



Corridor A



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Kimley-Horn and Associates, Inc.



Transitway Corridor Feasibility Study

Corridor A (North-South)

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King Street Trolley (Old Town, Alexandria)

Background

Traffic congestion is a challenging reality in nearly every urban community in the Washington Metropolitan area. Peak periods extend for multiple hours in the morning and evening of typical weekdays. Incidents and special events occur on a regular basis and add to already challenging travel conditions. Alexandria is subject to travel demand from residents and workers within its jurisdictional boundary and by people traveling through the city. Improving people's mobility by solely adding car-carrying capacity along existing transportation corridors is an investment with diminishing returns in Alexandria. The physical, monetary, societal, environmental, and other costs of widening existing streets and building new streets are vastly disproportionate to benefits that would be realized.

Alexandria's leaders, benefiting from comprehensive evaluations of the city's and region's transportation system recognize that a transportation strategy focused on multimodal mobility has the potential to provide the most significant benefit to the city at a manageable cost. A cornerstone of the city's multimodal approach to transportation is high-quality and -capacity transit facilities and services. These transit facilities and services have the potential

to offer travelers seamless trips, time savings, real-time information, desirable amenities, and an enjoyable travel experience.

Transportation Master Plan Context

The Alexandria *Transitway Corridor Feasibility Study* was inceptioned to build on principles and concepts developed in the city's adopted *Transportation Master Plan* (2008), which envisions the following:

"...a transportation system that encourages the use of alternative modes of transportation, reducing dependence on the private automobile. This system will lead to the establishment of transit-oriented, pedestrian friendly village centers, focused on neighborhood preservation and increased community cohesion, forming a more urban, vibrant and sustainable Alexandria. The City will promote a balance between travel efficiency and quality of life, providing Alexandrians with transportation choice, continued economic growth and a healthy environment."

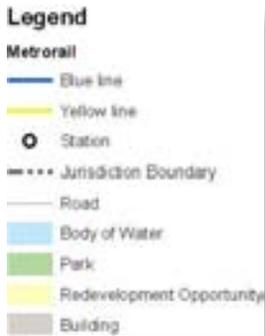


Figure 1.1: Metrorail in Alexandria

The City's transportation vision, articulated in the *Transportation Master Plan*, is supported by the following guiding transportation principles:

1. Alexandria will develop innovative local and regional transit options.
2. Alexandria will provide quality pedestrian and bicycle accommodations.
3. Alexandria will provide all its citizens, regardless of age or ability, with accessibility and mobility.
4. Alexandria will increase the use of communications technology in transportation systems.
5. Alexandria will further transportation policies that enhance quality of life, support livable, urban land use and encourage neighborhood preservation, in accordance with the City Council Strategic Plan.
6. Alexandria will lead the region in promoting environmentally friendly transportation policies.
7. Alexandria will ensure accessible, reliable and safe transportation for older and disabled citizens.

Alexandria's citizens are already served by the city's interconnected network of streets; local bus service principally provided by DASH and Metrobus; Metrorail services along the Blue and Yellow lines at the Van Dorn, Eisenhower Avenue, King Street, and Braddock Road stations; and a growing network of sidewalks, trails, and bikeways. The *Transportation Master Plan* provides guidance for the long-term adaptation of the city's transportation system to expand pedestrian and bicycle networks, high-quality transit services and facilities, and the role of streets.

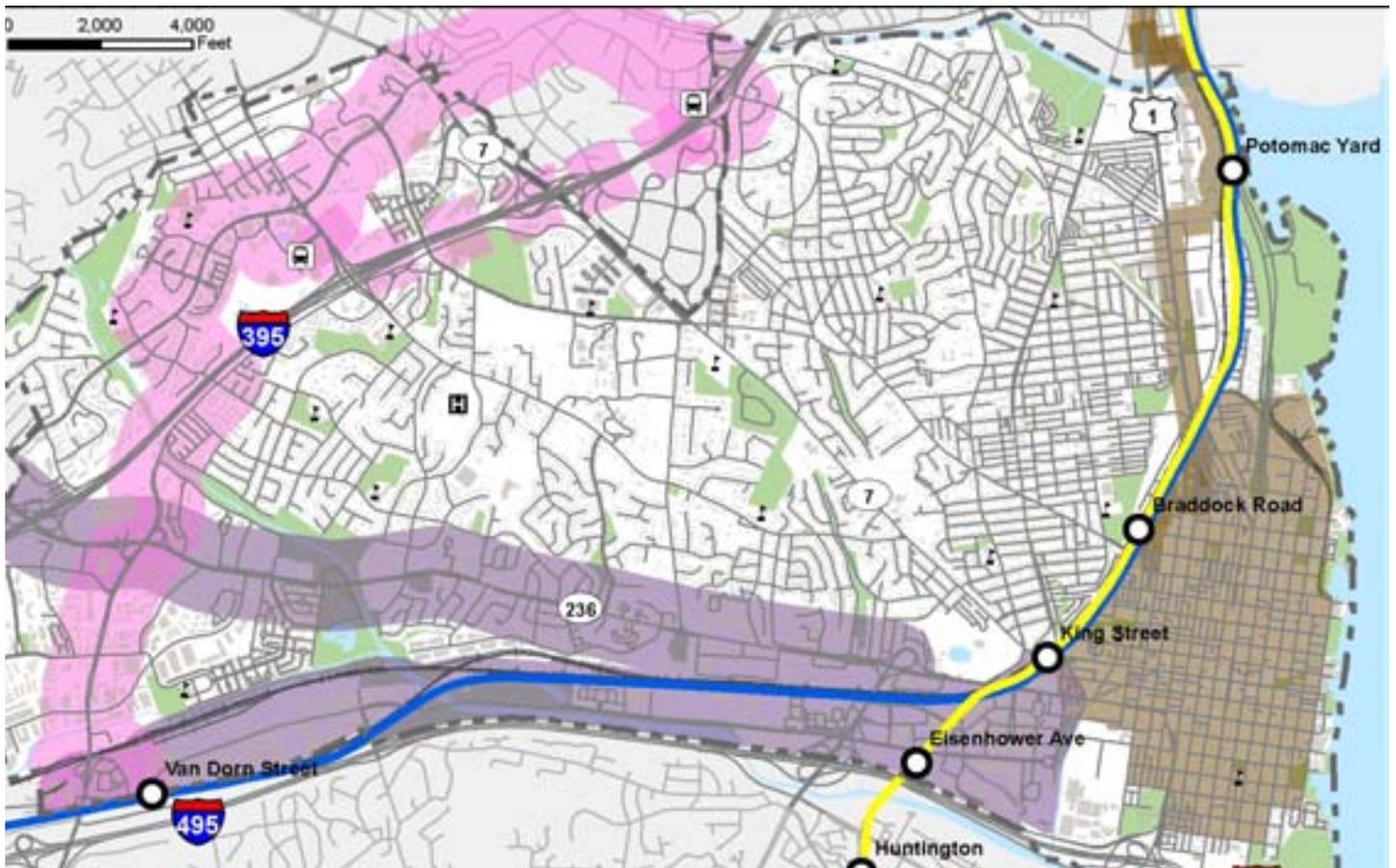
While a valuable asset to the Washington Metropolitan area and Alexandria, Metrorail's alignment through the city limits its ability to serve the entirety of Alexandria (Figure 1.1). Regional bus services augment Metrorail by providing a significant amount of coverage throughout the city; however, they are not able to provide the quality and frequency of service ultimately envisioned by city leaders and desired by the traveling public. To realistically achieve the goal of offering high-quality transit services and facilities in key corridors citywide, the *Transportation Master Plan* identified three corridors (Figure 1.2) for high-quality, frequency, and capacity transit service expansion.

Corridor A: North-South

This corridor would approximately follow US 1 (Jefferson Davis Highway and Patrick and Henry Streets) from the Fairfax County line on the south to the Arlington County line on the north. It would have the potential to seamlessly connect to planned transit corridors in Fairfax and Arlington Counties. Corridor A would provide services to through commuters who currently drive along the US 1 corridor and to residents and employees with origins and destinations along the corridor; would function as an alternative to Metrorail services (Blue and Yellow lines); and would improve access to key destinations within the city and in Fairfax and Arlington Counties such as Old Town, Potomac Yard, Crystal City, the Pentagon, and Ft. Belvoir.

Corridor B: Duke Street/Eisenhower Avenue

This corridor would follow either Duke Street or Eisenhower Avenue between Fairfax County on the west and the vicinity of the King Street Metrorail station on the east. It has the potential to serve the Eisenhower East area,



Landmark Mall, Foxchase, Alexandria Commons, the King Street Metrorail station, and portions of Old Town. The alignment of the corridor in an approximate east/west orientation also would allow it to connect to Corridor A at US 1 and to Corridor C at Van Dorn Street.

Corridor C: Van Dorn Street/Beauregard Street

This corridor would run along portions of Walter Reed Drive, Beauregard Street, Sanger, Avenue, and Van Dorn Street. On the north, the corridor could extend to the Pentagon area and/or could connect to Shirlington. On the south, the corridor would directly connect to the Van Dorn Street Metrorail station, Corridor B, and eventually into Fairfax County. Key destinations along the corridor include the Van Dorn Street Metrorail station, Landmark Mall/Van Dorn Street commercial areas, Kingstowne, the Mark Center, Shirlington, and the Pentagon.

Transportation Master Plan Transitway Goals

The *Transportation Master Plan* states that the implementation of transit facilities and services in these corridors would seek to achieve the following:

- Provide a seamless transit feeder network
- Focus investments on mobility needs
- Integrate key elements with transit plans in surrounding jurisdictions
- Advocates policy to encourage future transit supportive land-use

Legend



Figure 1.2: Transportation Master Plan Identified Transitway Corridors

1. Columbia Pike (Pike Ride)
2. Richmond Highway Express (REX)
3. Georgia Ave./7th St.
4. Crystal City-Potomac Yard
5. Southern Ave. Metro-National Harbor
6. Wisconsin Ave./Pennsylvania Ave.
7. University Blvd./East-West Highway
8. Sixteenth St. (DC)
9. Leesburg Pike
10. Viers Mill Rd.
11. New Hampshire Ave.
12. H St./Benning Rd.
13. Georgia Ave. (MD)
14. Greenbelt-Twinbrook
15. East-West Highway (Prince George's)
16. Anacostia-Congress Heights
17. Little River Tike/Duke St.
18. Rhode Island Ave. Metro to Laurel
19. Mass Ave./J St./Florida Ave./8th St./MLK Ave.
20. Rhode Island Ave.
21. Eastover-Addison Rd. Metro
22. Columbia Rd./Columbia Pike - MD US 29
23. Fourteenth St. (DC)
24. North Capitol St.

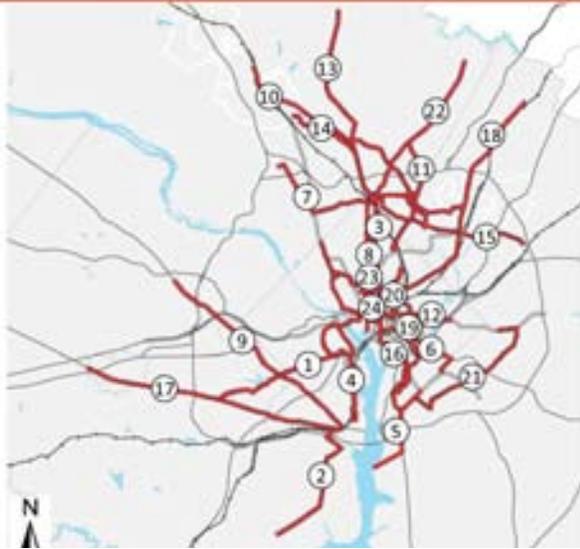
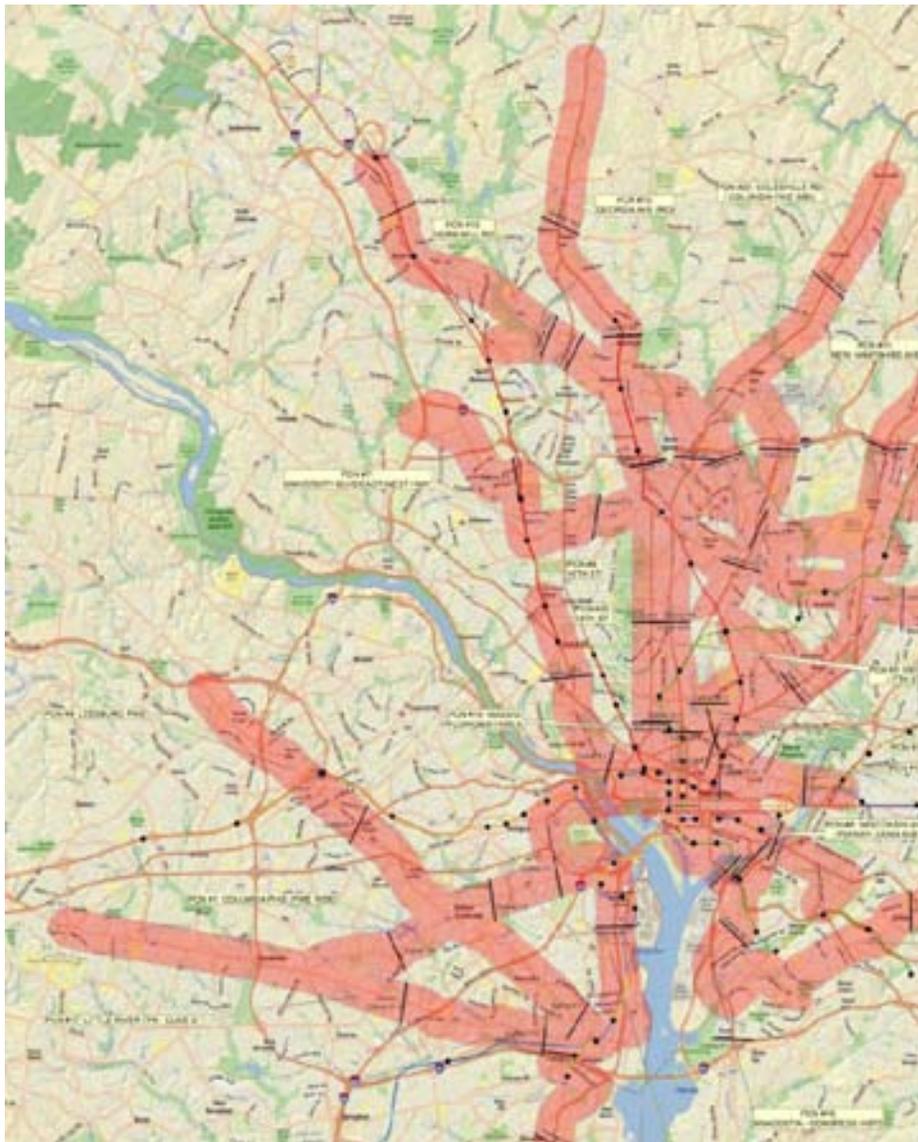


Figure 1.3: WMATA Priority Corridor Network Plan Schematic

Figure 1.4: WMATA Priority Corridor Network Plan Map



Regional Plan Context

Also recognizing the limitations of the existing rail transit and local bus network within the Washington Metropolitan area to serve people's mobility needs today and into the future, the Washington Metropolitan Area Transit Authority (WMATA) and Metropolitan Washington Council of Governments (MWCOC) developed plans for surface-running priority corridor transit services. Figures 1.3 and 1.4 show the designated corridors. Suggesting the benefit of investing in the region's surface transit system, when implemented, WMATA's analyses indicate that regional transit boardings could increase by 3 to 4 percent in the service area. WMATA has three goals for its priority corridor network (PCN):

- Improve competitiveness of bus transit
- Support existing and planned land use and economic development
- Improve efficiency of the transportation system

The plan-designated corridors are candidates for improvements to services through measures such as increases in service frequency (decrease in headways), conversion of general purpose travel lanes to bus-only lanes, transit signal priority (TSP), queue jump lanes, off-board fare collection, and branding. WMATA's PCN follows 23 of the most heavily used Metrobus corridors in the region, covering more than 235 miles of roadway and 250,000 unlinked daily trips. The 23 corridors account for more than half of the daily boardings for all Metrobus routes in the region. Three corridors are designated in Alexandria and include the following:

1. US 1 from Pentagon Metrorail station to the Braddock Road Metrorail station
2. Route 7 (Leesburg Pike) from Tysons Corner (West Park) to King Street Metrorail Station

- Little River Turnpike/Duke Street from City of Fairfax (Route 123) to King Street Metrorail Station

Corridors 1 and 3 overlap portions of two of Alexandria's transitway corridors. Corridor 1 is the northern portion of Corridor A (North-South) in Potomac Yard and northern US 1. Corridor 3 follows Corridor B (Duke Street/ Eisenhower Avenue) along the Duke Street alignment.

Building on WMATA's PCN is a planned interconnected system of other regional priority corridors designated by individual jurisdictions. Responding to the opportunity for the region to take advantage of economic stimulus funds from the federal government, in 2009 the MWCOG Transportation Planning Board submitted an application on behalf of the region for funding from the Transportation Investments Generating Economic Recovery (TIGER) grant program administered by the U.S. Department of Transportation (USDOT). The application contained a request for funding for fourteen priority bus corridors throughout the region, as shown in Figure 1.5. Nine of the corridors in that application were the same as those identified in WMATA's PCN; however, the application also included the following five new corridors:

- Van Dorn to the Pentagon via Shirlington in Virginia
- US-1 Transitway from King Street to the Pentagon in Virginia
- Theodore Roosevelt Bridge to K Street NW in the District of Columbia
- The Fourteenth Street Bridge from I-395 to K Street in the District of Columbia
- Express bus on freeways, specifically I-66 and I-95/I-395

Similar to WMATA's PCN, the MWCOG identified corridors mirror several of those



Figure 1.5: MWCOG Planned Priority Bus Corridors

identified in Alexandria's *Transportation Master Plan*. Corridor 1 is largely Corridor C (Van Dorn/ Beauregard) while Corridor 2 the northern and central portion of Corridor A (North-South).

Neighboring Jurisdiction Plans Context

Arlington County

Arlington and Fairfax Counties each have long-term visions for high-capacity and quality transit facility and service expansions. Arlington's primary transit network (PTN) identifies key corridors countywide (Figure 1.6) for the implementation of transit services. The PTN is envisioned by Arlington County

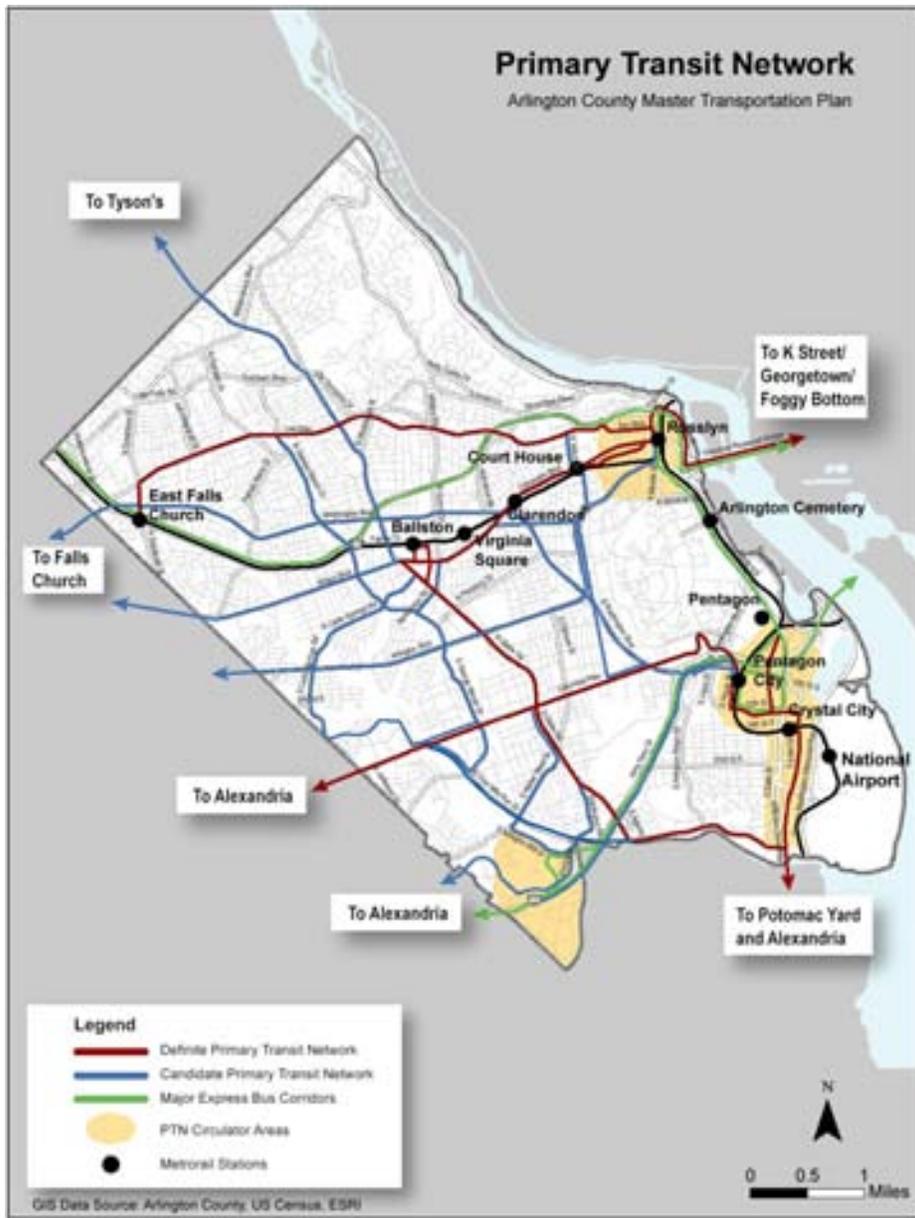


Figure 1.6: Arlington County Planned Primary Transit Network

as a network of transit lines that operate every 15 minutes or less for at least 18 hours a day, 7 days a week. In addition to Metrorail lines through the county, the PCN includes Metrobus and ART bus as well as future streetcar or bus rapid transit lines. On designated PTN roadways, transit operations will receive priority. Corridors that have the potential to eventually connect to Alexandria include the following definite PTN corridors:

- **Crystal City/Potomac Yard Corridor.** Active coordination and investment between Arlington County and Alexandria is underway in this corridor. Portions of this corridor were awarded TIGER funds for implementation. This corridor is the northern section of Alexandria's Corridor A (North-South).

- **Columbia Pike Corridor.** Active coordination is underway between Arlington County, Fairfax County, and Alexandria. The Arlington County and Fairfax County sections currently have an Federal Transit Administration guided Alternatives Analysis and NEPA effort underway. This corridor has the potential to connect to northern portions of Alexandria's Corridor C (Van Dorn/Beauregard).

Fairfax County

Like Alexandria, Fairfax County will continue to invest in its transportation future. The identification of the Enhanced Public Transportation Corridor (EPTC) network was one approach developed by the county to address pressing mobility concerns. The EPTC concept was initially introduced during the 1990-1991 Planning Horizons update to the Fairfax County Comprehensive Plan. The approximately 132-mile network of nine EPTCs is entirely within Fairfax County. The EPTCs are intended to serve intra- and inter-county trip purposes. The combination of the EPTCs, the high-quality transit network (HQTN) is intended to provide transit service at a level that is competitive with travel by private vehicle and while being reliable, safe, and attractive to users.

While Fairfax County already provides and has access to local and express bus services, county leaders recognize that these services are made less attractive and effective by deteriorating traffic conditions and roadway congestion. The following EPTCs, representing general alignments, are identified in Fairfax County's Comprehensive Plan:

- Interstate 66 from Prince William County to Arlington County
- Interstates 95/395 from Prince William County to City of Alexandria
- Interstate 495 American Legion Bridge to Woodrow Wilson Bridge

- US 1 (Richmond Highway) & Route 241 (North Kings Highway) from Prince William County to Huntington Metrorail & Woodrow Wilson Bridge
- Route 7 (Leesburg Pike) from Tysons Corner to the City of Alexandria
- Route 28 from Route 267 (Dulles Toll Road) to Prince William County
- Route 267 (Dulles Toll Road) from Route 28 to Interstate 66
- Route 7100/7900 (Fairfax County Parkway/Franconia-Springfield Parkway) from Route 267 (Dulles Toll Road) to Frontier Drive
- Long Branch Railroad (Serving Fort Belvoir) from Franconia-Springfield Metrorail Station to Route 1

Fairfax County’s US 1, Interstate 95, 395, and 495, and Route 7 corridors all have the potential to connect with portions of Corridors A (North-South), B (Duke Street/ Eisenhower Avenue), and C (Van Dorn/Beauregard) in Alexandria.

Crystal City/Potomac Yard Transit Improvements Project

The Crystal City/Potomac Yard (CCPY) Transit Improvements Project is jointly sponsored by the City of Alexandria and Arlington County in cooperation with WMATA and the Virginia Department of Rail and Public Transportation (DRPT). Figure 1.7 shows Sections A, B, and C of the CCPY project. The project’s purpose is to provide high-capacity and –quality bus service in the five-mile section of the US 1 corridor between the Pentagon in Arlington County and the Braddock Road Metrorail station in Alexandria.

The project is in various stages of project development, ranging from Alternatives Analysis to construction. In 2010 the City of Alexandria, through MWCOG, received a TIGER grant to build Section B of the Transitway (section from E. Glebe Road to E. Monroe Avenue) in the median of US 1. The city expects that Section C will be built in coordination with the redevelopment of North Potomac Yard. Portions of Section A will be built in coordination with the redevelopment of properties to the north of the Braddock Road Metrorail station.

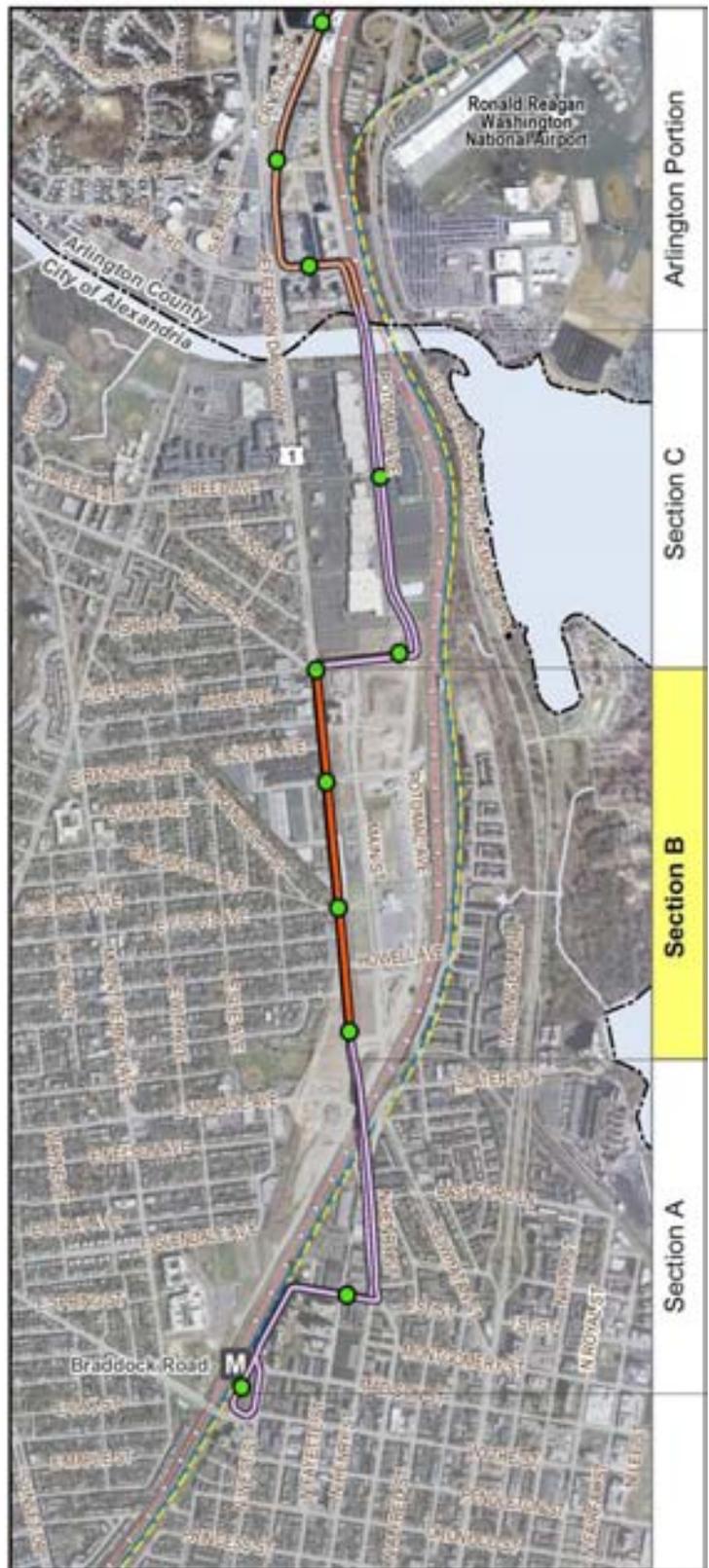


Figure 1.7: Crystal City/Potomac Yard Transit Improvements Project Plan Schematic

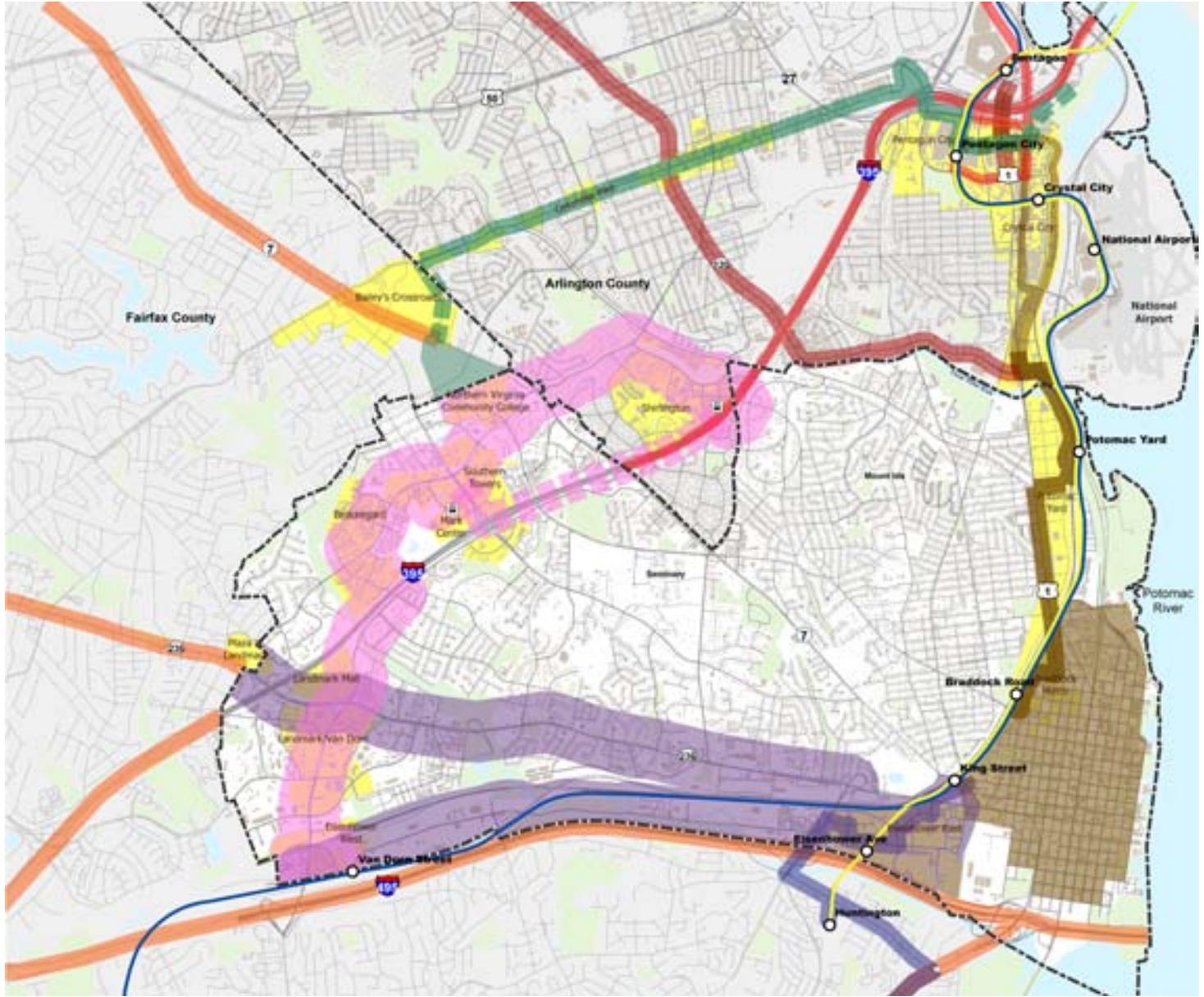


Figure 1.8: Regionally Planned High-Capacity Transit Lines in the Vicinity of Alexandria



Dedicated Transit Corridors Purpose

Local and regional planning studies indicate that maintaining people’s mobility in the future will require a diverse transportation system and significant multimodal network investments. The region will need to continue to improve its vehicular transportation network, but also will need to heavily invest in pedestrian and bicycle networks and transit facilities and services in a coordinated manner. While congestion is unlikely to be substantially affected by multimodal investments, people will benefit significantly through the increased number of real choices in the way they travel.

The implementation of WMATA’s PCN, MWCOG’s additional priority transit corridors, Fairfax County’s EPTCs, Arlington County’s PTN, and Alexandria’s transitway corridors will create the next generation high-capacity transit network in the region. Figure 1.8 shows each of the plan designated corridors in the context of the City of Alexandria.

This transit network will be coordinated with other transit services and facilities regionally and will have the ability to independently serve inter- and intra-jurisdictional trips. When interconnected, this network will offer currently unserved or underserved transit travel demand with attractive, competitive transit services, helping to increase transit ridership, manage vehicular demand on major travel corridors, and increase mobility in a sustainable manner.

In the context of Alexandria, Corridors A (North-South), B (Duke Street/Eisenhower Avenue), and C (Van Dorn/Beauregard) will provide access to the city’s existing and planned major population and activity centers, connectivity to neighboring Arlington and Fairfax Counties and their planned transit corridors, and access to local and regional transportation facilities and services. The corridors also will increase the number of residents and employees in and traveling through Alexandria with convenient access to attractive reliable transit services. Figure 1.8 shows the planned transit corridors in relation to existing and planned development in Alexandria and adjacent areas of Arlington and Fairfax Counties.



Figure 1.9: Corridor A Study Area

Corridor A (North-South)

The section of Corridor A examined as part of the High-Capacity Transit Corridor Feasibility Study extends south from the terminus of the CCPY Transit Improvement Project to the Fairfax County border, as shown in Figure 1.9. Corridor A follows an important local and regional commute route for people traveling to and from areas south of Alexandria. Corridor A is particularly critical with regard to its connectivity to existing and planned development in Potomac Yard (Arlington County and Alexandria), Crystal City, Pentagon City, and the Pentagon. Corridor A also has the potential to coordinate and integrate with service provided by Fairfax County to Fort Belvoir as well as future transit connections to Maryland using the Woodrow Wilson Bridge. As previously described, sections of Corridor A are included in WMATA's PCN and MWCOG's priority transit corridor plan. In addition,



Corridor A is the extension of the Crystal City/Potomac Yard transitway and Fairfax County's Route 1 EPTC.

Providing high-quality and -capacity transit service through Corridor A would create a much needed resource for through commuters as well as underserved areas of east Old Town. Much of the vehicular traffic currently traveling through Corridor A has few mode choices and little incentive to use transit.

The purpose of Corridor A is to accommodate north/south trips currently traveling through Alexandria in the US 1 corridor and to provide increased access to high-quality and -capacity transit services for Alexandrians in the east end of the city. With potential connectivity to King Street, Braddock Road, and Potomac Yard Metrorail stations, Virginia Railway Express, and Amtrak as well as future connections to the CCPY transitway and Fairfax County's Route 1 EPTC, Corridor A has the potential to carry trips within Alexandria as well as between origins and destinations well-beyond the city's boundaries. Potential benefits it could provide include:

- Direct service to destinations along US 1 corridor not served by Metrorail
- Better access to destinations in-between Metro stations along the blue-yellow lines
- Increased high-capacity and -quality transit coverage for east Alexandria
- Increased number of travel choices for trips along the US 1 corridor
- Increased connectivity to Metrorail and Virginia Railway Express

Travel Pattern Evaluation

A planning-level travel pattern evaluation was conducted for Corridor A using data maintained by the U.S. Census in the Longitudinal Employment-Household Dynamics (LEHD) database. This evaluation was prepared to better understand general travel patterns affecting Corridor A.

LEHD uses statistical and analytic methods to link geographic employer and household data maintained by the U.S. Census Department. Through the processing of this data, the LEHD database is able to pair origins and destinations between specific geographic areas. These geographic areas could be as large as entire jurisdictions or as small as census subdivisions (Tracts, Block Groups, etc.). The geographic divisions representing Old Town, Potomac Yard, and Crystal City were selected for the analysis to represent the general area encompassed by the CCPY transitway and Corridor A. Travel to the area for work was evaluated as well as residents travel to work from the selected area. The following briefly summarizes the findings:

Table 1.1 shows that approximately 57,000 jobs are located within the selected area. Approximately 97 percent of workers come to the area from outside the selected area. In the reverse direction, of those living in the selected

area, nearly 19 percent are employed there. An additional analysis of directional trip flows also was prepared using the same LEHD data and selection area. The analysis indicated that approximately 3,100 workers from census defined places (CDPs) along the US 1 corridor in southeast Fairfax County, travel to jobs in the selected area. These CDPs include:

- Mount Vernon: 1,035 workers (1.8% of the total workers)
- Groveton: 909 workers (1.6% of the total workers)
- Fort Hunt: 665 workers (1.1% of the total workers)
- Hybla Valley: 536 workers (0.9% of the total workers)

The LEHD analysis that was conducted provides a useful perspective on work travel patterns directly related to Corridor A. It demonstrates that there are work-related trip origins and destinations within the area that would be directly served by Corridor A. Additional analyses could be conducted to quantify the volume of through trips in Corridor A by selecting different work destination areas—north and south of Corridor A—and evaluating the potential travel routes followed by those trip flows. The limited analysis that was conducted demonstrates that there is a potential market within the study-defined Corridor A. Assuming that there is a considerable number of through trips that travel along Corridor A, the travel market has the potential to be significant.

Table 1.1: Inflow/Outflow Analysis (2009 Data)

	Total Number of Jobs	Proportion (Share)
Employed in the Selection Area	57,653	100%
Living Outside the Selection Area	55,882	96.9%
Living in the Selection Area	1,771	3.1%
Living in the Selection Area	9,594	100%
Employed Outside the Selection Area	7,823	81.5%
Employed in the Selection Area	1,771	18.5%
Note: Selection area for this analysis was the Census Block Groups representing Crystal City, Potomac Yard, Old Town, and the northern portion of Pentagon City.		
Source: Longitudinal Employment-Household Dynamics, U.S. Census Bureau, 2009		





DASH AT8 along Washington Street (Old Town, Alexandria)

existing conditions

chapter 2

Introduction

Providing high-quality and -capacity transit services within Corridor A is not without challenges. The study section of Corridor A is defined by the area bounded by the Blue-Yellow Metrorail lines on the west, the Fairfax County line on the south, the Alexandria waterfront on the east, and the Arlington County line on the north. In the north-south direction, the corridor is approximately two miles in length. The study area is generally designated as Old Town Alexandria and contains the Old and Historic Alexandria historic district and Parker-Gray historic district.

The Old and Historic district contains many historic landmarks and has 35 buildings of more than 100 years in age. The Parker-Gray historic district is a historically African-American neighborhood of Alexandria that was a haven for escaped slaves and freedmen during and after the Civil War. The Old and Historic and Parker-Gray districts each have boards of architectural review that must approve a certificate of appropriateness for all new construction and exterior alterations for structures that are visible for the public way.

With the aforementioned as general context, there are innumerable challenges that affect the ability to locate surface-running high-capacity transit in the study area. General constraints include:

- Historic districts and buildings
- Land use compatibility
- Significant peak hour traffic congestion on Patrick Street, Henry Street, and Washington Street
- Narrow street rights-of-way
- On-street parking
- Limited number of appropriate (functional classification) north-south streets in the study area

The following sections provide additional information on several of these challenges as well as summarize general existing transportation (multimodal) and land use and development conditions.

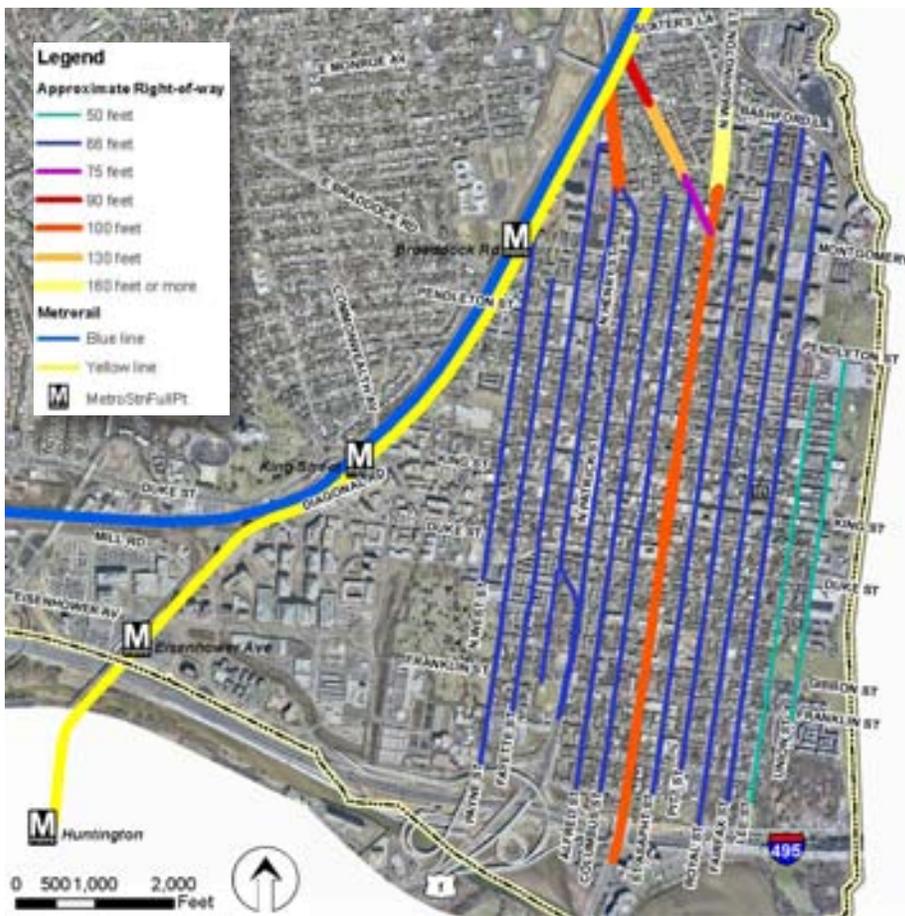
Travel Patterns and Activity Centers

Alexandria's location adjacent to Washington, D.C., and Arlington County subjects many of its major streets to regional through traffic, in addition to being a destination in its own right. Many commuters travel north to Washington, D.C., and Arlington County in the morning peak period and return south in the evening using important city roadways within the Corridor A area such as Duke Street, US 1, Washington Street, and Route 7. In addition,

tens of thousands of transit trips traverse the city each day using a myriad of bus services as well as Metrorail and Virginia Railway Express (VRE) trains.

Major destinations outside of Corridor A within Alexandria include Eisenhower East, the Landmark/Van Dorn area, and the Mark Center area. Destinations in the study area include the King Street corridor, Braddock Road Metrorail station, King Street Metrorail station, the Waterfront, Canal Center, the Slater's Lane District, and southern Old Town.

Figure 2.1: Corridor A North-South Street Rights-of-Way



Transportation Conditions

MWCOG's fiscally constrained long-range plan does not include any major north-south roadway capacity increases in the study area during the next 20 years. MWCOG's travel demand forecasts show that peak period travel demand on US 1 and Washington Street will increase during the next 20 years and that these routes will continue to have travel demand that outpaces their capacity.

Regional Traffic Influences

Regional congestion is a major influence on travel conditions in Alexandria. Congestion on the Capital Beltway (I-495) and Shirley Highway (I-395) divert some longer through trips onto arterial facilities such as US 1 and Washington Street as well as other routes in Alexandria. Traffic diverting to local streets increases significantly during special events and incidents on the region's major freeway links. Regional through trips diverted to local routes limit capacity available to Alexandrians for shorter distance trips and contribute to the substantial peak period congestion that exists on routes such as US 1 and Washington Street in the city.

Local Transportation Conditions

Street Rights-of-Way

Most street rights-of-way in the study area date to the original layout of the city. Within Corridor A, the right-of-way of most streets is defined by opposing faces of buildings lining streets. The majority of major north-south streets in the study area have 66-foot rights-of-way. Only Washington Street has a more expansive right-of-way. Figure 2.1 shows north-south street rights-of-way in the study area.

Functional Classification

Street classifications typically help to describe and define a street's purpose. A street with a higher functional classification—arterial or major collector—is traditionally intended to carry longer distance trips and offer a higher level of mobility. These streets often have few individual driveways and single-user points of access. Streets with lower functional classifications—minor collectors and locals—typically serve in more access-oriented roles. They are the more typical locations for loading and driveways. Figure 2.2 shows designated functional classes for streets in the study area.

For the most part, streets within the study area perform their functions, as classified; however, streets like Patrick Street, Henry Street, and Washington Street carry a considerable number of local and property access-oriented trips as well as city and regionally-oriented trips. At a general level, arterials and collectors are more appropriate for the location of transitways and transit service.

Street Cross Sections

On-street parking is permitted on the majority of streets in the study area. Attributed to the age of most of the development in the study area, there is typically minimal off-street parking for most residential and commercial uses. As a result, on-street parking is a critical resource to the majority of the study area.

With a few exceptions, streets in the study area are one travel lane in each direction with some provision (casual or marked) for turn lanes at intersections and have on-street parking on both sides of the street. Figure 2.3 shows generalized street cross sections in the study area. For the most part, simply dimensioning one travel lane and on-street parking in each direction within the available right-of-way leaves in some cases

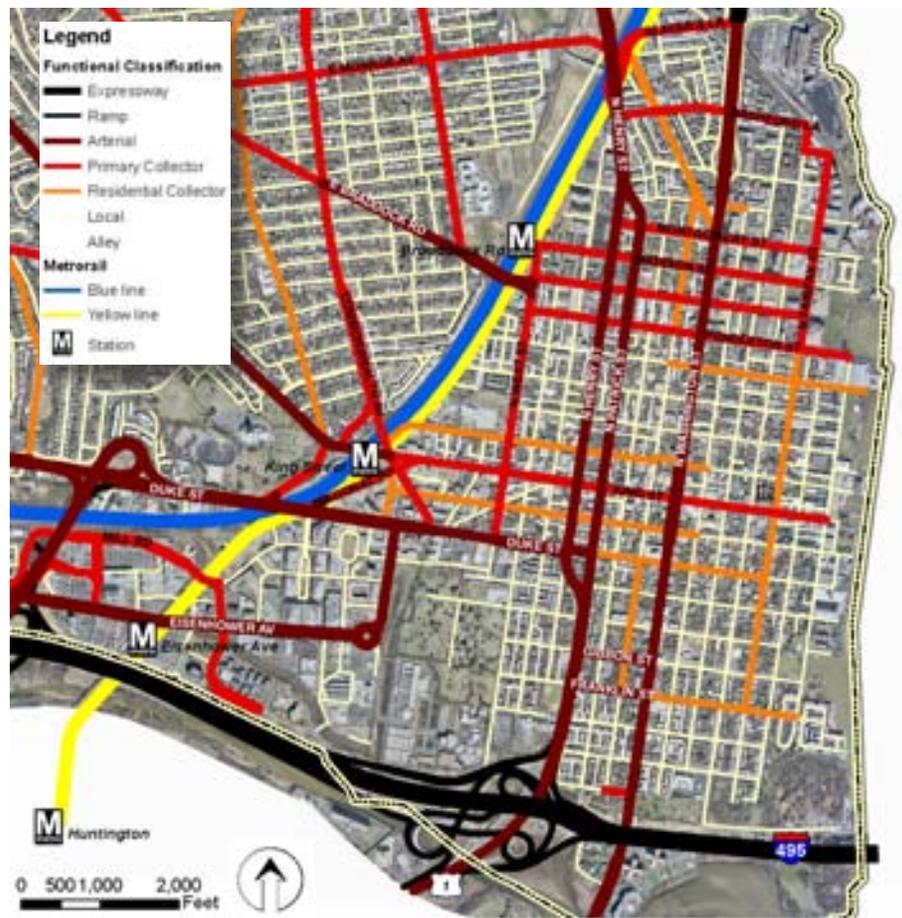
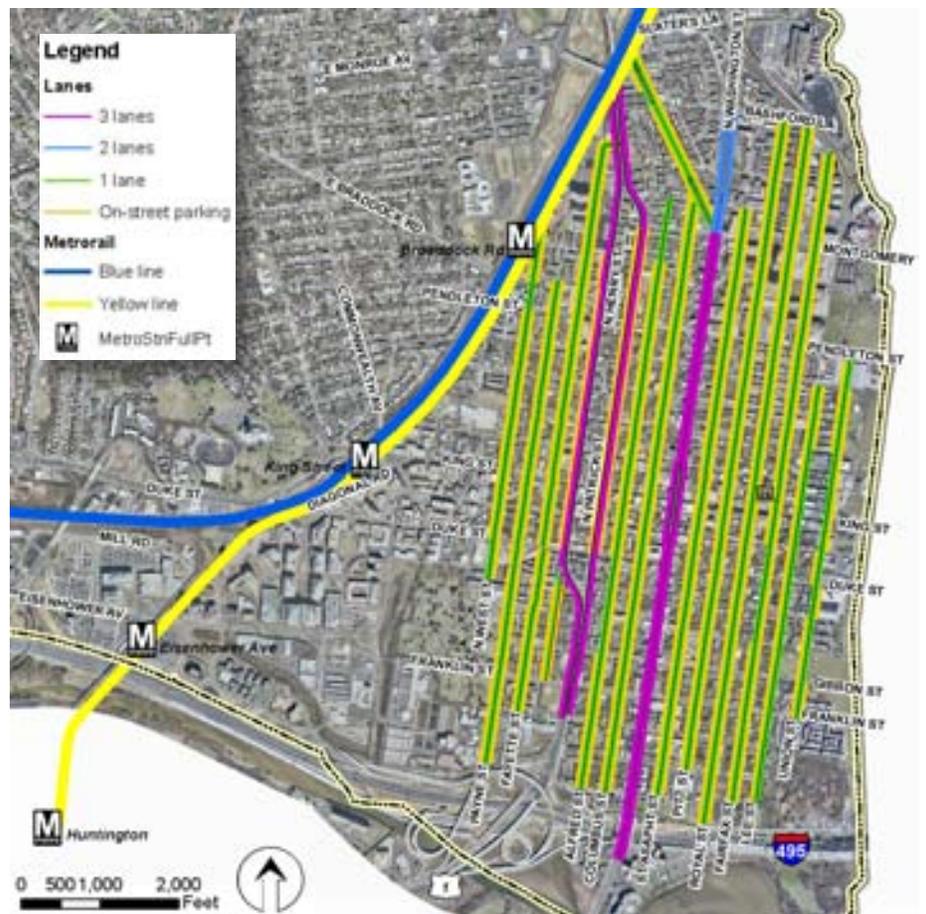


Figure 2.2: Study Area Street Functional Classifications

Figure 2.3: Study Area Street Cross Sections



nominal sidewalks and tree buffers between the curb and face of buildings. In the most challenging locations (some along Patrick Street), sidewalks are as narrow as 4 feet, taking into account obstructions such as signs, trees, and other street features.

In Old Town, US 1 is a one-way pair—Patrick Street northbound and Henry Street southbound. Each street has three through lanes, one of which is designated for high-occupancy vehicles during a specific peak period. Washington Street is the local segment of the George Washington Memorial Parkway. In Alexandria, Washington Street has three through lanes in each direction. The outer lane is designated for high-occupancy vehicles in

peak periods and is used for parking at other times of the day.

Daily Traffic

Existing average daily traffic volumes on study area streets are shown in Figure 2.4. As shown in the figure, Patrick Street and Henry Street, as a one-way pair, carry between 44,000 and 49,000 vehicles per-day in their combined six-lane cross section. Meanwhile, Washington Street carries approximately 28,000 to 49,000 vehicles per day in four to six lanes. The traffic volumes on Patrick Street and Henry Street are reflective of a capacity-constrained condition. This condition is the result of a combination of the street cross section, close traffic signal spacing, traffic signal timing, and several major intersections. During peak periods in peak directions, traffic congestion is significant on each of these streets.

Traffic conditions on Washington Street also are constrained by signal spacing and timing as well as the number of travel lanes; however, congestion is comparatively (with Patrick Street and Henry Street) less significant. During peak periods in the peak direction, traffic back-ups are frequent, but less severe than those along the US 1 corridor.

Traffic Flow

While level of service is a good measure of unsaturated traffic conditions, it is less useful when traffic is effectively metered by congestion. To better understand general traffic flow conditions in the US 1 and Washington Street corridors, weekday peak period travel time runs were conducted on each. The travel time runs (conducted multiple times in each direction of the peak period) measured travel speed and delay. A summary of average travel speeds on segments of the US 1 corridor in Old Town during the weekday peak periods

Figure 2.4: Average Daily Traffic Volumes on Study Area Streets



are shown in Figures 2.5 and 2.6. The following summarizes peak travel speeds and time for the segments of US 1 surveyed:

- Patrick Street/Jefferson Davis Highway (northbound)
 - AM Peak Hour: 12.8 mph, 7:15 minutes
 - PM Peak Hour: 17.6 mph, 5:06 minutes
- Henry Street/Jefferson Davis Highway (southbound)
 - AM Peak Hour: 19.7 mph, 4:42 minutes
 - PM Peak Hour: 3.6 mph, 25:18 minutes

Washington Street speed and delay summaries are below:

- Washington Street (northbound)
 - AM Peak Hour: 6.6 mph, 10 minutes
- Washington Street (southbound)
 - PM Peak Hour: 8.3 mph, 8 minutes

Legend

- Signaled Intersection
- Corridor Travel Speed Range**
- Low (less than 20 mph)
- Moderate
- High (greater than 25 mph)
- Metro rail**
- Blue line
- Yellow line
- M Station



Figure 2.5: AM Peak Hour Travel Time Run Summary on Patrick Street and Henry Street



Figure 2.6: PM Peak Hour Travel Time Run Summary on Patrick Street and Henry Street

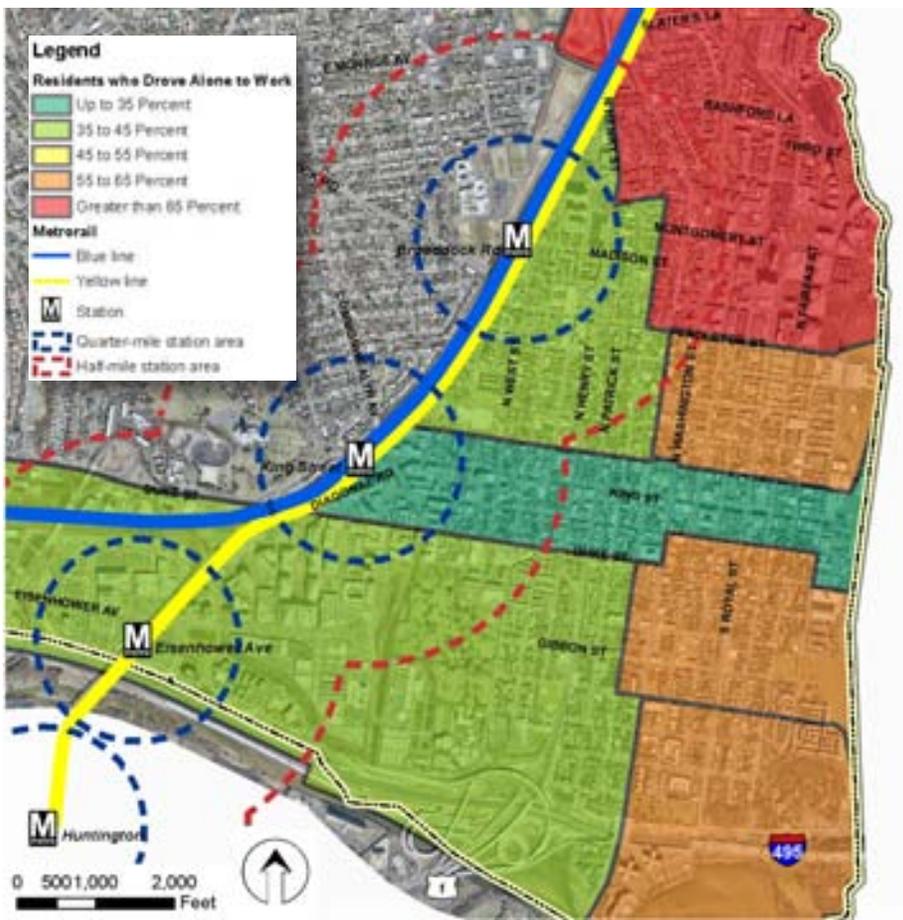


Figure 2.7: Study Area Journey to Work Mode Split

Transit Use

Old Town is served by Metrorail’s Blue and Yellow lines at the King Street and Braddock Road Metrorail stations. VRE provides service to Alexandria at the King Street station. The area also is served by the King Street Trolley, Metrobus, and DASH.

Based on data available from the U.S. Census (2010) at the Tract level, many Old Town Alexandria residents commute by a mode other than single-occupant vehicle. It might be expected, as distance from Metrorail increases, the single-occupant work trip share also increases. Despite this, many people outside the traditional the 1/4- and 1/2-mile walk zones (shown in Figure 2.7) of the area’s two Metrorail stations are traveling by a mode other than a

single-occupant vehicle. A summary of single-occupant vehicle use for work trips for the census divisions representing the study area is shown in Figure 2.7.

Many Old Town residents and employees live outside what is considered to the traditional walk-shed of a rail transit system (1/2-mile radius). 60 percent of households, 55 percent of the population, and 48 percent of employees live more than one-half mile from a Metrorail station in the study area. As seen in the figure, census divisions beyond a half-mile distance from the metro stations have a higher percentage of residents who drive alone to work. For many of these people, DASH and Metrobus service provide local as well as feeder service to Metrorail. Service and route varies from line to line and is viewed by some as confusing and unreliable.

The King Street trolley also provides transit services in Old Town, as shown in Figure 2.8. It runs from the King Street station to the waterfront, carrying more than 2,000 people each day, fare-free, at 20-minute headways.

Metrobus 11Y provides service in Alexandria along Washington Street and the Metrobus Richmond Express provides express bus service from areas south along US 1 to the Eisenhower Avenue and King Street Metrorail stations. Existing transit services in the study area are shown in Figure 2.9. Table 2.1 provides a summary of transit ridership for services running through the study area.



Figure 2.8: King Street Trolley Line

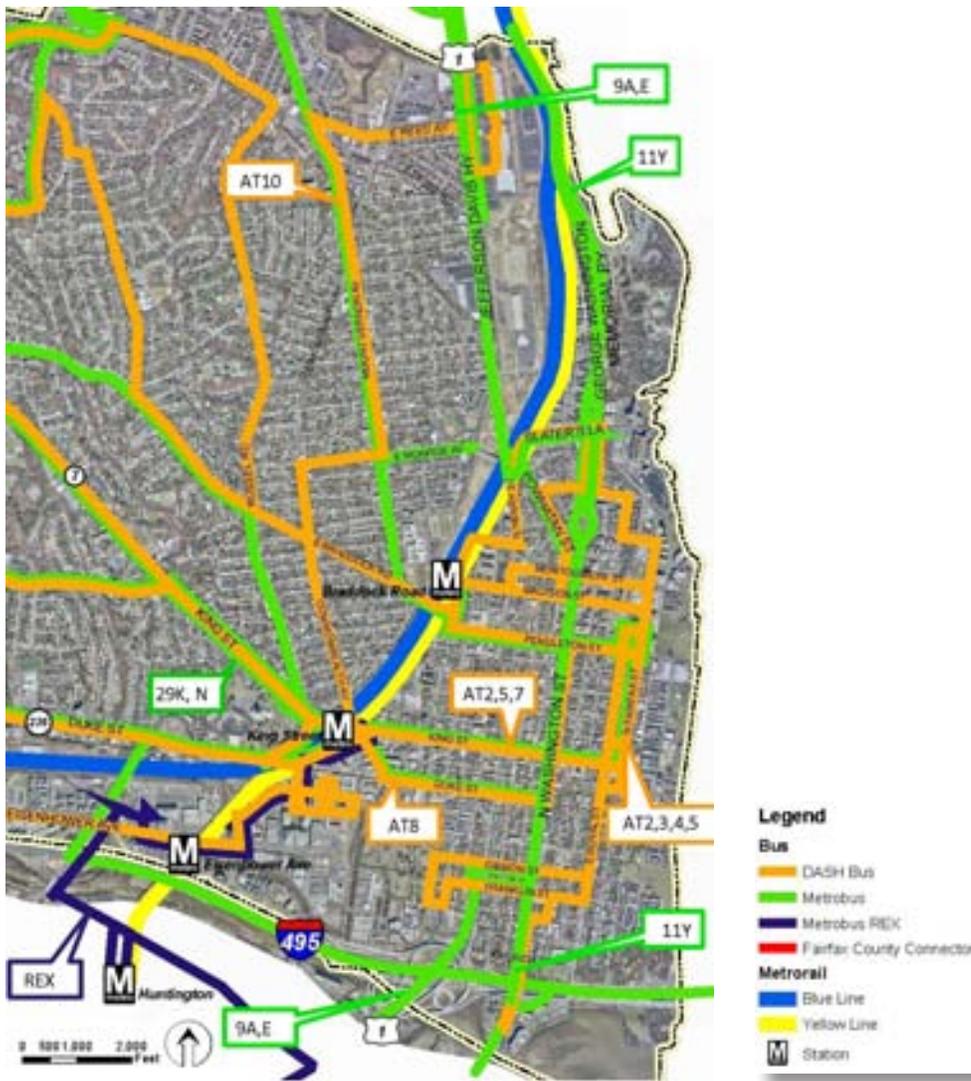


Figure 2.9: Study Area Transit Services

Table 2.1: Existing Transit Ridership for Services Operating in Corridor A

Service/Route	Peak Period Headway (minutes)	Average Weekday Ridership
Metrorail	3 to 6	58,400
VRE	10 to 30	650
DASH Route AT2	20 to 30	2,035
DASH Route AT3	20	976
DASH Route AT4	20	912
DASH Route AT5	20 to 20	2,063
DASH Route AT7	30	1,015
DASH Route AT8	20 to 30	2,628
DASH Route AT10	30	731
Metrobus Route 9A-E	10 to 20	1,788
Metrobus Route 10A	30	2,452
Metrobus Route 10B	30	2,589
Metrobus Route 11Y	15	378
Metrobus Routes 29K,N	30	2,272
Metrobus REX	12	3,685

Source: DASH, WMATA, and VRE

Bicycle and Pedestrian Networks

The majority of the study area benefits from a robust network of sidewalks on both sides of nearly every street. Some sidewalks are wider than others and there are documented challenges to sidewalk width along streets such as Patrick Street and Henry Street in Old Town.

In addition to the area's interconnected sidewalk network, there are numerous on-street bicycle routes in the study area. Existing bicycle facilities are shown in Figure 2.10.

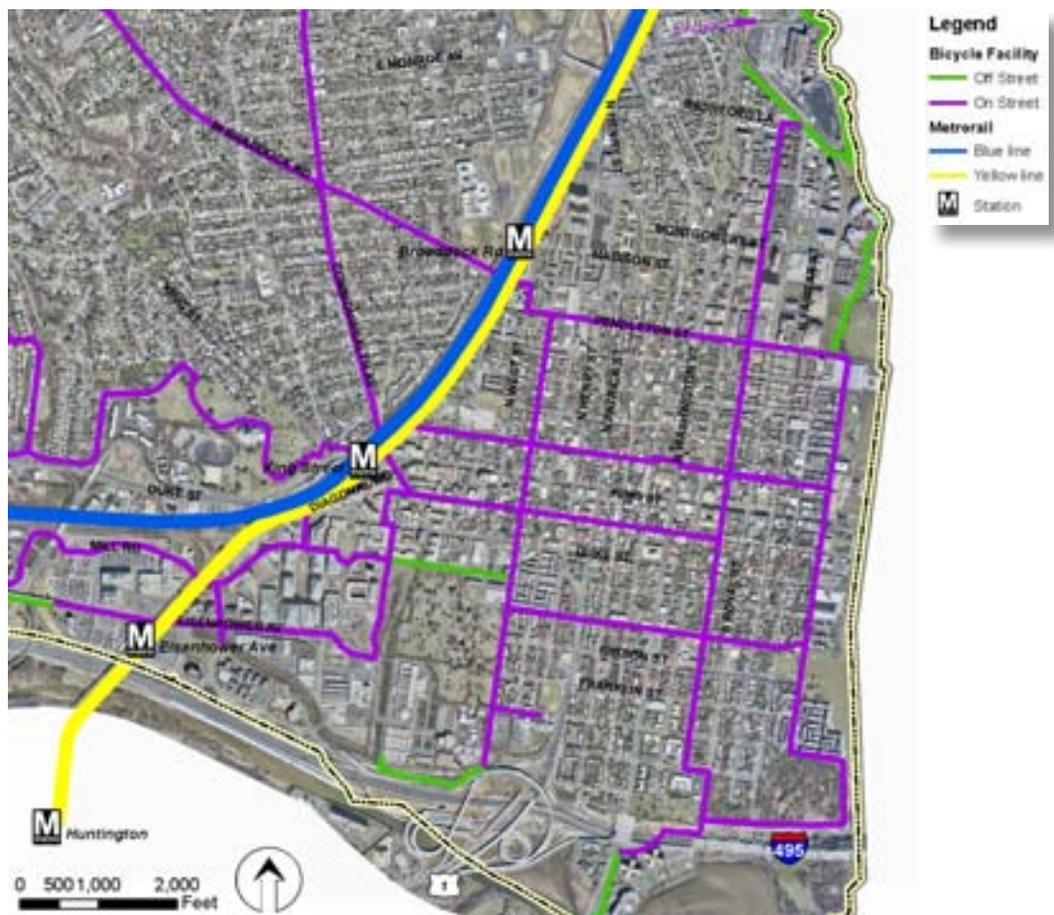


Figure 2.10: Study Area Bike Network

Land Use and Development

General

The urban form of the Corridor A area varies considerably. Old Town is the oldest part of Alexandria and among the oldest in the region. In Old Town, existing development varies in character, size, scale, and use.

Whereas uses along King Street and Washington Street are primarily commercially-oriented, many other streets in the study area are residentially focused. The age and materials used in buildings in Old Town vary widely. These variances contribute to some areas of Old Town being more susceptible to impacts from traffic noise and vibration than others. Figure 2.11 shows existing zoning in the study area.



Figure 2.11: Existing Study Area Zoning

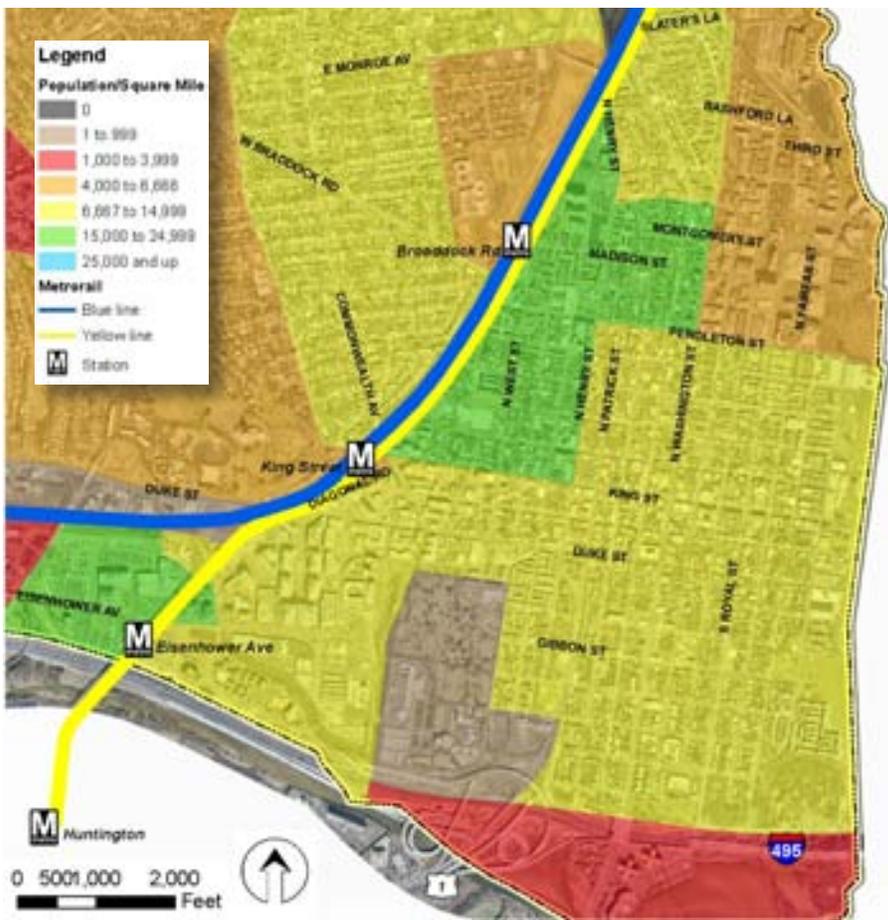
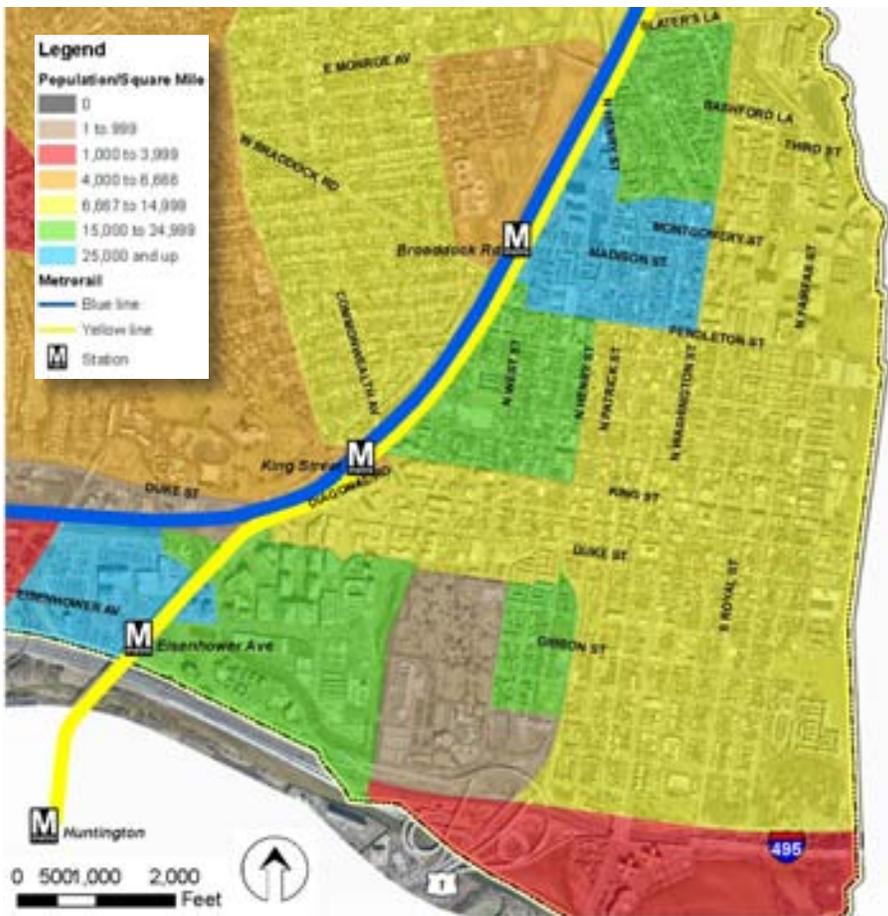


Figure 2.12: Study Area Population Density (2000)

Figure 2.14: Study Area Population Density (2030)



Population and Employment

The study area has relatively high population and employment density. Based on forecast data available from MWCOG, which is provided by each local jurisdiction, population and employment is forecast to increase in the study area. Table 2.2 summarizes general population and employment conditions for the study area in 2000 and 2030.

Within the study area, the area with the highest population density is adjacent to the Braddock Road Metrorail station. The highest employment density is in the vicinity of the Braddock Road Metrorail station and in Eisenhower East.

Population

Based on information from the MWCOG regional travel demand model, population in the study area is forecast to grow by 2030. Based on this data, growth will be more pronounced in the vicinity of the Braddock Road Metrorail station, Eisenhower East, and the northeast corner of Old Town. Figures 2.12 and 2.13 show existing (2000) and projected (2030) population density.

Table 2.2: Population and Employment Summary

Measure	2000	2030
Population	15,850	21,157
Population Density (ppl./sq. mi.)	7,304	9,705
Employment	18,405	30,479
Employment Density (emp./sq. mi.)	8,443	13,980

Source: MWCOG Travel Demand Model, Version 2.2, Round 8 Socioeconomic Data Forecasts

Employment

Using the same data from MWCOG, the number of jobs in the study area also is forecast to increase by the year 2030. Employment growth appears to be most evident in Eisenhower East and the northeast part of Old Town. Figures 2.14 and 2.15 show existing (2000) and projected (2030) employment density.

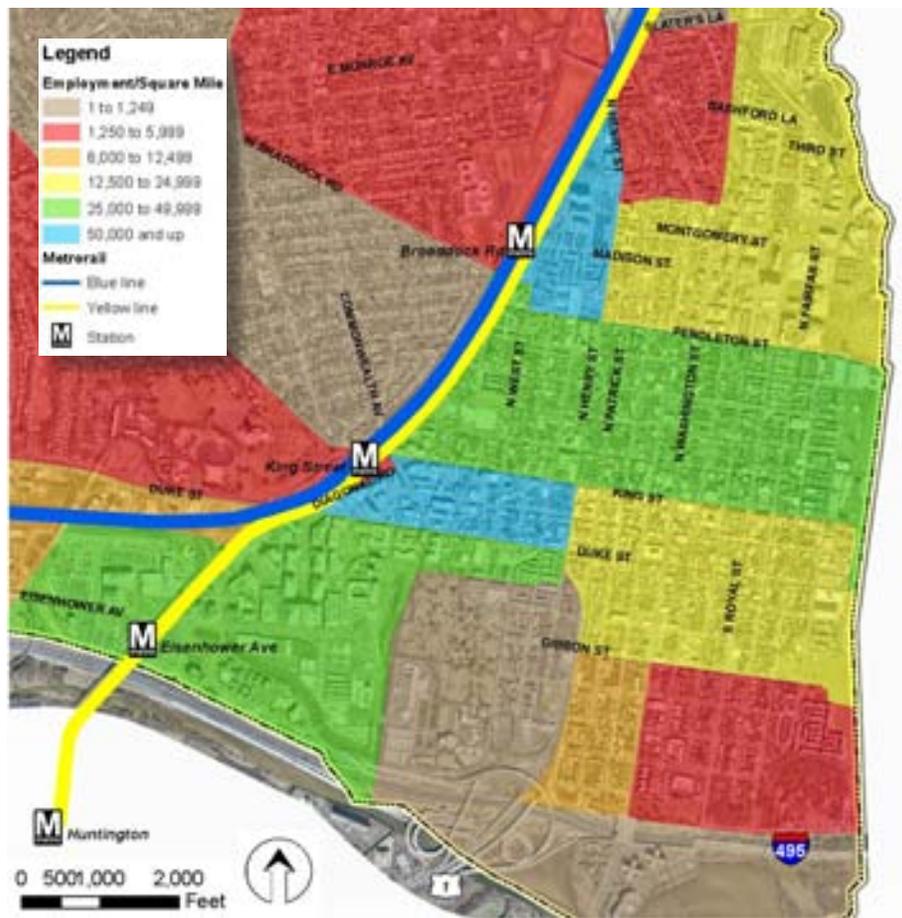
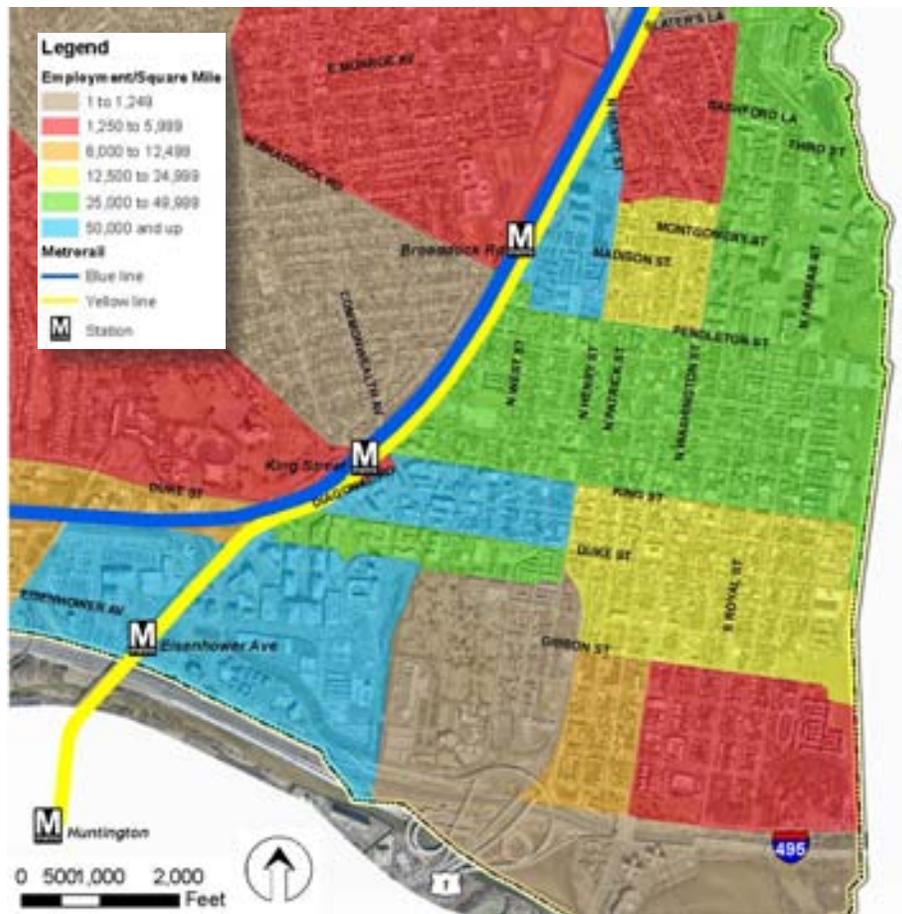


Figure 2.14: Study Area Employment Density (2000)

Figure 2.15: Study Area Employment Density (2030)



Summary of Existing Conditions

In the context of planning a new, surface-running high-capacity transit service in Corridor A, there are a number of particularly evident challenges within the existing transportation system. These include:

- Peak hour congestion on US 1 (Patrick Street, Henry Street, and Jefferson Davis Highway)
 - Peak hour congestion on Washington Street
 - Narrow rights-of-way as compared to functional needs of streets such as Patrick Street and Henry Street
 - Narrow travel lanes on Patrick Street and Henry Street
 - On-street parking
 - Narrow sidewalks on portions of some streets where the transitway could run
 - High-occupancy vehicle lanes on Patrick Street, Henry Street, and Washington Street
 - Historic structures fronting rights-of-way along possible transitway routes
- Running transit in mixed flow (not meeting the general *Transportation Master Plan* goal for operating high-capacity services in dedicated lanes) with some opportunity for queue jump lanes through the displacement of parking
 - Displacing an existing general purpose travel lane for transit (thereby reducing general vehicle throughput) and narrowing adjacent travel lanes where needed to meet minimum transit lane width requirements
 - Repurposing a high-occupancy vehicle (HOV) lane for exclusive or shared (HOV and transit) use and narrowing adjacent travel lanes to meet minimum transit lane width requirements
 - Displacing an existing parking lane for transit use (likely not be physically feasible due to available width within the cross section)
 - Displacing an existing parking lane in combination with a shared (HOV/transit) use of the existing HOV lane and streetscape (widened sidewalks/etc.) improvements

While each of these challenges are significant, the protracted traffic congestion along Patrick Street and Henry Street in the peak hour and direction and accompanying narrow rights-of-way along each of these streets limits potential transit concepts. At a conceptual level, the existing congestion reinforces the need for transit to operate in a fully or partially dedicated (congestion-free) runningway to achieve its stated purpose. Creating a dedicated transit lane from an existing travel lane would require approximately 11 feet of lane width (ideally 11.5 feet). Along many sections of Patrick Street and Henry Street, existing general purpose lanes are less than 11 feet in width, with no opportunity for expansion without

impacts to already minimum width on-street parking lanes.

Without the opportunity to expand the existing right-of-way, concepts are limited to reconfiguring street cross sections within the existing right-of-way and more accurately, within the existing dimension of the street between curb faces. Providing a dedicated runningway for transit has the potential to require the consideration of one or more of the following:

Concepts relying on some of the aforementioned and in consideration of existing conditions are described in the next chapter.





AC Transit Rapid Bus (Bay Area, California)

Preliminary Transitway Concepts

A number of different concepts were developed for Corridor A for discussion purposes. Concepts varied in terms of runningway treatment, service alignment, service extent, and general operations. Concepts were developed along Patrick and Henry Streets, Washington Street, the CCPY alignment, and portions of the existing Richmond Highway Express (REX) route. The following were general elements used to create concepts:

Route/Alignment (General)

- Washington Street
- Patrick and Henry Streets
- Other (including railroad right-of-way and other north-south streets)

Operational Configuration

- Mixed flow
- Partial mixed flow (some sections dedicated lane)
- Dedicated lane

Runningway Accommodation

- None (mixed flow)
- Shared HOV/transit lane
- Displacement of general purpose travel lane

Northern Terminus

- Braddock Road Metrorail station
- King Street Metrorail station

Southern Terminus

- Braddock Road Metrorail station
- King Street Metrorail station
- Huntington Metrorail station
- US 1 in Fairfax County

Mode/Service

- Express bus
- Rapid bus
- Bus rapid transit
- Streetcar

Using these elements, several basic concepts were created to begin the discussion on route, operational configuration, runningway, and terminus. While transit mode was an element of concept development, it was not specifically discussed due to the limited concept development performed. The following is a brief description of each concept developed for Corridor A.



Figure 3.1: Concept 1 (No Build)



Concept 1 (No Build)

This concept is comprised of the adopted CCPY alignment to the Braddock Road Metrorail station and the existing REX route through Eisenhower East, terminating at the King Street Metrorail station. Figure 3.1 shows this concept. An on-street dedicated transit service and runningway would not be established to connect the CCPY alignment and REX service. Principal advantages and disadvantages of this concept include:

Advantages

- Status quo, no right-of-way, travel lane, parking, or streetscape impacts
- No additional capital and operating cost
- Direct connectivity to the King Street Metrorail station from the south and Braddock Road Metrorail station from the north
- Connectivity with VRE and Amtrak via the existing REX service at King Street

Disadvantages

- Would require two transfers to travel between REX and CCPY
- Does not increase availability and convenience to high-capacity transit services for east Old Town
- Indirect route for through trips

Concept 2 (West Street)

This concept is comprised of the adopted CCPY alignment to the Braddock Road Metrorail station, the existing REX route through Eisenhower East, terminating at the King Street Metrorail station, and a new dedicated transitway connection using portions of King Street and West Street. Figure 3.2 shows this concept. This concept has the potential to accommodate rail and bus transit technologies depending on the ultimate build-out of CCPY. Differing from the No Build concept, an on-street transit service and partially dedicated runningway would be established to connect the CCPY alignment at the Braddock Road Metrorail station and REX service at the King Street Metrorail Station. Several effective service structures could be used to operate this concept including:

- Extension of CCPY service to the King Street Metrorail station and a coordinated transfer to REX service at the King Street Metrorail station. One transfer would be required between REX and CCPY services in this scenario.
- Extension of REX service to the Braddock Road Metrorail station and a coordinated transfer to CCPY service at the Braddock Road Metrorail station. One transfer would be required between REX and CCPY services in this scenario.
- Integration of REX and CCPY services throughout the entire route. No transfers would be required to travel from northern and southern route termini of the entire corridor.

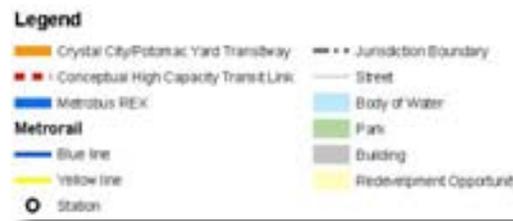
Principal advantages and disadvantages of this concept include:

Advantages

- Minimizes transfers
- Uses existing and adopted plans for the majority of its route
- Limited impact to traffic operations along Old Town streets
- Relatively low capital cost to implement



Figure 3.2: Concept 2 (West Street)



- Direct connectivity to Metrorail at three locations in Alexandria
- Direct connectivity to VRE and Amtrak at King Street

Disadvantages

- Potential impacts to traffic operations on King Street and West Street
- Potential noise and vibration impacts to West Street
- Minimally increases availability and convenience to high-capacity transit services for east Old Town
- Indirect route for through trips
- Higher cost than No Build



Figure 3.3: Concept 3 (Patrick Street/Henry Street)



Concept 3 (Patrick Street/Henry Street)

This concept is comprised of the adopted CCPY alignment to the Braddock Road Metrorail station and a new alignment primarily using existing Patrick Street and Henry Street through Old Town, with a transition to Richmond Highway south of Alexandria. Figure 3.3 shows this concept. This concept has the potential to accommodate rail and bus transit technologies. An interim terminus of the transitway could be at Duke Street. Within this concept, several runningway configurations could support the transitway operation through Old Town including:

- Conversion of the existing high-occupancy vehicle (HOV) lanes to transit and HOV lanes
- Conversion of the existing HOV lanes to transit only
- Several effective service structures could be used to operate this concept including:
 - Extension of CCPY service to the southern terminus of the transitway in Fairfax County
 - Spur service of REX to connect to the Braddock Road Metrorail station

Principal advantages and disadvantages of this concept include:

Advantages

- Minimizes transfers
- Direct route for through trips
- Potential for high quality of operation for transit service
- Increases availability and convenience to high-capacity transit services for east Old Town
- Direct connectivity to Metrorail at two locations in Alexandria
- Potential for phased implementation

Disadvantages

- Indirect connectivity to VRE and Amtrak
- Impacts traffic operations on Richmond Highway, Patrick Street, and Henry Street
- Potential noise and vibration impacts to Old Town
- Narrow existing lane widths along Patrick Street and Henry Streets could require adjustment to accommodate frequent transit service adequately
- Higher cost than Concepts 1 and 2

Concept 4 (Washington Street)

This concept is comprised of the adopted CCPY alignment to the Braddock Road Metrorail station and a new alignment primarily using existing Washington Street through Old Town, with a transition to South Patrick Street in south Old Town and to Richmond Highway in Fairfax County. Figure 3.4 shows this concept. This concept has the potential to accommodate rail and bus transit technologies. An interim terminus of this concept could be at Franklin Street and Gibbon Street. Within this concept, several runningway configurations could support the transitway operation through Old Town including:

- Conversion of the existing high-occupancy vehicle (HOV) lanes to transit and HOV lanes
- Conversion of the existing HOV lanes to transit only
- Several effective service structures could be used to operate this concept including:
 - Extension of CCPY service to the southern terminus of the transitway in Fairfax County
 - Spur service of REX to connect to the Braddock Road Metrorail station

Principal advantages and disadvantages of this concept include:

Advantages

- Minimizes transfers
- Potential for high quality of operation for transit service
- Significantly increases availability and convenience to high-capacity transit services for east Old Town
- Direct connectivity to Metrorail at two locations in Alexandria
- Operates along a potentially more compatible route (Washington Street) from a residential impacts perspective
- Potential for phased implementation

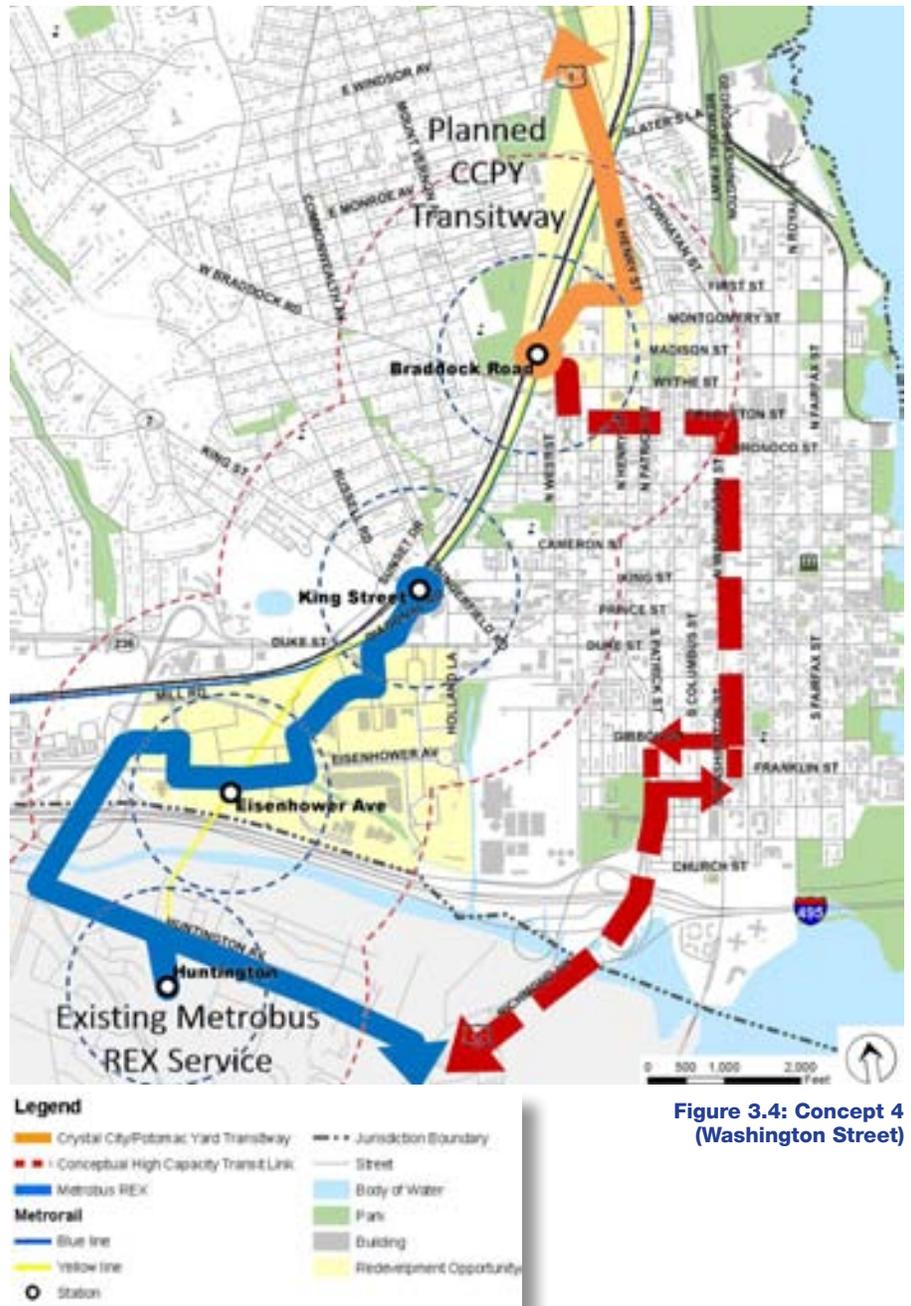


Figure 3.4: Concept 4 (Washington Street)

Disadvantages

- Less direct route for through trips than Concept 3 due to transitions at north and south ends of the route through Old Town Indirect connectivity to VRE and Amtrak
- Impacts traffic operations on Richmond Highway, S. Patrick Street, and Washington Street
- Has potential National Park Service complications
- Potential noise and vibration impacts to Old Town
- Higher cost than Concepts 1 and 2





Corridor C, Corridor Work Group Meeting

Process

The City of Alexandria initiated a public process in coordination with the evaluation of transportation conditions and the development of potential transit concepts for the study. Through regular meetings of the High Capacity Transit Corridor Work Group (Corridor Work Group), which were open to the public, members of the Corridor Work Group and citizens provided input for the study. Corridor Work Group members and the public provided input on existing transportation conditions; transit opportunities and constraints; transit service and runningway concepts, transit mode technologies; community considerations; transportation priorities; and financial elements. Each Corridor Work Group meeting was structured to provide an opportunity for presentations and information sharing from the project team (city staff and consultants) as well as comments, questions, and discussion by the Corridor Work Group and comments and questions from the public.

Membership on the Corridor Work Group represented a wide range of interests and geography within the City of Alexandria. It included two members of Council (non-voting), one representative from the Planning Commission, one representative of the

Transportation Commission, one representative of the Budget and Fiscal Affairs Advisory Committee, one representative of the Chamber of Commerce, two representatives appointed by the Alexandria Federation of Civic Associations, and one citizen with transit industry expertise.

Corridor Work Group Membership

- Anna Bentley, Transportation Industry Representative
- Bill Denton, Chamber of Commerce Representative
- Donna Fossum, Transportation Commission Representative
- Dak Hardwick, Budget & Fiscal Affairs Advisory Committee Representative
- Poul Hertel, Alexandria Federation of Civic Associations Representative
- Nancy Jennings, Alexandria Federation of Civic Associations Representative
- John Komoroske, Planning Commission Representative
- Rob Krupicka, Councilman
- Paul Smedberg, Councilman

In addition to a field walk conducted with the Old Town Citizens Association on May 19, 2011, the following three Corridor Work Group meetings were held to focus on, or discuss Corridor A:

- May 19, 2011. Overview of study goals and objectives, expected outcomes, and review of existing conditions - Corridor Work Group and public discussion
- July 21, 2012. Review of existing conditions and general framework for future concepts - Corridor Work Group and public discussion
- September 15, 2012. Additional existing conditions information and review of general future concepts - Corridor Work Group and public discussion

Discussion

During Corridor Work Group meetings, discussion ranged from current transportation issues and neighborhood concerns to future transitway concepts and Old Town transportation priorities. A brief summary of paraphrased public and Corridor Work Group comments from the three meetings is provided below:

Public Comments

Connectivity and Service to Destinations & Population

- Study needs to define travel patterns and potential users of the future transitway within the identified corridor—some concern was noted as to the corridor mostly serving non-Alexandrians
- Needs to be a distinction between destination types within the study corridor
- Perception that the study area (Old Town) is already well-served by Metrorail and would not benefit from a new transitway in the location proposed
- REX service passengers destination is Metrorail at Eisenhower Avenue and King Street
- Improvements should focus on serving local residents before serving regional users
- Focus on connectivity to Metro, not trips through Old Town
- Question the need for surface transit

connectivity between Braddock Road and King Street Metrorail stations

Community

- Travel lanes are very narrow on Patrick and Henry Streets, concern that adding transit to these lanes will make conditions worse for residents
- Concern that investing in high-capacity transit could create new development pressure in Old Town
- Do not widen any streets in Old Town or remove parking along Patrick or Henry Streets
- Preservation of streetscape and neighborhood character is critical
- Noise and vibration of historic and old structures along Patrick and Henry Streets is a major concern
- Inadequate rights-of-way already constrain sidewalk, tree buffers, and parking – these need to be improved before transit modifications should be considered
- Consider reducing vehicular capacity on Patrick and Henry Streets to reduce traffic volumes
- There is already high transit use in Old Town
- Concepts should protect Old Town and divert traffic around it; consider using the right-of-way along the freight railroad or limiting new routes through Old Town by routing services to Eisenhower Avenue to/from the south

Alignment/Route

- No community support for a transitway alignment through Old Town
- Priority in Old Town is on a local transit circulator to improve connectivity to Metrorail
- Any future system should be continuous to avoid mode transfer penalties
- Future transit service should cross the Woodrow Wilson Bridge into Maryland
- Consider extending the yellow line to Fort Belvoir instead of extending transit through Old Town
- Consider a transit connection using the rail spur to the waterfront
- Evaluate the opportunity to continue dedicated



lanes from the Route 1 section Crystal City-Potomac Yard to Braddock Metro using the railroad right-of-way

- Connection through Old Town and to Fairfax County is desirable; there has been a lot of discussion about congestion in Old Town and something needs to be done
- Washington Street alignment may be more desirable than an alignment on Patrick and Henry Streets; however, there is opposition to high-capacity transit along Washington Street
- King Street trolley service is desirable
- Additional east-west connectivity is desirable
- A No Build option needs to be considered

Corridor Work Group Comments

Existing Conditions

- Limited right-of-way along Patrick and Henry Streets
- Significant congestion already exists within the US 1 corridor
- No transit currently operates along Patrick and Henry Streets
- Significant rate of HOV violations in arterial HOV lanes on Patrick and Henry Streets—little enforcement
- 33.5 million square feet of development (Potomac Yard, Crystal City, and other developments) is coming to the Route 1 corridor and Route 1 is already at saturation
- DASH services and amenities are inconsistent in Old Town
- Headways vary from route to route and during different times of the day
- Routes are indirect
- Headways and travel times are long enough that in some cases it is easier to walk
- Service has low ridership

Future Conditions

- Do no harm to Old Town
- Protect neighborhoods from existing and future through traffic
- Consider removing a general purpose through lane on Patrick and Henry Streets

- Coordinate with neighboring jurisdictions to take advantage of opportunities such as Fairfax County's Route 1 project and the Huntington Metrorail station
- Evaluate population and employment at the U.S. Census Block level
- Examine travel pattern information
- Transit travel must be competitive with auto travel

Future Services

- Service needs to be reliable, fast, and convenient
- Real solution to traffic problems is to provide a reliable circulator system
- Provide additional east-west transit connections
- Need to coordinate with neighboring jurisdictions
- Consider a concept with high-capacity transit operating in mixed flow
- Provide services in Old Town that increase connectivity of existing services
- Need to factor King Street and Braddock Metrorail Stations into the options
- Improve branding of DASH services and have Old Town specific branding of transit services
- Enhance the existing REX service and connect it to the future Route 9X service
- Consider more service to connect to the Crystal City/Potomac Yard transitway 1) with dedicated lanes; 2) without dedicated lanes; and 3) with marginal physical improvements
- Consider an extension of the Yellow Line into southern Fairfax County
- Look to create a partnership with adjacent jurisdictions to fund Corridor A improvements
- Consider using transit signal priority (TSP) to improve transit travel speeds





Euclid Avenue, Healthline BRT at Cleveland Clinic (Cleveland, Ohio)

Process Conclusions

The series of Corridor Work Group meetings revealed significant concerns and alternative transportation priorities for the public and other stakeholders along Corridor A. From the Corridor Work Group meetings and other interactions with the public, the study team recognized that the development of a transit service and infrastructure plan for additional north-south transit service was not a priority. Instead, the public and Corridor Work Group expressed a desire to focus on transportation solutions to enhance local mobility and connectivity within Old Town and existing Metrorail stations at Braddock Road and King Street through the following general concepts:

- Completion of the adopted Crystal City/Potomac Yard transitway project to the Braddock Road Metrorail station
- Reconfiguration of existing DASH services within Old Town to simplify route structure, schedules, and frequency of service
- Potential Old Town circulator transit service

Responding to Corridor Work Group direction and public comments, city staff recognized that the development of a service and infrastructure concept in Corridor A to the south of Braddock

Road was a lower priority than transitways in Corridors B and C. Other transit studies were requested by the Corridor Work Group and public within the Corridor A area, focused on local mobility and circulation. Consistent with public and Corridor Work Group comments, the DASH Comprehensive Operations Analysis (COA) will closely examine DASH services within Old Town and evaluate potential circulator service alternatives for Old Town. In general, alternatives for the Old Town circulator should consider the following:

- **Transit service and facility coordination.** The service should connect directly to the King Street and Braddock Road Metrorail stations. It also should connect to significant transfer locations for DASH.
- **Appropriate frequency and duration of service.** The service should be sufficiently frequent—minimum of 15-minute headways, preferably less based on the relatively compact service area—that people do not need to rely on a schedule when using the service. Headways should be consistent to the extent possible. The service should be provided for a period complementary of operating hours of area destinations and transportation services (Metrorail, DASH, VRE, and Metrobus).
- **Direct, simple routing.** The service should be oriented in a logical, predictable route, free of unnecessary deviations. Loop alternatives should operate bidirectional services to reduce trip lengths for passengers. Linear alternatives



Figure 5.1: Bidirectional Circulator Concept 1 Starter Idea



should operate along easily recognizable and easy-to-understand routes (i.e. King Street to Commonwealth Avenue).

- **Recognizable brand.** The service should have a distinct and attractive brand that is easily recognizable by residents as well as visitors and others traveling within the area.
- **Appropriate vehicle type and size.** The circulator vehicle should be of an appropriate size and propulsion type to minimize negative impacts on the neighborhood, while providing transit patrons a comfortable and convenient travel experience. Ideally, the vehicle should be easy to board and alight—low-floor vehicle with nearly level boarding at stops—to improve accessibility and reduce dwell time at stops.
- **Fare structure.** Both fare and fare-free services should be considered. Each has advantages and disadvantages which should be weighed carefully. The collection of fares aids in the recovery of operating cost; however, it may discourage use of the service and increase dwell times at stops.
- **Amenities (facilities).** Appropriate facilities should be provided at circulator stops. All stops should be identified clearly through service-specific branding. All stops also should provide a route map highlighting significant destinations and other landmarks, information on how to access real-time arrival information, service frequency and duration information, fare information, lighting, and convenient access to a trash can. Some stops should provide real-time information, shelters, and benches.

Circulator Starter Ideas

Two circulator starter ideas were developed in-response to Corridor Work Group and public comments. These starter ideas are shown in Figures 5.1 and 5.2. Each of these concepts has the potential to incorporate features and operations described in the aforementioned summary points.

Figures 5.1 and 5.2 are intended to illustrate general concepts for circulators. The DASH Comprehensive Operations Analysis will identify and evaluate possible Old Town circulator

services in detail and will provide detailed recommendations.

The concept illustrated in Figure 5.1 shows a bidirectional circulator operating along Madison Street, Fairfax Street, King Street, and West Street. The circulator would connect to the King Street and Braddock Road Metrorail stations and also would connect to City Hall, where many of DASH's existing services stop. The service would operate bidirectionally to minimize travel time and distance for patrons.

The concept illustrated in Figure 5.2 also shows a bidirectional circulator. The route is slightly longer than the concept shown in Figure 5.1. To extend the reach of the circulator to south Old Town, the circulator would extend south of King Street on Washington Street, to Franklin Street and Gibbon Street (depending on direction), and then onto Fairfax Street. Like the first concept, this circulator would connect to the Braddock Road and King Street Metrorail stations as well as City Hall. Differing from the first concept, this concept would better serve south Old Town and the neighborhood commercial area of south Washington Street.

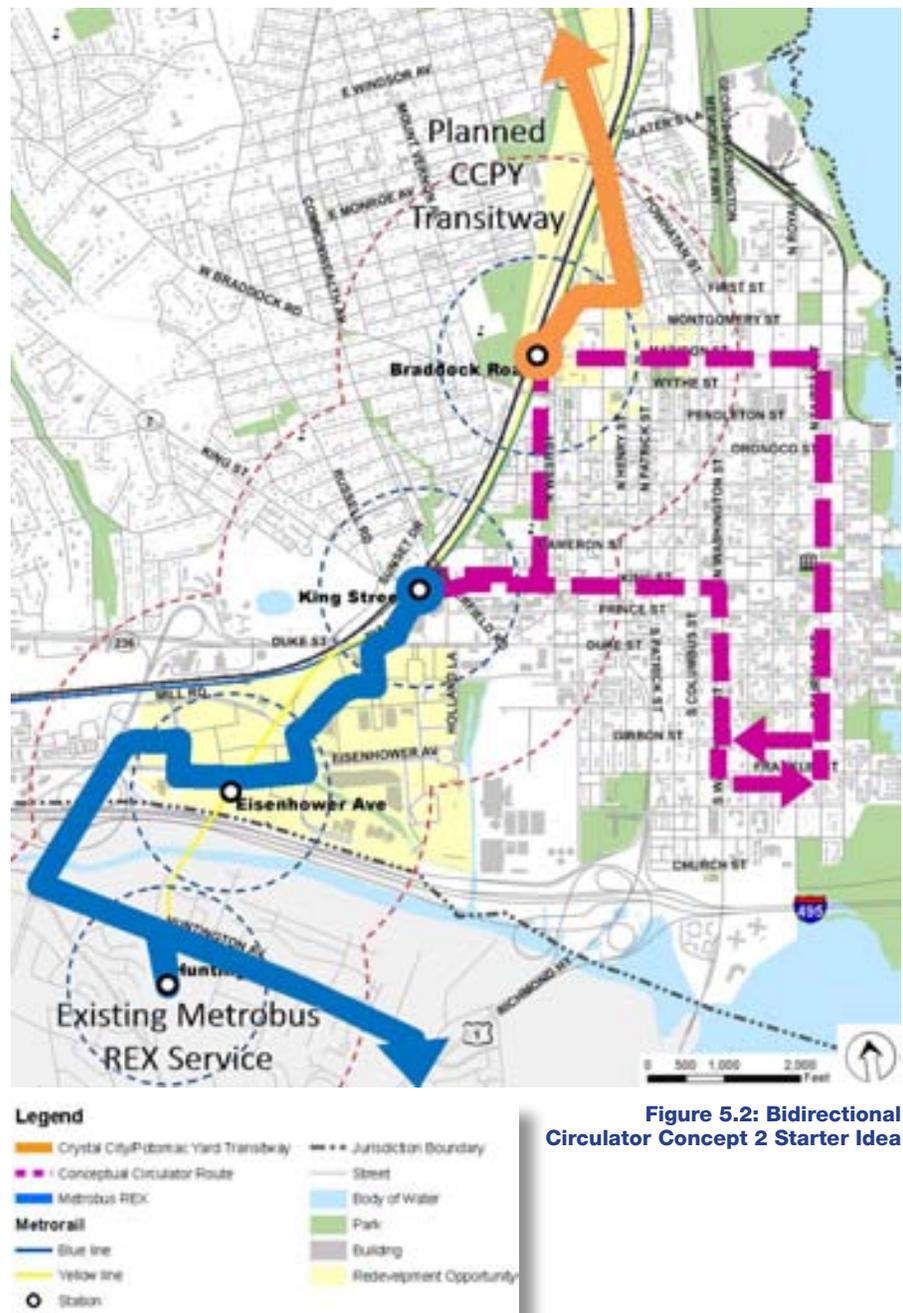


Figure 5.2: Bidirectional Circulator Concept 2 Starter Idea

Future Considerations

Currently, planning and implementation of high-capacity transit in Corridor A south of the Braddock Road Metrorail station is not a priority for Alexandria. Planning of new high-capacity and -quality surface transit is not being pursued further for Corridor A at this time. In the long-term, Corridor A (north-south) is likely to be an important link in the region's high-capacity and -quality surface transit network. MWCOG, WMATA, Fairfax County, and Arlington County have adopted plans to develop transit facilities and services to connect to Corridor A at its north and south termini. Reliable, continuous, convenient, and direct transit between Crystal City and southern Fairfax County has the potential to provide an additional travel mode choice for travelers in the US 1 corridor and has the potential to help manage through travel demand on Patrick and Henry Streets in Old Town Alexandria. Alexandria will continue to monitor transportation, land use and development, and regional planning and policy conditions as they relate to Corridor A. In the future, the city may undertake future transit and transportation planning initiatives to respond to changing conditions in the corridor.

