

Crystal City/Potomac Yard Corridor Interim Transit Improvement Project

Draft Technical Memorandum:
Project Summary

December 2005

1.0 INTRODUCTION

The Crystal City/Potomac Yard corridor in Arlington County and the City of Alexandria, Virginia runs north-south between the Pentagon and Braddock Road Metrorail Station. This corridor is currently undergoing extensive development and redevelopment. At the northern end of the corridor, projects include new residential buildings in Pentagon City and Crystal City, as well as a possible conference center and office building in Pentagon City just south of the Pentagon reservation. The central portion of the corridor is occupied by Potomac Yard, a 368-acre former rail yard that is being redeveloped with a mix of office, residential, and retail uses. Build-out of Potomac Yard over the next 10 years will result in approximately 4.4 million square feet of new office space, 3,000 new residential units, 1,200 new hotel rooms, and 270,000 square feet of new retail space. At the southern end of the corridor, at the edge of Old Town Alexandria, there is active redevelopment of several sites for residential and retail uses. From north to south, all of this development is occurring along a linear, north-south corridor, setting the stage for—indeed requiring—improved transportation services and facilities.

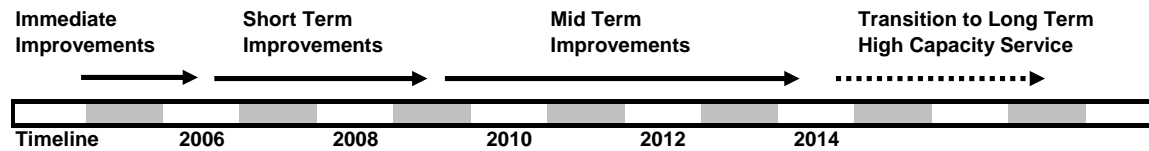
As a response to the large numbers of new residents and office workers expected in the corridor, Arlington County and the City of Alexandria asked the Virginia Department of Rail and Public Transportation (DRPT) to undertake a transit alternatives analysis that would explore options to improve transit service. The results of that study were published in 2003. In the two years since the completion of the Crystal City/Potomac Yard Corridor Transit Alternatives Analysis (AA), the pace of development in the corridor has increased. The first buildings to be completed in Potomac Yard (One and Two Potomac Yard) will open in March 2006, and transit service must be available at that time to provide a link between the office buildings and the Crystal City Metrorail Station, a mile away.

The purpose of the Crystal City/Potomac Yard Transit Implementation Strategy is to design an interim service that will serve the corridor until a higher capacity service can be put in place. Transit improvements instituted under this strategy are meant to provide a high level of transit service without precluding the eventual implementation of Streetcar, Bus Rapid Transit, or the construction of an infill Metrorail station in the corridor. Under this strategy, transit improvements will be phased to coincide with development, so that service can meet the growing demand.

2.0 SERVICE PLAN AND CORRIDOR IMPROVEMENTS

The service plan is a major element in the implementation strategy. It outlines a step-by-step strategy to rationalize transit service in the Crystal City/Potomac Yard corridor. Over the implementation period, the existing system of routes and multiple providers will transition to a uniform, branded, premium service running between the Pentagon and Pentagon City in the north, to Potomac Yard Town Center and Braddock Road Metrorail Station in the south. As illustrated in Figure 1, the service plan is divided into three phases (immediate, short-term, and mid-term), which are timed to coincide with the increase in transit demand as the corridor develops.

Figure 1: Phased Service Improvements



Immediate changes will occur in the spring of 2006, when the Environmental Protection Agency (EPA) moves its headquarters to One Potomac Yard. At this stage, a 6-minute peak service will be introduced to provide connections between the Arlington portion of Potomac Yard and the Crystal City Metrorail and Virginia Railway Express (VRE) stations. The service will run in mixed traffic on existing streets using standard 40-foot low-floor CNG buses from the Washington Metropolitan Transit Authority's (WMATA) Four Mile Run maintenance facility. Alexandria Transit (DASH) will develop a new service in the Alexandria portion of Potomac Yard.

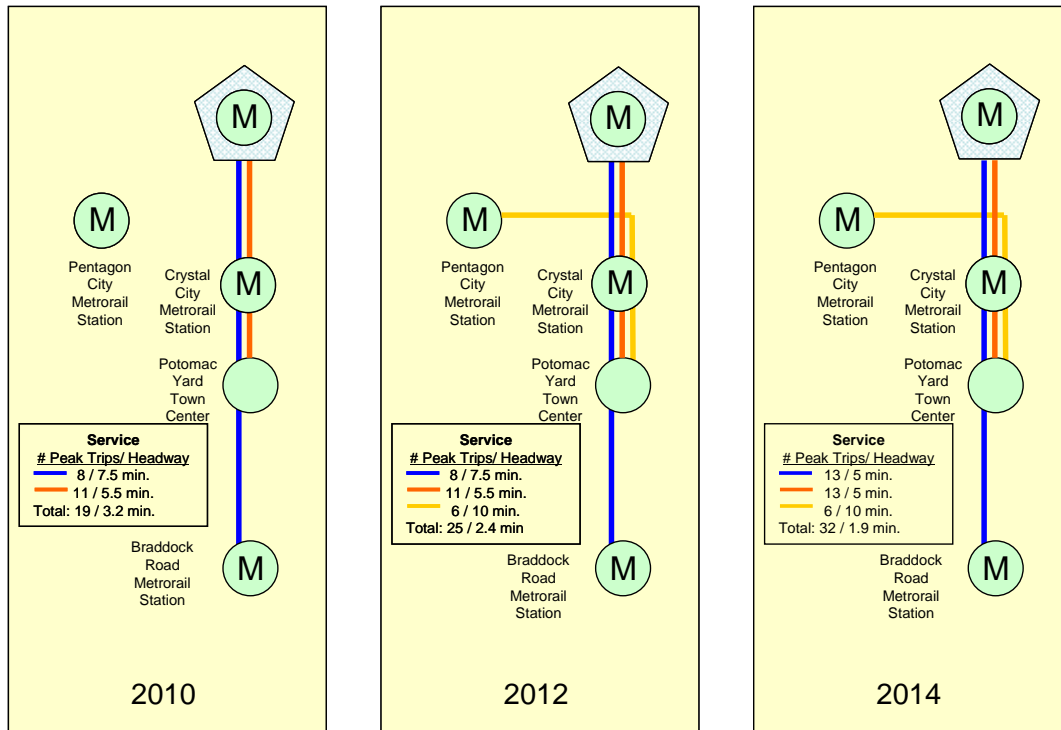
Short-term service changes will be implemented in the 2 to 3 year time frame. During this time period, the first segment of exclusive transitway in Arlington will open between 26th Street South and the Arlington/Alexandria border at Four Mile Run. This segment is scheduled to open in winter 2006/spring 2007. During this time period, the Arlington Crystal City/Potomac Yard service will be extended to the Potomac Yard Shopping Center in Alexandria. DASH will continue to operate a separate service covering the Alexandria portion of Potomac Yard.

Mid-term service changes will be implemented in the 4 to 7 year time frame. It is assumed that in this period, service between Alexandria and Arlington will be integrated into a single service running from one end of the corridor to the other, and will be operated by WMATA. Vehicles will start to make use of new exclusive transitway north of 26th Street South in Arlington and between East Glebe Road and the Monroe Avenue Bridge along Route 1 in Alexandria. This service will continue to use 40-foot low-floor CNG buses which will be housed at WMATA's Four Mile Run maintenance facility, and will operate between 5 a.m. and 12 a.m. on weekdays and between 7 a.m. and 12 a.m. on weekends.

Phasing (mid-term service)

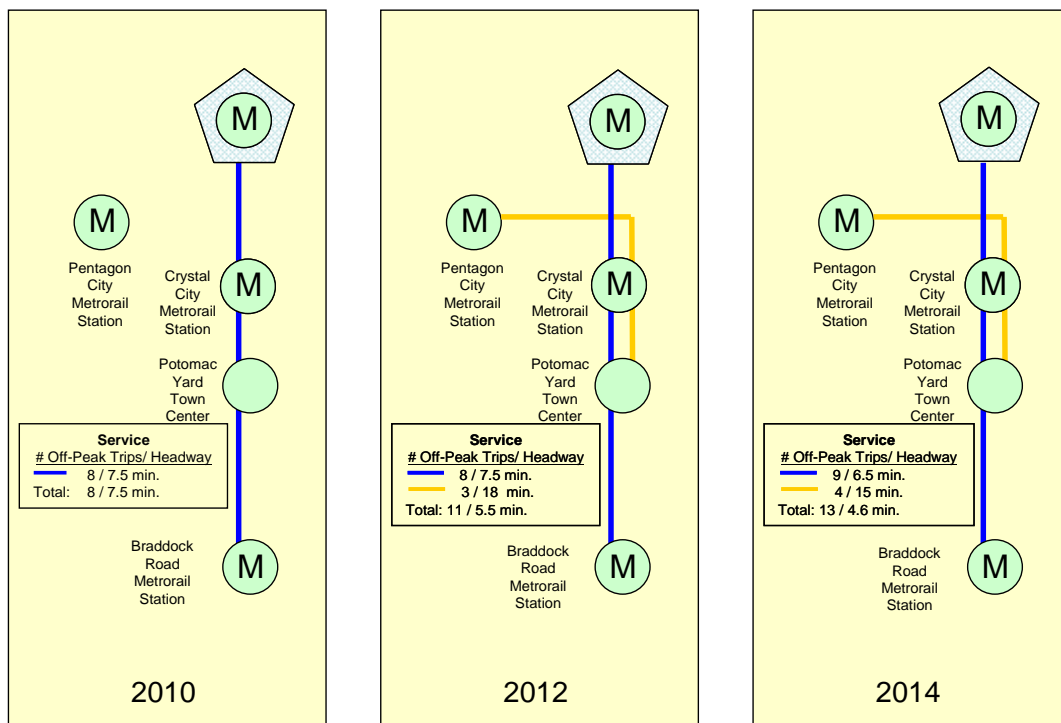
The mid-term service will provide connections between the Pentagon, Potomac Yard Town Center and the Braddock Road Metrorail Station, and between Pentagon City and Potomac Yard Town Center. The routes connecting these destinations will be introduced in phases within the mid-term time frame, as illustrated in Figures 2 and 3. Frequencies will increase with each phase, starting at one vehicle approximately every 3 minutes along the trunk line and eventually equaling one vehicle approximately every 2 minutes (peak period). Service between Pentagon City and Potomac Yard Town Center will be introduced in the second phase. Frequencies shown are adapted to the passenger demand profile as modeled in the 2003 Alternatives Analysis and reflect an assumed bus capacity of 60 passengers.

Figure 2: Mid-Term Peak Service Plan



Note: # of buses assumes a maximum vehicle capacity of 60 passengers

Figure 3: Mid-Term Off-Peak Service Plan



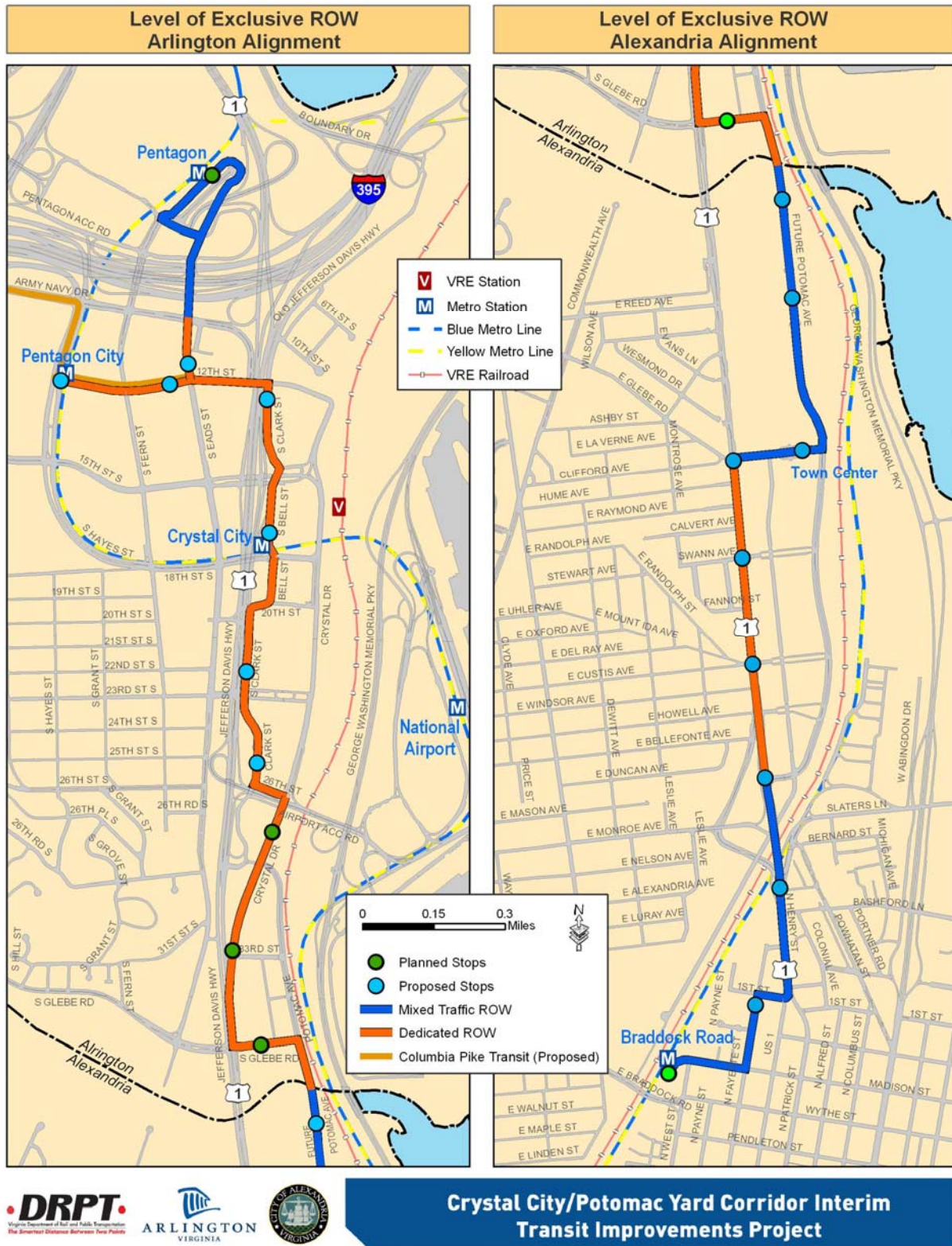
Note: # of buses assumes a maximum vehicle capacity of 60 passengers

Alignment and Level of Exclusive Right-of-Way (mid-term service)

Figure 4 (page 5) illustrates the proposed alignment and level of exclusive right-of-way for the mid-term service. All routes will share a trunk line from the intersection of 12th and Eads streets to Potomac Yard Town Center. This alignment will run along South Clark and South Bell streets through Crystal City, turning onto Crystal Drive in Potomac Yard. The northern portion of the alignment is assumed to be entirely in exclusive right-of-way starting at the intersection of Army Navy Drive and South Eads Street. The alignment will run in mixed traffic along Potomac Avenue behind the existing Potomac Yard Shopping Center before turning west along East Glebe Road at the Potomac Yard Town Center. The alignment will continue south in exclusive lanes along Route 1 to the Monroe Avenue Bridge, where it will transition back to mixed traffic before accessing the Braddock Road Metrorail Station via First, Fayette, and Madison streets.

The transit alignments and specific limits of exclusive transitway along the corridor will continue to be refined as traffic studies, utilities inventories, and design activities are advanced.

Figure 4: Transit Alignment and Level of Exclusive Right-of-Way



Crystal City/Potomac Yard Corridor Interim Transit Improvements Project

3.0 STATION STOPS

Planning for station stops involves the general location of stops, specific station stop siting, and station stop design guidelines. Station stops will be located ¼ mile to ½ mile apart, with the intention of providing access to significant destinations and transfer points, as well as providing for efficient operation of service. Stop locations and configurations identified for the interim service do not preclude any of the longer term improvements as outlined in the 2003 Alternatives Analysis. Station stop locations have been determined based on proximity to activity centers, pedestrian access, and the physical space available for facilities. General stop locations are shown in Table 1. The specific locations and design of stops along the corridor will continue to be refined as design activities are advanced.

Table 1: Stop Locations

Pentagon to Braddock Road Metro Service	Pentagon to Potomac Yard Town Center Service	Pentagon City to Potomac Yard Town Center Service
Pentagon	Pentagon	
12 th Street and Eads Street	12 th Street and Eads Street	
		Pentagon City
		12 th Street & Fern/Eads Street
12 th Street & Clark	12 th Street & Clark	12 th Street & Clark
Crystal City Metrorail Station	Crystal City Metrorail Station	Crystal City Metrorail Station
22 nd Street	22 nd Street	22 nd Street
25 th Street	25 th Street	25 th Street
26 th Street	26 th Street	26 th Street
31 st Street	31 st Street	31 st Street
South Glebe Road	South Glebe Road	South Glebe Road
Potomac Yard – North	Potomac Yard – North	Potomac Yard – North
Potomac Yard – Central	Potomac Yard – Central	Potomac Yard – Central
Potomac Yard Town Center	Potomac Yard Town Center	Potomac Yard Town Center
Hume Street		
Swann Avenue		
East Custis Avenue		
North of Monroe Avenue Bridge		
Slaters Lane		
1 st Street		
Braddock Road Metrorail Station		

Station stop design guidelines involve recommendations for platforms, shelters, passenger information, and other amenities. This study assumes a typical platform that is seventy-five feet long and twelve feet wide, which allows for adequate waiting room, circulation, and boarding, with enough area to ensure that patrons have protection from vehicles in adjacent lanes. These dimensions may be modified to fit local circumstances. Narrower platforms may be used where there are constraints due to narrow right-of-way or adjacent existing conditions. However, platforms less than eight feet in width may not have enough circulation area to accommodate

patrons safely. This study also assumes that platforms will be raised eleven to fourteen inches off the street (typically six to nine inches above the sidewalk) to accommodate level boarding onto low-floor vehicles.

Design guidelines for the shelter and waiting area are based on consultation with citizens, developers, and other stakeholders and with city, county, and agency staff. A preliminary list of station features is summarized in Table 2 below.

Table 2: Station Stop Features

<i>Platform</i>	<ul style="list-style-type: none"> • Typical reinforced concrete platform 75 feet long and 12 feet wide by 14 inches high, with a 15-foot ramp at one end • The typical platform may be narrowed to 8 feet • Smaller platform (30 feet by 8 feet wide) at constrained locations • Stone or tile pavement finishes • Electrical and water connections for lighting and cleaning
<i>Shelter</i>	<ul style="list-style-type: none"> • Typical shelter 40 feet long and 12 feet wide • Shelter overhang provides covered boarding • Appropriate shelters for smaller stops • Design in keeping with adjacent development • Design vocabulary common to all stops along the corridor • Design and configuration may vary by location
<i>Wind screens</i>	<ul style="list-style-type: none"> • Transparent wind screens integral to the shelter structure • Stop identification and other graphics affixed to wind screens
<i>Seating</i>	<ul style="list-style-type: none"> • Benches • Leaning bars
<i>Signage</i>	<ul style="list-style-type: none"> • Station identification signs • Maps and schedule information • Real time bus arrival information
<i>Safety</i>	<ul style="list-style-type: none"> • Emergency telephone • Crosswalks • Additional stop and area lighting
<i>Other amenities</i>	<ul style="list-style-type: none"> • Trash receptacles • Landscaping

4.0 PROJECT IMPLEMENTATION

To advance the physical improvements previously described, and to initiate service along the proposed alignment, several key issues must be resolved and several actions must be taken in an organized sequence. Table 3 presents a checklist of individual issues and actions and the Implementation Strategy documents these items further.

Table 3: Project Development Checklist

1. Service Operations Plan
1.1 Detailed service operations plans developed for each phase of service.
1.2 Coordinated effort among Alexandria, Arlington and WMATA, ultimate responsibility with the final operator.
2. Agreement on Operator and Garage
2.1 Formal designation of WMATA (or other) as operator of the new mid-term service.
2.2 Agreement on the allocation of estimated operating costs.
2.3 Agreement on the allocation of capital costs associated with vehicle procurement.
2.4 Assessment of potential maintenance capacity at existing or future facilities.
2.5 Agreement on branding of vehicles for the mid-term service.
3. Environmental review and design development
3.1 Prepare an Environmental Assessment for the entire corridor focusing on capital improvements and service elements.
3.2 Conduct detailed traffic and utilities analyses within the project corridor.
3.3 Advance civil design activities according to segments of the corridor where transit is to be implemented.
4. Marketing Activities
4.1 Designate a marketing task force with members from the two jurisdictions, WMATA, DRPT, citizens, property owners, and members of the development community.
4.2 Determine which service elements will be branded.
4.3 Develop an advertising campaign.
4.4 Begin physical branding of selected service elements.
4.5 Develop full branding including vehicles, station stops, and the dedicated transitway.
5. Vehicle Procurement
5.1 Continue operations using the new 40-foot low-floor CNG buses WMATA has purchased for use in northern Virginia.
5.2 Add buses incrementally to meet passenger demand through the short term and into the mid term service implementation.
5.3 As necessary, initiate a separate procurement to provide full operating capacity with the introduction of the mid term service.
6. Transitway Construction
6.1 Construct Segment 1 of the Arlington transitway, including station stops.
6.2 Construct Segment 2 of the Arlington transitway, including station stops.
6.3 Construct Alexandria transitway along Route 1, including station stops.
6.4 Construct Segment 3 of the Arlington transitway, including station stops.

The characteristics of the transitway, station stops, vehicles and service plan are used to develop itemized estimates of capital and operating costs. A summary of these is presented in Table 4.

Table 4: Estimated Capital Costs (2005 Dollars)

Cost Item	Arlington		Alexandria	
	Low	High	Low	High
Construction Costs	\$14 Million	\$24 Million	\$10 Million	\$17 Million
Vehicle Costs	\$10 Million	\$15 Million	\$4 Million	\$6 Million
Planning, EA and Final Design Costs	\$1 Million	\$2 Million	\$1 Million	\$1 Million
PM, CM, Admin and Owner's Insurance Program	\$3 Million	\$4 Million	\$2 Million	\$3 Million
Cost Contingency	\$2 Million	\$7 Million	\$1 Million	\$5 Million
Total Capital Costs	\$31 Million	\$53 Million	\$18 Million	\$33 Million

Note: Vehicle procurement costs allocated to Arlington and Alexandria according to estimated daily service hours: 180/71.

Table 5: Estimated Operating Costs (2005 Dollars)

Phase of Mid-Term Service	Arlington	Alexandria
2010	\$4.7 Million	\$3.1 Million
2012	\$6.5 Million	\$3.3 Million
2014	\$7.4 Million	\$4.0 Million

Note: Vehicle operating costs allocated to Arlington and Alexandria according to estimated daily service hours: 180/71.

One of the key issues to resolve in the early stages of continuing project development will be the apportionment of capital costs and operating and maintenance costs among the project sponsors. Project sponsors should designate an operator or operators of the service, any unique characteristics of the vehicle, and the steps toward marketing and branding of the service. It is assumed that vehicle procurement—usually a long lead-time item—will be done in cooperation with a current WMATA order for new buses.

As planning advances, the project sponsors will continue discussions with FTA regarding the progress of environmental review requirements. Design and construction of the transitway and stop facilities will proceed in a phased progression as environmental requirements are met and funding from federal, state, and local sources is secured. An important product of the implementation strategy is to compare the estimated costs for the phased improvements with levels of committed and potential funding. In this way, specific funding needs will be identified and project sponsors will be able to program appropriate measures to assure implementation of the interim improvements. Figures 5 and 6 present the estimated capital and operating costs for the mid-term improvements along with known funding levels.

Figure 5: Arlington Capital and Operating Costs vs. Capital Funding

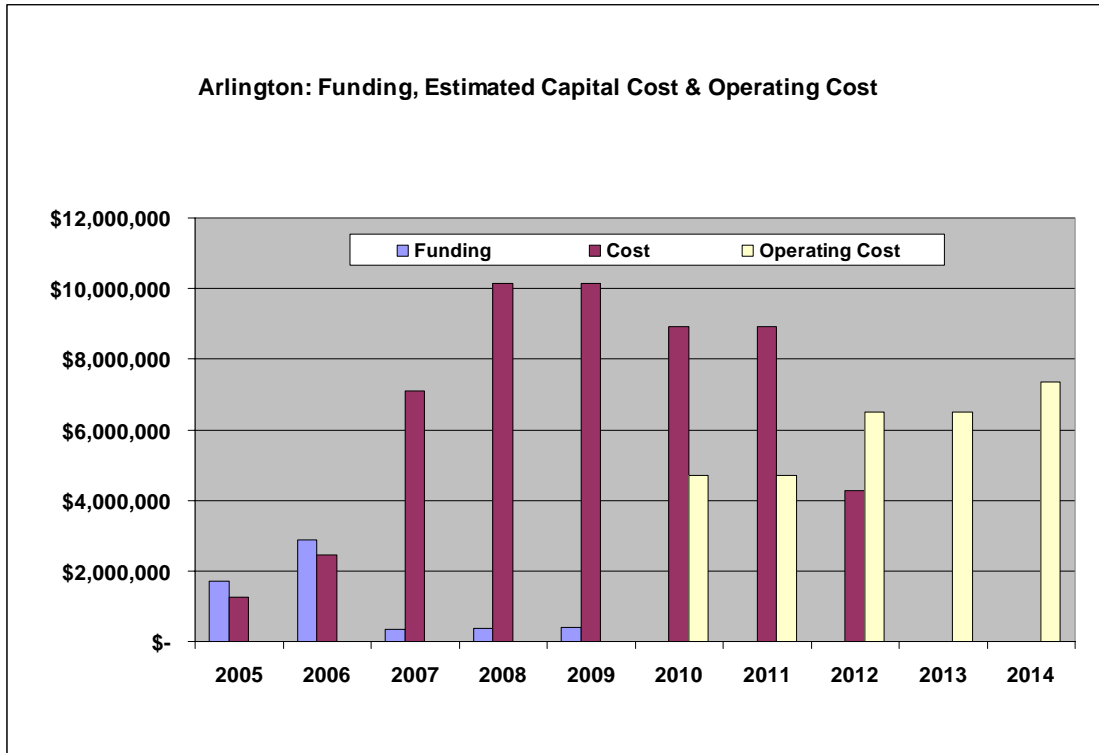
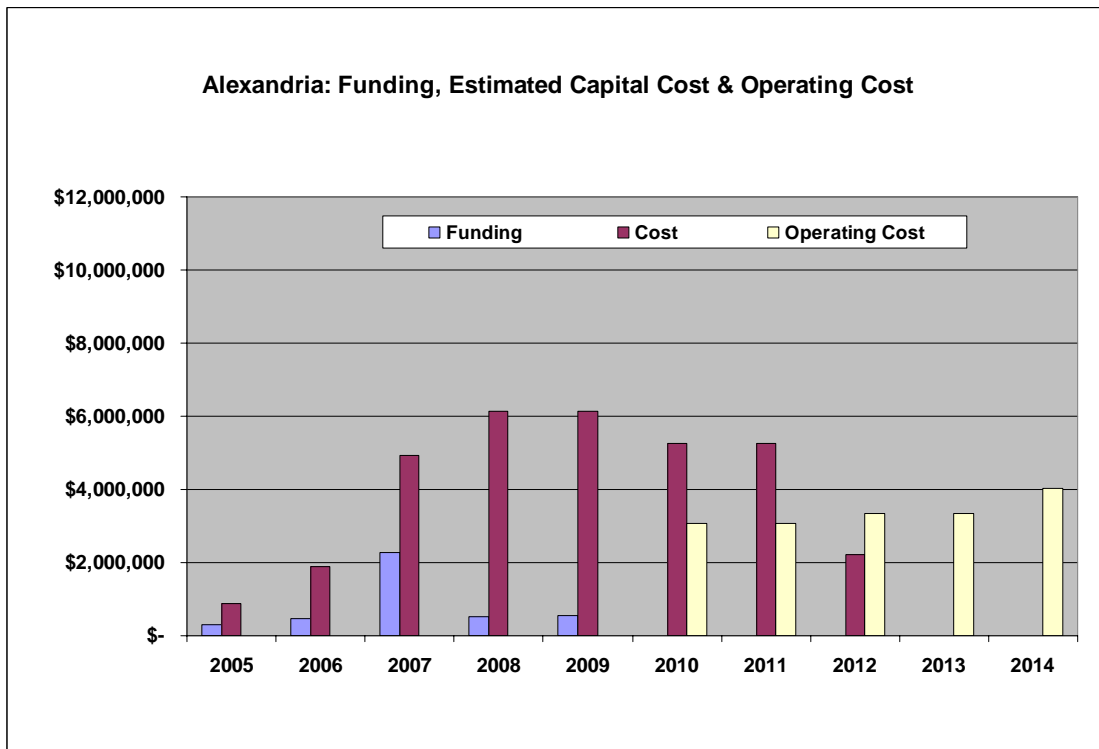


Figure 6: Alexandria Capital and Operating Costs vs. Capital Funding



5.0 NEXT STEPS

This implementation planning process has established a framework for transit improvements in the Crystal City/Potomac Yard corridor. Detailed service plans and facility designs for each phase of corridor development will follow according to the schedule outlined in the Implementation Strategy. Meanwhile, there are several activities that require immediate attention.

Environmental Assessment

To make use of the federal funds that have been appropriated for construction of corridor transit improvements, potential impacts of this project on the economic, social, and natural environments must be documented in an Environmental Assessment (EA).

Traffic and Transportation

Arlington and Alexandria staff are evaluating traffic and transportation implications of the proposed alignment, dedicated transitway configurations, and station stop locations recommended in this study. The analysis, including any potential impacts on existing roadways will be summarized in the EA.

Utilities Conflicts

Arlington and Alexandria staff have compiled preliminary data and are undertaking further analysis to document the locations of utilities and highlight potential conflicts. This information may lead to adjustments in the proposed alignment and station stop locations, and it could affect estimated costs for the improvements.

System Identity, or "Branding"

A task force will be convened to formulate and advance a branding concept, to include the appearance and design of vehicles, station stops, and other features.

Agreements on System Operations and Maintenance

An agreement should be formalized among the project sponsors to include designation of WMATA as the operator of the new mid-term service, allocation of estimated operating costs, allocation of capital costs associated with vehicle procurement, and resolution of maintenance capacity issues.