

WATERBORNE TRANSIT CONCEPTS STUDY

April 21, 2010

Overview:

- Summary of previous 2004/2005 Ferry Service analysis
- Results of recent study focusing on ferry service from Newport News
- Conclusions

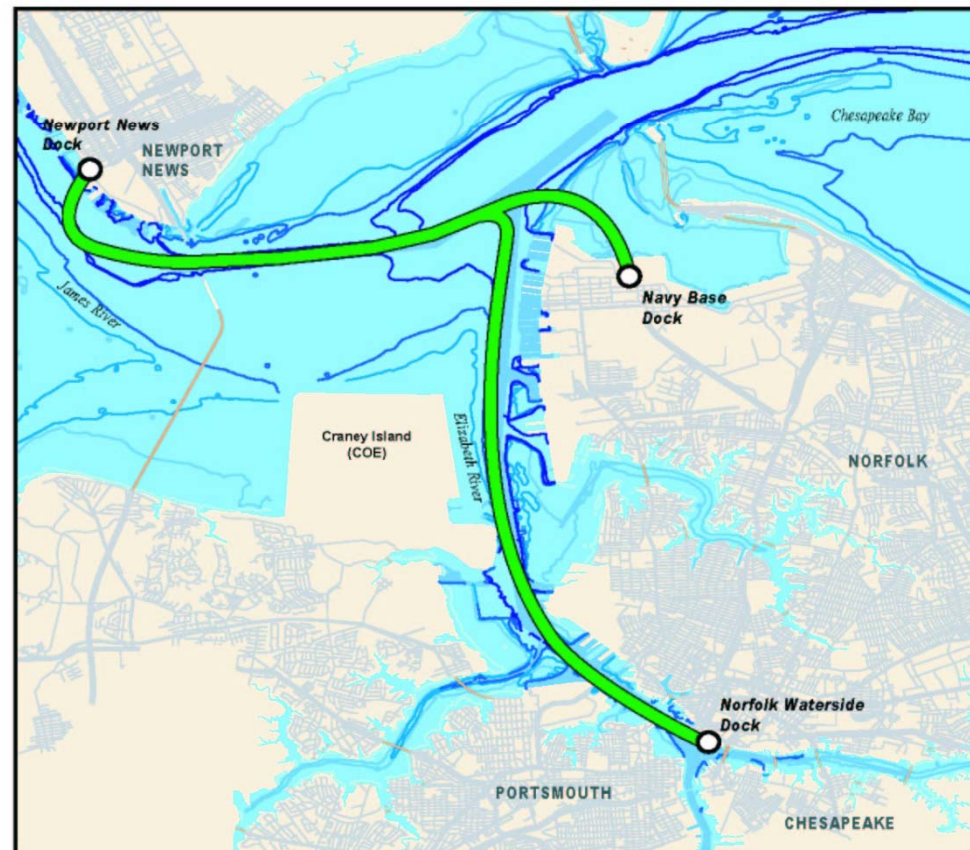
2004/2005 analysis:

- Ferry concepts analyzed service between:
 - Naval Station Norfolk and downtown Hampton/downtown Newport News
 - Downtown Norfolk and downtown Hampton/downtown Newport News
 - Included option for Fort Monroe
- Included coordination with the Navy regarding remote parking and transit circulator options

Newport News Ferry Operations – Travel Time (2004/2005)

- Downtown Newport News to Naval Station Norfolk: 16 minutes
- Downtown Newport News to Downtown Norfolk: 44 minutes
- Downtown Newport News to Naval Station Norfolk and Downtown Norfolk: 60 minutes
- NOTE: Times do not include boarding and alighting.

HRT Potential Ferry Route - From Newport News

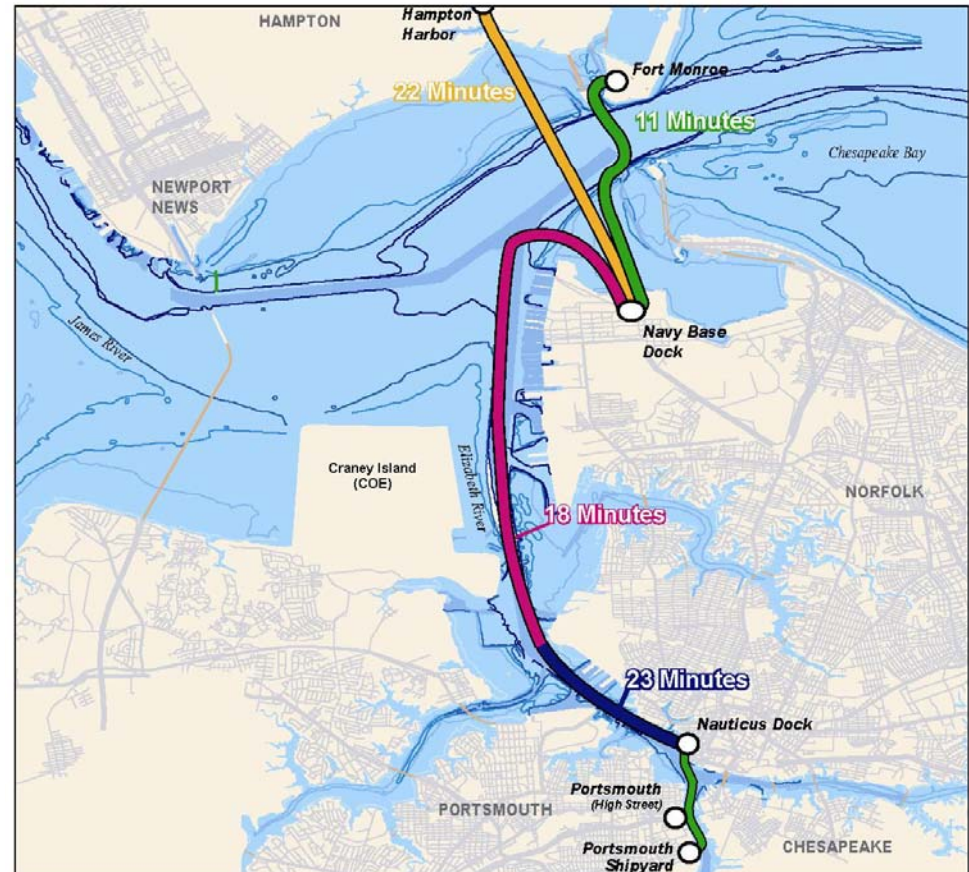


LEGEND
Potential Ferry Route
Potential Dock
Shipping Channel



Hampton Ferry Operations – Travel Time (2004/2005)

- Downtown Hampton to Naval Station Norfolk: 22 minutes (including no wake area in Hampton Harbor)
- Fort Monroe to Naval Station Norfolk: 11 minutes
- Downtown Hampton to Downtown Norfolk: 52 minutes
- Downtown Hampton to Naval Station Norfolk and Downtown Norfolk: Approximately 65 minutes
- NOTE: Times do not include boarding and alighting.



2004/2005 Conceptual Ridership Results from Hampton and Newport News

| Link | Daily Ridership at 30 Minute Frequency | Daily Ridership at 60 Minute Frequency |
|--|--|--|
| Service from the Peninsula (Hampton/Newport News) to Naval Station Norfolk | 2360 | 810 |
| Service from the Peninsula (Hampton/Newport News) to Downtown Norfolk | 1200 | 550 |
| Service from the Peninsula (Hampton/Newport News) to Naval Station Norfolk and Downtown Norfolk* | 2880 | 1055 |

*Ferry vessel goes to each destination

- Capital costs and operating/maintenance costs for each option were more than \$20 million. Funding was unavailable to proceed with ferry service.

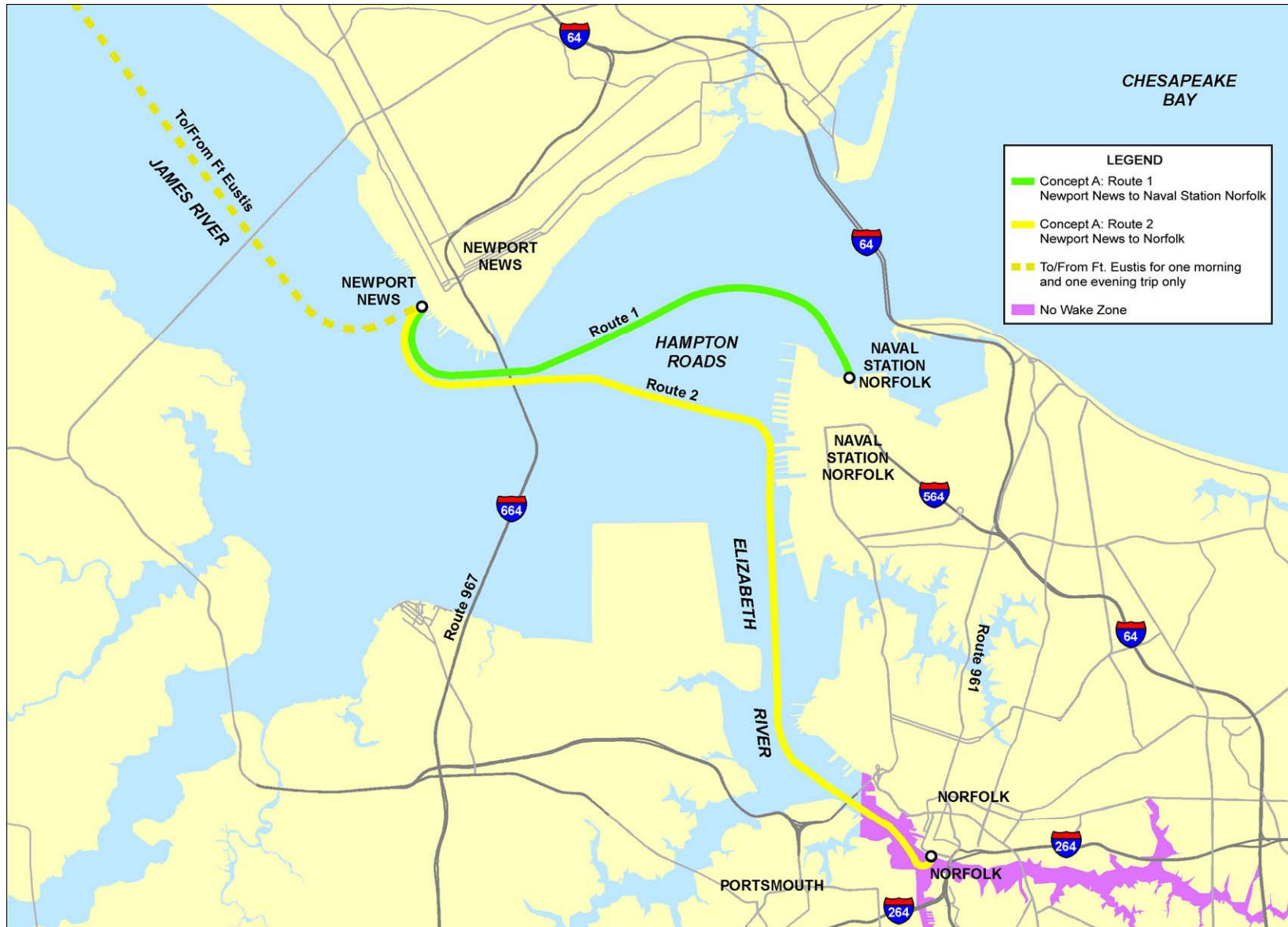
2009/2010 Conceptual Ferry Study for the City of Newport News

- Completed as a sub-task of a larger, on-going Planning effort for the City of Newport News
- Scope of Work: Feasibility of waterborne transit alternatives between Newport News and Norfolk
 - Assessment of existing conditions
 - Travel Demand
 - Existing transportation network
 - Review of previous work and ferry service
 - Develop Concepts options, including
 - Conceptual Capital Costs
 - Conceptual Operations and Maintenance Costs
 - Ridership (as estimated by the travel demand forecasts)
 - Connectivity to regional transit network
 - Used previous study as basis
- Provides conceptual options for ferry service, but not a detailed analysis

Waterborne Transit Concepts (2009/2010)

- Concept A would provide service on two routes from Newport News:
 - Route 1 between Newport News and Naval Station Norfolk
 - Route 2 between Newport News and Downtown Norfolk
 - Limited service between Newport News and Fort Eustis with one morning and one evening trip
- Concepts B and C would provide service on one route from Newport News to Naval Station Norfolk to downtown Norfolk
 - Concept C providing limited service between Newport News and Fort Eustis with one morning and one evening trip.

Concept A



Concepts B and C



Ferry Service Assumptions

| | Concept A | Concept B | Concept C |
|---|---|---|--|
| | <p>Route 1: Newport News to Naval Station Norfolk</p> <p>Route 2: Newport News to downtown Norfolk</p> <p>Includes limited service to Fort Eustis</p> | <p>Newport News to Naval Station Norfolk to downtown Norfolk returning to Naval Station Norfolk to Newport News</p> | <p>Newport News to Naval Station Norfolk to downtown Norfolk returning to Naval Station Norfolk to Newport News</p> <p>Includes limited service to Fort Eustis</p> |
| Peak Headways | 25-35 minutes | Hourly | Hourly |
| Speed | 30 knots 15-25 knots (no-wake zone) | 30 knots 15-25 knots (no-wake zone) | 30 knots 15-25 knots (no-wake zone) |
| Travel Time | | | |
| <ul style="list-style-type: none"> Fort Eustis to Newport News Newport News to Naval Station Norfolk Naval Station Norfolk to downtown Norfolk Newport News to downtown Norfolk | <p>39 minutes</p> <p>17 minutes</p> <p>n/a</p> <p>27-31 minutes</p> | <p>n/a</p> <p>17 minutes</p> <p>25-29 minutes</p> <p>55-59 minutes</p> | <p>39 minutes</p> <p>17 minutes</p> <p>25-29 minutes</p> <p>55-59 minutes</p> |
| Travel Distance | | | |
| <ul style="list-style-type: none"> Fort Eustis to Newport News Newport News to Naval Station Norfolk Naval Station Norfolk to downtown Norfolk Newport News to downtown Norfolk | <p>18 nautical miles</p> <p>8.5 nautical miles</p> <p>n/a</p> <p>12.5 nautical miles</p> | <p>n/a</p> <p>8.5 nautical miles</p> <p>11.5 nautical miles</p> <p>19 nautical miles</p> | <p>18 nautical miles</p> <p>8.5 nautical miles</p> <p>11.5 nautical miles</p> <p>19 nautical miles</p> |

Fast Ferry Technology

- Fast ferry technology is rapidly advancing in the area of reduced wakes.
- Kitsap Transit in Washington State ordered an ultra-low wake fast ferry in 2009 for an area environmentally sensitive to wake impacts. The catamaran style vessel uses hydrofoil assisted technology to reduce wake heights and decrease wake energy.
- The Newport News conceptual ferry study assumed a range in speed of 15-25 knots in the no-wake zone. One specific vessel has not been selected. Capital costs increase with advanced technology. A balance will need to be found between speed, travel time and ridership.

Ferry Concepts Summary

| | Concept A | Concept B | Concept C |
|--|---|---|---|
| | Route 1: Newport News to Naval Station Norfolk Route 2: Newport News to downtown Norfolk Includes limited service to Fort Eustis | Newport News to Naval Station Norfolk to downtown Norfolk returning to Naval Station Norfolk to Newport News | Newport News to Naval Station Norfolk to downtown Norfolk returning to Naval Station Norfolk to Newport News Includes limited service to Fort Eustis |
| Capital Costs¹ | \$14.9 M | \$14.0 M | \$14.9 M |
| O&M Costs² | \$6.2 M | \$5.6 M | \$5.6 M |
| Ridership 2034 (average week day) | 1184-1644 | 572-810 | 659-957 |

Source: Parsons, Connetics Transportation Group, and AECOM December, 2009

¹Capital Costs assume:

- Adequate parking is available at Newport News and downtown Norfolk. Naval Station Norfolk would be served primarily by shuttle service. A 40 space park and ride lot is included for Fort Eustis.
- Construction of two docks with two berths each at Newport News. Existing dock facilities would be utilized at Naval Station Norfolk, downtown Norfolk, and Fort Eustis.
- Purchase of a total of four vessels, including one spare, for each concept.
- Two additional buses would be purchased to provide shuttle service in Newport News and at Naval Station Norfolk.

²Operating and Maintenance Costs assume:

- Concept A would operate from 5:25 AM through 11:02 PM with three vessels in operation an average of 16 hours per day. Concept B would operate from 5:45 AM to 9:56 PM and Concept C would operate from 5:45 AM to 9:19 PM. Concepts B and C have three vessels in operation an average of 14 hours per day.
- Fuel and some personnel costs are based on hours of operation with higher costs for Concept A due to longer hours of operation. Administrative personnel costs, insurance, marketing, and maintenance are based on number of vessels in operation and are the same for all three concepts.
- Shuttle buses would operate in conjunction with ferry at Newport News and Naval Station Norfolk.

Conclusions

- Based on the key geographic features of the region, a waterborne ferry system is a feasible transit service concept in providing regional connectivity.
- The costs were developed at a conceptual level to facilitate comparison of costs and ridership potential. Based on the ridership results, Concept A provides the optimal passenger service concept for frequency and travel time.
 - The ridership estimates could vary based on the selected ferry vessel which may alter service travel times.
 - Further detailed cost and ridership analyses, including associated landside transit service connections would be needed prior to a specific service concept approval or implementation.
 - Connection to landside transit services and development of needed ferry terminal would require further definition and analysis.

Conclusions (continued)

- Coordination with the Navy would be needed, including a reassessment of safety and security concerns.
- Ridership estimates are based on commuter travel patterns. Vessel technology must provide competitive travel times and address the restrictions created by no-wake zones approaching downtown Norfolk.
- Land use connections and planning would need further analysis.
- The Transit Vision Plan, Phase II, currently underway, includes ferry service from Newport News and Hampton to the Southside as a key element in regional transit system for Hampton Roads.

Alameda Harbor Bay Ferry

