



DOCKET ITEM # 13

ROUTE 1 TRANSITWAY

Issue: Approval of the design for the Route 1 Transitway consistent with the 2008 Transportation Master Plan and the Corridor A Transitway alignment amendment to the 1992 Transportation Master Plan	Planning Commission Hearing:	May 1, 2012
	City Council Hearing:	May 12, 2012
Staff: Susan Gygi, Department of Transportation & Environmental Planning (susan.gygi@alexandriava.gov) Jeffrey Farner, Department of Planning & Zoning (jeffrey.farner@alexandriava.gov)		

I. Recommendation:

Staff recommends approval of the design for the Route 1 transitway consistent with the 2008 Transportation Master Plan and the Corridor A Transitway alignment amendment to the 1992 Transportation Master Plan.

II. Background:

The City of Alexandria and Arlington County have been working jointly since 1999 to develop and implement improved transit services in the Crystal City/Potomac Yard area based on recommendations of the *Crystal City/Potomac Yard Area Transportation Study*. In March 2003, the *Crystal City/Potomac Yard Transit Corridor Alternatives Analysis* was completed, finding that the proposed transit corridor would benefit travel within the area and recommending that the project should be advanced with bus rapid transit (BRT) as the locally preferred alternative. This concept was further refined during the *Crystal City/Potomac Yard Transit Corridor Interim Transit Improvement Project*, completed in December 2005.

In April 2006, Planning Commission considered and recommended an amendment to the Master Plan adding the Crystal City/Potomac Yard (CCPY) Transit Corridor to the transportation element of the plan and designating Route 1 (Jefferson Davis Highway) as the preferred corridor location north of Monroe Avenue Bridge (MPA #2005-0006). This amendment was subsequently adopted by City Council in April 2006 and enacted by Ordinance Number 4450 on May 20, 2006.

On June 5, 2007, the Planning Commission recommended the following in relation to the Route 1 transit corridor:

"Route 1-Jefferson Davis Highway shall be designated as a transit corridor. Within the corridor, high-capacity transit service connecting Braddock Road Metrorail Station to the Crystal City Pentagon area may be developed in general conformance with the Crystal City Potomac Yard Transit Corridor Alternatives Analysis and compatible with the operation requirements of both bus rapid transit (BRT) and light rail transit (LRT). The dedicated transit lanes are to be provided for the Crystal City Potomac Yard Transit Corridor, on Route 1 north of the Monroe Avenue Bridge shall be provided within a central landscaped median, except that the transit lanes may connect to Potomac Avenue in the vicinity of the Town Center until sufficient right-of-way can be obtained. The final-type and design of any future dedicated transit service shall require approval by the Planning Commission and City Council. Any future transit lanes should maintain the character of Route 1 as an urban boulevard with a continual median, trees and street trees, and shall be reserved in perpetuity for exclusive public transit use."

On June 16, 2007, City Council approved the Planning Commission recommendation and designated the median area as the location for the dedicated transit lanes.

The Transportation Master Plan (2008) recommended that designated transit lanes be provided on Route 1.

Following adoption of the master plan amendment, the *Crystal City/Potomac Yard Transit Improvements Environmental Review* was completed and notification has been received of Federal Transit Administration's concurrence with the finding that under National Environmental Protection Act (NEPA) regulations the project qualifies as a documented categorical exclusion, which will shorten the required federal review process (2007 and updated in 2011). Additionally, the Crystal City/Potomac Yard transit corridor project was submitted to the National Capital Region Transportation Planning Board (TPB) as a new project for the 2007 update of the regional Constrained Long Range Plan (CLRP) and the FY 2008-2013 Transportation Improvement Program (TIP). The project has now been included in TPB's regional air quality conformity analysis, and in April, 2011, City Council approved a Bus Rapid Transit (BRT) facility in the median of Route 1 for design/build.

The proposed station locations and route were identified as shown in **Figure 1**. Segment B (Route 1 from Potomac Avenue to East Glebe Road) is being funded through a federal TIGER grant under a design/build contract. A design/build was selected due both to both time and budget constraints of the grant. A TIGER

grant is the sole source of funding for this project. The total amount (including the station platform) is \$8.5 million. The improvements recommended in this report are within the approved budget.

III. Community Input to Date:

Staff has met with the community throughout the process, beginning with an outreach meeting for the Crystal City/Potomac Yard Area Transportation Study in the fall of 1999. In 2002 to 2003, the City met with the Chamber of Commerce and five civic associations in the area for the preparation of the Crystal City/Potomac Yard Corridor Transit Alternatives Analysis. There were also a number of civic associations meetings, a public workshop and an open house in June 2005 to get feedback and suggestions during the preparation of the Crystal City/Potomac Yard Corridor Interim Improvement Project, and a public hearing in October 2006 for the Crystal City/Potomac Yard Transit Improvements Environmental Review. Additionally, staff has presented to PYDAC (Potomac Yard Design Advisory Committee) on May 16, 2005, February 13, 2006, and April 11, 2012, the Federation of Civic Associations on January 25, 2006, and hosted a community workshop on March 2, 2006. The analysis of the pros and cons of the center median transitway versus the curbside option was discussed with the community on March 8, 2007. On September 28, 2010, an update was given to City Council on the Crystal City/Potomac Yard (CCPY) Transitway implementation and funding of the Transitway within Arlington County and the City of Alexandria. A community meeting on the current design proposals for the transitway is being held on April 18, 2012.

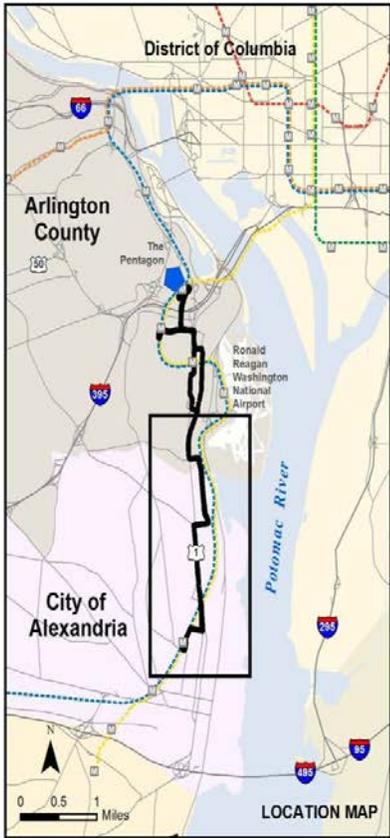
Concerns raised by some community members include pedestrian and motorist safety, traffic flow on Route 1 and the continued provision of left turn lanes on Route 1. In response to the concerns regarding safety, staff reviewed the operations of “center” lane BRT in several comparable cities and, further explained that new pedestrian crosswalks at signalized intersections will safely encourage pedestrians to access the transit platforms/bus stops. Landscaping and bermed medians will discourage transit users and other pedestrians from mid-block crossings. The intersection are designed with unique color and texture (as discussed below) to give safe and attractive crossings for pedestrians. The distance between the crosswalk and the bus-station will typically be 75 to 100 feet, and the width of the median in this section will accommodate an ADA compliant access with landscaping on both sides to protect the transit rider from traffic on Route 1 and the buses in the transit lanes. The bus station will be raised 10 inches above the adjacent street pavement and will be enclosed on the vehicular traffic side of Route 1 to allow for near-level boarding of passengers.

A number of community members expressed their support for the median option on Route 1, most significantly based on the higher efficiency of service anticipated as compared with the curbside alternative, as well as the perception of a more intimate, pedestrian-friendly roadway. The median transit lanes break up the “sea of asphalt” on Route 1 into two smaller “streets” separated by the Transitway, landscaping, and street trees along Route 1. This helps connect the existing neighborhoods west of Route 1 with the new neighborhoods east of Route 1. There is extensive new streetcasing along the east side of Route 1 that will be constructed by the Potomac Yard South developments. On the west side of Route 1, there is currently limited right-of-way for streetscape improvements. These streetscape improvements will be implemented as part of future improvements or as part of future redevelopment. The project western terminus for the transit project is the eastern curb and gutter along the southbound Route 1 lanes which remains un-touched.

IV. Project Description:

The Crystal City/Potomac Yard corridor runs north-south between the Pentagon and Pentagon City in Arlington County and Braddock Road Metrorail Station in the City of Alexandria. **Figure 1** shows the project location in a broader, regional context; and the map at right shows the system alignment divided into segments focusing on the area within and around the City of Alexandria. As indicated in the legend below, the purple lines represent portions of the alignment in which transit vehicles will operate in mixed traffic, while the orange lines represent portions in which transit vehicles will operate in an exclusive right-of-way.

Figure 1 – CCPY Transitway Location and Route



**Crystal City/Potomac Yard
 Transit Improvement Project
 Section B**

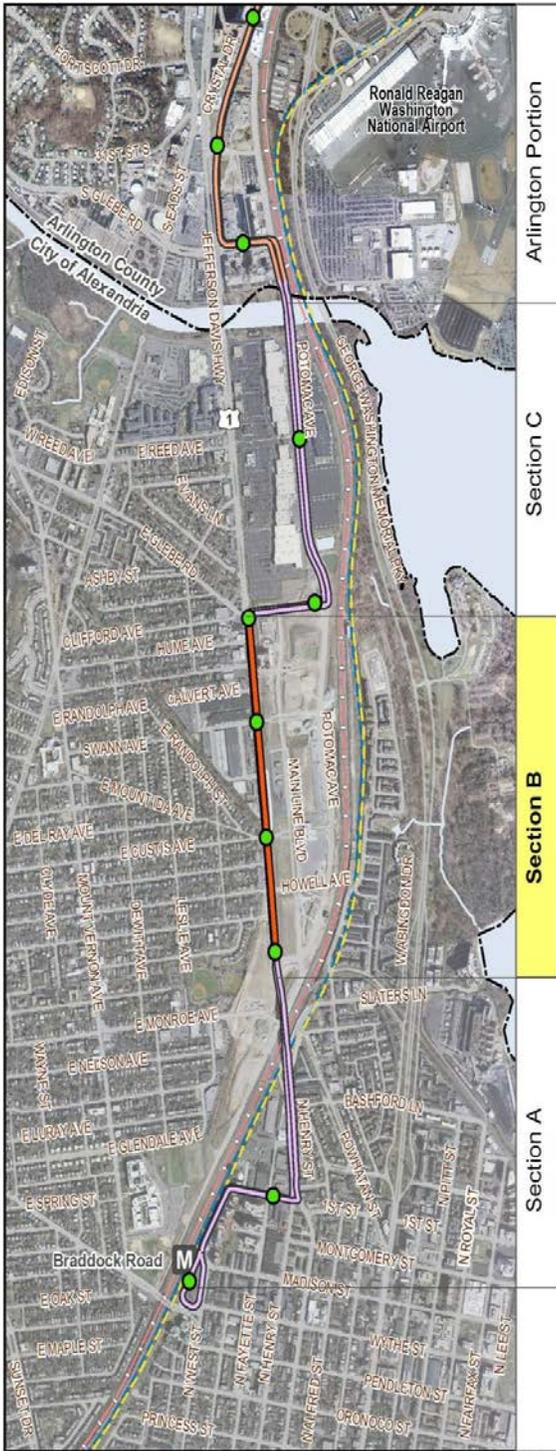
Legend

Proposed Alignment

- Dedicated Lanes for Transit - Section B
- Dedicated Lanes for Transit
- Transit Vehicles in Mixed Traffic
- Proposed Station Stop

Other Features

- M Metrorail Station
- Metrorail Blue Line
- Metrorail Yellow Line
- CSX Railroad
- Section B: Tiger Grant Project



Arlington Portion
 Section C
 Section B
 Section A

This project requires the widening of Route 1 northbound to the east (currently being completed by the Potomac Yard South developer). The existing northbound lanes are rebuilt as bus-only usage (one lane in each direction). The existing southbound lanes remain untouched.

Landscaped median areas are located on either side of the transit-only lanes (as shown in Figure 2) and designed to enhance the pedestrian and transit user experience. The median will be reduced at specific intersections to allow for a left turn lane in either direction from the northbound and southbound general purpose lanes. Transit stops are located in the median areas flanking the transitway.

Predominately, the transit stops are located as far-side stops (immediately downstream of a signal-controlled intersection) with the exception of the southbound stop at Potomac Avenue which is located within the transit only segment as a near side stop within the Transitway.

For the section both north and south of Segment B of the transitway (Route 1 BRT), buses will operate in shared outer lanes.

Figure 2: Cross Section of Route 1



IV. Staff Analysis

A. Design Elements

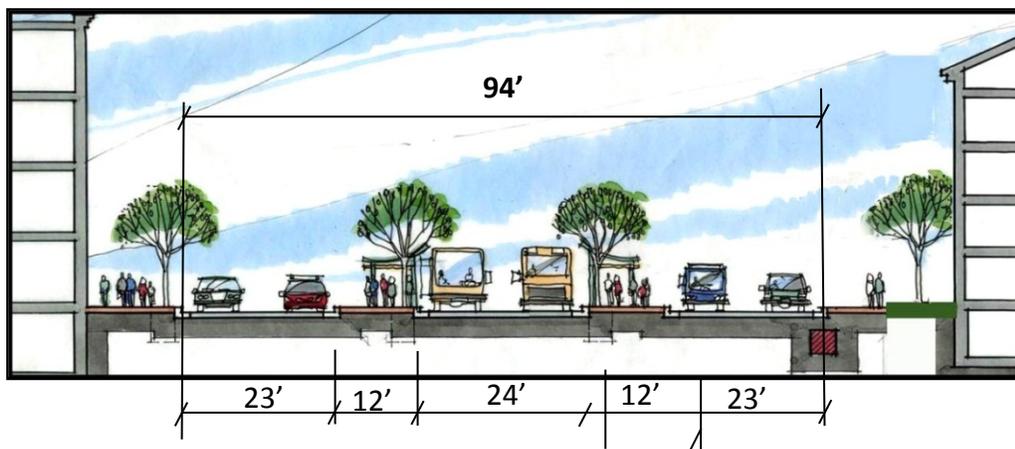
Design elements are a critical component of the Route 1 Transitway. The transitway is one of the largest capital improvement projects to be built in the City of Alexandria. Its design under consideration by the Planning Commission for approval needs to:

1. highlight the transitway as a special transportation feature – not just another roadway;
2. be designed in a manner for pedestrians accessing and using the stations.
3. have elements that brand it uniquely as a part of Alexandria, while still having some relationship to the portion of transitway in Arlington;
4. focus on sustainability; and
5. set a standard for future transitways to be built in other parts of the City.

One of the important themes related to the Route 1 Transitway project is sustainability. Clearly the most sustainable aspect of the project is that the transitway will provide mass rapid transit, which has the potential to significantly reduce the use of single occupancy vehicles on a prominent roadway corridor.

Staff has identified ways in which the special nature of the transitway can be reflected in its design. There are several ways in which this may be accomplished: design of the runningway, design of the medians flanking the runningway, and design of the stations, each identified below.

Figure 3: Right-of-Way allocation of Route 1



Staff has focused a great deal of attention at the pedestrian crossings and transit stops (See [Figure 4](#)). Staff is recommending concrete colored crossings across Route 1 to make it clear that the pedestrian and

transit user are a priority. The Station area is planned to include color within the station platform area to further indicate a difference in runningway between general purpose lanes and transitway lanes. The color and pattern (score marks on the station pad) are intended to represent an abstract view of the transportation history of Potomac Yard and the rail lines. The transitway is the next evolution of transportation for Potomac Yard. The unique paving color and texture will also visually differentiate the transitway from the vehicle lanes.

It should be noted that the transit station (other than the station platform) are not part of this construct. The stations amenities, including: lighting, signage, shelters, benches, off-board fare collection machines, next bus, trash receptacles, etc. will come back to the Planning Commission and City Council for approval, and, at that time, there may be opportunities to improve the user experience and the aesthetics at the stations.

The recommendation to utilize concrete for the runningway was made for the following reasons: Long lifespan, minimal maintenance, can withstand braking maneuvers of heavy vehicles (buses) in extreme temperatures, and provides for a visual separation from adjacent asphalt general-purpose lanes. Other options considered and rejected included asphalt, porous pavement, pavers, and grass. Each of these alternatives had issues related to either maintenance, structural stability, or costs versus benefits.

Figure 4: Perspective of Pedestrian Crossing of Route 1



(Please note: the above figure should be used for illustrative purposes)

B. Signals and Signal Priority

Signals for the Transitway will be located at each of the current signalized intersections. Through movements on the Transitway will be accomplished during the same phase as thru movements in the northbound and southbound direction(s). Left turning vehicles from the general purpose lanes will have either leading or lagging exclusive left-turn phases within the signal timing to minimize conflicts of transit and general purpose vehicles.

At the transition points of the Transitway (Potomac Avenue and East Glebe Road for this segment), transit signal priority will be included to allow for a separate phase for transit vehicles to access the Transitway. These signals will be actuated and only triggered when a transit vehicle is in the vicinity and will allow for safe passage of the transit vehicle back to the general purpose lanes.

C. Transit stops and Pedestrian Crossings

One of the goals of the project is to provide accessibility, increase safety, and enhance the pedestrian experience to/from the transit stations as well as across Route 1. The primary focus of the intersections should be placed on pedestrians.

Four intersections within the Route 1 BRT segment have been identified for transit stops as listed below:

- Potomac Avenue – both northbound and southbound stations location north of Potomac Avenue within the Transitway
- Swann Avenue – far side stops (located in the direction of travel on the far-side of the signalized intersection)
- Custis Avenue – far side stops (located in the direction of travel on the far-side of the signalized intersection)
- East Glebe Road – southbound station located south of East Glebe Road in the Transitway. Northbound station is to be located on East Glebe Road in Potomac Yard

Pedestrian crossings at these four intersections will include increased visual clues for both the pedestrian and motorist. Options include:

- Transit stations located at signal-controlled intersections
- Colored concrete for pedestrian crossings of Route 1
- High emphasis crosswalks on cross-streets of Route 1
- Additional lighting at the transit stations
- Countdown pedestrian displays

Operations of the pedestrian crossing will look at the potential to provide additional safety to pedestrians at signalized intersections. In addition, extended median noses will be considered to increase the pedestrian refuge areas. The medians are designed to discourage mid-block pedestrian crossings – the bermed area for the trees on the west and the bio-swale area on the east, along with plantings in the groundplane should accomplish this.

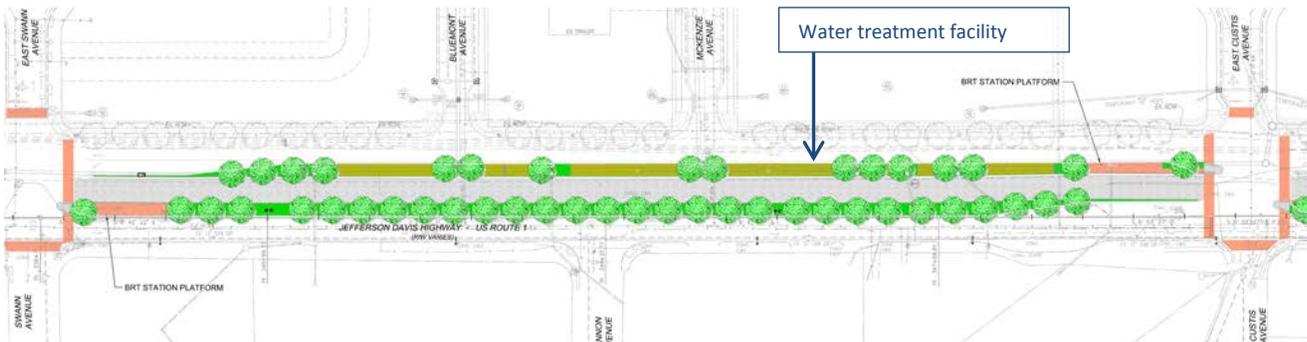
The design of the stations has not begun and is a second phase of the design process; however, the goal is to create stations that will be unique and functional. They will be one of the most important features that will differentiate the transitway. The platform for the transit station is anticipated to be concrete based on the same issues as stated under the transitway pavement section above but special treatments are being considered to allow for an art element as well as to clearly identify the stations as pedestrian areas.

D. Landscape and Stormwater Treatment

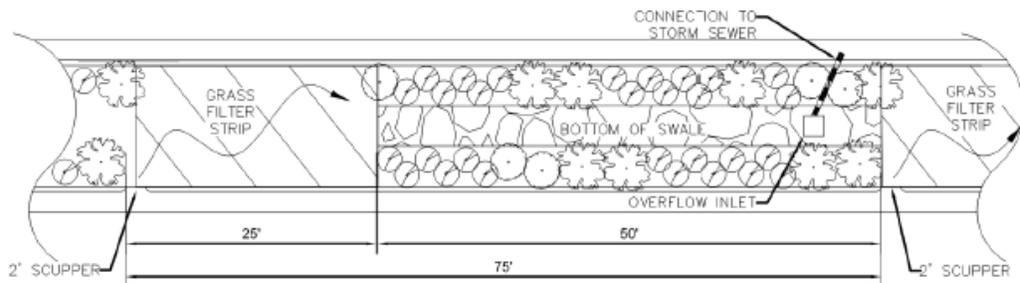
The landscaped areas within the median are anticipated to include drought resistant plantings with shade trees placed at a spacing of 30-foot centers. The tree spacing will be consistent with the spacing as identified along the east side of Route 1 adjacent to Potomac Yard, which is being constructed as part of

the Potomac Yard development. However, the median on the east side of the transitway will be more unique and will incorporate a LID (low impact development) feature to capture and treat stormwater runoff from the runningway and the northbound lanes of Route 1. (See **Figure 5**). Both sides of the median will have low plantings, such as shrubs, grasses and perennials, which will screen the runningway from drivers in the northbound and southbound lanes. The screening is an important design element to visually reduce the width of the roadway. The plantings should be installed in mass amounts to provide seasonal color and movement throughout the corridor. The planting schedule has not been determined but could include trees, shrubs, ornamental grasses and perennials, however, they must be selected for their ability to thrive in an area that will have a relatively shallow soil base and will be subject to a great deal of road pollution.

Figure 5: Proposed Landscape and Water Treatment Facility in west median along transitway between Maskill and Howell



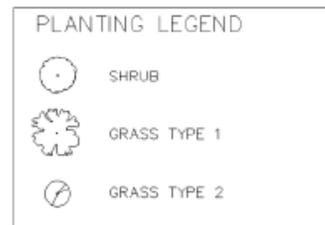
Detail of Water Treatment Facility



PLAN VIEW

NOTES:

- TYPICAL PLANTING SHALL BE APPROXIMATELY 85% HERBACEOUS SPECIES AND 15% SHRUB SPECIES.
- SHRUB SPECIES SHALL BE FROM TABLE 3.11-7B, RECOMMENDED PLANT SPECIES FOR USE IN BIORETENTION FROM THE VIRGINIA STORMWATER MANAGEMENT HANDBOOK, WITH A HIGH TOLERANCE TO SALT AND A SPECIES FOUND IN THE COASTAL PLAINS.
- HERBACEOUS SPECIES SHALL BE FROM TABLE 3.11-7C, RECOMMENDED PLANT SPECIES FOR USE IN BIORETENTION FROM THE VIRGINIA STORMWATER MANAGEMENT HANDBOOK, WITH A HIGH TOLERANCE TO SALT.



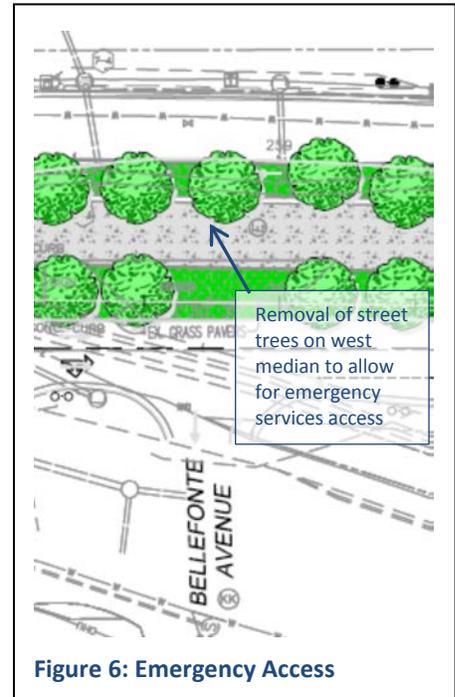
E. Emergency Services Integration

To allow for Emergency Services access across Route 1, mountable curb (curb of only 4-inches in height) has been designed in the following locations along the east median of the transitway:

- Hume Avenue
- Raymond Avenue
- Windsor Avenue
- Bellefonte Avenue

This mountable curb would allow for vehicles traveling north on Route 1 to utilize the transitway, bypassing traffic, mount the curb, and access roadways on the west side of Route 1. Similarly, if an emergency vehicle is exiting one of the roadways on the west side of Route 1, the vehicle could enter into the Transitway and travel it's full distance or to the next signalized intersection.

To accomplish this, landscaping along the east median in the areas noted above will be removed based on the necessary turning radii of the largest vehicle to allow the usage of emergency vehicles across the median (See **Figure 6**). All efforts will be made to minimize the disruption of the tree cadence and visual experience.



V. Continued Community Input

A public meeting was held on April 18, 2012 at Cora Kelley Recreation Center to discuss the design aspects of the Route 1 BRT as outlined above.

VI. Staff Recommendation

Staff recommends that the Planning Commission find that the design for the Route 1 Transitway are in conformance with the Master Plan goals for this project and that the current design direction is appropriate, subject to the following:

- Station locations will be constructed at the following locations:
 - Potomac Avenue –northbound and southbound transit stops located on the north side of intersection within the BRT
 - E Swann Avenue – far side stops in northbound and southbound directions
 - E Custis Avenue – far side stops in northbound and southbound directions
 - Southbound at East Glebe Road (northbound stop will occur along East Glebe Road in Potomac Yard)
- Maintain a cross section and right-of-way allocation including two general purpose lanes in each of the northbound and southbound directions, 12-foot medians on either side of the Transitway separating the general purpose lanes from the transitway, with the Transitway consisting of two lanes (one lane in each direction) for exclusive transit usage.
- Currently, the plan includes left turns at signalized intersections where the median will be replaced with left turn bays to allow for continued access to the neighborhoods on either side of Route 1. The signalized intersections include:
 - Potomac Avenue
 - E Swann Avenue
 - E Custis Avenue
 - E Glebe Road

- Utilize concrete for the Transitway running way including colored concrete at station locations and a second color of colored concrete for the pedestrian crossings across Route 1 as generally depicted in **Figure 4**.
- Improvements to the pedestrian experience should be sought through the use of colored crosswalks, visual cues, lighting, and signal timing.
- Intentional cadence of trees and plantings will be implemented within the Landscape areas to mimic the cadence along the east side of Route 1. Planting schedules have not been determined but tree species will include large shade trees approximately 30ft. on center types with high branches, suitable for roadways and streetscapes.
- Stormwater facilities will be included in the design between Maskill Avenue and Howell Avenue. The specific design is under consideration. If possible, the cadence of trees along the east median will be maintained as generally depicted in **Figure 5**.
- For emergency access, the cadence of trees will be disrupted at the following locations along the west median:
 - Hume Avenue
 - Raymond Avenue
 - Windsor Avenue
 - Bellefonte Avenue
- Continued consideration of environmentally friendly and context sensitive design elements.

STAFF

Richard Baier, Director, Transportation and Environmental Services

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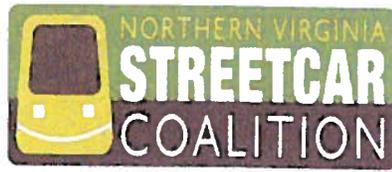
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Docket Item No. 13
Route 1 Transitway

April 30, 2012

Re: Planning Commission docket item 13, May 1, 2012

Chairman Komoroske and Members of Planning Commission:

The Northern Virginia Streetcar Coalition is pleased to see that progress is being made toward the construction of the Jefferson Davis Highway Transitway (Alexandria Corridor A) and we appreciate your direction as far back as 2007 that high-capacity service on Corridor A be compatible with both bus rapid transit and light rail (streetcars).

The designs proposed in the staff report appear appropriate and suitable for the Route 1 corridor. The transitway is to look distinctive and be easily accessible to pedestrians using the station. Additional care has been taken to enhance pedestrian safety throughout the corridor, and to provide landscape treatment to refresh the eye and help separate the transportation elements from the surrounding built environment. NVSC supports the design proposals in the staff report, as they apply to the near-term alternative of BRT service along the Transitway.

NVSC would like to take this opportunity to reiterate that, although the Transitway is likely to be initially used by buses, approvals from the Planning Commission and City Council at various stages of the implementation process should be mindful of the eventual transformation of the Transitway from bus service to streetcar service. Elements of the transitway proper should be designed so as to facilitate the transition to streetcars, both from level of effort and from cost standpoints; at a minimum the adopted design and construction plans should not preclude future conversion to streetcars (for example, if the transitway is too narrow or the turning radii inappropriate).

We appreciate your attention to the details of the short-term design of the transitway and urge you to also note for the record the potential future conversion to a rail mode of transportation.

Northern Virginia Streetcar Coalition Board of Directors

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