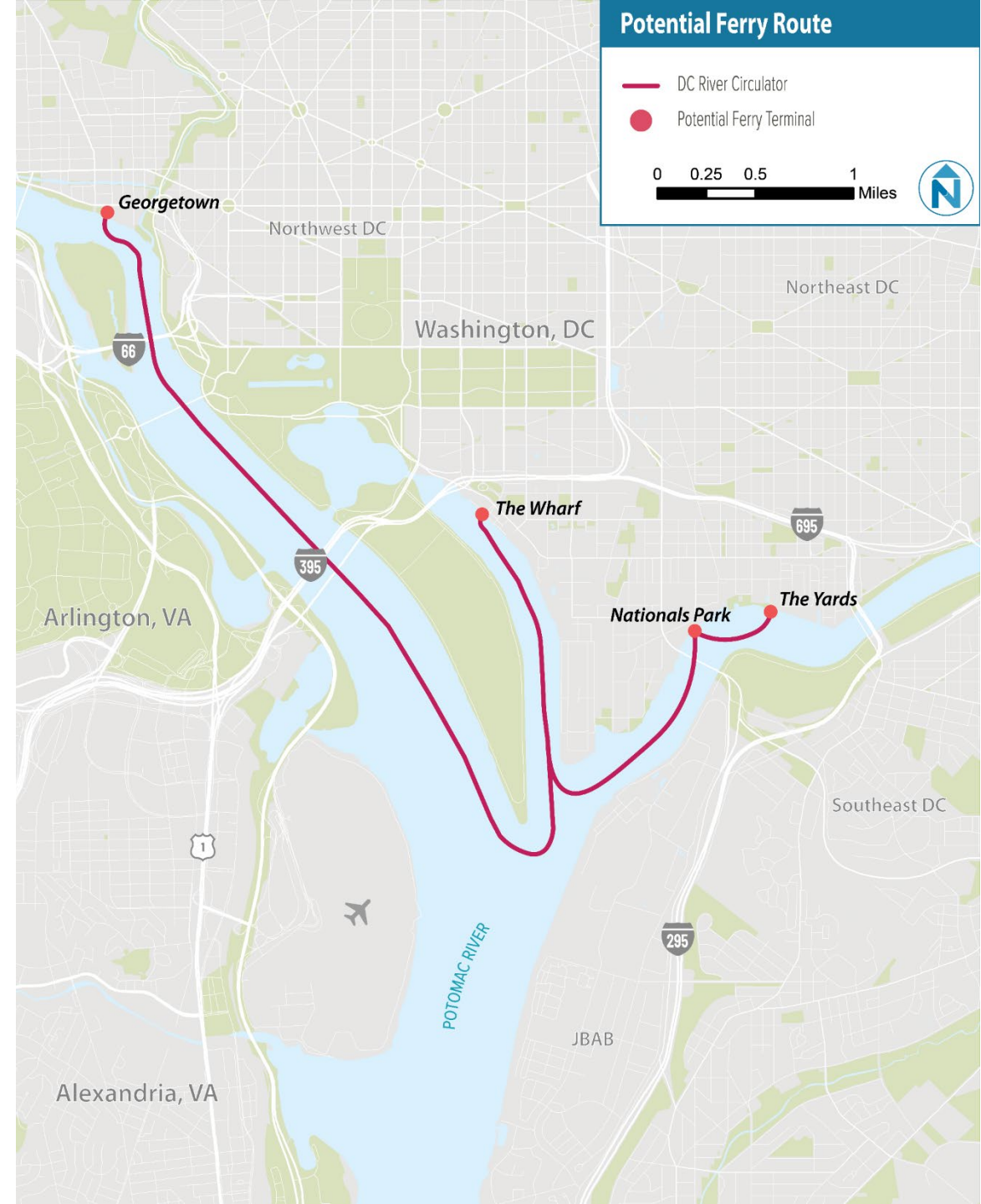
- **980** estimated daily riders (slow speeds with partial slowdown zone waiver)

| 6-Stop Route Financials (2024)    |                      |
|-----------------------------------|----------------------|
| Fare                              | \$5                  |
| <b>Total Revenue</b>              | <b>\$1,788,708</b>   |
| Operating Expenses                |                      |
| Direct Labor                      | -\$3,337,006         |
| Fuel                              | -\$2,527,707         |
| Maintenance                       | -\$1,315,966         |
| Marketing, Admin, Overhead        | -\$2,154,204         |
| <b>Total Operating Expenses</b>   | <b>-\$9,334,883</b>  |
| <b>Gross Profit</b>               | <b>-\$7,546,275</b>  |
| <b>Farebox Recovery</b>           | <b>19%</b>           |
| Capital Expenses                  |                      |
| Vessel Cost (D&A)                 | -\$1,008,000         |
| Terminal Cost (D&A)               | -\$640,000           |
| <b>Total Capital Expenditures</b> | <b>-\$1,648,000</b>  |
| <b>Total Expenses</b>             | <b>-\$10,982,883</b> |
| <b>Net Profit (pre-tax)</b>       | <b>-\$9,194,175</b>  |
| <b>Subsidy Required (2024)</b>    | <b>\$9,194,175</b>   |

\*Note, CapEx figures are illustrative, and computed using straight-line depreciation. Depreciation & Amortization (D&A) are non-cash expenses. We anticipate CapEx will be financed via a combination of grants, subsidies, debt, and equity

# DC River Circulator – Early Feasibility (4 Stops)

- Georgetown
- The Wharf
- Nationals Park
- The Yards



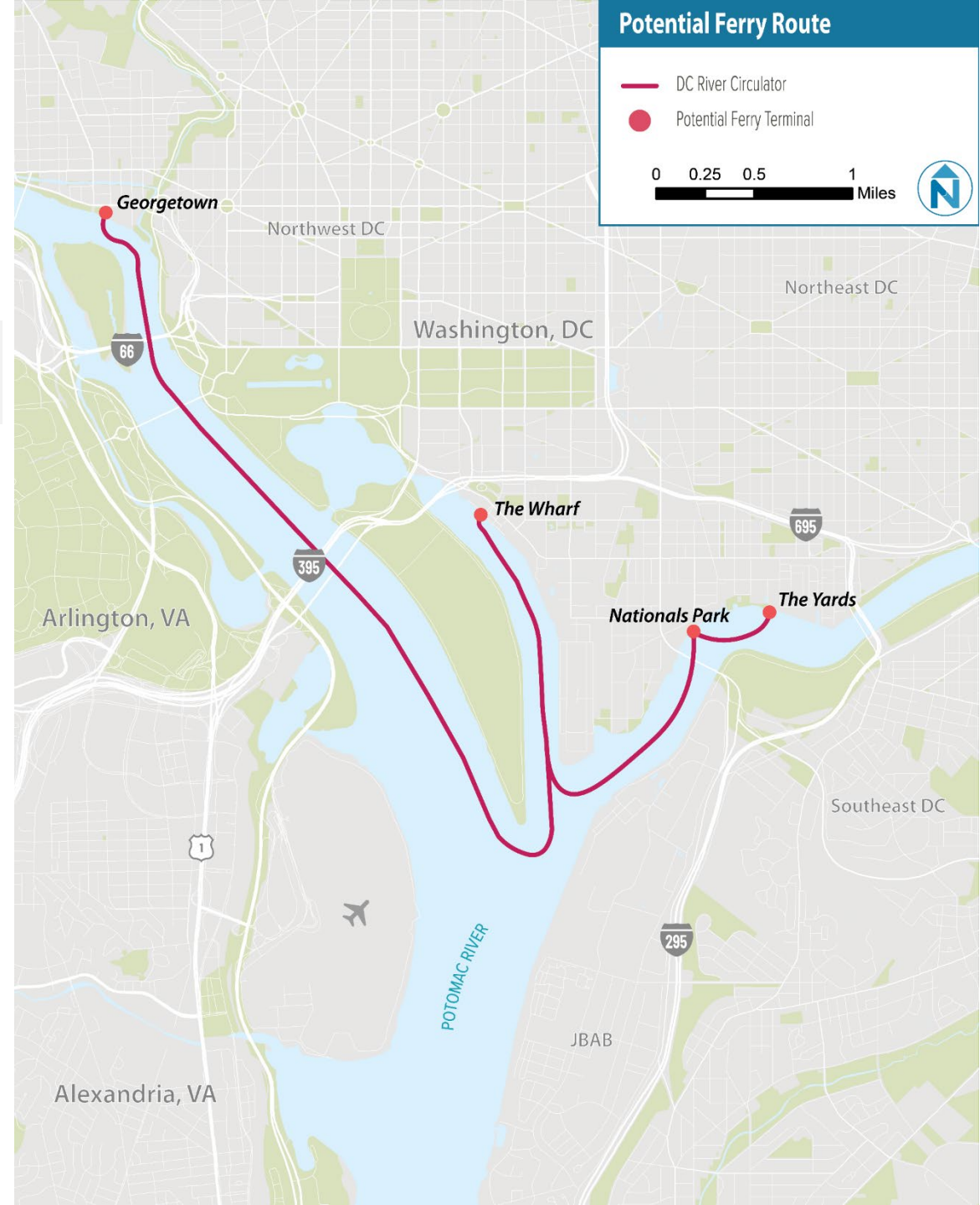
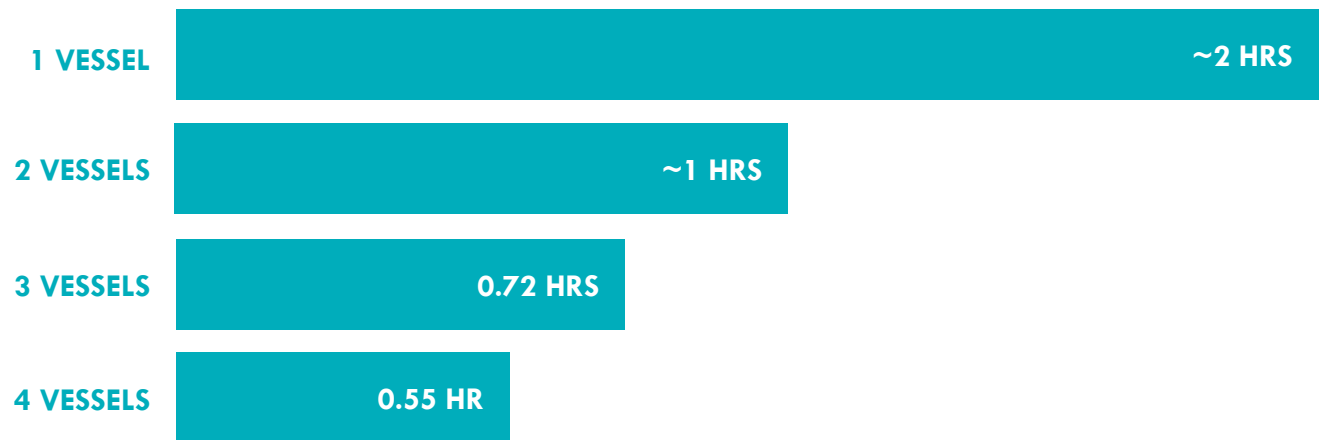
MARKET SIZE – 4 STOPS

# DC River Circulator – Express (4 Stops)

~67 min. transit time (one-way, end to end)

- Assumes low travel speed (20 knots) due to partial speed waiver and short distances
- Some terminals will require new or upgraded terminal facilities for safe operations

## Approx. Headways





# Existing Travel Demand

| Origin →       |            |       |                |        |
|----------------|------------|-------|----------------|--------|
| Destinations ↓ | Georgetown | Wharf | Nationals Park | Yards  |
| Georgetown     |            | 703   | 278            | 237    |
| Wharf          | 691        |       | 3,175          | 2,119  |
| Nationals Park | 294        | 3,488 |                | 87,613 |
| Yards          | 259        | 1,993 | 87,743         |        |

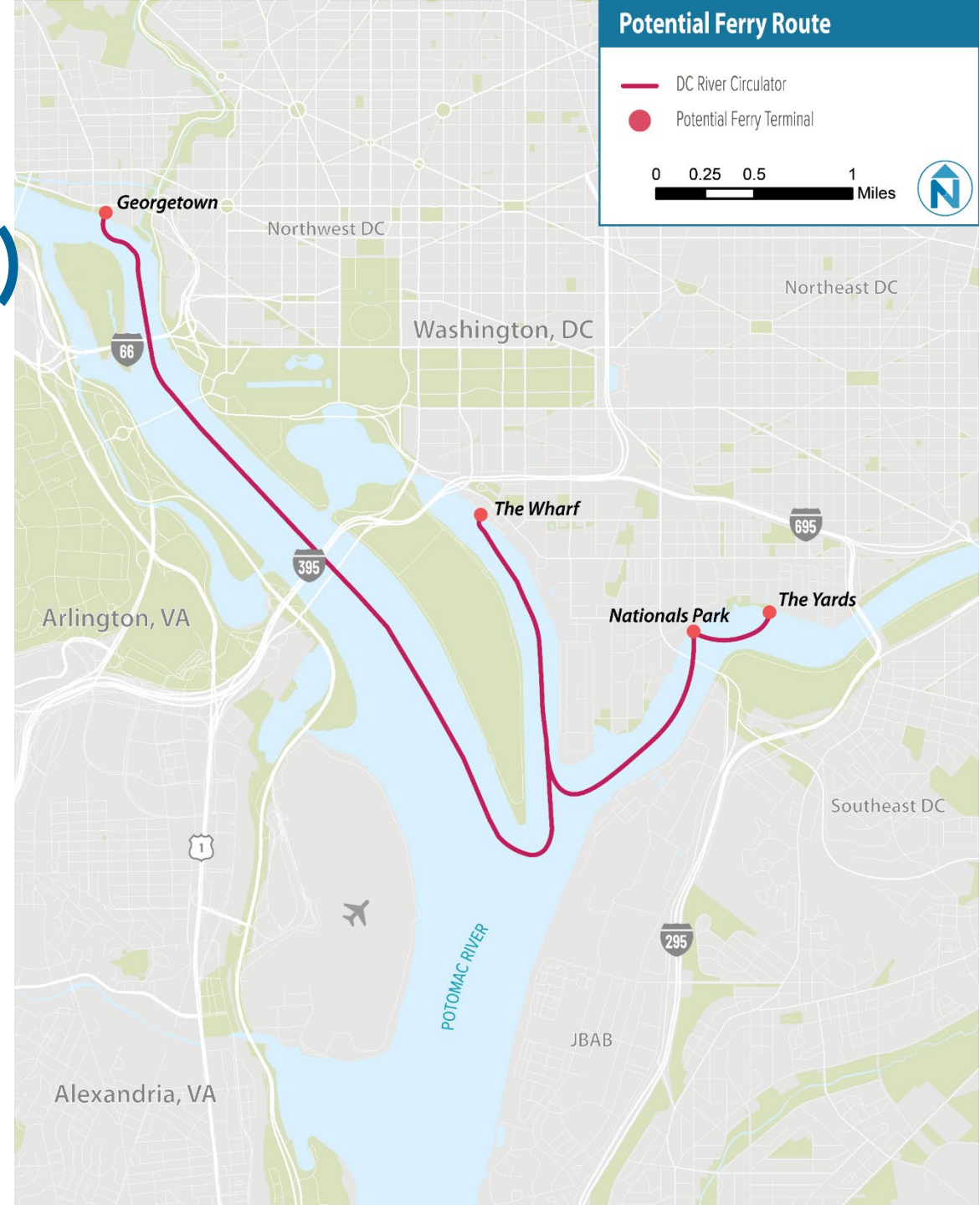
\* Based on Streetlight all-day auto, pedestrian, and bike data from April 2022

**187,094 daily trips total**

# Travel Times (River Circulator – 4 stops)

| Origin →       |            |       |                |       |
|----------------|------------|-------|----------------|-------|
|                | Georgetown | Wharf | Nationals Park | Yards |
| Destinations ↓ |            |       |                |       |
| Georgetown     |            | 32    | 55             | 67    |
| Wharf          | 32         |       | 24             | 35    |
| Nationals Park | 55         | 24    |                | 11    |
| Yards          | 67         | 35    | 11             |       |

Note – All travel times listed above are in minutes



# Estimated Ridership

## MARKET SIZE

- **187,094** daily trips between the ferry catchment areas

## ESTIMATED DEMAND

\$2.00 fare

- **1,499** estimated daily riders (slow speeds with partial slowdown zone waiver)

\$5.00 fare

- **937** estimated daily riders (slow speeds with partial slowdown zone waiver)

| 4-Stop Route Financials (2024)    |                     |
|-----------------------------------|---------------------|
| Fare                              | \$5                 |
| <b>Total Revenue</b>              | <b>\$1,709,697</b>  |
| Operating Expenses                |                     |
| Direct Labor                      | -\$2,676,419        |
| Fuel                              | -\$1,813,435        |
| Maintenance                       | -\$1,177,402        |
| Marketing, Admin, Overhead        | -\$1,700,177        |
| <b>Total Operating Expenses</b>   | <b>-\$7,367,433</b> |
| <b>Gross Profit</b>               | <b>-\$5,657,736</b> |
| <b>Average Farebox Recovery</b>   | <b>23%</b>          |
| Capital Expenses                  |                     |
| Vessel Cost (D&A)                 | -\$1,008,000        |
| Terminal Cost (D&A)               | -\$440,000          |
| <b>Total Capital Expenditure*</b> | <b>-\$1,448,000</b> |
| <b>Total Expenses</b>             | <b>-\$8,815,433</b> |
| <b>Net Profit (pre-tax)</b>       | <b>-\$7,105,736</b> |
| <b>Subsidy Required (2024)</b>    | <b>\$7,105,736</b>  |

\*Note, CapEx figures are illustrative, and computed using straight-line depreciation. Depreciation & Amortization (D&A) are non-cash expenses. We anticipate CapEx will be financed via a combination of grants, subsidies, debt, and equity

# General Takeaways

- Four-stop route looks better financially for the short term
  - Connects current terminals with substantial activity
  - Two other terminal locations in 6 Stop model are not yet developed so don't have the demand
  - There are significant refinements that could be made to the operating model to improve financial performance
- \$5 fare scenario is a healthier financial option
  - \$2 fare drops average recovery to ~19%
- Capital costs could be offset by public investments and grants
  - Focus on development opportunities
  - Pursue zero or low emission vessels

**Questions? / Comments?**

# Assumptions

## Phoenix Infrastructure Group

### Assumptions

|                        |                              |
|------------------------|------------------------------|
| Projection Start Date  | 1/1/2024                     |
| Projection End Date    | 12/1/2048                    |
| Company Name           | Phoenix Infrastructure Group |
| Beginning Cash Balance | \$ -                         |
| Revenue Growth Rate    | 2%                           |

\*Cells with blue font and beige background require manual input

\*Cells in black font have formulas and should not be edited.

| Services                 | Start Month | End Month | Days   | Hours of Operation per day (4 vessels) | Total Hours of Operation (4 vessels) |
|--------------------------|-------------|-----------|--------|--|--------------------------------------|
| Full Service (4 Vessels) | March       | February  | 350.00 | 72                                     | 25200.00                             |

|   | MEDIUM DIESEL, <150 PAX | MEDIUM ELECTRIC, <150 PAX | MEDIUM HYBRID, <150 PAX |
|---|-------------------------|---------------------------|-------------------------|
| <b>Total Operating Hours Available Per Vessel</b> | 25200.00                | 25200.00                  | 25200.00                |
| Passenger Capacity                                | 150                     | 150                       | 150                     |
| Inflation / Cost Increase Rate                    | 3.50%                   | 3.50%                     | 3.50%                   |

### Vessel Cost Assumptions

|                         |                        |                        |                        |
|-------------------------|------------------------|------------------------|------------------------|
| Vessel cost (Low)       | \$6,000,000.00         | \$8,000,000.00         | \$7,500,000.00         |
| Vessel Cost (High)      | \$8,000,000.00         | \$11,000,000.00        | \$10,000,000.00        |
| <b>Average cost</b>     | <b>\$7,000,000.00</b>  | <b>\$9,500,000.00</b>  | <b>\$8,750,000.00</b>  |
| Number of vessels       | 4                      | 4                      | 4                      |
| <b>Total Fleet Cost</b> | <b>\$28,000,000.00</b> | <b>\$38,000,000.00</b> | <b>\$35,000,000.00</b> |
| Vessel's life (years)   | 25                     | 25                     | 25                     |

# Inputs

## Phoenix Infrastructure Group

### 4-Stop Route

**OP Hours**

**Weekly Hours Used Per Vessel**

|                    | Full Service (Slow/20 knots) |
|--------------------|------------------------------|
| 4-Stop Route       | 98.98                        |
| Total Vessel Hours | 98.98                        |

**Annual Hours Used per Vessel**

|                           |         |
|---------------------------|---------|
| Total Annual Vessel Hours | 4949.00 |
|---------------------------|---------|

|  |                              |
|--|------------------------------|
| Pick Route                                     | 4-Stop Route                 |
| Pick Vessel                                    | MEDIUM CATAMARAN, <150 PAX   |
| # of Vessels                                   | 4                            |
| Vessel Speed                                   | Commute-only (Slow/20 knots) |
| <b>Total OP Hours Used (Annual) per Vessel</b> |                              |
| Full-Service                                   | 4,949                        |
| <b>Total</b>                                   | <b>4,949</b>                 |

**Total Gallons Used**

|  |                 |
|--|-----------------|
| Full Service                           | 96,505.5        |
| Total Gallons Used (Annual) Per Vessel | <b>96,505.5</b> |

## Phoenix Infrastructure Group

### 6-Stop Route

**OP Hours**

**Weekly Hours Used Per Vessel**

|                    | Full Service (Slow/20 knots) |
|--------------------|------------------------------|
| 6-Stop Route       | 123.41                       |
| Total Vessel Hours | 123.41                       |

**Annual Hours Used per Vessel**

|                           |         |
|---------------------------|---------|
| Total Annual Vessel Hours | 6170.50 |
|---------------------------|---------|

|  |                              |
|--|------------------------------|
| Pick Route                                     | 6-Stop Route                 |
| Pick Vessel                                    | MEDIUM CATAMARAN, <150 PAX   |
| # of Vessels                                   | 4                            |
| Vessel Speed                                   | Commute-only (Slow/20 knots) |
| <b>Total OP Hours Used (Annual) per Vessel</b> |                              |
| Commute-Only                                   | 6,171                        |
| <b>Total</b>                                   | <b>6,171</b>                 |

**Total Gallons Used**

|  |                  |
|--|------------------|
| Commute-Only                           | 134,516.9        |
| Total Gallons Used (Annual) Per Vessel | <b>134,516.9</b> |

# Financial Summary – 4 Stop Option

| Georgetown                                | Wharf   | Nationals Park | The Yards |
|---|---|----------------|-----------|
| <b>Key Metrics (assuming \$5 fare)</b>    |   |                |           |
| <b>Upfront Capital Expenditures</b>       | <b>\$39,000,000</b><br>[4x Medium Vessels   Terminal Upgrades: Nationals Park & Wharf & Yards]                |                |           |
| <b>Farebox Recovery</b>                   | <b>22%</b><br>[Total Revenue / Total Operating Costs]   |                |           |
| <b>Total Expected Subsidy (25 Years)*</b> | <b>\$165 million / ~\$6.6 million per year</b><br>[OpEx Subsidy: \$140 million   CapEx Subsidy: \$25 million] |                |           |

| Annual Ridership Required at Recovery of OPEX (4-Stop) | Annual Ridership Required at Recovery of OPEX (4-Stop) |             |
|--|--|-------------|
|  | \$2.00 Fare  | \$5.00 Fare |
| 50%  | 2,869,605  | 1,147,842   |
| 75%  | 4,304,407  | 1,721,763   |
| 100%   | 5,739,209  | 2,295,684   |

\*Note, subsidy is discounted to present value



# Financial Summary – 6 Stop Option

| Georgetown                                | Wharf | Buzzard Point | Poplar Point   | Nationals Park | The Yards |
|---|-------|---------------|--|----------------|-----------|
| <b>Key Metrics (assuming \$5 fare)</b>    |       |               |  |                |           |
| <b>Upfront Capital Expenditures</b>       |       |               | <b>\$44,000,000</b><br>[4x Medium Vessels  <br>Terminal Upgrades: Poplar Point & Nationals Park & Wharf & Yards] |                |           |
| <b>Farebox Recovery</b>                   |       |               | <b>19%</b><br>[Total Revenue / Total Operating Costs]  |                |           |
| <b>Total Expected Subsidy (25 Years)*</b> |       |               | <b>\$215 million / ~\$8.6 million per year</b><br>[OpEx Subsidy: \$185 million   CapEx Subsidy: \$30 million]    |                |           |

| Annual Ridership Required at Recovery of OPEX (4-Stop) | \$2.00 Fare | \$5.00 Fare |
|--|-------------|-------------|
| 50%  | 3,635,924   | 1,454,369   |
| 75%  | 5,453,886   | 2,181,554   |
| 100%   | 7,271,847   | 2,908,739   |

\*Note, subsidy is discounted to present value

**Questions? / Comments?**

# 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

## Route Specific Applicability

- High speed requirements
- Terminal power availability
- Grid capacity

# Lo/No Emission Considerations

## International Context

- High level of government investment and subsidy 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 Medstram <sup>1</sup><br>Stavenger, Norway | 147       | All Electric       | 23 knots (1hr )<br>Max: 27 knots    | ~35-40 minutes | ~ 6 miles  |
| Ika Rere <sup>2</sup><br>Wellington, NZ       | 132       | All Electric       | 20 knots                            | ~ 35 minutes   | ~6.5 miles |
| Sea Change <sup>3</sup><br>San Francisco, CA  | 75        | Hydrogen Fuel Cell | ~12 knots;<br>~20 knots w/batteries | ~15 minutes    | ~ 2 miles  |



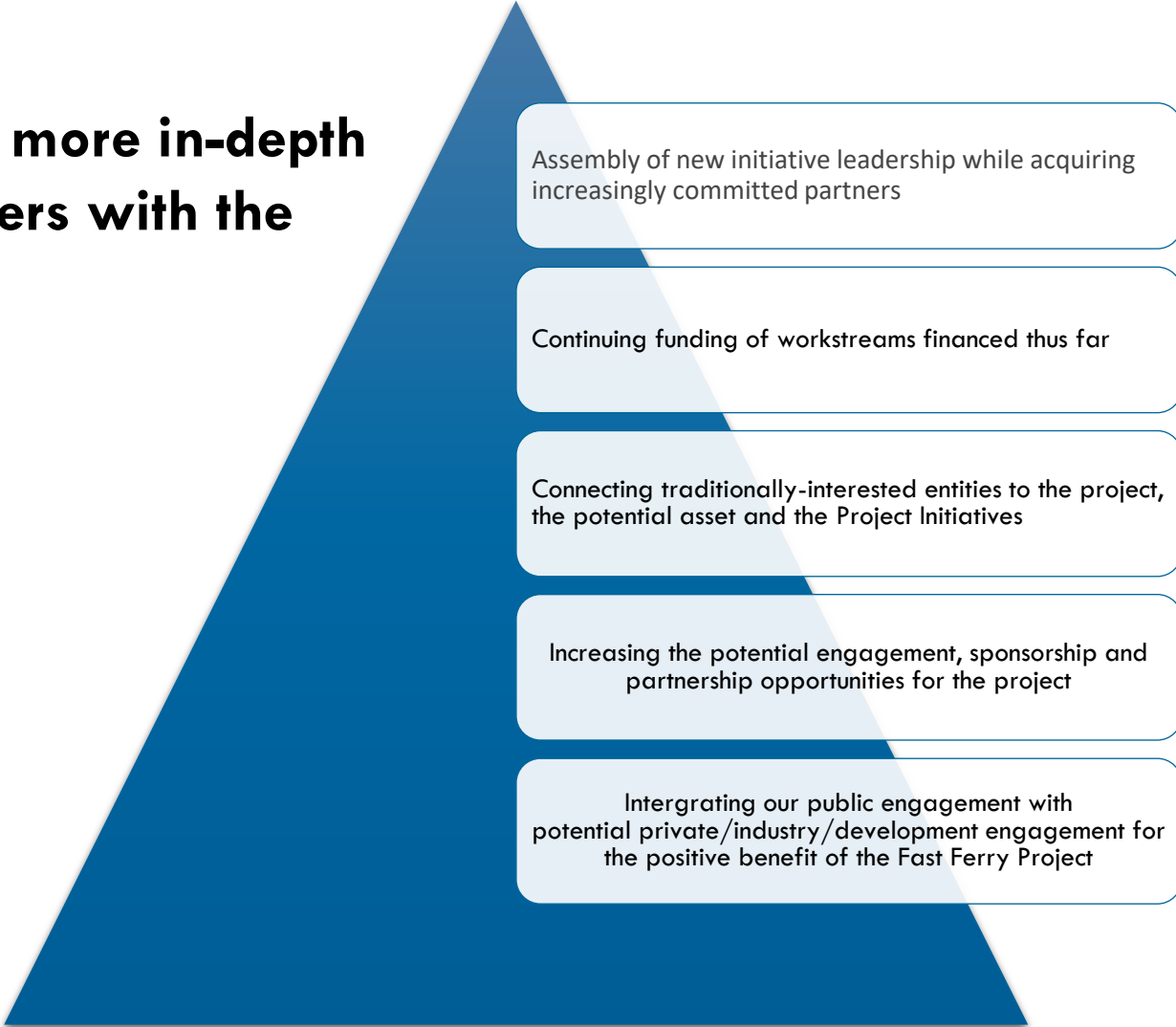
**Questions? / Comments?**

# Public/Private Partnership Outreach



# Previous/Upcoming Sounding Meetings

**The Fast Ferry Team is preparing more in-depth engagement with potential partners with the goal of:**



Assembly of new initiative leadership while acquiring increasingly committed partners

Continuing funding of workstreams financed thus far

Connecting traditionally-interested entities to the project, the potential asset and the Project Initiatives

Increasing the potential engagement, sponsorship and partnership opportunities for the project

Integrating our public engagement with potential private/industry/development engagement for the positive benefit of the Fast Ferry Project

# Approach

- July:
  - Introductions and reach-out to select potential partners across the region for engagement
  - One-on-one meetings and engagement in person with key decision-makers
- August/September:
  - Approach for participation and potential commitment for social, political and financial support
- October:
  - Locked-in commitment to Fast Ferry Project



## PASSENGER FERRY SERVICE ON THE POTOMAC

### About

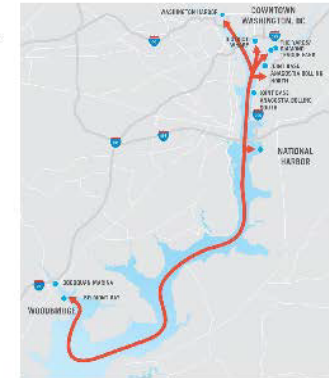
The commuter ferry study is a partnership currently organized by the [Northern Virginia Regional Commission \(NVRC\)](#) and other groups interested in the possibility of establishing a passenger ferry service on the Potomac River. The Potomac River Fast Ferry Project is being framed as a transportation alternative to existing land-based transportation infrastructure for commuters, tourists, and military personnel. This sustainable solution for connecting the D.C., Maryland, Virginia area will bring a new era of interconnectivity to a region that requires robust public transit interconnectivity, to serve both commuters and visitors.

### Necessity

As the National Capital Region (NCR) daily experiences time-consuming and endless traffic problems, it has become clear that addressing congestion in the region will require a multimodal approach. While many of our highways and Metrorail lines are consistently overburdened by commuter traffic, the Anacostia, Potomac, and Occoquan Rivers remain an untapped resource. Both commuters and visitors to the NCR often look for different modes of transportation to supplement ride sharing and the metro system. A forward-looking transit plan needs to take advantage of the area's rivers as a means of offering robust transit options. The potential speeds and distances involved would make this an ideal application for low or zero emission ferry vessels.

### Where we are

Current work, led by Nelson\Nygaard, is the culmination of multiple past studies to determine the market demand, operational and financial feasibility, and general 'appetite' for a passenger commuter ferry in the NCR region. At this stage, the project team has completed the modeling for several potential ferry routes, some of which show great potential in ridership, demand, and feasibility. Several proposed terminal areas are rapidly developing with significant new residential and mixed-use development. While the study team is working to refine their operational models, with a renewed focus on a "river circulator" route, they are also looking forward to the next project phase.



### Next steps

The next stage of the study consists of investor and community sounding of the project. Members of the study team plan on reaching out to several transportation-oriented entities in the region, both public, non-profit, and private to gauge interest in this opportunity, with the aim of building a coalition to bring this project closer to implementation.

# Current Potential Partners (Open for Expansion)

| Name                | Organization                         | Title   |
|---------------------|--------------------------------------|---|
| John Hillegass      | Greater Washington Partnership       | (Director Regional Mobility and Infrastructure)                         |
| Sandra Marks        | DDOT                                 | Chief Project Delivery Officer  |
| Tom Webster         | WMATA                                | Chief Planning & Performance Officer                                    |
| Brian Kenner        | Amazon - Economic Development        | Heading Economic Development for Amazon                                 |
| Laura Miller Brooks | Federal City Council                 | Director of Transportation and Infrastructure                           |
| Roger Bohnert       | Build America Bureau                 | (Director Project Development)  |
| Thomas Sherman      | Virginia Office of P3                | (Deputy Director of the Virginia Office of Public-Private Partnerships) |
| Greg Billing        | Georgetown BID                       | (Transportation Director)   |
| Steve Moore         | Southwest BID                        | (Executive Director)  |
| Elizabeth Miller    | National Capital Planning commission | Director, Physical Planning Division                                    |
| Jaclyn Hartman      | MDOT                                 | Director of the Office of Public-Private Partnerships                   |
| Sybongile Cook      | DMPED                                | Director of Business Development and Strategy                           |
| Jonathan Kayne      | DM P3 Dept.                          | Head of DC P3 office  |
| Julian J. Gonsalves | Alexandria P3 Dept                   | Assistant City Manager for Public-Private Partnerships                  |

**Questions? / Comments?**

**Next Steps**

# What happens to this project?

- In the “sounding sessions” team is actively seeking interest in assuming project leadership.
- Project documentation on project to date will be wrapped up in September.
- NVRC is likely to maintain the website for a while, but it will eventually become outdated.
- High likelihood the project will be moved onto a back burner until leadership interest can be established.

**Questions? / Comments?**



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