



**ARLINGTON**  
VIRGINIA  
**TRANSIT DEVELOPMENT PLAN:**  
**FISCAL YEARS 2011-2016**



**October 2010**  
*(Draft)*

Prepared by:



Under Sub-Contract to:



Under Contract to:



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## 1.0 OVERVIEW OF ARLINGTON TRANSIT

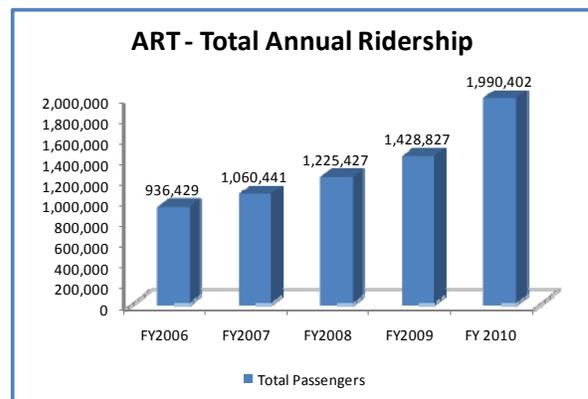
Arlington County, Virginia is an urban county of 25.8 square miles located directly across the Potomac River from Washington, D.C. It is bounded on the northwest by Fairfax County, on the west by the City of Falls Church, on the south by the City of Alexandria, and to the northeast by the Potomac River. According to the Census Bureau, Arlington County's population was 189,444 in the 2000 census and was estimated to be 210,000 on July 1, 2009<sup>1</sup>, a nearly eleven percent increase. Arlington County is one of the most densely populated jurisdictions in the country with a population density of 8,140 persons per square mile. Population forecasts project 238,000<sup>2</sup> individuals living in Arlington County by Year 2020, and additional 13% increase over 2009 estimates.

Although Arlington County exhibits high density residential communities, it is also known for its high employment concentrations. Arlington had an estimated 207,400 jobs as of July 1, 2009. Arlington County has more private office space than downtown Boston, Los Angeles, Dallas and Denver<sup>1</sup>. Nearly half of the employment is concentrated along the Rosslyn to Ballston Corridor Metrorail Orange Line Stations. Employment forecasts project employment to increase by 25% to 259,600 by Year 2020<sup>2</sup>.

### 1.1 Arlington County Mobility Services

Since the inception in November 1998 of the first ART route in the Crystal City neighborhood, ART fixed route transit service has grown to 11 routes (February 2010), with 2010 ridership over 1.9 million riders. ART has become an important transportation link between local neighborhoods and regional transit services (e.g., Metrorail and Metrobus). Recently ART has begun to operate primary transit network (PTN) service (e.g., Route 41) with heavy duty transit coaches, transforming the connector transit system to a line haul transit provider.

The Arlington County Department of Environmental Services' Transit Program provides public transportation services to accommodate the needs of Arlington residents, commuters and visitors. The ART (Arlington Transit) bus service is operated through a competitively procured contract with a private sector company (currently Forsythe Transportation). Funding for the ART bus service is derived from the County general funds, fares, state transit aid and developer contributions.



The integrated network of mobility services and facilities developed, coordinated or operated through this program to meet the mobility needs of the Arlington community and offer alternatives to driving alone include: Arlington Transit (ART), Specialized Transit for Arlington Residents (STAR), Metrorail, Metrobus, MetroAccess, Commuter Services, Virginia Railway Express (VRE), Ride Sharing, Car Pooling/Sharing, Bicycling, Walking, Super Senior Taxi (SST) and Taxi. Following is a brief description of each of these Mobility Services.

<sup>1</sup> Source: Profile 2009, Fall Update, Arlington County Planning Division

<sup>2</sup> Source: Arlington County Planning Division Round 7.2 Cooperative Forecasts

**Arlington Transit (ART)** – Arlington County local bus service provides fixed route transit service into neighborhoods, connecting to Metrorail stations and complementing existing Metrobus transit service. ART currently (February 2010) operates 11 routes (see Figure 1-1), of which 4 routes operate during peak periods weekday only; 7 routes all-day weekdays; 5 routes on Saturday; and 2 routes on Sunday. Weekday service generally operates between 6:00 a.m. and 9/10:00 p.m., Saturdays between 7:00 a.m. and 9/10:00 p.m., and Sundays between 8:00 a.m. and 9:00 p.m. Weekday service frequencies range between 15 and 60 minutes between buses, while weekend service operates between 20 and 60 minutes between buses. *Appendix A* contains a detailed description of each ART fixed route including span of service hours and frequency of service by time period.

**Specialized Transit for Arlington Residents (STAR)** – Arlington County service designed to meet the needs of those who need some travel assistance. STAR was reconfigured from a separate service for people with disabilities to offer a higher level of service for residents certified for MetroAccess at a lower cost per trip.

STAR is available between 5:30 AM and midnight, seven days a week. All peak period, night and weekend trips must begin or end in Arlington. STAR serves Arlington residents certified to receive MetroAccess services as well as some human service agency clients. Trips are scheduled with a few exceptions, without regard to the purpose of the trip.

**Metrobus** – The D.C. area’s regional bus service, operated by WMATA, has 24 bus lines operating 83 route patterns within Arlington County. Metrobus primarily operates line-haul fixed route (16 local fixed lines) and express route (8 express lines) service within and through Arlington County (see Figure 1-2 and 1-3 – includes ART). Of the 24 lines operated in Arlington County, 12 operate on weekdays only, 11 routes operate Monday through Sunday, and one route operates Monday through Saturday. Weekday and Saturday service generally operates between 5:00 a.m. and 12/1:00 a.m., and Sundays between 6:00 a.m. and 11:00 p.m./12:00 a.m. Weekday service frequencies range between 5 and 60 minutes between buses, while weekend service operate between 30 and 60 minutes between buses. *Appendix A* contains a detailed description of each Metrobus fixed line including span of service hours and frequency of service by time period.

**Metrorail** – WMATA operates three heavy rail lines in Arlington County with 12 miles of Metrorail and 11 stations (see Figure 1-4). Following are the lines and stations:

- The Orange Line operates in Arlington County with stations at Rosslyn, Courthouse, Clarendon, Virginia Square-George Mason University, Ballston-Marymount University and East Falls Church.
- The Blue Line operates in Arlington County with stations at Rosslyn, Arlington Cemetery, Pentagon, Pentagon City, Crystal City and Ronald Reagan Washington National Airport.
- The Yellow Line operates in Arlington County with stations at Pentagon, Pentagon City, Crystal City and Ronald Reagan Washington National Airport.

Generally, Metrorail trains operate Monday through Thursday from 5:30 AM until midnight, Friday from 5:30 AM until 3:00 AM the next day, Saturday from 7:00 AM until 3:00 AM the next day, and Sunday from 7:00 AM until midnight.

**MetroAccess** – Complementing Metrorail and Metrobus, and local bus service, MetroAccess is a regional paratransit service for persons with disabilities. Only riders who meet the criteria specified by the

Americans with Disabilities Act (ADA) and who have been certified as eligible can use MetroAccess. Eligibility is based on a person's functional limitations rather than whether they have a disability or because of their age. Its service area includes the District of Columbia, Montgomery County, Prince George's County, Arlington County, Fairfax County, and the cities of Alexandria, Fairfax and Falls Church.

Core hours of MetroAccess operation reflect the core hours of operation of fixed-route services (Metrorail and Metrobus): Monday through Thursday, 5:00 AM to midnight; Friday 5:00 AM to 3:00 AM Saturday; Saturday 7:00 AM to 3:00 AM Sunday; and Sunday 7:00 AM to midnight. Reservations can be made outside of those hours if fixed-route service is offered at the same time and along the requested route of MetroAccess travel.

MetroAccess base fare is \$2.50. Riders may travel up to four zones beyond the weekday, peak period, public transit service area by paying \$1.00 per zone in addition to the base fare.

**Virginia Railway Express (VRE)** – VRE is a commuter rail service connecting northern Virginia and Washington D.C. VRE is operated as a partnership of the Potomac Rappahannock Transportation Commission (PRTC) and Northern Virginia District Transportation Commission (NVTC) to provide commuter rail service on two lines, from Fredericksburg and from Manassas, with both lines serving stations in Alexandria, Arlington (Crystal City) and Union Station in Washington D.C. (see Figure 1-5). Located on South Crystal Drive, VRE's Crystal City station is about five miles from Union Station. Trains run Monday through Friday, except on federal holidays.

The combined headways of both lines provides Crystal City with 12 northbound trains to Union City station between 6:00 and 9:00 AM, two southbound trains during the midday between 1:00 and 1:30 PM, and 12 southbound trains that arrive at the Crystal City station between 3:50 and 7:00 PM.

There is no station-area parking, but connections are possible to the Metrorail Crystal City station (Yellow and Blue lines) and Metrobus.

**Bicycling** – Arlington County is a great place to get around by bike. More than one hundred miles of multi-use trails, on-street bike lanes, and designated bike routes make it easy for cyclists to get where they need to go. Both ART and Metrobus buses have a two-place bike rack that will hold standard length bicycles. Bikes ride free with the passenger. Bikes are permitted on Metrorail during off-peak times.

The *Bicycle Element of the Arlington Master Transportation Plan (MTP)*, focuses on bicycle travel, which is greatly affected by land use, street design, traffic volumes, fuel prices, public perception and transportation system management. The Bicycle Element of the MTP is described further in Chapter 3 of the TDP.

**Walking** – Arlington County offers some of the best walking environments as an urban area in the country. "Approximately 75 percent of County secondary streets have a sidewalk along at least one side. Many streets have sidewalks along both sides, especially those in commercial areas and on higher classified roads<sup>3</sup>". On average, over two miles of new sidewalks are added each year. Additionally, the county has an on-going process of retiming traffic signals to improve pedestrian crossing times.

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<sup>3</sup> Arlington County Master Transportation Plan (MTP) Baseline Conditions Report

The *Pedestrian Element of the Arlington Master Transportation Plan (MTP)*, focuses on pedestrian travel, which is greatly affected by land use, street design and transportation system management. The Pedestrian Element of the MTP is described further in Chapter 3 of the TDP.

**Senior Taxi (SST)** - Arlington County works with local taxi services to provide discounted taxi service for seniors over the age of 75 years of age.

**Taxi** – Arlington County works with multiple taxi providers to regulate fares and the size and age of the fleet to ensure quality alternative mobility services within the community.

**Arlington County Commuter Services (ACCS)** – The ACCS program provides information and services to customers via retail stores, mobile retail stores, the internet, advertising, direct mail and other promotional events. ACCS also works with business, property managers and hotel managers who in turn work with their employees, tenants and guests. Major program areas include: The Commuter Stores, Arlington Transit Partners (ATP), Marketing and Internet Services.

The *Demand and System Management Element of the Arlington Master Transportation Plan (MTP)*, reinforces the general policy of integrating transportation and land use, and focuses on the general policy of managing travel demand and transportation systems.

Arlington County has a long-standing tradition of concentrating much of its development near public transit facilities and services. According to the 2009 Arlington County Master Transportation Plan (MTP),

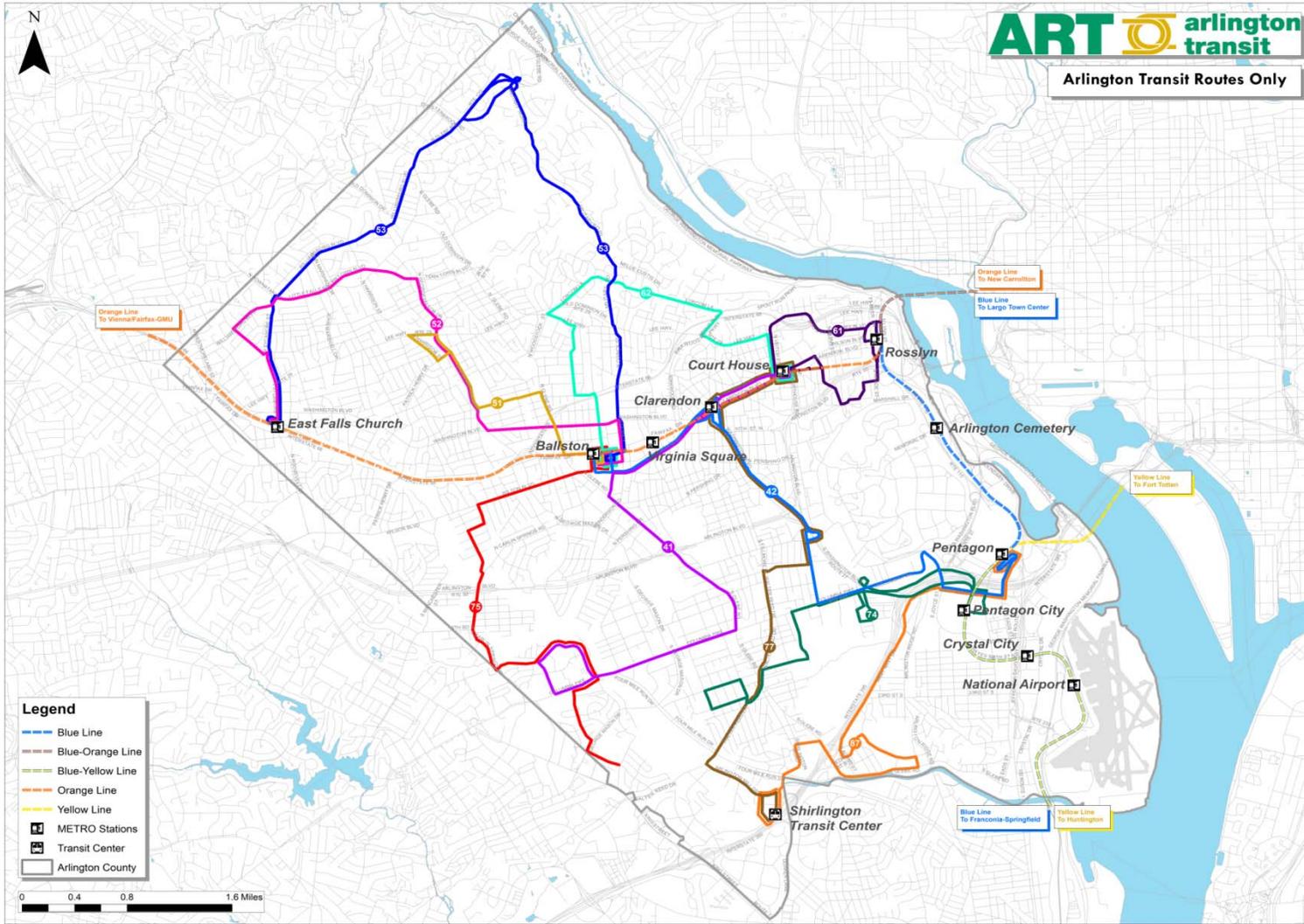
“Approximately 96 percent of Arlington’s residents and 96 percent of its jobs are located within a quarter mile of a local bus route and/or a half mile of a Metrorail station...About one-quarter of all Arlingtonians rely on Metrorail, Metrobus, and Arlington Transit (ART) service for daily commuting, primarily for access to worksites in Washington, D.C. Many other residents take transit to work at the nearly 200,000 jobs clustered around transit stops within Arlington’s higher-density corridors.”

Many other public transportation providers also access Arlington’s Metrorail stations including Alexandria’s DASH bus system, the Fairfax Connector bus system, the Falls Church GEORGE buses, the Georgetown Metro Connection, Georgetown University Transportation Shuttle, Loudoun County Transit, and OmniRide, a weekday express bus service operated by the Potomac and Rappahannock Transportation Commission (PRTC).

Additional transportation connections to Arlington County include private commuter services from the City of Fredericksburg, Stafford and Loudoun counties; shuttle services from Marymount University, the federal government and several private property owners; the Washington Flyer airport service; taxicab and car-share services; and the Arlington Department of Human Services and other specialized transportation services.

**Ridesharing / Car Pooling / Sharing** – Commuter Connections is a network of Washington, D.C.-area transportation organizations coordinated by the Metropolitan Washington Council of Governments (COG). Commuter Connections will match you with a carpool, or you can use their online bulletin board. Commuter Connections also operates the Guaranteed Ride Home program.

Figure 1-1  
Arlington County Transit (ART) System



**Figure 1-2  
Metrobus System in Arlington County**

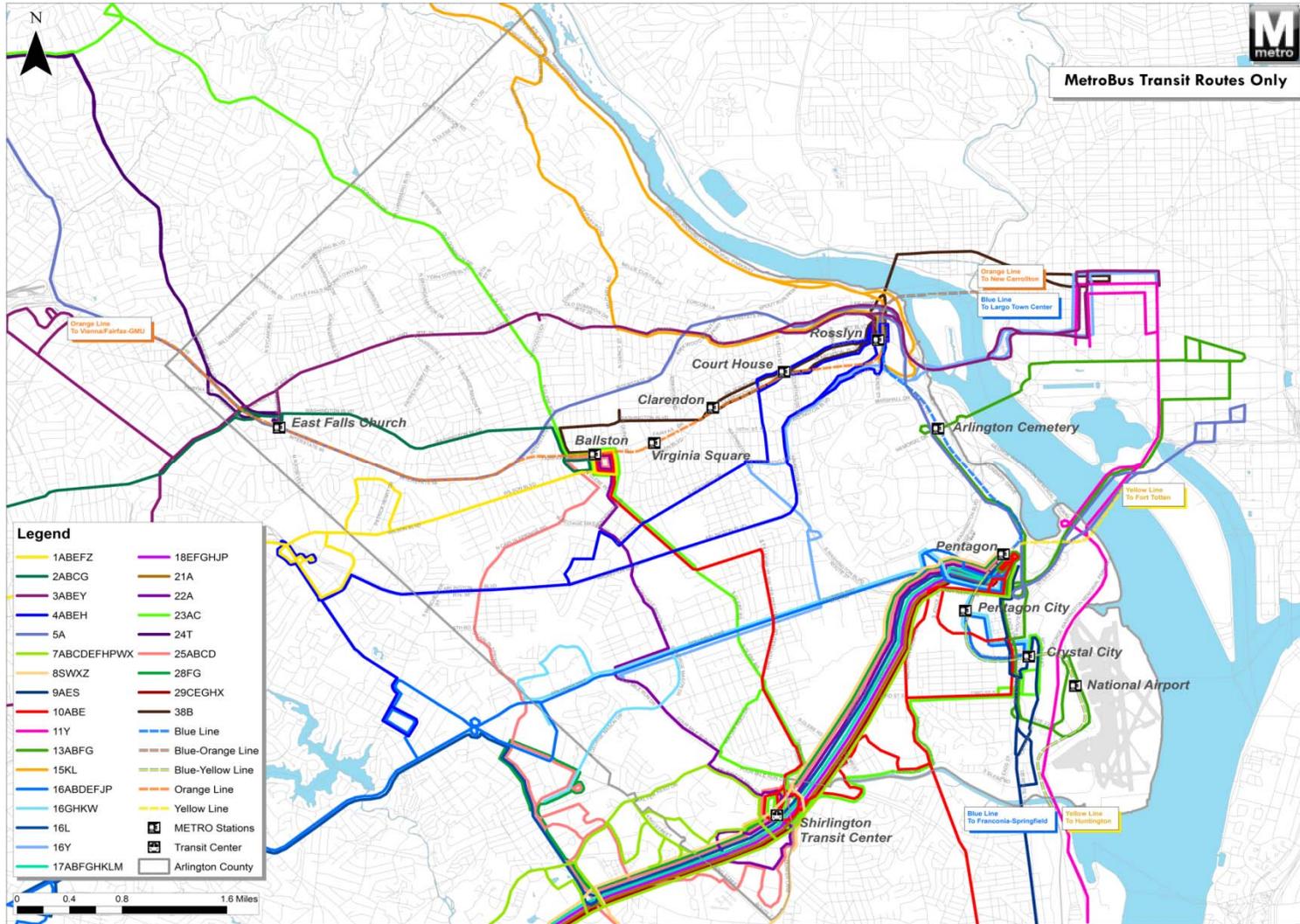


Figure 1-3  
 ART and Metrobus System in Arlington County

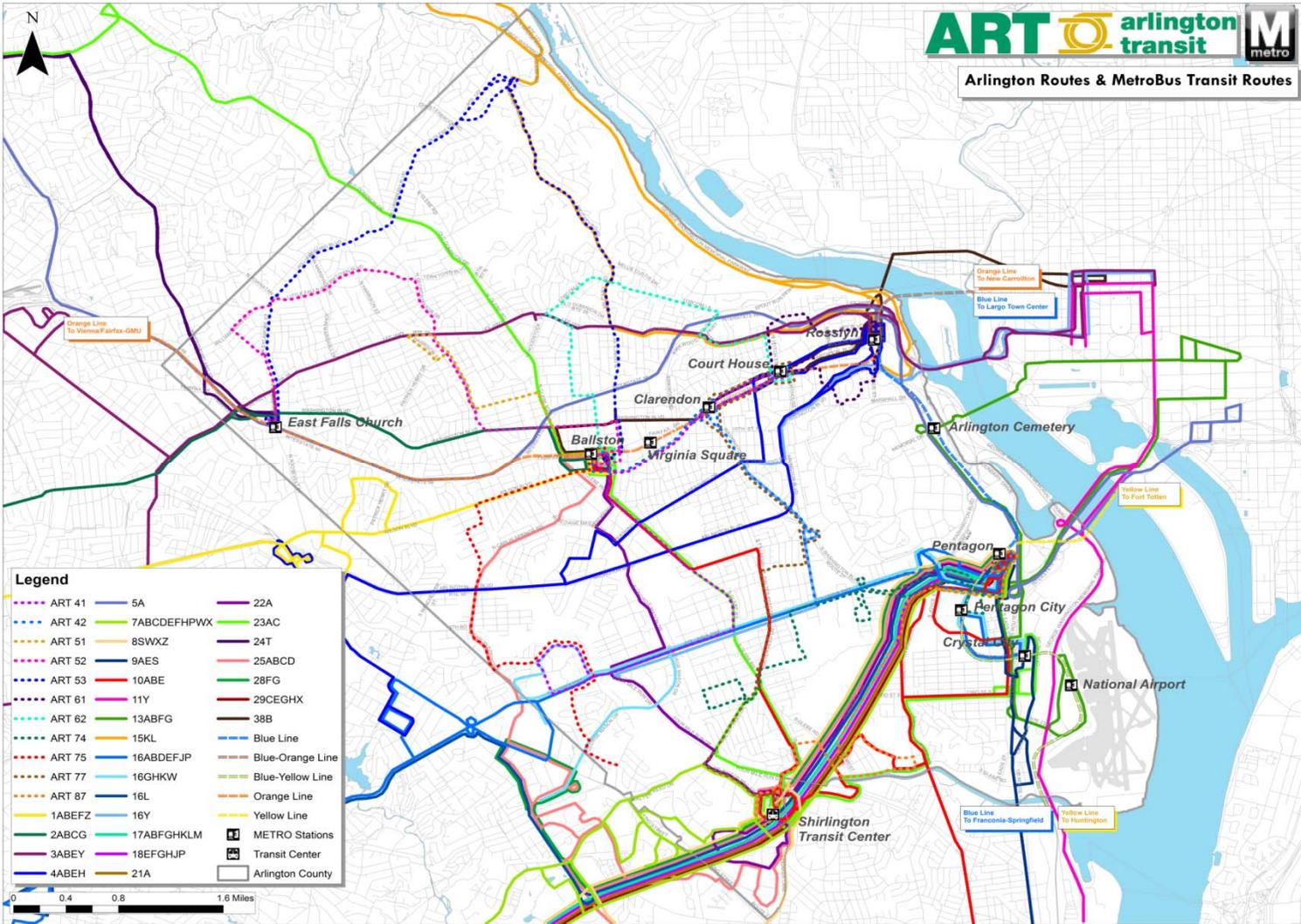


Figure 1-4  
Metrorail System

**M System Map**

MetroOpenDoors.com  
Customer Information Service: 202/637-6000  
TTY Phone: 202/633-3785

**Legend**

- Red Line • Glenmont to Shady Grove
- Orange Line • New Carrollton to Vienna/Fairfax-GMU
- Blue Line • Franconia-Springfield to Largo Town Center
- Green Line • Branch Avenue to Greenbelt
- Yellow Line • Huntington to Fort Totten

Station in Service

Commuter Rail  
Virginia Railway Express

Transfer Station

Bus to Airport

Parking



Figure 1-5  
Virginia Railway Express (VRE) System



## 1.2 Organizational and Governance Structure

Arlington County is governed by a five-member County Board vested with its legislative powers. Members are elected at-large for staggered four-year terms. The Board's current Chairman is Jay Fisette and the Vice-Chairman is Christopher Zimmerman. Arlington County's Department of Environmental Services is responsible through its Transit Bureau for providing public transportation that encompasses a network of transit services and facilities. Arlington Transit is one element of the program that also includes Metrorail, Metrobus, MetroAccess, Specialized Transit for Arlington Residents, Commuter Services, and Virginia Railway Express.

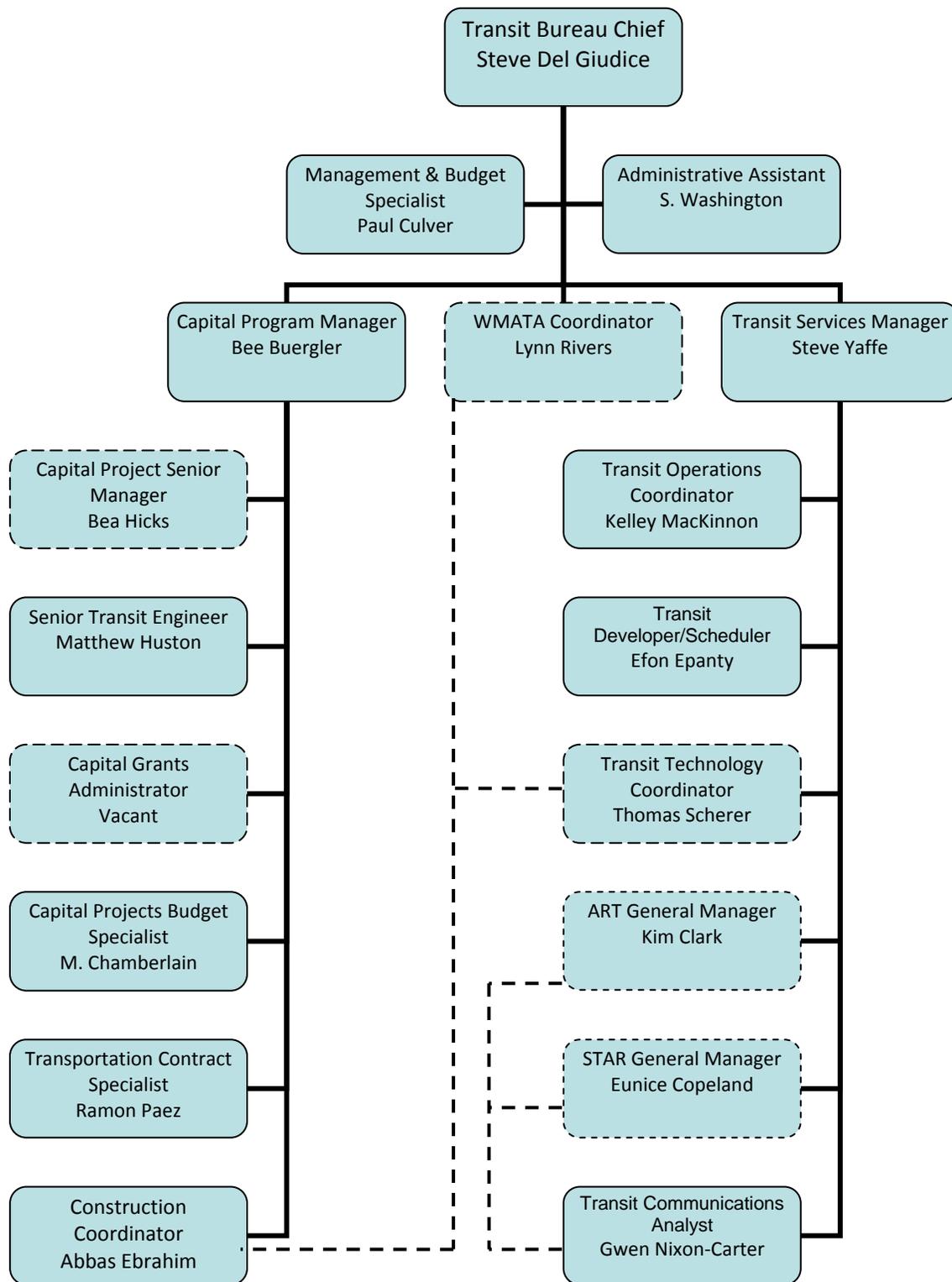
Figure 1-6 shows how the County has structured Arlington Transit.

Arlington County's advisory resources for ART include the Transit Advisory Committee (TAC), a 15-member committee appointed by the County Manager for policy oversight of Arlington Transit.

The Transportation Commission is an advisory body to the County Board on transportation related items. This includes streets, transit, pedestrian, taxicabs and bicycle modes and their relation to site plans, local area and sector plans and the Master Transportation Plan. The Commission was formed in 1972 and is comprised of no fewer than 7 members nor more than 13 members. The members are typically appointed to four year terms and the chairman is designated by the County Board in June of every year.

The Disability Advisory Commission is an advisory body to the County Board on disability issues, which occasionally confers with the Transit Bureau to review accessibility issues for transit and paratransit services.

**Figure 1-6  
Arlington Transit Bureau Organization**



### 1.3 Fare Structure

Arlington Transit recently updated its fares as of July 1, 2010. Passengers boarding ART buses are subject to the following fares:

#### **Regular Fare**

- Cash Fare: **\$1.50**
- Fare with a SmarTrip card: **\$1.50**
- Transfer from Metrorail with SmarTrip: **\$1.00**
- Transfer between Metrobus & ART with SmarTrip within two hours: **Free**
- Without a SmarTrip card, transfer require full fare
- Children under five: **Free**

#### **Senior/Disabled & Teen iRide**

- Fare for senior citizens and people with disabilities: \$0.75
- With Senior/Disabled SmarTrip card: \$0.75
- Transfer from Metrorail with SmarTrip: \$0.75
- Transfer between Metrobus and ART with SmarTrip: Free
- Fare for those qualified for MetroAccess: Free
- Fare for teens with Arlington middle or high school ID: \$0.75 cash or green iRide token

#### **Tokens and Passes**

- Gold ART full-fare tokens, Metrobus tokens, and the Regional Bus Pass are accepted as full fare

**STAR** – Riders using ART’s complementary paratransit service pay fares that are structured on a zone basis:

Zone 1: \$3.00 for trips inside Arlington.

Zone 2: \$4.00 for trips to D.C., Alexandria, Falls Church or Fairfax County inside the Beltway as well as two high-demand locations just outside the Beltway in Fairfax County (Inova Fairfax Hospital/Woodburn Mental Health, Alzheimer’s Family Day Center).

Zone 3: \$8.50 for trips to Fairfax County outside the Beltway, Montgomery County or Prince George’s County. All trips must begin or end in Arlington. (MetroAccess is available to provide these rides for a \$2.50 fare.)

## 1.4 Vehicle Fleet

Arlington Transit owns and operates a fleet of 35 buses. Model years for these vehicles range from 2002 to 2008. Table 1-1 identifies Arlington Transit's fleet composition.

**Table 1-1  
Arlington Transit Fixed-Route Revenue Fleet**

Vehicle ID #'s	Year	Make	Seated Capacity	# of Vehicles
34291	2002	Ford E450	14	6
34292	2003	Ford E450	14	2
34293	2004	SPC Ambassador	28	1
34294	2004	GLV MB55	29	1
34295	2006	Ford E450	17	5
34296	2007	Nabi 35LFW	30	8
34297	2008	Nabi 35LFW	30	12
<b>Total Fleet</b>				<b>35</b>

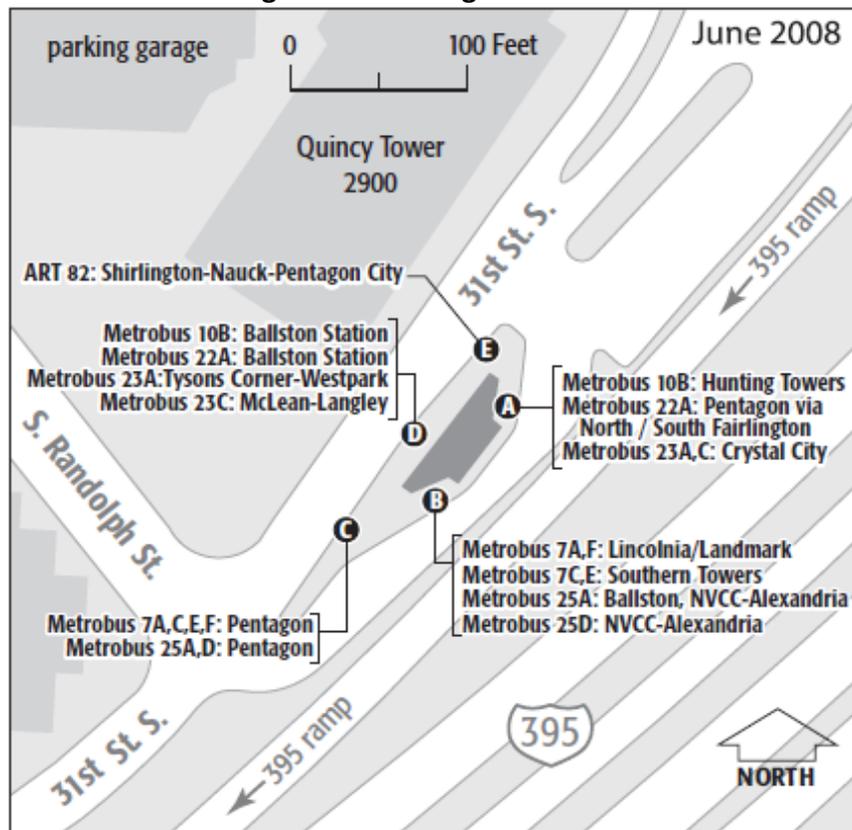
## 1.5 Facilities

Arlington County owns the ART House operating base for ART services, adjacent to the WMATA Four Mile Run Operating Division on South Eads Street just north of South Glebe Road. This facility includes a refurbished building and paved parking which will be redesigned, leveled and improved to accommodate more buses. The Transit Bureau is preparing plans to develop a compressed natural gas fuel site and bus wash facility on-site in Fiscal Year 2012, followed by a maintenance facility in future years. The ART operations contractor, Forsythe Transportation, maintains the fleet at their leased facility on Farrington Avenue in Fairfax County.

Arlington County has 1,054 bus stops for ART, Metrobus, or both. Of these stops, 215 have bus shelters and 305 have benches.

Arlington County owns, operates and maintains a bus transfer hub on South Quincy Street next to a southbound ramp for the Shirley Highway/I-395. Called Shirlington Station, the facility provides an indoor waiting area with customer seating and restrooms, a partially covered outdoor plaza, and five bus bays with assigned bus routes. The station features LED signs at each of the bus stops that display bus departure times, and indoor LCD screens provide additional transit information. There is also a Commuter Store in the waiting room.

Figure 1-7 Shirlington Station



## 1.6 Transit Security Program

Transit Bureau staff are represented in the County's Emergency Preparedness Plan/Program at the ESF-1 (transportation) level. During the recent heavy snow storms, Transit Bureau personnel participated in conference calls developing the County and the region's transportation response, including advising the Director of the U.S. Office of Personnel Management.

Forsythe Transportation, the ART Operations and Maintenance contractor, trains staff in safety and security procedures including and beyond safe and defensive driving techniques, accident reporting, and emergency preparedness including table-top and live exercises. Forsythe has an Ambassador Club including drivers and maintenance personnel to discuss and take a lead role in tackling safety, security and maintenance issues. All applicants are screened. Dispatchers and road supervisors are trained in these areas and are expected to conduct periodic driver observations and ride checks. Forsythe has individual and group incentives to promote a safety culture.

The Transit Bureau will develop a Safety and Security Plan specifically for ART along the guidelines suggested by the Office of Compliance Inspection Program, Transportation Security Administration, U.S. Dept. of Homeland Security. Subsequent updates to the TDP will contain the most recent version of this plan.

## 1.7 Public Outreach Program

The Arlington County Commuter Services Bureau (ACCS) and the Transit Bureau, both within the Department of Environmental Services, share responsibility for public outreach activities to promote transit use. ACCS contracts with Arlington Transportation Partners (ATP) to consult with and offer commuter and transportation benefits to employers, tourists, and tenants throughout Arlington County and the metropolitan Washington, D.C. region. ATP provides information and assistance to businesses implementing commuter benefits programs as well as residential developments and hotels looking to improve their attractiveness to potential tenants and guests. ACCS provides transportation and commuting information to Arlington County residents through direct mailings, point-of-purchase displays, articles and special inserts in *The Citizen* newsletter, events, Commuter Stores and websites.

ACCS, in conjunction with the Transit Bureau, also prepares and provides ART route schedule brochures, the STAR Rider Guide, and periodic newsletters of interest to the riders. ACCS develops and maintains signage at each ART bus stop displaying the route and schedule using that stop. ACCS contracts for maintenance of the ART/STAR websites as well as the software allowing staff to send ART Alerts to user e-mail and cell phone accounts with information of interest. ACCS staff takes a lead role in implementing the Demand and System Management element of the Master Transportation Plan, which encourages developers to support transit through a variety of means.

ACCS operates four Commuter Stores and one Mobile Commuter Store that sell fare passes for all regional transit systems, distribute transit information, and provide personalized commute solutions. ACCS also operates the 703-228-RIDE (7433) Call Center. The Call Center answers customers' phone calls, provides transit information and inputs data into an on-line customer comments system for ART.

The Transit Bureau has several outreach functions which will be overseen by the new Transit Communications Analyst position. These include maintenance of an inventory of civic and neighborhood associations affected by each bus route; maintenance of an email list of observers on each ART route, oversight of the on-line customer comments system; and liaison duties with potential stakeholders in the success of transit in Arlington. The Transit Bureau has developed the public participation process for this TDP and conducts community meetings to assess the acceptability of routing and scheduling ideas that would affect the community.

## 2.0 GOALS, POLICIES, IMPLEMENTATION ACTIONS AND PERFORMANCE MEASURES

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The Arlington County's Master Transportation Plan (MTP)<sup>4</sup> encompasses a broad policy framework to guide project and program development while promoting effective travel and accessibility for the county's visitors and residents. A key concept of the MTP is to flesh out a balance of primary and secondary transit networks that will not only meet the area's growing mobility needs, but also facilitate continued development and support a high quality of life. Arlington's Transit Element<sup>5</sup> was adopted in June of 2009 and among other things, the Transit Element advanced the MTP's framework by establishing additional implementation actions and comprehensive performance measures.

Subsequent sections of the Arlington Transit TDP aim to support concepts put forth by the MTP and its Transit Element. As such, Chapter 2 of the TDP summarizes/reiterates the goals, policies, implementation actions and performance measures put forth in the adopted Transit Element.

Because it is not the intent of the TDP to modify or change the Goals, Policies and Directives established in the MTP Transit Element, the following pages attempt to summarize and reiterate Arlington County's commitment to these Policies, Implementation Actions and Performance Measures. The intent of this chapter to reflect the establishment of adopted Goals and Policies by Arlington County for the development and advancement of transit services and document the County's commitment for continual review and update of these Goals and Policies.

### 2.1 Transportation Policies

Arlington County's policy is to use existing rights-of-way more efficiently through: integration of transportation and land use; more effective integration and balancing of travel modes through the implementation of Complete Streets; and TDM/TSM. This MTP does not propose the acquisition or construction of substantial new right-of-way for upgrade of existing streets.

These overall concepts provide the underlying framework for the plan.

The Master Transportation Plan (MTP) Goals and Policies document specifies three **general policies** that form the foundation of the MTP and, therefore, transportation in Arlington in the years ahead:

#### **General Policy A. Integrate Transportation with Land Use**

***Organize community development and redevelopment around high quality and high capacity transit.*** This has been a long-established policy of the County for the last 35 years in Arlington's Rosslyn-Ballston and Route 1 Metro Corridors. This policy is expanded to cover the development and operation of planned high capacity/high quality surface lines on Columbia Pike

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<sup>4</sup> Master Transportation Plan, Goals and Policies Summary, Arlington County, Virginia, Adopted November 13, 2007.

<sup>5</sup> Master Transportation Plan Transit Element, Arlington Virginia, Adopted June 13, 2009.

and in the Crystal City/Potomac Yard corridors. Development is planned with regard to the type of transit planned.

***Design and operate transportation facilities to be compatible with adjacent existing and/or planned development.*** For example, with regard to streets in commercial and development corridors, transportation elements are to be designed building-face to building-face (or front-of-yard to front-of-yard) with an emphasis on maximizing local travel choice and improving environmental quality.

#### **General Policy B. Support the Design and Operation of Complete Streets**

***Design and operate a comprehensive network of Arlington's local and arterial streets to enable safe access by all user groups including pedestrians, bicyclists, transit vehicles and users, and motorists of all ages and abilities, allowing these users to access a full range of daily activities.*** Arlington will work to transform its current roadway network into "Complete Streets." Complete streets provide appropriate facilities to accommodate all expected transportation users and also take into account the scale and character of the streets' setting. Transportation performance measurement will shift from an emphasis on the traditional vehicle "Level of Service" to an emphasis on multimodal "Quality of Service."

#### **General Policy C. Manage Travel Demand and Transportation Systems**

***Influence travel demand generated from new development through County Board-approved conditions and actively manage County-controlled streets, parking, transit services, and commuter service programs to minimize the growth in single occupant vehicle trips and to promote the use of all other mode of travel.*** If not managed effectively, the projected increase in demand on Arlington's transportation system from anticipated local and regional population growth will far exceed the existing or future capacity of the system. Therefore, it is vital to put into place a wide range of demand-management and system-management strategies. Many measures are proposed to achieve a shift away from use of personal motor vehicles towards greater use of transit, carpooling, bicycling, and walking. Taxis and car-sharing also offer opportunities to reduce auto ownership and dependence.

## **2.2 MTP Goals and Strategies**

The MTP Goals and Policies document establishes **six broad goals for the County's transportation policy** that direct the policies and implementation actions for transit. Following are the MTP goals and strategies.

**Goal 1 – Provide High-Quality Transportation Services.** Provide high-quality transportation services for all users and modes.

#### Strategies

1. Provide and promote affordable, convenient, and integrated transportation choices.
2. Construct and manage streets to be "Complete Streets." Streets should be safe and comfortable for pedestrians, bicyclists, transit riders, motorists, and other users.

3. Increase the overall person-capacity of Arlington’s transportation network through the more efficient use of existing street rights-of-way.
4. Expand and complete the bikeway network with a focus on high-quality facilities, overcoming barriers, and facilitating overall connectivity.
5. Integrate local transportation facilities and transit services with those of neighboring jurisdictions to enhance regional connections.
6. Allocate transit resources to emphasize fast, frequent, and reliable service on the Primary Transit Network, and increase neighborhood access with the feeder and connector service of the Secondary Transit Network.
7. Facilitate car-sharing and regulate taxicab service to ensure they provide high-quality services that complement transit, paratransit and non-motorized travel options.

**Goal 2 – Move More People Without More Traffic.** Provide more travel choices and reduce the relative proportion of single-occupant-vehicle (SOV) travel through Transportation Demand Management (TDM), telecommuting, and travel shifts to other modes including transit, carpooling, walking, and bicycling.

Strategies

1. Implement land-use policies such as transit-oriented and mixed-use development that result in better access and use of the transportation system.
2. Focus on minimizing person delay across modes rather than focusing exclusively on minimizing vehicle delay.
3. Encourage the use of environmentally sustainable modes, including bicycling, walking, transit, carpooling, and telecommuting.

**Goal 3 – Promote Safety.** Provide transportation system operations that are safe and secure, and enable prompt and effective emergency response.

Strategies

1. Minimize rates of injuries and accidents for each mode and ensure that transit riders, pedestrians, bicyclists, and motorists feel safe and comfortable at all times when traveling in Arlington.
2. Optimize the transportation system’s ability during emergencies to execute emergency responses, including evacuation when necessary.
3. Ensure that the County transportation infrastructure serves emergency responders’ needs to react to disasters and enables people to move away from danger areas.

**Goal 4 – Establish Equity.** Serve the mobility and accessibility needs of all residents regardless of age, income, or ability.

Strategies

1. Provide safe and convenient pedestrian access on all streets.
2. Ensure transportation facilities meet the Americans with Disabilities Act (ADA) guidelines, preferably through universal design.
3. Provide good quality travel options for all residents and workers throughout the county regardless of their location.
4. Support programs that emphasize the special transportation needs of children, the elderly and the disabled.
5. Provide a broad array of transportation options that ensure access to affordable travel.

**Goal 5 – Manage Effectively and Efficiently.** Fund, develop, manage, and maintain transportation facilities and services in an equitable and cost-effective manner.

Strategies

1. Use Transportation Demand Management (TDM) and Transportation System Management (TSM) measures to mitigate expected increases in travel demand and to maintain traffic operation efficiency.
2. Plan, design, and maintain transportation facilities in a manner that minimizes the life-cycle cost of the facility while providing high-quality service.
3. Manage motor vehicle congestion by emphasizing transportation alternatives, parking management, and queue management.
4. Identify and pursue policies and practices that take advantage of new technologies that can enhance the quality and efficiency of transportation facilities and services. Carefully design and implement demonstrations of such innovations.
5. Plan, measure and evaluate service with a general emphasis on daily and weekly peak demand.

**Goal 6 – Advance Environmental Sustainability.** Reduce the impact of travel on community resources including air and water quality, and increase energy efficiency.

Strategies

1. Increase energy efficiency and reduce hydrocarbon emissions by encouraging and accommodating non-motorized travel, public transit, carpooling, telecommuting, and alternative-fuel vehicles.
2. Minimize the creation of impervious surface area for streets and other transportation facilities, and manage the collection and release of runoff in an effective and environmentally sensitive manner.
3. Increase planting of trees within street and highway right-of-way.
4. Respect and accommodate historic and cultural resources.

### **2.3 Transit Element – Policies, Implementation Actions, and Performance Measures**

The MTP’s Goals and Policies element, which sets out the principal County transportation policies, includes ten policies that relate to transit. Policies with common subject or scope have been grouped together into six general categories:

- Increasing transit service options
- Improving access to transit services for all,
- Improving transit facilities,
- Creating multi-modal centers for convenient transfers,
- Expanding transit information distribution and marketing outreach, and
- Employing environmentally-sensitive technologies.

Within the six general policy sections specific actions have been identified to implement each of the policies. The policies have been given new numbers, and also show the number assigned in the Goals

and Policies document in parentheses. The transit element also sets out performance measures to be used to access progress towards achieving the policies.

### **Category 1: Increase Transit Service Options**

Provide additional high-quality transit opportunities for Arlingtonians to use. Enhance the transit options provided through enhanced frequencies of Metrorail, local, regional and express bus service and through the establishment of new streetcar and bus-rapid-transit (BRT) services. Enhancements would be based upon projected ridership increases and accomplished through available funding including fares and other sources. The allocation of those resources in the development of the PTN and STN will be guided by performance measures to ensure that quality, reliability and productivity are achieved throughout the system.

***Policy 1 (1): Develop a Primary Transit Network (PTN) of high-frequency and quality transit services along major corridors to encourage a low-auto-usage lifestyle and higher all-day patronage. The PTN should extend beyond the established Metrorail corridors and include new surface transit services, such as streetcar and bus rapid transit. Transit services should operate at 15-minute intervals or better every day for about 18 hours. Short-term priorities include increased frequency of service along Glebe Road and physical improvements to enhance transit travel speed and reliability in all PTN corridors.***

Although the transportation network is designed to serve high volumes of travelers in some locations and low volumes in others, several key corridors such as Wilson Boulevard, Route 1, Columbia Pike, Lee Highway, and Glebe Road serve as the primary conduits for travel between local neighborhoods and activity centers. The primary corridors are the most critical avenues for the movement of people and goods in Arlington. These corridors get people not only to their jobs, but also to shopping centers, schools, and other services. The County's transportation vision is that both rail and bus transit services that operate within the high-density corridors will be the key components of a Primary Transit Network (PTN). As the PTN routes are in the highest density areas and the service is to be very high quality, it is expected that these routes will gain the greatest numbers of new transit riders for the system. The PTN usage targets can be achieved through a combination of transit service expansion and ongoing targeted land redevelopment.

#### *Implementation Actions*

- a. Implement the Crystal City/Potomac Yard Transitway with high-frequency bus service on an interim basis and with streetcar service between the Pentagon City and Braddock Road Metrorail stations.
- b. Implement the Columbia Pike streetcar to provide service along the Pike and link the Pentagon City Metrorail station to the Bailey's Crossroads area of Fairfax County.
- c. Upgrade service frequency, span of service, reliability and quality on certain routes within and between commercial corridors to create a network of routes that meet the Primary Transit Network (PTN) service standards.
- d. Develop the PTN service to have distinct functions and route identities that are easily identifiable by the traveling public.
- e. Implement additional local north-south bus service that improves north and south linkages to existing commercial centers.
- f. Develop connections between paratransit and PTN services for those paratransit riders that can use fixed route services to complete their trips.

*Performance Measures for Policy 1*

- 1) Measure PTN route miles with an 18 hour span of service and 15 minute headways seven days per week as a percent of total route miles.
- 2) Expand the service area of the Primary Transit Network so that the percentage of Arlington residents within one-quarter-mile (one-half-mile for Metrorail stops) of the Primary Transit Network increases from about 50% in 2009 to 75% in 2030.
- 3) Expand the percentage of jobs accessible to the Primary Transit Network from about 87% in 2009 to at least 90% by 2030.
- 4) Achieve 35 passengers per revenue hour during peak hours and 15 passengers per off peak revenue hour on all PTN routes.
- 5) Maintain a minimum 35% farebox recovery ratio for all PTN routes.
- 6) PTN bus and streetcar stops should be spaced at intervals of approximately 1,320 feet (1/4 mile) apart.
- 7) Achieve bus and rail reliability of service at zero minutes early to five minutes late at major scheduled timepoints for at least 95% of trips.



***Policy 2 (2): Operate a Secondary Transit Network of bus and paratransit services that improves access to Arlington neighborhoods, commercial centers, community facilities and to the primary transit corridors. The local transit services, such as bus routes, circulators and paratransit should meet service frequency standards of at least two trips per hour during weekdays and at least one trip per hour at night and on weekends, while operating in a cost efficient manner.***

The Secondary Transit Network is composed of local corridor and circulator routes that extend the reach of the PTN, connecting neighborhoods to the regional transit system and to local activity centers. These fixed route services generally run with less frequency and for shorter periods than the PTN services. The STN includes most of the routes operated by ART and some local Metrobus routes. Because STN routes serve lower density neighborhoods with less frequency and a shorter span of service than PTN routes and some STN routes are operated only on a peak period peak direction basis, separate productivity standards are appropriate.

#### *Implementation Actions*

- a. Operate a network of community-serving bus routes across Arlington and with links into adjacent jurisdictions that meet the Secondary Transit Network (STN) service standards.
- b. Expand ART routes into neighborhoods with sufficient ridership potential to meet established minimum ridership and farebox return standards.
- c. Evaluate opportunities to enhance transit access to large County facilities such as community centers, schools, parks and sports facilities, libraries and public offices as demand warrants.
- d. Partner with major commercial, office educational and residential building owners, tenants and business associations to fund increased transit service levels.
- e. Schedule and operate paratransit services in a manner that accommodates demand while maximizing grouped rides.

#### *Performance Measures for Policy 2*

- 1) Implement a secondary transit network so that at least 90% of Arlington residents live within a 30-minute transit ride to all major transfer and activity centers in Arlington.
- 2) Maintain a minimum of 12 passengers per revenue hour on all secondary transit routes.
- 3) Maintain a minimum 20% farebox recovery for STN fixed-route service.
- 4) Space STN bus route stops at intervals no more than 1,320 feet (1/4 mile) and no less than 660 feet (1/8 mile) apart.
- 5) Achieve bus reliability of service at zero minutes early to five minutes late at major scheduled timepoints for at least 95% of trips.

***Policy 3 (3): Provide a full array of reliable transit services with total travel times and costs competitive with private automobile travel. Complement transit services with support for car sharing and regulation of taxi services.***

#### *Implementation Actions*

- a. Implement a universal payment system for all transit services.
- b. Conduct regular surveys of bus stop utilization to determine needs for service and amenity upgrades and determine if any stops should be consolidated or relocated to improve bus operating efficiency.
- c. At least annually review the performance of all routes and adjust routes and schedules in accordance with ridership, peak loads, cost/recovery ratios, and boardings per revenue hour.

- d. Implement a hierarchy of service improvements such as increased span and service frequency, traffic signal prioritization, bus stop amenity upgrades, stop consolidation and express bus options, enhanced payment options and technology upgrades that will improve service efficiency and promote increased ridership levels.
- e. Construct a garage and maintenance facility adjacent to the WMATA Four Mile Run garage with sufficient capacity to allow for expected growth in the ART vehicle fleet.
- f. Provide information about taxicabs and car-sharing at all Metrorail stations.
- g. Evaluate transportation options in addition to bus for less-populated areas.

*Performance Measures for Policy 3*

- 1) Achieve bus reliability of service at zero minutes early to five minutes late at major scheduled timepoints for at least 95% of trips.
- 2) Achieve bus operating speeds of at least 30% of the posted speed limits along the route.
- 3) Provide sufficient service capacity so that there are no pass-ups during normal service conditions and regular loadings are less than 125% of seated capacity.
- 4) Conduct periodic satisfaction surveys of transit customers. Strive to achieve at least a “Satisfactory” rating at least 95% of the time and an “Excellent” or “Very Good” rating at least 50% of the time.
- 5) Conduct periodic customer satisfaction surveys on the effectiveness of the County’s communication of available transit options. Strive to achieve at least a “Satisfactory” rating at least 95% of the time and an “Excellent” or “Very Good” rating at least 50% of the time.
- 6) Measure customer satisfaction on a basis of number of reported complaints per 1,000 passenger boardings and annually seeks to reduce the rate. Responds to all customer complaints within three work days.

***Policy 4 (7): Work with regional partners to identify, fund and implement necessary enhancements to Potomac River bus and rail crossings to provide capacity for long-term regional growth, including across the 14th Street Bridge.***

*Implementation Actions*

- a. Work with neighboring jurisdictions to maximize the effective use of the Washington area’s transit network by extending transit coverage throughout Arlington and into adjacent jurisdictions. Begin by starting to align the Arlington surface routes with the regional priority plan.
- b. Coordinate streetcar planning and engineering efforts with Fairfax County, the City of Alexandria, and the District of Columbia to ensure timely and efficient implementation of service on the new lines.
- c. Work with the District of Columbia and WMATA to evaluate potential extensions of planned streetcar service across the Potomac River via a rebuilt span of the 14th Street Bridge.
- d. Work with the District of Columbia, the Commonwealth of Virginia, WMATA and the federal government to create a third Metrorail crossing of the Potomac River, possibly connecting Rosslyn and Georgetown.

*Performance Measures for Policy 4*

- 1) Implement all eight-car trains on the Orange Line during the peak periods.
- 2) Implement direct one seat ride bus service from Arlington (and other Northern Virginia communities) into the employment centers in the District of Columbia.

- 3) Advance the development of alternative capital improvements to provide greater capacity and operational flexibility for the Metrorail system.

## **Category 2: Improve Accessibility to Transit Services for All**

Strive to make transit facilities and services accessible to all members of the public regardless of ability and income. Provide facility and vehicle improvements that increase accessibility. Continue to operate convenient paratransit service for those individuals unable to use regular transit services.

***Policy 5 (4): Make transit more accessible and convenient to all through transit-oriented land use policies and enhancements to vehicles, stations, stops, walkways and information. Provide reliable shared-ride paratransit service for persons unable to use standard transit service due to disability.***

### *Implementation Actions*

- a. Continue to plan for and manage development that is transit-oriented with a mix of land use types, higher densities placed close to Metrorail stations and other transit nodes and a built form that favors transit access and good pedestrian circulation.
- b. Enhance bus stops, including construction of new sidewalks and landings where needed, to ensure that an ADA-accessible path is provided between the bus and the sidewalk.
- c. Install bus shelters, benches and other amenities at stops across Arlington based upon established stop-usage criteria.
- d. Ensure that all new developments along the PTN corridors include appropriate transit supporting facilities such as fully-accessible transit stops (including benches, shelters, bike parking and other amenities), transit information displays, and station access connections.
- e. Develop partnerships with appropriate agencies to implement travel training programs for young, elderly and disabled populations.
- f. Use accessible buses, including low-floor vehicles, for all fixed-route service and where feasible set boarding platforms at a level that minimizes or eliminates the need for steps to enter the transit vehicle.
- g. Integrate paratransit and specialized social service transportation programs to improve productivity and create more travel opportunities for people with disabilities.
- h. Issue a sufficient number of wheelchair-accessible taxicab certificates to adequately meet demand from private-pay riders as well as rides sponsored by social service agencies, STAR and MetroAccess.
- i. Explore options that provide paratransit passengers with the assistance and incentives needed to transition from STAR and MetroAccess to fixed route transit services including travel training, greeters at major transfer points to assist paratransit passengers switching to, from and between fixed route transit and offer free Art service for STAR eligible riders.
- j. Maximize the opportunity for shared standing order trips on STAR and MetroAccess that increase the number of passengers per service hour.

### *Performance Measures for Policy 5*

- 1) Achieve 2.5 revenue riders per service hour.
- 2) Achieve at least 25% of eligible paratransit riders using fixed route bus and rail service.
- 3) Ensure that all ART vehicles are low-floor, accessible buses.
- 4) Improve 10 bus stops each year to meet ADA requirements for path of travel.

***Policy 6 (8): Expand pedestrian access to transit facilities through measures such as improved sidewalks, new station entrances, upgraded street crossings, and new elevators and escalators.***

*Implementation Actions*

- a. Use land use planning, master planning, sector planning and site plan negotiations to guide and facilitate the addition of Metro station entrances and elevators.
- b. Upgrade the safety of pedestrian crossings of arterial streets through the use of clearly marked crosswalks and traffic control devices at and near transit stops and stations.
- c. Include pedestrian access to transit as an element of all Complete Streets projects.
- d. Improve Metrobus and ART stops to provide the following minimum amenities: adequate street lighting, a level concrete pad, reliable pedestrian access and route and schedule information.
- e. Provide bus stop shelters with benches, real-time transit information displays, route map and schedule, trash receptacle and street lights for all stops with 40 or more boarding per day. Provide enhanced bus shelters at major transfer locations.
- f. Complete identifiable accessible pathways to connect urban centers and neighborhoods with the nearest Metrorail station, transit center, or SuperStop or major bus transfer point.

*Performance Measures for Policy 6*

- 1) Complete one identifiable accessible walkway connecting transit with an urban center or neighborhood annually.
- 2) Install or upgrade annually 10 bus shelters at stops where ridership and other factors warrant improvements.
- 3) Upgrade at least two pedestrian crossings near transit stops each year.

**Category 3: Improve Transit Facilities.**

Enhance existing transit stations, stops and operations facilities to increase the capacity to serve more riders in an efficient, comfortable and safe manner.

***Policy 7 (6): Implement improvements to the Metrorail system including new services and station enhancements, such as new entrances and additional elevators, and accommodations for anticipated ridership growth from Orange Line westward extensions. Support line capacity improvements, such as implementation of eight-car trains, and other necessary supporting infrastructure such as power upgrades and rail yards.***

*Implementation Actions*

- a. Work with WMATA to deploy additional 8-car trains on both the Orange and Blue lines. Work with WMATA to ensure that sufficient train capacity is provided for all peak demand periods.
- b. Work with WMATA to enhance reliability and ease of access between street and train platform by installing at least a second elevator at all Metrorail stations.
- c. Consider rerouting of some Orange and Blue line trains over the Yellow line's Potomac River Bridge as a means to enhance system capacity. Maintain sufficient north-south travel capacity by provision of additional surface transit between Rosslyn, the Pentagon, and downtown District of Columbia.
- d. Support better rail connection between the Orange and Blue lines at Rosslyn Metrorail station and the Blue and Yellow lines at the Pentagon Metrorail station to provide greater operation flexibility.

- e. Work with WMATA to advance construction of the new “Silver line” that would provide rail service between the West Falls Church station, Dulles Airport and downtown Washington, D.C.
- f. Establish and enforce a streetscape management plan at all Metrorail stations to include adequate pedestrian space, sidewalk furniture and bus/shuttle stops.
- g. Work with WMATA to establish and implement standard bus information signage at each Metrorail station served by bus stops.
- h. Survey riders to provide their perceptions of transit safety for all hours. Passenger surveys and accident data should be used to pinpoint problem locations and identify improvements.
- i. Work with the Northern Virginia Transportation Commission and WMATA to spearhead emergency response coordination within the area.

*Performance Measures for Policy 7*

- 1) Increase access at the Metrorail stations so that at least two elevators are in operation at all stations by the year 2030.
- 2) Increase the percentage of 8-car trains operation on the Orange and Blue lines during peak hour periods to 50% by the year 2012, 75% by 2016 and 100% by 2018.
- 3) Restore peak train service frequencies to 6 minutes between Crystal City and Rosslyn by 2018.

**Category 4: Create Multi-Modal Centers for Convenient Transfer Between Providers and Modes.**

Arlingtonians have access to bus and rail services operated by many different transit providers. To maximize travel effectiveness and increase user convenience, the transit services need to be presented as one intermodal system. Easy transfers between transit and other modes such as auto, bicycle and walking, should be enabled. New transfer centers with ample, easily understood service information and comfortable, secure facilities should be established to enhance rider transfers.

***Policy 8 (5): Ensure the ease of transfer in the design of facilities, the reliability of services and the availability of information. Provide for exemplary multi-modal access to and between transit facilities via enhanced sidewalks and bikeways and by convenient access to bus transfer points, taxicabs, carpool pick-up/drop-off and car-sharing vehicles.***

*Implementation Actions*

- a. Identify rail/bus and other multi-modal interchanges through the use of consistent colors, image, and style for presenting information and wayfinding tools (signs, arrows, colors, etc.) at stations and primary stops. The first phase should be implemented at rail stations and Super Stops where the highest number of transfers are likely to occur.
- b. Facilitate access to taxicabs at rail and bus stations to improve integration with transit services.
- c. Coordinate with inter-city bus companies to enhance ease of connections between public transit and long-distance bus service.
- d. Provide ample quantities of bicycle parking including some weather-protected facilities at all rail and bus stations. Increase options for bike parking within buildings in close proximity to transit stations.
- e. Conduct studies of the curb space adjacent to each Metrorail station to determine how best to allocate curb area among local and regional transit vehicles, shuttles, kiss-and-ride activities, car-sharing vehicles, taxicabs and other potential users.
- f. Provide convenient access to car-sharing and bike-sharing vehicles at all transit stations.
- g. Improve bikeway connections and bicycle access to transit stations and services.

#### Performance Measures for Policy 8

- 1) Achieve a 50% increase in the amount of high-quality bicycle parking provided at Arlington transit stations by 2015. Increase bike parking on a regular basis in subsequent years at a rate that at least matches growth in system ridership.
- 2) Complete and implement streetscape and curb space plans and administrative procedures for the vicinity of all Metro stations by the year 2015.
- 3) Implement standardized bus information at all Metrorail stations served by bus by 2015.

#### **Category 5: Expand Transit Information Distribution and Marketing Outreach.**

Provide multiple outlets for up-to-date transit information that can easily be accessed by current riders and all members of the public. Conduct broad outreach to attract new transit riders. Assess the satisfaction of current transit riders at least annually to retain customer patronage.

***Policy 9 (10): Promote transit use through direct marketing to residents and employers and by providing real-time information at transit stops and via the internet, cell phones, and other devices.***

#### *Implementation Actions*

- a. Provide a web-based regional transit information system that is frequently updated and easily accessible through different technologies.
- b. Install easily-recognizable and accessible standard destination signage, system maps, and information displays at all rail stations, bus transfer centers and other heavily-used transit stops.
- c. Provide web-based accessible information on bus schedules and real-time vehicle location in bus shelters.
- d. Provide at least one fully-equipped Commuter Store in each Primary Transit Network (PTN) corridor.
- e. Provide commuter information kiosks with real-time travel information at all rail and bus stations (e.g. Shirlington Station) and Super Stops.
- f. Seek assistance from new partners, including non-profits, civic groups and faith-based organizations, to promote transit and distribute service information to current and potential transit customers including seniors and persons who have limited English language skills.
- g. Collect data on resident and transit-user travel experiences and preferences on a regular basis. Data collection can occur either directly or in cooperation with surveys being conducted through the auspices of WMATA or MWCog TPB studies. Staff responsible for service planning, marketing and operations should use this information to improve customer retention and attract new patronage.

#### *Performance Measures for Policy 9*

- 1) Achieve peak period transit mode split of 33% by 2030.
- 2) Increase daily transit mode share for all intra-Arlington trips by one-quarter percentage points annually.
- 3) Provide real-time bus arrival info at all applicable rail stations.
- 4) Provide a fully-equipped commuter store on Columbia Pike.
- 5) Provide commuter information kiosks at 25% of residential complexes with 50+ units and at 25% of office buildings with 100+ employees by 2013, 50% by 2018, 75% by 2024 and 100% by 2030.
- 6) Provide and regularly update web-based versions of all locally-available transit schedules that are accessible by both computer and wireless communication devices.

## **Category 6: Improve Employ Environmentally Sensitive and Sustainable Technologies**

Consider the environmental impacts of transit facilities, vehicles and services and utilize technologies, operating procedures and building practices. Seek to provide transit service in an environmentally responsible manner.

***Policy 10 (9): Utilize new and improved technologies and best operating practices to provide transit service in a clean and energy efficient manner.***

### *Implementation Actions*

- a. Continue to research new technologies and maintenance practices related to achieving higher fuel efficiencies and reduced pollution emissions.
- b. Compare the efficiencies of alternative fuel options using BTUs as the measuring unit for future bus purchases. Also examine the environmental impacts or benefits of emissions from fuel options.
- c. Increase the utilization of vehicles using domestic clean fuels for paratransit service.
- d. Incorporate green building practices, universal design, and artistic or aesthetic treatments in all transit facilities including bus shelters.
- e. Utilize best technology and practices to control stormwater and washwater runoff from transit facilities.

### *Performance Measures for Policy 10*

- 1) Track the fuel consumption (as measured in BTUs) of transit vehicle operations and seek to annually reduce fuel usage per revenue passenger carried.
- 2) Track ozone precursor and greenhouse gas emissions related to transit operations and annually reduce emissions.

## 3.0 SERVICE AND SYSTEM EVALUATION

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The Arlington County Department of Environmental Services' Transit Program provides public transit services to accommodate the needs of Arlington residents. These transit services include fixed route local bus service and Specialized Transit for Arlington Residents (STAR) which is designed for those needing some travel assistance. This chapter of the TDP describes the existing service; provides a historical performance evaluation; analyzes existing service coverage and service levels; describes existing and near-term demographic and socioeconomic characteristics of the county; documents existing and planned development projects and land use plans; summarizes Arlington County's Master Transportation Plan (MTP) Bicycle and Pedestrian Elements, documents a peer review analysis, summarizes the results of the MWCOG 2008 on-board survey for ART services; documents stakeholder and public outreach activities, comments and input; identifies existing facility and equipment; and documents ART's ITS Projects and Programs.

### 3.1 Existing Service Analysis

Following is an analysis of existing Arlington Transit (ART) ridership for fixed route and paratransit service. This analysis reflects ART service patterns as of June 2010.

#### ART Fixed Route Transit Service

ART operates eleven fixed routes throughout Arlington County. Of these eleven routes, four routes operate during weekday peak periods only, 5 routes operate on Saturdays, and 2 routes operate on Sundays. Weekday ART service operates between the approximate hours of 6:00 a.m. and 10:00 p.m., with Route 51 operating until 12:30 a.m. Saturday ART service operates between the approximate hours of 7:00 a.m. and 10:00 p.m., again the Route 51 operates later until about 12:15 a.m. Sunday ART service operates between the approximate hours of 8:00 a.m. and 9:00 p.m., with the Route 51 operating until 10:25 p.m. Table 3-1 summarizes existing ART fixed route transit service operating service levels and span of service hours by route. Figure 3-1 illustrates the existing ART Transit service within Arlington County.

#### Metrobus Fixed Route Transit Service

ART fixed route transit service provides service into neighborhoods, connecting to Metrorail stations along the Orange, Yellow and Blue Lines. These routes are complimented within Arlington County by twenty-four Metrobus routes, which operates eighty-three different route patterns collectively. Of the twenty-four routes, 16 are local routes and 8 are express routes (primarily serving the Pentagon). Weekday Metrobus service operates between the approximate hours of 5:00 a.m. and 1:00 a.m., with Route 16 operating almost 24 hours. Saturday Metrobus service operates between the approximate hours of 5:00 a.m. and 1:00 a.m., again the Route 16 operates about 23 hours. Sunday Metrobus service operates between the approximate hours of 6:00 a.m. and 12:00 a.m., with the Route 16 operating about 19 hours of service.

Figure 3-2 illustrates the Metrobus transit service in Arlington County, and Figure 3-3 illustrates both the ART and Metrobus transit service combined within Arlington County.

**Table 3-1  
Arlington Transit Fixed-Route Operating Service Levels  
(June 2010)**

Route # and Name	Weekday Frequency (min)			Weekday Span of Service	Saturday Frequency (min)		Saturday Span of Service	Sunday Frequency (min)		Sunday Span of Service
	Peak	Midday	Evening		daytime	Evening		Daytime	Evening	
41-Columbia Pike/Ballston/Court House Metro	15	15	25 - 30	6:00 a.m. – 11:17 p.m.	15 - 20	30	7:00 a.m. – 11:17 p.m.	20 - 30	30	8:00 a.m. – 8:36 p.m.
42-Ballston/Pentagon Metro	20	60	n/a	5:50 a.m. – 7:20 p.m.	60	n/a	6:30 a.m. – 7:15 p.m.	n/a	n/a	No Service
51-Ballston Metro/Virginia Hospital Center	30	30	30	6:00 a.m. – 12:30 a.m.	30	30	6:30 a.m. – 12:15 a.m.	30	30	6:45 a.m. – 10:30 p.m.
52-Ballston Metro/East Falls Church Metro	30	60	60	6:20 a.m. – 8:45 p.m.	n/a	n/a	No Service	n/a	n/a	No Service
53-Ballston Metro/Glebe/East Falls Church Metro	30	60	30	6:00 a.m. – 9:25 p.m.	n/a	n/a	No Service	n/a	n/a	No Service
61-Rosslyn/Court House Metro Shuttle	20	n/a	n/a	6:00 a.m.– 10:00 a.m., 3:00 p.m. – 7:00 p.m.	25	n/a	8:15 a.m. – 4:10 p.m.	n/a	n/a	No Service
62-Court House Metro/Lorcom Lane/Ballston Metro	30	n/a	n/a	6:20 a.m. – 9:30 a.m., 3:10 p.m. – 7:20 p.m.	n/a	n/a	No Service	n/a	n/a	No Service
74-Douglas Park/Arlington Village/Arlington View/Pentagon City Metro	14 to 36	n/a	n/a	6:05 a.m. – 9:12 a.m., 3:30 p.m. – 7:55 p.m.	n/a	n/a	No Service	n/a	n/a	No Service
75-Wakefield H.S./Carlin Springs Road/Ballston Metro	30	n/a	n/a	6:00 a.m. – 9:25 a.m., 3:10 p.m. – 8:00 p.m.	n/a	n/a	No Service	n/a	n/a	No Service
77-Shirlington/Lyon Park/Court House Metro	30	30	30	6:00 a.m. – 8:00 p.m.	n/a	n/a	No Service	n/a	n/a	No Service
87-Pentagon Metro to Shirlington Station	20	20	20	5:50 a.m. – 10:25 p.m.	30	30	7:00 a.m. – 9:25 p.m.	n/a	n/a	No Service

**Table 3-2  
Metrobus Transit Fixed-Route Operating Service Levels (in Arlington County, June 2010)**

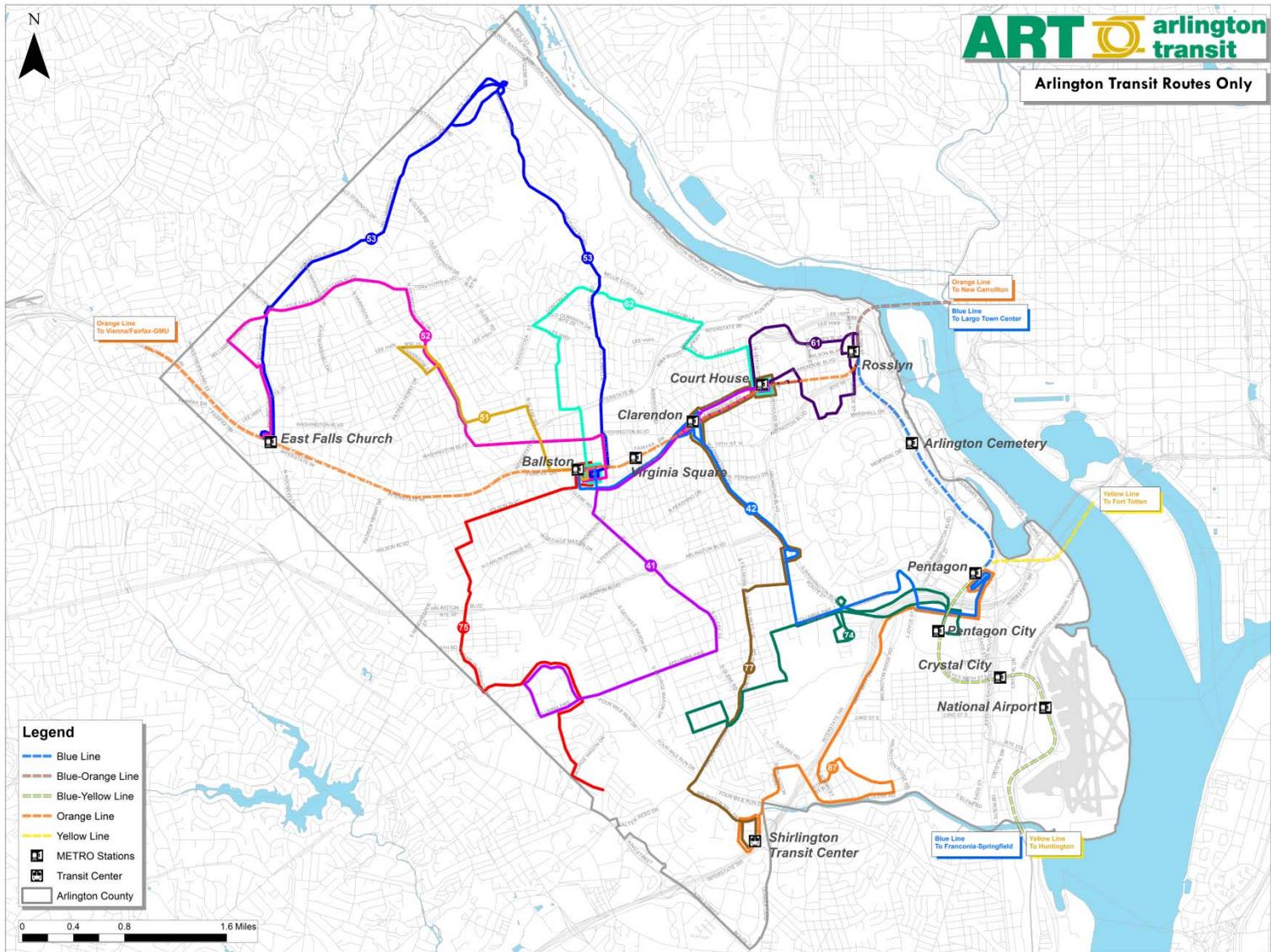
Route # and Name	Weekday Frequency (min)			Weekday Span of Service	Saturday Frequency (min)		Saturday Span of Service	Sunday Frequency (min)		Sunday Span of Service
	Peak	Midday	Evening		daytime	Evening		Daytime	Evening	
1-Wilson Boulevard Line	7	24	26 - 30	5:20 a.m. – 3:45 a.m.	30	30	6:30 a.m. – 12:45 a.m.	30	30	7:30 a.m. – 10:30 p.m.
2-Washington Boulevard Line	15	30	24	5:20 a.m. – 12:15 a.m.	30	30	6:00 a.m. – 12:30 a.m.	60	60	6:30 a.m. – 10:30 p.m.
3-Lee Highway Line	15	20	25	5:00 a.m. – 12:30 a.m.	30	30	6:00 a.m. – 12:45 a.m.	60	60	6:20 a.m. – 11:00 p.m.
3Y-Lee Highway / Faragut Square Line	30	n/a	n/a	5:00 a.m. – 12:30 a.m.	n/a	n/a	No Service	n/a	n/a	No Service
4-Pershing Drive / Arlington Boulevard Line	10	24	20	6:00 a.m. – 12:00 a.m.	36	36	6:00 a.m. – 11:30 p.m.	60	60	6:30 a.m. – 10:15 p.m.
5A-D.C. / Dulles Line	30	36	30	5:00 a.m.– 10:45 p.m.	60	60	5:45 a.m. – 12:15 a.m.	60	60	5:45 a.m. – 12:15 p.m.
7-Lincolnia / North Farrington Line	7	28	18-45	5:30 a.m. – 3:30 a.m.	33	60	6:45 a.m. – 3:30 a.m.	45	45	8:00 a.m. – 12:00 a.m.
8-Foxchase / Seminary Valley Line	7	n/a	n/a	6:00 a.m. – 9:20 a.m., 3:40 p.m. – 8:30 p.m.	n/a	n/a	No Service	n/a	n/a	No Service
9-Huntington / Pentagon Line	14	30	30	5:00 a.m. – 1:00 a.m.	30	30	5:30 a.m. – 1:00 a.m.	60	60	5:00 a.m. – 12:00 a.m.
9S-Crystal City / Potomac Yard Shuttle	7	12	15	5:45 a.m. – 7:45 p.m.	n/a	n/a	No Service	n/a	n/a	No Service
10-Huntington Towers / Pentagon Line	12	30	60	4:50 a.m. – 1:00 a.m.	30	30	5:15 a.m. – 1:00 a.m.	60	60	6:15 a.m. – 11:45 p.m.
10B-Huntington Towers / Ballston Line	26	28	60	5:30 a.m. – 1:00 a.m.	30	60	6:00 a.m. – 1:00 a.m.	60	60	6:30 a.m. – 11:00 p.m.
13-National Airport/Pentagon/Washington Line	15 to 24	n/a	n/a	5:10 a.m. – 10:00 a.m., 3:00 p.m. – 7:20 p.m.	30	n/a	5:15 a.m. – 8:00 a.m.	50	n/a	5:30 a.m. – 8:00 a.m.
15-Chain Bridge Road Line	35	n/a	n/a	6:15 a.m. – 9:50 a.m., 3:20 p.m. – 7:20 p.m.	n/a	n/a	n/a	n/a	n/a	n/a
16-Columbia Pike Line (A,B,D,E,F,J,P)	7 to 15	15	20 to 60	5:10 a.m. – 3:30 a.m.	15	15 to 30	6:00 a.m. – 3:30 a.m.	30	30	6:00 a.m. – 12:30 a.m.

Table 3-2 (cont.)

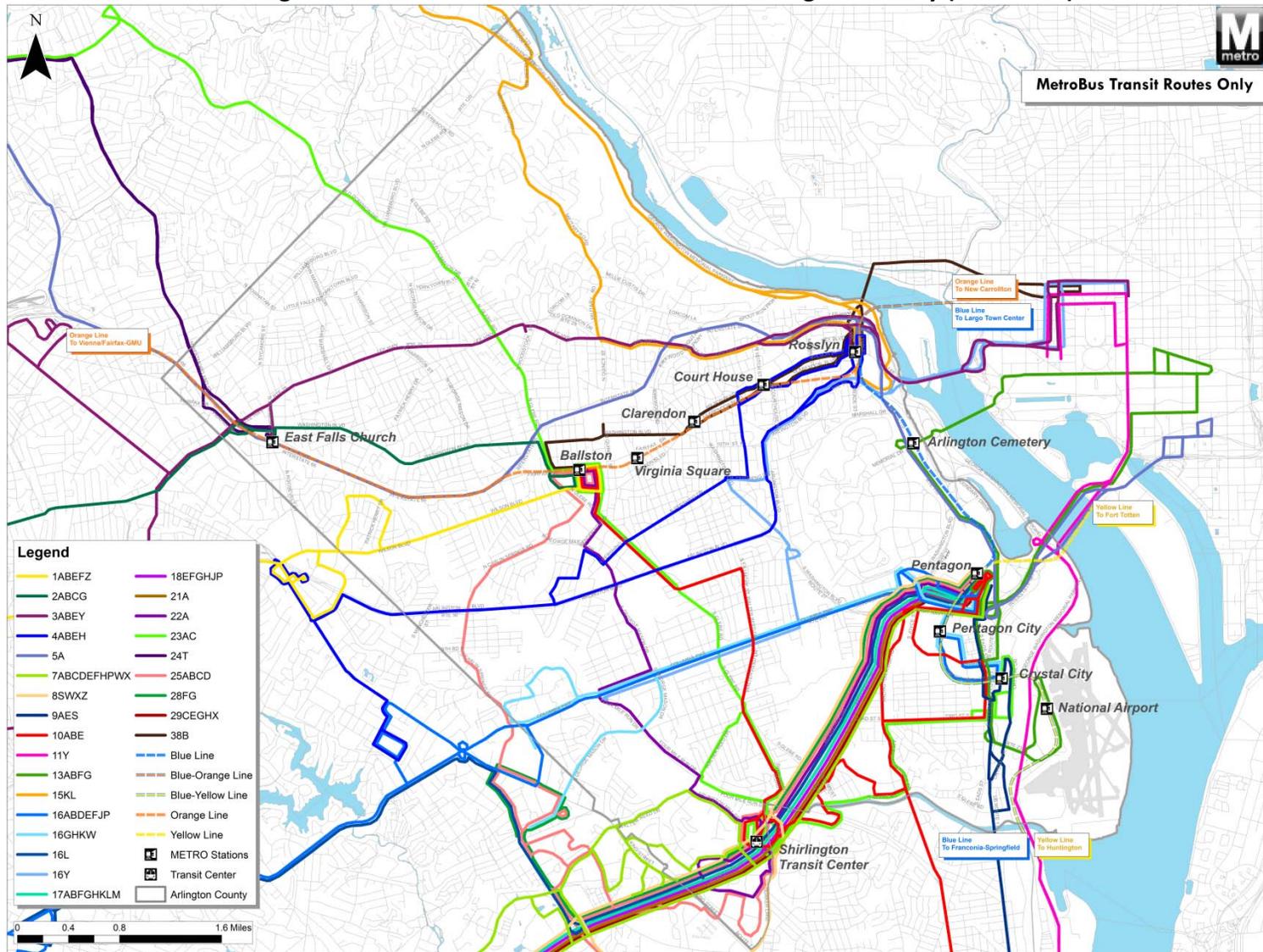
Metrobus Transit Fixed-Route Operating Service Levels (in Arlington County, June 2010)

Route # and Name	Weekday Frequency (min)			Weekday Span of Service	Saturday Frequency (min)		Saturday Span of Service	Sunday Frequency (min)		Sunday Span of Service
	Peak	Midday	Evening		daytime	Evening		Daytime	Evening	
16-Columbia Heights West / Pentagon City Line	6	14	16	5:15 a.m. – 11:15 p.m.	45	45	7:30 a.m. – 11:00 p.m.	30	30	7:30 a.m. – 10:00 p.m.
16Y-Columbia Pike / Farragut Square Line	12	n/a	n/a	6:10 a.m. – 9:30 a.m., 4:00 p.m. – 7:30 p.m.	n/a	n/a	n/a	n/a	n/a	n/a
21-Landmark / Pentagon Line	17	n/a	n/a	6:30 a.m. – 9:00 a.m., 4:00 p.m. – 7:20 p.m.	n/a	n/a	n/a	n/a	n/a	n/a
22A-Barcroft / South Fairlington Line	20	40	40	5:35 a.m. – 10:20 p.m.	40	40	6:40 a.m. – 10:00 p.m.	n/a	n/a	n/a
23-McLean / Crystal City Line	15	30	20	5:40 a.m. – 1:20 a.m.	30	30	6:00 a.m. – 1:00 a.m.	60	60	6:00 a.m. – 10:30 p.m.
24T-McLean Hamlet / East Falls Church Line	30	n/a	n/a	6:30 a.m. – 9:10 a.m., 5:00 p.m. – 7:30 p.m.	n/a	n/a	n/a	n/a	n/a	n/a
25-Ballston / Bradlee / Pentagon Line	15	50	30	6:15 a.m. – 10:30 p.m.	60	60	8:30 a.m. – 9:30 p.m.	60	60	8:30 a.m. – 8:30 p.m.
25B-Landmark / Ballston Line	30	60	60	6:10 a.m. – 8:10 p.m.	60	60	6:10 a.m. – 8:10 p.m.	n/a	n/a	n/a
28-Skyline City Line	30	n/a	n/a	6:15 a.m. – 9:15 a.m., 3:45 p.m. – 6:55 p.m.	n/a	n/a	n/a	n/a	n/a	n/a
38B-Ballston / Farragut Square	12	20	30	5:30 a.m. – 2:00 a.m.	30	30	5:30 a.m. – 2:00 a.m.	30	30	5:30 a.m. – 12:00 a.m.

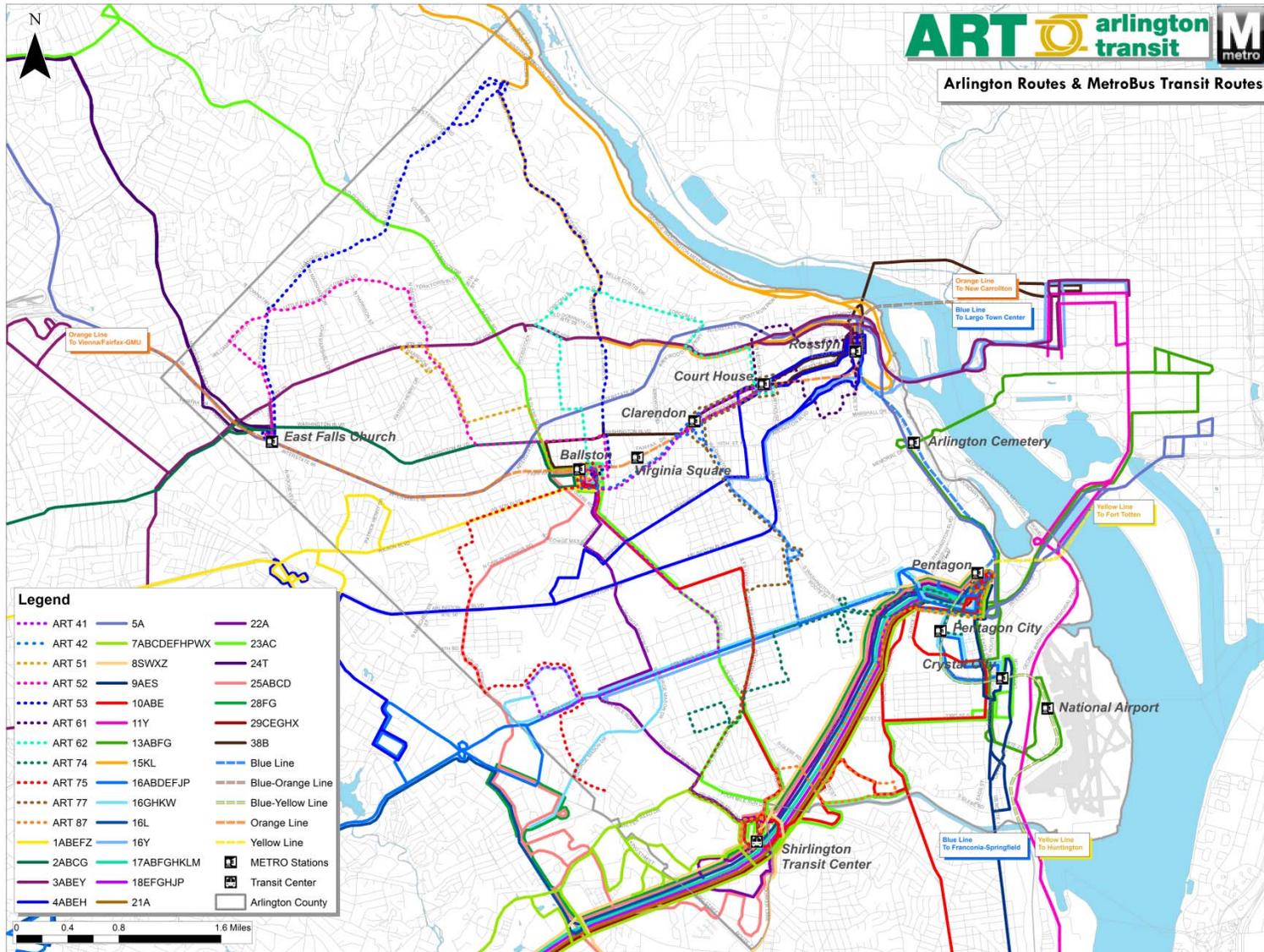
**Figure 3-1**  
**ART Existing Fixed Route Transit Service (June 2010)**



**Figure 3-2  
Existing Metrobus Fixed Route Transit Service in Arlington County (June 2010)**



**Figure 3-3**  
**Existing ART and Metrobus Fixed Route Transit Service in Arlington County**



As noted earlier, the maps and tables presented in the previous pages reflect route alignments and service frequencies as of June 2010 (when this assessment of existing ART services was completed). In July 2010, ART implemented the following service changes:

- Route 61 Saturday service was eliminated.
- Route 74 was split into two routes – Route 74 and 84. Route 74 operates to Walter Reed Drive and 16<sup>th</sup> Street. Route 84 operates to Quincy Street and 16<sup>th</sup> Street via Army Navy Drive.
- The span of service has been extended on Route 41, 77 and 87. Route 41 now operates until 11:15 on weekdays and Saturdays. Route 77 now operates until 11:00 on weekdays. Route 87 now operates until 10:30 on weekdays and 9:30 on Saturdays.
- Route 42's weekday schedule was revised, with 25-minute frequencies in the peak periods, 30-minute midday frequencies. Evening service was also extended one hour to 8:16 p.m.

### **3.2 Historical Performance Evaluation**

Historical data for the past five years (FY2006-FY2010) was provided by Arlington County for the ART system and for STAR, the demand response system. These data were used to determine service effectiveness, cost effectiveness and service efficiency for both systems. Four performance measures were analyzed: passengers per revenue mile, passengers per revenue trip, operating costs per passenger, and operating cost per revenue hour.

#### **3.2.1 Fixed Route Transit Service Performance Evaluation**

##### **System-wide Fixed Route Ridership**

Total annual fixed route ridership for the ART system has increased steadily and has more than doubled in the past five years (Figure 3-4). There has been a significant jump in ridership between FY 2009 and FY 2010 (over 500,000 new riders in one year – a 35% increase). Average daily ridership increased every year on weekdays, Saturdays, and Sundays (Figure 3-5). Weekday ridership has increased by 150 percent. Saturday ridership has increased by over 280 percent. Sunday ridership has increased by nearly 780 percent. Thus, even though weekday ridership has increased substantially, ART has seen very positive responses to expansion of weekend service.

Figure 3-4

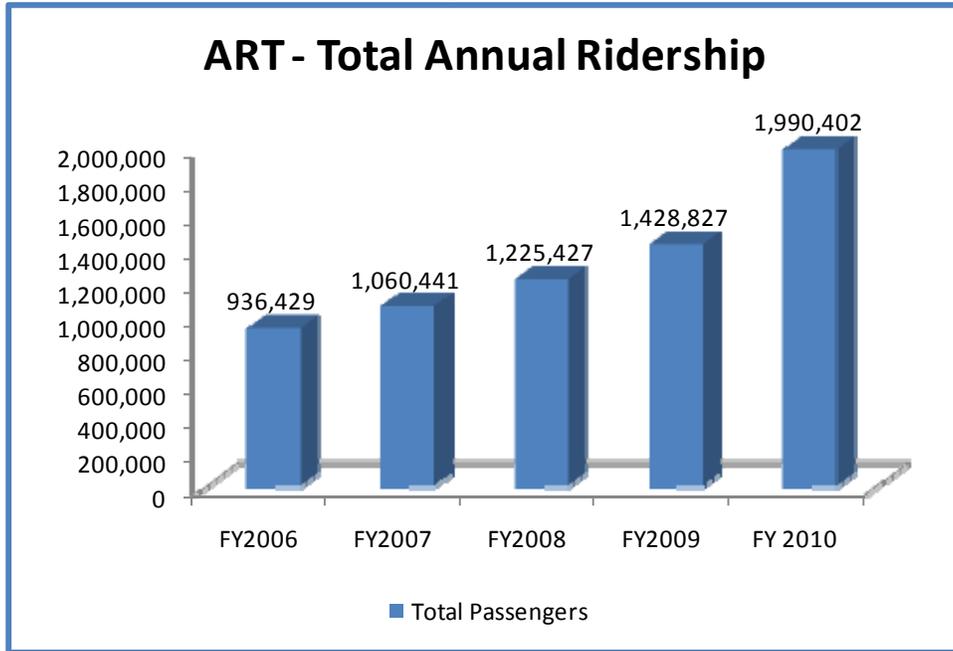
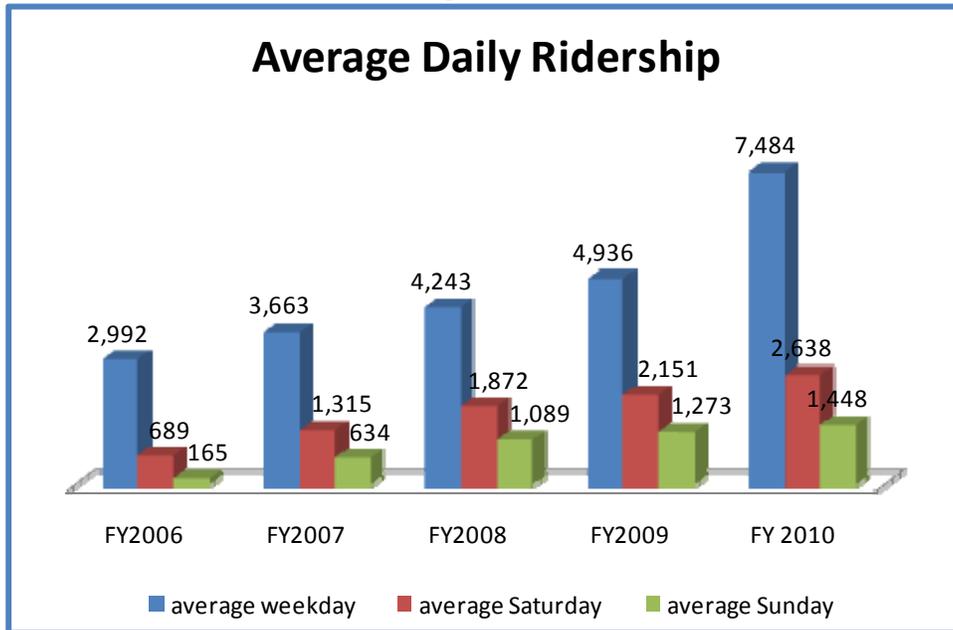


Figure 3-5



**Route Level Ridership**

Table 3-2 shows the historical weekday ridership for each ART route. Two routes, ART 73 and ART 90, were cancelled in FY2006 and two new routes, ART 77 and ART 87, were added in FY2009. Figure 3-6 and Figure 3-7 show that ART 41, the route that connects Columbia Pike to Ballston to Courthouse, has consistently served the highest number of passengers and has been the most effective route in terms of passengers per trip and per revenue mile over the past four years. Table 3-3 identifies ART system passengers, annual O&M costs and revenue hours over the course of the past five years.

**Table 3-2: Historical Daily Ridership (by ART Route)**

Daily passengers	FY2006	FY2007	FY2008	FY2009	FY 2010	% Increase from FY2006 to FY2010
ART 41	1,229	1,468	1,996	2,416	2,612	113%
ART 42	0	0	0	9	789	N/A
ART 51	470	656	521	633	630	34%
ART 52	481	449	501	532	492	2%
ART 53	328	333	320	346	318	-3%
ART 61	224	210	206	192	225	0%
ART 62	118	132	132	160	153	30%
ART 73*	68	0	0	0	0	N/A
ART 74***	123	108	111	117	128	4%
ART 75	282	309	305	289	352	25%
ART 77**	0	0	0	168	388	N/A
ART 82	93	94	103	206	0	N/A
ART 87**	0	0	0	818	1,011	N/A
ART 90*	183	0	0	0	0	N/A

Notes:

\* Route cancelled in FY2006

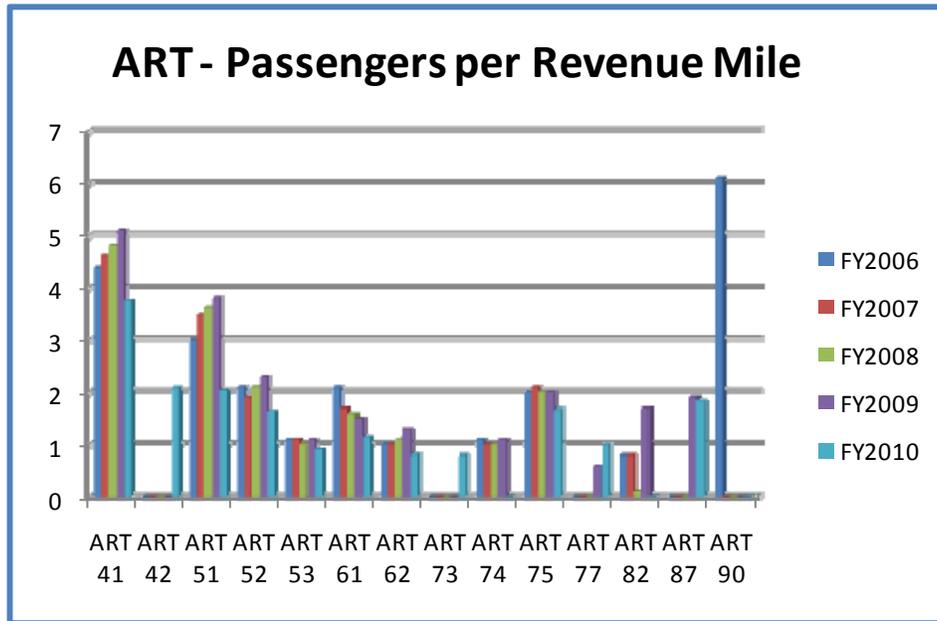
\*\* Route added in FY2009

\*\*\* Route 74 split into two routes (74/84) at end of FY10 (June 21, 2010). FY10 figure reflects average ridership before change.

**Table 3-3: ART Historical Annual Performance**

Performance Measures	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	% Increase FY2005 to FY2010
Total passengers	788,854	936,429	1,060,441	1,225,427	1,428,827	1,990,402	152%
Total O&M Costs	3,626,602	4,545,633	4,431,916	4,963,876	6,188,962	6,596,000	57%
Revenue Hours	42,514	44,663	42,918	49,591	50,791	56,608	33%

Figure 3-6

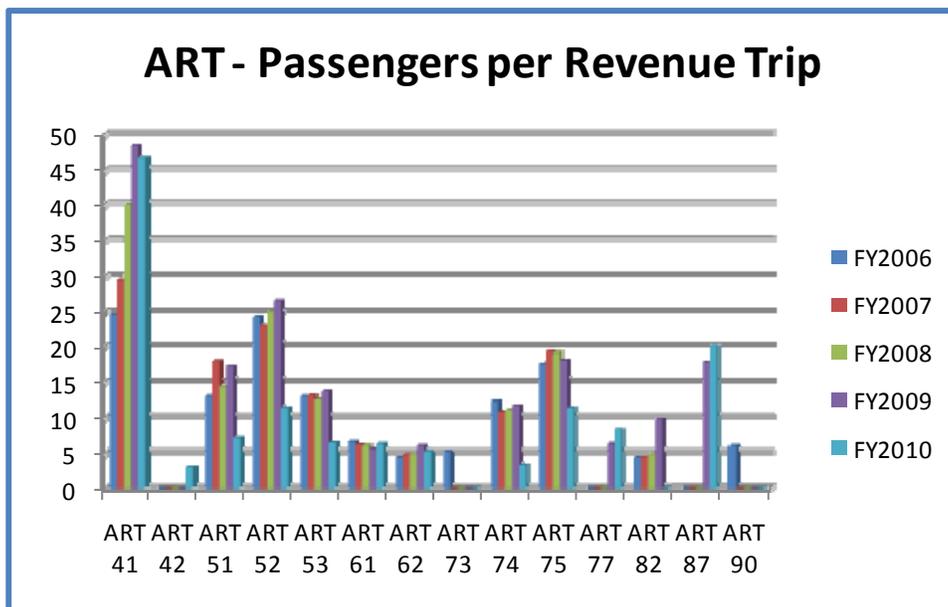


Notes:

\* ART 73 and ART 90 were cancelled in FY2006

\*\* ART 77 and ART 87 were added in FY2009

Figure 3-7



Notes:

\* ART 73 and ART 90 were cancelled in FY2006

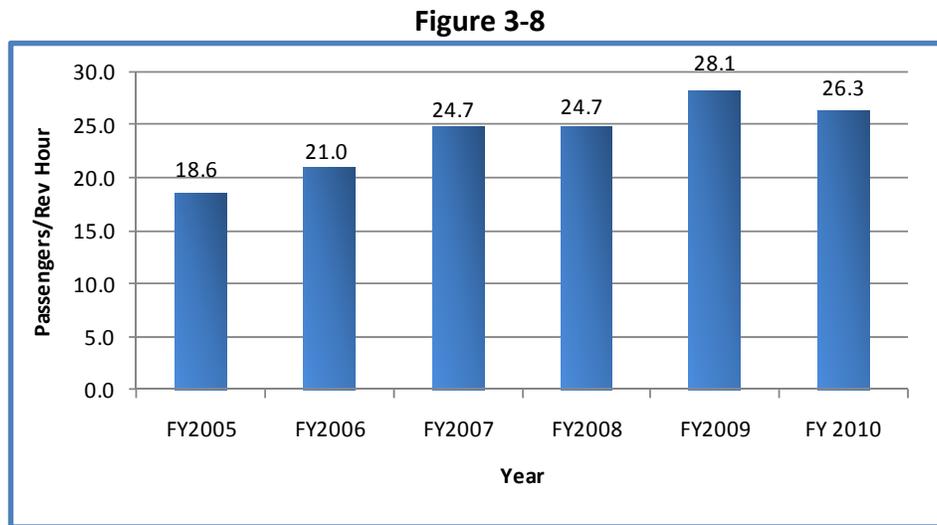
\*\* ART 77 and ART 87 were added in FY2009

## ART Fixed Route Historical Performance Evaluation

Historical and current ridership, service statistics and annual operating & maintenance cost data for the ART fixed route transit service was reviewed to determine ridership and cost performance trends. Data provided by ART was used to graphically depict FY 2005 through FY 2010 historical performance characteristics. Specific performance measures that were evaluated are as follows:

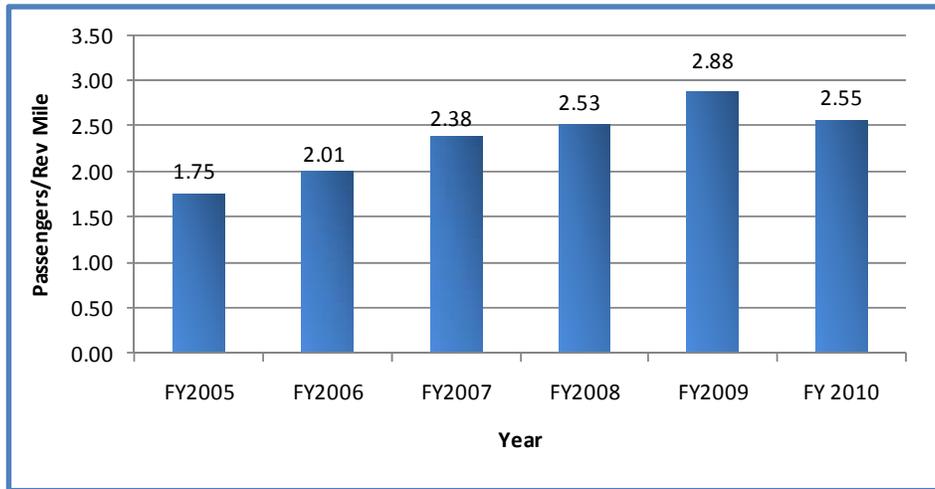
### Service Effectiveness:

- **Passengers per Revenue-Hour** – this metric provides a means to determine service productivity. Historically, service effectiveness has increased for fixed route service. Figure 3-8 illustrates how ART’s passengers per revenue hour increased by 41% between FY2005 and FY2010, with a slight dip between FY 2009 and FY 2010.



- **Passengers per Revenue-Mile** – this is another metric designed to reflect service productivity. Figure 3-9 illustrates how ART’s passengers per revenue hour increased steadily through FY 2009, but dropped in FY 2010 when ART added a lot of service.

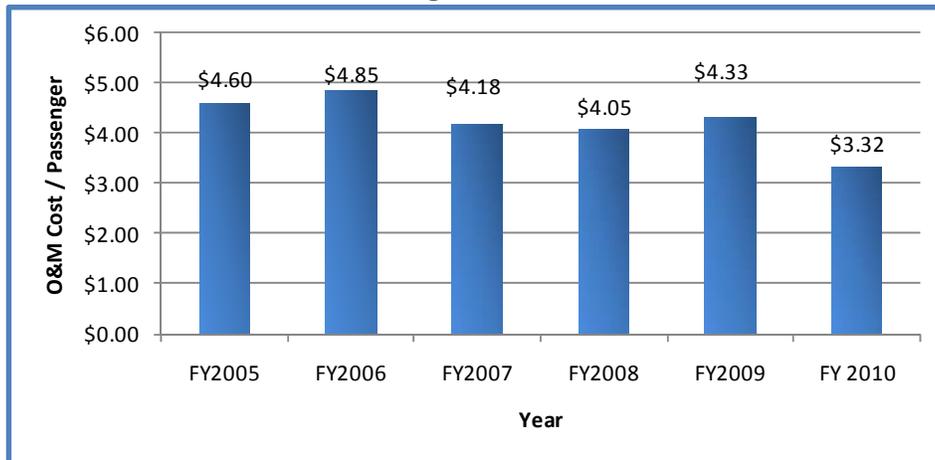
Figure 3-9



Cost Effectiveness:

- **Cost per Passenger Trip** – This metric reflects service cost effectiveness. The ratio of cost of operations and maintenance (O&M) per passenger displays how cost effectively the agency is providing the service. These numbers do not account for inflation. Figure 3-10 illustrates ART’s cost effectiveness between FY 2005 and FY 2010, revealing improved cost effectiveness between FY 2005 and today.

Figure 3-10



- **Cost per Revenue-Hour** – This metric also reflects service cost effectiveness. Figure 3-11 illustrates ART’s fixed route cost per revenue hour. This metric shows a decrease in the cost per revenue-hour from FY 2009 to FY 2010.

**Figure 3-11**



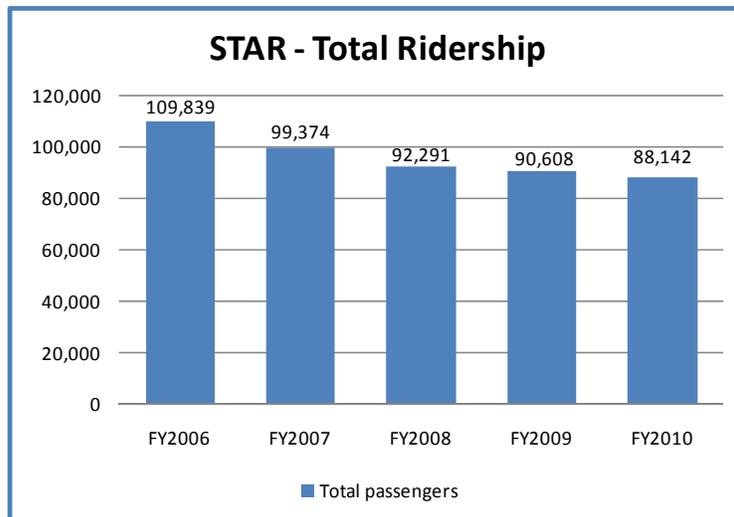
### 3.2.2 Paratransit Service Performance Evaluation

#### Paratransit Ridership

Total annual paratransit ridership for the STAR (Specialized Transit for Arlington Residents) system has decreased steadily over the past five years (Table 3-4 and Figure 3-12). Total weekday ridership for STAR, the demand response system, has dropped by nearly 20 percent in the past five years. The average daily ridership decreased steadily on weekdays, Saturdays, and Sundays (Figure 3-13). While weekday ridership decreased by 65%, the percentage of weekday riders dropped from 78% to 59%. In FY2009, the ART system served three times as many Saturday riders and seven times as many Sunday riders as it did in FY2006.

**Figure 3-12**

**Table 3-4: STAR Historical Ridership**



Passengers	FY2006	FY2007	FY2008	FY2009	FY2010	% Increase decrease from FY2006 to FY2010
Ambulatory	85,292	74,568	67,792	66,152	63,264	-25.8%
Non Ambulatory	21,968	19,412	18,733	18,651	19,414	-11.6%
Personal Attendants	2,579	5,394	5,766	5,805	5,454	111.5%
<b>Total</b>	<b>109,839</b>	<b>99,374</b>	<b>92,291</b>	<b>90,608</b>	<b>88,142</b>	<b>-19.8%</b>

Table 3-5 identifies STAR historical annual passengers, annual O&M costs and annual revenue hours of STAR service for the past five years.

**Table 3-5: STAR Historical Annual Performance (Weekdays)**

Performance Measures	FY2006	FY2007	FY2008	FY2009	FY2010	% Increase from FY2006 to FY2010
Total weekday passengers	109,839	99,374	92,291	90,608	88,142	-19.8%
Total weekday O&M Costs	3,324,494	2,652,250	2,570,769	2,626,462	2,559,269	-23.0%
Revenue Hours	74,807	50,168	41,398	37,890	30,654	-59.0%

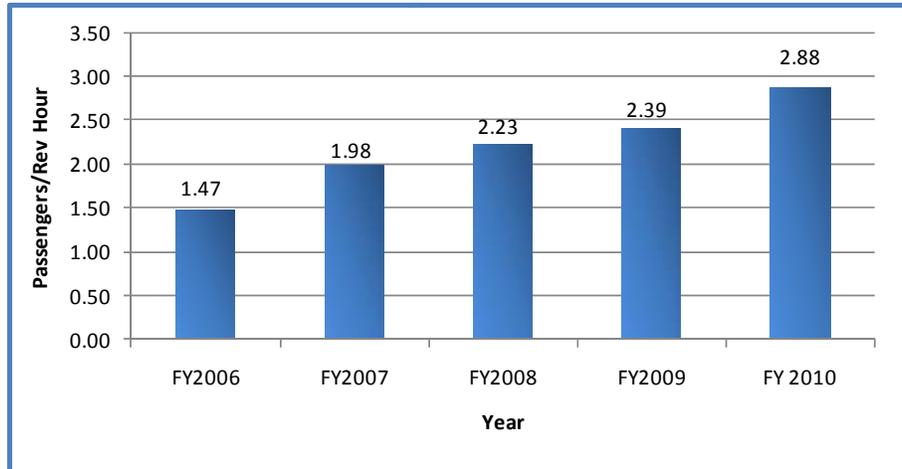
**ART STAR Historical Performance Evaluation**

Historical and current ridership, service statistics and annual operating & Maintenance cost data for the ART STAR transit service was reviewed to determine ridership and cost performance trends. Data provided by ART was used to graphically depict FY 2005 through FY 2010 historical performance characteristics. Specific performance measures that were evaluated are as follows:

Service Effectiveness:

- **Passengers per Revenue-Hour** – this metric provides means to determine service productivity. Historically, service effectiveness has increased for STAR service. Figure 3-13 illustrates how STAR’s passengers per revenue hour increased by 95% between FY2006 and FY2010.

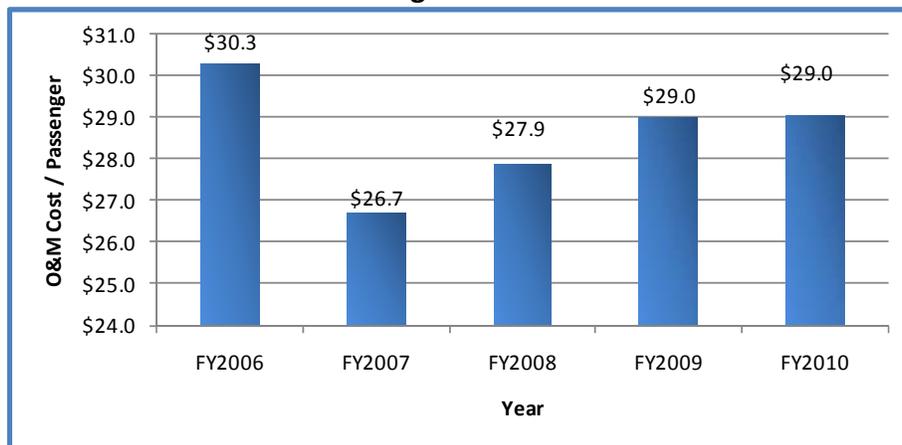
Figure 3-13



Cost Effectiveness:

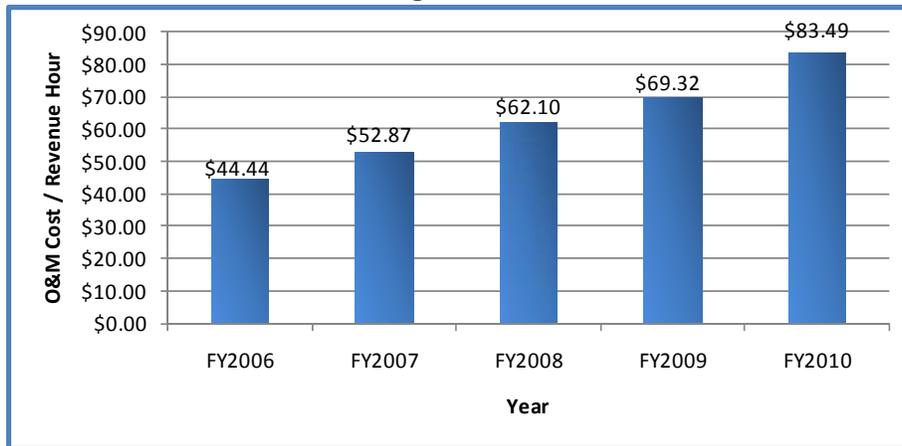
- **Cost per Passenger Trip** – This metric reflects service cost effectiveness. The ratio of cost of operations and maintenance (O&M) per passenger displays how cost effectively the agency is providing the service. These numbers do not account for inflation. Figure 3-14 illustrates STAR’s cost effectiveness between FY 2006 and FY 2009 (2010 estimated), revealing improved cost effectiveness between FY 2006 and today. O&M costs per passenger for STAR have decreased by 4.1% from FY2006 to FY2010.

Figure 3-14



- **Cost per Revenue-Hour** – This metric also reflects service cost effectiveness. Figure 3-15 illustrates STAR’s cost per revenue hour. This metric shows an increase in cost per revenue hour of \$39.05 between FY 2006 and FY 2010, or approximately 88%. This results in an average annualized increase of 17.6%.

**Figure 3-15**



### 3.3 Service Coverage Analysis

As part of the TDP service plan development task (Chapter 4), a service coverage analysis of the existing fixed route transit service was performed on the transit services provided within Arlington County. This analysis identifies areas within Arlington County that are served and not served by time period by weekday, Saturday and Sunday. A series of maps were created which depict transit service by route for weekday peak period, midday period, and evening; Saturday midday and evening periods; and Sunday midday and evening periods. The series of maps on the following pages reflect ART only service (Figures 3-16 through 3-22), WMATA Metrobus only service (Figures 3-23 through 3-29), and finally combined ART and Metrobus service (Figures 3-30 through 3-36). These maps reflect service coverage as of June 2010.

The results of this analysis reflect a comparison all service periods against service coverage provided during the weekday peak period service (when service coverage is at its greatest).

#### **ART Service Coverage**

On weekdays during peak hours, ART operates 11 routes (Figure 3-16). Service coverage is reduced during the midday service period to 7 routes (see Figure 3-17).

Weekday Midday Routes and Service Areas Not Served include:

- Route 61: Rosslyn–Court House Metro Shuttle (serving North Rosslyn, Colonial Village and Ft. Myer Heights)
- Route 62: Court House Metro/Lorcom Lane/ Ballston Metro (serving Colonial Village, Maywood, Cherrydale and Waverly Hills)
- Route 74: Douglas Park/Arlington Village/Arlington View/Pentagon City (serving areas noted in the route name)
- Route 75: Wakefield H.S./Carlin Springs Road/Ballston (serving Bluemont, Glen Carlyn, Forest Glen, Columbia Heights West, Columbia Forest and Claremont)

In addition to the above routes not operated during the weekday midday period, during weekday evening periods (see Figure 3-18) service is reduced to 6 routes with the addition of route 42 not served include:

- Route 42: Ballston-Pentagon (serving Army-Navy Annex, Penrose, Lyon Park and Wilson Boulevard)

On Saturday's ART operates 5 routes during middays (Figure 3-19) and only two during evening (Figure 3-20) time periods. Route 61 service is currently operated during Saturday midday, however this service will be eliminated on Saturdays beginning March 27, 2010.

Saturday Midday ROUTES and Service Areas Not Served:

- Route 52: Ballston Metro/East Falls Church Metro (serving Waycroft-Woodlawn, Langston Brown, Yorktown and Williamsburg)
- Route 53: Ballston Metro/Old Glebe Road/East Falls Church Metro (serving Cherrydale, Dover-Crystal, Bellevue Forest, Gulf Ranch, Rivercrest, Chain Bridge Forest, Old Glebe, Rock Spring and Williamsburg)
- Route 62: Court House Metro/Lorcom Lane/ Ballston Metro (serving Colonial Village, Maywood, Cherrydale and Waverly Hills)
- Route 74: Douglas Park/Arlington Village/Arlington View/Pentagon City (serving areas noted in the route name)
- Route 75: Wakefield H.S./Carlin Springs Road/Ballston (serving Bluemont, Glen Carlyn, Forest Glen, Columbia Heights West, Columbia Forest and Claremont)
- Route 77: Shirlington/Lyon Park/Court House (also serving Penrose and Nauck)

Art only operates routes 51 and 87 during evening hours on Saturdays. The remaining portions of Arlington County are covered by Metrobus service (described further below).

On Sundays, ART operates routes 41 and 51 during midday hours (Figure 3-21) and the route 51 during evening hours (Figure 3-22). The remaining portions of Arlington County are covered by Metrobus service (described further below).

### **Metrobus Service Coverage**

On weekdays during peak hours, Metrobus operates 24 routes (Figure 3-23), operating 83 route patterns. Metrobus primarily operates line-haul fixed route (16 local fixed lines) and express route (8 express lines) service within Arlington County. Service coverage is reduced during the midday service periods to 15 routes (see Figure 3-24) and during the evening service period to 14 routes (see Figure 3-25). On Saturdays, Metrobus operates 15 routes in Arlington County during the midday period and 14 during evening hours (Figures 3-26 and 3-27). On Sundays, Metrobus operates 14 routes in Arlington County during midday hours and 13 during evening hours (Figures 3-28 and 3-29). Table 3-6 below identifies a list of routes and patterns not operated during weekday midday and evening hours, Saturday midday and evening hours, and Sunday midday and evening hours

**Table 3-6  
Time Periods When Metrobus Route Patterns Do Not Operate**

Weekday		Saturday		Sunday	
Midday	Evening	Midday	Evening	Midday	Evening
1EZ, 2AG, 3EY, 4EH, 7BCDEHPWX, 8SWXZ, 9E, 10E, 11Y, 13ABFG, 15KL, 16ABFHWY, 17ABFGHKLM, 18EFGHJP, 21A, 24T, 25CD, 28FG, 29CEGHX	1BEZ, 2G, 3Y, 4AE, 7BCDEHPWX, 8SWXZ, 9E, 10E, 11Y, 13ABFG, 15KL, 16DFHWY, 17ABFGHKLM, 18EFGHJP, 21A, 23C,24T, 28FG, 29CEGHX	1BEZ, 2AG, 3EY, 4AE, 7BCDEHPWX, 8SWXZ, 9ES, 10E, 11Y, 13AB, 15KL, 16ADFWY, 17ABFGHKLM, 18EFGHJP, 21A, 23C, 24T, 25CD, 28FG, 29CEGHX	1BEZ, 2G, 3EY, 4AE, 7BCDEHPWX, 8SWXZ, 9ES, 10E, 11Y, 13ABFG, 15KL, 16ADFWY, 17ABFGHKLM, 18EFGHJP, 21A, 23C, 24T, 25CD, 28FG, 29CEGHX	1BEZ, 2BG, 3BEY, 4AEH, 7BCDEFHPWX, 8SWXZ, 9ES, 10E, 11Y, 13AB, 15KL, 16ADFHWY, 17ABFGHKLM, 18EFGHJP, 21A, 22A, 23C, 24T, 25BCD, 28FG, 29CEGHX	1BEZ, 2BCG, 3ABY, 4AEH, 7BCDEFHPWX, 8SWXZ, 9ES, 10E, 11Y, 13ABFG, 15KL, 16ABDFHJPWY, 17ABFGHKLM, 18EFGHJP, 21A, 22A, 23C, 24T, 25BCD, 28FG, 29CEGHX

**Overall Loss of Service Coverage**

Many of the Metrobus routes and route patterns identified above operate specifically and only during peak hours to serve work related trips to major employment sites (e.g., Pentagon). Therefore many of these routes are not warranted during non peak non weekday time periods. There are however, areas within Arlington County that experience a loss in service coverage resulting from peak period routes not operating during other time periods. Below is a list of areas by day and time period, that are absent service coverage.

Figure 3-30 illustrates Arlington County ART and Metrobus transit service during Weekday peak period. A comparison of Figures 3-31 through 3-36 reveal the following areas not served and the route currently serving these areas during weekday peak period. As noted above, Metrobus express routes service areas designed for peak period only service are excluded from the list below.

**Weekday Midday Period:**

- North Rosslyn, Colonial Village and Ft. Myer Heights – ART Route 61
- Colonial Village, Maywood, Lorcom Lane, Donaldson Run, Cherrydale and Waverly Hills – ART Route 62
- Dominion Hills, McKinley Elementary School – Metrobus Route 1E
- Bluemont, Glen Carlyn, Forest Glen, Columbia Heights West, Columbia Forest, Wakefield H.S. and Claremont – ART Route 75
- George Mason Drive, Douglas Park, Columbia Forest – Metrobus Route 16W
- Walter Reed Drive between Arlington Mill Drive and King Street (Clarmont) – Metrobus Route 7C
- Douglas Park/Arlington Village/Arlington View/Pentagon City – ART Route 74

**Weekday Evening Period:**

- Areas noted above under weekday midday period, plus
- Army-Navy Annex, Penrose, Lyon Park and Wilson Boulevard – ART Route 42

#### Saturday Midday Period:

- Colonial Village, Maywood, Lorcom Lane, Donaldson Run, Cherrydale and Waverly Hills – ART Route 62
- Dominion Hills, McKinley Elementary School – Metrobus Route 1E
- Bluemont, Glen Carlyn, Forest Glen, Columbia Heights West, Columbia Forest, Wakefield H.S. and Claremont – ART Route 75
- George Mason Drive, Douglas Park, Columbia Forest – Metrobus Route 16W
- Walter Reed Drive between Arlington Mill Drive and King Street (Clarmont) – Metrobus Route 7C
- Douglas Park/Arlington Village/Arlington View/Pentagon City – ART Route 74
- Waycroft-Woodlawn, Langston Brown, Yorktown and Williamsburg – ART Route 52
- Cherrydale, Dover-Crystal, Bellevue Forest, Gulf Ranch, Rivercrest, Chain Bridge Forest, Old Glebe, Rock Spring and Williamsburg – ART Route 53
- Colonial Village, Maywood, Cherrydale and Waverly Hills – ART Route 62
- Shirlington/Lyon Park/Court House, Penrose and Nauck – ART Route 77

#### Saturday Evening Period:

- Areas noted above under Saturday midday period, plus
- Army-Navy Annex, Penrose, Lyon Park and Wilson Boulevard – ART Route 42

#### Sunday Midday Period:

- Colonial Village, Maywood, Lorcom Lane, Donaldson Run, Cherrydale and Waverly Hills – ART Route 62
- Dominion Hills, McKinley Elementary School – Metrobus Route 1E
- Bluemont, Glen Carlyn, Forest Glen, Columbia Heights West, Columbia Forest, Wakefield H.S. and Claremont – ART Route 75
- George Mason Drive, Douglas Park, Columbia Forest – Metrobus Route 16W
- Walter Reed Drive between Arlington Mill Drive and King Street (Clarmont) – Metrobus Route 7C
- Douglas Park/Arlington Village/Arlington View/Pentagon City – ART Route 74
- Waycroft-Woodlawn, Langston Brown, Yorktown and Williamsburg – ART Route 52
- Cherrydale, Dover-Crystal, Bellevue Forest, Gulf Ranch, Rivercrest, Chain Bridge Forest, Old Glebe, Rock Spring and Williamsburg – ART Route 53
- Colonial Village, Maywood, Cherrydale and Waverly Hills – ART Route 62
- Shirlington/Lyon Park/Court House, Penrose and Nauck – ART Route 77
- Shirlington, Nauck, Douglas Park, Barcroft, Arlington Hall – Metrobus Route 22A
- Lyon Park, Arlington Boulevard – Metrobus Route 4H
- Army-Navy Annex, Penrose, Lyon Park and Wilson Boulevard – ART Route 42
- Arlington Ridge, Forest Hills, Avalon Bay, Shirlington – ART Route 87

#### Sunday Evening Period:

- Areas noted above under Sunday midday period

Figure 3-16  
ART Weekday Peak Period Service Coverage

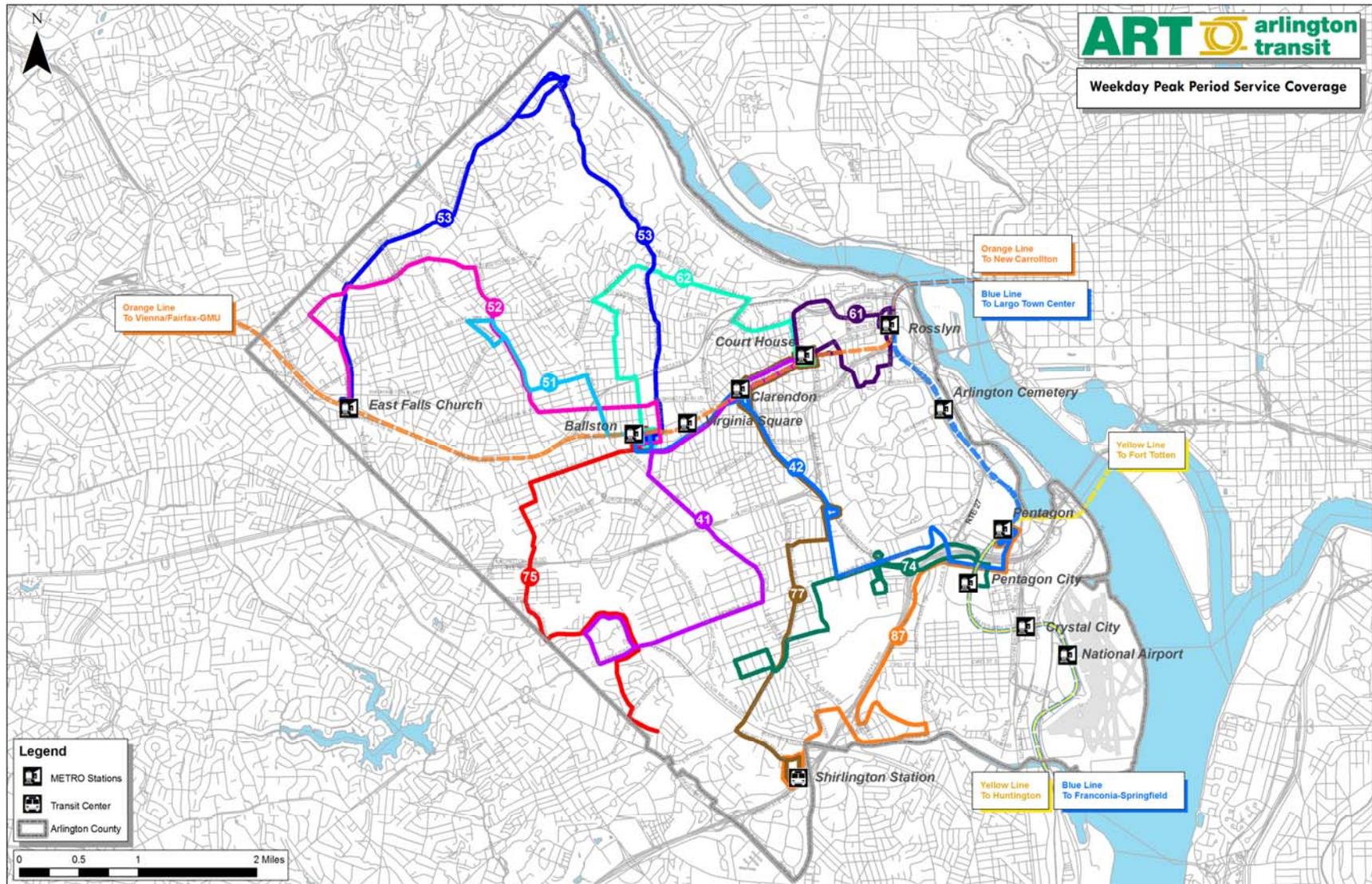


Figure 3-17  
ART Weekday Midday Period Service Coverage

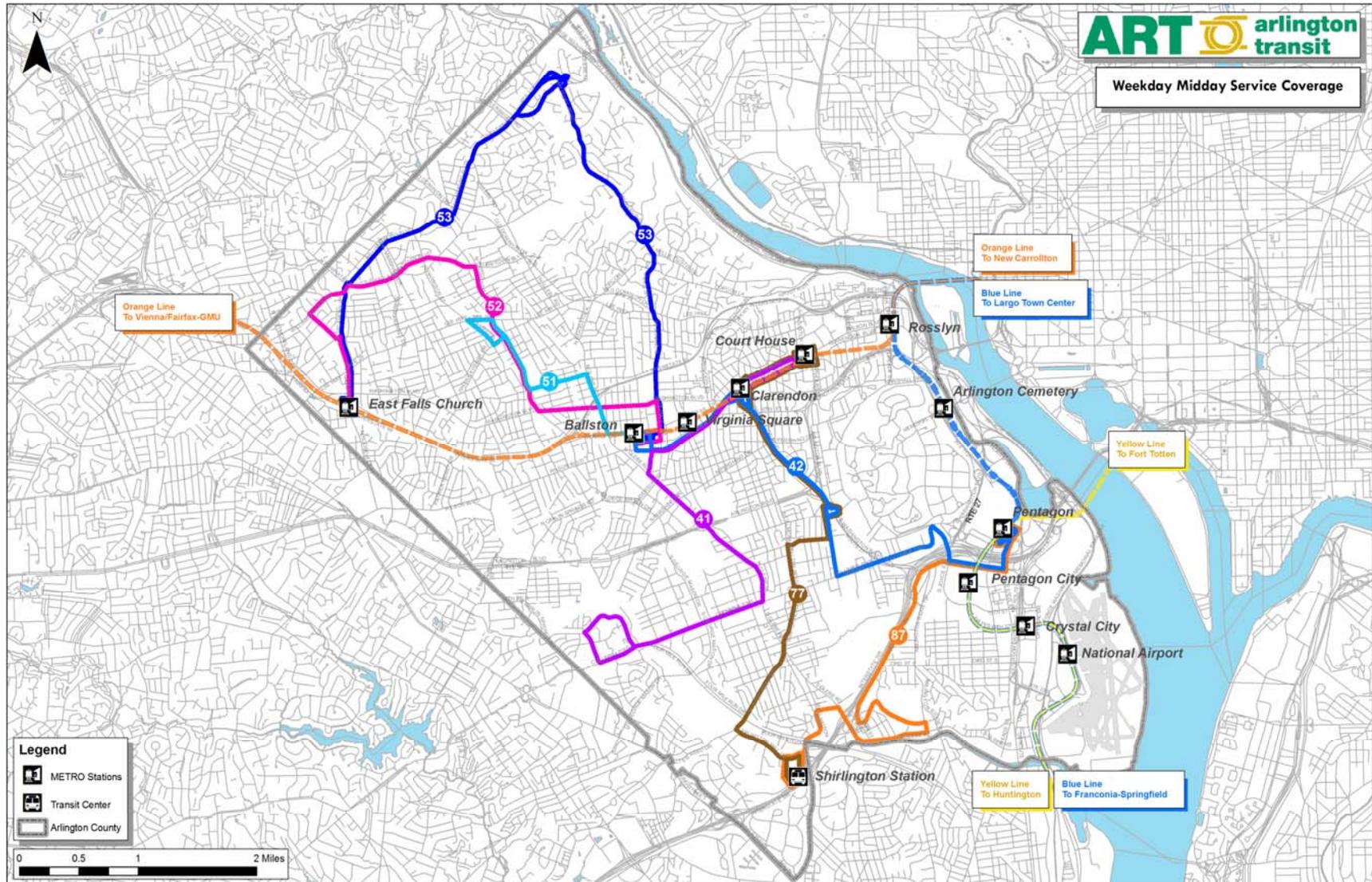


Figure 3-18  
ART Weekday Evening Period Service Coverage

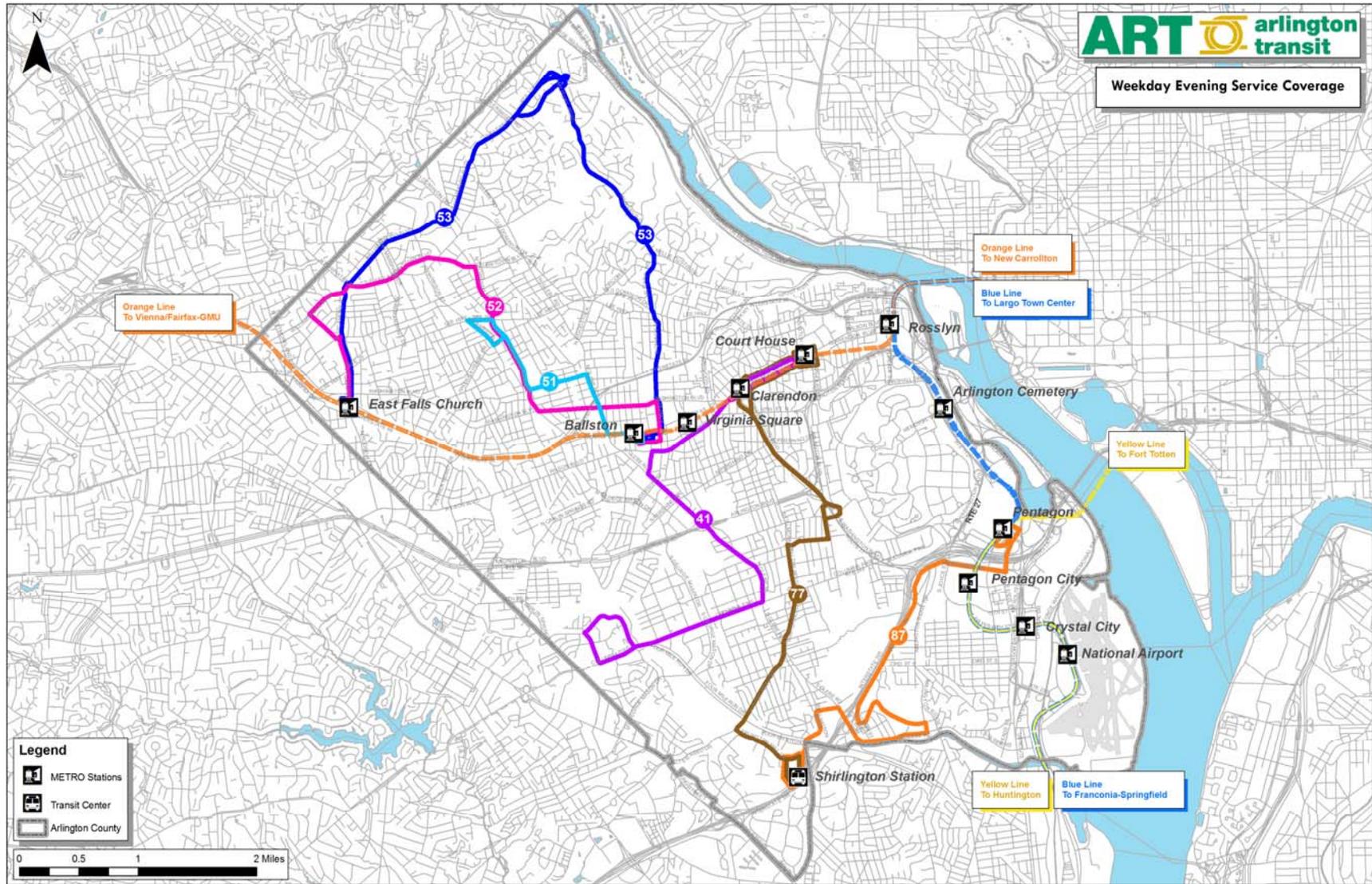


Figure 3-19  
 ART Saturday Midday Period Service Coverage

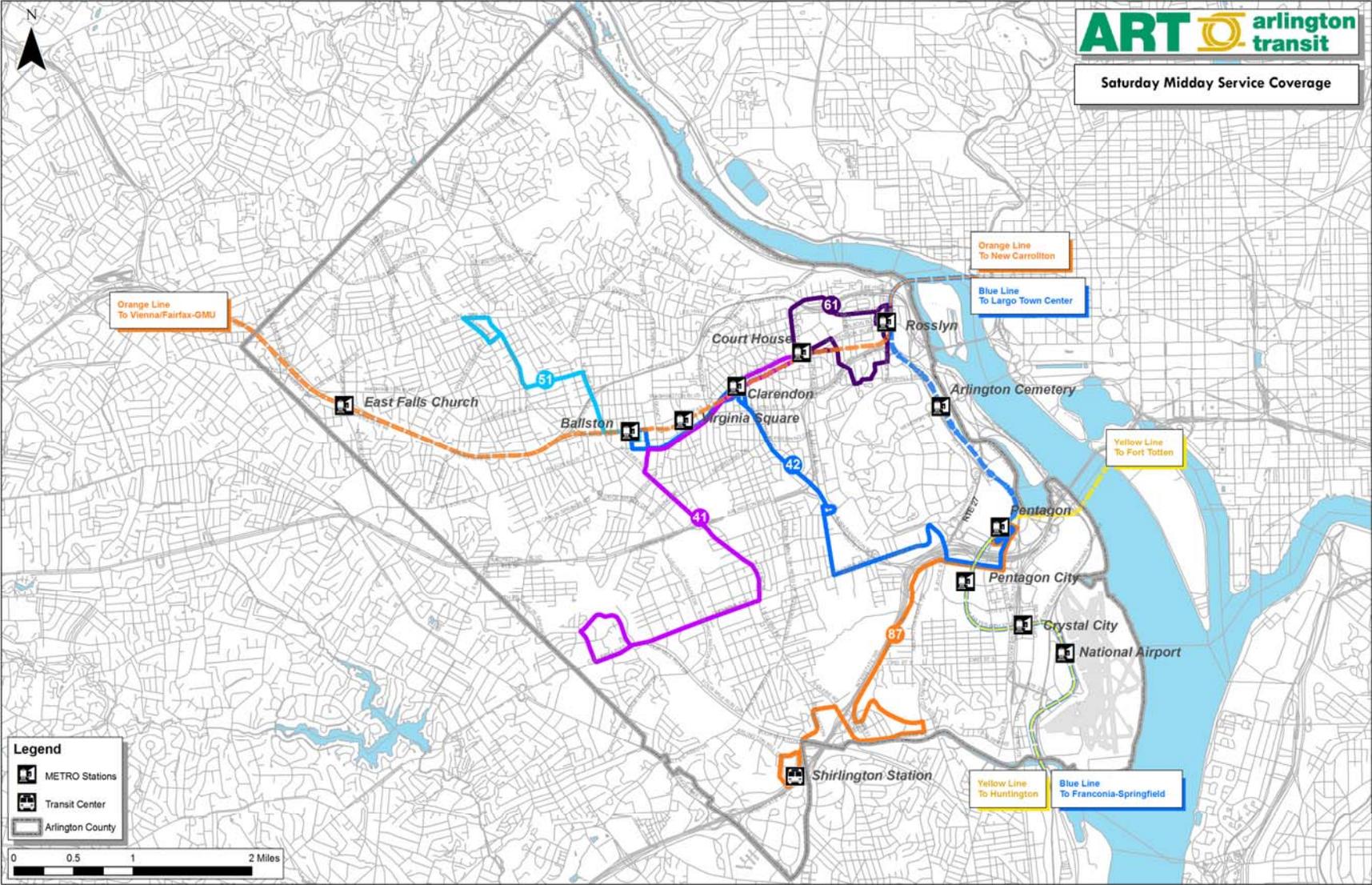


Figure 3-20  
ART Saturday Evening Period Service Coverage

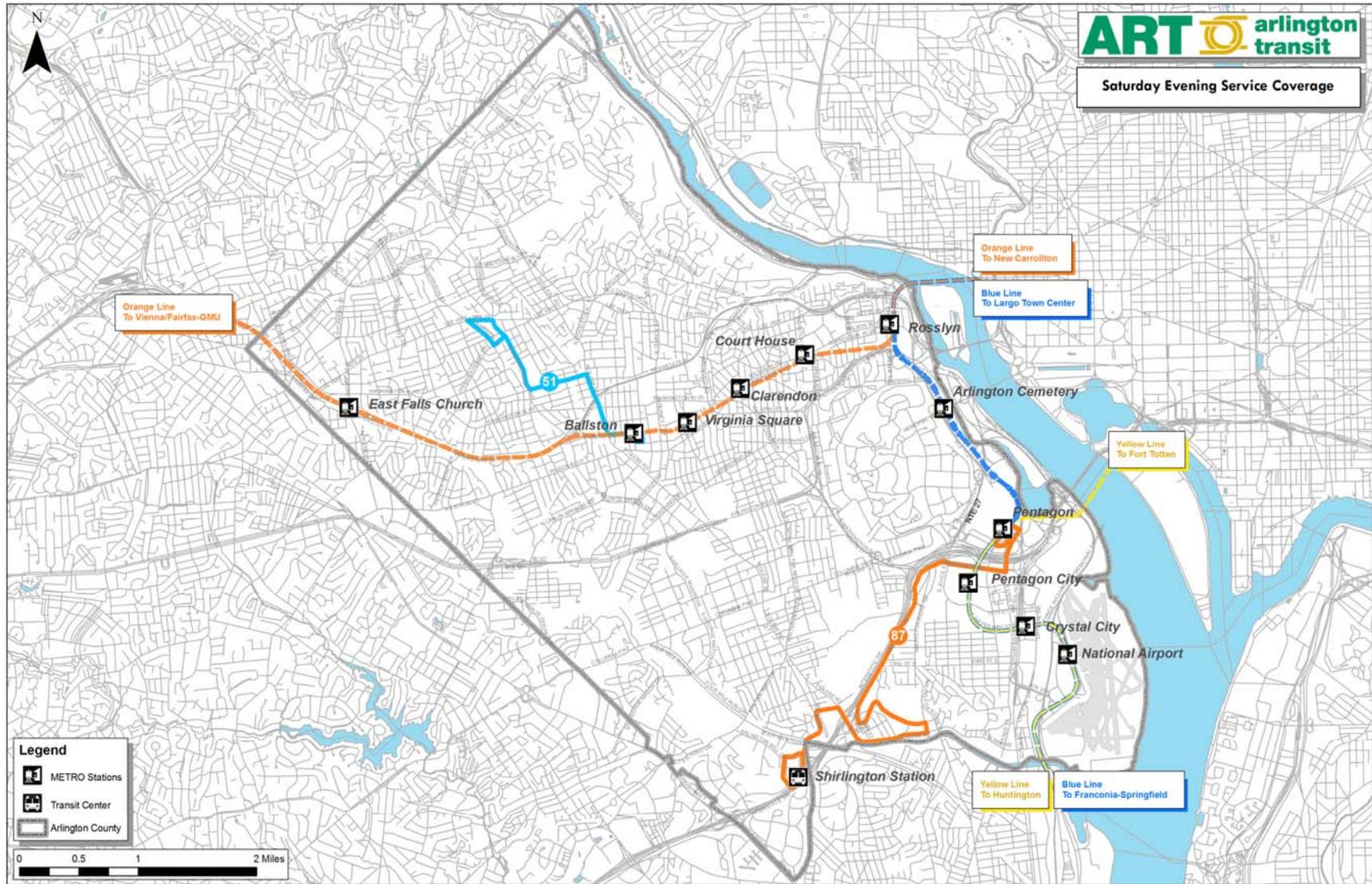


Figure 3-21  
ART Sunday Midday Period Service Coverage

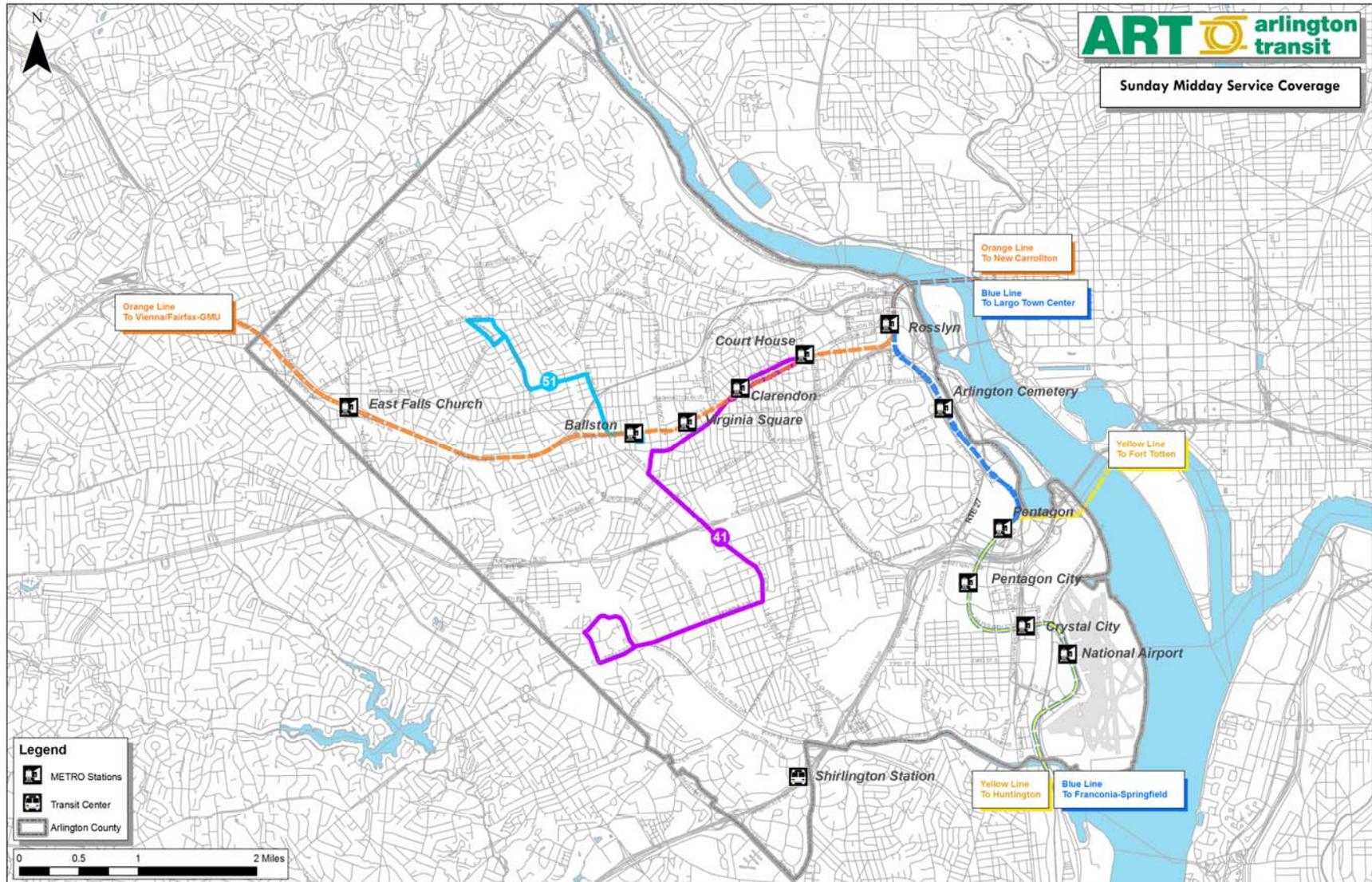


Figure 3-22  
ART Sunday Evening Period Service Coverage

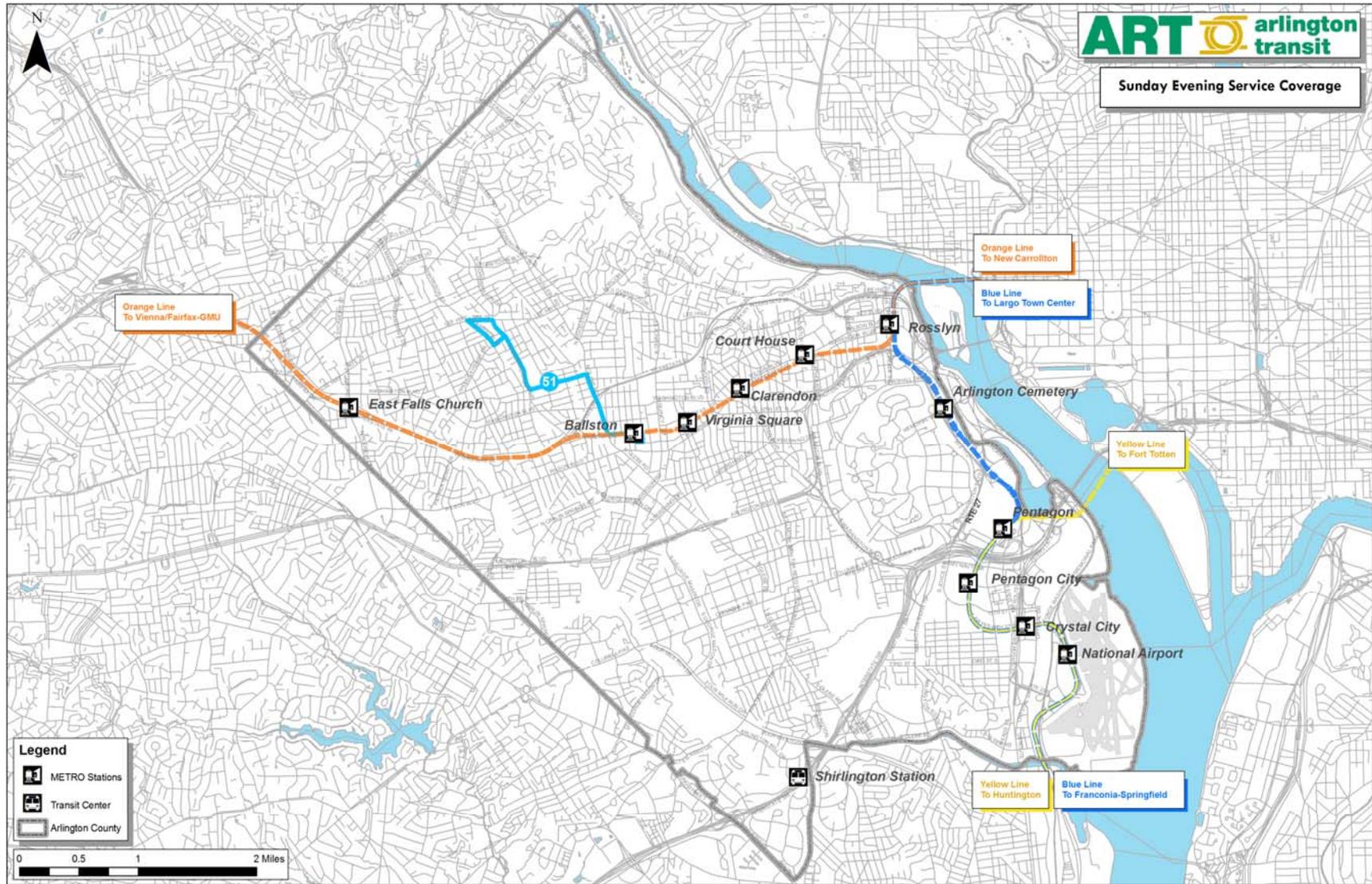


Figure 3-23  
 Metrobus Weekday Peak Period Service Coverage

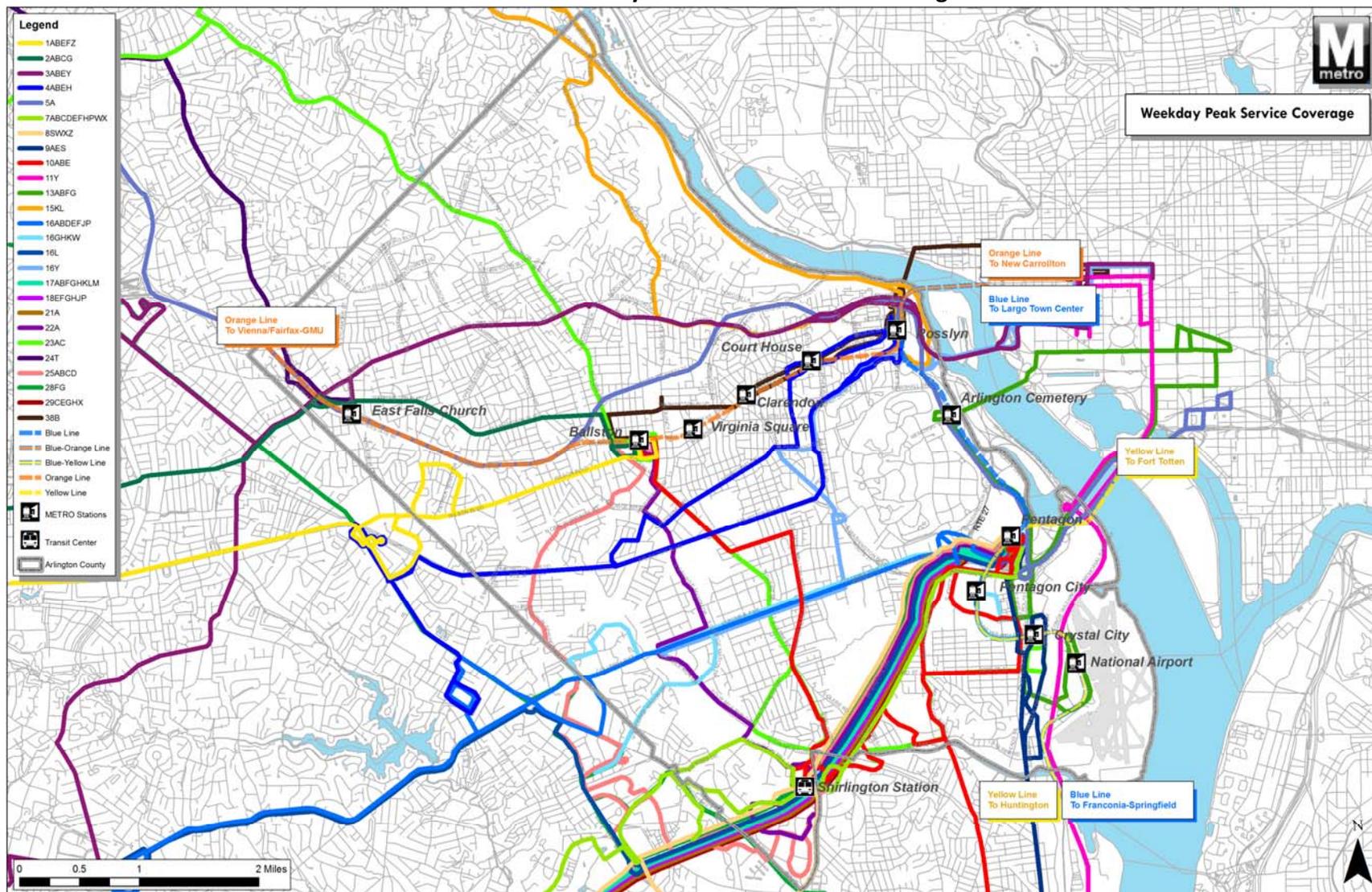


Figure 3-24  
 Metrobus Weekday Midday Period Service Coverage

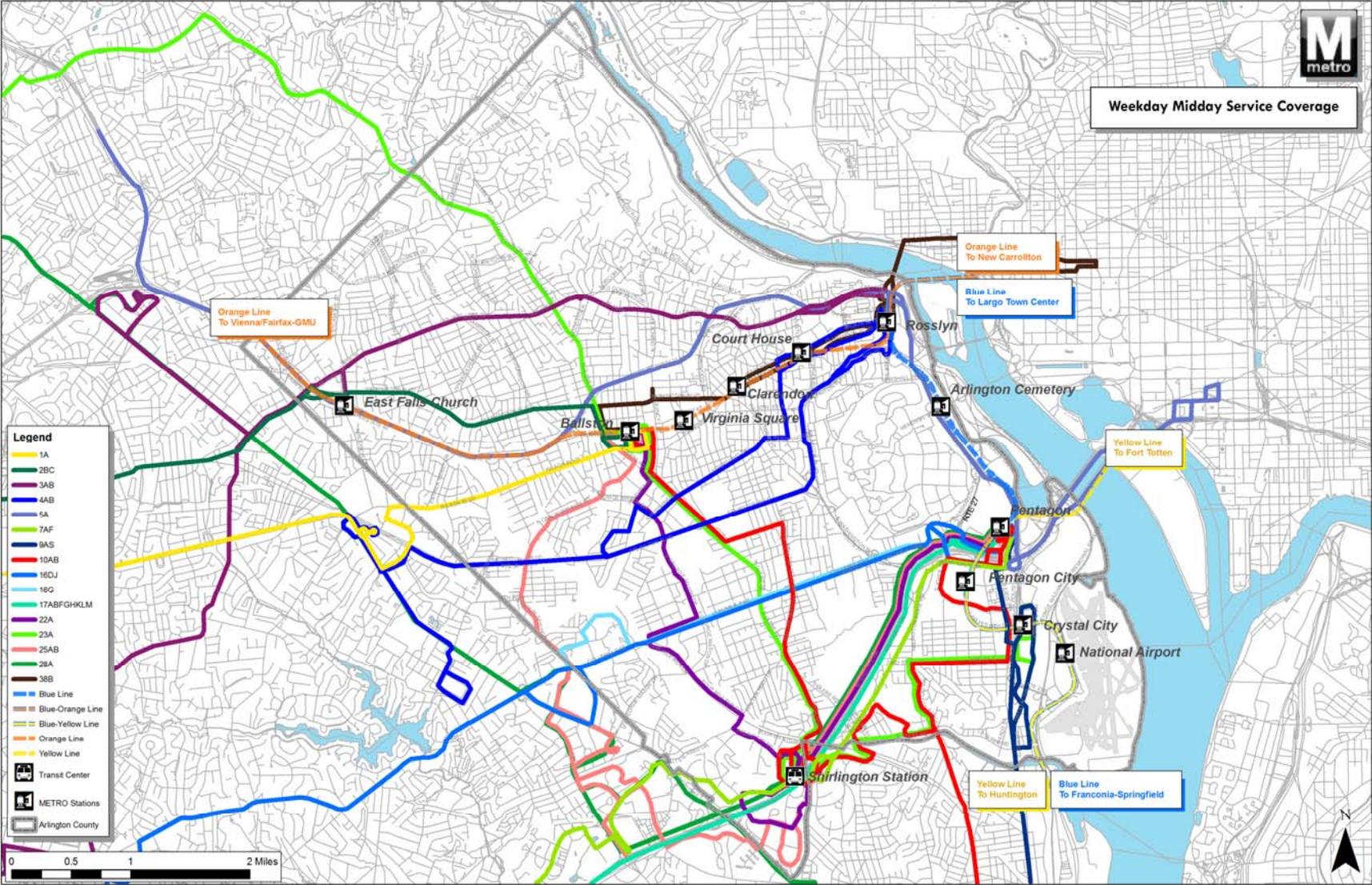


Figure 3-25  
 Metrobus Weekday Evening Period Service Coverage

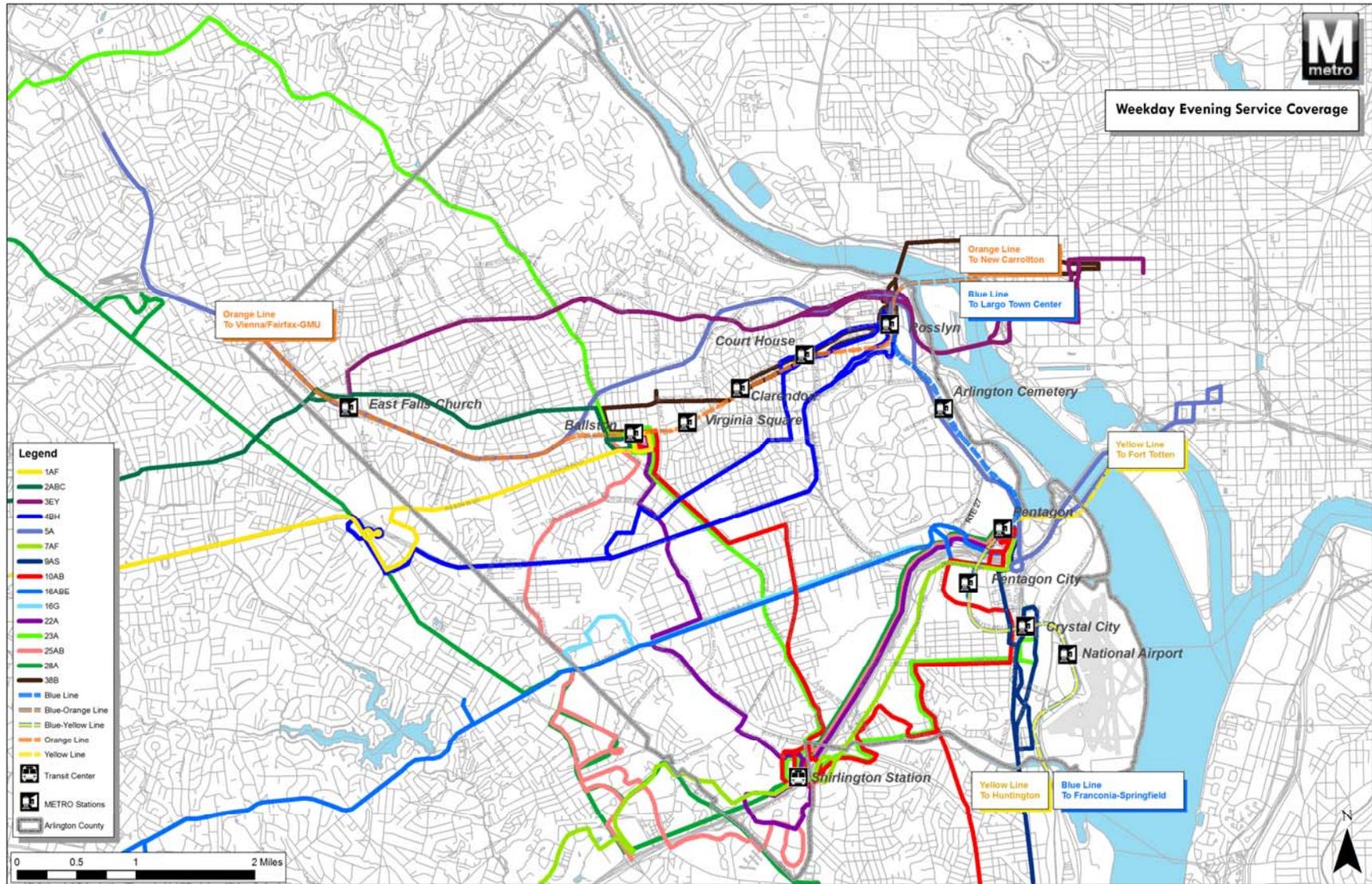
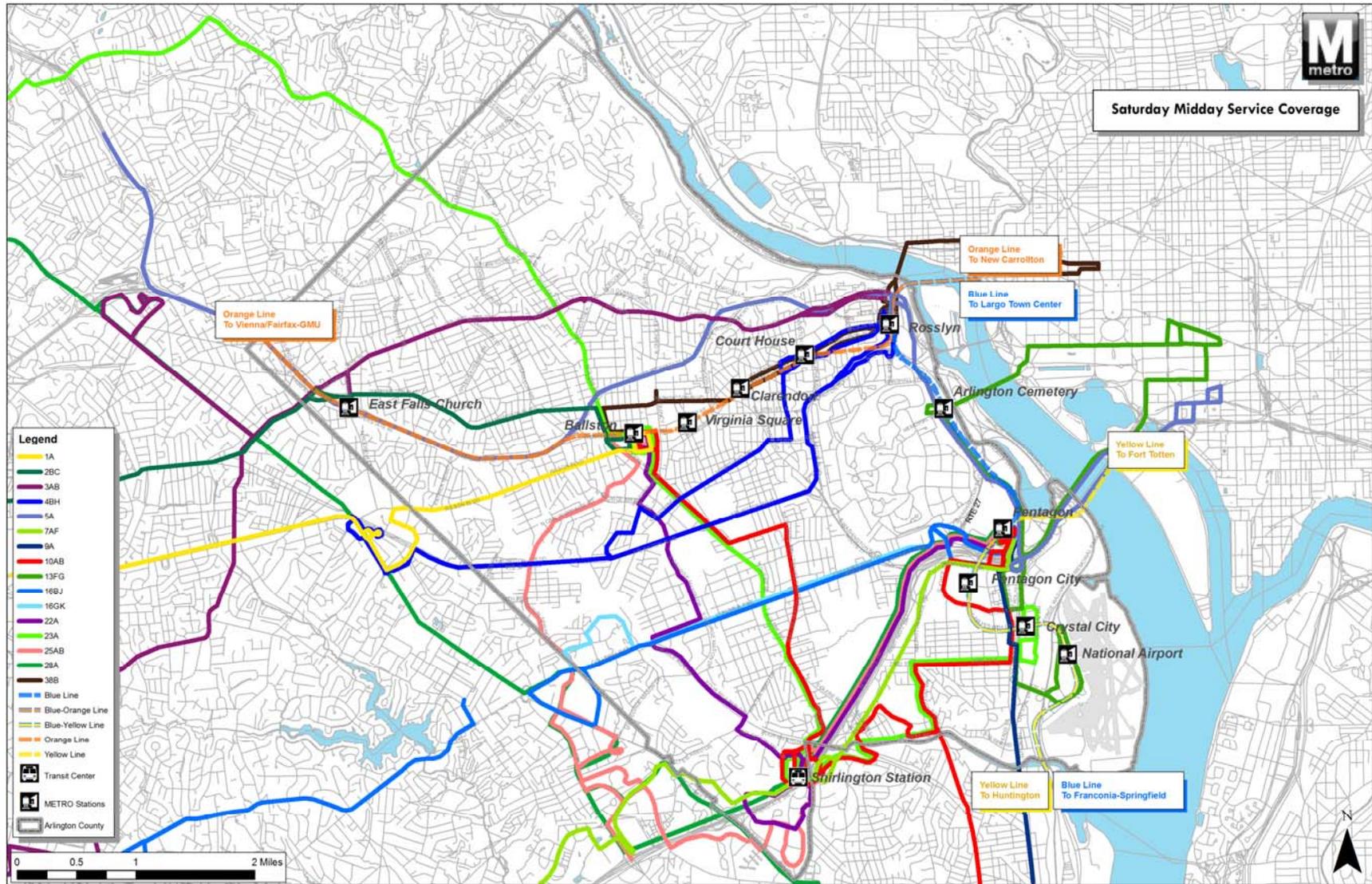


Figure 3-26  
 Metrobus Saturday Midday Period Service Coverage



**Figure 3-27**  
**Metrobus Saturday Evening Period Service Coverage**

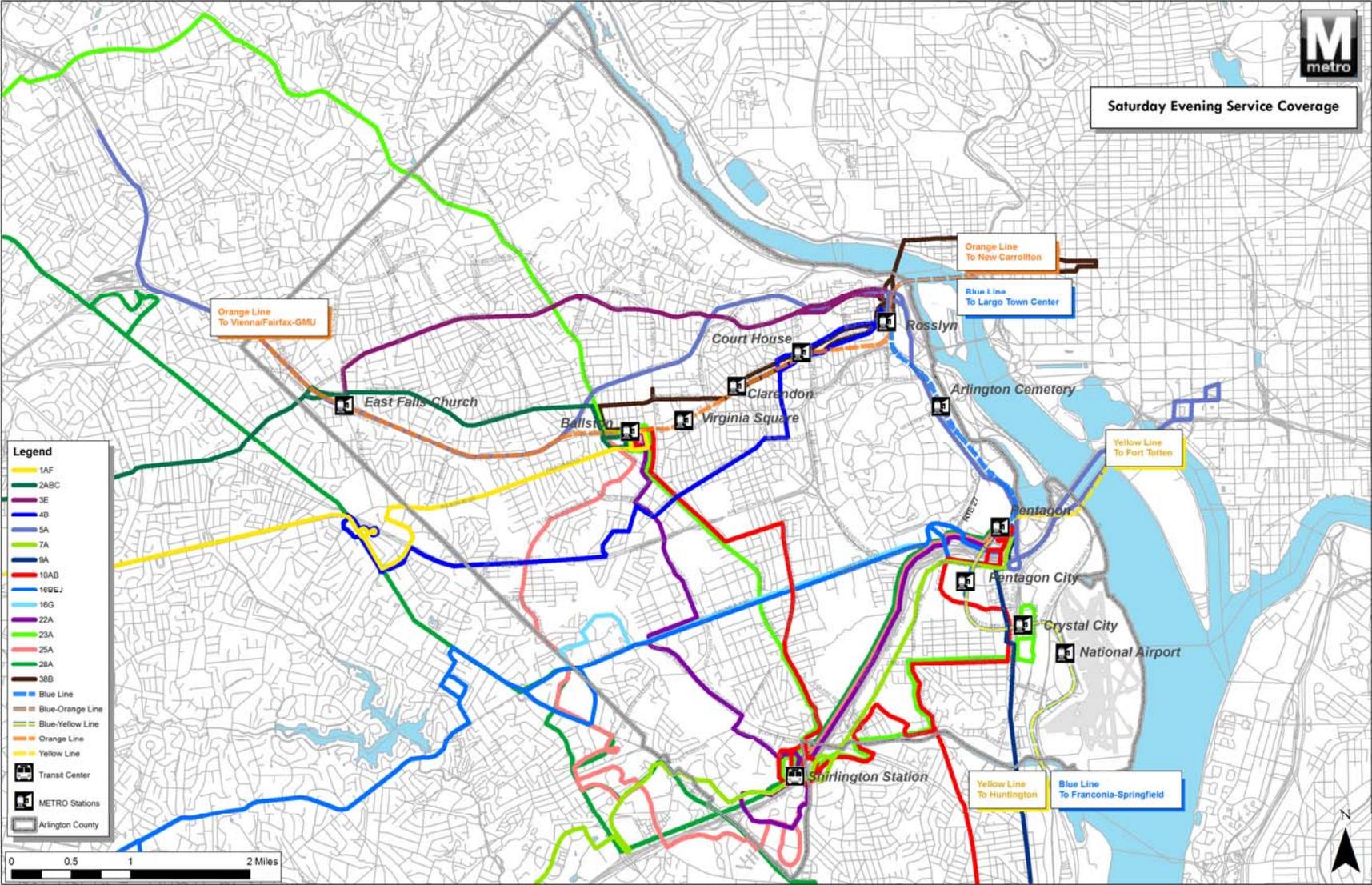


Figure 3-28  
 Metrobus Sunday Middyay Period Service Coverage

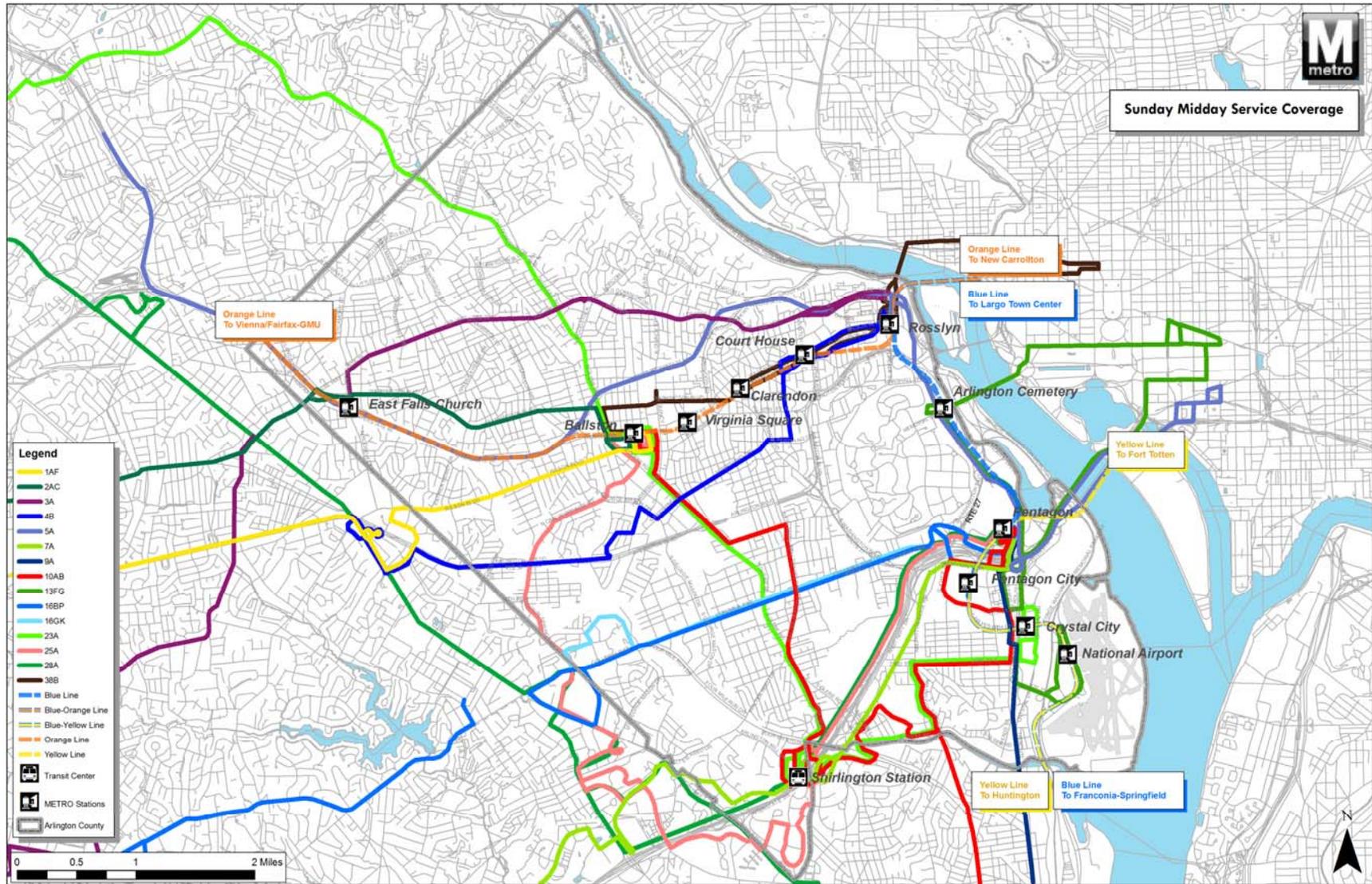


Figure 3-29  
 Metrobus Sunday Evening Period Service Coverage

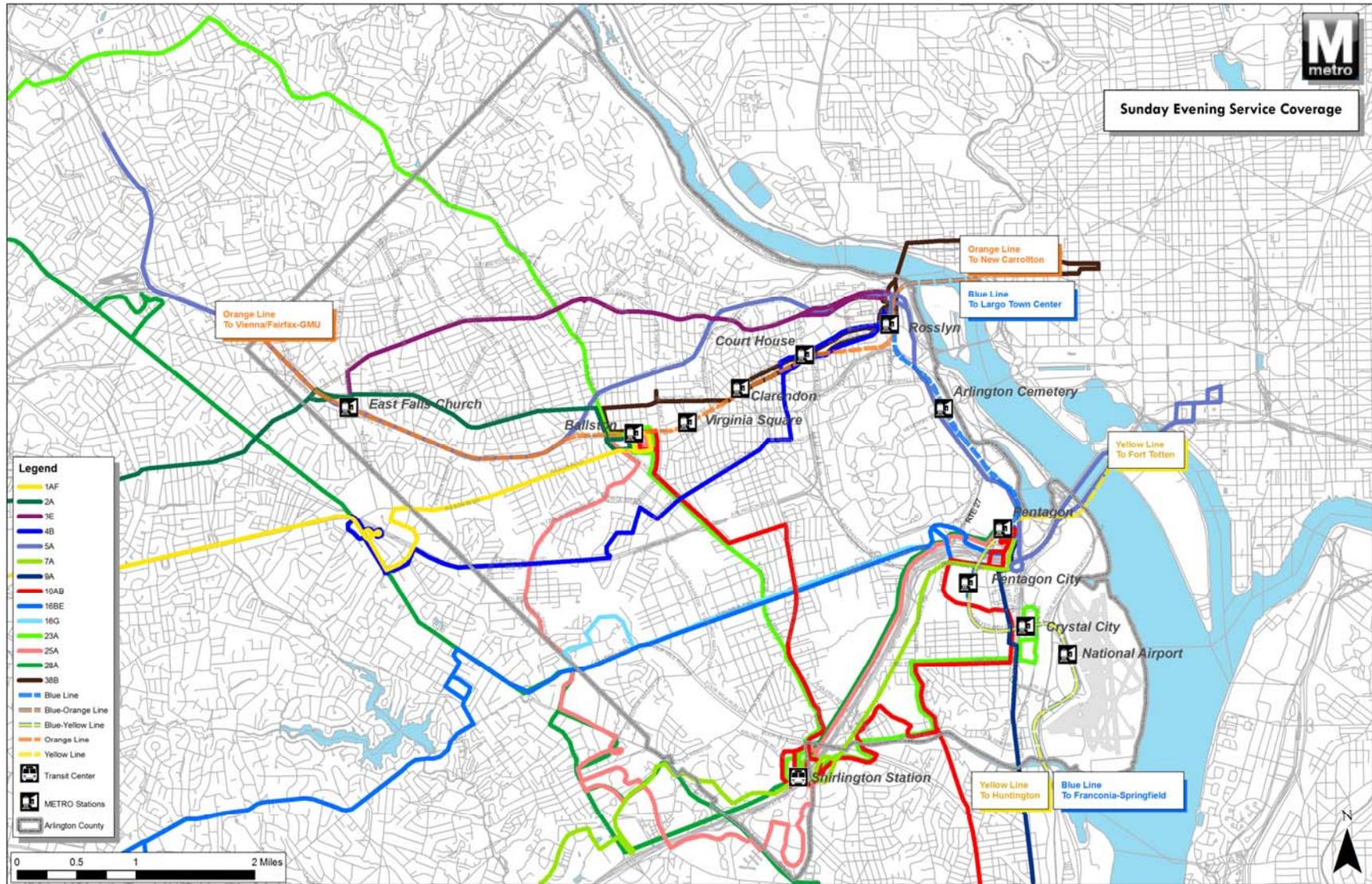


Figure 3-30  
 ART & Metrobus Weekday Peak Period Service Coverage

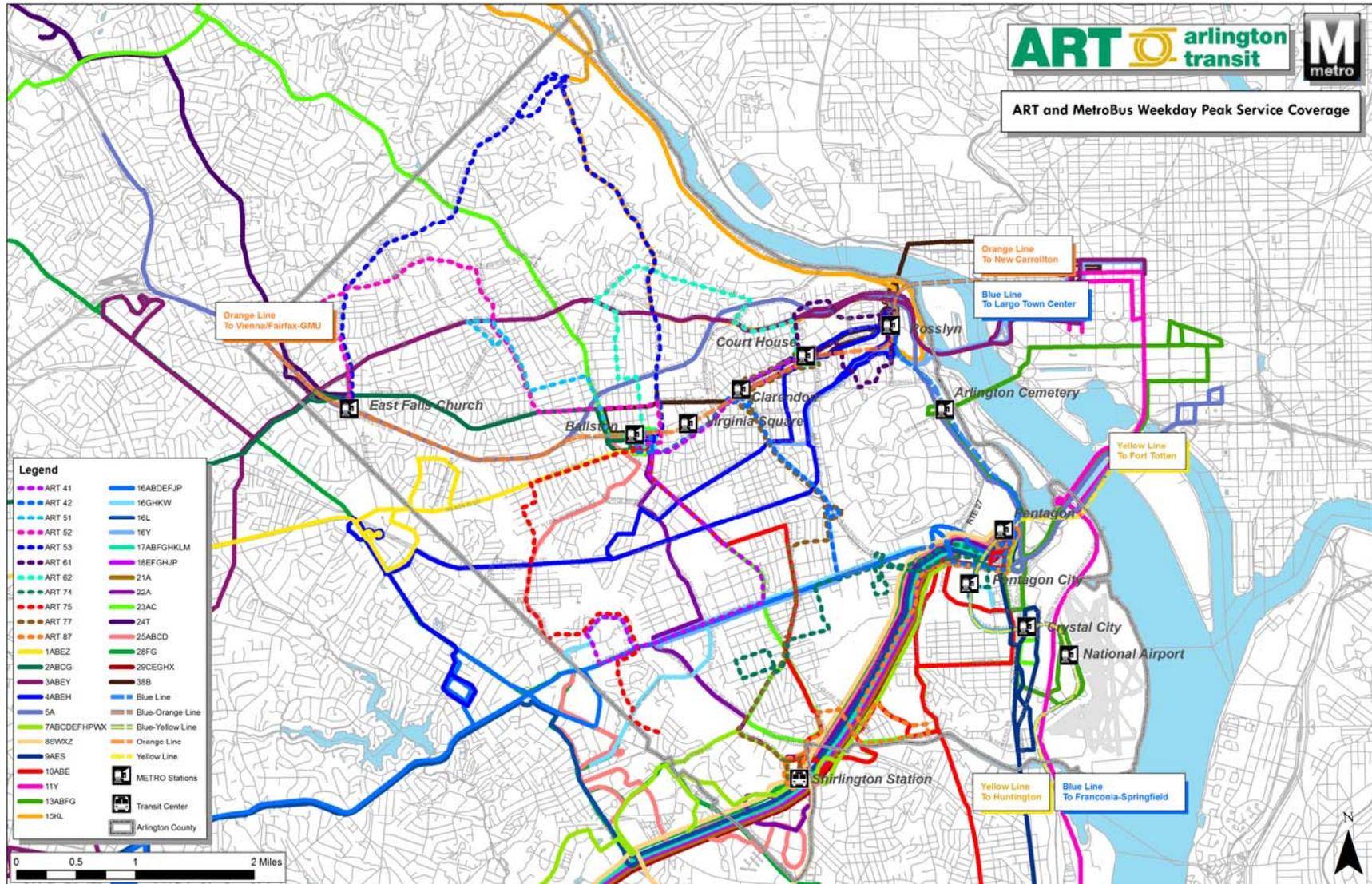


Figure 3-31  
 ART & Metrobus Weekday Midday Period Service Coverage

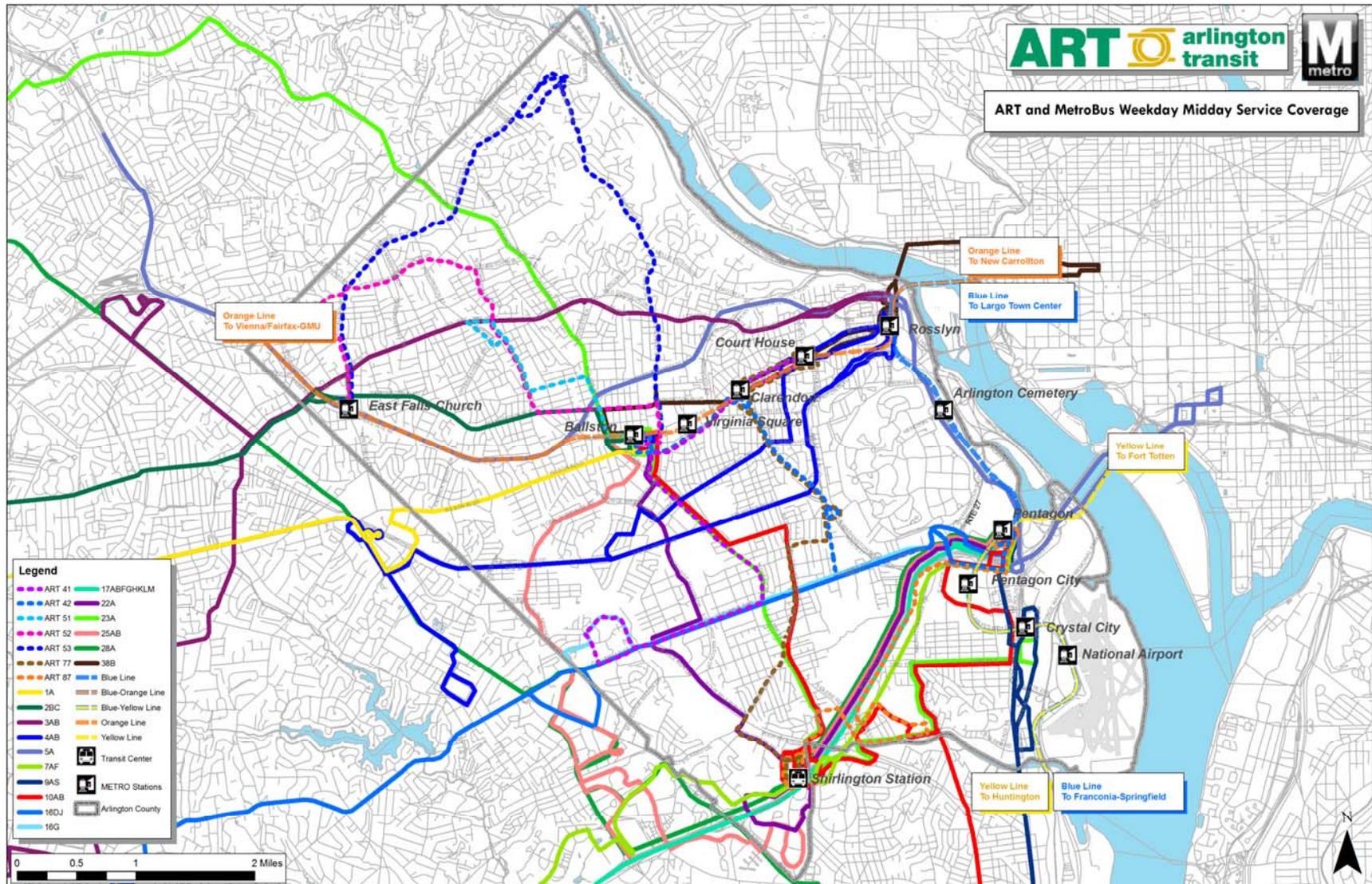
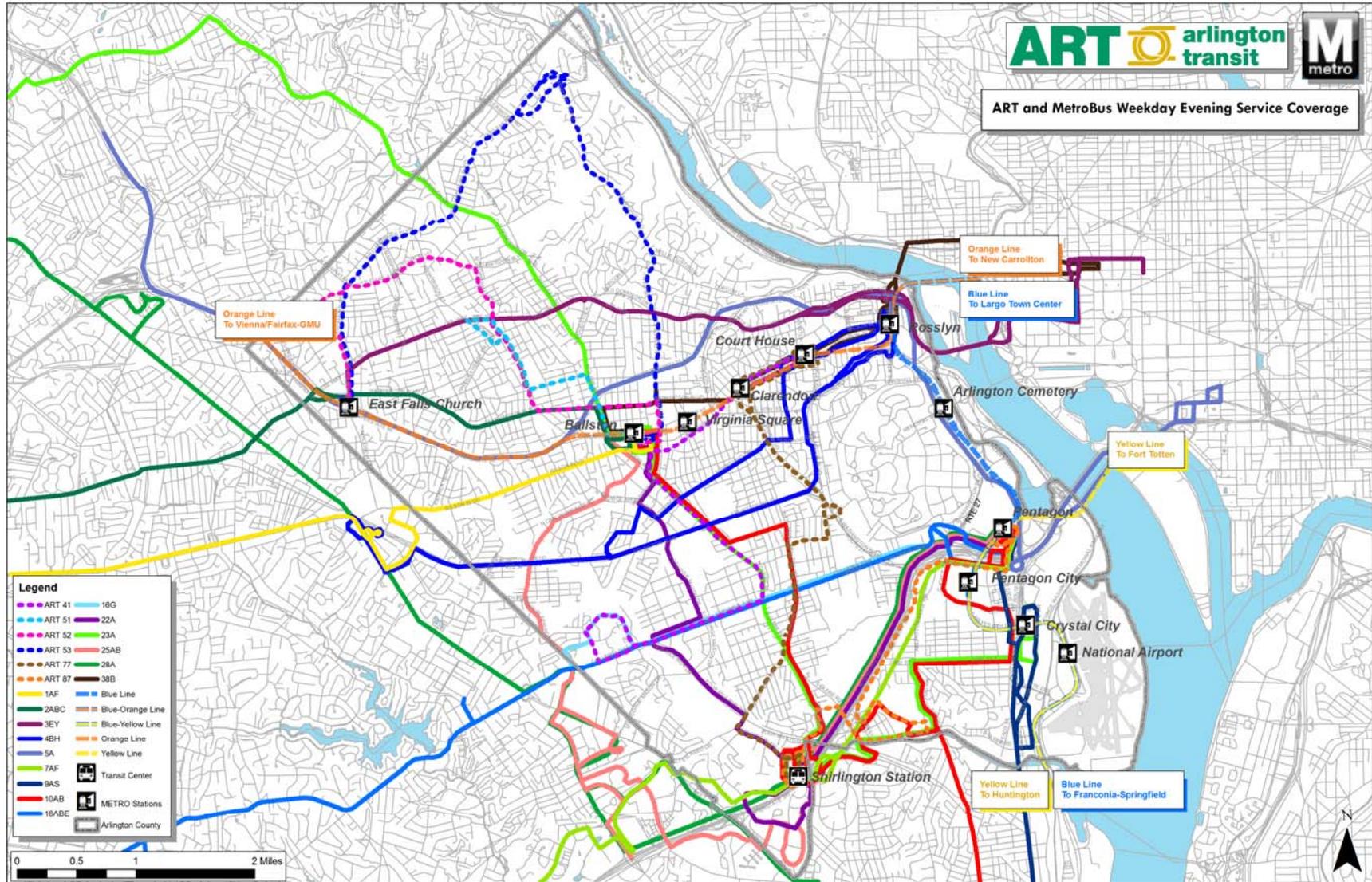


Figure 3-32  
**ART & Metrobus Weekday Evening Period Service Coverage**



**Figure 3-33**  
**ART & Metrobus Saturday Midday Period Service Coverage**

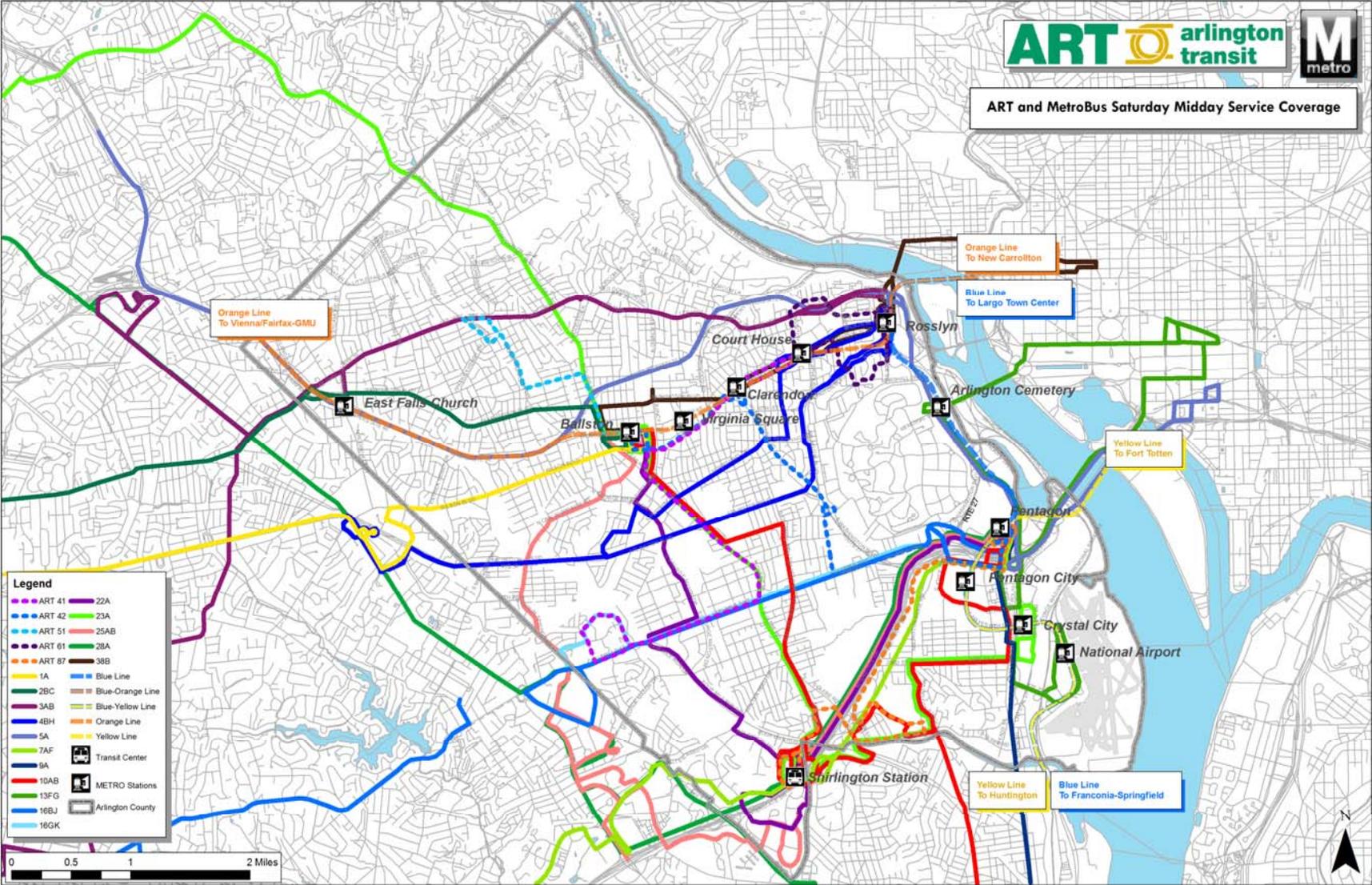


Figure 3-34  
 ART & Metrobus Saturday Evening Period Service Coverage

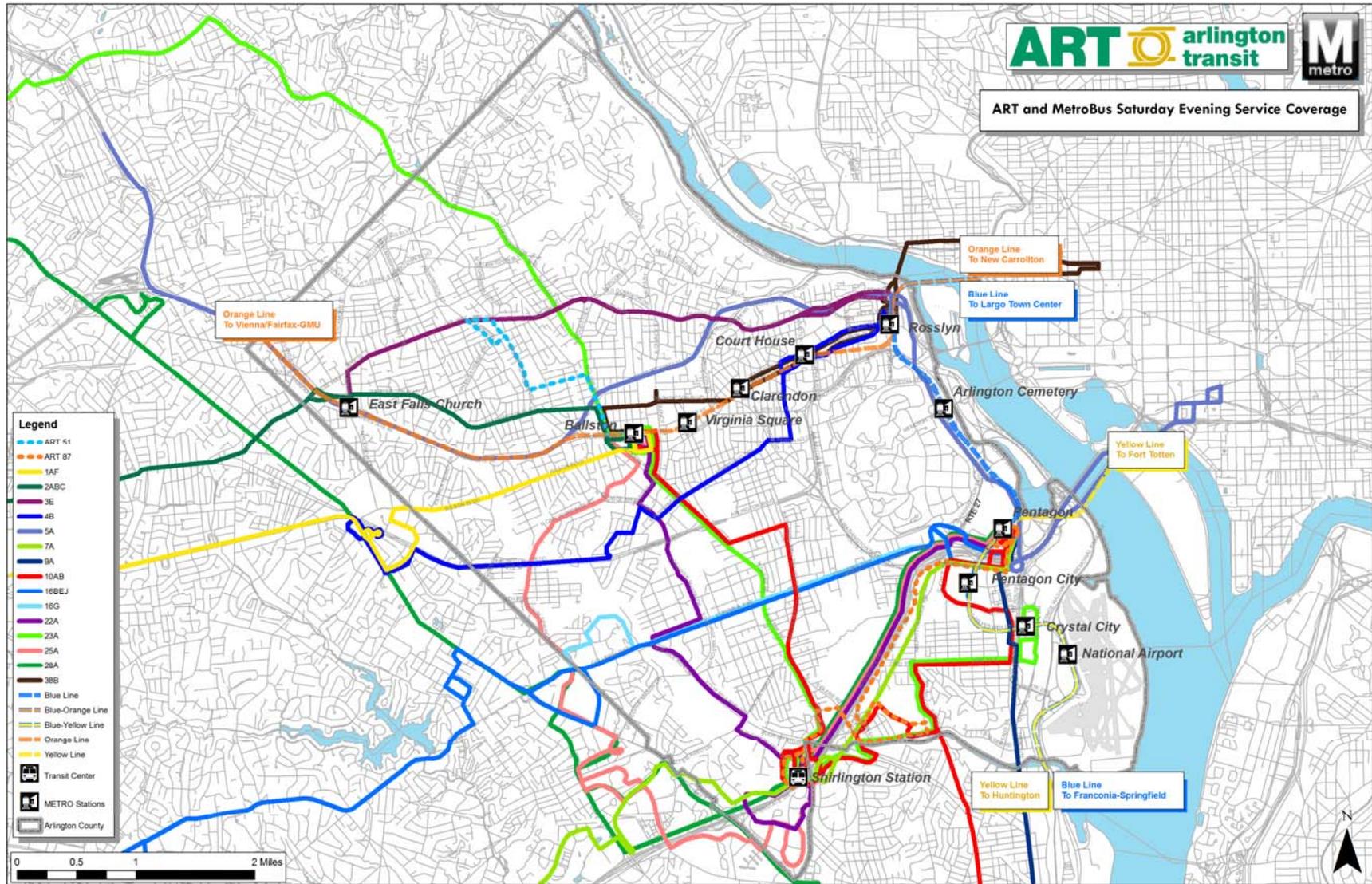


Figure 3-35  
 ART & Metrobus Sunday Midday Period Service Coverage

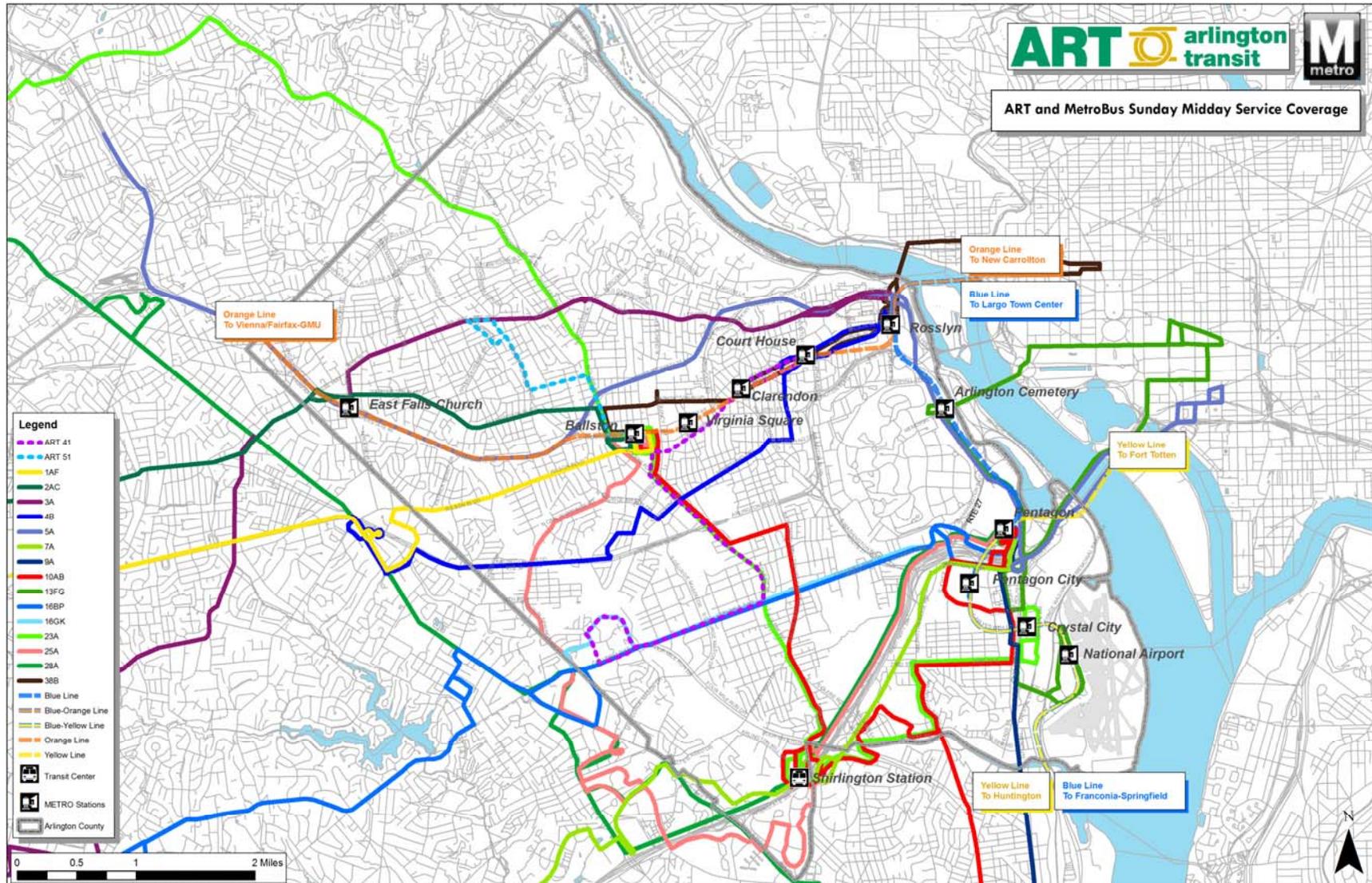
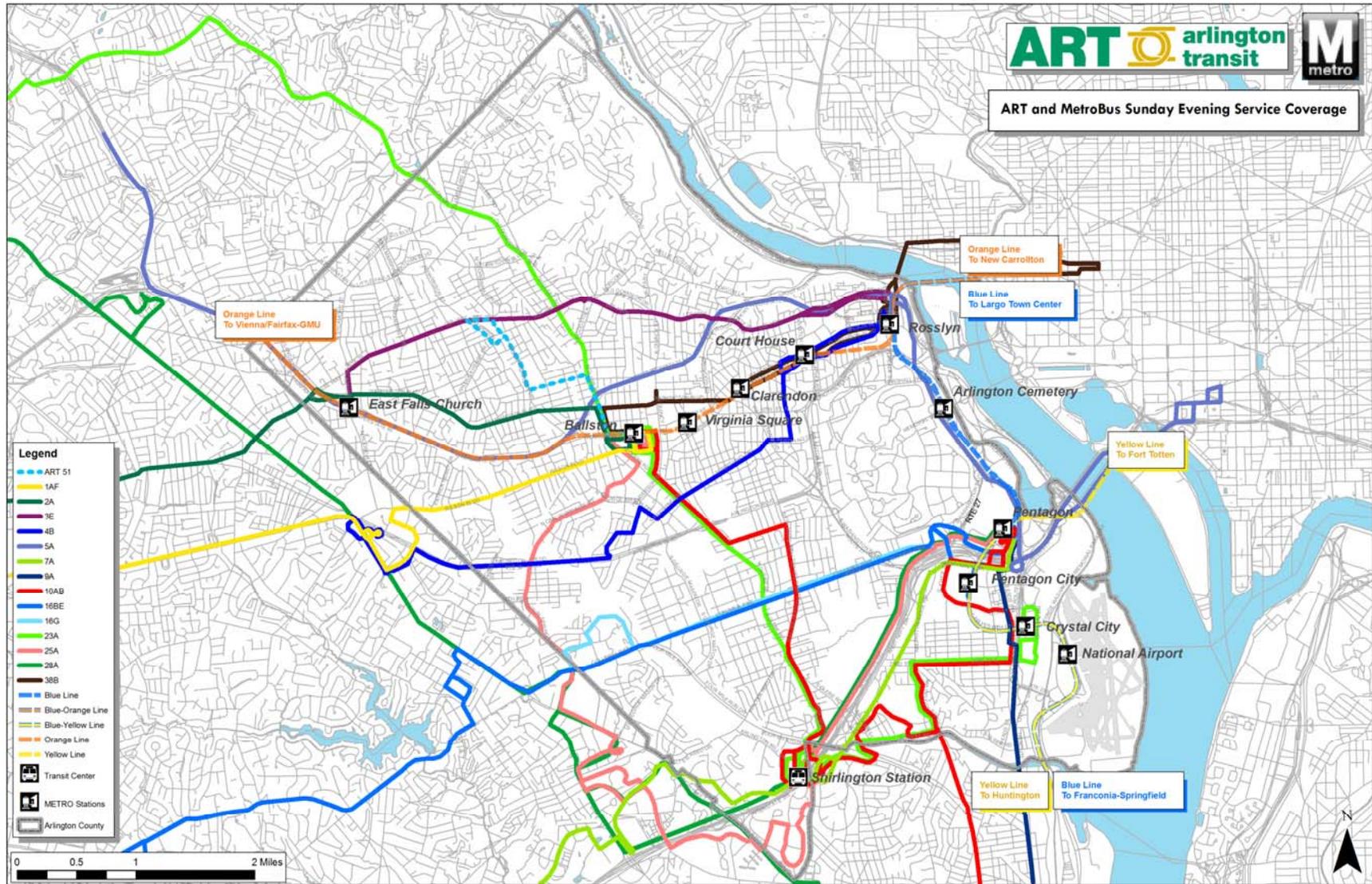


Figure 3-36  
 ART & Metrobus Sunday Evening Period Service Coverage



### 3.4 Service Level Analysis

The service level analysis concentrates on the frequency of service over the various time periods of weekday, Saturday and Sunday service. There is a direct correlation between frequency of transit service and ridership levels (i.e., more frequent service results in higher ridership). Service frequency for weekday peak, midday and evening periods, Saturday and Sunday midday and evening periods have been plotted in Figures 3-37 through 3-49. Figures 3-37 through 3-43 illustrate just ART service frequencies by time period. The following Figures 3-44 through 3-49 illustrate combined ART and Metrobus service frequencies by transit route. Service frequencies have been delineated into four ranges of service frequency. The first frequency range identifies those routes or common service segments that experience service frequencies between 1 and 14 minutes. In this range, transit service schedules are not required and riders generally arrive at the bus stop with the understanding that the next bus will arrive shortly. The second frequency range is between 15 and 29 minutes, which may prompt the need to refer to a schedule however is within the acceptable range of walk ups at any time. The third frequency range is between 30 and 59 minutes, which generally requires reference to a published transit schedule and some planning of the trip. The last frequency range identifies those routes with service frequencies of 60 minutes or greater. This last range definitely requires trip planning and nearly all riders would be expected to reference a transit schedule if they are not familiar with the route schedule.

During weekday peak service periods all transit routes provide service within the first three service frequency ranges with service frequency intervals less than 59 minutes. In fact, during weekday peak periods, several corridors experience service frequencies at 10 minutes or less (e.g., Columbia Pike, Henry G. Shirley Highway serving numerous branch patterns). No routes operated service at intervals of 60 minutes or greater.

During the **weekday midday service period**, the following route corridors or segments experience service frequencies that are 60 minutes or greater (refer to Section 3.3 above for service areas and route segments with no service):

- Quincy Street / Military Road – ART Route 53
- Williamsburg Boulevard – ART Route 53
- Yorktown Boulevard – ART Route 52
- Carlin Springs Road – ART Route 75, Metrobus Route 25AB
- Fairlington Area – Metrobus Routes 7AEF, 25AC

During the **weekday evening service period**, the following route corridors or segments experience service frequencies that are 60 minutes or greater (refer to Section 3.3 above for service areas and route segments with no service):

- Yorktown Boulevard – ART Route 52
- Carlin Springs Road – ART Route 75, Metrobus Route 25AB
- Arlington Boulevard (east of N. Park Avenue) – Metrobus Route 4AH
- 2<sup>nd</sup> Street South – Metrobus Route 10B
- Fairlington Area – Metrobus Routes 7AEF, 25AC

During **Saturday midday service period**, the following route corridors or segments experience service frequencies that are 60 minutes or greater (refer to Section 3.3 above for service areas and route segments with no service):

- Carlin Springs Road – ART Route 75, Metrobus Route 25AB
- Arlington Boulevard (east of N. Park Avenue) – Metrobus Route 4BH
- North Pershing Drive east of N. Park Avenue) – Metro Bus 4BE
- Washington Boulevard / South Courthouse Road – ART Route 42
- Fairlington Area – Metrobus Routes 7AF, 25AB

During **Saturday evening service period**, the following route corridors or segments experience service frequencies that are 60 minutes or greater (refer to Section 3.3 above for service areas and route segments with no service):

- Carlin Springs Road – ART Route 75, Metrobus Route 25AB
- North Pershing Drive east of N. Park Avenue) – Metro Bus 4BE
- 2<sup>nd</sup> Street South / South Walter Reed Drive – Metrobus Route 10B
- Fairlington Area – Metrobus Routes 7AF, 25AB

During **Sunday midday service period**, the following route corridors or segments experience service frequencies that are 60 minutes or greater (refer to Section 3.3 above for service areas and route segments with no service):

- North Glebe Road – Metrobus Route 23A
- Lee Highway – Metrobus Route 3A
- Carlin Springs Road – ART Route 75, Metrobus Route 25A
- Arlington Boulevard – Metrobus Route 4B
- North Pershing Drive east of N. Park Avenue) – Metro Bus 4B
- Washington Boulevard / South Courthouse Road – ART Route 42
- 23<sup>rd</sup> Street South / South Arlington Ridge Road – Metrobus Route 10AB
- Fairlington Area – Metrobus Routes 7A, 25A

During **Sunday evening service period**, the following route corridors or segments experience service frequencies that are 60 minutes or greater (refer to Section 3.3 above for service areas and route segments with no service):

- North Glebe Road – Metrobus Route 23A
- Lee Highway – Metrobus Route 3A
- Carlin Springs Road – ART Route 75, Metrobus Route 25A
- Arlington Boulevard – Metrobus Route 4B
- North Pershing Drive east of N. Park Avenue) – Metro Bus 4B
- Washington Boulevard / South Courthouse Road – ART Route 42
- 23<sup>rd</sup> Street South / South Arlington Ridge Road – Metrobus Route 10AB
- Fairlington Area – Metrobus Routes 7A, 25A

Figure 3-37  
ART Weekday Peak Period Service Headways

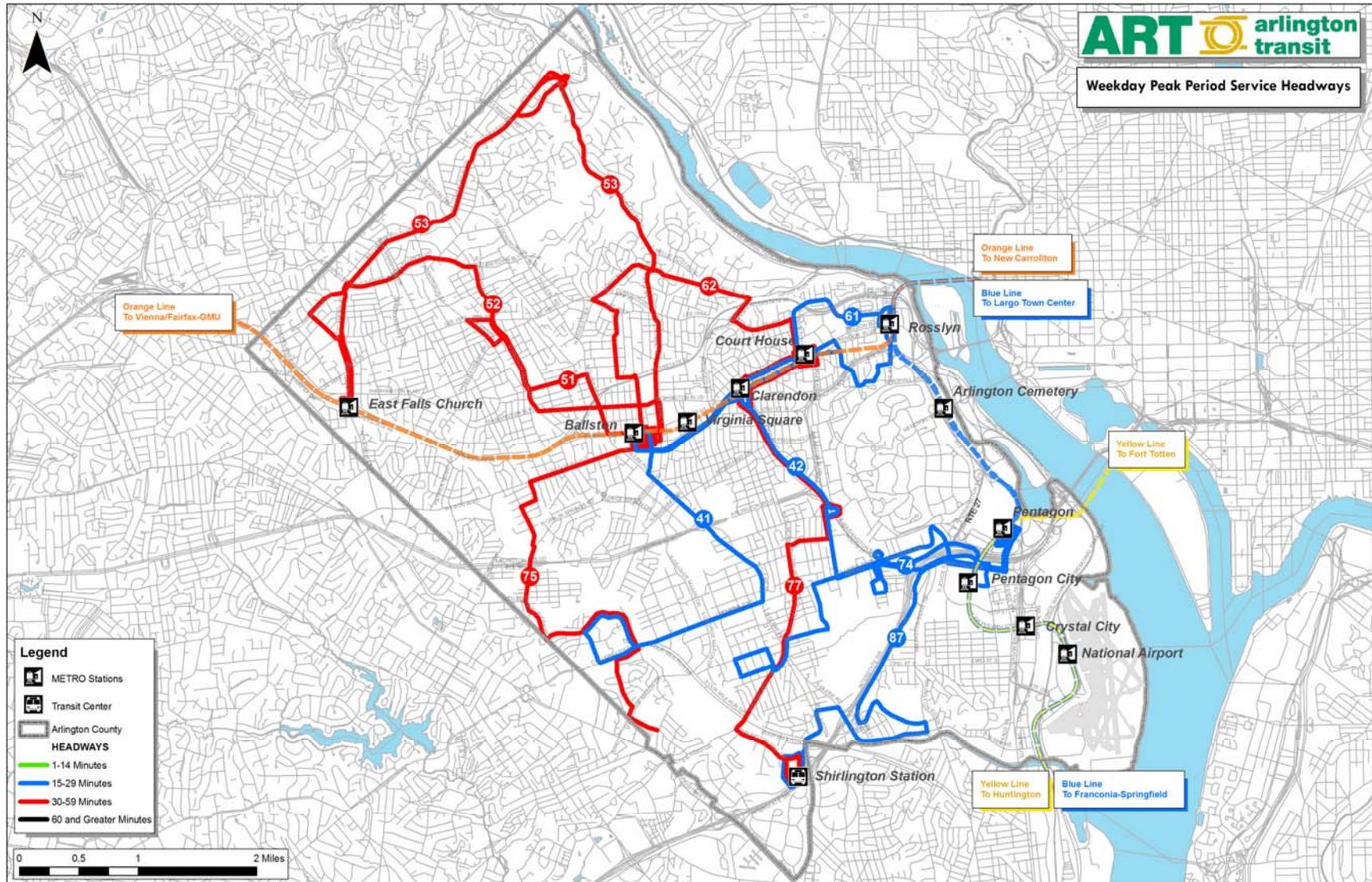


Figure 3-38  
ART Weekday Midday Period Service Headways

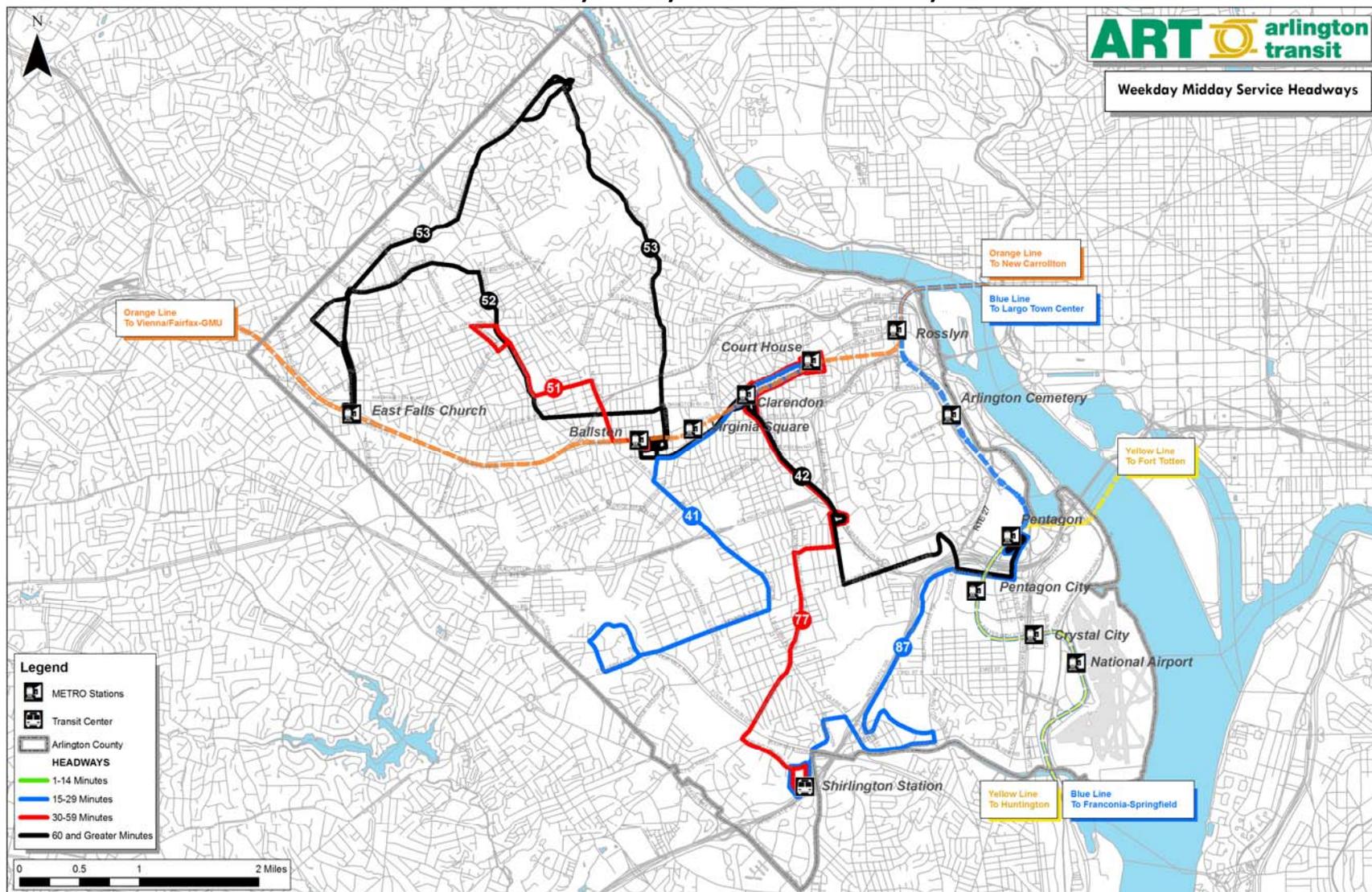


Figure 3-39  
ART Weekday Evening Period Service Headways

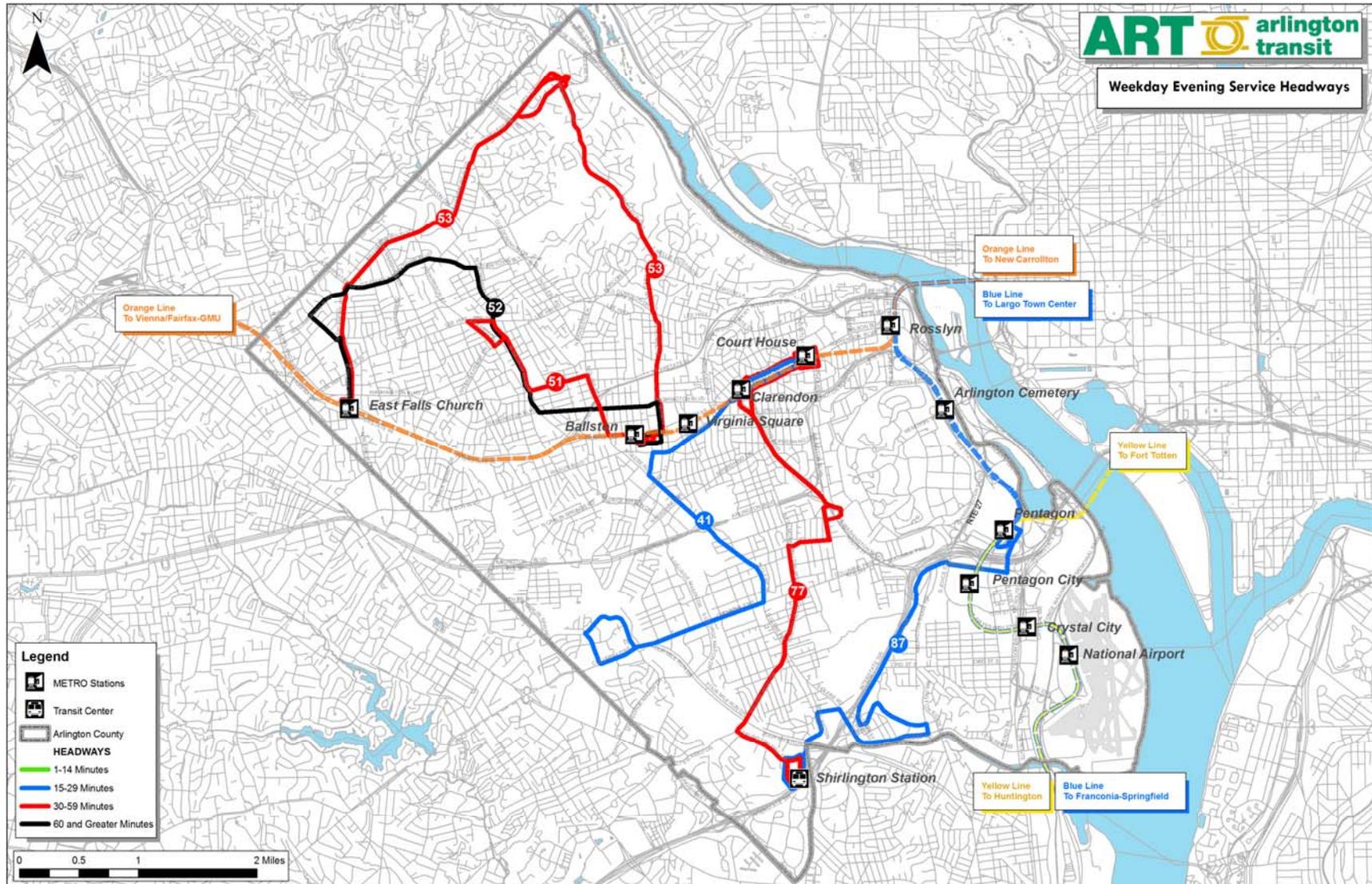


Figure 3-40  
ART Saturday Midday Period Service Headways

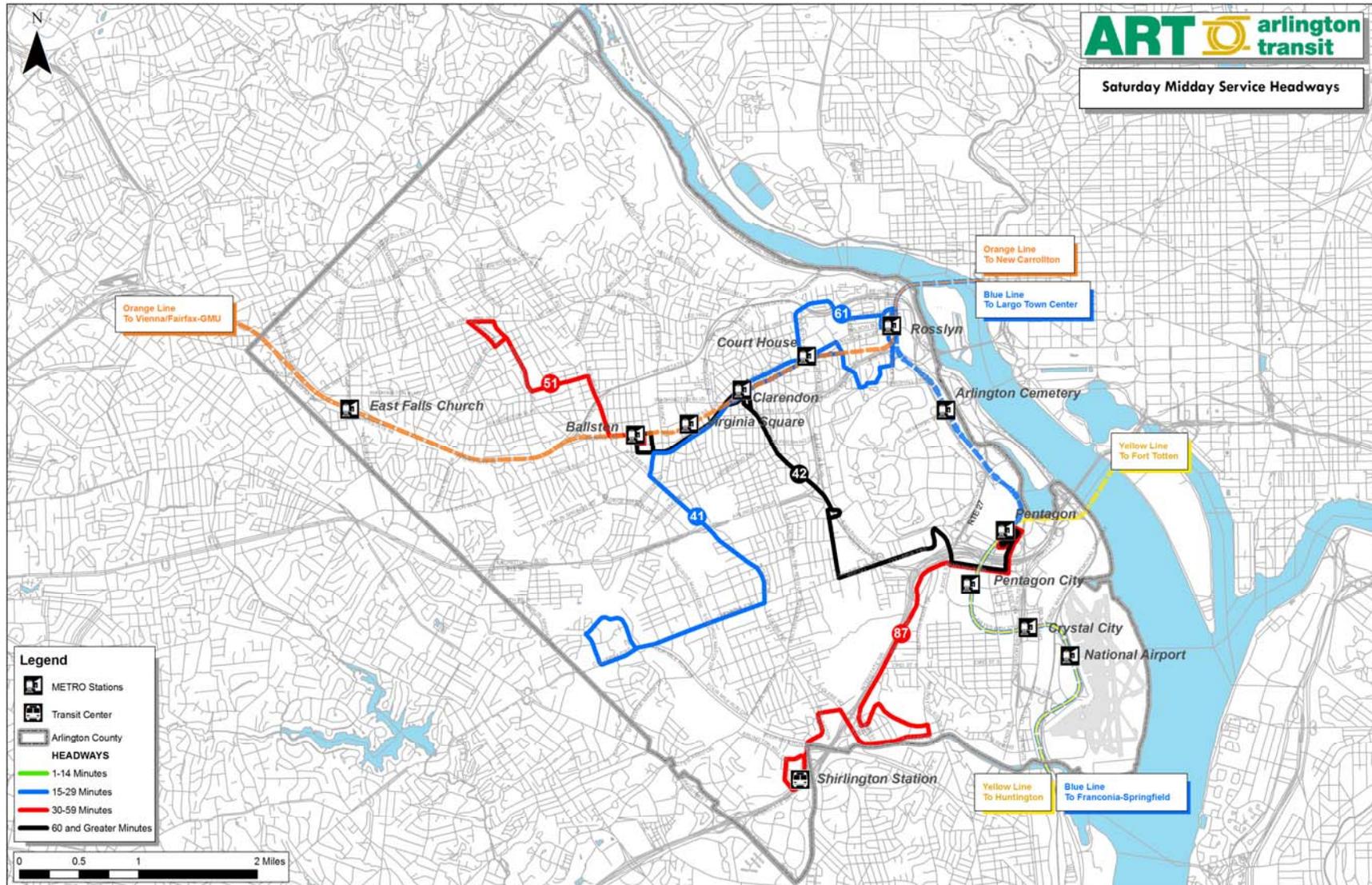


Figure 3-41  
ART Saturday Evening Period Service Headways

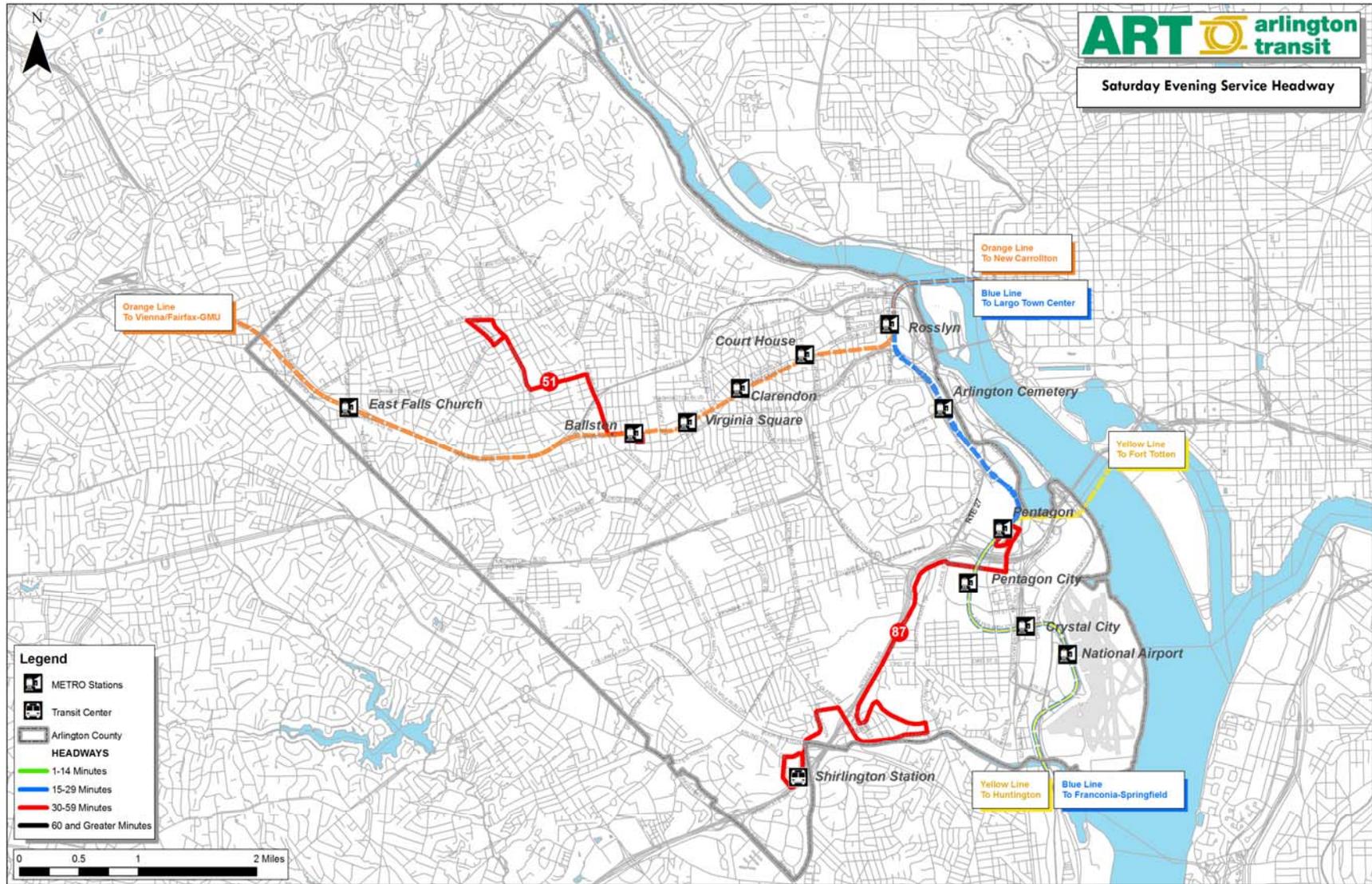




Figure 3-43  
ART Sunday Evening Period Service Headways

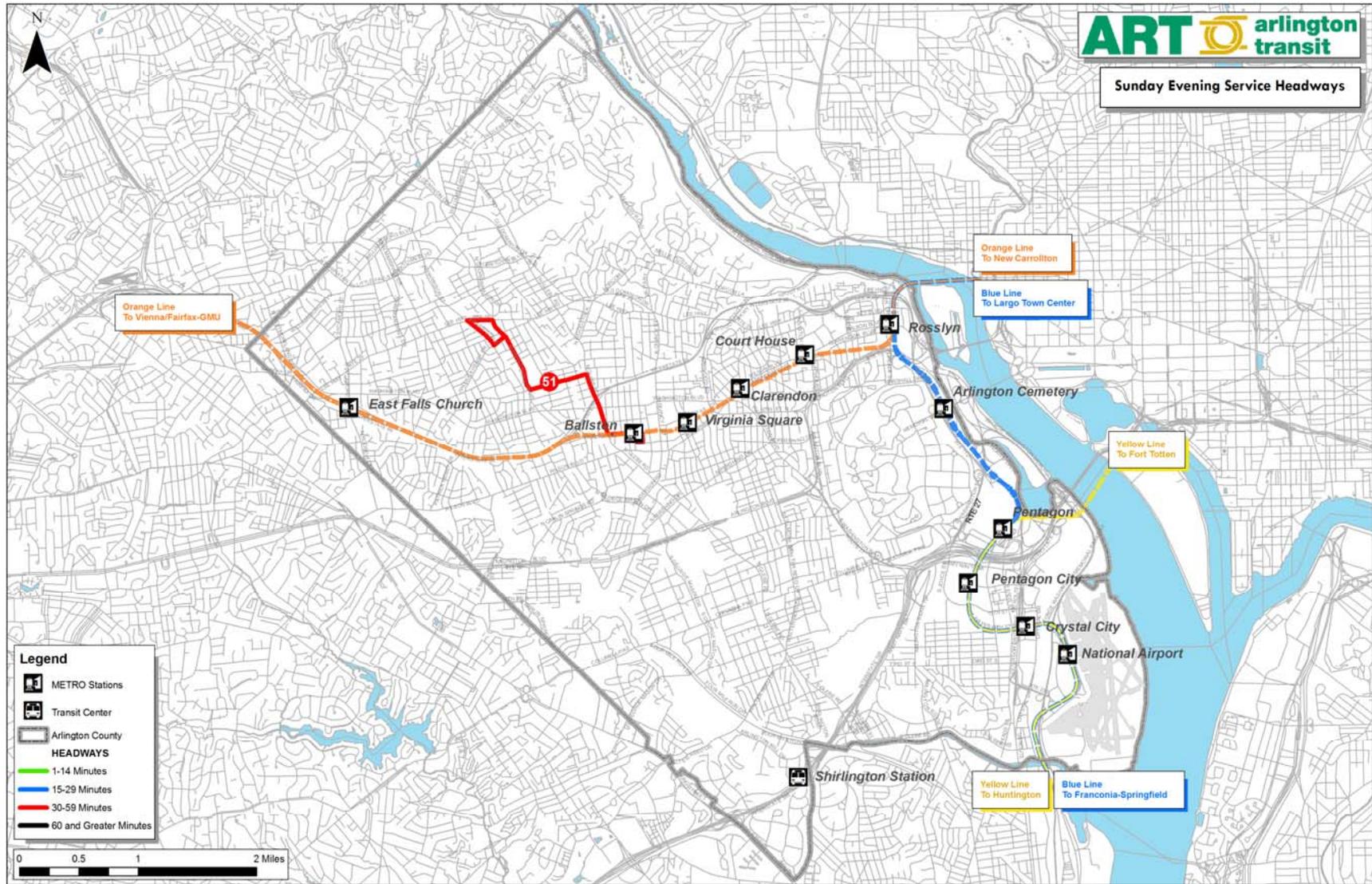


Figure 3-44  
 ART & Metrobus Weekday Peak Period Service Headways

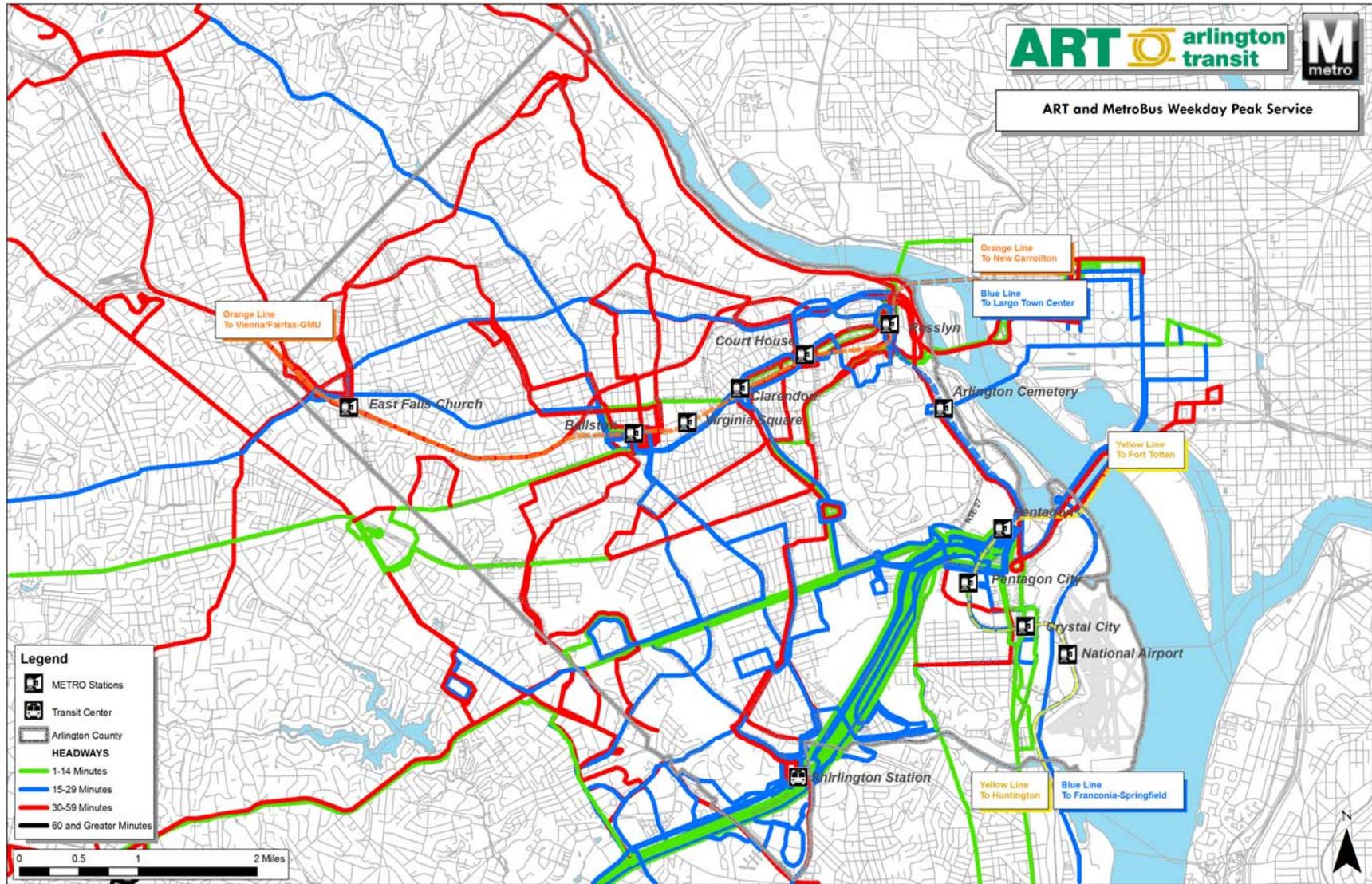


Figure 3-45  
 ART & Metrobus Weekday Midday Period Service Headways

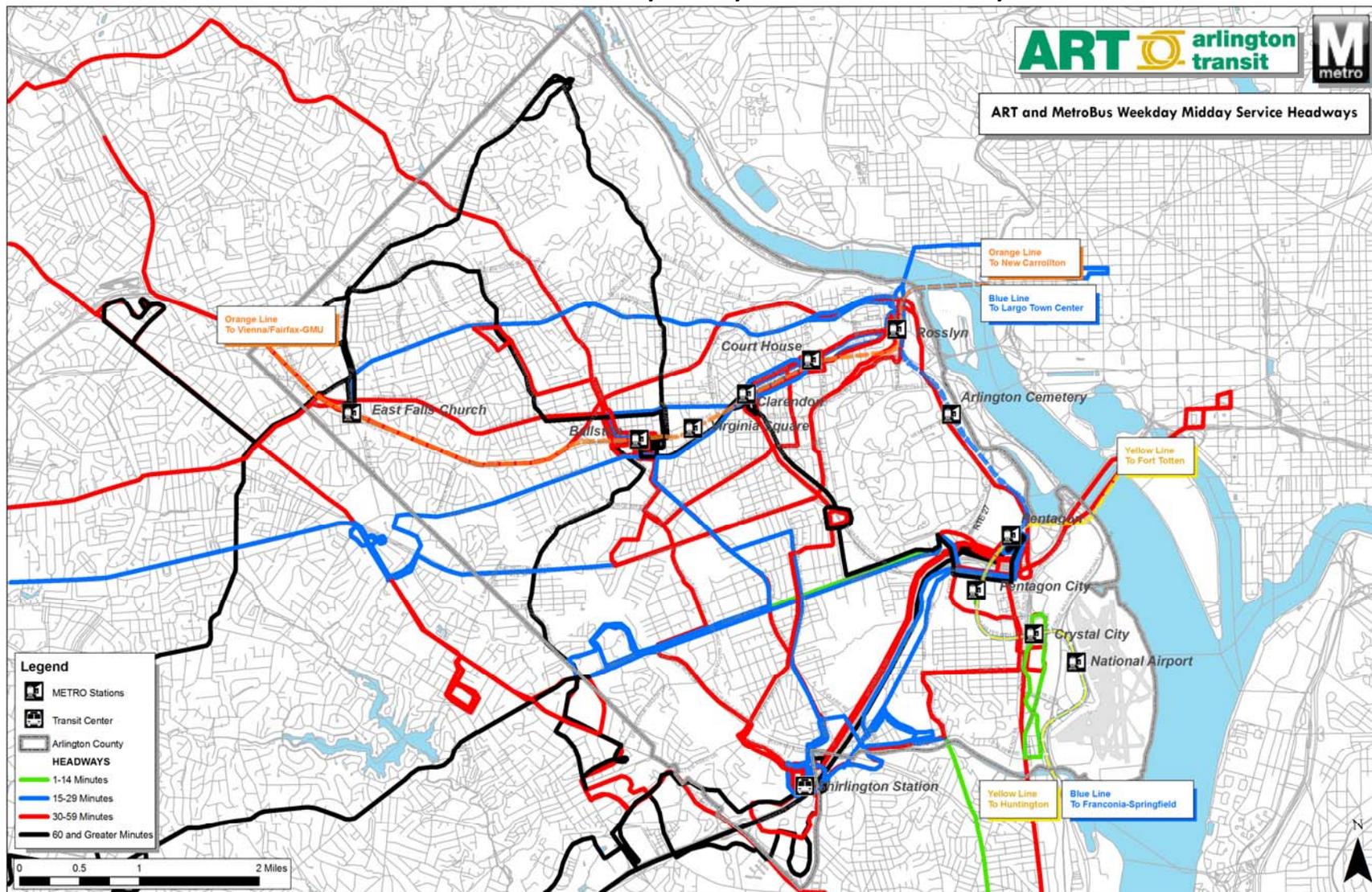


Figure 3-46  
 ART & Metrobus Weekday Evening Period Service Headways

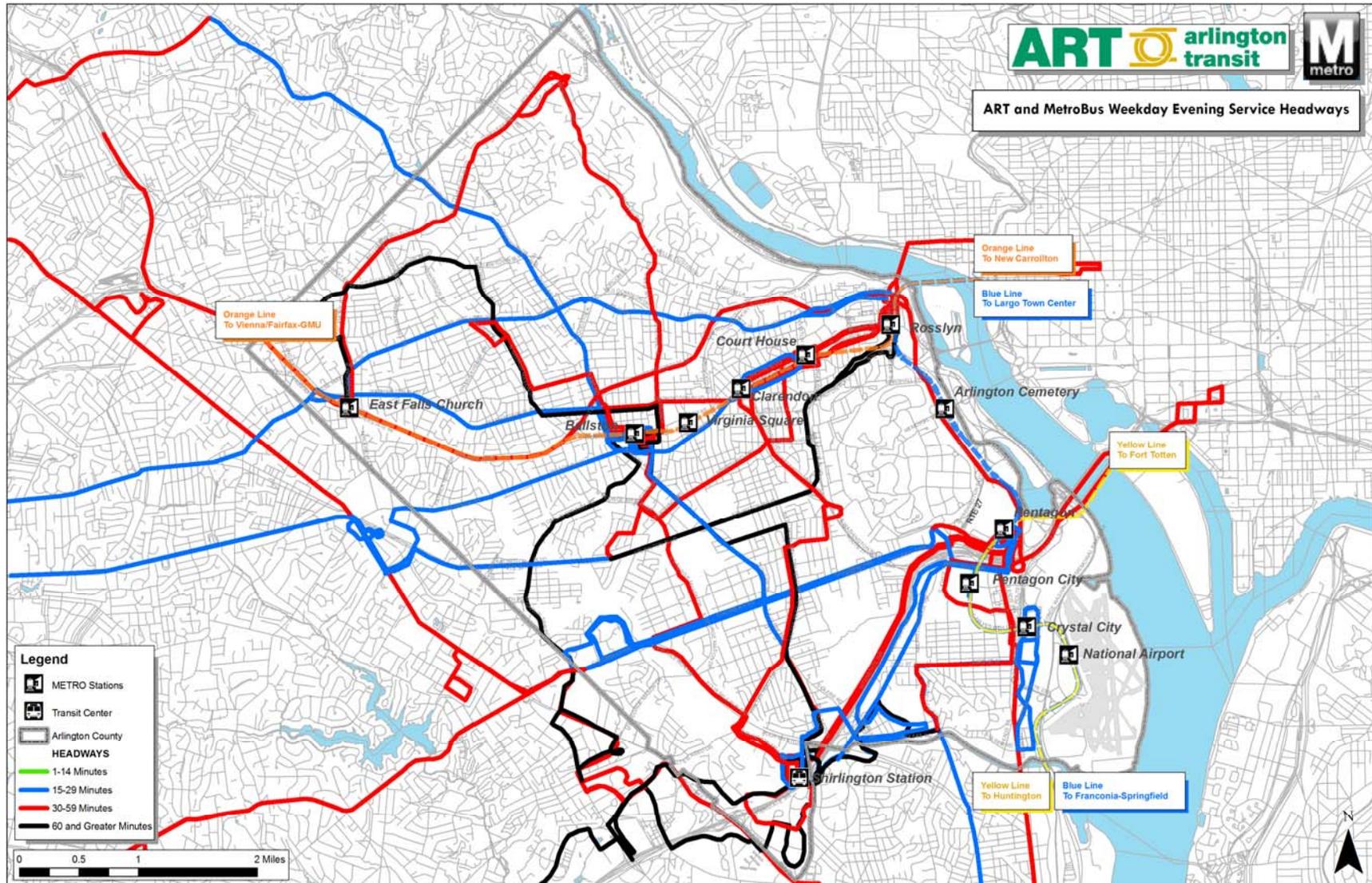


Figure 3-47  
 ART & Metrobus Saturday Midday Period Service Headways

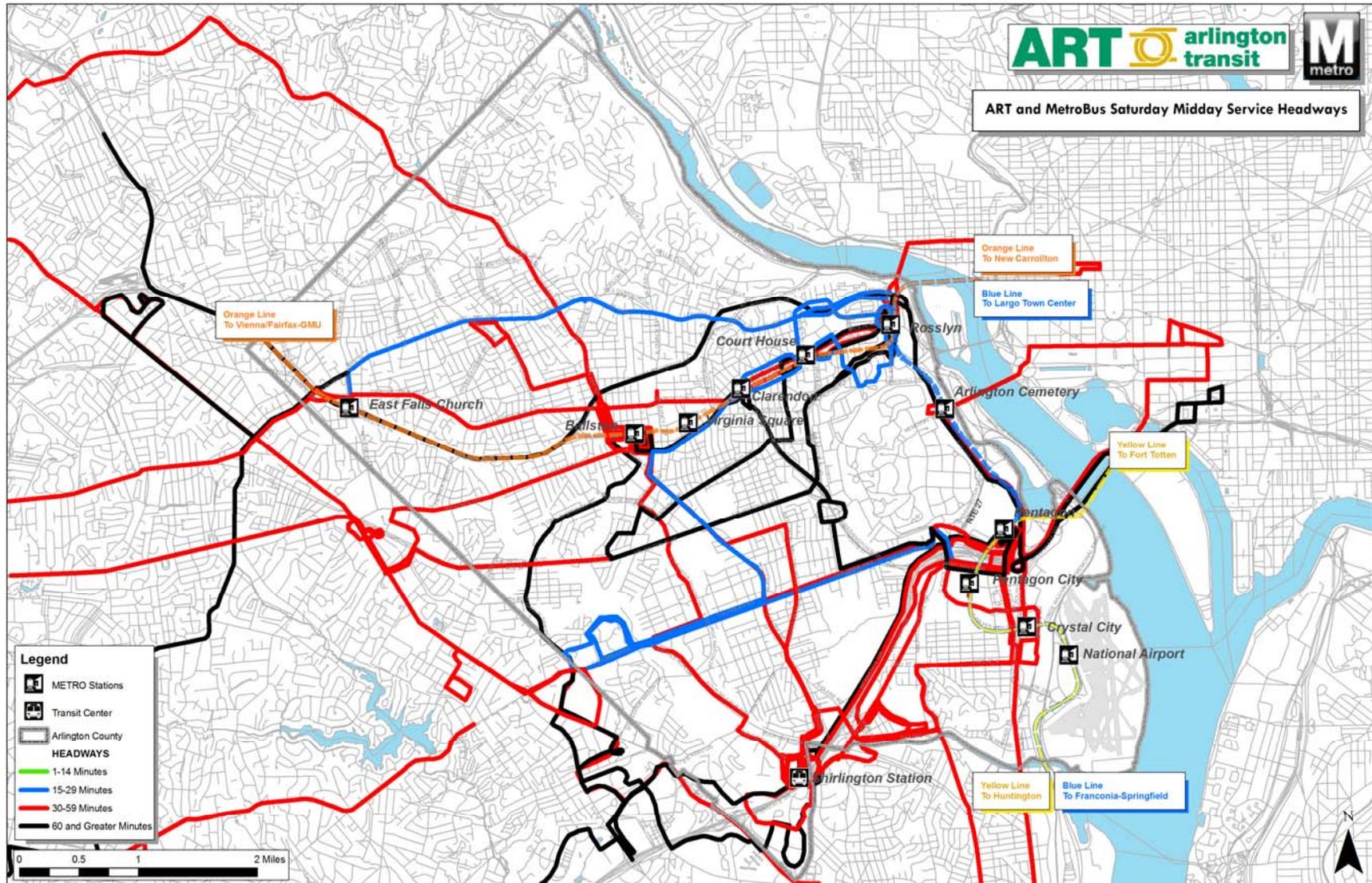


Figure 3-48  
 ART & Metrobus Saturday Evening Period Service Headways

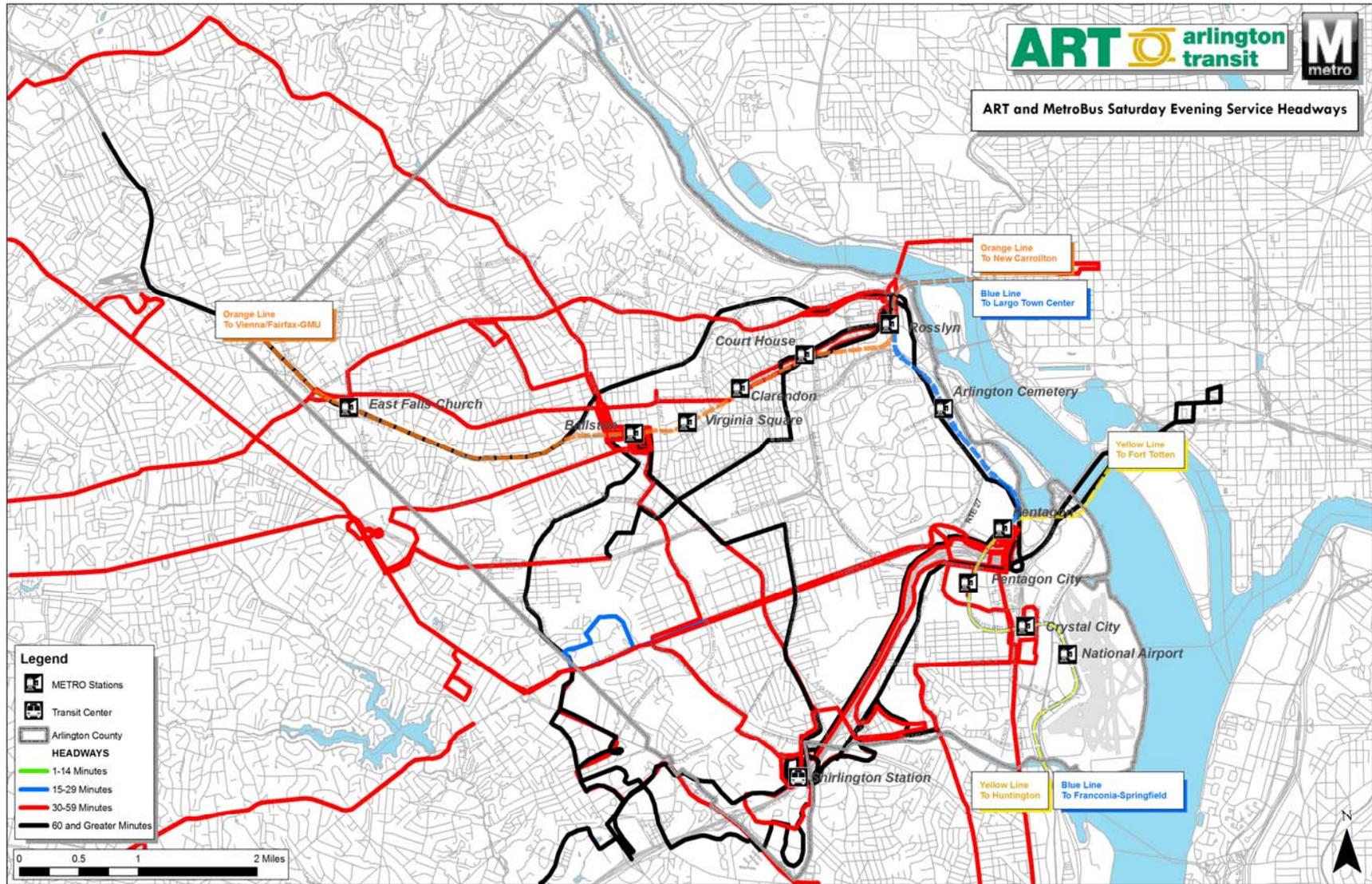


Figure 3-48  
 ART & Metrobus Sunday Midday Period Service Headways

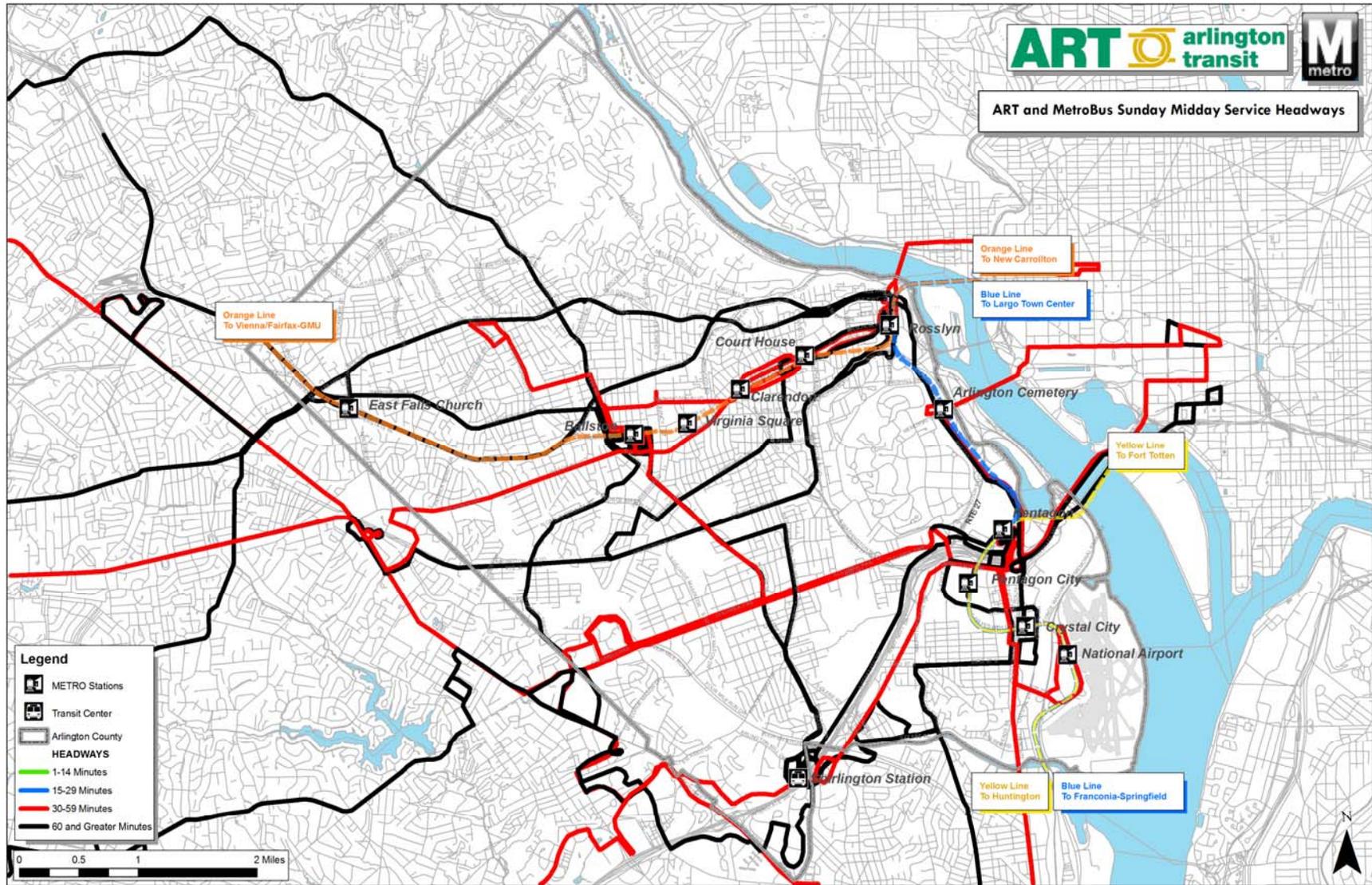
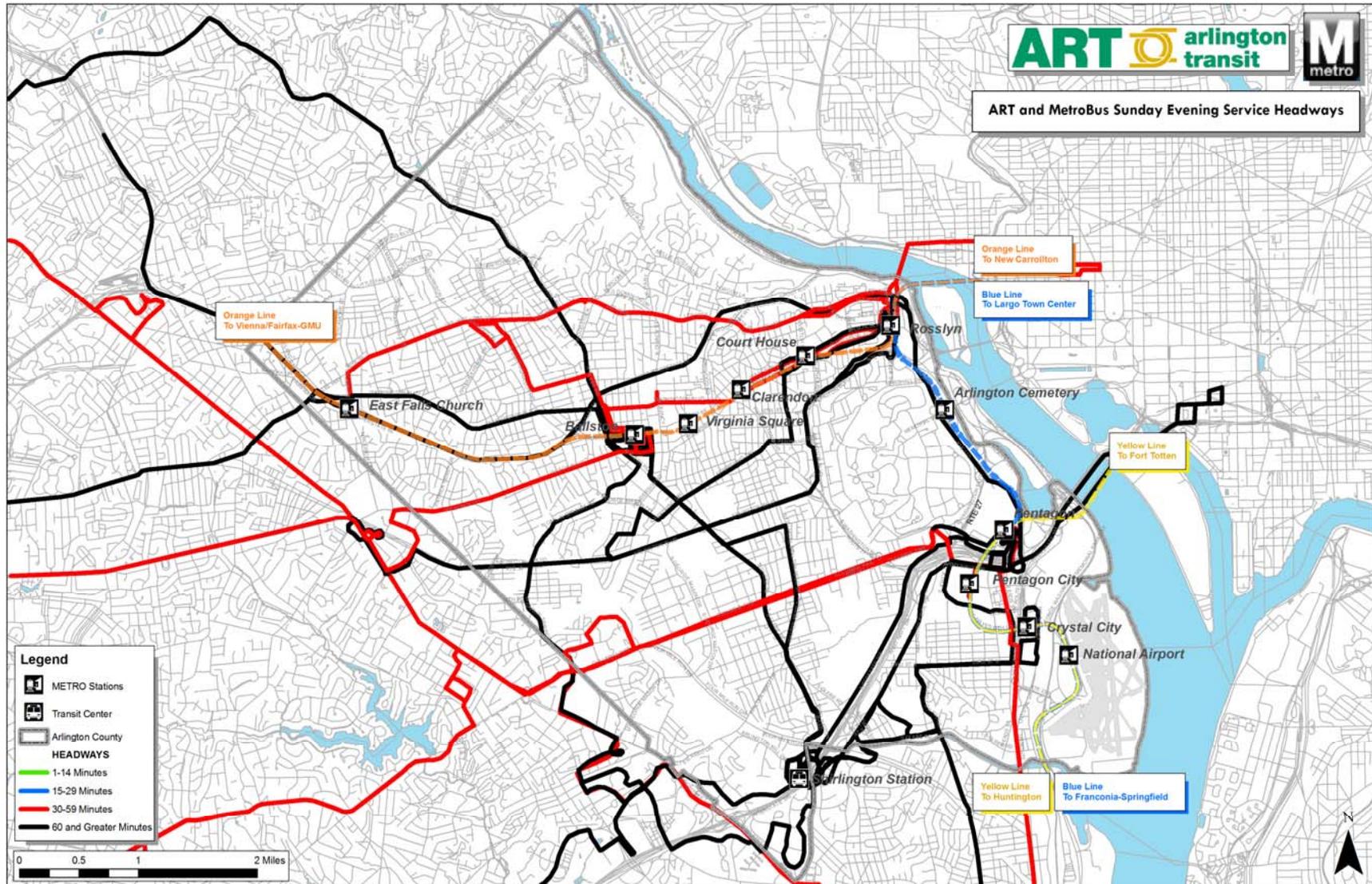


Figure 3-49  
 ART & Metrobus Sunday Evening Period Service Headways

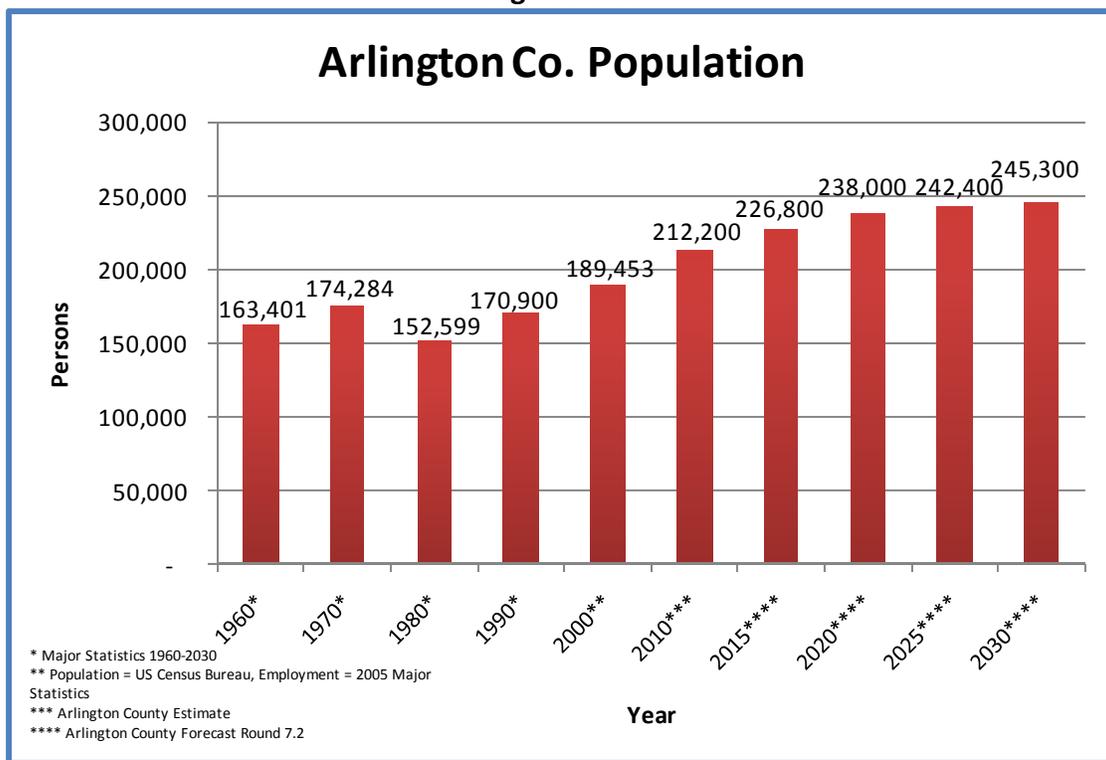


### 3.5 Demographic / Socioeconomic Characteristics

#### Population

Although Arlington County population has grown over the past 50 years, more significant growth has been experienced in the recent 20 years (see Figure 3-50). While the population grew between 1960 and 1970 by 6.7%, 1980 population estimates reflected a reduced level of population over 1970 by 12.4%<sup>6</sup>. However, from 1980 to the 2000 census population grew by 36,854 persons (from 152,599 to 189,453) or approximately 24%. Population is estimated to be 212,200 by July 2010, a growth of an additional 22,747 or 12%. Arlington County population between year 2010 and year 2020 is expected to grow another 12.2%. Population estimates beyond year 2020 to year 2030 are estimated to grow at only 3%.

Figure 3-50



Figures 3-51 through 3-53 illustrate Arlington County population density by traffic analysis zone (TAZ) for Years 2010, 2015 and 2020. The highest population densities occur along the Rosslyn-Ballston Corridor, Glebe Road, Columbia Heights West/Columbia Forest/Claremont area to Shirlington, Pentagon City and Crystal City. These areas generally remain the highest concentrations of population through year 2020. Growth in population density between 2010, 2015 and 2020 are illustrated in Figures 3-54 and 3-55. New growth areas of population density between 2010 and 2015 appear along North Glebe Road and areas east and west of South Glebe Road within a mile radius. Continued population densification occurs along the Rosslyn-Ballston Corridor, Pentagon City and Crystal City.

<sup>6</sup> Source: U.S. Census Bureau

Figure 3-51  
Arlington County 2010 Population Density

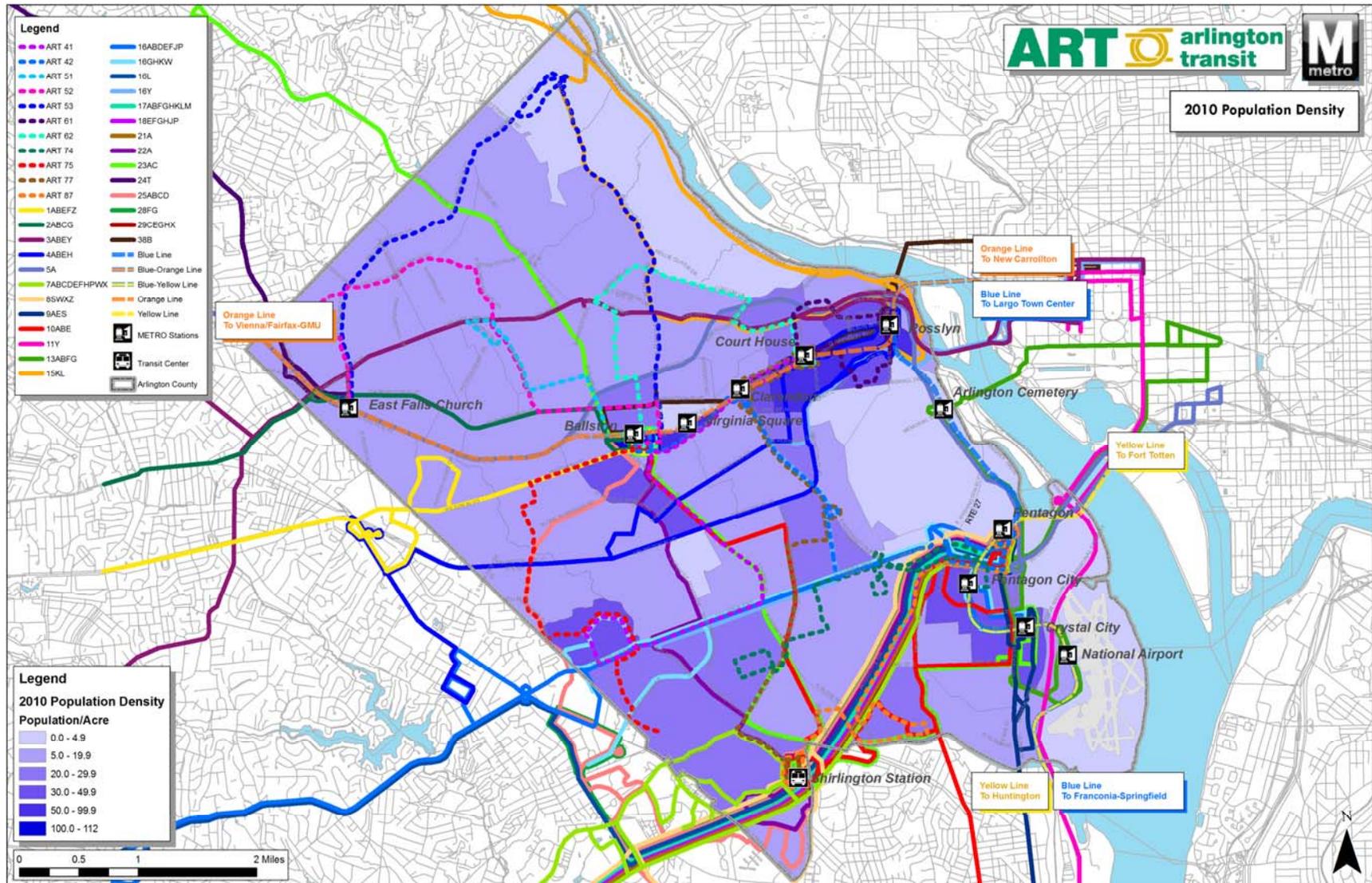


Figure 3-52  
Arlington County 2015 Population Density

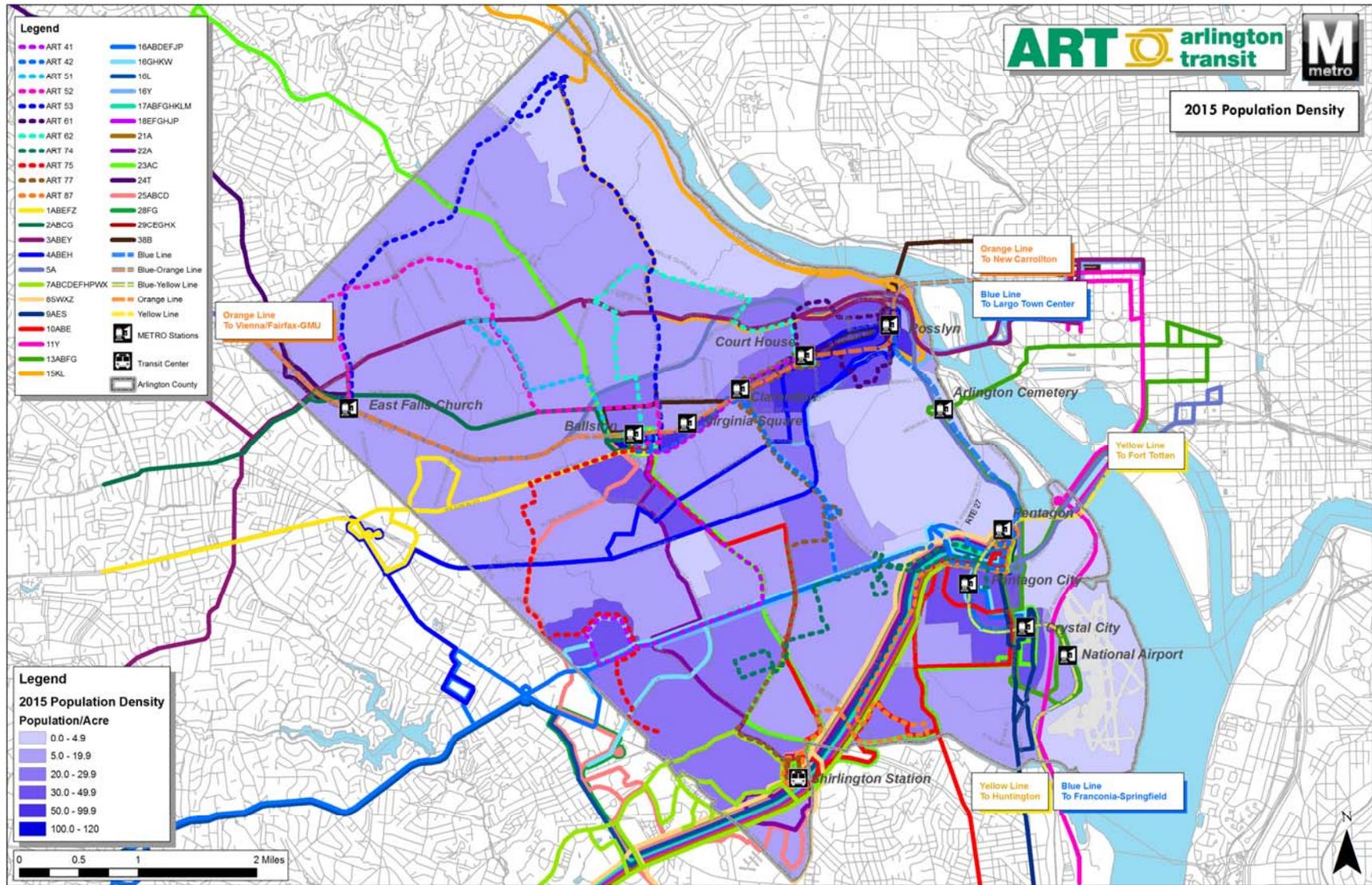


Figure 3-53  
Arlington County 2020 Population Density

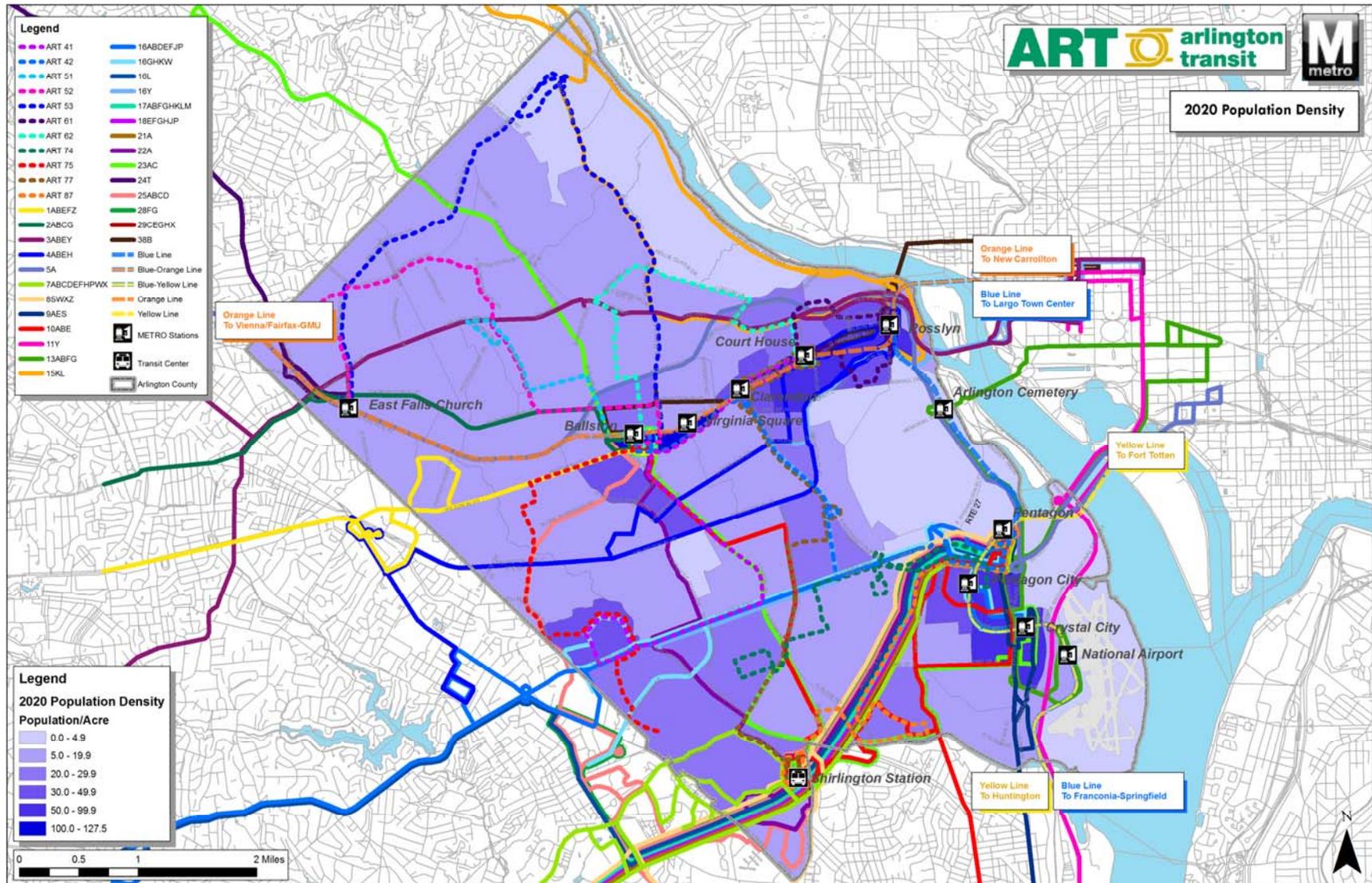


Figure 3-54  
Arlington County 2010 to 2015 Population Density Change

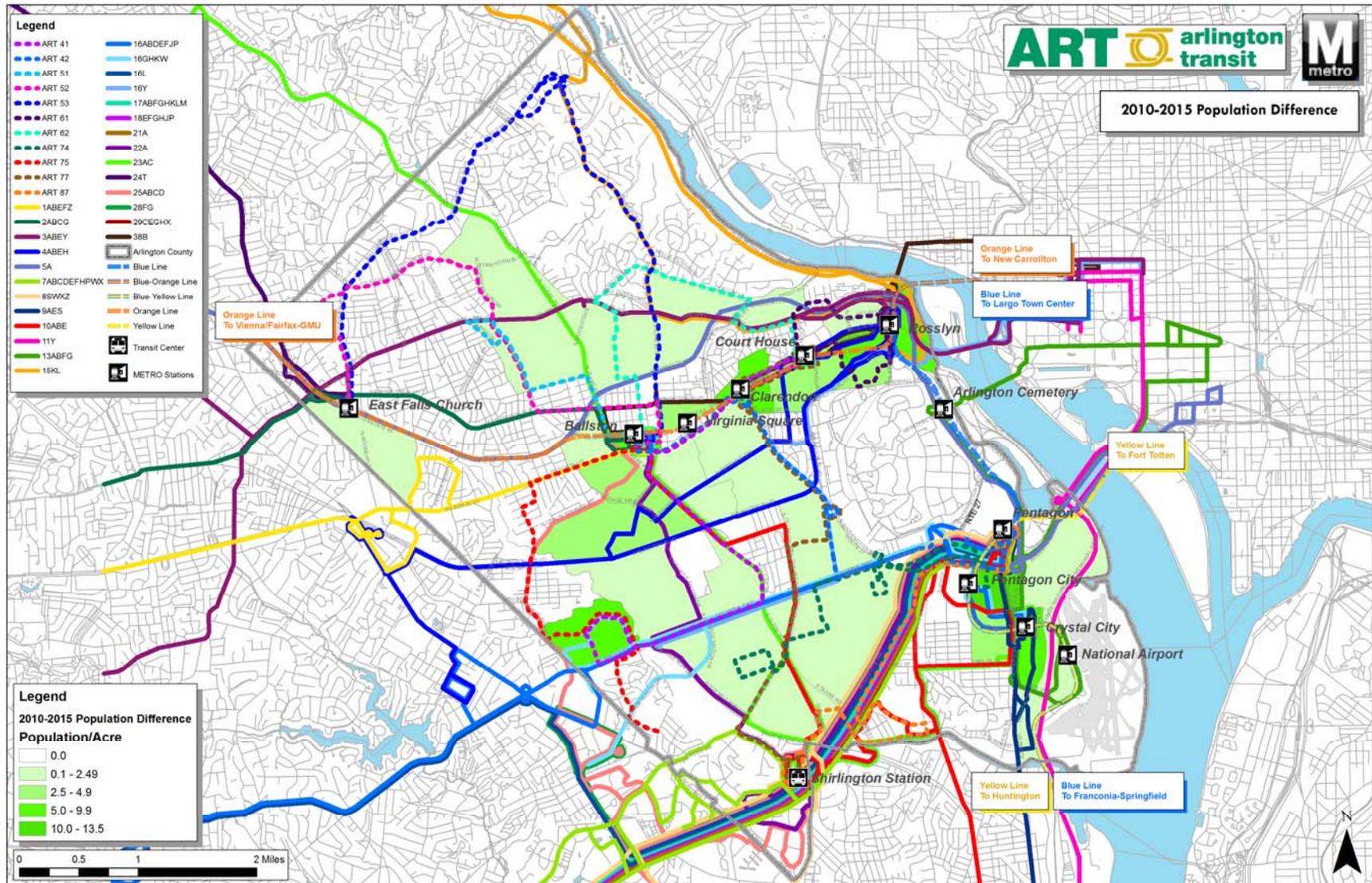
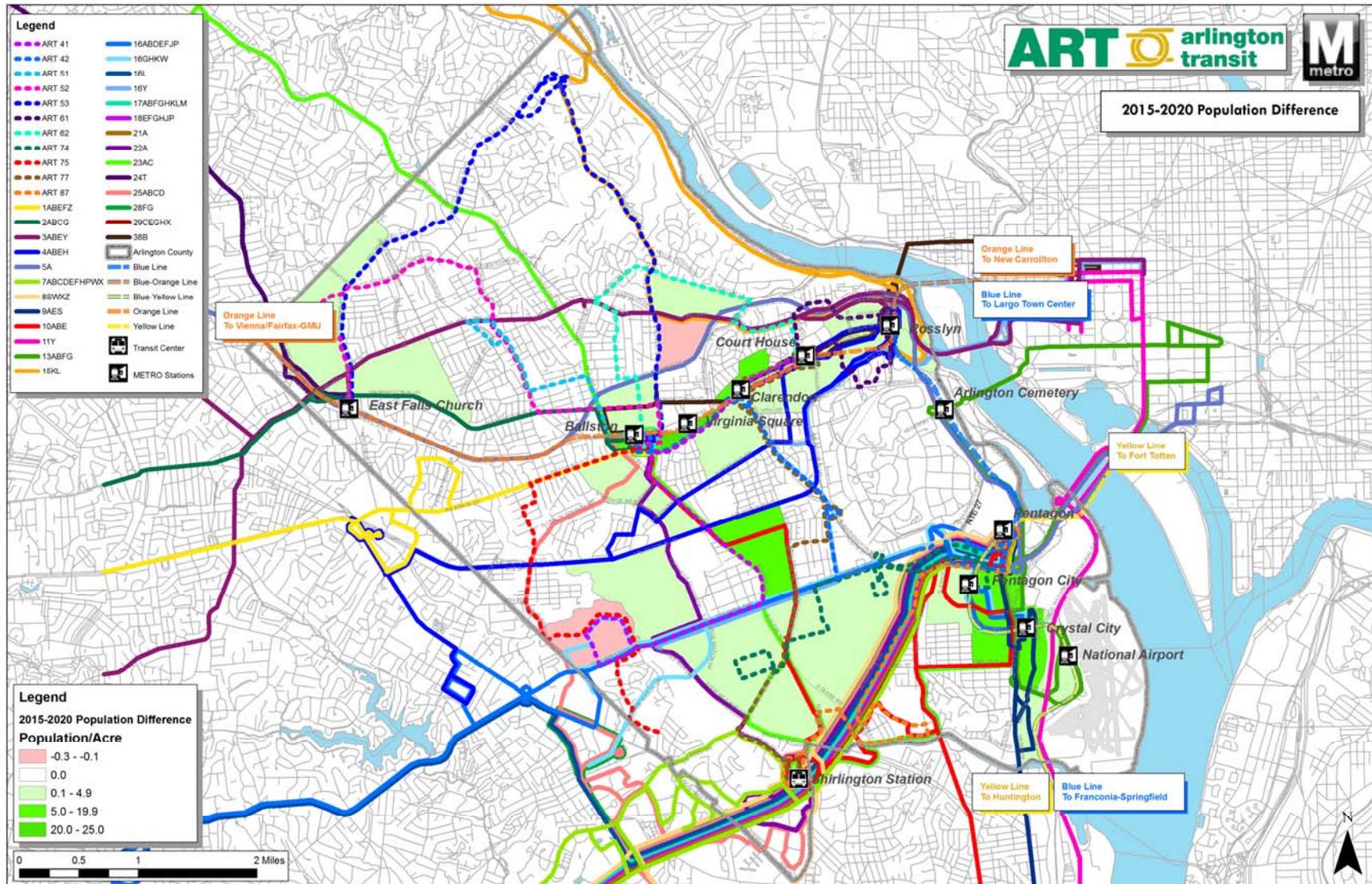


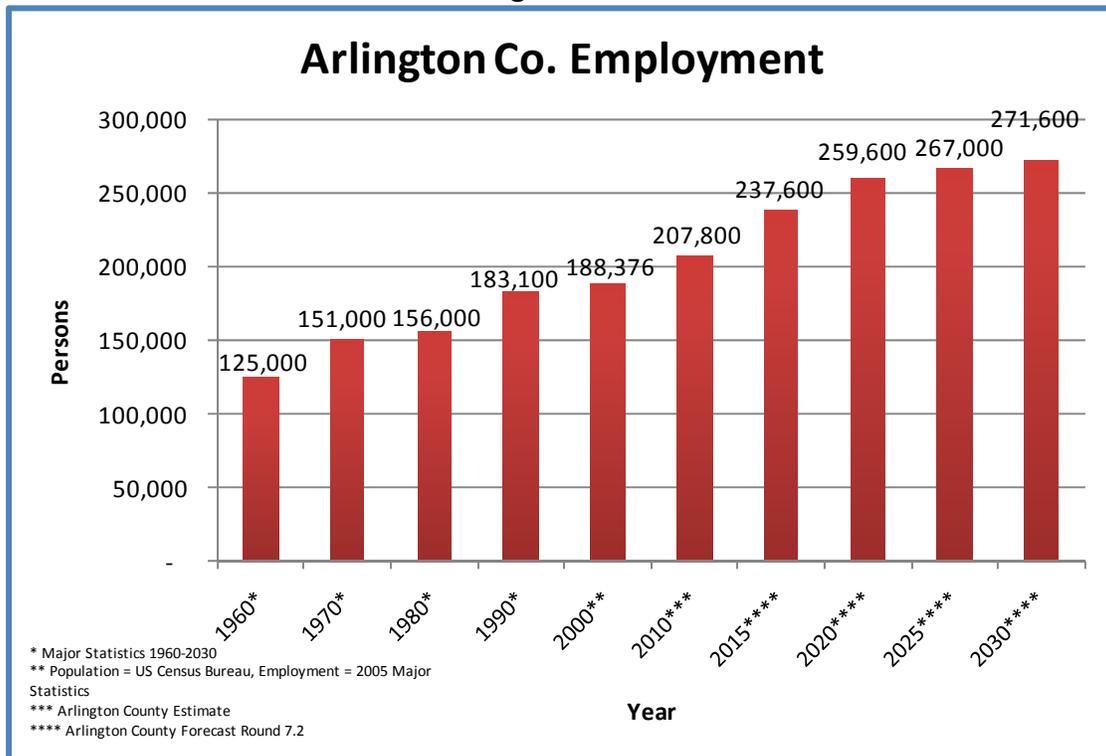
Figure 3-55  
Arlington County 2015 to 2020 Population Density Change



**Employment**

Over the past 50 years, Arlington County employment has grown by 66% or about 82,800 jobs. During the 1980's and 1990's employment growth outpaced population growth resulting in higher employment numbers than population in the county. Figure 3-56 illustrates employment history and projections over a seventy year period between 1960 and 2030. Today employment and population are nearly equal. However, over the next 20 years employment growth is expected to outpace population. While employment grew by 21% (26,000 employees) between 1960 and 1970, employment between 1970 and 1980 grew by only 3.3% or 5,000 employees. Employment blossomed again between 1980 and 1990, growing by 17.4 % or 27,100 employees. Employment growth once again stalled during the 1990's, growing only 2.9% or approximately 5,300 employees. Employment is expected to grow once again over the next 20 years (30.7%) with a majority of that growth occurring over the next ten years (2010 to 2020) which is expected to grow by 25%.

**Figure 3-56**



Figures 3-57 through 3-59 illustrate Arlington County employment density by traffic analysis zone (TAZ) for Years 2010, 2015 and 2020. The highest employment densities occur along the Rosslyn-Ballston Corridor, Pentagon, Pentagon City, Crystal City and along the Glebe Road and Columbia Pike Corridors. These areas generally remain the highest concentrations of employment through year 2020. Growth in employment density between 2010, 2015 and 2020 are illustrated in Figures 3-60 and 3-61. New growth areas of employment density between 2010 and 2015 occur around the Courthouse and Clarendon Stations, in Pentagon City and Crystal City and along the Glebe Road and Columbia Pike Corridors. Employment densities grow in the same places between 2015 and 2020 with the addition of growth in the Rosslyn Station and Ballston Station areas.

Figure 3-57  
Arlington County 2010 Employment Density

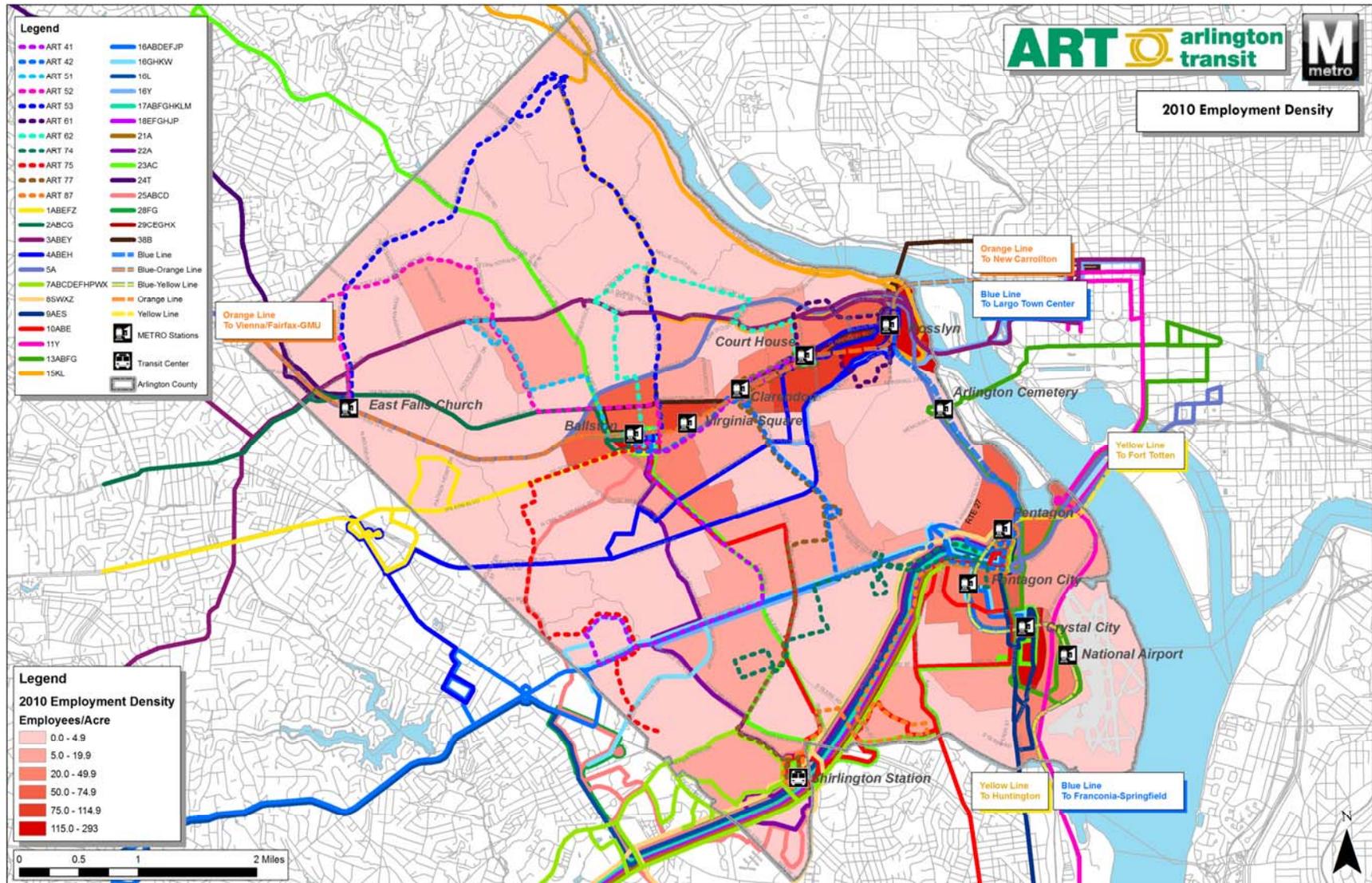


Figure 3-58  
Arlington County 2015 Employment Density

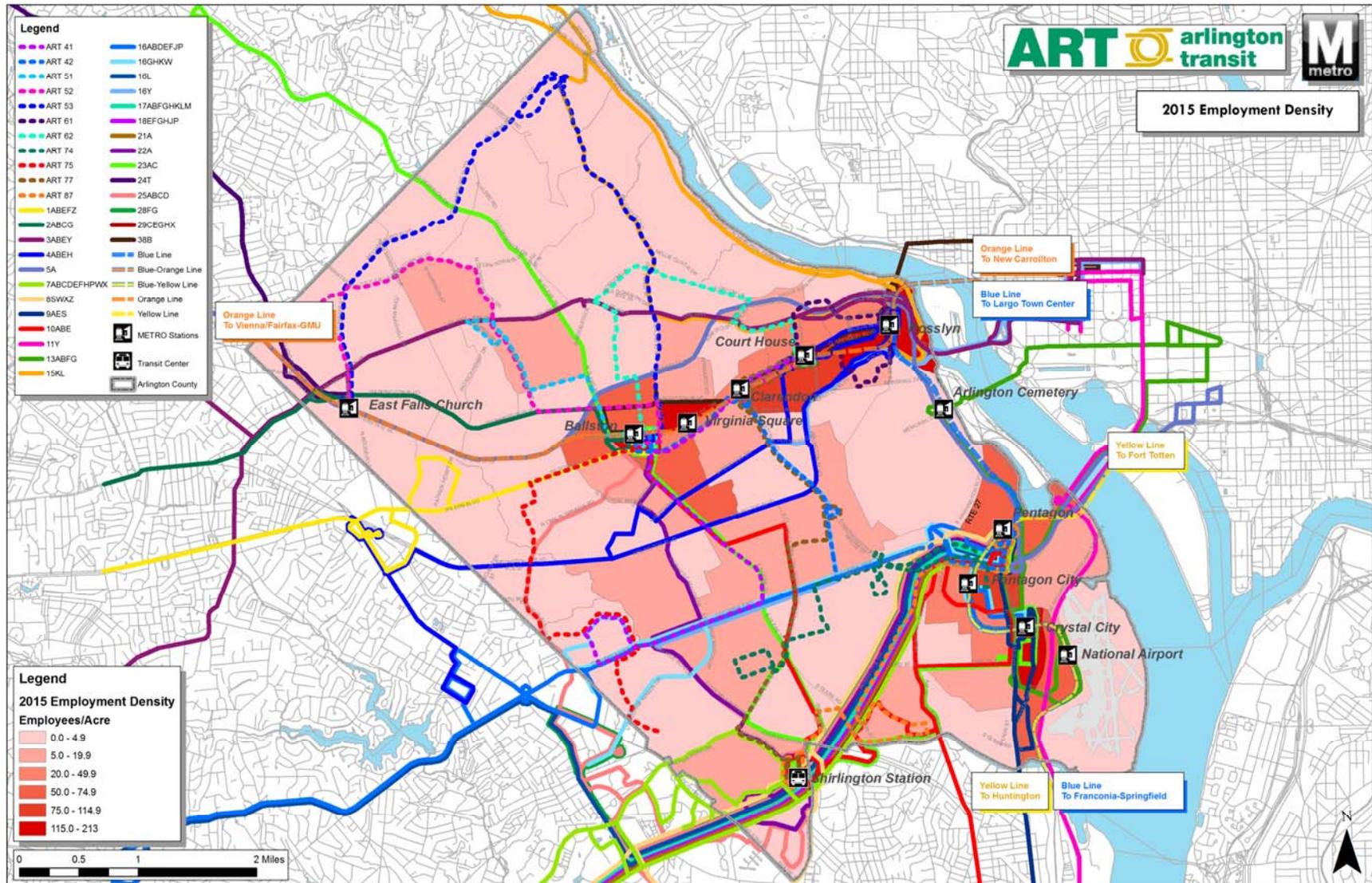


Figure 3-59  
Arlington County 2020 Employment Density

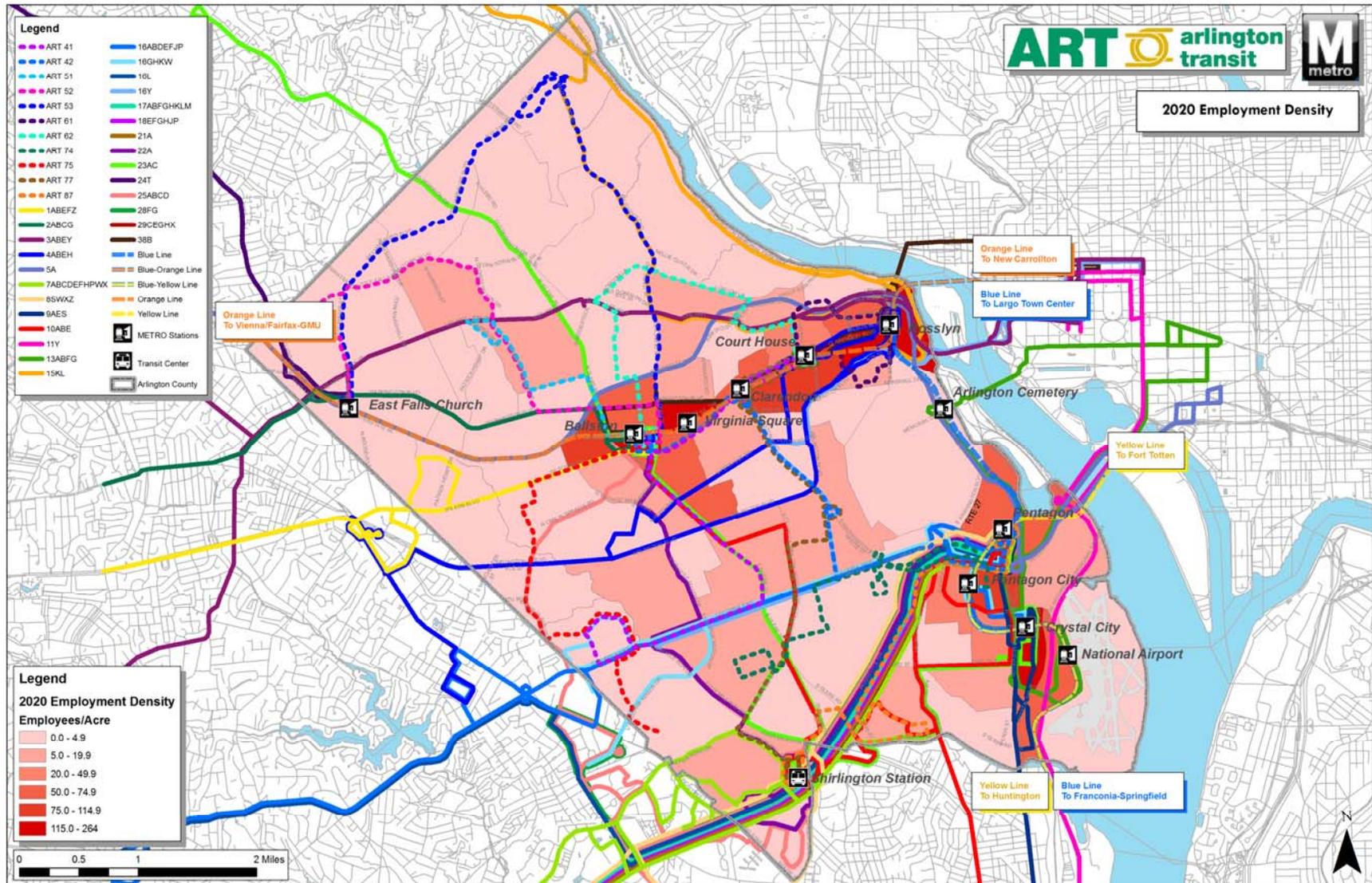


Figure 3-60  
Arlington County 2010 to 2015 Employment Density Change

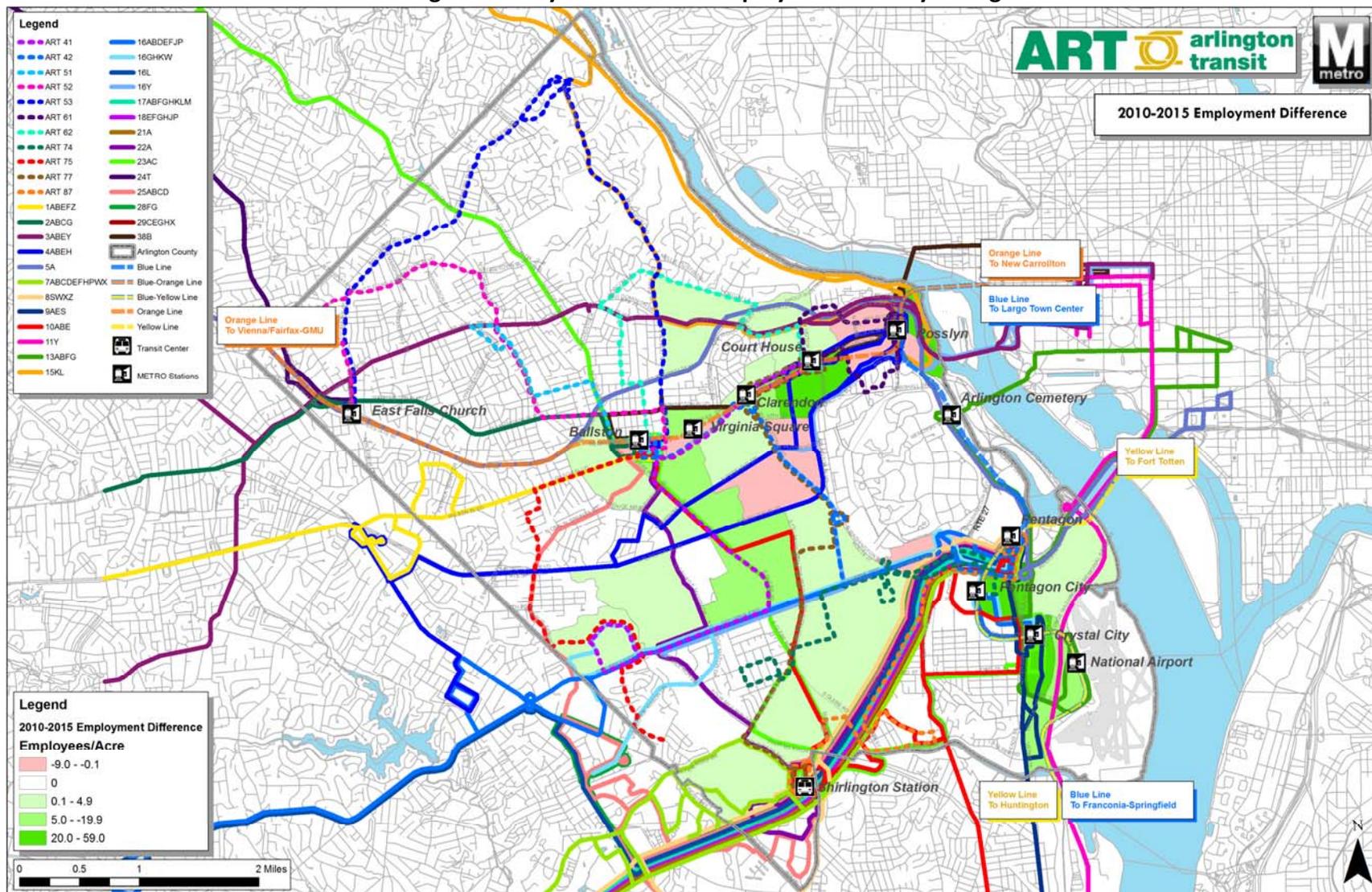
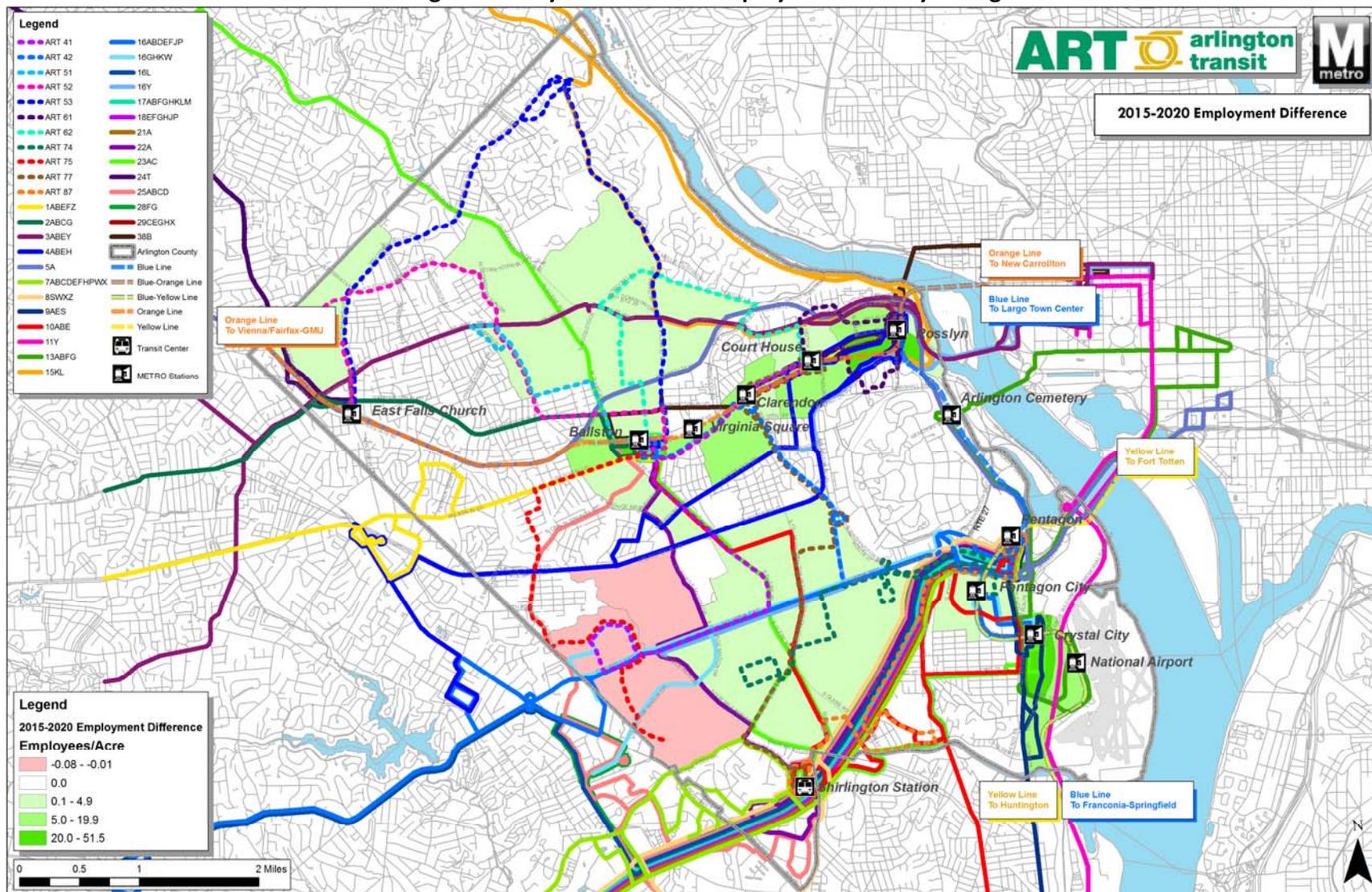


Figure 3-61  
Arlington County 2015 to 2020 Employment Density Change



### **Population over Age 65**

Figure 3-62 illustrates population over age 65. Generally, the highest concentrations of individuals over age 65 fall in the northern, western and southeastern portions of Arlington County. Those individuals over 65 without a car (see next section), are most prevalent in the western and southeastern portions of the County. The areas in the northern part of the County with the highest concentrations of individuals over 65 include those residential areas both east and west of Military Road and North Glebe Road to the Madison Community Center (e.g., Donaldson Run, Bellevue Forest, Rivercrest, Old Glebe, Chain Bridge Forest, Strafford and Albemarle). Specifically in the western part of the County, Boulevard Manor, Forest Glen, Columbia Heights West and Columbia Forest exhibit higher levels of individuals over age 65. Finally, the southeast area of the County, including Pentagon City, Forest Hills and Arlington Ridge, also exhibit higher levels of individuals over age 65.

### **Zero Car Households**

Similar to population over the age of 65, zero car households are most prevalent along the western and southeastern portions of the County (see Figure 3.63). Zero car households are also prevalent along the Rosslyn-Ballston Corridor and in the Pentagon City – Crystal City area along the Yellow/Blue rail line. Zero car households are higher south of the Ballston Station along Glebe Road and North George Mason Drive.

### **Income Distribution**

Figure 3-64 illustrates median income (1999 dollars, based on previous U.S. Census data) on a traffic analysis zone basis across Arlington County. The highest levels of income are experienced in northern Arlington County and the Arlington Ridge area in the southeastern part of the county. Pockets of lower income areas are distributed throughout the county with contiguous zones along the western edge of the county.

### **Low Income**

As noted above, lower income areas can be found along the western and southern portions of the County (see Figure 3-65). Areas experiencing income below poverty levels can be found in communities like Forest Glen, Columbia Heights West, Columbia Forest, Douglas Park, the Fairlington/Shirlington area and Avalon Bay.

Figure 3-62  
Arlington County Residents Over 65 Years Old

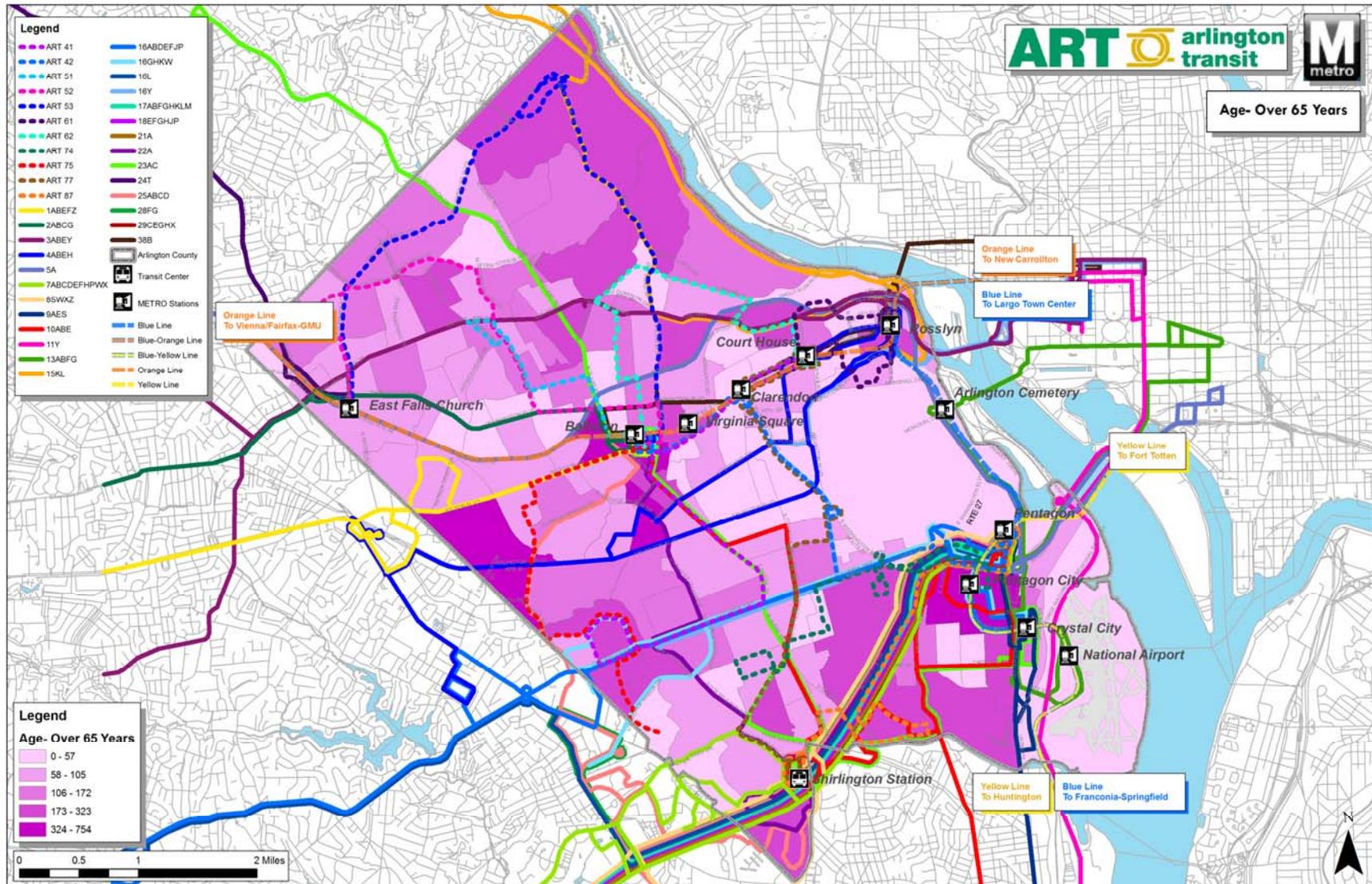


Figure 3-63  
Arlington County Zero Car Households

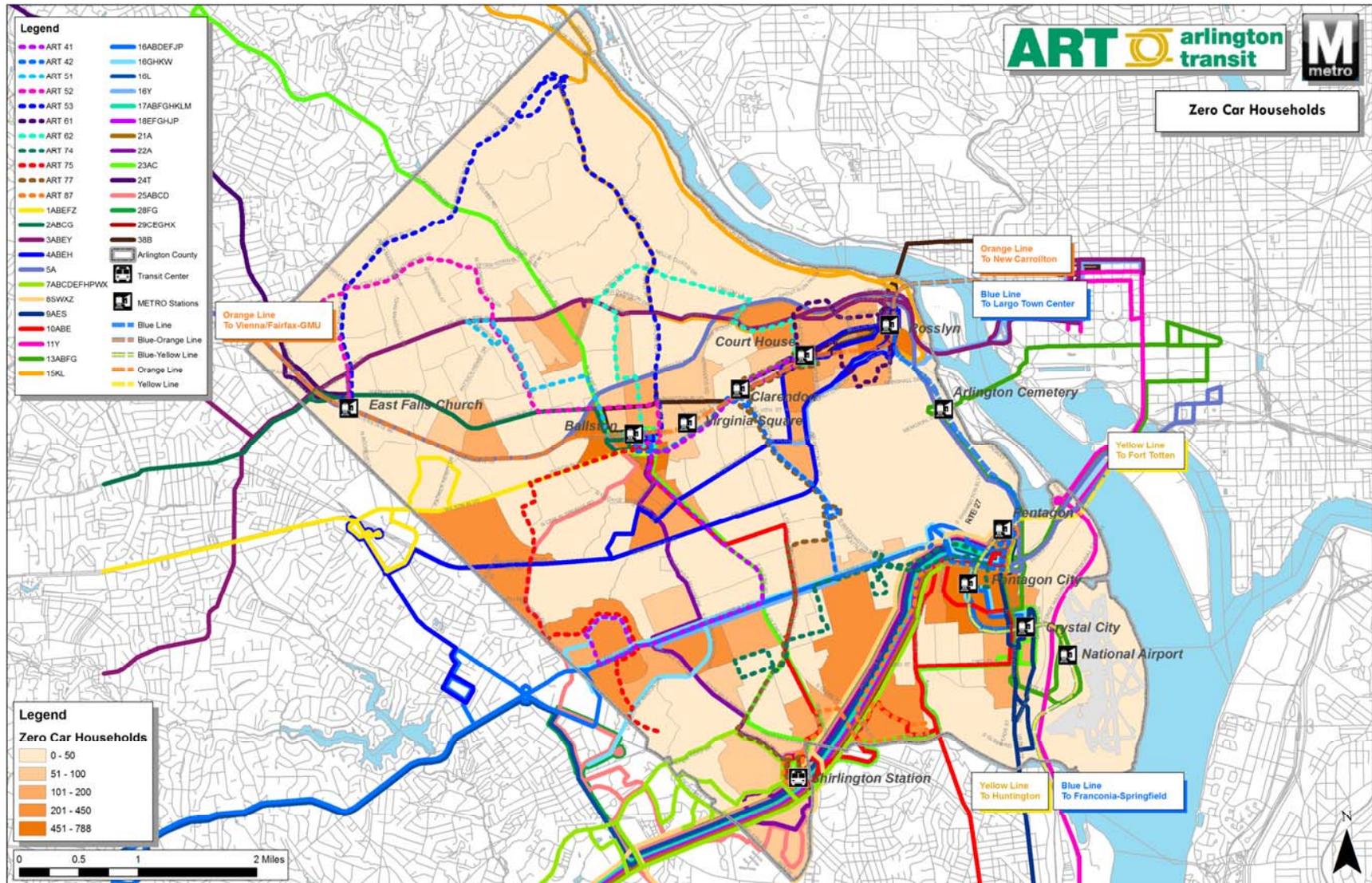


Figure 3-64  
Arlington County Income Distribution

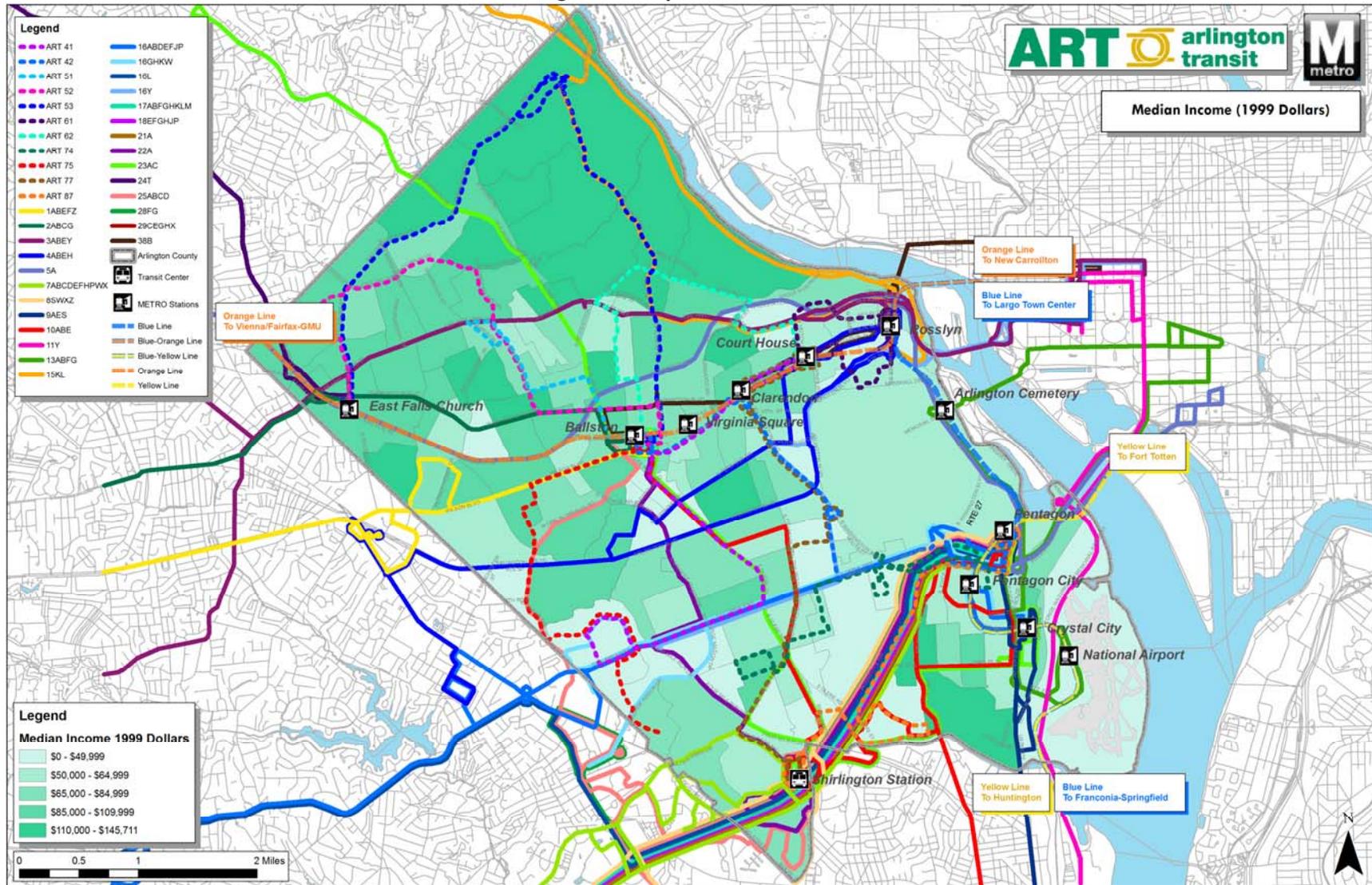
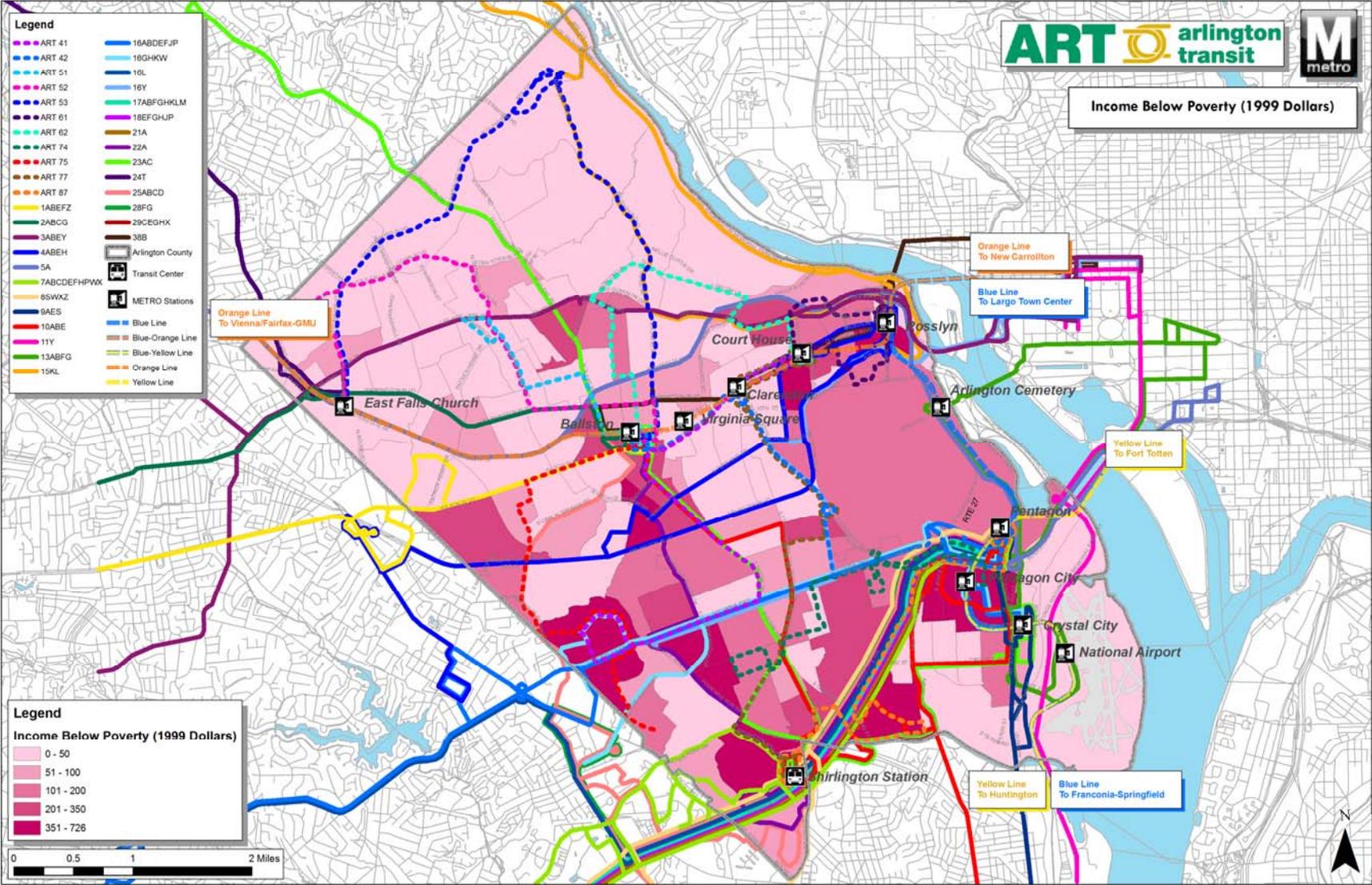


Figure 3-65  
Arlington County Low Income



### **3.6 Development / Land Use Plans**

#### **DRPT Transit Service Design Guidelines**

The Virginia Department of Rail and Public Transportation (DRPT) published “Transit Service Design Guidelines” (November 2008) to help local governments, transit providers and citizens better understand the types of transit systems and services that are available to meet community and regional transportation needs. Local governments can use these guidelines to match community needs and local land use decisions with the most appropriate transit services. Transit providers can use this guidance document to know to best develop and advance projects that will be considered for funding by the Commonwealth. And Citizens can use these guidelines to gain knowledge about how to make effective transportation choices so that citizens can better engage in the public involvement portion of the decision making process.

Within the “Transit Service Design Guidelines” document are land use guidelines to assist communities when matching a specific mode of transit to a local need. Communities and transit agencies should first consider the types and locations of existing and planned land uses that will be served. The DRPT Guidelines suggest development levels that are supportive of rail service and of fixed route bus service. These guidelines center around population densities, employment served, commercial floor area ratios (FAR) and residential dwelling units per acre. Rail transit service guidelines are higher to justify the additional capital and operating costs.

In addition to these guidelines, in 2006 the Virginia Governor and Virginia General Assembly amended the Code of Virginia to add §15.2-2222.1, which establishes procedures by which localities are directed to submit to VDOT for review and comment a traffic impact analysis for development proposals that would significantly impact the state transportation system. The goals of the amendment are to improve coordination between land use and transportation planning across Virginia by providing consistent information regarding traffic impacts of proposed land-use decisions to local decision-makers and citizens; and ensuring traffic impacts, both local and regional, are considered when land use decisions are made.

The Code of Virginia was also amended in 2006 to add §15.2-2223.1, which includes new urban development area requirements for local comprehensive land use plans. Under these requirements every county, city or town that has adopted zoning pursuant to the Code of Virginia (Article 7, §15.2-2280) and that has a population of at least 20,000 and population growth of at least 5%; or has population growth of 15% or more, must (and any county, city or town may) amend its comprehensive plan to incorporate one or more urban development areas. An urban development area is defined as an area designated by a locality that is appropriate for higher density development due to proximity to transportation facilities, the availability of a public or community water and sewer system, or proximity to a city, town, or other developed area. The comprehensive plan must provide for commercial and residential densities within urban development areas that are appropriate for reasonably compact development at a density of at least four residential units per gross acre and a minimum floor area ratio of 0.4 per gross acre for commercial development. As discussed in the previous section above on transit supportive development levels, these minimum requirements fit very well with necessary development levels to support fixed route bus and going beyond the minimum requirements can achieve a level that supports rail.

The DRPT service design guidelines also addressed community planning principles of transit supportive development at station areas. These principles community planning principles of transit supportive development are known as the “4Ds” - Density, Diversity, Design and Distinguish. Information on the 4Ds provided in the guidelines are not intended to be prescriptive and may vary among urban and rural communities. Instead, it is intended to help communities determine which areas might already best be suited for transit. For communities that do not have transit supportive development, this information provides some of the key considerations that should be taken into account when trying to create transit supportive development.

### **Arlington County Development and Land Use Plans**

In 2002, Arlington received a national award from the Environmental Protection Agency for smart growth initiatives. Arlington County supports H.R. 1780, the Smart Planning for Smart Growth Act of 2009, which would provide grants to states and metropolitan planning organizations for the development and implementation of sustainable land use and transportation plans. Arlington has long been a national model of smart growth. Between 1996 and 2008, Arlington County added 13,000 housing units, over 1,300 hotel rooms, 5.5 million square feet of office space, over 1.3 million square feet of retail, over 23,000 residents and 11,000 workers while traffic trends remained flat and transit ridership grew by over 44%. This success is the result of a dedication to long-term planning and funding for transit oriented development and smart growth. Arlington County’s experience has shown that these actions benefit the environment, the community, and the quality of life for our residents.

### ***Master Transportation Plan – Transit Element***

The Arlington County’s Master Transportation Plan (MTP)<sup>7</sup> encompasses a broad policy framework to guide project and program development while promoting effective travel and accessibility for the county’s visitors and residents (Transit Element Goals, Policies, Implementation Actions and Performance Measures summarized in Chapter 2 of this TDP).

The Master Transportation Plan (MTP) Goals and Policies document specifies three **general policies** that form the foundation of the MTP and, therefore, transportation in Arlington in the years ahead:

- General Policy A. Integrate Transportation with Land Use - *Organize community development and redevelopment around high quality and high capacity transit. Design and operate transportation facilities to be compatible with adjacent existing and/or planned development.*
- General Policy B. Support the Design and Operation of Complete Streets - *Design and operate a comprehensive network of Arlington’s local and arterial streets to enable safe access by all user groups including pedestrians, bicyclists, transit vehicles and users, and motorists of all ages and abilities, allowing these users to access a full range of daily activities.*
- General Policy C. Manage Travel Demand and Transportation Systems - *Influence travel demand generated from new development through County Board-approved conditions and actively manage County-controlled streets, parking, transit services, and commuter service programs to minimize the growth in single occupant vehicle trips and to promote the use of all other mode of travel.*

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<sup>7</sup> Master Transportation Plan, Goals and Policies Summary, Arlington County, Virginia, Adopted November 13, 2007.

**Arlington County Development Planning**

Each year Arlington County produces a Planning Information Report (PIR), that documents development highlights for the previous year (latest available is for 2008) and summarizes residential and commercial development activity in the County. The objective of this report is to provide comprehensive information on development in Arlington County to the County Board, County staff, citizens, businesses and other decision-makers. The report is organized into three sections. The first section describes residential and commercial projects that were approved, started construction, completed and demolished in the previous year. The second section includes a map showing the location of these projects. The last section is a comprehensive list of each project approved, under construction, completed or demolished as of the last day of the year.

In 2008, 82 percent of the residential units approved were located along transit corridors (e.g., Metro corridors). While some of the remaining 18 percent are located in Columbia Pike and Nauck. Similarly, a majority of commercial development in 2008 was concentrated along Metro Corridors (e.g., 60% in Crystal City). Arlington County’s emphasis on transit supportive land use policies and development approval are clearly demonstrated in the high concentrations along transit corridors and stations and is evident in the fact Arlington County exhibits one of the highest population densities in the region (8,470 persons per square mile). Figure 3-66 illustrates Arlington County’s existing land use.

Arlington County identifies real estate development projects in the following manner:

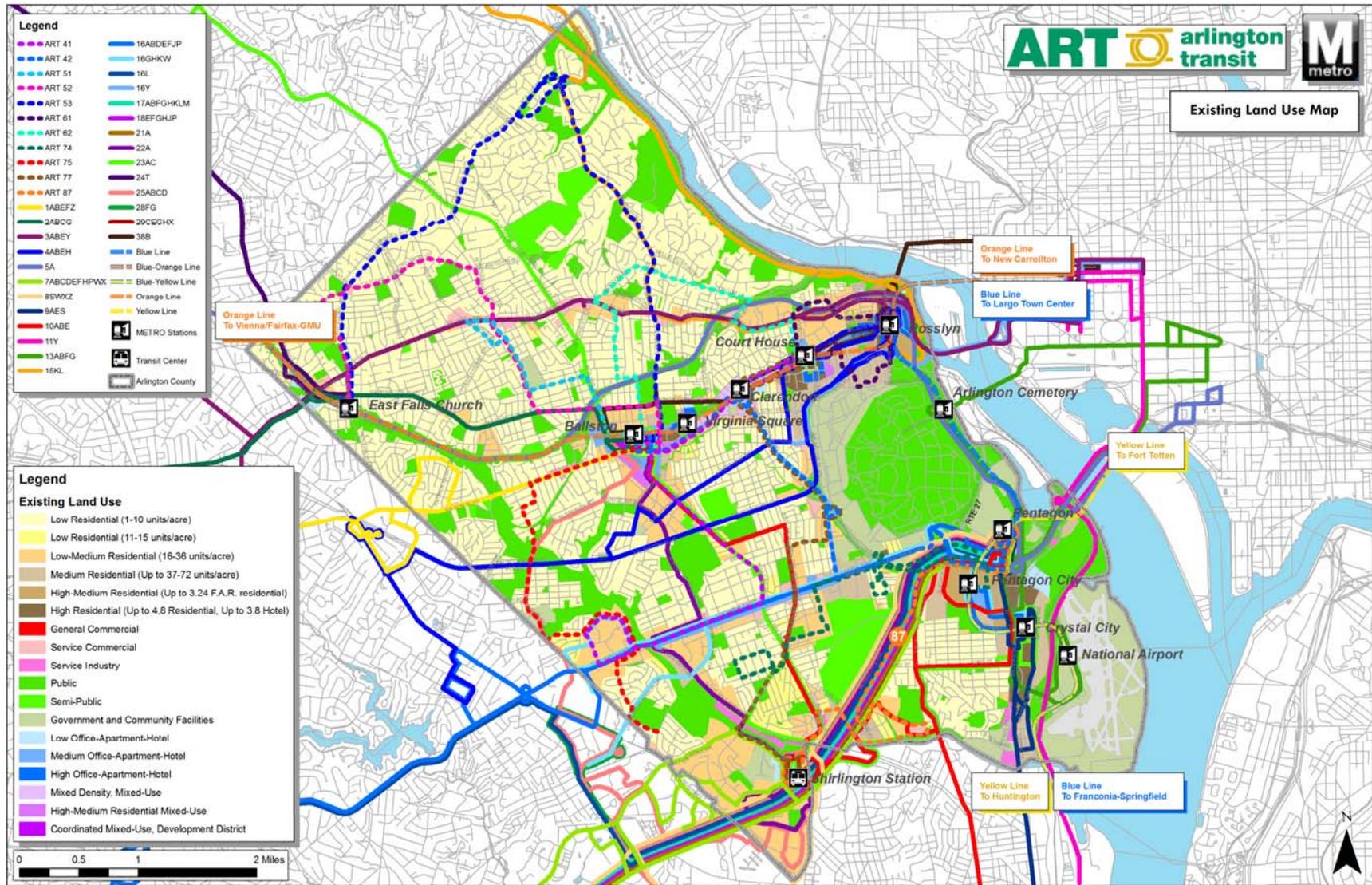
- Under Construction
- Approved – A (construction this year if funding is secured)
- Approved – B (construction in 2 – 3 years)
- Approved – C (construction in 5 years)
- Approved – Inactive
- Filed (some stage of formal review)
- Preliminary (projects in concept stage)

Table 3- 6 identifies real estate in Arlington County under construction, approved and filed as of January 2010.

**Table 3-6**

	<b>Office (Sq Ft)</b>	<b>Retail (Sq Ft)</b>	<b>Other (Sq Ft)</b>	<b>Units</b>	<b>Rooms</b>
<b>Total Under Construction</b>	709,276	198,722	459,854	1,884	625
<b>Total Approved</b>	4,048,201	527,172	460,184	5,024	0
<b>Total Filed</b>	2,817,775	60,948	103,700	1,163	719
<b>Grand Total</b>	7,575,252	786,842	1,023,738	8,071	1,344

Figure 3-66  
Arlington County Existing Land Use



## **3.7 Bicycle / Pedestrian Plan**

The Arlington County Master Transportation Plan (MTP) contains both a Bicycle Element and a Pedestrian Element. The MTP establishes six broad goals for Arlington's transportation policy that direct the policies and implementation actions for both bicycle and pedestrian travel within Arlington County. Each of these elements are described further below.

### **3.7.1 Bicycle Element**

The Bicycle Element of the Master Transportation Plan was adopted in July 2008. Following the broad goals set in the MTP, five of the twenty-seven strategy directives directly relate to bicycle policy. These strategies and policies are:

#### Strategy 1: Complete the Bikeway Network

- Policy 1 - Complete the Bikeway Network with a focus on overcoming barriers. Improve connectivity between trails and other major bikeway corridors. Enhance bikeway information and way-finding signage.
- Policy 2 – Provide high-quality bicycling facilities as part of all street improvement projects. Use marked bicycle lanes or shared-use lane symbols on arterial streets that provide access to commercial centers, schools and government facilities.

#### Strategy 2: Increase Bicycle Use

- Policy 1 – Create a community culture that embraces bicycle use as a mainstream travel mode. Raise the visibility and participation of bicycling in Arlington through organized bicycling events, prominent facilities and other encouragement activities.
- Policy 2 – Require the provision of appropriate facilities to support bicycling, such as showers, lockers and bicycle parking by new development.
- Policy 3 – Annually collect bicycling data on County streets and trails.
- Policy 4 – Implement a bike sharing program in the transit corridors and other densely developed areas.

#### Strategy 3: Improve Bicycle Safety

- Policy 1 – Conduct an ongoing safe bicycle route to schools program including semi-annual bicycle safety educational programs for children and adults.

#### Strategy 4: Manage and Maintain the Bikeway System

- Policy 1 – Manage the trails for safety with increased use. Undertake facility improvement projects to address overcrowding and user conflicts on trails and develop instructional materials and signs to encourage safer user practices.

#### Strategy 5: Integrate Bicycling with All Other Modes of Transportation

- Policy 1 – Provide convenient, covered and secure bicycle parking at transit stations, schools, public facilities and commercial centers.

The Bicycle Element of the MTP identifies network and program implementation procedures which help prioritize proposed facility improvements, and an implementation plan which identifies staff needs, project implementation mechanisms, regional coordination and the funding process. Finally, the Bicycle Element contains appendices that identify the following aspects of the program: context and bicycle facility definitions; bikeway facility project lists; bikeway design principles; bicycle parking standards; and a maintenance program. Figures 3-67 through 3-69 illustrate the existing, future and combined existing and future Bike and Pedestrian Trails.

### 3.7.2 Pedestrian Element

The Pedestrian Element of the Master Transportation Plan was adopted in July 2008. Following the broad goals set in the MTP, five of the twenty-seven strategy directives directly relate to pedestrian policy. These strategies and policies are:

#### Strategy 1: Complete the Walkway Network

- Policy 1 – Complete the walkway network with appropriately lit, ADA-accessible sidewalks along both sides of arterial streets and at least one side of neighborhood streets – plan for well defined exceptions where sidewalks are expected to be omitted. Emphasize projects within priority pedestrian zones near schools, transit stops and commercial centers. Develop and evaluate criteria and use them, along with identified needs, to prioritize the funding of proposed construction and improvement projects.
- Policy 2 – Improve walkway connectivity through the creation of new pedestrian and bicycle pathways where existing travel routes are indirect and the creation of new connecting streets is not feasible. Provide or encourage additional safe pedestrian facilities where pedestrians are found to travel, such as short cuts.

#### Strategy 2: Make the Pedestrian Network Fully Accessible and Convenient for All Users

- Policy 1 – Upgrade existing infrastructure to comply with current accessibility standards.
- Policy 2 – Encourage sidewalk cafes and other street enhancements in the sidewalks. Locate private encroachments in the sidewalk area with sensitivity to sidewalk width, to historic structures, and to other obstructions, and subject to periodic review. Safe and convenient pedestrian travel should not be impeded.
- Policy 3 – Provide straight, level, unimpeded and appropriately-designated pedestrian travel whenever feasible.

#### Strategy 3: Improve Pedestrian Safety

- Policy 1 – Use measures including street redesign and enforcement aimed at changing motorist behavior to manage vehicular speeds and minimize vehicle/pedestrian conflicts.
- Policy 2 – Undertake ongoing pedestrian safety education and outreach activities with emphasis on addressing the populations with the greatest needs.
- Policy 3 – Reconstruct arterial roadways to manage travel speeds, expand sidewalk area, and improve the safety and accessibility of pedestrian crossings where appropriate. At-grade crossings are preferred over grade-separated crossings except at limited-access highways or where extreme topography exists.

#### Strategy 4: Increase Walking

- Policy 1 – Develop promotional strategies to encourage more people to walk more often – with specific programs and events directed towards the needs of students held at least once a year.
- Policy 2 – Collect pedestrian data on County streets and trails on an annual basis.
- Policy 3 – Construct missing sidewalks and upgrade street crossings within school walking zones to provide school children and those who walk with them safe and enjoyable walking routes to school.

#### Strategy 5: Operate and Maintain Pedestrian Facilities to a High-Quality Standard

- Policy 1 – Conduct walkway maintenance promptly to ensure that sidewalks remain useable for all.

In addition to the Strategies and Policies identified in the Pedestrian Element of the MTP, this element identifies pedestrian accommodation and design principles which address 1) general walkway

accommodations, 2) sidewalk design, 3) intersection design, 4) pedestrian accommodations related to new development, 5) sidewalk maintenance, and 6) maintenance of pedestrian traffic during construction. The Pedestrian Element also addresses implementation priorities, which establish funding priorities and rank sidewalk construction projects based on an approved ranking criteria.

Figures 3-67 through 3-69 illustrate the existing, future and combined existing and future Bike and Pedestrian Trails.

Figure 3-67  
Arlington County Existing Bike / Pedestrian Trails

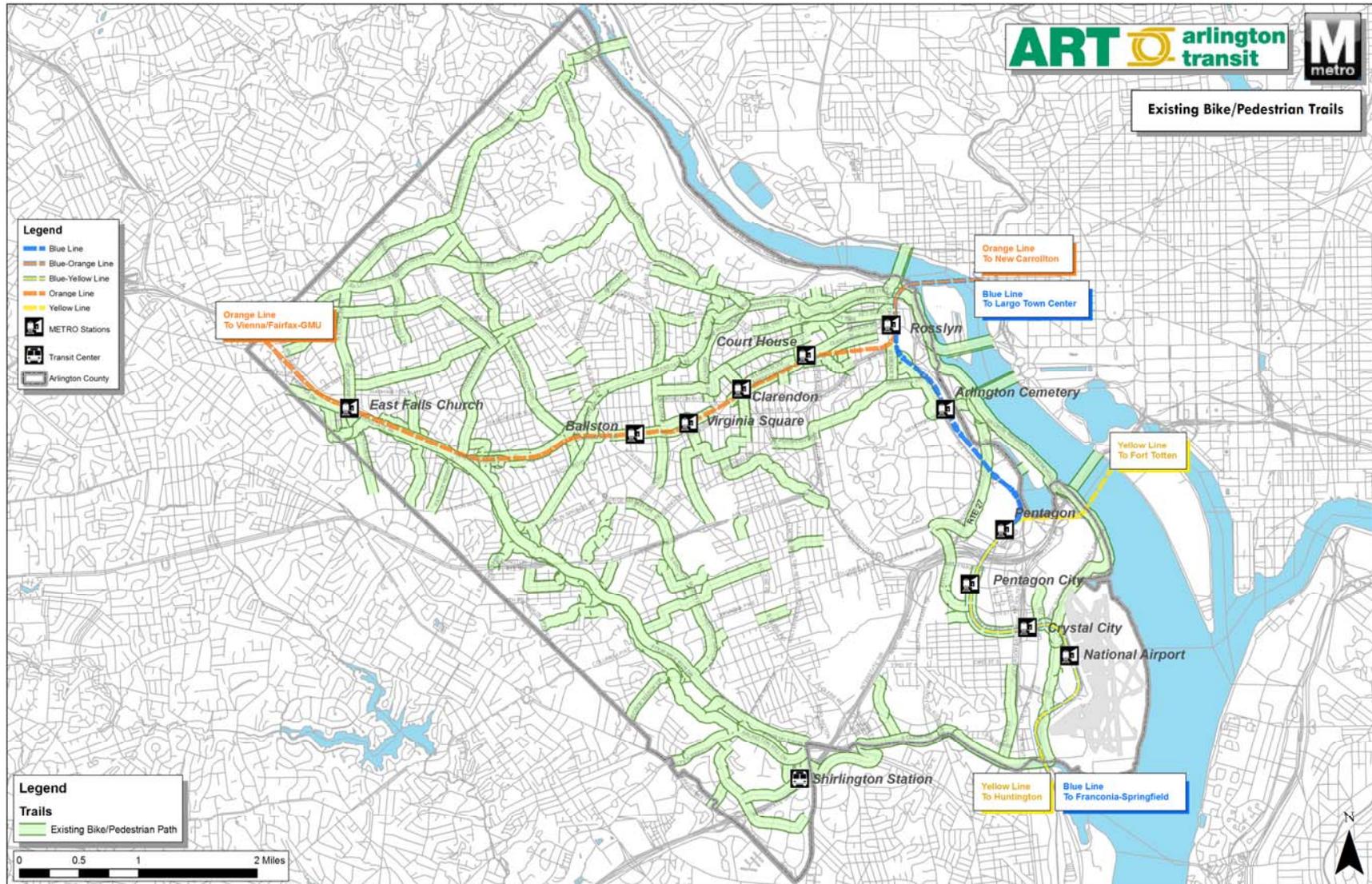


Figure 3-68  
Arlington County Future Bike / Pedestrian Trails

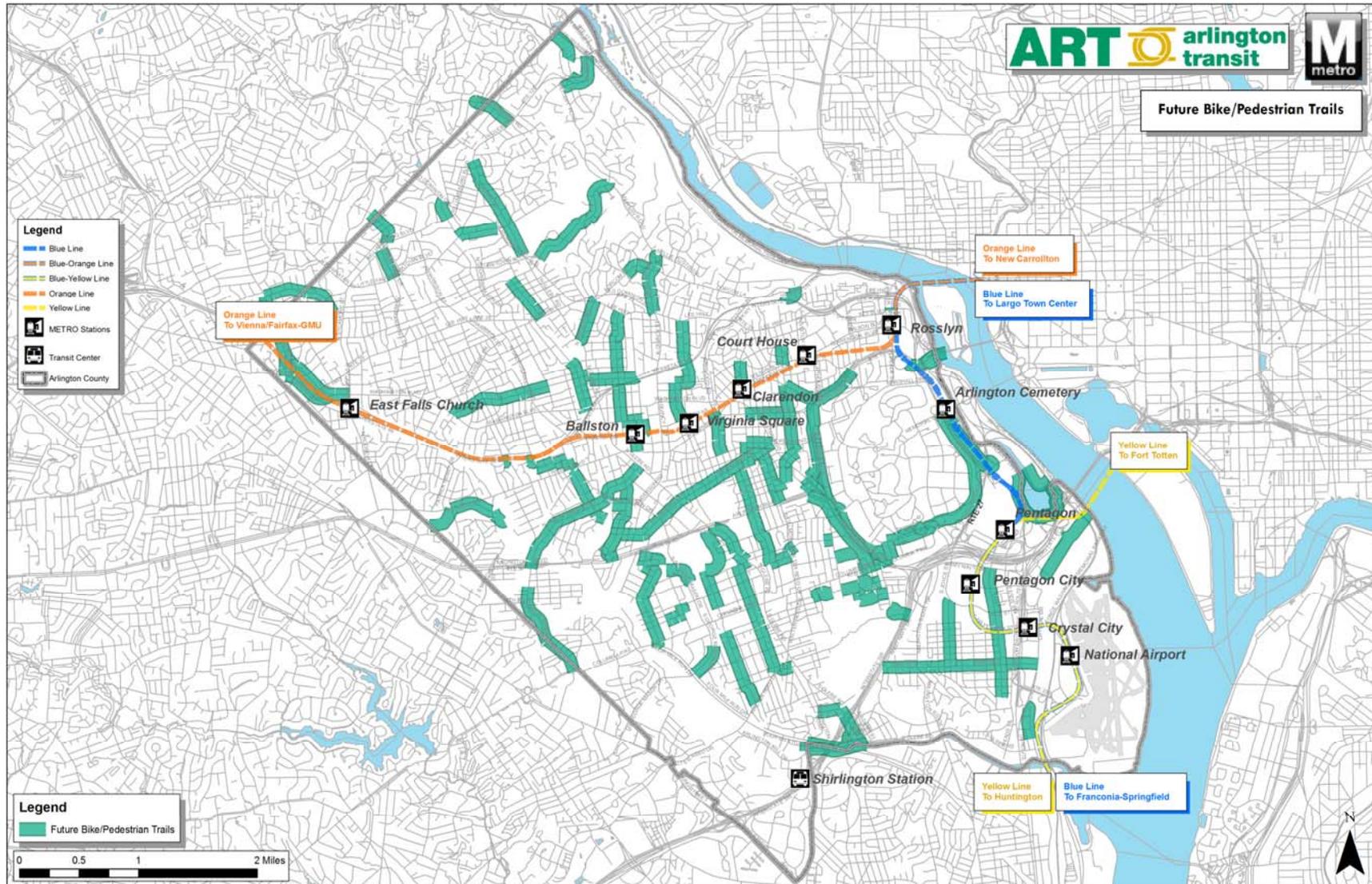
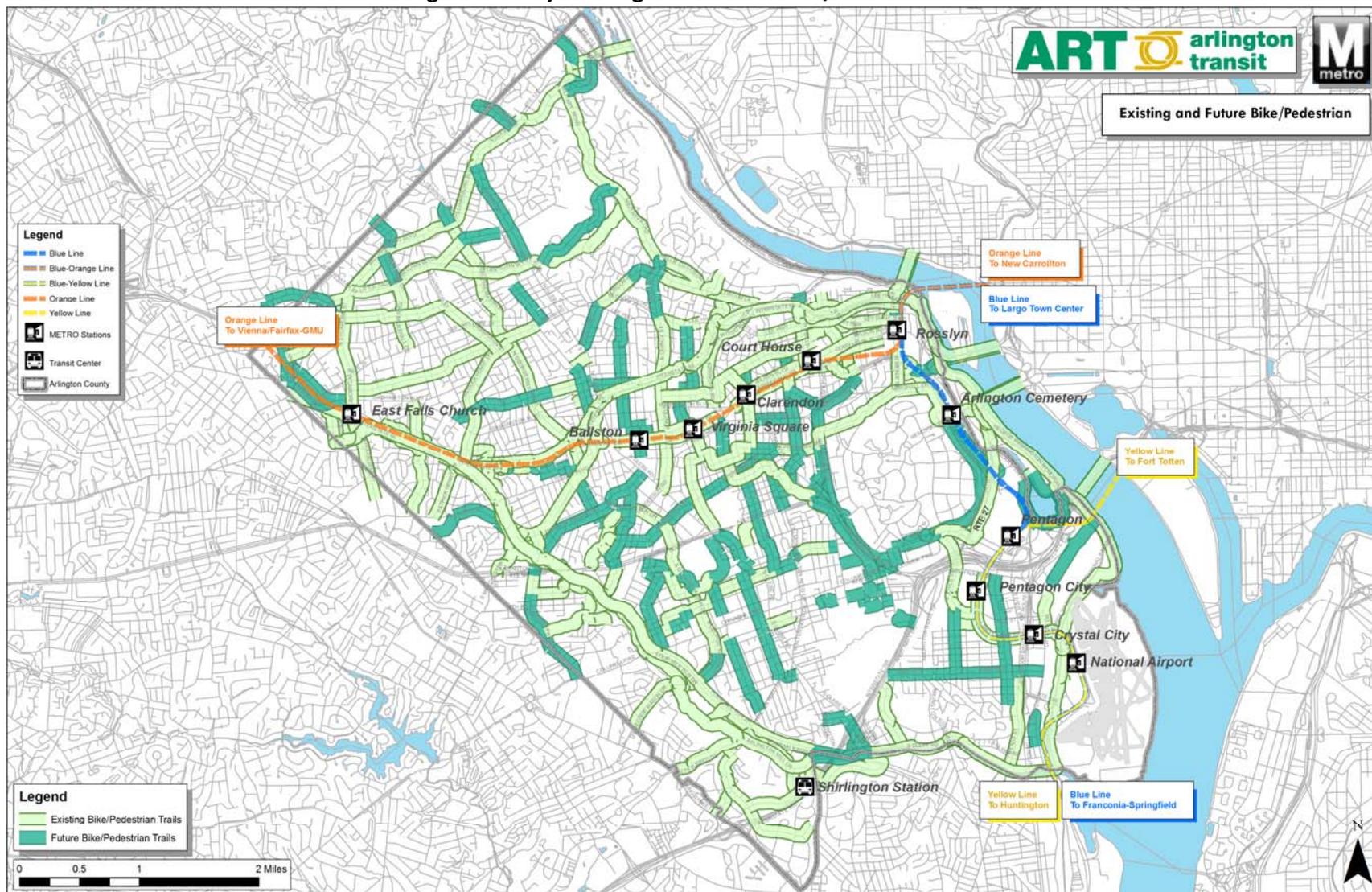


Figure 3-69  
 Arlington County Existing and Future Bike / Pedestrian Trails



### 3.8 Peer Review Analysis

For the TDP, a peer system review was prepared to compare ART's system characteristics and performance measures with seven other transit systems from around the country that have comparable size and operational characteristics. In addition, ART characteristics were compared with six other DC-area transit systems in a supplemental peer review. These comparisons or peer analyses are used to gauge where deficiencies occur and improvements could be warranted. A detailed peer analysis, which includes both a primary peer review and a supplemental peer review, is reported in a technical memorandum included in this report as Appendix B.

While it is difficult to factor in the unique nature of Arlington's tourism industry and location, seven peer systems have been identified and used that best replicate ART's service. These peer systems include four systems in California: 1) Anaheim Resort Transit; 2) Culver City; 3) Norwalk Transit System; and 4) Livermore / Amador Valley Transit Authority (LAVTA). The three remaining peer systems are: 1) City of Alexandria (VA); 2) Transit Services of Frederick County (VA); and 3) Howard Transit (Laurel, MD).

The primary peer review analysis determined that ART's ridership, service, and financial characteristics appear to be lower than the range experienced by its peer systems on a per capita basis, but within the range of peer systems on a revenue-mile and revenue-hour basis. However, when combined with the level of Metrobus service provided within Arlington County, overall transit service productivity and effectiveness on a per capita would exceed the peer average.

Key findings of the peer analysis were as follows:

- **Vehicle Utilization:** The size of ART's bus fleet (35 buses) and vehicles operated in maximum service (26 buses) both were smaller than the peer average (24 and 21 percent lower, respectively).
- **Service Supplied:** In comparison to its peers, ART operates 37 percent fewer revenue-hours per capita, 43 percent fewer revenue-miles per capita, and 18 percent fewer revenue-hours per square mile than the peer average.
- **Ridership Productivity:** ART was similar to the peer systems in attracting ridership on a revenue-hour and revenue-mile basis, but less so on a per capita basis. However, combined with the level of Metrobus service provided within Arlington County, overall transit service ridership productivity exceeds the peer average.
- **Cost Efficiency:** ART's cost efficiency was slightly higher than the peer average on a passenger trip and revenue-mile basis, and similar on a cost per revenue-hour basis.
- **Farebox Revenues:** ART farebox recovery as a percentage of total operations and maintenance costs was just under the peer average.
- **Source of O&M Funds:** ART reported less federal and state funding but substantially more local funding than the peer averages for these categories.

The supplemental peer review compares the ART bus system to six suburban bus systems that all operate in the District of Columbia area. The bus systems selected as D.C.-area peers were: 1) City of Fairfax - CUE (Fairfax, VA); 2) City of Alexandria (Alexandria, VA); 3) City of Falls Church (Falls Church, VA); 4) Fairfax Connector Bus System (Fairfax County, VA); 5) Ride-On Montgomery County Transit (Montgomery County, MD); and 6) Prince George's County Transit (Prince George's County, MD).

The peer review completed with data from D.C.-area suburban transit systems presents a conclusion very similar to the full peer review assessment. ART provides much less service per capita than other suburban D.C. systems, yet ART service has similar or better service productivities and cost efficiencies than most of its local peers on a per-hour basis and is generally just slightly higher on a per-mile basis. Cost comparisons on a per mile basis are skewed for average bus operating speeds in Arlington are typically lower than the peer systems. Comparisons on a per capita basis also tend to be skewed for Arlington enjoys a much higher level of WMATA Metrobus and Metrorail service than the peer systems (i.e., there is a higher level of transit service in Arlington County than the peers when both ART and WMATA service is jointly taken into consideration).

### **3.9 On-Board Survey Findings**

#### **MWCOG Survey Results**

The National Capital Region Transportation Planning Board (TPB) conducted a regional on-board survey in the spring of 2008. The technical report<sup>8</sup> cites the main purposes of the survey as follows:

- 1) collect the jurisdiction of residence data of Washington Metropolitan Transit Authority's (WMATA) weekday bus passengers in support of WMATA's bus subsidy allocation formula;
- 2) collect origin and destination trip patterns of the local jurisdiction bus systems for local bus route planning and regional travel demand model validation; and,
- 3) collect other travel-related and demographic data to update the regional profile of WMATA and local bus system riders and their related bus trips.

The survey instrument was based on previous bus surveys conducted by MWCOG and WMATA as well as a recently-completed on-board survey conducted by the Maryland Transit Administration. The purpose for this coordinated effort was to ensure the resulting dataset can be used in both local transit planning and modeling as well as regional travel demand modeling which includes transit travel between Maryland and Washington DC and surrounding areas. Using the results from this survey, the typical ART transit rider can be characterized as follows:

- A Virginia resident living in Arlington
- Using transit to travel between home and work
- Walking 1-2 blocks between origin/destination and the bus stop
- Paying with either a SmarTrip card or cash
- Using 1 or 2 buses and/or trains total per one-way trip
- Not receiving transit benefits from employers
- Having one or no vehicles at home, but relying on transit because no vehicles are available to them for their daily trips
- Earning a wide range of incomes
- Caucasian

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<sup>8</sup> MWCOG, 2008 Regional Bus Survey, Technical Report, June 2009

## **2008 Arlington Transit (ART) Rider Survey Results**

The 2008 ART Study is a component of the 2006-2008 ACCS Program Research and Evaluation Plan. The purposes of the research study are to:

- Understand who is using ART and how they are using it.
- Understand how ART is currently performing.
- Identify ways to improve the product and service delivery.
- Establish benchmarks to assess future performance gains.

The objectives of this research were to:

- Determine characteristics of bus use, such as frequency, length, reason for trips, etc.
- Determine satisfaction with and attitudes toward ART
- Develop a demographic profile of riders
- Estimate the number of individuals who use ART using SmarTrip ridership and reported frequency
- Benchmark for evaluating the impact of future service

### **Key Findings**

Demographic Profiles:

- 55% of the respondents were female. The mean age is 36 – compared with the Arlington Profile, ART riders tend to be younger. The majority of riders are minorities – 31% Hispanic, 28% African-American, 9% Asian (27% White, non-Hispanic).
- 84% of Riders live in Arlington. 63% of riders work in Arlington.
- 13% are not employed and 21% are Students. 70% have annual household incomes below \$60,000.
- This report also looks at comparisons of different riders segments: Spanish-speaking Riders, ART Commuters, Frequent Riders, Long-term Riders, Prime Riders (long term and frequent), and Choice Riders (those who choose to ride the bus over driving alone).

Use of ART:

- 58% say they ride ART buses 5 or more days a week.
- 67% of Riders have been riding the bus for less than 3 years and 31% have been riding for less than a year.
- Two thirds of riders live less than 3 blocks from a bus stop.
- 61% of riders transferred to or from Metrobus/rail on the trip where they were surveyed.
- 45% said they would take another bus if ART were not available, 10% would drive alone, and 7% would not make the trip at all.
- 74% use ART to get to/from work. Other popular uses are errands, dining and entertainment, and school.
- 31% say that the bus (not specifically ART) is their primary mode; only 7% drive alone.

Satisfaction with ART:

- Nearly all service attributes are rated as important – particularly safety and reliability. For the most part, ART gets high marks on those attributes, especially in terms of payment process, lighting, and safety.

- The areas that show the largest opportunity (using the SIR Opportunity Index) are short wait times, on time performance, and clean buses.
- Using multiple regression to determine what drives satisfaction with ART, 5 aspects were shown to be significant – Driver is courteous, Bus is clean, Wait time is short, Bus runs on time, and Bus is handicap accessible (this has a negative relationship). Driver courteousness and short wait time had particularly strong impacts.
- More than half of all Riders were aware of ArlingtonTransit.com, Bike on Bus, 228-RIDE, and ART Schedules for handhelds, but less than half were aware of ART Alerts and the ART Forum.
- 79% find ART Bus and Bus Stop information easy to understand, 76% find the information useful, and 71% find the information up-to-date.
- Satisfaction with ART is high (85% gave a 4 or 5 on a scale of 1 to 5) and likelihood of recommending is even higher (87% gave a 4 or 5 on a scale of 1 to 5).
- Satisfaction varied slightly by route – 74 had the highest and 75 had the lowest (but the sample sizes were very small for some of the routes).

#### Advertising and Other Arlington Services:

- 27% recall seeing or hearing transportation advertising.
- ART Riders are familiar with many Arlington Services and some have used them.

These findings are presented in further detail in a Technical Memorandum that is provided in Appendix C.

### **3.10 Stakeholder and Public Outreach**

#### **Stakeholder Outreach**

On January 27, 2010, Arlington County Transportation Division Staff conducted a TDP Stakeholders consisting of member invitees from the following existing transportation committees: Transportation Commission, Disability Advisory Commission, Transit Advisory Committee, and Senior Transportation Committee of the Commission on Aging.

After introductions, Mr. Tim Crobans from Connetics Transportation Group made a presentation (contained in Appendix D) which addressed the following agenda:

- Transit Development Plan (TDP) Purpose
- TDP Requirements and Content
- TDP Tasks Underway
- Existing Arlington Transit (ART) Service Characteristics
- Historical ART Performance Characteristics
- ART Rider Characteristics
- Peer Agency Review Findings
- Next Steps for the TDP

At the conclusion of the presentation, the attendees were given the opportunity to ask questions about the TDP process and give input on what they saw was needed in the way of changes or improvements to the transit system. Detailed comments from the Stakeholders are contained in Appendix D.

## **Public Outreach**

On January 28, 2010, Arlington County Transportation Division Staff invited members of the public to attend a work session to develop a six year Transit Development Plan for Arlington County. Similar to the Stakeholders meeting, a presentation was made (same agenda as the Stakeholders meeting) of the TDP process. Following the presentation, members of the public were asked to sit together according to geography, to discuss possible transit enhancements in or near their communities. Each group had a facilitator (Guide contained in Appendix D) with a list of discussion topics related to existing service, future transit needs, and ways to attract potential riders. Detailed comments from the Public meeting are contained in Appendix D.

### **3.11 ITS Projects and Programs**

ITS is a wide-ranging set of technology applications that are intended to add information and communications technology to transportation infrastructure and vehicles, to improve the efficiency, effectiveness, and safety of transportation systems. Benefits of implementing ITS technology include improved customer service and satisfaction, better on-time performance, and reduced capital and operating costs.

The Virginia Department of Rail and Public Transportation (DRPT) has taken the lead to coordinate and promote the implementation of ITS technology among transit operators in Virginia to provide an improved return on investment, greater deployment efficiency, a higher level of functionality through system interaction and consistency of service delivery among transit operators.

In DRPT's ITS Strategic Plan, dated August 2009, ART's ITS program is summarized in the following sections:

- Program Description – This section indicates the existing technology deployed, and proposed technology deployments at the end of the next 6 years. Technologies deployed by transit operators of similar primary service type and fleet size are also indicated.
- Action Plan - shows the planned technology projects with details on budget and estimated timeline.
- Participants / Resource Sharing - shows a list of stakeholders that will need to be engaged to undertake the Action Plan defined above. For instance, since Alexandria Transit Company is planning to deploy real-time information systems on the Internet and on mobile devices during the same timeframe as Arlington, these services should be coordinated between the two agencies. These are public-facing systems that will require customization from each transit operator, but should have a common presentation format. It would be beneficial to show shared service connections on a common map.

As shown in Figure 3-70, the current status of ART's ITS program is as follows:

- ART has deployed Computer-Aided Dispatch/Automatic Vehicle Location (CAD/AVL) on its full fleet.
- Automatic Passenger Counters (APC) are installed on all full-size transit buses and are proposed to be fully deployed by October 2010.
- ART uses DRI's Talking Bus Automatic Vehicle Annunciation (AVA).
- Transit Signal Priority (TSP) has been implemented on Columbia Pike at 10 intersections for Washington Metropolitan Area Transit Authority (WMATA) service.

- All ART buses have Automated Fare Collection (AFC).
- Over the next 2-6 years, ART proposes to install on-board cameras on all buses, and an Interactive Voice Response (IVR) phone system.
- Real-time information is available over the web at: [http:// artdev.commuter-page.com/pages/rider-tools/](http://artdev.commuter-page.com/pages/rider-tools/)
- A trip planner is to be implemented in the next 2-6 years, and a system to provide real-time information on mobile phones is currently in beta-testing.
- Scheduling and run cutting software is proposed to be deployed in the short-term.
- Maintenance management, driver management and yard management are the responsibility of the contractor that provides bus service for ART.
- 56 bus stops are currently using information displays, and about 100 more displays including bus finders are proposed over the next 6 years.
- The ART bus depot is currently being upgraded and the project will include security cameras and an operator-activated security alarm system.

**Figure 3-70**

**ART's ITS Program**

Source: DRPT ITS Strategic Plan, August 2009

**Transit Operator: Arlington Transit**

**Program Description**

On-Board Equipment						Central System Equipment							Wayside Equipment				
CAD/AVL	APC	AVA	TSP	AFC	On-Board Cam	IVR	RT Web	Trip Plan	Info Mobile Device	Sched & Run Cut	Maint Mgmt	Driver Mgmt	Yard Mgmt	Info Displ	Sec Cam	Sec Alarm Button	
<b>Existing Deployment</b>																	
●	◐	●	◐	●	○	○	●	○	◐	○	○ MANAGED BY CONTRACTOR ○		◐	○	○		
<b>Projected Deployment (next 6 years)</b>																	
●	◐	●	◐	●	●	●	●	●	●	●	○ MANAGED BY CONTRACTOR ○		●	●	●		
<b>Typical Industry Deployment Path</b>																	
●	◐	●	○	◐	◐	◐	◐	◐	○	●	◐	◐	◐	◐	○	○	

## 4.0 TRANSIT SERVICE AND FACILITY NEEDS ASSESSMENT

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This chapter identifies potential transit service and facility needs for Arlington County Transit. Service and facility needs are identified based on the evaluation conducted in previous chapters of this TDP, stakeholder and public meetings, evaluation of existing ART and Metrobus transit service, service coverage and level analysis, demographic analysis, future land use and development plans and staff workshop sessions. Through these staff workshop sessions, transit service needs were identified for both ART and WMATA services in Arlington County. Cost estimates and policy implications are included for each proposed need.

The following general transit service needs have been identified in Arlington County for consideration for inclusion in the Arlington County TDP:

1. Provide improved connectivity between major activity centers (e.g., Pentagon, Pentagon City, Crystal City, Rosslyn, Courthouse, Ballston, Arlington Hall, Shirlington)
2. Improve on-time performance
3. Increase service frequencies
4. Expand service hours
5. Expand service days
6. Coordinate bus service plans and service levels with implementation of Silver Line and Blue Line service level changes
7. Enhance bus accessibility to East Falls Church Station (EFC Metro Study)
8. Provide transit service to new Long Bridge Park
9. Integrate fixed route transit service changes with the Columbia Pike Streetcar Line
10. Relieve Metrorail passenger overload along the Ballston-Rosslyn Corridor (by increasing bus service such as existing Metrobus Route 38B)
11. Implement zone dial-a-ride/flex route mid-day service in Arlington County neighborhoods where substantial senior populations live outside congregate senior housing
12. Implement bus transit service to new County Department of Human Services offices as well as new developments under construction such as the expansion of the Army National Guard facility at Arlington Hall expansion.
13. Expand bus service on the Crystal City Potomac Yard Transitway

In addition to the general transit service needs identified above, the following transit facility needs have also been identified:

1. Rosslyn Station Access Improvements
2. Columbia Pike Streetcar
3. Crystal City Potomac Yard Transitway
4. ART Bus Fleet Purchases
5. ART House (bus maintenance facility) and New CNG Fueling Facility
6. Bus Stop and Shelter Program
7. Transportation Infrastructure Maintenance Capital
8. ITS Program Planning & Implementation
9. Commuter Information Systems
10. Columbia Pike Superstops

11. Columbia Pike ITS
12. Pentagon City Pedestrian Tunnel Restoration
13. Pentagon City Station Elevator
14. Ballston-MU Station West Entrance
15. Fairfax Drive Sidewalk and Bus Stop Improvements (Ballston Station Multimodal Improvements)
16. Route 1 Streetcar
17. Crystal City Station Access Improvements (second entrance)
18. Crystal City Multimodal Transportation Center
19. Court House Station Access Improvements (second elevator / second entrance)
20. East Falls Church Station Area Improvements Study
21. North County ART bus storage and fueling facility
22. WALKArlington Program

Further definition and cost estimates of the Arlington County Transit Capital Improvement Program are described in Chapter 6 of this TDP.

#### 4.1 Arlington County Transit Service Needs

Arlington County transit service needs have been defined under the following seven categories:

- **Systemwide Connectivity** – connections between major activity centers / employment sites and higher density residential areas
- **Re-structured Fixed Route Service** – route alignment modifications, some of which promote connectivity, others enable improved on-time performance, and of course increased patronage.
- **On-Time Performance** – adjustments made to route running times to ensure high levels of on-time performance
- **Transit Service Levels** – service frequency, new service hours or service periods (e.g., midday service), days of service, service productivity related changes.
- **Project Specific** – transit service improvements and modifications required to accommodate a new transit investment or major development project.
- **Primary Transit Network Improvements** – Primary Transit Network (PTN) of high-frequency and quality transit services along major corridors to encourage a low-auto-usage lifestyle and higher all-day patronage. The PTN would extend beyond the established Metrorail corridors and include new surface transit services, such as streetcar and bus rapid transit. Transit services should operate at 15-minute intervals or better every day for about 18 hours.
- **Paratransit Services** – Grouped standing order paratransit services as well as Flex Route Services may offer those with disabilities a mobility option that better meets their needs in a manner that is less costly to the County than the current services, MetroAccess and Specialized Transit for Arlington Residents (STAR).

### Systemwide Connectivity Transit Needs

1. **Provide new connection between Columbia Pike and Rosslyn** – Route 45 was implemented on July 6, 2010. This new route provides this needed connection.
2. **Improve connectivity between Crystal City and Arlington Hall** – This would establish a new route operating between Crystal City directly to Arlington Hall during peak periods only
3. **Improve connectivity between Ballston, Shirlington and Pentagon City/Crystal City** – This would restructure existing service to provide regular frequencies with dependable on-time performance during weekdays, nights and weekends
4. **Enhanced Ballston-Rosslyn Corridor Service** – Due to overloading on the Orange Line, enhanced bus transit service is needed along the Orange Line Corridor between the Ballston and Rosslyn Metro Stations, possibly east into the District (e.g., Metrobus Route 38B).

### Re-structured Fixed Route Service

1. **New ART Route 84 / Modified ART Route 74** – This route alignment change went into effect in the on June 21, 2010. A new route 84 serves the Douglas Park loop currently served by the existing Route 74. Route 84 serves the Nauck neighborhood as well as large apartment buildings along South Glebe Road at 24<sup>th</sup> Road South. The existing Route 74 continues to serve the Columbia Heights, Arlington Village and Arlington View communities. Each route connects to Pentagon City Metro every half-hour during peak periods only.
2. **Extend ART Route 75** – On September 27, 2010, this route was extended from the southern route end at South Dinwiddie Street and Chesterfield Road to the Shirlington Transit Station, and from the northern route end at Ballston Metro to Virginia Square Metro. These extensions connect a major retail and employment center in Shirlington and a major employment center and a George Mason University campus in Virginia Square, with a large concentration of affordable housing.
3. **Extend ART Route 51 North and South** – This route change would extend Route 51 north to the Langston Community Center via Lee Highway. Additionally, this route would be extended via Lee Highway to the Culpepper Garden Community Center.
4. **Extend ART Route 77 to Rosslyn** – This route change would extend the existing route 77 east to the Rosslyn Metro Station. This extension provides one seat rides between the Shirlington Transit Station and Rosslyn, connecting large employment centers with a direct cross-town route.
5. **Restructure ART Route 62 to improve efficiency and increase ridership** – This peak period route performs just at minimum standards.
6. **New Aurora Heights Circulator** – Determine the feasibility of implementing a new circulator route in the Aurora Heights neighborhood.
7. **Extend Metrobus Route 3Y west to East Falls Church Station** – This route would be extended west along Lee Highway to the East Falls Church Metro Station during peak periods only.
8. **Modify Metrobus Route 23A Pattern Alignment** – Realign Metrobus 23 alignments to offer 10 minute peak and 15 minute off-peak service frequencies between Ballston Metro and the Shirlington Transit Station, 20 minute peak and 30 minute off peak service along the remainder of the route, and improve on-time performance along the entire length of the route.
9. **Modify Metrobus Route 10B in conjunction with ART Route 77 Frequency Improvements** – When ART Route 77 service frequency improvements are implemented (see above: peak period from 30 to 20 minute frequency), move Metrobus Route 10B from South Walter Reed Drive and 2<sup>nd</sup> Street to

north-south on South Glebe Road to better coordinate and match service frequencies and coverage in the area to ridership demand.

10. **Extend Route 9S to 12<sup>th</sup> Street** – As a means to serve Long Bridge Park, this route would be extended north to 12<sup>th</sup> Street.
11. **Provide peak period “Blue with a View” transit service** – supplement the Metrorail Blue Line connection between the Crystal City, Pentagon City, Pentagon, Rosslyn, and Court House Metrorail stations.
12. **Extend the Blue with a View transit service to nights and weekends** – for service to Long Bridge Park when the recreational facilities are fully developed.
13. **Implement Route 1 Corridor Busway Service**

### **On-Time Performance**

#### Weekdays

- ART Routes 51, 52 and 53 are experiencing on-time performance degradation resulting from traffic congestion and ridership volumes. Adjustments to running times on these route combined with interlining them will result in the need for one additional bus to maintain existing service levels. Additionally, consideration will be given to swap the route 51 and 52 route alignments between the Ballston Metro Station and the Virginia Medical Center – Arlington on George Mason Drive. Consideration will also be given to providing weekend service on the ART 52 instead of the ART 51 to maintain the connection between Ballston Metro and Virginia Hospital Center while adding service to North Arlington.
- ART Route 41 also experiences on-time performance degradation resulting from traffic congestion and ridership volumes. Adjustments to running times will be made on this route with the addition of a fifth bus to create a consistent 15 minute frequency during peak and midday hours on weekdays and Saturdays (as noted above).
- Metrobus Route 23A is a very long route that is difficult to operate on schedule. By splitting the route in two, overlapping in the segment between Ballston Metro and Shirlington Station, the Primary Transit Network objective of fifteen-minute service levels in that segment should be achievable. The PTN then would include a square connecting three concentrations of urban development in Arlington County: Rosslyn-Ballston (Metrorail Orange Line); Ballston-Shirlington (Restructured Metrobus 10B and 23 as well as the ART 41 as far as Columbia Pike); Shirlington-Pentagon (Metrobus 7 and ART 87); and Pentagon-Rosslyn (Metrorail Blue Line).

### **Transit Service Levels**

#### **1. Weekday Service Frequency Improvements**

Service frequency needs have generally been identified for the midday and evening service periods, when service frequencies on some routes presently operate every 60 minutes. ART's eleven fixed routes generally operate 15 to 30 minute service frequencies during peak periods. Metrobus service frequencies vary by route. The following service frequency improvements have been identified for weekday service:

- ART Route 41 – Consistent 15 minute service frequencies all day
- ART Route 42 – improve midday service from 60 to 30 minute frequency
- ART Route 52 – improve midday service from 60 to 30 minute frequency

- ART Route 53 – improve midday service from 60 to 30 minute frequency
- ART Route 77 – improve peak period service from 30 to 20 minute frequency
- Metrobus Route 22A – in response to the BRAC 129 Re-alignment Study, improve service frequency between the Shirlington Transit Station and the Ballston Metro Station (some trips turned back at Shirlington Transit Station) from 20 to 10 minute frequency peak periods and from 40 to 20 minute frequency during off peak periods
- Metrobus Route 23A – improve service frequencies between Ballston Metro and the Shirlington Transit Station to 10 minute peak and 15 minute off-peak and 20 minute peak and 30 minute off-peak service along the remainder of the route
- Metrobus Route 16G – Reduce service frequencies on Route 16G in conjunction with Columbia Pike Streetcar implementation

## 2. Weekend Service Frequency Improvements

Weekend service frequency improvements for routes currently operating on weekends include:

- ART Route 41 – Consistent 15 minute service frequencies (Saturday)
- ART Route 42 - Improve all day service from 60 to 30 minute frequency (Saturday)
- Metrobus Route 22A – in response to the BRAC Re-alignment Study, improve service frequency on Saturdays between the Shirlington Transit Station and the Ballston Metro Station from 40 to 20 minute frequency all day
- Metrobus Route 23 – Restructure to improve Ballston-Shirlington service frequencies and on-time performance

## 3. Service Hour Improvements

On weekdays ART service operates between the approximate hours of 5:00 a.m. and 10:00 p.m., with Route 51 operating until 12:30 a.m.. Saturday ART service operates the approximate hours of 7:00 a.m. and 10:00 p.m., again the Route 51 operates later until about 12:15 a.m.. Sunday ART service operates between the approximate hours of 8:00 a.m. and 9:00 p.m., with Route 51 operating until 10:25 p.m.. Much of the Metrobus service in Arlington County operates between 5:00 a.m. and 1:00 a.m. on weekdays and Saturdays, and between 6:00 a.m. and 12:00 a.m. on Sundays. As part of the service analysis performed in Chapter 3, the following span of service hour improvement needs have been identified for weekdays, Saturdays and Sundays:

### Weekdays

- ART Route 41 – extend evening service until 12:30 a.m.
- ART Route 42 – extend evening service until 12:30 a.m.
- ART Route 75 – extend evening service until 12:30 a.m.
- ART Route 77 – extend evening service until 12:30 a.m.
- ART Route 87 – extend evening service until 12:30 a.m.
- Metrobus Route 9S – in conjunction with extension to 12<sup>th</sup> Street, extend service until 12:30 a.m.

### Saturdays

- ART Route 41 – extend evening service until 12:30 a.m.
- ART Route 42 – extend evening service until 12:30 a.m.

- ART Route 77 – extend evening service until 12:30 a.m.
- ART Route 87 – extend evening service until 12:30 a.m.

#### Sundays

- Route 41 – begin morning service at 6:30 a.m., extend evening service until 10:30 p.m.
- Route 42 – extend evening service until 10:30 p.m.
- Route 87 – begin morning service at 6:30 a.m., extend evening service until 10:30 p.m.

#### **4. New Service Periods**

Of the eleven ART fixed routes that operate on weekdays, only seven routes operate during the midday service period and six on weeknights. Some of the peak period only routes are designed to serve work oriented trips (e.g., ART Routes 61, 62, 74 and the upcoming 84 as well as Metrobus Routes 3Y and 16Y). Midday and evening services are needed along routes that offer commuting options to those working non-traditional hours or routes that serve important retail and recreational centers.

#### Midday Service Needs

- ART Route 62
- ART Route 75 between Columbia Heights West and Shirlington

#### Weeknight Service Needs

- ART Route 75 – extend evening service until 10:30 p.m.

#### **5. New Days of Service**

As noted earlier, on weekdays ART operates 11 fixed routes, five routes on Saturdays, and only two routes on Sundays. The service analysis performed in Chapter 3 identified the need for expanded weekend service on the following routes:

#### Saturdays – 6:30 a.m. to 7:00 p.m.

- ART Route 52 between East Falls Church Metro and Virginia Hospital Center
- ART Route 53
- ART Route 75
- ART Route 77
- Metrobus Route 9S

#### Sundays – 6:30 a.m. to 7:00 p.m.

- ART Route 42
- ART Route 75
- ART Route 77
- ART Route 87
- Metrobus Route 9S
- Metrobus Route 22A

## 6. Service Productivity Related Changes

Proposed service level modifications also include the elimination of the following underperforming routes:

### Saturdays

- Route 61 (effective March 27, 2010)

### Project Specific

- 1. Providing new transit service connections to Long Bridge Park** – Provide transit route between Pentagon, Long Bridge Park and Crystal City from 2:00 p.m. to 11:00 p.m. on weekdays and Saturdays, and from 2:00 p.m. to 9:00 p.m. on Sundays.
- 2. Columbia Pike Streetcar (Primary Transit Network Corridor)** – Implementation of the Columbia Pike Streetcar service will require modification to the existing Metrobus Route 16 service as well as other routes serving and crossing the corridor. These route modifications are under development.
- 3. Crystal City Potomac Yard Transitway** – Implementation of this transitway project will require modifications to the existing Metrobus Route 9 service in the corridor including addition of weeknight and weekend service. These route modifications are under development.
- 4. Blue Line Bus Service** - With the implementation of the Silver Line to Dulles Airport, every third peak period Metrorail Blue Line train will use the Yellow Line bridge, resulting in the need to provide enhanced bus service between Crystal City, Pentagon City, Rosslyn and Courthouse.
- 5. East Falls Church Area Plan – Circulator Routes** - The purpose of the East Falls Church Area Plan is to generate a land use and transportation vision for transit-oriented development in the East Falls Church Metro Station area of Arlington County and the City of Falls Church. There are two principal aspects to this study: land use vision development and transportation planning. Circulator route design is under study.

### Primary Transit Network Improvements

Listed below are transit service improvements identified under each PTN corridor to implement the PTN network.

1. Wilson & Clarendon Boulevards – Ballston / Rosslyn / D.C.
  - a. Route 41 – running time adjustments resulting in consistent 15 minute frequency during peak and midday time periods on weekdays and Saturdays.
  - b. Route 42 – improve weekday midday service from 60 to 30 minute frequency, improve Saturday all day service from 60 to 30 minute frequency
  - c. Route 45 – new Columbia Pike to Rosslyn route operating on Weekdays at 30 minute frequencies peak and off-peak
  - d. Route 77 – improve weekday peak period service from 30 to 20 minute frequency, extend weekday service until 12:30 p.m., add new Saturday service until 12:30 p.m. and add Sunday service between 6:30 a.m. and 7:00 p.m.
  - e. In late August 2010, the D.C. Circulator (sponsored by the District of Columbia) was extended west from Georgetown to Rosslyn Metro Station on September 1, 2010
2. Parallel to Rte. 1 – Crystal City / Pentagon City / Pentagon

- a. Metrobus Route 9S – in conjunction with extension to 12<sup>th</sup> Street, extend weekday service until 12:30 a.m.
- 3. Glebe Road – Potomac Avenue / Fairfax Drive
  - a. Route 41 – running time adjustments resulting in consistent 15 minute frequency during peak and midday time periods on weekdays and Saturdays.
  - b. Metrobus Route 23 A – Realign Metrobus 23 alignments to offer 10 minute peak and 15 minute off-peak service frequencies between Ballston Metro and the Shirlington Transit Station, 20 minute peak and 30 minute off-peak service along the remainder of the route, and improve on-time performance along the entire length of the route
- 4. Lee Highway – East Falls Church / Rosslyn / D.C.
  - a. Metrobus Route 3Y – extending route west along Lee Highway to the East Falls Church Station during weekday peak periods

### **Paratransit Services**

1. MetroAccess is the regional paratransit service established by WMATA under provisions of the Americans with Disabilities Act. Demand and required subsidies for this service have increased substantially each year. WMATA has proposed changes in eligibility and coverage to encourage shifting of some demand to other modes of transportation. However, WMATA has not been successful in improving productivity – as measured by boardings per service hour – to transport more people without increasing driver and vehicle requirements. One person is transported for each hour that a MetroAccess vehicle is in use (March, 2010).
2. STAR is Arlington County’s local alternative to MetroAccess service. The STAR fare structure was revised in 2006 to discourage use of long trips. Trips within Arlington have the same fare as MetroAccess, currently \$2.50. Trips serving the District of Columbia and Northern Virginia inside the beltway have a \$3 fare. Longer trips in the metropolitan area have a \$7 fare. Even though over 70% of STAR trips have one trip end outside Arlington and consequently a higher fare than MetroAccess, STAR serves over three quarters of the paratransit trips made by Arlington residents. STAR’s scheduling productivity is somewhat better than MetroAccess, and is working to improve beyond 1.3 boardings per hour.
3. Arlington County has other options besides MetroAccess and STAR for residents who cannot use fixed route transit services due to a disability. Most MetroAccess and STAR riders use Paratransit because they cannot reach the bus stop. One option that Arlington County intends to explore is to offer very localized service – within specified zones or neighborhoods. Like STAR, this service would be curb-to-curb, picking up passengers in front of their residences. This service could be focused on two markets:
  - a. Seniors traveling midday in neighborhoods where substantial numbers are aging in place in their homes, outside congregate senior living complexes. Like ART, the vehicles would serve designated bus stops at medical facilities, grocery stores, senior centers, and where riders could transfer to and from high-frequency transit routes. However, the vehicle could deviate between stops to provide curb-side service. Service in two neighborhood zones would be considered as a pilot project, where midday service is offered two days each week.
  - b. Commuters with disabilities living near Metrorail stations or bus transit centers who could complete their commute on transit, if only they could reach that access point. Like ART, the vehicles would serve designated bus stops at Metrorail stations and bus transit centers. Morning rides would be pre-scheduled to offer curb-side pickups.

Evening trips could be pre-scheduled or not – qualified riders could approach a vehicle every 30 minutes at a Metrorail station or bus transit center and request a ride home.

4. For those who need point-to-point Paratransit service, STAR or MetroAccess could improve the grouping of many rides. STAR or MetroAccess could negotiate with those riders who need the same trip at the same time between the same addresses on a daily or weekly basis. Pickup times could be adjusted to allow the same group of people to ride on the same vehicle with the same driver regularly. The cost per ride to the County (and possibly the consumer) could be reduced, while the dependability of the trip would be increased. This solution would be especially important to MetroAccess riders, as the consistency and quality of STAR services are highly evaluated by STAR riders.

## 4.2 Capital and Facility Needs

Arlington’s transit capital improvement program consists of capital projects categorized under the following four areas: vehicle needs, passenger amenities and access improvements, special transit projects, and maintenance facility needs. Each of these area capital projects is described briefly below.

### 4.2.1 Vehicle Needs

Arlington Transit owns and operates a fleet of 35 transit buses for fixed-route revenue service. Model years for these vehicles range from 2002 to 2008. Table 4-1 identifies Arlington Transit’s fleet composition.

**Table 4-1  
Arlington Transit Fixed-Route Revenue Fleet**

Vehicle ID #'s	Year	Make	Seated Capacity	# of Vehicles	Anticipated Replacement
34291	2002	Ford E450	14	6	2011
34292	2003	Ford E450	14	2	2011
34293	2004	SPC Ambassador	28	1	2011
34294	2004	GLV MB55	29	1	2011
34295	2006	Ford E450	17	5	2 in 2011, 3 in 2012
34296	2007	Nabi 35LFW	30	8	2017
34297	2008	Nabi 35LFW	30	12	2018
			<b>Total Fleet</b>	<b>35</b>	

ART intends to retire 15 vehicles in Fiscal Years 2011 and 2012 with twelve (12) 30 foot heavy-duty low-floor buses powered by compressed natural gas (CNG) in the summer of 2010 (FY 2011) and three (3) 35 foot heavy-duty low-floor CNG-electric hybrid buses in FY 2012. These planned purchases and more buses will be needed to bring the desired spare vehicle ratio back up to 20% and expand the fleet to accommodate future service changes / expansion plans (described as needs early in this section). Exact

vehicle requirements for service expansion are described further in Section 5 – TDP 6 – Year Service Plan.

#### **4.2.2 Passenger Amenities & Access Improvements**

Arlington’s Transit Capital Program includes projects to upgrade station facilities and access to the Metrorail system and passenger amenities specific to Columbia Pike as well as systemwide. Implementation of the transit capital improvement plan will provide the necessary new and improved infrastructure to support the goals and objectives of the Transit Element in the Master Transportation Plan (MTP). Below are brief descriptions of needed passenger amenities and access improvements.

**Rosslyn Station Access Improvements** – This project includes the design and construction of three new high speed, high-capacity elevators, a mezzanine with fare gates and kiosk, emergency stairs, and related infrastructure for the Rosslyn Metrorail Station. Total project cost is estimated to be \$44 million.

**Ballston-MU Station West Entrance** – This project includes a new entrance at the west end of the station to provide easier access from the Glebe Road area and growing development in the western part of Ballston; this entrance will be located at the intersection of North Fairfax Drive and North Vermont Street and will include two street level elevators and escalators connecting to an underground passageway and new mezzanine with stairs and elevators to the train platform. Total project cost is estimated to be approximately \$62 million, assuming the project is constructed in coordination with redevelopment of the adjacent privately-owned site.

**Fairfax Drive Sidewalk and Bus Stop Improvements (Ballston Station Multimodal Improvements)** – This project improvements are anticipated to include reconstructed bus bays, new bus shelters and amenities, passenger information systems and services, bicycle parking, and expanded pedestrian plaza, landscaping, and revised curb utilization. The Total Project Cost is estimated to be \$6.4 million.

**Bus Stop and Shelter Program** – This project will provide bus shelters, concrete area pads, benches, other amenities, improved safety and accessibility with better pedestrian connections at stops along bus routes that form the Secondary Transit Network (STN) connecting neighborhoods, community facilities, and urban centers, with the Primary Transit Network (PTN). Total Project Cost is estimated to be \$1.8 million.

**Transportation Infrastructure Maintenance Capital** – Bus stops and shelters require continual repairs and upgrades to keep them safe, accessible, and attractive, which is an important factor in encouraging greater transit use. Some shelters in the County have been in place for over 30 years, compared to a 20-year useful life. The ongoing capital maintenance program also provides for new bus stop shelters to existing stops when vandalism or other damage requires immediate replacement. The average cost of a shelter replacement is \$7,000. The goal of the bus stop shelter program is to replace 10 of the 215 bus shelters each year. Total Project Cost is estimated at \$0.42 million (\$70,000 per year for six years).

**Columbia Pike Superstops** – Super Stops are larger, architect-designed bus shelters with the following proposed passenger amenities: electronic and printed information, maps for bus routes and areas; wireless access to information such as cell, PDA, web “Hot Zone”; ample seating, enhanced lighting and new security features; vendor corrals, improved landscaping, sidewalks, curb and gutter. The initial project will build three prototype Super Stops. Ultimately a total of 22 Super Stops shelters at 11 locations along Columbia Pike have been identified. Construction on the three prototype stops is

scheduled to begin before the end of CY 2010 and be completed by late summer, 2011<sup>9</sup>, at a project cost of \$2.6 million<sup>10</sup>. Total project cost for the 22 Super Stops is estimated to be \$12.1 million<sup>11</sup>.

**Pentagon City Pedestrian Tunnel Restoration** – The subject entryway consists of stairs at the northeast corner of the intersection of S. Hayes Street and 12<sup>th</sup> Street South going down to a pedestrian tunnel constructed under South Hayes Street and connecting through glass doors to the mezzanine level of the Pentagon City Metro Station. Repairs will address deteriorated lighting and electrical systems, an ineffective drainage system, leaking concrete expansion joints, deteriorated doors and gates, and damaged floor tiles, handrails, and ceiling panels. Improved signage, security cameras and an emergency call box in the tunnel will be installed. Total Project Cost is estimated to be \$0.80 million.

**Pentagon City Station Elevator** – The Pentagon City Metrorail station is among the most heavily utilized in Arlington County; currently there is one street-level elevator entrance located on the east side of Hayes Street. This project will result in a second elevator entrance to the Pentagon City Metrorail station from the street level to the mezzanine level of the station. The elevator will be located on the west side of South Hayes Street near the existing west side escalator. Total Project Cost is estimated to be \$8 million.

**Crystal City Station Access Improvements** – In 2002 WMATA completed a study identifying a need for a second entrance to the Crystal City Metrorail Station and additional internal circulation capacity improvements. The recent Crystal City Sector Plan update reinforced the need for an additional entrance located near the intersection of Crystal Drive and 18<sup>th</sup> Street South. The entrance would consist of elevators and stairs or escalators, a new tunnel connecting to the train room, station mezzanine reconfiguration, and additional stairs between the mezzanine and platform. Total project cost is estimated to be \$36 million<sup>12</sup>. Construction may occur in phases.

**Court House Station Access Improvements** – In 2004 WMATA completed a study that concluded an additional entrance to the Court House Metrorail Station was needed to meet forecast demand and improve reliability of elevator access. Subsequent public input has confirmed the demand for a new access point or at a minimum an additional elevator. Total project cost is estimated to be \$36 million<sup>13</sup> for a new entrance or \$9 million<sup>14</sup> for a new elevator.

**Crystal City Multimodal Transportation Center** – As part of the Crystal City Sector Plan update, the need for a multimodal transportation center in Crystal City was identified. This center would provide transfers among bicycles, buses, streetcar, and Metrorail, and would be constructed as part of private redevelopment. Total project cost is estimated to be \$6 million<sup>15</sup>.

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<sup>9</sup> The first 3-4 stops will be constructed by early 2011. Construction of the remaining 19 Superstops will be phased over several years.

<sup>10</sup> Approximately \$600k for planning and preliminary design and \$2M for construction + WMATA costs

<sup>11</sup> 19 remaining stops at \$500k each, assuming built by County, = \$9.5M

<sup>12</sup> Estimate from the 2002 WMATA study, adjusted by the CPI for Transportation to 2010 dollars

<sup>13</sup> Estimate from the 2004 WMATA study, adjusted by the CPI for Transportation to 2010 dollars

<sup>14</sup> A bit higher than Pentagon City due to additional depth. About double the estimate for the street elevator hoistway and emergency stair from the 2004 study.

<sup>15</sup> Estimated at 500 ft long by 40 ft wide at \$200/SF = \$4M (just about what was spent on Shirlington Station). Escalated by 50% to include engineering, financing, and contingency.

**WALKArlington Program** – The WALKArlington program makes physical enhancements to Arlington’s sidewalk and street infrastructure. The objectives of the program include completion of the planned walkway network, making the pedestrian network fully accessible for all users, improving pedestrian safety, and increasing walking across the County. WALKArlington funds four types of projects: Arlington street sidewalk upgrades, transit-access improvements, safe routes to schools enhancements, and stand-alone safety and accessibility upgrades. Total Project Cost: The six-year cost for this on-going program is expected to be \$9.2 million.

#### **4.2.3 Special Transit Projects**

**Columbia Pike Streetcar (from Pentagon to County Line)** – This project involves the construction of a streetcar line between Pentagon City and Skyline in Bailey’s Crossroads area of Fairfax County along the Columbia Pike Corridor. The project includes the construction of streetcar railway primarily in the curb lanes in each direction, power control and communication systems, and a maintenance facility. This project includes the purchase of 11 streetcars. Total Project Cost is estimated to be \$138 million for the portion of the project within Arlington County.

**Route 1 Streetcar** – This project will implement a streetcar system with primarily dedicated transit lanes and improved stations from Arlington’s Potomac Yard through Crystal City and into Pentagon City. Ultimately the Route 1 streetcar system will be part of a coordinated streetcar system extending from the Pentagon and Pentagon City Metrorail stations in Arlington via the Columbia Pike Streetcar network to Skyline in the Baileys Crossroads area. The environmental clearance process is slated to begin in early 2011, with construction beginning in early 2015. Total Project Cost is estimated to be \$140 million.

**ITS Program Planning & Implementation** – The envisioned ITS system will establish a wireless network for communications among transit vehicles, traffic signals and control centers to improve performance and reliability as well as safety. Arlington Transit is currently developing a proof of concept Intelligent Transportation System on the Columbia Pike Corridor. This program would provide for the extension of that technology to the Secondary Transit Network through deployment in the ART fleet and bus shelters. The same ITS technology will be extended throughout the Primary Transit Network as part of the Complete Streets arterial program and through deployment in Metro and ART buses and shelters. Total Project Cost is estimated to be \$0.4 million.

**Columbia Pike ITS** – The project will design and deploy a high speed transit bus communications system utilizing mobile and stationary sources along the Columbia Pike. The communications network will be connected to a transit operations control center, co-hosted with the County’s signal control center. The communications system will be used to provide real time traveler information to customers, to control signal systems, and transit operations. Implementation will begin in August 2010 with the testing period continuing until December 2011. Total Project Cost is estimated to be \$0.5 million.

**Commuter Information Systems** – Develop and maintain multiple channels of real time arrival information for the commuting community. Systems currently in place include desktop mapping with arrival predictions and mobile phone web based arrival system. Future projects include numbering all ART stops with a unique identifier allowing the commuter to obtain arrival information via smart phone at the stop and an Interactive Voice Response (IVR) phone system for direct dial in arrival times. Total Project Cost is estimated to be \$0.5 million.

**East Falls Church Area Study** – This project supports the County goals of promoting transit-oriented development as well as improving access to transit stations, particularly for pedestrians and bicyclists. The East Falls Church station area is an emerging hub of development in Arlington County and the City of Falls Church. The Virginia Department of Rail and Public Transportation is exploring expanding bus service along Interstate 66, potentially including a bus rapid transit system. East Falls Church would be an important station along such a system. The East Falls Church Station will be the westernmost transfer point between the Orange and Silver Metrorail Lines, beginning in 2013. Therefore, this station is expected to serve high volumes of transferring passengers and additional originating passengers traveling to Tysons Corner and the Dulles area, necessitating capacity improvements. It is anticipated the project would include improvements to arterial streets and intersections near the East Falls Church Metrorail Station to increase safety and convenience for pedestrians and bicyclists accessing the station. It is also anticipated that a new station entrance would be constructed at the west end of the platform, connecting to Washington Boulevard. As part of site redevelopment, reconfiguring and enhancing bus bays and the Kiss and Ride facilities would be included. Total Project Cost: the planning and engineering costs is estimated to be \$0.5 million.

#### **4.2.4 Maintenance Facility Needs**

**ART House (bus maintenance facility and CNG fueling facility)** – The ART House site is the administrative and operations offices, a CNG fueling facility, and a maintenance garage for the ART bus services and fleet. The development of the ART House facilities will be completed in phases. The initial phase will include site improvements on 2900 Jefferson Davis Highway, utilities, a CNG fueling station and a bus wash facility. Subsequent phases will include the maintenance facility and permanent offices for administration and operations. Total Phase 1 Project Cost is estimated to be \$6.0 million.

**North County ART bus storage and fueling facility** – As the ART fleet grows and service is added in the northern part of the County, a second storage facility will be needed. In addition, existing CNG fueling facilities are all located in the southern, low-lying portions of the County that have increased flooding risk. Total project cost for a new storage and fueling facility is \$15 million<sup>16</sup>.

#### **4.2.5 Metro Matters, WMATA Capital Program**

The Washington Metropolitan Area Transit Authority (WMATA/Metro) is a unique federal-state-local partnership formed to provide mass transit service to the Washington Metropolitan region. Since 2004, WMATA has utilized a multi-year funding strategy, the Metro Matters Agreement, to fund its capital improvements. This agreement expired June 30, 2010 and a new agreement is currently being negotiated. The 6-year recommendation is an estimate of Arlington County's contribution. County funding of Metro's capital program supports the rehabilitation of the 30 plus year old system infrastructure. Total Program Cost is estimated to be \$85.8 million over the six years of this TDP.

### **4.3 Funding Requirements**

Operating and capital cost estimates were estimated for the service and facility needs identified above. Table 4-2 below identifies ART's Service Needs Plan, identifying service needs by service change

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<sup>16</sup> 4 acre site (2x ART House) @ \$1M/acre purchase; all paved or landscaped at \$20/SF; plus 20,000 SF wash and fueling @\$200/SF; plus 50% engineering, finance, and contingency on construction cost.

category, additional annual bus hours to supply the service, and estimated annual operating and maintenance (O&M) costs associated with each service initiative.

Table 4-3 identifies ART's capital improvement program needs categorized under vehicle needs, passenger amenities and access improvements, special transit projects and maintenance facility needs.

**Table 4-2  
Arlington Transit Needs Plan  
Operating Funding Requirements**

<b>Service Need</b>	<b>Additional Annual Bus-Hours</b>	<b>Annual Cost Impact (FY 11 \$)</b>
<b>Systemwide Connectivity Transit Needs</b>		
1. New connection between Columbia Pike and Rosslyn <i>(completed 7/6/2010)</i>	6,500 2 peak buses	\$489,600
2. Improved connectivity between Crystal City and Arlington Hall	3,000 2 peak buses	\$226,000
3. Improved connectivity between Ballston, Shirlington & Pentagon City/Crystal City	TBD	TBD
4. Enhanced Ballston-Rosslyn Corridor Service	TBD	TBD
<b>Re-Structured Fixed Route Service</b>		
1. New Route 84 / Modified Route 74 <i>(completed 6/21/2010)</i>	750	\$56,500
2. Extend Route 75 to Shirlington Transit Station <i>(completed 9/27/2010)</i>	1,875 1 peak bus	\$141,200
3. Extend Route 51 north and south	6,550 1 peak bus	\$493,400
4. Extend Route 77 to Rosslyn	4,838 1 peak bus	\$364,400
5. Restructure Route 62	TBD	TBD
6. Aurora Heights Circulator	TBD	TBD
7. Metrobus Route 10B - Modify alignment in conjunction with 77 freq. impr.	TBD	TBD
8. Metrobus Route 23AT - 23A - Ballston to Crystal City, 23T Tysons to Shirlington	TBD, 3 buses	TBD
9. Metrobus Route 22A - Shirlington to Ballston supplemental service (BRAC Re-alignment)	11,820 3 buses	\$1,193,800
10. Metrobus Route 9S - Extend to 12th Street, provide evening serv.	10,430 2 buses	\$1,090,300
11. Metrobus Route 3Y - Extend Route to East Falls Church Metro Station	510 1 bus	\$53,300
12. Metrobus – Route 1 Corridor Busway service	TBD	TBD

*Not Shown in Table – MetroRail Blue Line Service Modifications*

**Table 4-2 (cont.)  
Arlington Transit Needs Plan  
Operating Funding Requirements**

<b>Transit Service Levels</b>		
<b>Weekday Service Frequency</b>		
1. Rte 41 – 15 min peak/midday	2,875 – 1 peak bus	\$216,600
2. Rte 42 – 30 min midday	1,500	\$113,000
3. Rte 52 – 30 min midday	1,500	\$113,000
4. Rte 53 – 30 min midday	1,500	\$113,000
5. Rte 77 – 20 min peak	1,625 – 1 peak bus	\$122,400
6. Metrobus Route 23AT – 20 min peak, 30 min off-peak	TBD	TBD
7. Metrobus Route 16G – Reduced service frequencies in conjunction with Columbia Pike Streetcar Implementation	TBD	TBD
8. Metrobus Route 22A (in response to BRAC 129 Realignment Study)	TBD	TBD
<b>Weekend Service Frequency</b>		
1. Rte 41 – 15 min (Saturday)	559	\$42,100
2. Rte 42 – 30 min (Saturday)	627	\$47,200
3. Metrobus Route 22A (in response to BRAC 129 Realignment Study)	TBD	TBD
4. Metrobus Rte 23	TBD	TBD
<b>Service Hours</b>		
<b>Weekdays</b>		
1. Rte 41 – to 12:30 a.m.	1,500	\$113,000
2. Rte 42 – to 12:30 a.m.	2,500	\$188,300
3. Rte 75 – to 10:30 p.m.	3,375	\$254,200
4. Rte 77 – to 12:30 a.m.	2,500	\$188,300
5. Rte 87 – to 12:30 a.m.	1,500	\$113,000
<b>Saturdays</b>		
1. Rte 41 - to 12:30 a.m.	342	\$25,800
2. Rte 42 – to 12:30 a.m.	570	\$42,900
3. Rte 77 – to 12:30 a.m.	941	\$70,900
4. Rte 87 – to 12:30 a.m.	399	\$30,100
<b>Sundays</b>		
1. Rte 41 - start 6:30 a.m., end 10:30 p.m.	203	\$15,300
2. Rte 42 – to 10:30 p.m.	203	\$15,300
3. Rte 87 – to 10:30 p.m.	399	\$30,100

**Table 4-2 (cont.)  
Arlington Transit Needs Plan  
Operating Funding Requirements**

<b>Service Need</b>	<b>Additional Annual Bus-Hours</b>	<b>Annual Cost Impact (FY 11 \$)</b>
<b>Transit Service Levels (cont.)</b>		
New Service Periods		
<u>Weekdays</u>		
1. Rte 62 – midday service	3,000	\$226,000
2. Rte 75 – midday and evening service	6,875	\$517,900
New Days of Service - ART		
<u>Saturdays</u>		
1. Rte 52 – new Saturday service	715	\$53,900
2. Rte 53 – new Saturday service	710	\$53,500
3. Rte 75 – new Saturday service	2,736	\$206,100
4. Rte 77 – new Saturday service	1,425	\$107,300
<u>Sundays</u>		
1. Rte 42 – new Sunday service	1,189	\$89,600
2. Rte 75 – new Sunday service	2,175	\$163,800
3. Rte 77 – new Sunday service	2,784	\$209,700
4. Rte 87 – new Sunday service	1,856	\$139,800
New Days of Service – Metrobus		
1. Saturday – Rte 9S	TBD	TBD
2. Sunday – Rtes 9S and 22A		
Service Productivity Related Changes		
Saturday – Eliminate Rte 61	257	(\$19,300)
<b>On-Time Performance</b>		
1. Run Time Adjustments – combined Rte’s 51, 52 and 53	3,500 1 peak bus	\$ 263,700
2. Run Time Adjustments – Rte 41	Included in Rte 41 – 15 min weekday peak/midday and Saturday 15 min frequency noted above	
3. Run Time Adjustments – Metrobus Rte 23A	TBD	TBD

**Table 4-2 (cont.)  
Arlington Transit Needs Plan  
Operating Funding Requirements**

Service Need	Additional Annual Bus-Hours	Annual Cost Impact (FY 11 \$)
<b>Project Specific</b>		
New Transit Service Connection to Long Bridge Park	6,338 2 peak buses	\$477,400
Columbia Pike Streetcar	TBD	TBD
Crystal City Potomac Yard Transitway	TBD	TBD
Blue Line Supplemental Bus Service	TBD	TBD
East Falls Church Metro Study – Circulator Routes	11,680 2 peak buses	\$879,900
<b>Primary Transit Network (PTN) Improvements</b>		
1. Wilson & Clarendon Boulevards – Ballston / Rosslyn / D.C. 2. Parallel to Rte. 1 – Crystal City / Pentagon City / Pentagon 3. Glebe Road – Potomac Avenue / Fairfax Drive 4. Lee Highway – East Falls Church / Rosslyn / D.C.	TBD	TBD
<b>STAR – Specialized Transit for Arlington Residents</b>		
New Dial-a-Ride / Flex Route Service in Northern Arlington County	2,400	\$180,800

**Table 4-3  
Arlington Transit Capital Improvement Needs Plan**

<b>Capital Improvement Need</b>	<b>Capital Cost Impacts (Year Of Expenditure \$)</b>
<b>Transit Vehicles</b>	
1. 30 Thirty & 35 foot buses	\$14.6 million
<b>Passenger Amenities &amp; Access Improvements</b>	
1. Rosslyn Station Access Improvements	\$44 million
2. Ballston-MU Station West Entrance	\$62 million
3. Fairfax Drive Sidewalk & Bus Stop Improvements	\$6.4 million
4. Bus Stop & Shelter Program	\$1.8 million
5. Transportation Infrastructure Maintenance Capital	\$0.42 million
6. Columbia Pike Superstops	\$12.1 million
7. Pentagon City Pedestrian Tunnel Restoration	\$0.80 million
8. Pentagon City Station Elevator	\$8 million
9. Crystal City Station Access Improvements	\$36 million
10. Court House Station Access Improvements	\$36 million
11. Crystal City Multimodal Transportation Center	\$6 million
12. WALKArlington Program	\$9.2 million
<b>Special Transit Projects</b>	
1. Columbia Pike Streetcar	\$138 million
2. Crystal City Potomac Yard Transitway	\$140 million
3. ITS Program Planning & Implementation	\$0.40 million
4. Columbia Pike ITS	\$0.5 million
5. Commuter Information Systems	\$0.5 million
6. East Falls Church Area Study	\$0.5 million
<b>Maintenance Facility Needs</b>	
1. ART House	\$6.0 million
2. North County ART Bus Storage & Fueling Facility	\$15 million
<b>Metro Matters, WMATA Capital Program</b>	<b>\$85.8 million</b>

## 5.0 SIX-YEAR TRANSIT SERVICE AND FACILITY PLAN

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This chapter identifies the cost-feasible transit service and capital needs that are recommended for inclusion in the TDP time period (FY 2011 through FY 2016). An unconstrained list of potential service and capital needs were identified in the prior chapter of this TDP. Recommended improvements presented in this chapter are financially constrained, based on anticipated funding availability during the TDP time period. Chapter 6 details the TDP Capital Investment Program and Chapter 7 establishes the Financial Plan for Arlington County's Six-Year TDP.

### 5.1 Transit Service Recommendations

The transit service improvements identified in this "TDP Six-Year Transit Service and Facility Plan" are designed to support the goals, policies, implementation actions and performance measures put forth in the adopted Arlington County's Master Transportation Plan (MTP)<sup>17</sup> (as summarized in Chapter 2 of this TDP).

Chapter 4 of this TDP identified the Arlington County transit service needs categorized by the following seven types of improvements:

- **Systemwide Connectivity** – connections between major activity centers / employment sites and higher density residential areas
- **Re-structured Fixed Route Service** – route alignment modifications, some of which promote connectivity, others enable improved on-time performance, and of course increased patronage.
- **On-Time Performance** – adjustments made to route running times to ensure high levels of on-time performance
- **Transit Service Levels** – service frequency, new service hours or service periods (e.g., midday service), days of service, service productivity related changes.
- **Project Specific** – transit service improvements and modifications required to accommodate a new transit investment or major development project.
- **Primary Transit Network Improvements** – Primary Transit Network (PTN) of high-frequency and quality transit services along major corridors to encourage a low-auto-usage lifestyle and higher all-day patronage. The PTN would extend beyond the established Metrorail corridors and include new surface transit services, such as streetcar and bus rapid transit. Transit services should operate at 15-minute intervals or better every day for about 18 hours.

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<sup>17</sup> Master Transportation Plan, Goals and Policies Summary, Arlington County, Virginia, Adopted November 13, 2007.

- **Paratransit Services** – Grouped standing order paratransit services as well as Flex Route Services may offer those with disabilities a mobility option that better meets their needs in a manner that is less costly to the County than the current services, MetroAccess and Specialized Transit for Arlington Residents (STAR).

### 5.1.1 Arlington County Transit Service Plan

This “TDP Six-Year Transit Service and Facility Plan” utilizes the transit service needs identified in Chapter 4 as a “Needs Plan” and identifies those priority transit service improvements which are financially feasible within the six year timeframe of the TDP. Transit service initiatives have been selected from all seven types of transit service improvements. Following is a description of each transit service improvement by Fiscal Year (2011 – 2016). Table 5-1 presents a listing of bus-hours, bus requirements and annual O&M costs associated with each identified bus service improvement. Tables in Appendix E present service plan tables for each year of the six-year TDP time period.

#### **FY 2011 Transit Service Improvement Plan**

##### *ART Route 41 – Columbia Pike/Ballston/Court House Metro*

- Weekdays – adjustments to running times will be made on this route with the addition of a fifth bus to create consistent 15 minute service frequencies

##### *ART Route 42 – Ballston/Pentagon Metro*

- Weekdays – improve midday service from 60 to 30 minute frequency

##### *ART Route 45 – Columbia Pike/Rosslyn (New Route)*

- This new route, implemented July 6, 2010, establishes new service between the Rosslyn Metrorail Station and Columbia Pike, operating on weekdays between approximately 6:30 a.m. and 7:30 p.m. at 30 minute service frequency.

##### *ART Route 61 – Rosslyn/Court House Metro Shuttle*

- Due to underperformance, this route is eliminated on Saturdays (effective March 27, 2010)

##### *New ART Route 84 – Douglas Park / Modified Route 74 – Douglas Park/Arlington Village/Arlington View/Pentagon City Metro*

- This route alignment change (effective June, 2010) establishes a new route 84 serving the Douglas Park loop formerly served by the existing Route 74. Route 84 also serves the Nauck neighborhood as well as large apartment buildings along South Glebe Road at 24<sup>th</sup> Road South. The existing Route 74 continues to serve the Columbia Heights, Arlington Village and Arlington View communities. Each route connects to Pentagon City Metro every half-hour during peak periods only.

##### *ART Route 75 – Wakefield H.S./Carlin Springs Road/Ballston Metro*

- This route was modified on September 27, 2010. The route was extended south from its existing end of line at South Dinwiddie Street and Chesterfield Road to the Shirlington Transit Station. It was also extended north to the Virginia Square Metrorail Station.

##### *ART Route 77 – Shirlington/Lyon Park/Court House Metro*

- Weekday - Extend service in evening by 3 hours until approximately 11:00 p.m.

**Table 5-1  
ART TDP 6-Year Service Improvements and Costs**

Proposed Year	Route	Day of Week	Improvement Description	Wkdy Pk Bus	Wkdy Rev.-Hrs.	Sat. Pk Bus	Sat. Rev.-Hrs.	Sunday Pk Bus	Sunday Rev.-Hrs.	Annual Rev.-Hrs.	FY 2011 \$ O&M Cost	FY 2011 O&M Costs	FY 2012 O&M Costs	FY 2013 O&M Costs	FY 2014 O&M Costs	FY 2015 O&M Costs	FY 2016 O&M Costs	
FY 2011	41	Wkdy	Consistent 15-min. Wkdy. frequency (requires 5th bus)	1	11.5					2,875	\$216,600	\$216,600	\$224,100	\$231,900	\$240,000	\$248,500	\$257,300	
	42	Wkdy	Improve midday frequency to 30-minutes	0	6.0					1,500	\$113,000	\$113,000	\$116,900	\$121,000	\$125,200	\$129,600	\$134,200	
	45	Wkdy	New Columbia Pike-Rosslyn route	2	26.0					6,500	\$489,600	\$489,600	\$506,600	\$524,300	\$542,700	\$561,800	\$581,600	
	61	Sat	Eliminate 61 Saturday service							-257	-\$19,300	-\$19,300	-\$20,000	-\$20,700	-\$21,400	-\$22,200	-\$23,000	
	74/84	Wkdy	New Route 84/Modified 74 alignment (pk only service)	0	3.0					750	\$56,500	\$56,500	\$58,500	\$60,500	\$62,600	\$64,800	\$67,100	
	75	Wkdy	Extend service to Shirlington (pk only service)	1	7.5					1,875	\$141,200	\$141,200	\$146,100	\$151,200	\$156,500	\$162,100	\$167,800	
	77	Wkdy	Extend Evening service by 3 hours	0	6.0					1,500	\$113,000	\$113,000	\$116,900	\$121,000	\$125,200	\$129,600	\$134,200	
<b>Forsythe Contract - Additional \$7,830 per month - Street Supervisor, over 100K Revenue Hours (starts FY 2012)</b>												\$93,960	\$93,960	\$93,960	\$93,960	\$93,960	\$93,960	
<b>FY 2011 Total</b>				<b>4</b>	<b>60.0</b>	<b>-1</b>	<b>-4.5</b>	<b>0</b>	<b>0.0</b>	<b>14,744</b>	<b>\$1,110,600</b>	<b>\$1,110,600</b>	<b>\$1,243,060</b>	<b>\$1,283,160</b>	<b>\$1,324,760</b>	<b>\$1,368,160</b>	<b>\$1,413,160</b>	
FY 2012	41	Sat	Consistent 15-min. Sat. frequency (requires 5th bus)			1	9.8			559	\$42,100		\$43,500	\$45,100	\$46,600	\$48,300	\$50,000	
	42	Wkdy	Add 4th bus to peak period service	1	6.0					1,500	\$113,000		\$116,900	\$121,000	\$125,200	\$129,600	\$134,200	
	62	Wkdy	Restructure route alignment (assumed cost-neutral)	0	0.0					0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
	75	Wkdy	Add midday & evening service	0	27.5					6,875	\$517,900		\$535,900	\$554,500	\$574,000	\$594,200	\$615,200	
<b>FY 2012 Total</b>				<b>1</b>	<b>33.5</b>	<b>1</b>	<b>9.8</b>	<b>0</b>	<b>0.0</b>	<b>8,934</b>	<b>\$673,000</b>		<b>\$696,300</b>	<b>\$720,600</b>	<b>\$745,800</b>	<b>\$772,100</b>	<b>\$799,400</b>	
FY 2013	42	Sat	Improve Sat. frequency to 30-minutes			1	11.0			627	\$47,200			\$50,600	\$52,300	\$54,200	\$56,100	
	77	Sat	Start Saturday service on this route			2	25.0			1,425	\$107,300			\$114,900	\$119,000	\$123,200	\$127,500	
	77	Wkdy	Improve peak frequencies to 20-minutes	1	6.5					1,625	\$122,400			\$131,100	\$135,700	\$140,400	\$145,400	
	New	All	Pentagon/Long Bridge Park/Crystal City Metro	2	18.0	2	18.0	2	14.0	6,338	\$477,400			\$511,200	\$529,100	\$547,800	\$567,100	
	New	Wkdy	Crystal City/Arlington Hall route (pk only service)	2	12.0					3,000	\$226,000			\$242,000	\$250,500	\$259,300	\$268,500	
	New	Wkdy	Pentagon City/Crystal City/Rosslyn/Courthouse	2	28.0					7,000	\$527,300			\$564,600	\$584,400	\$605,000	\$626,400	
	<b>Forsythe Contract, Bus Insurance fixed costs increase by \$458 per extra vehicle per month over 40 Fleet buses</b>													\$32,976				
<b>FY 2013 Total</b>				<b>7</b>	<b>64.5</b>	<b>5</b>	<b>54.0</b>	<b>2</b>	<b>14.0</b>	<b>20,015</b>	<b>\$1,507,600</b>			<b>\$1,647,376</b>	<b>\$1,671,000</b>	<b>\$1,729,900</b>	<b>\$1,791,000</b>	
FY 2014	41	Wkdy	Improve wkdy evening frequencies to 15-minutes	0	8.0					2,000	\$150,700				\$167,000	\$172,900	\$179,000	
	42	Sun	Start Sunday service on this route					2	20.5	1,189	\$89,600				\$99,300	\$102,800	\$106,400	
<b>Forsythe Contract, Bus Insurance fixed costs increase by \$458 per extra vehicle per month over 40 Fleet buses</b>														\$32,976				
<b>FY 2014 Total</b>				<b>0</b>	<b>8.0</b>	<b>0</b>	<b>0.0</b>	<b>2</b>	<b>20.5</b>	<b>3,189</b>	<b>\$240,300</b>				<b>\$299,276</b>	<b>\$275,700</b>	<b>\$285,400</b>	
FY 2015	51	All	Extend north to Langston Com. Ctr. And south to Culpepper Com	1	18.5	1	18.0	1	15.5	6,550	\$493,400					\$566,100	\$586,100	
	51/52/53	Wkdy	Add bus for running time adjustments / on-time performance	1	14.0					3,500	\$263,700					\$302,500	\$313,200	
	52/53	Sat	Start Saturday service on these routes			4	25.0			1,425	\$107,300					\$123,200	\$127,500	
<b>Forsythe Contract, Bus Insurance fixed costs increase by \$458 per extra vehicle per month over 40 Fleet buses</b>															\$49,464			
<b>FY 2015 Total</b>				<b>2</b>	<b>32.5</b>	<b>5</b>	<b>43.0</b>	<b>1</b>	<b>15.5</b>	<b>7,975</b>	<b>\$600,700</b>					<b>\$1,041,264</b>	<b>\$1,026,800</b>	
FY 2016	77	Wkdy	Extend route to Rosslyn	1	16.5					4,125	\$310,700						\$369,100	
	77	Sat	Extend route to Rosslyn			1	12.5			713	\$53,700						\$63,800	
	87	Wkdy	Extend evening service hours	0	6.0					1,500	\$113,000						\$134,200	
	87	Sat	Extend evening service hours			0	7.0			399	\$30,100						\$35,700	
<b>Forsythe Contract, Bus Insurance fixed costs increase by \$458 per extra vehicle per month over 40 Fleet buses</b>																	\$54,960	
<b>FY 2016 Total</b>				<b>1</b>	<b>22.5</b>	<b>1</b>	<b>19.5</b>	<b>0</b>	<b>0.0</b>	<b>6,737</b>	<b>\$507,500</b>							<b>\$657,760</b>
<b>TOTAL BUSES, HOURS AND COSTS</b>				<b>15</b>	<b>221.0</b>	<b>11</b>	<b>121.8</b>	<b>5</b>	<b>50.0</b>	<b>63,343</b>	<b>\$4,771,550</b>	<b>\$1,110,600</b>	<b>\$1,939,360</b>	<b>\$3,651,136</b>	<b>\$4,040,836</b>	<b>\$5,187,124</b>	<b>\$5,973,520</b>	

**Annualization Factors**

Weekdays	250
Saturdays	57
Sundays	58

**ART Annual Hourly O&M Cost Rates**

FY 2011	\$65.33	\$75.33
FY 2012	\$67.94	\$77.94
FY 2013	\$70.66	\$80.66
FY 2014	\$73.49	\$83.49
FY 2015	\$76.43	\$86.43
FY 2016	\$79.48	\$89.48

### **FY 2012 Transit Service Improvement Plan**

#### *ART Route 41 – Columbia Pike/Ballston/Court House Metro*

- Saturdays – adjustments to running times will be made on this route with the addition of a fifth bus to create consistent 15 minute service frequencies during midday and afternoon periods

#### *ART Route 42 – Ballston/Pentagon Metro*

- Weekdays – Add a 4<sup>th</sup> bus in the peak periods to operate at consistent 20-minute frequencies

#### *ART Route 62 – Court House Metro/Lorcom Lane/Ballston Metro*

- Weekdays – This route, in conjunction with Route 61, is proposed for alignment restructuring to enhance service performance

#### *ART Route 75 – Shirlington/Wakefield H.S./Carlin Springs Road/Ballston Metro*

- Weekdays – add midday service and extend evening service to approximately 10:30 p.m. at 30 minute service frequency

#### *New ART Route – Aurora Heights Circulator*

- Study feasibility of implementing new route in the Aurora Heights neighborhood.

### **FY 2013 Transit Service Improvement Plan**

#### *ART Route 42 – Ballston/Pentagon Metro*

- Saturdays - improve all day service from 60 to 30 minute frequency

#### *ART Route 75 - Shirlington/Wakefield H.S./Carlin Springs Road/Ballston Metro*

- Weekends – new Saturday from 6:30 a.m. to 10:30 p.m. at 30 minute frequency, and new Sunday service from 6:30 a.m. to 7:00 p.m. at 30 minute frequency

#### *ART Route 77 – Shirlington/Lyon Park/Court House Metro*

- Weekday – improve peak period service from 30 to 20 minute frequency
- Saturday – new service from 6:30 a.m. to 7:00 p.m. at 30 minute frequency

#### *New ART Route – Pentagon/Long Bridge Park/Crystal City Metro*

- Weekdays and Weekends – new transit service connecting the Pentagon Metro Station, Long Bridge Park and Crystal City Metro Station, operating at 30 minute service frequency in the afternoon and evening hours only

#### *New ART Route – Crystal City/Arlington Hall*

- Weekdays only - new transit service connecting the Arlington Hall and Crystal City Metro Station, operating at 30 minute service frequency in the peak periods only

#### *New ART Route – Pentagon City/Crystal City/Rosslyn/Court House*

- Weekdays only - new transit service connecting the Pentagon City Metro, Crystal City Metro, Rosslyn Metro and Court House Metro Stations, operating at 30 minute service frequency all day (14 hours)

### **FY 2014 Transit Service Improvement Plan**

#### *ART Route 41 – Columbia Pike/Ballston/Court House Metro*

- Weekdays – improve evening service from 30 to 15 minute frequency

#### *ART Route 42 – Ballston/Pentagon Metro*

- Sundays - new service from 6:30 a.m. to 7:00 p.m. at 30 minute frequency midday and 60 minute early morning and evening

### **FY 2015 Transit Service Improvement Plan**

#### *ART Route 51 – Ballston Metro/Virginia Hospital Center*

- Weekdays, Saturdays and Sundays – extend route alignment north to the Langston Community Center and south to Culpepper Community Center

#### *ART Route 51 – Ballston Metro/Virginia Hospital Center*

#### *ART Route 52 – Ballston Metro/East Falls Church Metro*

#### *ART Route 53 – Ballston Metro/Glebe/East Falls Church Metro*

- Weekdays – add bus to be shared over three routes for running time adjustments / on-time performance

#### *ART Route 52 – Ballston Metro/East Falls Church Metro*

- Saturday – new service from 6:30 a.m. to 7:00 p.m. at 60 minute frequency

#### *ART Route 53 – Ballston Metro/Glebe/East Falls Church Metro*

- Saturday – new service from 6:30 a.m. to 7:00 p.m. at 60 minute frequency

### **FY 2016 Transit Service Improvement Plan**

#### *ART Route 77 – Shirlington/Lyon Park/Court House Metro*

- Weekday and Saturday – extend route alignment to the Rosslyn Metro station

#### *ART Route 87 – Pentagon Metro to Shirlington Station*

- Weekday – extend evening service hours until 12:30 a.m.
- Saturday – extend evening service hours until 12:30 a.m.

## **5.2 Transit Capital and Facility Recommendations**

TDP capital improvement recommendations for FY 2011 through FY 2016 are consistent with capital improvement categories in the Arlington County Capital Improvement Program (CIP). Capital improvement recommendations are categorized into four types: vehicles, maintenance facility improvements, passenger facility improvements and Metro Matters (WMATA Federal-State-Local Partnership Capital Investment Program). Vehicle costs have been updated to reflect vehicle needs as identified in this TDP. Chapter 4 of this TDP identified a list of unconstrained transit capital investment projects for Arlington County. Recommendations for the Six-Year TDP are identified by fiscal year below under each type of capital improvement.

### **5.2.1 Vehicle Recommendations**

Arlington Transit owns and operates a fleet of 35 transit buses for fixed-route revenue service. Model years for these vehicles range from 2002 to 2008. Table 5-1 identifies Arlington Transit's fleet composition and proposed fleet replacement and expansion plan. ART intends to retire 15 vehicles in Fiscal Years 2011 and 2012. These will be replaced with twelve (12) 30 foot heavy-duty low-floor buses powered by compressed natural gas (CNG) in the summer of 2010. An additional five buses will be needed in 2012 (of which three are replacements), nine new buses in FY 2013, 3 new buses in FY 2015 and one new bus in FY 2016. Thus, a total of 30 bus purchases are reflected in this six-year TDP. These buses will maintain a 20% spare ratio and expand the fleet to accommodate future service changes / expansion plans (described earlier in this section).

**Table 5-1  
Arlington Transit Fleet Replacement and Expansion Schedule**

		Transit Development Plan Period						
		Vehicle Fleet						
Year	Make	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
2002	Ford E450	6						
2003	Ford E450	2						
2004	SPC Ambassador	1						
2004	GLV MB55	1						
2006	Ford E450	5	3					
2007	Nabi 35LFW	8	8	8	8	8	8	8
2008	Nabi 35LFW	12	12	12	12	12	12	12
2011	30 Foot CNG		12	12	12	12	12	12
2012	30 Foot CNG			2	2	2	2	2
2012	35 Foot CNG			3	3	3	3	3
2013	30 Foot CNG				4	4	4	4
2013	35 Foot CNG				5	5	5	5
2015	35 Foot CNG						3	3
2016	35 Foot CNG							1
<b>Fleet Size</b>		<b>35</b>	<b>35</b>	<b>37</b>	<b>46</b>	<b>46</b>	<b>49</b>	<b>50</b>
Peak Buses		26	30	31	38	38	40	41
Spare Buses		9	5	6	8	8	9	9
Spare %		35%	17%	19%	21%	21%	23%	22%

### 5.2.2 Maintenance Facility Recommendations

**ART House (bus maintenance facility and CNG fueling facility)** – The ART House site is the administrative and operations offices, a CNG fueling facility, and a maintenance garage for the ART bus services and fleet. The development of the ART House facilities will be completed in phases. The initial phase will include site improvements on 2900 Jefferson Davis Highway, utilities, a CNG fueling station and a bus wash facility. Subsequent phases will include the maintenance facility and permanent offices for administration and operations.

### 5.2.3 Passenger Facility Capital Improvement Recommendations

Consistent with the Arlington County Transportation FY 2011 – FY 2016 Capital Investment Program (CIP), TDP passenger capital improvements include transit related investments from the CIP. Following is a list of transit capital investments assumed in the TDP. Chapter 6 details the TDP Capital Program and Chapter 7 identifies annual capital invest requirements and funding source assumptions for these investments.

- WALKArlington Program
- Rosslyn Metro Station Access Improvements
- Columbia Pike Streetcar
- Fairfax Drive Sidewalk, Pedestrian and Bus Stop Improvements (Ballston Station Area)
- Bus Stop and Shelter Program
- Transit ITS Program Planning and Implementation

- Pentagon City Pedestrian Tunnel Restoration
- East Falls Church Metro Study
- Route 1 Streetcar

Transit capital investments funded under previous CIPs and still on-going are:

- Crystal City Potomac Yard Transitway
- Pentagon City Station Elevator
- Columbia Pike Superstops

#### **5.2.4 Metro Matters, WMATA Capital Program**

The Washington Metropolitan Area Transit Authority (WMATA/Metro) is a unique federal-state-local partnership formed to provide mass transit service to the Washington Metropolitan region. Since 2004, WMATA has utilized a multi-year funding strategy, the Metro Matters Agreement, to fund its capital improvements. This agreement expired June 30, 2010 and a new agreement is currently being negotiated. The 6-year recommendation is an estimate of Arlington County's contribution. County funding of Metro's capital program supports the rehabilitation of the 30 plus year old system infrastructure. Total Program Cost is estimated to be \$85.8 million over the six years of this TDP.

## 6.0 CAPITAL IMPROVEMENTS PROGRAM

This chapter of the TDP describes capital improvement program adopted by Arlington County for FY2011 to FY2016. These capital improvements are required to carry out the operations and services set forth in the TDP service and facility recommendations that were presented in the prior chapter.

### 6.1 Vehicle Replacement and Expansion Program

Arlington Transit currently owns and operates a fleet of 35 transit buses for fixed-route revenue service. The model and year of replacement for each vehicle is listed in Table 4-1. The capital improvements program replaces the 12 oldest vehicles of the current fleet in FY 2011 and the next 3 vehicles in FY 2012. These vehicles will be replaced with twelve (12) 30 foot heavy-duty low-floor buses powered by compressed natural gas (CNG) costing \$465,000<sup>18</sup> each and three (3) 35 foot heavy-duty low-floor CNG-electric hybrid buses costing \$615,000<sup>19</sup> each. By FY 2012, the fleet replacement program initiated in FY 2007 will have been completed. The seating capacity of the system will also have increased due to smaller vehicles being replaced by larger vehicles.

The ART fleet is planned to be expanded from 35 vehicles to 48 vehicles by FY 2016. Table 5-1 lists the current and proposed fleet sizes by year. The fleet is proposed to be enhanced by an additional three (3) 30 foot heavy-duty low-floor buses powered by compressed natural gas (CNG) costing \$465,000 each in Fiscal Year 2012. Six more buses will be required in FY 2013, and four buses more in FY 2015.

The funding proposed for fleet replacement and enhancement is as shown in Table 6-1 below. This is an update to what is reflected in Arlington's current CIP, for the following table reflects bus replacement/expansion needs identified earlier in Table 5-1. Most of the ART fleet program will be funded by Transportation Investment Funds and state capital reimbursement grants.

**Table 6-1  
ART Fleet Replacement and Expansion Funding in FY 2011 Capital Improvements Program**

Program	FY 2011 (000s)	FY 2012 (000s)	FY 2013 (000s)	FY 2014 (000s)	FY 2015 (000s)	FY 2016 (000s)	Total for FY 2011- 16 (000s)
ART Fleet Replacement	5,995	1,375	0	0	0	0	7,370
ART Fleet Expansion		917	4,249	0	1,503	516	7,185
<b>Total Costs</b>	<b>5,995</b>	<b>2,292</b>	<b>4,249</b>	<b>0</b>	<b>1,503</b>	<b>516</b>	<b>14,555</b>

<sup>18</sup> Estimated costs in FY2011 dollars

<sup>19</sup> Estimated costs in FY2011 dollars

## 6.2 Capital Improvements Program for Facilities

TDP capital improvement recommendations for FY 2011 through FY 2016 are consistent with the Arlington County's CIP adopted for FY 2011. As in Chapter 5, capital improvement projects are categorized into four types: vehicles, maintenance facility improvements, passenger facility improvements and Metro Matters (WMATA Federal-State-Local Partnership Capital Investment Program).

### 6.2.1 Maintenance Facility Improvements – ART House

The ART House is the administrative and operations offices, a CNG fueling facility, and a maintenance garage for the ART bus services and fleet. Along with the fleet replacement and enhancement, the ART House will provide the essential foundation Arlington Transit needs to maintain the quality and growth of the services in future years. Conceptual plans for the ART House will move into design and construction of a Phase 1 implementation in FY 2011 and construction is planned to be completed by FY 2012. Phase 1 will include site improvements on 2900 Jefferson Davis Highway, utilities, a CNG fueling station and a bus wash facility. The cost for Phase 1 is estimated at \$6.0 million. Subsequent phases will include the maintenance facility and permanent offices for administration and operations.

The funding proposed in the FY 2011 CIP for the ART facility improvements is as shown in Table 6-2 below. The capital costs for the six year period in the FY 2011 CIP are estimated to be \$13.25 million. This is an ongoing program and future phases will require funding of an additional \$6.75 million. Most of the ART House program will be funded by Transportation Investment Funds and state capital reimbursement grants.

**Table 6-2  
ART House Funding in FY 2011 Capital Improvements Program**

Program	FY 2011 (000s)	FY 2012 (000s)	FY 2013 (000s)	FY 2014 (000s)	FY 2015 (000s)	FY 2016 (000s)	Total for FY 2011-16 (000s)	Future Funds Required (000s)	Total Project Cost (000s)
ART House	3,750	7,000	2,500	0	0	0	13,250	6,750	20,000

### 6.2.2 Passenger Facility Capital Improvement

The following passenger capital improvement projects are funded in the FY 2011 CIP adopted by Arlington County.

- WALKArlington
- Rosslyn Station Access Improvements
- Columbia Pike Streetcar
- Fairfax Drive Sidewalk, Pedestrian and Bus Stop Improvements (Ballston Station Area)
- Bus Stop and Shelter Program
- Transit ITS Program Planning and Implementation
- Pentagon City Pedestrian Tunnel Restoration
- East Falls Church Metro Study

Other capital improvement projects identified in prior CIP's include: Columbia Pike a Pentagon City Metrorail Station elevator, a Ballston West Entrance, a Crystal City East entrance, Crystal City Streetcar planning, infrastructure and environmental clearance and a Crystal City-Potomac Yard Transitway. The funding proposed in the FY 2011 CIP for passenger capital improvements are listed in Table 6-3. Project details are described below.

**Table 6-3  
Passenger Facilities in FY 2011 Capital Improvements Program**

<b>Program</b>	<b>Previous Funding (000s)</b>	<b>FY 2011 (000s)</b>	<b>FY 2012 (000s)</b>	<b>FY 2013 (000s)</b>	<b>FY 2014 (000s)</b>	<b>FY 2015 (000s)</b>	<b>FY 2016 (000s)</b>	<b>Total for FY 2011-16 (000s)</b>	<b>Future Funds Required (000s)</b>	<b>Total Project Cost (000s)</b>
Bus Replacements		5,995	2,292	4,249		1,503	516			
WALKArlington	1,225	2,050	1,550	2,100	1,000	1,500	1,000	9,200		10,425
Rosslyn Metro Station Access	36,942	3,500	3,975	0	0	0	0	7,475		44,417
Columbia Pike Streetcar	3,764	1,500	0	22,500	43,750	46,250	20,236	134,236		138,000
Fairfax Dr Pedestrian & Bus Stop Improvements	400	500	2,050	0	0	0	0	2,550		2,950
Bus Stop and Shelter Program	1,034	75	125	75	75	75	75	500		1,534
Columbia Pike SuperStops	4,150	0	0	0	0	0	0	0		4,150
Transit ITS and Plan	138	31	31	31	31	31	31	186		324
Pentagon City Pedestrian Tunnel	660	140	0	0	0	0	0	140		800
Pentagon City Elevator	5,085	0	0	0	0	0	0	0		5,085
EFC Metro Study	0	0	0	0	0	0	313	313	187	500
Ballston West Entrance	0	150	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Crystal City East Entrance	0	200	200	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Crystal City Streetcar Planning, Infrastructure & Environmental Clearance	0	0	700	700	18,000	32,500	17,580	69,480	70,520	140,000
CCPY transitway	17,319	0	0	0	0	0	0	0		17,319

**WALKArlington Program** – The WALKArlington program makes physical enhancements to Arlington’s sidewalk and street infrastructure. Arlington’s pedestrian network can be substantially improved through capital projects to complete missing sections, address safety concerns, and correct accessibility deficiencies. A deficient pedestrian environment also discourages some persons from using transit services, as traditionally most transit trips are accessed by foot. The program funds four types of projects: Arlington street sidewalk upgrades, transit-access improvements, safe routes to schools enhancements, and stand-alone safety and accessibility upgrades. The six-year cost for this program is expected to be \$9.2 million. The program had previous funding of \$1.225 million. The program is

anticipated to be funded with a combination of Transportation Investment Fund, state and federal sources. In addition, the County Board acted on April 24, 2010 to dedicate \$1.0 million to transportation, specifically to bike and pedestrian initiatives.

**Rosslyn Station Access Improvements** – This project includes the design and construction of three new high-speed, high-capacity elevators, a mezzanine with fare gates and kiosk, emergency stairs, and related infrastructure for the Rosslyn Metrorail Station. This project will improve access, egress, and safety for the growing number of transit users at the Rosslyn Metrorail station. A new entrance with additional access/egress capacity to the station is needed to support the approved higher density redevelopments occurring adjacent to and near the station. Construction is slated to begin in FY 2011, 2<sup>nd</sup> Quarter and completed in FY 2013. Total project cost is estimated to be \$44 million. Costs for the six-year CIP period are \$7.475 million. The project has previous funding of \$31.9 million and an additional \$5 million from developer contributions due to site plan commitments; however the latter may not be available till the project is complete. The project costs will be covered by federal, state, local, and private funds. Funding sources for the design phase to be completed in FY 10 consist of \$3.8M of WMATA (Transit Infrastructure Investment Funds) and other local funds. State funding totals \$12.8 million in state transit reimbursement. Federal funds total \$4.45 million available and another \$1 million in an anticipated FY11 federal earmark. The remainder of the funds will come from the County's Transportation Investment Fund

**Columbia Pike Streetcar (from Pentagon to County Line)** – This project involves the construction of a streetcar line between Pentagon City and Skyline in Baileys Crossroads area of Fairfax County along the Columbia Pike Corridor. The project includes the construction of streetcar railway primarily in the curb lanes in each direction, power control and communication systems, and a maintenance facility, as well as the purchase of 11 streetcars. It is a joint project with Fairfax County. The current phase of the project includes an application for federal funding under the New Starts/Small Starts program, environmental clearance under the National Environmental Policy Act (NEPA), and associated preliminary engineering. The project schedule calls for the completion of planning, engineering and construction of the streetcar system in the timeframe of this six-year CIP. Arlington County's share of the total project cost is estimated to be \$138 million, of which \$134 million is proposed within the six-year CIP. The project had previous funding of \$3.76 million. The project is anticipated to be funded by Transportation Investment Funds, state capital reimbursement grants, and federal Small Start grant funds.

**Fairfax Drive Sidewalk and Bus Stop Improvements (Ballston Station Multimodal Improvements)** – This project improvements are anticipated to include reconstructed bus bays, new bus shelters and amenities, passenger information systems and services, bicycle parking, and expanded pedestrian plaza, landscaping, and revised curb utilization. Environmental documentation and preliminary engineering plans are proposed to be completed in 2011 and construction is planned for 2012. The total project cost is estimated to be \$2.95 million. The project had previous funding of \$0.4 million and \$2.55 million is funded in the FY 2011 CIP. The project is to be funded by a combination of TIF and state funding.

**Bus Stop and Shelter Program** – Some shelters in the County have been in place for over 30 years, compared to a 20-year useful life. Bus stops require repairs and upgrades to keep them safe, accessible, and attractive. This project will provide bus shelters, concrete area pads, benches, other amenities, improved safety and accessibility with better pedestrian connections at stops along bus routes that form the Secondary Transit Network (STN) connecting neighborhoods, community facilities, and urban centers, with the Primary Transit Network (PTN). Six-year costs in the CIP are \$0.5 million and previous

funding of \$1 million had been provided. The average cost of a shelter replacement is \$7,000. Total Project Cost is estimated to be \$1.8 million. The maintenance capital portion of this program is funded by PAYG at a level of \$60,000 annually. This money is supplemented annually by a state grant in the amount of \$15,000. Additionally, new shelters will be funded in FY 2012 by the Transportation Investment Fund at \$40,000 each.

**Columbia Pike Super Stops** – This project will construct improved bus shelters that will provide passenger amenities to accommodate the increased number of passengers along the Columbia Pike corridor that are resulting from new enhanced services branded as the “Pike Ride” program. The Super Stops project will provide improved shelter and increased seating, real time schedule information, wireless zones for personal computers, enhanced lighting, heating and other safety features. Total project cost is estimated at \$4.15 million.

**ITS Program Planning & Implementation** – The envisioned ITS system will establish a wireless network for communications among transit vehicles, traffic signals and control centers to improve performance and reliability as well as safety. Arlington Transit is currently developing a proof of concept Intelligent Transportation System on the Columbia Pike Corridor. This program would provide for the extension of that technology to the Secondary Transit Network through deployment in the ART fleet and bus shelters. The same ITS technology will be extended throughout the Primary Transit Network as part of the Complete Streets arterial program and through deployment in Metro and ART buses and shelters. Initial cost estimate is \$350,000 to \$400,000 to plan, develop and deploy ITS technology for the ART buses and heavily used bus stops. This project has previous funding of \$138,000. Project costs within the six-year timeframe are estimated at \$186,000. Transportation Investment Fund monies and state transit reimbursement are currently programmed for this project and state and federal grants to leverage local funding will be sought.

**Pentagon City Pedestrian Tunnel Restoration** – The subject entryway consists of stairs at the northeast corner of the intersection of S. Hayes Street and 12<sup>th</sup> Street South going down to a pedestrian tunnel constructed under S. Hayes Street and connecting through glass doors to the mezzanine level of the Pentagon City Metro Station. Repairs will address deteriorated lighting and electrical systems, an ineffective drainage system, leaking concrete expansion joints, deteriorated doors and gates, and damaged floor tiles, handrails, and ceiling panels. Improved signage, security cameras, a public address system, and an emergency call box in the tunnel will be installed. Communications and electrical systems will be tied to the Metro station with monitors at the station kiosk. Construction is planned to begin in 2011. Total project cost is estimated to be \$0.80 million. Previous funding of \$0.66 million was approved in local bonds and state reimbursement grants. Additional funding of \$112,000 in County TIF and \$28,000 in state reimbursement funds is proposed in the FY11 CIP.

**Pentagon City Station Elevator** – The Pentagon City Metrorail station is among the most heavily utilized in Arlington County and the area is experiencing significant growth. There is currently one street-level elevator entrance located on the east side of S. Hayes Street. A second elevator entrance on the west side of the street near the west escalator is necessary to improve general access and to ensure ADA accessibility. A second street level elevator will provide back-up ADA access when the other street level elevator is out of service for repairs or maintenance. Total project cost is estimated at \$5.085 million.

**East Falls Church Area Study** – The East Falls Church station area study supports the County’s goals of promoting transit-oriented development as well as improving access to transit stations, particularly for pedestrians and bicyclists. It is anticipated that improvements to arterial streets and intersections near

the East Falls Church Metrorail Station would be required to increase safety and convenience for pedestrians and bicyclists accessing the station. It is also anticipated that a new station entrance would be constructed at the west end of the platform, connecting to Washington Boulevard. As part of site redevelopment, reconfiguring and enhancing bus bays and the Kiss and Ride facilities would be included. The total planning and engineering cost is anticipated to be \$0.5 million, of which \$313,000 are proposed in the six-year CIP. Funding is assumed to come from Transportation Investment funds and state transit capital reimbursement.

**Crystal City Potomac Yard (CCPY) Transitway** - The purpose of the Crystal City/Potomac Yard Corridor Transit Improvements Project is to provide high-capacity and high-quality bus transit services in the five-mile corridor between the Pentagon and Pentagon City in Arlington County and the Braddock Road Metrorail Station in the City of Alexandria. The project is jointly sponsored by Arlington County and the City of Alexandria in cooperation with the Washington Metropolitan Area Transit Authority (WMATA) and the Virginia Department of Rail and Public Transportation (DRPT). The project came about in response to rapid development and redevelopment occurring in the corridor. New commercial and residential buildings are going up in Crystal City and Pentagon City with further growth planned for the immediate and long-term future. Build-out of Potomac Yard over the next 10 years will result in a substantial increase in new retail, office, hotel, and residential space. The new transit system will add transportation capacity along the corridor and provide better connections to Metrorail and other activity centers in the area.

**Ballston-MU Station West Entrance** – A new entrance will improve access, egress and safety for the growing number of users at the Ballston-MU Metrorail station and make the entrance more convenient to those living and working along/near the Glebe Road and the Bluemont neighborhood.

**Crystal City Streetcar Planning, Infrastructure & Environmental Clearance** – In addition to the Transitway Project described above, the six-year TDP includes funds for the initial planning and environmental clearance for a streetcar in the Crystal City area.

**Crystal City Metrorail Station East Entrance** – Similar to what was noted for the Ballston-MU Station, a new entrance on the east side of the Crystal City station will improve access, egress and safety for the growing number of users at this station.

### **6.2.3 Metro Matters, WMATA Capital Program**

WMATA is a unique federal-state-local partnership formed to provide mass transit service to the Washington Metropolitan region. Since 2004, WMATA has utilized a multi-year funding strategy, the Metro Matters Agreement, to fund its capital improvements. This agreement expires June 30, 2010 and a new agreement is currently being negotiated. The proposed successor Metro Matters capital program consists of \$4 to \$5 billion of critical system projects necessary to maintain the bus, rail and MetroAccess systems over the next six years. The program is heavily focused on replacement/rehab of the system's oldest infrastructure with minimal service enhancement investments. WMATA has previously identified close to \$11 billion of needs over a ten year period; the proposed six year program reflects a constrained request in light of financial constraints for Metro and its contributing jurisdictions. This program includes \$1.5 billion in dedicated federal funding over 10 years, subject to a \$1.5 billion match by Maryland, Virginia and the District of Columbia. Total program cost for Arlington, less state transportation grants expected over the 2-year bond funding cycle, is estimated to be \$85.8 million over

the six years of this TDP. The program is anticipated to be funded by outside revenues and bonds. Bonds are proposed because Metro’s infrastructure generally has very long useful life.

**Table 6-4  
Metro Funding in FY 2011 Capital Improvements Program**

<b>Program</b>	<b>FY 2011 (000s)</b>	<b>FY 2012 (000s)</b>	<b>FY 2013 (000s)</b>	<b>FY 2014 (000s)</b>	<b>FY 2015 (000s)</b>	<b>FY 2016 (000s)</b>	<b>Total for FY 2011- 16 (000s)</b>
Metro	13,100	12,400	11,800	15,700	16,700	16,100	85,800

## 7.0 FINANCIAL PLAN

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The financial plan is a principal objective of the TDP. It is in this chapter that an agency demonstrates its ability to provide a sustainable level of transit service over the TDP time period, including the rehabilitation and replacement of capital assets. This chapter identifies potential funding sources for annual operating and maintenance costs, and funding requirements and funding sources for bus and service vehicle purchases.

### 7.1 Operating and Maintenance Costs and Funding Sources

Arlington County's FY 2011 budget for ART fixed route service is \$7.792 million. A general break-out of these costs is as follows:

- Personnel Services and Benefits - \$409,203 (5.3%)
- Contract Operator Services - \$6,213,838 (79.8%)
- Other Contract Services - \$421,476 (5.4%)
- Internal Services and Materials & Supplies - \$747,076 (9.5%)

Annual operating and maintenance costs have risen significantly the past two years in conjunction with significant service expansion. ART's FY 2009 expenses were \$5.6 million and its FY 2010 budget was \$6.6 million.

Arlington County's FY 2011 budget for STAR (paratransit services) is \$2.837 million. Over 97 percent of these costs are for the contract service operator. Costs for STAR have not varied significantly in the past two years. Actual FY 2009 costs were \$2.68 million. The FY 2010 budget was \$2.56 million.

Revenues for ART services come from four sources:

- Farebox revenues
- Local contributions for service from public institutions/private businesses
- State operating assistance
- County general fund

Funding for STAR comes primarily from the County general fund, with some assistance from the State and some revenues from the sale of "STAR bucks" (a pass program).

State funds are channeled through the NVTC. State operating and capital assistance funds for Northern Virginia transit systems are collected by the NVTC, and allocated through a Subsidy Allocation Model (SAM) formula. For FY 2011, the City's allocation of state funds through the SAM formula that is being applied to operating assistance (for both ART and STAR) is \$1.89 million.

Key expense and revenue assumptions utilized in the TDP Financial Plan for annual O&M costs (Table 7-1) are as follows:

- Annual O&M costs for fixed route service during the TDP time period are based on a rate of \$75.32 per revenue bus-hour (FY 11 dollars). This is the estimated incremental cost for adding

new service. Costs in Table 7-1 reflect Year of Expenditure (YOE) dollars. A 3.0% annual inflation rate has been assumed during the TDP six-year time period.

- Farebox revenues are assumed to increase at the same rate of growth as revenue bus-hours during the TDP's six year time period. This financial plan assumes a 20 cent average fare increase in FY 2013 and FY 2015 (about a 12% increase for each year).
- Private/institutional contributions for ART service is assumed to remain constant through the TDP six-year time period.
- State funds (through NVTC) are assumed to grow at the same rate as the State Operating Assistance Allocations Subprogram, which varies from year to year (approximately 4% per annum).
- The split in state funding between ART and STAR is assumed to remain constant, based on FY 2010 split.

Using the assumptions presented above, funding requirements from the City's General Fund are anticipated to grow to nearly \$9.71 million for both ART and STAR services by year 2016.

It is important to note that funding requirements shown in Table 7-1 are based on several assumptions that may or may not occur. These assumptions will need to be revisited and revised in each year's budget process. Similarly, projects identified in the six-year TDP period can be moved forward or back, depending on availability of funding.

## **7.2 Bus Purchase Costs and Funding Sources**

The TDP includes anticipated purchases of the following buses for ART bus fleet replacement and expansion:

- FY 2011 – Twelve 30' CNG buses
- FY 2012 – Three 35' CNG buses and two 30' CNG buses (5 total)
- FY 2013 - Four 30' CNG buses and five 35' CNG buses (9 total)
- FY 2015 – Three 35' CNG buses
- FY 2016 – One 35' CNG buses

Thus, a total of 30 bus purchases are anticipated over the TDP's six year time period, with ART's fleet increasing from 35 to 50 fleet buses.

Funding for buses is anticipated to come from the City's Transportation Investment Fund (80%) and from State assistance through NVTC funds (20%). Costs and funding for bus purchases are shown in Table 7-2.

## **7.3 Transit Facility Improvements**

The TDP has also identified several other transit facility projects that are anticipated to be completed within the six-year time period. Those projects include:

- WALKArlington sidewalk/bus stop access improvements
- ART House

- Rosslyn Metro Station Access
- Columbia Pike Streetcar
- Fairfax Drive Pedestrian and Bus Stop Improvements
- Bus Stop and Shelter Program
- Transit ITS and Plan
- Pentagon City Pedestrian Tunnel
- East Falls Church Metro Study
- Columbia Pike Super Stops
- Pentagon City Elevator
- Crystal City East Entrance
- Crystal City Streetcar Planning, Infrastructure and Environmental Clearance
- Crystal City Potomac Yard Transitway

Costs for these projects and funding sources are identified in the County's Capital Improvement Program (under the Transit Capital Program), and have been included in Table 7-2.

#### **7.4 Other Capital Improvements**

The improvements identified in Section 7.3 reflect Transit Capital Program improvements. The CIP includes several other improvements that are not directly related to transit, but will provide benefit to transit services in Arlington County. Those include several street improvements (e.g., Columbia Pike Complete Streets, ART House street improvements, Ballston-Rosslyn Arterial street improvements), pedestrian improvements (WALKArlington Program) and bicycle improvements (BikeArlington, Regional Bike Sharing). Anticipated costs and funding sources for these projects are included in the County's CIP.

**Table 7-1  
TDP Financial Plan for  
Annual O&M Costs  
(Costs in Year of Expenditure Dollars)**

Service Statistic/Funding Category	Estimated FY 2010	Budget FY 2011	Project'd. FY 2012	Project'd. FY 2013	Project'd. FY 2014	Project'd. FY 2015	Project'd. FY 2016
<b>ART Fixed Route Statistics</b>							
Wkdy Peak Buses Req'd.	26	30	32	37	37	39	40
Sat. Peak Buses Req'd.	9	8	12	17	17	20	21
Sun. Peak Buses Req'd.	4	4	6	9	11	12	12
Fleet Buses	13	13	13	16	16	16	16
Annual Rev. Bus-Hrs.	77,588	92,332	106,602	124,563	127,752	139,227	145,964
<b>STAR Scheduled Trips</b>	<b>82,668</b>	<b>85,000</b>	<b>88,000</b>	<b>91,000</b>	<b>94,000</b>	<b>97,000</b>	<b>100,000</b>
<b>PROJECTED O&amp;M COSTS</b>							
ART Fixed Route	\$6,596,000	\$7,792,000	\$9,133,000	\$10,526,000	\$10,773,000	\$11,663,000	\$12,186,000
STAR Paratransit	<u>\$2,559,000</u>	<u>\$2,837,000</u>	<u>\$2,922,000</u>	<u>\$3,010,000</u>	<u>\$3,100,000</u>	<u>\$3,193,000</u>	<u>\$3,289,000</u>
<b>TOTAL COSTS</b>	<b>\$9,155,000</b>	<b>\$10,629,000</b>	<b>\$12,055,000</b>	<b>\$13,536,000</b>	<b>\$13,873,000</b>	<b>\$14,856,000</b>	<b>\$15,475,000</b>
<i>Change from Prior Year</i>		<i>\$1,474,000</i>	<i>\$1,426,000</i>	<i>\$1,481,000</i>	<i>\$337,000</i>	<i>\$983,000</i>	<i>\$619,000</i>
<b>Anticipated Funding Sources</b>							
<u>ART Revenues</u>							
Farebox Revenues	\$1,188,000	\$1,572,000	\$1,815,000	\$2,375,000	\$2,436,000	\$2,973,000	\$3,117,000
Bus Contributions*	\$166,000	\$271,000	\$271,000	\$271,000	\$271,000	\$271,000	\$271,000
State Transit Aid	<u>\$975,000</u>	<u>\$1,494,900</u>	<u>\$1,548,700</u>	<u>\$1,611,100</u>	<u>\$1,677,400</u>	<u>\$1,748,800</u>	<u>\$1,804,500</u>
<b>ART General Fund Support</b>	<b>\$4,267,000</b>	<b>\$4,454,100</b>	<b>\$5,498,300</b>	<b>\$6,268,900</b>	<b>\$6,388,600</b>	<b>\$6,670,200</b>	<b>\$6,993,500</b>
<i>Change from Prior Year</i>		<i>\$187,100</i>	<i>\$1,044,200</i>	<i>\$770,600</i>	<i>\$119,700</i>	<i>\$281,600</i>	<i>\$323,300</i>
<u>STAR Revenues</u>							
STAR bucks Revenues	\$80,000	\$80,000	\$82,000	\$84,000	\$87,000	\$90,000	\$93,000
State Transit Aid	<u>\$263,000</u>	<u>\$397,400</u>	<u>\$411,700</u>	<u>\$428,300</u>	<u>\$445,900</u>	<u>\$464,900</u>	<u>\$479,700</u>
<b>STAR General Fund Support</b>	<b>\$2,216,000</b>	<b>\$2,359,600</b>	<b>\$2,428,300</b>	<b>\$2,497,700</b>	<b>\$2,567,100</b>	<b>\$2,638,100</b>	<b>\$2,716,300</b>
<i>Change from Prior Year</i>		<i>\$143,600</i>	<i>\$68,700</i>	<i>\$69,400</i>	<i>\$69,400</i>	<i>\$71,000</i>	<i>\$78,200</i>
<b>TOTAL PROJECTED REVENUES</b>	<b>\$9,155,000</b>	<b>\$10,629,000</b>	<b>\$12,055,000</b>	<b>\$13,536,000</b>	<b>\$13,873,000</b>	<b>\$14,856,000</b>	<b>\$15,475,000</b>

**NOTES:**

- 1 ART peak bus requirements and annual revenue bus-hours based on TDP-proposed service plans through FY 2016.
- 2 STAR scheduled trips assumed to grow 3%/year.
- 3 Projected ART costs for FY 2010 and budgeted FY 2011 costs obtained from Arlington County's FY 2011 budget.
- 4 STAR FY 2010 costs obtained from STAR FY 2010 Monthly Report spreadsheet.
- 5 STAR FY 2011 budget total obtained from Arlington County's FY 2011 budget.
- 6 STAR's annual O&M costs reflect a net cost to the County, after service providers have collected passenger cash fares.
- 7 Annual O&M costs for new ART service based on rate of \$75.32 per revenue bus-hour (FY 2011).
- 8 Assumed inflation rate for ART's hourly rate is 3%/year.
- 9 STAR annual O&M costs assumed to grow at same rate as scheduled trips (3%/year).
- 10 State transit aid in 2010 for ART and STAR provided by ART staff.
- 11 For FY 2011, VDRPT identified \$1.892 million for Arlington County. Table assumes split between ART and STAR based on FY 2010 split (79% ART/21% STAR).
- 12 Future state aid assumed to grow at rate consistent with VDRPT SYIP. Split between ART and STAR in future years continues to assume 79% ART/21% STAR.
- 13 Farebox revenues assumed to grow at same rate as service-hours.
- 14 Farebox revenues also assume a 20 cent fare increase in FY 2013 and FY 2015 (about 12% each year).
- 15 Bus contributions assumed to remain constant through TDP time period. FY 2011 amount obtained from Arlington County budget.
- 16 STAR bucks revenues are about \$80,000 per year. A 3% increase per year is assumed for FY 2012-FY 2016.
- 17 General Fund Support based on anticipated costs, minus anticipated farebox revenues, bus contributions, STAR bucks revenues and state aid.
- 18 TDM program costs and revenues not included in above table.

**Table 7-2  
TDP Financial Plan for Capital Costs  
(Year of Expenditure Dollars)**

<b>Service Statistic/Funding Category</b>	<b>Budget FY 2011</b>	<b>Project'd. FY 2012</b>	<b>Project'd. FY 2013</b>	<b>Project'd. FY 2014</b>	<b>Project'd. FY 2015</b>	<b>Project'd. FY 2016</b>	<b>6-Year Total</b>
<b>Bus Replacements</b>	<b>\$5,955,000</b>	<b>\$2,292,000</b>	<b>\$4,249,000</b>		<b>\$1,503,000</b>	<b>\$516,000</b>	<b>\$14,515,000</b>
# of buses	<b>12 buses</b>	<b>5 buses</b>	<b>9 buses</b>		<b>3 buses</b>	<b>1 bus</b>	
Transportation Investment Fund	\$4,764,000	\$1,834,000	\$3,399,000		\$1,202,000	\$413,000	\$11,612,000
State Funding	\$1,191,000	\$458,000	\$850,000		\$301,000	\$103,000	\$2,903,000
<b>WALKArlington</b>	<b>\$2,050,000</b>	<b>\$1,550,000</b>	<b>\$2,100,000</b>	<b>\$1,000,000</b>	<b>\$1,500,000</b>	<b>\$1,000,000</b>	<b>\$9,200,000</b>
Transportation Investment Fund	\$200,000	\$200,000	\$250,000	\$250,000	\$250,000	\$250,000	\$1,400,000
Federal Funding	\$1,000,000	\$1,000,000	\$1,000,000	\$400,000	\$400,000	\$400,000	\$4,200,000
State Funding	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	\$2,100,000
County Funding	\$500,000		\$500,000		\$500,000		\$1,500,000
<b>ART House Funding</b>	<b>\$3,750,000</b>	<b>\$7,000,000</b>	<b>\$2,500,000</b>				<b>\$13,250,000</b>
Transportation Investment Fund	\$3,000,000	\$5,600,000	\$2,000,000				\$10,600,000
State Funding	\$750,000	\$1,400,000	\$500,000				\$2,650,000
<b>Rosslyn Metro Station Access</b>	<b>\$3,500,000</b>	<b>\$3,975,000</b>					<b>\$7,475,000</b>
Transportation Investment Fund	\$2,000,000	\$3,180,000					\$5,180,000
Federal Funding	\$1,000,000						\$1,000,000
State Funding	\$500,000	\$795,000					\$1,295,000
<b>Columbia Pike Streetcar</b>	<b>\$1,500,000</b>		<b>\$22,500,000</b>	<b>\$43,750,000</b>	<b>\$46,250,000</b>	<b>\$20,236,000</b>	<b>\$134,236,000</b>
Transportation Investment Fund	\$1,200,000		\$10,000,000	\$23,000,000	\$25,000,000	\$16,189,000	\$75,389,000
Federal Funding			\$10,000,000	\$15,000,000	\$15,000,000		\$40,000,000
State Funding	\$300,000		\$2,500,000	\$5,750,000	\$6,250,000	\$4,047,000	\$18,847,000
<b>Fairfax Dr. Improvements</b>	<b>\$500,000</b>	<b>\$2,050,000</b>					<b>\$2,550,000</b>
Transportation Investment Fund	\$400,000	\$1,640,000					\$2,040,000
State Funding	\$100,000	\$410,000					\$510,000
<b>Bus Stop and Shelter Program</b>	<b>\$75,000</b>	<b>\$125,000</b>	<b>\$75,000</b>	<b>\$75,000</b>	<b>\$75,000</b>	<b>\$75,000</b>	<b>\$500,000</b>
Transportation Investment Fund		\$40,000					\$40,000
County Funding	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$360,000
State Funding	\$15,000	\$25,000	\$15,000	\$15,000	\$15,000	\$15,000	\$100,000
<b>Transit ITS and Plan</b>	<b>\$31,000</b>	<b>\$31,000</b>	<b>\$31,000</b>	<b>\$31,000</b>	<b>\$31,000</b>	<b>\$31,000</b>	<b>\$186,000</b>
Transportation Investment Fund	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$150,000
State Funding	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$36,000
<b>Pentagon City Ped. Tunnel (Costs TBD)</b>	<b>\$0</b>						<b>\$0</b>
Transportation Investment Fund	\$0						\$0
State Funding	\$0						\$0
<b>EFC Metro Study</b>						<b>\$313,000</b>	<b>\$313,000</b>
Transportation Investment Fund						\$250,000	\$250,000
State Funding						\$63,000	\$63,000
<b>Columbia Pike SuperStops (Costs TBD)</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Transportation Investment Fund	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State Funding							
<b>Pentagon City Elevator</b>	<b>\$630,000</b>	<b>\$2,105,000</b>	<b>\$2,300,193</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$5,035,193</b>
Transportation Investment Fund							
FTA Funding	\$630,000	\$1,505,000	\$2,300,193				\$4,435,193
State Funding		\$600,000					\$600,000

**Table 7-2 (Continued)**  
**TDP Financial Plan for Capital Costs**  
**(Year of Expenditure Dollars)**

<b>Service Statistic/Funding Category</b>	<b>Budget FY 2011</b>	<b>Project'd. FY 2012</b>	<b>Project'd. FY 2013</b>	<b>Project'd. FY 2014</b>	<b>Project'd. FY 2015</b>	<b>Project'd. FY 2016</b>	<b>6-Year Total</b>
<b>Ballston West Entrance</b>	<b>\$150,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$150,000</b>
Transportation Investment Fund	\$0	\$0	\$0	\$0	\$0	\$0	\$0
County Funding	\$150,000	\$0	\$0	\$0	\$0	\$0	\$150,000
State Funding							
<b>Crystal City East Entrance</b>	<b>\$200,000</b>	<b>\$200,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$400,000</b>
Transportation Investment Fund	\$200,000	\$200,000	\$0	\$0	\$0	\$0	\$400,000
State Funding							
<b>Crystal City Streetcar Planning, Infrastructure &amp; Environmental Clearance</b>	<b>\$0</b>	<b>\$700,000</b>	<b>\$700,000</b>	<b>\$18,000,000</b>	<b>\$32,500,000</b>	<b>\$17,580,000</b>	<b>\$69,480,000</b>
Transportation Investment Fund	\$0	\$700,000	\$700,000	\$18,000,000	\$32,500,000	\$17,580,000	\$69,480,000
State Funding							
<b>CCPY transitway (Costs TBD)</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Transportation Investment Fund							
State Funding							
<b>TOTAL COSTS FOR PROJECTS</b>	<b>\$18,341,000</b>	<b>\$20,028,000</b>	<b>\$34,455,193</b>	<b>\$62,856,000</b>	<b>\$81,859,000</b>	<b>\$39,751,000</b>	<b>\$257,290,193</b>
<b>TOTAL FUNDING SOURCES</b>							
Transportation Investment Fund	\$11,789,000	\$13,419,000	\$16,374,000	\$41,275,000	\$58,977,000	\$34,707,000	\$176,541,000
County Funding	\$710,000	\$60,000	\$560,000	\$60,000	\$560,000	\$60,000	\$2,010,000
Federal Funding	\$2,630,000	\$2,505,000	\$13,300,193	\$15,400,000	\$15,400,000	\$400,000	\$49,635,193
State Funding	<u>\$3,212,000</u>	<u>\$4,044,000</u>	<u>\$4,221,000</u>	<u>\$6,121,000</u>	<u>\$6,922,000</u>	<u>\$4,584,000</u>	<u>\$29,104,000</u>
<b>Total Funding Sources</b>	<b>\$18,341,000</b>	<b>\$20,028,000</b>	<b>\$34,455,193</b>	<b>\$62,856,000</b>	<b>\$81,859,000</b>	<b>\$39,751,000</b>	<b>\$257,290,193</b>

**NOTES:**

- # of buses needed during TDP time period based on TDP bus replacement/expansion table (Table 5-1).
- Bus costs assume \$650,000 for 3 buses in FY 2011 for Design Lines buses, and \$445,000 for all other buses (in FY 2011 dollars).
- A 80/20 state/local match assumed for bus purchases.
- An inflation rate of 3%/year assumed for future year bus purchases (FY 2012 through FY 2016).
- Costs and funding sources for all other transit program capital projects obtained from Arlington County CIP document.

## **8.0 TDP MONITORING AND EVALUATION**

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This TDP has presented a comprehensive evaluation of Arlington Transit service and cost characteristics. Key elements that have been addressed in this TDP include:

- Development of goals, objectives and performance standards that are to guide further development of Fairfax CUE services;
- A detailed evaluation of existing service characteristics, with identification of system strengths and weaknesses;
- A peer agency review that compares ART service and financial characteristics to other similar-sized systems;
- A summary of rider survey results from the 2008 MWCOG transit on-board survey;
- A listing of potential service and facility improvements, for consideration in the TDP;
- Recommended service improvements and vehicle purchases for inclusion in the TDP, with improvements identified by year; and
- Funding requirements and potential funding sources for recommended service improvements and vehicle purchases.

This TDP reflects an initial step in future service improvements for ART. It will be important to coordinate closely with other transportation and land use planning efforts, to continue to monitor service performance, and to provide DRPT with annual updates regarding implementation of TDP service and facility improvements.

### **8.1 Coordination with Other Plans and Programs**

Goals and objectives from this TDP should be reviewed and incorporated into the County's Comprehensive Plan. Close coordination is also required with the City's Capital Improvements Program budgeting process. Coordination efforts must also continue with the MWCOG, the NVTC and WMATA. Formal coordination meetings with other transit providers are suggested as a means to ensure continual communication and awareness of service planning efforts.

### **8.2 Service Performance Monitoring**

This TDP has identified specific system-wide service performance measures to ensure ART's existing performance characteristics do not degrade substantially. Corrective measures are to be taken if these monitoring efforts identify service performance degradation (e.g., through route alignment adjustments, headway and/or span of service adjustments). This TDP has recommended a monitoring program that could be used for periodic service evaluation.

### **8.3 Annual TDP Monitoring**

The DRPT will require submittal of an annual letter that provides updates to the contents of this TDP. Recommended contents of this “TDP Update” letter include:

- A summary of ridership trends for the past 12 months.
- A description of TDP goals and objectives that have been advanced over the past 12 months.
- A list of improvements (service and facility) that have been implemented in the past 12 months, including identification of those that were noted in this TDP.
- An update to the TDP’s list of recommended service and facility improvements (e.g., identify service improvements that are being shifted to a new year, being eliminated, and/or being added). This update of recommended improvements should be extended one more fiscal year to maintain a six-year planning period.
- A summary of current year costs and funding sources.
- Updates to the financial plan table presented in Chapter 7 of this TDP. This table should be extended one more fiscal year to maintain a six-year planning period.

The financial plan is a principal objective of the TDP. It is in this chapter that an agency demonstrates its ability to provide a sustainable level of transit service over the TDP time period, including the rehabilitation and replacement of capital assets. This chapter identifies potential funding sources for annual operating and maintenance costs, and funding requirements and funding sources for bus and service vehicle purchases.

# Arlington County Transit Development Plan: Fiscal Years 2011-2016

## Executive Summary

The Arlington County Transit Development Plan (TDP) was prepared with the assistance of the Virginia Department of Rail and Public Transportation (DRPT) and its consultants, the Connetics Transportation Group, under subcontract to PBSJ. According to the “Transit Development Plan Requirements”, published by DRPT in November 2008, any public transit operator receiving state funding must prepare, approve, submit and annually update a six-year Transit Development Plan. This TDP includes all transit services provided in the County – rail, bus (both ART and Metrobus), and Paratransit (both STAR and MetroAccess).

The six-year TDP is a plan for future services based primarily upon existing and anticipated needs or demand for service. While this plan is not fiscally constrained, it has been developed in coordination and within the limits of the Fleet and Facilities Plan in the County’s approved Capital Improvement Program. The TDP schedule for future services is subject to appropriation in the annual operating budget, and should be adjusted annually to reflect available resources for operating and capital programs.

The first chapter provides background information about the County’s transit services including:

- History
- Governance
- Organizational Structure & Staffing
- Services Provided
  - Service Area,
  - Routes and Schedules
  - Span of Service
  - Peak Vehicle Requirements
  - Pedestrian & Bicycle Connectivity
  - ADA Compliance
  - Bus Stop & Shelter Guidelines
  - Partnerships for Funding, Facilities, Resources or Services
- Fare Structure
- Fleet
- Facilities
- Transit Security Programs
- Public Outreach

Chapter 2 includes the transit system’s goals and objectives. Arlington’s goals and objectives have already been developed and adopted in the Transit Element to the Master Transportation Plan, which provides general guidance for Arlington's transportation system through the year 2030.

The TDP development process began in January, 2009, with presentations followed by focused discussions with transit stakeholders and transit riders to gain their perspective

of transit services provided and needed in Arlington County. This was accompanied by a review of two recent on-board surveys of ART riders.

Integral to the TDP process is the Chapter 3 review of past performance measures and comparison with similar-size transit systems both locally and nationally. The national peer systems serve similarly-sized and populated areas, also connect to commuter rail, and operate a similar number of peak vehicles. The local peers are the local (non-Metrobus) public bus systems in this metropolitan area. Arlington County's commitment to transit is evident, with Metrorail, Metrobus and ART routes overlaid upon depictions of current and projected land use patterns, employment, population and demographic statistics. This lengthy section of the full report shows the exponential growth in ART, which is providing over two million rides annually. ART's current performance places the service mid-way in efficiency measures among its national peers and above average when compared to its local peers.

Chapter 4 of the TDP discusses every new bus route or major modification of transit services projected to occur within the next six years by projected year of implementation. Every new capital project is also included in the TDP. The TDP requires a concise description of the endeavor, along with operating and capital cost projections and additional fleet requirements. These plans are summarized separately by year in Operations and Capital projects sections (Chapters 5 and 6, respectively).

Chapter 7 contains the financial plan showing how the current and planned transit services can be funded in a sustainable manner. Modifications of the fare structure or other rules governing the provision of transit services do not require prior inclusion in the TDP. The last chapter (8) discusses the monitoring process showing success in adhering to the TDP plans and procedures to update the TDP on an annual basis, due by October 30th of the year following adoption of the TDP.

## National Peer Review Excerpts

The peer analysis provides the means to compare various performance characteristics of a transit agency to transit systems of similar size. Transit agencies report such information to the Federal Transit Administration (FTA), which records the information annually in the National Transit Database (NTD). Agencies have strict requirements regarding the manner in which cost and service characteristics are reported to the NTD. The NTD database is updated annually by submissions from each transit system. This peer review includes NTD data from Fiscal Year 2008 from the peer systems – the last year available – and actual ART data from Fiscal Year 2010. Recent ART data reflects the current contract cost structure that became effective July 1, 2009. This allows a more accurate comparison of the current ART cost and productivity structure with its peers.

The transit systems selected as peers to ART were:

- Anaheim Transportation Network – ATN (Anaheim, CA)
- Culver City Municipal Bus Lines (Culver City, CA)
- City of Alexandria (Alexandria, VA)
- Norwalk Transit System (Norwalk, CA)
- Livermore /Amador Valley Transit Authority – LAVTA (Livermore, CA)
- Transit Services of Frederick County (Frederick, MD)
- Howard Transit (Laurel, MD)

In general, ART’s service area, service, and financial characteristics were similar to the peer system averages, as summarized in Table 1.

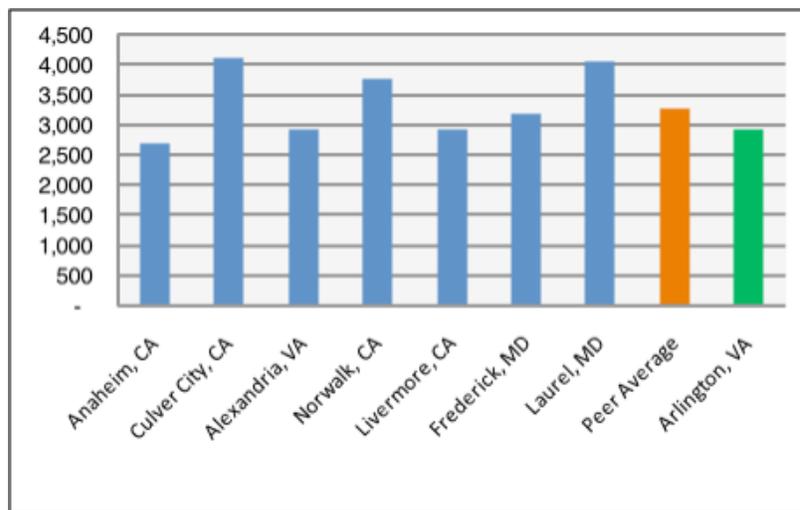
**Table 1: ART and Peer-Average Characteristics**

Characteristic	Supplemental Peer Review	
	Peer Average	ART
Service Area		
Population	189,543	212,200
Square Miles	30	26
<u>Population Density</u>	<u>7,037</u>	<u>8,162</u>
Service		
Peak Buses	31	30
Passenger Trips	2,896,342	1,990,402
Revenue-Miles	1,223,540	779,573
<u>Revenue-Hours</u>	<u>107,747</u>	<u>75,797</u>
Financial		

Annual Operating Cost	\$ 9,340,000	\$ 6,600,000
Fare Revenue	\$ 1,774,600	\$ 1,187,856

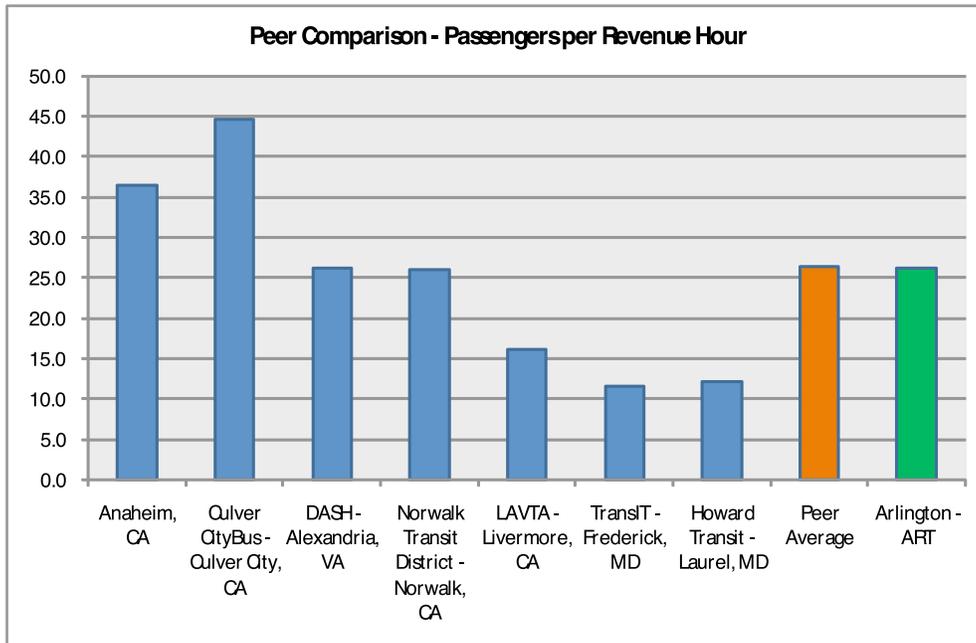
- Revenue-Hours per Peak Bus:** Figure 1 shows that the peer systems operated between 2,685 (Anaheim, CA) and 4,107 (Culver City, CA) revenue-hours per peak bus. At 2,915, ART operates 20 percent lower than the peer average of 3,265.

**Figure 1: Peer Comparison – Revenue-Hours per Peak Bus**



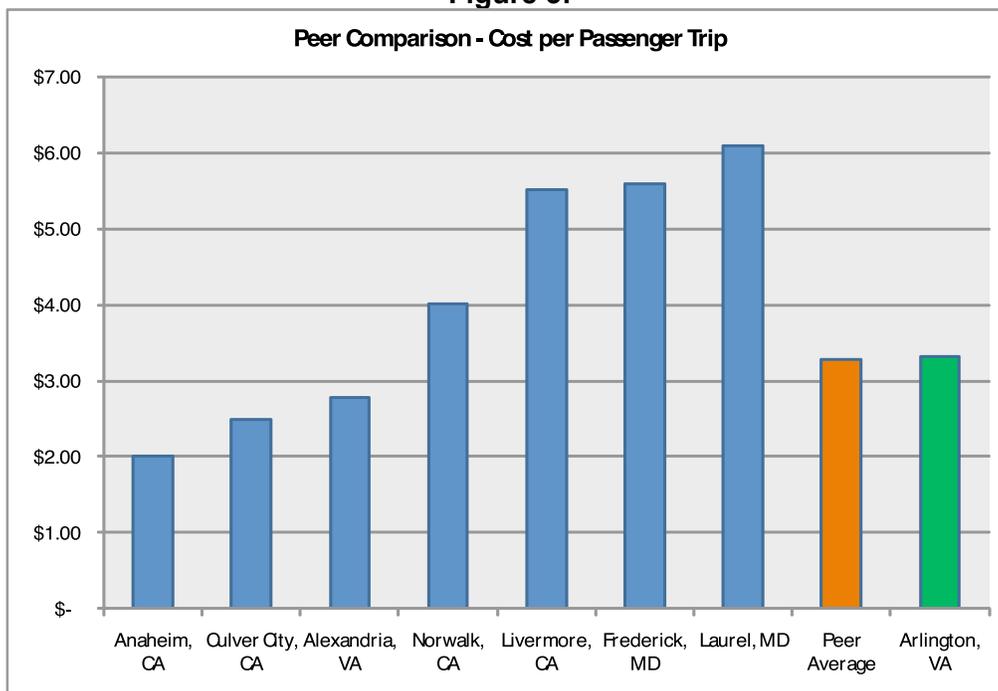
- Passenger Trips per Revenue-Hour:** Figure 2 shows that the peer systems generate between 12 (Frederick and Laurel, MD) and 45 (Culver City, CA) passenger trips for every revenue-hour of bus service. ART’s productivity of 26.3 passengers per revenue-hour is very close to the peer average of 26.5.

**Figure 2:**



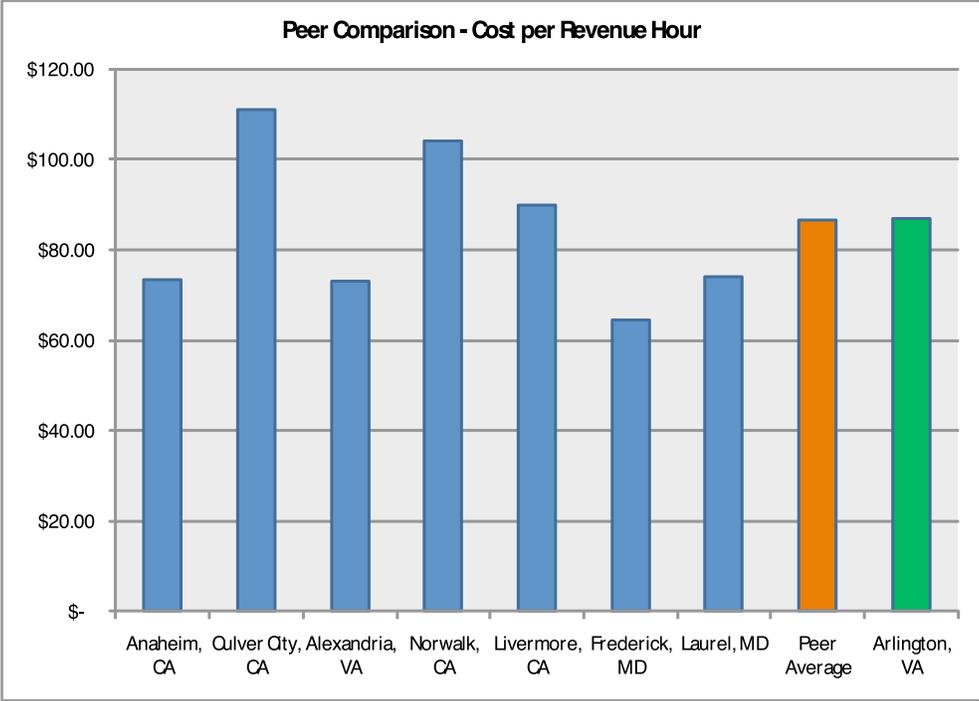
- Operating Cost per Passenger Trip:** This performance measure provides an indication of how efficient a system is at balancing the cost of providing service with the number of patrons it serves. Peer system costs per passenger trip range from \$2.01 (Anaheim, CA) to \$6.09 (Laurel, MD) with an average of \$3.27. ART's performance on this measure is \$3.32, which is slightly above the peer average at \$3.27.

Figure 3:



- Operating Cost per Revenue-Hour:** Figure 4 shows the peer systems' cost per revenue-hour range from \$64.57 (Frederick, MD) to \$110.90 (Culver City, CA), averaging at \$86.68. ART's operations cost of \$87.07 per revenue-hour is slightly above the peer average.

Figure 4:



## Local Peer Review Excerpts

A limited peer review was conducted to compare the ART bus system to six suburban bus systems that all operate in the District of Columbia area. As with the primary peer review, this evaluation used the Federal Transit Administration’s 2008 NTD for five of the transit agencies (including one NTD report that was not in the included in the FTA’s database, but was provided by the agency) and FY 2010 data for ART. The bus systems selected as D.C.-area peers were:

- City of Fairfax - CUE (Fairfax, VA),
- City of Alexandria (Alexandria, VA),
- City of Falls Church (Falls Church, VA),
- Fairfax Connector Bus System (Fairfax County, VA),
- Ride-On Montgomery County Transit (Montgomery County, MD), and
- Prince George’s County Transit (Prince George’s County, MD).

Falls Church was the system for which NTD information was not available, but was obtained instead from the Virginia Transit Performance Report (FY 2002 – FY 2006).

**Table 2: ART and D.C. Peer-Average Characteristics**

Characteristic	Supplemental Peer Review	
	Peer Average	ART
<b>Service Area</b>		
Population	503,695	212,200
Square Miles	234	26
Population Density	3,889	8,162
<hr/>		
<b>Service</b>		
Peak Buses	108	26
Passenger Trips	7,992,632	1,990,402
Revenue-Miles	4,053,493	779,573
Revenue-Hours	310,462	75,797
<hr/>		
<b>Financial</b>		
Annual Operating Cost	\$ 29,315,247	\$ 6,600,000
Fare Revenue	\$ 1,124,819	\$ 1,187,856
<hr/>		

- **Vehicle Utilization:** Figure 5 shows that the peer systems operated between 1,711 (Falls Church) and 4,325 (City of Fairfax) revenue-hours per peak bus. At 2,915, ART operates a very similar number of revenue-hours per peak bus as the peer average (2,884).

**Figure 5: D.C. Peer Comparison – Revenue Vehicle-Hours per Peak Bus**

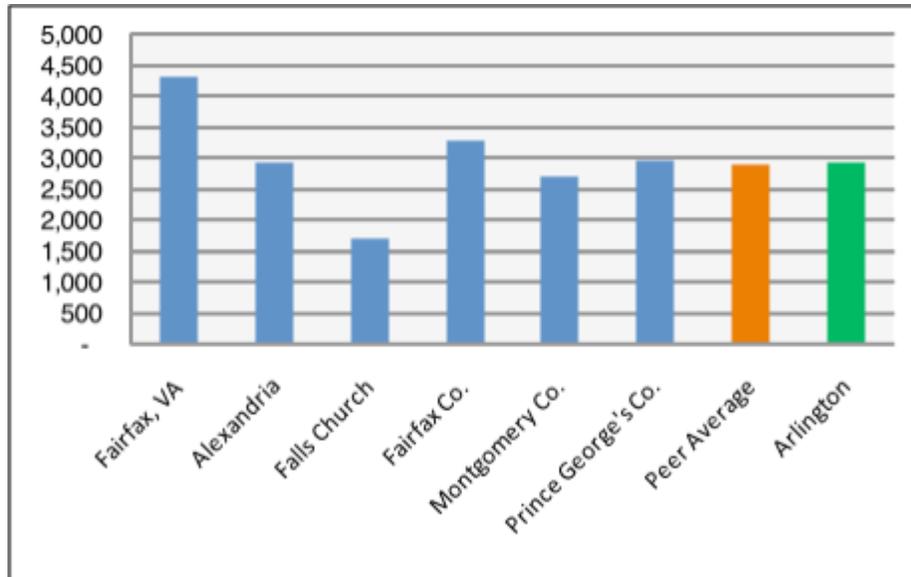
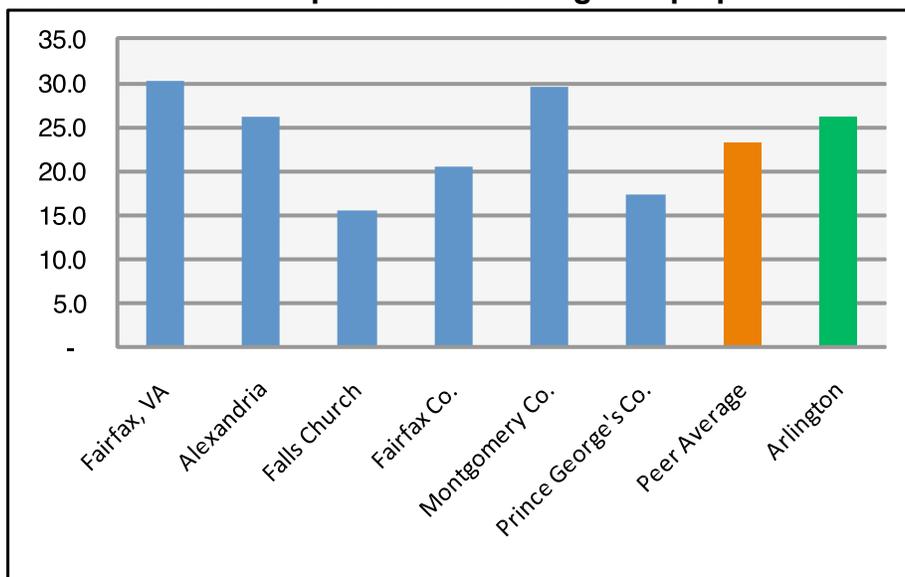


Figure 6 shows that the D.C.-area peer systems generate between 15.5 (Falls Church) and 30.3 (City of Fairfax) passenger trips for every revenue-hour of bus service. ART’s productivity of 26.3 passengers per revenue-hour is better than the peer average of 23.3.

**Figure 6: D.C. Peer Comparison – Passenger Trips per Revenue-Hour**



- **Cost Efficiency:** ART’s cost efficiency was better than the D.C. peer average when compared on a passenger trip basis and revenue-hour, and revenue-mile basis.

Figure 7 shows the D.C. peer systems’ cost per passenger trip ranges from \$2.78 (Alexandria) to \$5.10 (Falls Church), averaging at \$3.97. On this performance measure, ART’s cost of \$3.32 per passenger trip is lower than the peer average by 17%.

**Figure 7: D.C. Peer Comparison – Operating Cost per Passenger Trip**

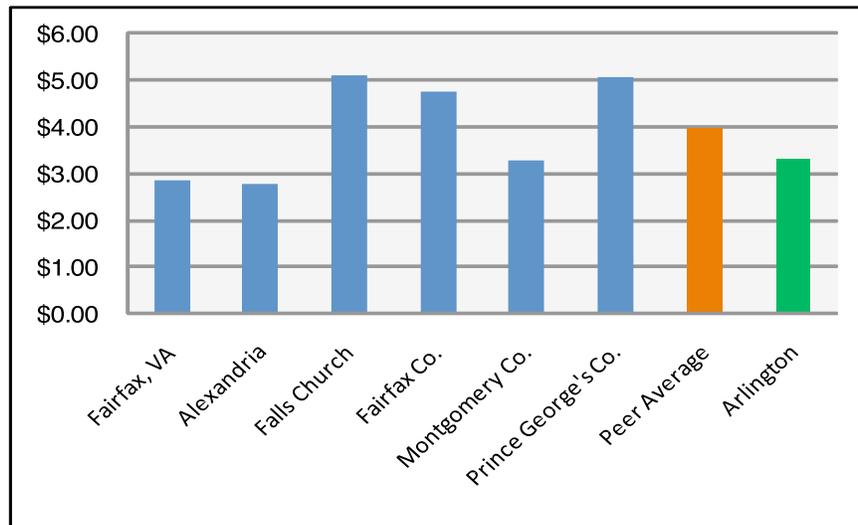
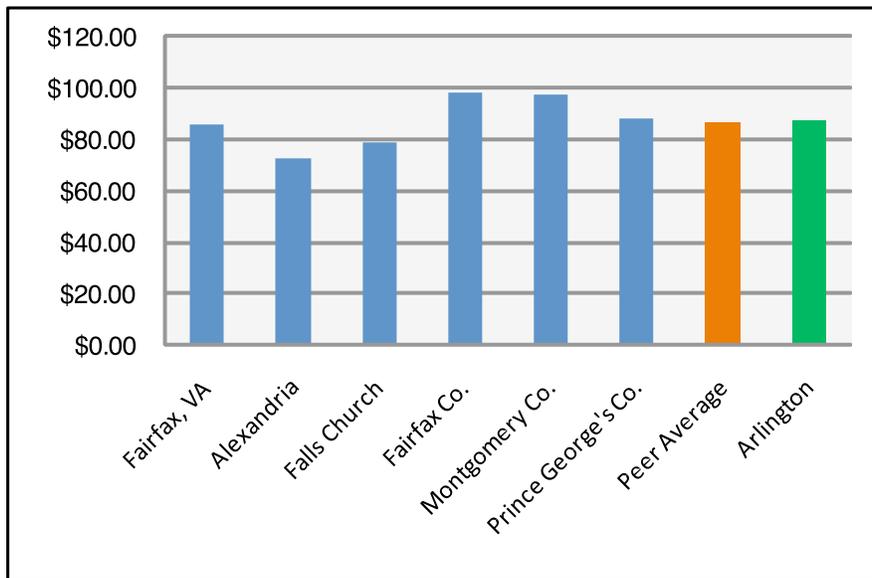


Figure 8 shows the D.C. peer systems' cost per revenue-hour ranges from \$72.96 (Alexandria) to \$98.26 (Fairfax County), averaging at \$87.00. On this performance measure, ART's costs are very close to the peer average at \$87.07 per revenue-hour.

**Figure 8: D.C. Peer Comparison – Operating Cost per Revenue-Hour**



## **Arlington County Transit Service Operational Needs**

Arlington County transit service needs have been defined under the following seven categories:

- **Systemwide Connectivity** – connections between major activity centers / employment sites and higher density residential areas
- **Re-structured Fixed Route Service** – route alignment modifications, some of which promote connectivity, others enable improved on-time performance, and of course increased patronage.
- **On-Time Performance** – adjustments made to route running times to ensure high levels of on-time performance
- **Transit Service Levels** – service frequency, new service hours or service periods (e.g., midday service), days of service, service productivity related changes.
- **Project Specific** – transit service improvements and modifications required to accommodate a new transit investment or major development project.
- **Primary Transit Network Improvements** – Primary Transit Network (PTN) of high-frequency and quality transit services along major corridors to encourage a low-auto-usage lifestyle and higher all-day patronage. The PTN would extend beyond the established Metrorail corridors and include new surface transit services, such as streetcar and bus rapid transit. Transit services should operate at 15-minute intervals or better every day for about 18 hours.
- **Paratransit Services** – Grouped standing order paratransit services as well as Flex Route Services may offer those with disabilities a mobility option that better meets their needs in a manner that is less costly to the County than the current services, MetroAccess and Specialized Transit for Arlington Residents (STAR).

### **Systemwide Connectivity Transit Needs**

- 1. Provide new connection between Columbia Pike and Rosslyn** – Route 45 was implemented on July 6, 2010. This new route provides this needed connection.
- 2. Improve connectivity between Crystal City and Arlington Hall** – This would establish a new route operating between Crystal City directly to Arlington Hall during peak periods only
- 3. Improve connectivity between Ballston, Shirlington and Pentagon City/Crystal City** – This would restructure existing service to provide regular frequencies with dependable on-time performance during weekdays, nights and weekends

- 4. Enhanced Ballston-Rosslyn Corridor Service** – Due to overloading on the Orange Line, enhanced bus transit service is needed along the Orange Line Corridor between the Ballston and Rosslyn Metro Stations, possibly east into the District (e.g., Metrobus Route 38B).

### **Re-structured Fixed Route Service**

- 1. New ART Route 84 / Modified ART Route 74** – This route alignment change went into effect in the on June 21, 2010. A new route 84 serves the Douglas Park loop previously served by the Route 74. Route 84 serves the Nauck neighborhood as well as large apartment buildings along South Glebe Road at 24<sup>th</sup> Road South. The existing Route 74 continues to serve the Columbia Heights, Arlington Village and Arlington View communities. Each route connects to Pentagon City Metro every half-hour during peak periods only.
- 2. Extend ART Route 75** – On September 27, 2010, this route was extended from the southern route end at South Dinwiddie Street and Chesterfield Road to the Shirlington Transit Station, and from the northern route end at Ballston Metro to Virginia Square Metro. These extensions connect a major retail and employment center in Shirlington and a major employment center and a George Mason University campus in Virginia Square, with a large concentration of affordable housing.
- 3. Extend ART Route 51 North and South** – This route change would extend Route 51 north to the Langston Community Center via Lee Highway. Additionally, this route would be extended via Lee Highway to the Culpepper Garden Community Center.
- 4. Extend ART Route 77 to Rosslyn** – This route change would extend the existing route 77 east to the Rosslyn Metro Station. This extension provides one seat rides between the Shirlington Transit Station and Rosslyn, connecting large employment centers with a direct cross-town route.
- 5. Restructure ART Route 62 to improve efficiency and increase ridership** – This peak period route performs just at minimum standards.
- 6. Extend Metrobus Route 3Y west to East Falls Church Station** – This route would be extended west along Lee Highway to the East Falls Church Metro Station during peak periods only.
- 7. Modify Metrobus Route 23A Pattern Alignment** – Realign Metrobus 23 alignments to offer 10 minute peak and 15 minute off-peak service frequencies between Ballston Metro and the Shirlington Transit Station, 20 minute peak and 30 minute off peak service along the remainder of the route, and improve on-time performance along the entire length of the route.
- 8. Modify Metrobus Route 10B in conjunction with ART Route 77 Frequency Improvements** – When ART Route 77 service frequency improvements are implemented, move Metrobus Route 10B from South Walter Reed Drive and 2<sup>nd</sup> Street to north-south on South Glebe Road to better coordinate and match service frequencies and coverage in the area to ridership demand. The ART Route 77 improvement is listed in the FY 2013 Transit Service Improvement Plan on p. 20 below, which anticipates improving peak service from 30 to 20 minute frequencies.
- 9. Extend Route 9S to 12<sup>th</sup> Street** – As a means to serve Long Bridge Park, this route would be extended north to 12<sup>th</sup> Street.
- 10. Implement Route 1 Corridor Busway Service**

- 11. Provide peak period “Blue with a View” transit service** – supplement the Metrorail Blue Line connection between the Crystal City, Pentagon City, Pentagon, Rosslyn, and Court House Metrorail stations.
- 12. Extend the Blue with a View transit service to nights and weekends** – for service to Long Bridge Park when the recreational facilities are fully developed.
- 13. New Aurora Highlands Circulator** – Determine the feasibility of implementing a new circulator route in the Aurora Highlands neighborhood.

## **On-Time Performance**

### **Weekdays**

- ART Routes 51, 52 and 53 are experiencing on-time performance degradation resulting from traffic congestion and ridership volumes. Adjustments to running times on these routes combined with interlining them will result in the need for one additional bus to maintain existing service levels. Additionally, consideration will be given to swap the route 51 and 52 route alignments between the Ballston Metro Station and the Virginia Medical Center – Arlington on George Mason Drive. Consideration will also be given to providing weekend service on the ART 52 instead of the ART 51 to maintain the connection between Ballston Metro and Virginia Hospital Center while adding service to North Arlington.
- ART Route 41 also experiences on-time performance degradation resulting from traffic congestion and ridership volumes. Adjustments to running times will be made on this route with the addition of a fifth bus to create a consistent 15 minute frequency during peak and midday hours on weekdays and Saturdays (as noted above).
- Metrobus Route 23A is a very long route that is difficult to operate on schedule. By splitting the route in two, overlapping in the segment between Ballston Metro and Shirlington Station, the Primary Transit Network objective of fifteen-minute service levels in that segment should be achievable. The PTN then would include a square connecting three concentrations of urban development in Arlington County: Rosslyn-Ballston (Metrorail Orange Line); Ballston-Shirlington (Restructured Metrobus 10B and 23 as well as the ART 41 as far as Columbia Pike); Shirlington-Pentagon (Metrobus 7 and ART 87); and Pentagon-Rosslyn (Metrorail Blue Line).

## **Transit Service Levels**

### **1. Weekday Service Frequency Improvements**

Service frequency needs have generally been identified for the midday and evening service periods, when service frequencies on some routes presently operate every 60 minutes. ART’s eleven fixed routes generally operate 15 to 30 minute service frequencies during peak periods. Metrobus service frequencies vary by route. The following service frequency improvements have been identified for weekday service:

- ART Route 41 – Consistent 15 minute service frequencies all day
- ART Route 42 – improve midday service from 60 to 30 minute frequency
- ART Route 52 – improve midday service from 60 to 30 minute frequency

- ART Route 53 – improve midday service from 60 to 30 minute frequency
- ART Route 77 – improve peak period service from 30 to 20 minute frequency
- Metrobus Route 22A – in response to the BRAC 129 Re-alignment Study, improve service frequency between the Shirlington Transit Station and the Ballston Metro Station (some trips turned back at Shirlington Transit Station) from 20 to 10 minute frequency peak periods and from 40 to 20 minute frequency during off peak periods
- Metrobus Route 23A – improve service frequencies between Ballston Metro and the Shirlington Transit Station to 10 minute peak and 15 minute off-peak and 20 minute peak and 30 minute off-peak service along the remainder of the route

## **2. Weekend Service Frequency Improvements**

Weekend service frequency improvements for routes currently operating on weekends include:

- ART Route 41 – Consistent 15 minute service frequencies (Saturday)
- ART Route 42 - Improve all day service from 60 to 30 minute frequency (Saturday)
- Metrobus Route 22A – in response to the BRAC Re-alignment Study, improve service frequency on Saturdays between the Shirlington Transit Station and the Ballston Metro Station from 40 to 20 minute frequency all day
- Metrobus Route 23 – Restructure to improve Ballston-Shirlington service frequencies and on-time performance

## **3. Service Hour Improvements**

On weekdays ART service operates between the approximate hours of 5:00 a.m. and 10:00 p.m., with Route 51 operating until 12:30 a.m.. Saturday ART service operates the approximate hours of 7:00 a.m. and 10:00 p.m., again the Route 51 operates later until about 12:15 a.m.. Sunday ART service operates between the approximate hours of 8:00 a.m. and 9:00 p.m., with Route 51 operating until 10:25 p.m.. Much of the Metrobus service in Arlington County operates between 5:00 a.m. and 1:00 a.m. on weekdays and Saturdays, and between 6:00 a.m. and 12:00 a.m. on Sundays. As part of the service analysis performed in Chapter 3, the following span of service hour improvement needs have been identified for weekdays, Saturdays and Sundays:

### Weekdays

- ART Route 41 – extend evening service until 12:30 a.m.
- ART Route 42 – extend evening service until 12:30 a.m.
- ART Route 75 – extend evening service until 12:30 a.m.
- ART Route 77 – extend evening service until 12:30 a.m.
- ART Route 87 – extend evening service until 12:30 a.m.
- Metrobus Route 9S – in conjunction with extension to 12<sup>th</sup> Street, extend service until 12:30 a.m.

### Saturdays

- ART Route 41 – extend evening service until 12:30 a.m.

- ART Route 42 – extend evening service until 12:30 a.m.
- ART Route 77 – extend evening service until 12:30 a.m.
- ART Route 87 – extend evening service until 12:30 a.m.

#### Sundays

- Route 41 – begin morning service at 6:30 a.m., extend evening service until 10:30 p.m.
- Route 42 – extend evening service until 10:30 p.m.
- Route 87 – begin morning service at 6:30 a.m., extend evening service until 10:30 p.m.

#### **4. New Service Periods**

Of the eleven ART fixed routes that operate on weekdays, only seven routes operate during the midday service period and six on weeknights. Some of the peak period only routes are designed to serve work oriented trips (e.g., ART Routes 61, 62, 74 and the upcoming 84 as well as Metrobus Routes 3Y and 16Y). Midday and evening services are needed along routes that offer commuting options to those working non-traditional hours or routes that serve important retail and recreational centers.

#### Midday Service Needs

- ART Route 62
- ART Route 75 between Columbia Heights West and Shirlington

#### Weeknight Service Needs

- ART Route 75 – extend evening service until 10:30 p.m.

#### **5. New Days of Service**

As noted earlier, on weekdays ART operates 11 fixed routes, five routes on Saturdays, and only two routes on Sundays. The service analysis performed in Chapter 3 identified the need for expanded weekend service on the following routes:

#### Saturdays – 6:30 a.m. to 7:00 p.m.

- ART Route 52 between East Falls Church Metro and Virginia Hospital Center
- ART Route 53
- ART Route 75
- ART Route 77
- Metrobus Route 9S

#### Sundays – 6:30 a.m. to 7:00 p.m.

- ART Route 42
- ART Route 75
- ART Route 77
- ART Route 87
- Metrobus Route 9S
- Metrobus Route 22A

## 6. Service Productivity Related Changes

Proposed service level modifications also include the elimination of the following underperforming routes:

### Saturdays

- Route 61 (effective March 27, 2010)

### Project Specific

- 1. Providing new transit service connections to Long Bridge Park** – Provide transit route between Pentagon, Long Bridge Park and Crystal City from 2:00 p.m. to 11:00 p.m. on weekdays and Saturdays, and from 2:00 p.m. to 9:00 p.m. on Sundays.
- 2. Columbia Pike Streetcar (Primary Transit Network Corridor)** – Implementation of the Columbia Pike Streetcar service will require modification to the existing Metrobus Route 16 service as well as other routes serving and crossing the corridor. These route modifications are under development.
- 3. Crystal City Potomac Yard Transitway** – Implementation of this transitway project will require modifications to the existing Metrobus Route 9 service in the corridor including addition of weeknight and weekend service. These route modifications are under development.
- 4. Blue Line Bus Service** - In anticipation of the implementation of the Silver Line to Dulles Airport, every third peak period Metrorail Blue Line train will use the Yellow Line bridge, resulting in the need to provide enhanced bus service between Crystal City, Pentagon City, Rosslyn and Courthouse.
- 5. East Falls Church Area Plan – Circulator Routes** - The purpose of the East Falls Church Area Plan is to generate a land use and transportation vision for transit-oriented development in the East Falls Church Metro Station area of Arlington County and the City of Falls Church. There are two principal aspects to this study: land use vision development and transportation planning. Circulator route design is under study.

## **Primary Transit Network Improvements**

Listed below are transit service improvements identified under each PTN corridor to implement the PTN network.

1. Wilson & Clarendon Boulevards – Ballston / Rosslyn / D.C.
  - a. Route 41 – running time adjustments resulting in consistent 15 minute frequency during peak and midday time periods on weekdays and Saturdays.
  - b. Route 42 – improve weekday midday service from 60 to 30 minute frequency, improve Saturday all day service from 60 to 30 minute frequency
  - c. Route 45 – new Columbia Pike to Rosslyn route operating on Weekdays at 30 minute frequencies peak and off-peak
  - d. Route 77 – improve weekday peak period service from 30 to 20 minute frequency, extend weekday service until 12:30 p.m., add new Saturday service until 12:30 p.m. and add Sunday service between 6:30 a.m. and 7:00 p.m.
  - e. In late August 2010, the D.C. Circulator (sponsored by the District of Columbia) was extended west from Georgetown to Rosslyn Metro Station on September 1, 2010
2. Parallel to Rte. 1 – Crystal City / Pentagon City / Pentagon
  - a. Metrobus Route 9S – in conjunction with extension to 12<sup>th</sup> Street, extend weekday service until 12:30 a.m.
3. Glebe Road – Potomac Avenue / Fairfax Drive
  - a. Route 41 – running time adjustments resulting in consistent 15 minute frequency during peak and midday time periods on weekdays and Saturdays.
  - b. Metrobus Route 23 A – Realign Metrobus 23 alignments to offer 10 minute peak and 15 minute off-peak service frequencies between Ballston Metro and the Shirlington Transit Station, 20 minute peak and 30 minute off-peak service along the remainder of the route, and improve on-time performance along the entire length of the route
4. Lee Highway – East Falls Church / Rosslyn / D.C.
  - a. Metrobus Route 3Y – extending route west along Lee Highway to the East Falls Church Station during weekday peak periods

## **Paratransit Services**

1. MetroAccess is the regional paratransit service established by WMATA under provisions of the Americans with Disabilities Act. Demand and required subsidies for this service have increased substantially each year. WMATA has proposed changes in eligibility and coverage to encourage shifting of some demand to other modes of transportation. However, WMATA has not been successful in improving productivity – as measured by boardings per service hour – to transport more people without increasing driver and vehicle requirements. One

person is transported for each hour that a MetroAccess vehicle is in use (March, 2010).

2. STAR is Arlington County's local alternative to MetroAccess service. The STAR fare structure was revised in 2006 to discourage use of long trips. Trips within Arlington have the same fare as MetroAccess, currently \$3.00. Trips serving the District of Columbia and Northern Virginia inside the beltway have a \$4.00 fare. Longer trips in the metropolitan area have a \$8.50 fare. STAR serves over three quarters of the paratransit trips made by Arlington residents, even though over 70% of STAR trips have one trip end outside Arlington and consequently a higher fare than MetroAccess. STAR's scheduling productivity is somewhat better than MetroAccess, and is working to improve beyond 1.3 boardings per hour.
3. Arlington County has other options besides MetroAccess and STAR for residents who cannot use fixed route transit services due to a disability. Most MetroAccess and STAR riders use Paratransit because they cannot reach the bus stop. One option that Arlington County intends to explore is to offer very localized service – within specified zones or neighborhoods. Like STAR, this service would be curbside, picking up passengers in front of their residences. This service could be focused on two markets:
  - a. Seniors traveling midday in neighborhoods where substantial numbers are aging in place in their homes, outside congregate senior living complexes. Like ART, the vehicles would serve designated bus stops at medical facilities, grocery stores, senior centers, and where riders could transfer to and from high-frequency transit routes. However, the vehicle could deviate between stops to provide curbside service. Service in two neighborhood zones would be considered as a pilot project, where midday service is offered two days each week.
  - b. Commuters with disabilities living near Metrorail stations or bus transit centers who could complete their commute on transit, if only they could reach that access point. Like ART, the vehicles would serve designated bus stops at Metrorail stations and bus transit centers. Morning rides would be pre-scheduled to offer curbside pickups. Evening trips could be pre-scheduled or not – qualified riders could approach a vehicle every 30 minutes at a Metrorail station or bus transit center and request a ride home.
4. For those who need point-to-point Paratransit service, STAR or MetroAccess could improve the grouping of many rides. STAR or MetroAccess could negotiate with those riders who need the same trip at the same time between the same addresses on a daily or weekly basis. Pickup times could be adjusted to allow the same group of people to ride on the same vehicle with the same driver regularly. The cost per ride to the County (and possibly the consumer) could be reduced, while the dependability of the trip would be increased. This solution would be especially important to MetroAccess riders, as the consistency and quality of STAR services are highly evaluated by STAR riders.

**Table 3  
Arlington Transit Needs Plan  
Operating Funding Requirements**

<b>Additional Service Need</b>	<b>Annual Bus-Hours / Buses</b>	<b>Provider / Route</b>	<b>Annual Cost Impact</b> <i>(Fully Allocated; In Current Dollars)</i>	<b>Service Start</b>
<b>Systemwide Connectivity Transit Needs</b>				
1. Columbia Pike and Rosslyn <i>(completed 7/6/2010)</i>	6,500 2 peak buses	ART	\$489,600	FY 2011
2. Crystal City and Arlington Hall	3,000 2 peak buses	ART or Metrobus	\$226,000	FY 2013
3. Ballston, Shirlington & Pentagon City/Crystal City	TBD	ART or Metrobus	TBD	FY 2013
<b>Re-Structured Fixed Route Service</b>				
1. New Route 84 / Modified Route 74 <i>(completed 6/21/2010)</i>	750	ART	\$56,500	FY 2010
2. Extend Route 75 to Shirlington Transit Station <i>(completed 9/27/2010)</i>	1,875 1 peak bus	ART	\$141,200	FY 2011
3. Extend Route 51 north and south	6,550 1 peak bus	ART	\$493,400	FY 2015
4. Extend Route 77 to Rosslyn	4,838 1 peak bus	ART	\$364,400	FY 2016
5. Restructure Route 62	TBD	ART	TBD	FY 2012 *
6. Metrobus Route 10B - Modify alignment in conjunction with 77 freq. improvements	TBD	Metrobus	TBD	FY 2013
7. Metrobus Route 23 Improvements	TBD, 3 buses	Metrobus	TBD	FY 2012
8. Metrobus Route 22A - Shirlington to Ballston supplemental service (BRAC Re-alignment)	11,820 3 buses	Metrobus	\$1,193,800	FY 2012
9. Metrobus Route 9S - Extend to 12th Street, provide evening service	10,430 2 buses	Metrobus	\$1,090,300	FY 2013
10. Metrobus Route 3Y - Extend Route to East Falls Church Metro Station	510 1 bus	Metrobus	\$53,300	FY 2012
11. Metrobus – Route 1 Corridor Busway service	TBD	Metrobus	TBD	FY 2014
* Route is being studied in FY 2011 for implementation in FY 2012.				

Not Shown in Table - MetroRail Blue Line Service Modifications

## **Arlington County Transit Service Plan**

This “TDP Six-Year Transit Service and Facility Plan” utilizes the transit service needs identified in Chapter 4 as a “Needs Plan” and identifies those priority transit service improvements, which are financially feasible within the six year timeframe of the TDP. Transit service initiatives have been selected from all seven types of transit service improvements. Following is a description of each transit service improvement by Fiscal Year (2011 – 2016). Table 4 presents a listing of bus-hours, bus requirements and annual O&M costs associated with each identified bus service improvement. Tables in Appendix E present service plan tables for each year of the six-year TDP time period.

### **FY 2011 Transit Service Improvement Plan**

#### *ART Route 41 – Columbia Pike/Ballston/Court House Metro*

- Weekdays – adjustments to running times will be made on this route with the addition of a fifth bus to create consistent 15 minute service frequencies. \*

#### *ART Route 42 – Ballston/Pentagon Metro*

- Weekdays – improve midday service from 60 to 30 minute frequency. \*

#### *ART Route 45 – Columbia Pike/Rosslyn (New Route)*

- This new route, implemented July 6, 2010, establishes new service between the Rosslyn Metrorail Station and Columbia Pike, operating on weekdays between approximately 6:30 a.m. and 7:30 p.m. at 30 minute service frequency. \*

#### *ART Route 61 – Rosslyn/Court House Metro Shuttle*

- Due to underperformance, this route is eliminated on Saturdays (effective March 27, 2010) \*

#### *New ART Route 84 – Douglas Park / Modified Route 74 – Douglas Park/Arlington Village/Arlington View/Pentagon City Metro*

- This route alignment change (effective June, 2010) establishes a new route 84 serving the Douglas Park loop formerly served by the existing Route 74. Route 84 also serves the Nauck neighborhood as well as large apartment buildings along South Glebe Road at 24<sup>th</sup> Road South. The existing Route 74 continues to serve the Columbia Heights, Arlington Village and Arlington View communities. Each route connects to Pentagon City Metro every half-hour during peak periods only. \*

#### *ART Route 75 – Wakefield H.S./Carlin Springs Road/Ballston Metro*

- This route was modified on September 27, 2010. The route was extended south from its existing end of line at South Dinwiddie Street and Chesterfield Road to the Shirlington Transit Station. It was also extended north to the Virginia Square Metrorail Station. \*

#### *ART Route 77 – Shirlington/Lyon Park/Court House Metro*

- Weekday - Extend service in evening by 3 hours until approximately 11:00 p.m. \*

**Table 4: ART TDP 6-Year Service Improvements and Costs**

Proposed Year	Route	Day of Week	Improvement Description	Wkly Pk Bus	Wkly Rev.-Hrs.	Sat. Pk Bus	Sat. Rev.-Hrs.	Sunday Pk Bus	Sunday Rev.-Hrs.	Annual Rev.-Hrs.	FY 2011 \$ O&M Cost	FY 2011 O&M Costs	FY 2012 O&M Costs	FY 2013 O&M Costs	FY 2014 O&M Costs	FY 2015 O&M Costs	FY 2016 O&M Costs
FY 2011	41	Wkly	Consistent 15-min. Wkly. frequency (requires 5th bus)	1	11.5					2,875	\$216,600	\$216,600	\$224,100	\$231,900	\$240,000	\$248,500	\$257,300
	42	Wkly	Improve midday frequency to 30-minutes	0	6.0					1,500	\$113,000	\$113,000	\$116,900	\$121,000	\$125,200	\$129,600	\$134,200
	45	Wkly	New Columbia Pike-Fosslyn route	2	26.0					6,500	\$489,600	\$489,600	\$506,600	\$524,300	\$542,700	\$561,800	\$581,600
	61	Sat	Eliminate 61 Saturday service			-1	-4.5			-257	-\$19,300	-\$19,300	-\$20,000	-\$20,700	-\$21,400	-\$22,200	-\$23,000
	74/84	Wkly	New Route 84/Modified 74 alignment (pk only service)	0	3.0					750	\$56,500	\$56,500	\$58,500	\$60,500	\$62,600	\$64,800	\$67,100
	75	Wkly	Extend service to Shirlington (pk only service)	1	7.5					1,875	\$141,200	\$141,200	\$146,100	\$151,200	\$156,500	\$162,100	\$167,800
	77	Wkly	Extend Evening service by 3 hours	0	6.0					1,500	\$113,000	\$113,000	\$116,900	\$121,000	\$125,200	\$129,600	\$134,200
Forsythe Contract - Additional \$7,830 per month - Street Supervisor, over 100K Revenue Hours (starts FY 2012)													\$93,960	\$93,960	\$93,960	\$93,960	\$93,960
<b>FY 2011 Total</b>				<b>4</b>	<b>60.0</b>	<b>-1</b>	<b>-4.5</b>	<b>0</b>	<b>0.0</b>	<b>14,744</b>	<b>\$1,110,600</b>	<b>\$1,110,600</b>	<b>\$1,243,060</b>	<b>\$1,283,160</b>	<b>\$1,324,760</b>	<b>\$1,368,160</b>	<b>\$1,413,160</b>
FY 2012	41	Sat	Consistent 15-min. Sat. frequency (requires 5th bus)			1	9.8			559	\$42,100		\$43,500	\$45,100	\$46,600	\$48,300	\$50,000
	42	Wkly	Add 4th bus to peak period service	1	6.0					1,500	\$113,000		\$116,900	\$121,000	\$125,200	\$129,600	\$134,200
	62	Wkly	Restructure route alignment (assumed cost-neutral)	0	0.0					0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	75	Wkly	Add midday & evening service	0	27.5					6,875	\$517,900		\$535,900	\$554,500	\$574,000	\$594,200	\$615,200
	<b>FY 2012 Total</b>				<b>1</b>	<b>33.5</b>	<b>1</b>	<b>9.8</b>	<b>0</b>	<b>0.0</b>	<b>8,934</b>	<b>\$673,000</b>		<b>\$696,300</b>	<b>\$720,600</b>	<b>\$745,800</b>	<b>\$772,100</b>
FY 2013	42	Sat	Improve Sat. frequency to 30-minutes			1	11.0			827	\$47,200		\$50,600	\$52,300	\$54,200	\$56,100	\$58,100
	77	Sat	Start Saturday service on this route			2	25.0			1,425	\$107,300		\$114,900	\$119,000	\$123,200	\$127,500	\$131,900
	77	Wkly	Improve peak frequencies to 20-minutes	1	6.5					1,625	\$122,400		\$131,100	\$135,700	\$140,400	\$145,400	\$150,600
	New	All	Pentagon/Long Bridge Park/Crystal City Metro	2	18.0	2	18.0	2	14.0	6,338	\$477,400		\$511,200	\$529,100	\$547,800	\$567,100	\$587,100
	New	Wkly	Crystal City/Arlington Hall route (pk only service)	2	12.0					3,000	\$226,000		\$242,000	\$250,500	\$259,300	\$268,500	\$278,200
New	Wkly	Pentagon City/Crystal City/Fosslyn/Courthouse	2	28.0					7,000	\$527,300		\$564,600	\$584,400	\$605,000	\$626,400	\$648,400	
Forsythe Contract, Bus Insurance fixed costs increase by \$158 per extra vehicle per month over 40 fleet buses													\$32,976				
<b>FY 2013 Total</b>				<b>7</b>	<b>64.5</b>	<b>5</b>	<b>54.0</b>	<b>2</b>	<b>14.0</b>	<b>20,015</b>	<b>\$1,507,600</b>		<b>\$1,647,376</b>	<b>\$1,671,000</b>	<b>\$1,729,900</b>	<b>\$1,791,000</b>	<b>\$1,854,000</b>
FY 2014	41	Wkly	Improve wkly evening frequencies to 15-minutes	0	8.0					2,000	\$150,700				\$167,000	\$172,900	\$179,000
	42	Sun	Start Sunday service on this route					2	20.5	1,189	\$89,600				\$99,500	\$102,800	\$106,400
	Forsythe Contract, Bus Insurance fixed costs increase by \$158 per extra vehicle per month over 40 fleet buses														\$32,976		
<b>FY 2014 Total</b>				<b>0</b>	<b>8.0</b>	<b>0</b>	<b>0.0</b>	<b>2</b>	<b>20.5</b>	<b>3,189</b>	<b>\$240,300</b>				<b>\$299,276</b>	<b>\$327,700</b>	<b>\$345,400</b>
FY 2015	51	All	Extend north to Langston Com. Cr. And south to Quilpepper Com Cr.	1	18.5	1	18.0	1	15.5	6,550	\$493,400				\$566,100	\$586,100	\$607,100
	51/52/53	Wkly	Add bus for running time adjustments / on-time performance	1	14.0					3,500	\$263,700				\$302,500	\$313,200	\$324,200
	52/53	Sat	Start Saturday service on these routes			4	25.0			1,425	\$107,300				\$123,200	\$127,500	\$131,900
Forsythe Contract, Bus Insurance fixed costs increase by \$158 per extra vehicle per month over 40 fleet buses															\$49,464		
<b>FY 2015 Total</b>				<b>2</b>	<b>32.5</b>	<b>5</b>	<b>43.0</b>	<b>1</b>	<b>15.5</b>	<b>7,975</b>	<b>\$600,700</b>				<b>\$1,041,264</b>	<b>\$1,076,800</b>	<b>\$1,113,100</b>
FY 2016	77	Wkly	Extend route to Fosslyn	1	16.5					4,125	\$310,700						\$369,100
	77	Sat	Extend route to Fosslyn			1	12.5			713	\$53,700						\$63,800
	87	Wkly	Extend evening service hours	0	6.0					1,500	\$113,000						\$134,200
	87	Sat	Extend evening service hours			0	7.0			399	\$30,100						\$35,700
Forsythe Contract, Bus Insurance fixed costs increase by \$158 per extra vehicle per month over 40 fleet buses																\$54,960	
<b>FY 2016 Total</b>				<b>1</b>	<b>22.5</b>	<b>1</b>	<b>19.5</b>	<b>0</b>	<b>0.0</b>	<b>6,737</b>	<b>\$507,500</b>						<b>\$657,760</b>
<b>TOTAL BUSES, HOURS AND COSTS</b>				<b>15</b>	<b>221.0</b>	<b>11</b>	<b>121.8</b>	<b>5</b>	<b>50.0</b>	<b>63,343</b>	<b>\$4,771,550</b>	<b>\$1,110,600</b>	<b>\$1,939,360</b>	<b>\$3,651,136</b>	<b>\$4,040,836</b>	<b>\$5,187,124</b>	<b>\$5,973,520</b>

## **FY 2012 Transit Service Improvement Plan +**

### *ART Route 41 – Columbia Pike/Ballston/Court House Metro*

- Saturdays – adjustments to running times will be made on this route with the addition of a fifth bus to create consistent 15 minute service frequencies during midday and afternoon periods \*

### *ART Route 42 – Ballston/Pentagon Metro*

- Weekdays – Add a 4<sup>th</sup> bus in the peak periods to operate at consistent 20-minute frequencies

### *ART Route 62 – Court House Metro/Lorcom Lane/Ballston Metro*

- Weekdays – This route, in conjunction with Route 61, is proposed for alignment restructuring to enhance service performance \*

### *ART Route 75 – Shirlington/Wakefield H.S./Carlin Springs Road/Ballston Metro*

- Weekdays – add midday service and extend evening service to approximately 10:30 p.m. at 30 minute service frequency \*

### *New ART Route – Aurora Highlands Circulator*

- Study feasibility of implementing new route in the Aurora Highlands neighborhood.

### *ART Route 45 – Columbia Pike/DHS/Rosslyn*

- Study feasibility of realignment or extension

\* These projects complete implementation of the Arlington Transit (ART) Enhanced and New Services for FY 2010 & FY 2011 plan approved by the County Board on September 26, 2009.

+ These projects are dependent upon availability of annual County Board-approved appropriations.

## **FY 2013 Transit Service Improvement Plan +**

### *ART Route 42 – Ballston/Pentagon Metro*

- Saturdays - improve all day service from 60 to 30 minute frequency

### *ART Route 75 - Shirlington/Wakefield H.S./Carlin Springs Road/Ballston Metro*

- Weekends – new Saturday from 6:30 a.m. to 10:30 p.m. at 30 minute frequency, and new Sunday service from 6:30 a.m. to 7:00 p.m. at 30 minute frequency

### *ART Route 77 – Shirlington/Lyon Park/Court House Metro*

- Weekday – improve peak period service from 30 to 20 minute frequency
- Saturday – new service from 6:30 a.m. to 7:00 p.m. at 30 minute frequency

### *New ART Route – Pentagon/Long Bridge Park/Crystal City Metro*

- Weekdays and Weekends – new transit service connecting the Pentagon Metro Station, Long Bridge Park and Crystal City Metro Station, operating at 30 minute service frequency in the afternoon and evening hours only

### *New ART or Metrobus Route – Crystal City/Arlington Hall*

- Weekdays only - new transit service connecting the Arlington Hall and Crystal City Metro Station, operating at 30 minute service frequency in the peak periods only

### *New ART or Metrobus Route – Pentagon City/Crystal City/Rosslyn/Court House*

- Weekdays only - new transit service connecting the Pentagon City Metro, Crystal City Metro, Rosslyn Metro and Court House Metro Stations, operating at 30 minute service frequency all day (14 hours)

+ These projects are dependent upon availability of annual County Board-approved appropriations.

**FY 2014 Transit Service Improvement Plan +**

*ART Route 41 – Columbia Pike/Ballston/Court House Metro*

- Weekdays – improve evening service from 30 to 15 minute frequency

*ART Route 42 – Ballston/Pentagon Metro*

- Sundays - new service from 6:30 a.m. to 7:00 p.m. at 30 minute frequency midday and 60 minute early morning and evening

+ These projects are dependent upon availability of annual County Board-approved appropriations.

**FY 2015 Transit Service Improvement Plan +**

*ART Route 51 – Ballston Metro/Virginia Hospital Center*

- Weekdays, Saturdays and Sundays – extend route alignment north to the Langston Community Center and south to Culpepper Community Center

*ART Route 51 – Ballston Metro/Virginia Hospital Center*

*ART Route 52 – Ballston Metro/East Falls Church Metro*

*ART Route 53 – Ballston Metro/Glebe/East Falls Church Metro*

- Weekdays – add bus to be shared over three routes for running time adjustments / on-time performance

*ART Route 52 – Ballston Metro/East Falls Church Metro*

- Saturday – new service from 6:30 a.m. to 7:00 p.m. at 60 minute frequency

*ART Route 53 – Ballston Metro/Glebe/East Falls Church Metro*

- Saturday – new service from 6:30 a.m. to 7:00 p.m. at 60 minute frequency

+ These projects are dependent upon availability of annual County Board-approved appropriations.

**FY 2016 Transit Service Improvement Plan +**

*ART Route 77 – Shirlington/Lyon Park/Court House Metro*

- Weekday and Saturday – extend route alignment to the Rosslyn Metro station

*ART Route 87 – Pentagon Metro to Shirlington Station*

- Weekday – extend evening service hours until 12:30 a.m.
- Saturday – extend evening service hours until 12:30 a.m.

+ These projects are dependent upon availability of annual County Board-approved appropriations.

**Table 5: ART OPERATING STATISTICS – FY 2016 PROPOSED SERVICE**

Weekday

Rt. #	Route Name	Span of Service	Service Frequency				Average Weekday		Bus Requirements			
			AM Peak	Mid-day	PM Peak	Eve	Hrs.	Miles	AM Peak	Mid-day	PM Peak	Eve.
41	Columbia Pike–Ballston–Courthouse	6:00 am–11:17 pm	15	15	15	15	78.5	660.0	5.00	5.00	5.00	4.00
42	Ballston–Pentagon	5:50 am–7:22 pm	20	30	20	30	32.0	332.8	3.00	2.00	3.00	2.00
45	Columbia Pike–Rosslyn	6:30 am–7:30 pm	30	30	30	30	26.0	249.6	2.00	2.00	2.00	2.00
51	Culpepper–Ballston–Virginia Hospital Ctr.–Langston	6:04 am–12:30 am	30	30	30	30	37.0	303.4	2.00	2.00	2.00	2.00
52	Ballston Metro–East Falls Church Metro	6:20 am–8:45 pm	30	60	30	60	21.0	210.0	2.00	1.00	2.00	1.00
53	Ballston–Old Glebe–East Falls Church	6:00 am–9:25 pm	30	60	30	30	24.5	352.8	2.00	1.00	2.00	2.00
61	Rosslyn Court House Metro Shuttle	Peaks Only	22.5	n/a	22.5	n/a	13.0	105.0	2.00	0.00	2.00	0.00
62	Court House–Lorcom Lane–Ballston	Peaks Only	30	n/a	30	n/a	14.0	117.6	2.00	0.00	2.00	0.00
74	Arl. Village/View–Pentagon City	Peaks Only	30	n/a	30	n/a	7.5	111.0	1.00	0.00	1.00	0.00
75	Shirlington.–Carlin Springs Rd.–Ballston	6:00 am–10:30 pm	30	30	30	30	49.5	455.4	3.00	3.00	3.00	3.00
77	Shirlington–Lyon Park–Courthouse–Rosslyn	6:00 am–7:55 pm	20	30	20	30	56.0	481.9	4.00	3.00	4.00	3.00
84	Pentagon City–Douglas Park	Peaks Only	30	n/a	30	n/a	7.5	117.0	1.00	0.00	1.00	0.00
87	Pentagon–Army Navy Dr.–Shirlington	5:30 am–12:30 am	20	30	20	20	48.0	489.6	3.00	2.00	3.00	3.00
87a	Pentagon–Army Navy Dr.–26th/Troy	Peaks Only	20	n/a	20	n/a	1.2	22.4	1.00	0.00	1.00	0.00
New	Crystal City–Arlington Hall	Peaks Only	30	n/a	30	n/a	12.0	132.0	2.00	0.00	2.00	0.00
New	Rosslyn–Pentagon–Long Bridge Park	2:00 pm–11:00 pm	n/a	n/a	30	30	18.0	198.0	0.00	0.00	2.00	2.00
New	Pentagon/Crystal City/Rosslyn/Courthouse	All-Day	30	30	30	30	28.0	308.0	2.00	2.00	2.00	2.00
New	Running Time Adjustment Rte's 51/52/53	All-Day	60	60	60	60	14.0	151.2	1.00	1.00	1.00	1.00
							<b>487.7</b>	<b>4,797.7</b>	<b>38.00</b>	<b>24.00</b>	<b>40.00</b>	<b>27.00</b>

**Saturday**

Route	Route Name	Span of Service	Serv. Freq.			Average Saturday		Bus Requirements	
			AM	Mid/PM	Eve.	Rev. Hrs.	Rev. Miles	Midday	Eve.
41	Columbia Pike-Ballston-Courthouse	7:00 am-11:17 pm	30	15	30	62.8	520.0	5.00	2.00
42	Ballston-Pentagon	6:30 am-7:17 pm	30	30	60	24.0	249.6	2.00	1.00
51	Culpepper-Ballston-Virginia Hospital Ctr.-Langston	6:05 am-12:15 am	30	30	30	36.0	295.2	2.00	2.00
52	Ballston Metro-East Falls Church Metro	6:30 am-7:00 pm	60	60	60	12.5	125.0	1.00	1.00
53	Balston-Old Glebe-East Falls Church	6:30 am-7:00 pm	60	60	60	12.5	180.0	1.00	1.00
75	Shirlington.-Carlin Springs Rd.-Ballston	6:30 am-10:30 pm	30	30	30	48.0	441.6	3.00	3.00
77	Shirlington-Lyon Park-Courthouse-Rosslyn	6:30 am-7:00 pm	30	30	30	37.5	305.0	3.00	3.00
87	Pentagon-Army Navy Dr.-Shirlington	7:00 am-12:30 am	30	30	30	35.0	357.0	2.00	2.00
New	Rosslyn-Pentagon-Long Bridge Park	2:00 pm-11:00 pm	n/a	30	30	18.0	198.0	2.00	2.00
						<b>286.3</b>	<b>2,671.4</b>	<b>21.00</b>	<b>17.00</b>

**Sunday**

Route	Route Name	Span of Service	Serv. Freq.			Average Sunday		Bus Requirements	
			AM	Mid/PM	Eve.	Rev. Hrs.	Rev. Miles	Midday	Eve.
41	Columbia Pike-Ballston-Courthouse	8:00 am-8:36 pm	60	22	n/a	30.3	352.0	3.00	0.00
42	Ballston-Pentagon	6:30 am-7:00 pm	60	30	60	20.5	213.2	2.00	1.00
51	Culpepper-Ballston-Virginia Hospital Ctr.-Langston	6:45 am-10:25 pm	30	30	30	31.0	254.2	2.00	2.00
75	Shirlington.-Carlin Springs Rd.-Ballston	6:30 am-7:00 pm	30	30	30	37.5	345.0	3.00	3.00
New	Rosslyn-Pentagon-Long Bridge Park	2:00 pm-9:00 pm	n/a	30	30	14.0	154.0	2.00	2.00
						133.3	1,318.4	12.00	8.00

**Summary Of FY 2016 Proposed Service Statistics**

Statistic	Day	Daily	Annual	Annual	Existing	Change	Percent
		Value	Factor	Value	Value	from Exist	Change
<b>Annual</b>	Weekdays	928	250	232,000	152,250	79,750	52.4%
<b>Bus Trips</b>	Saturdays	494	57	28,158	14,592	13,566	93.0%
	Sundays	236	58	13,688	6,786	6,902	101.7%
	Annual		365	273,846	173,628	100,218	57.7%
<b>Annual Rev.</b>	Weekdays	488	250	121,916	68,291	53,625	78.5%
<b>Bus-Hours</b>	Saturdays	286	57	16,316	6,641	9,676	145.7%
	Sundays	133	58	7,731	2,656	5,075	191.0%

	Annual		365	145,964	77,588	68,376	88.1%
<b>Annual Rev.</b>	Weekdays	4,798	250	1,199,425	710,000	489,425	68.9%
<b>Bus-Miles</b>	Saturdays	2,671	57	152,270	61,241	91,029	148.6%
	Sundays	1,318	58	76,467	28,687	47,780	166.6%
	Annual		365	1,428,162	799,928	628,234	78.5%
<b>Peak Buses</b>	Weekdays	40	n/a	40	26	14	53.8%
	Saturdays	21	n/a	21	9	12	133.3%
	Sundays	12	n/a	12	4	8	200.0%

**Table 6**  
**TDP Financial Plan for Annual O&M Costs (Costs in Year of Expenditure Dollars)**

Service Statistic/ Funding Category	Estimated FY 2010	Budget FY 2011	Project'd. FY 2012	Project'd. FY 2013	Project'd. FY 2014	Project'd. FY 2015	Project'd. FY 2016
<b>ART Fixed Route Statistics</b>							
Wkdy Peak Buses Req'd.	26	30	32	37	37	39	40
Sat. Peak Buses Req'd.	9	8	12	17	17	20	21
Sun. Peak Buses Req'd.	4	4	6	9	11	12	12
Fleet Buses	13	13	13	16	16	16	16
Annual Rev. Bus-Hrs.	77,588	92,332	106,602	124,563	127,752	139,227	145,964
<b>STAR Paratransit Bus-Hrs.</b>	43,705	43,705	43,705	43,705	43,705	43,705	43,705
<b>PROJECTED O&amp;M COSTS</b>							
ART Fixed Route	\$6,596,252	\$7,791,600	\$9,132,400	\$10,525,800	\$10,773,200	\$11,663,400	\$12,186,100
STAR Paratransit	\$2,948,956	\$2,836,900	\$2,922,000	\$3,009,700	\$3,100,000	\$3,193,000	\$3,288,800
<b>TOTAL COSTS</b>	<b>\$9,545,208</b>	<b>\$10,628,500</b>	<b>\$12,054,400</b>	<b>\$13,535,500</b>	<b>\$13,873,200</b>	<b>\$14,856,400</b>	<b>\$15,474,900</b>
<i>Change from Prior Year</i>		\$1,083,292	\$1,425,900	\$1,481,100	\$337,700	\$983,200	\$618,500
<b>Anticipated Funding Sources</b>							
<b>ART Revenues</b>							
Farebox Revenues		\$1,572,200	\$1,815,200	\$2,121,000	\$2,175,300	\$2,370,700	\$2,485,400
Bus Contributions (51/52)		\$60,000	\$61,800	\$63,700	\$65,600	\$67,600	\$69,600
Bus Contributions (67)		\$211,000	\$217,300	\$223,800	\$230,500	\$237,400	\$244,500
State Transit Aid		\$1,892,300	\$1,949,100	\$2,007,600	\$2,067,800	\$2,129,800	\$2,193,700
<b>ART General Fund Support</b>		<b>\$4,056,100</b>	<b>\$5,089,000</b>	<b>\$6,109,700</b>	<b>\$6,234,000</b>	<b>\$6,857,900</b>	<b>\$7,192,900</b>
<i>Change from Prior Year</i>		\$4,056,100	\$1,032,900	\$1,020,700	\$124,300	\$623,900	\$335,000
<b>STAR Revenues</b>							
Farebox Revenues							
State Transit Aid							
<b>STAR General Fund Support</b>		\$2,836,900	\$2,922,000	\$3,009,700	\$3,100,000	\$3,193,000	\$3,288,800
<i>Change from Prior Year</i>		\$2,836,900	\$85,100	\$87,700	\$90,300	\$93,000	\$95,800
<b>TOTAL PROJECTED REVENUES</b>	<b>\$0</b>	<b>\$10,628,500</b>	<b>\$12,054,400</b>	<b>\$13,535,500</b>	<b>\$13,873,200</b>	<b>\$14,856,400</b>	<b>\$15,474,900</b>

Inflation rate 3.0%

## Table 6 (Continued)

### NOTES:

- 1 ART peak bus requirements and annual revenue bus-hours based on TDP-proposed service plans through FY 2016.
- 2 STAR scheduled trips assumed to grow 3%/year.
- 3 Projected ART costs for FY2010 and budgeted FY 2011 costs obtained from Arlington County's FY2011 budget.
- 4 STAR FY2010 costs obtained from STAR FY 2010 Monthly Report spreadsheet.
- 5 STAR FY2011 budget total obtained from Arlington County's FY2011 budget.
- 6 STAR's annual O&M costs reflect a net cost to the County, after service providers have collected passenger cash fares.
- 7 Annual O&M costs for new ART service based on rate of \$75.32 per revenue bus-hour (FY 2011).
- 8 Assumed inflation rate for ART's hourly rate is 3% year.
- 9 STAR annual O&M costs assumed to grow at same rate as scheduled trips (3%/year).
- 10 State transit aid in 2010 for ART and STAR provided by ART staff.
- 11 For FY 2011, VDRPT identified \$. 92 million for Arlington County for ART; \$. 946 million for STAR.
- 12 Future state aid assumed to grow at rate consistent with VDRPT SYP, assumed to be split 79% ART/21% STAR.
- 13 Farebox revenues assumed to grow at same rate as service-hours.
- 14 Farebox revenues also assume a 20 cent fare increase in FY2013 and FY2015 (about 12% each year).  
Bus contributions assumed to remain constant through TDP time period. FY 2011 amount obtained from Arlington County budget.
- 15 STAR bucks revenues are about \$80,000 per year. A 3% increase per year is assumed for FY2012-FY2016.  
General Fund Support based on anticipated costs, minus anticipated farebox revenues, STAR coupon sales, developer contributions, & state aid.
- 16 TDM program costs and revenues not included in above table.

## **SIX-YEAR TRANSIT SERVICE AND FACILITY PLAN - CAPITAL IMPROVEMENTS PROGRAM**

This plan identifies the cost-feasible transit service and capital needs that are recommended for inclusion in the TDP time period (FY 2011 through FY 2016). Recommended improvements presented in this chapter are financially constrained, based on anticipated funding availability during the TDP time period.

TDP capital improvement recommendations for FY 2011 through FY 2016 are consistent with capital improvement categories in the Arlington County Capital Improvement Program (CIP). Capital improvement recommendations are categorized into four types: vehicles, maintenance facility improvements, passenger facility improvements and Metro Matters (WMATA Federal-State-Local Partnership Capital Investment Program). Vehicle costs have been updated to reflect vehicle needs as identified in this TDP. Recommendations for the Six-Year TDP are identified by fiscal year below under each type of capital improvement.

### **Vehicle Recommendations**

Arlington Transit owns and operates a fleet of 35 transit buses for fixed-route revenue service. Model years for these vehicles range from 2002 to 2008. Table 7 identifies Arlington Transit's fleet composition and proposed fleet replacement and expansion plan. ART intends to retire 15 vehicles in Fiscal Years 2011 and 2012. These will be replaced with twelve (12) 30-foot heavy-duty low-floor buses powered by compressed natural gas (CNG) in the summer of 2010. An additional five buses will be needed in 2012 (of which three are replacements), nine new buses in FY 2013, 3 new buses in FY 2015 and one new bus in FY 2016. Thus, a total of 30 bus purchases are reflected in this six-year TDP. These buses will maintain a 20% spare ratio and expand the fleet to accommodate future service changes / expansion plans (described earlier in this section). Due to the age and condition of the 2002 and 2003 Ford E-450 buses in the fleet, the Transit Bureau is proceeding to identify and procure suitable low-floor narrow-width wheelchair-accessible replacement buses powered by compressed natural gas. These would be used to serve neighborhood streets that can not accommodate standard-width transit buses.

**Table 7  
Arlington Transit Fleet Replacement and Expansion Schedule**

		Transit Development Plan Period						
		Vehicle Fleet						
Year	Make	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
2002	Ford E450	6						
2003	Ford E450	2						
2004	SPCAmbassador	1						
2004	GLV MB55	1						
2006	Ford E450	5	3					
2007	Nabi 35LFW	8	8	8	8	8	8	8
2008	Nabi 35LFW	12	12	12	12	12	12	12
2011	30 Foot ONG		12	12	12	12	12	12
2012	30 Foot ONG			2	2	2	2	2
2012	35 Foot ONG			3	3	3	3	3
2013	30 Foot ONG				4	4	4	4
2013	35 Foot ONG				5	5	5	5
2015	35 Foot ONG						3	3
2016	35 Foot ONG							1
<b>Fleet Size</b>		<b>35</b>	<b>35</b>	<b>37</b>	<b>46</b>	<b>46</b>	<b>49</b>	<b>50</b>
Peak Buses		26	30	31	38	38	40	41
Spare Buses		9	5	6	8	8	9	9
Spare %		35%	17%	19%	21%	21%	23%	22%

The funding proposed for fleet replacement and enhancement is as shown in Table 8 below. This is an update to what is reflected in Arlington's current CIP, for this table reflects bus replacement/expansion needs identified above in Table 6. Most of the ART fleet program will be funded by Transportation Investment Funds and state capital reimbursement grants.

**Table 8  
ART Fleet Replacement and Expansion Funding in FY 2011 Capital Improvements Program**

Program	FY 2011 (000s)	FY 2012 (000s)	FY 2013 (000s)	FY 2014 (000s)	FY 2015 (000s)	FY 2016 (000s)	Total for FY 2011-16 (000s)
ART Fleet Replacement	5,995	1,375	0	0	0	0	7,370
ART Fleet Expansion		917	4,249	0	1,503	516	7,185
<b>Total Costs</b>	<b>5,995</b>	<b>2,292</b>	<b>4,249</b>	<b>0</b>	<b>1,503</b>	<b>516</b>	<b>14,555</b>

### Maintenance Facility Recommendations

**ART House (bus maintenance facility and CNG fueling facility)** – The ART House site includes a CNG fueling facility, and a maintenance garage for the ART bus services and fleet with the administrative and operations offices across the street. The development of the ART House facilities will be completed in phases. The initial phase will include site improvements on 2900 Jefferson Davis Highway, utilities, a CNG fueling station and a bus wash facility. Subsequent phases will include the

maintenance facility. Work is underway to develop permanent offices for administration and operations at 2900 S. Eads Street. Total Phase 1 Project Cost is estimated to be \$6.0 million.

The funding proposed in the FY 2011 CIP for the ART facility improvements is as shown in Table 8 below. The capital costs for the six year period in the FY 2011 CIP are estimated to be \$13.25 million. This is an ongoing program and future phases will require funding of an additional \$6.75 million. Most of the ART House program will be funded by Transportation Investment Funds and state capital reimbursement grants.

**Table 8  
ART House Funding in FY 2011 Capital Improvements Program**

<b>Program</b>	<b>FY 2011 (000s)</b>	<b>FY 2012 (000s)</b>	<b>FY 2013 (000s)</b>	<b>FY 2014 (000s)</b>	<b>FY 2015 (000s)</b>	<b>FY 2016 (000s)</b>	<b>Total for FY 2011-16 (000s)</b>	<b>Future Funds Required (000s)</b>	<b>Total Project Cost (000s)</b>
ART House	3,750	7,000	2,500	0	0	0	13,250	6,750	20,000

**Passenger Amenities & Access Improvements**

Arlington’s Transit Capital Program includes projects to upgrade station facilities and access to the Metrorail system and passenger amenities specific to Columbia Pike as well as systemwide. Implementation of the transit capital improvement plan will provide the necessary new and improved infrastructure to support the goals and objectives of the Transit Element in the Master Transportation Plan (MTP). Below are brief descriptions of needed passenger amenities and access improvements.

**Rosslyn Station Access Improvements** – This project includes the design and construction of three new high speed, high-capacity elevators, a mezzanine with fare gates and kiosk, emergency stairs, and related infrastructure for the Rosslyn Metrorail Station. Total project cost is estimated to be \$44 million.

**Ballston-MU Station West Entrance** – This project includes a new entrance at the west end of the station to provide easier access from the Glebe Road area and growing development in the western part of Ballston; this entrance will be located at the intersection of North Fairfax Drive and North Vermont Street and will include two street level elevators and escalators connecting to an underground passageway and new mezzanine with stairs and elevators to the train platform. Total project cost is estimated to be approximately \$62 million, assuming the project is constructed in coordination with redevelopment of the adjacent privately-owned site.

**Fairfax Drive Sidewalk and Bus Stop Improvements (Ballston Station Multimodal Improvements)** – This project improvements are anticipated to include reconstructed bus bays, new bus shelters and amenities, passenger information systems and services, bicycle parking, and expanded pedestrian plaza, landscaping, and revised curb utilization. The Total Project Cost is estimated to be \$6.4 million.

**Bus Stop and Shelter Program** – This project will provide bus shelters, concrete area pads, benches, other amenities, improved safety and accessibility with better pedestrian connections at

stops along bus routes that form the Secondary Transit Network (STN) connecting neighborhoods, community facilities, and urban centers, with the Primary Transit Network (PTN). Total Project Cost is estimated to be \$1.8 million.

**Transportation Infrastructure Maintenance Capital** – Bus stops and shelters require continual repairs and upgrades to keep them safe, accessible, and attractive, which is an important factor in encouraging greater transit use. Some shelters in the County have been in place for over 30 years, compared to a 20-year useful life. The ongoing capital maintenance program also provides for new bus stop shelters to existing stops when vandalism or other damage requires immediate replacement. The average cost of a shelter replacement is \$7,000. The goal of the bus stop shelter program is to replace 10 of the 215 bus shelters each year. Total Project Cost is estimated at \$0.42 million (\$70,000 per year for six years).

**Columbia Pike Superstops** – Super Stops are larger, architect-designed bus shelters with the following proposed passenger amenities: electronic and printed information, maps for bus routes and areas; wireless access to information such as cell, PDA, web “Hot Zone”; ample seating, enhanced lighting and new security features; vendor corrals, improved landscaping, sidewalks, curb and gutter. The initial project will build three prototype Super Stops. Ultimately a total of 22 Super Stops shelters at 11 locations along Columbia Pike have been identified. Construction on the three prototype stops is scheduled to begin before the end of CY 2010 and be completed by late summer, 2011<sup>1</sup>, at a project cost of \$2.6 million<sup>2</sup>. Total project cost for the 22 Super Stops is estimated to be \$12.1 million<sup>3</sup>.

**Pentagon City Pedestrian Tunnel Restoration** – The subject entryway consists of stairs at the northeast corner of the intersection of S. Hayes Street and 12<sup>th</sup> Street South going down to a pedestrian tunnel constructed under South Hayes Street and connecting through glass doors to the mezzanine level of the Pentagon City Metro Station. Repairs will address deteriorated lighting and electrical systems, an ineffective drainage system, leaking concrete expansion joints, deteriorated doors and gates, and damaged floor tiles, handrails, and ceiling panels. Improved signage, security cameras and an emergency call box in the tunnel will be installed. Total Project Cost is estimated to be \$0.80 million.

**Pentagon City Station Elevator** – The Pentagon City Metrorail station is among the most heavily utilized in Arlington County; currently there is one street-level elevator entrance located on the east side of Hayes Street. This project will result in a second elevator entrance to the Pentagon City Metrorail station from the street level to the mezzanine level of the station. The elevator will be located on the west side of South Hayes Street near the existing west side escalator. Total Project Cost is estimated to be \$8 million.

**Crystal City Station Access Improvements** – In 2002 WMATA completed a study identifying a need for a second entrance to the Crystal City Metrorail Station and additional internal circulation capacity improvements. The recent Crystal City Sector Plan update reinforced the need for an additional

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<sup>1</sup> The first 3–4 stops will be constructed by early 2011. Construction of the remaining 19 Superstops will be phased over several years.

<sup>2</sup> Approximately \$600k for planning and preliminary design and \$2M for construction + WMATA costs

<sup>3</sup> 19 remaining stops at \$500k each, assuming built by County, = \$9.5M

entrance located near the intersection of Crystal Drive and 18<sup>th</sup> Street South. The entrance would consist of elevators and stairs or escalators, a new tunnel connecting to the train room, station mezzanine reconfiguration, and additional stairs between the mezzanine and platform. Total project cost is estimated to be \$36 million<sup>4</sup>. Construction may occur in phases.

**Court House Station Access Improvements** – In 2004 WMATA completed a study that concluded an additional entrance to the Court House Metrorail Station was needed to meet forecast demand and improve reliability of elevator access. Subsequent public input has confirmed the demand for a new access point or at a minimum an additional elevator. Total project cost is estimated to be \$36 million<sup>5</sup> for a new entrance or \$9 million<sup>6</sup> for a new elevator.

**Crystal City Multimodal Transportation Center** – As part of the Crystal City Sector Plan update, the need for a multimodal transportation center in Crystal City was identified. This center would provide transfers among bicycles, buses, streetcar, and Metrorail, and would be constructed as part of private redevelopment. Total project cost is estimated to be \$6 million<sup>7</sup>.

**WALKArlington Program** – The WALKArlington program makes physical enhancements to Arlington’s sidewalk and street infrastructure including transit-access improvements and stand-alone safety and accessibility upgrades. Total Project Cost: The six-year cost for this on-going program is expected to be \$9.2 million.

### **Special Transit Projects**

**Columbia Pike Streetcar (from Pentagon to County Line)** – This project involves the construction of a streetcar line between Pentagon City and Skyline in Bailey’s Crossroads area of Fairfax County along the Columbia Pike Corridor. The project includes the construction of streetcar railway primarily in the curb lanes in each direction, power control and communication systems, and a maintenance facility. This project includes the purchase of 11 streetcars. Total Project Cost is estimated to be \$138 million for the portion of the project within Arlington County.

**Route 1 Streetcar** – This project will implement a streetcar system with primarily dedicated transit lanes and improved stations from Arlington’s Potomac Yard through Crystal City and into Pentagon City. Ultimately the Route 1 streetcar system will be part of a coordinated streetcar system extending from the Pentagon and Pentagon City Metrorail stations in Arlington via the Columbia Pike Streetcar network to Skyline in the Baileys Crossroads area. The environmental clearance process is slated to begin in early 2011, with construction beginning in early 2015. Total Project Cost is estimated to be \$140 million.

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<sup>4</sup> Estimate from the 2002 WMATA study, adjusted by the CPI for Transportation to 2010 dollars

<sup>5</sup> Estimate from the 2004 WMATA study, adjusted by the CPI for Transportation to 2010 dollars

<sup>6</sup> A bit higher than Pentagon City due to additional depth. About double the estimate for the street elevator hoistway and emergency stair from the 2004 study.

<sup>7</sup> Estimated at 500 ft long by 40 ft wide at \$200/SF = \$4M (just about what was spent on Shirlington Station). Escalated by 50% to include engineering, financing, and contingency.

**ITS Program Planning & Implementation** – The envisioned ITS system will establish a wireless network for communications among transit vehicles, traffic signals and control centers to improve performance and reliability as well as safety. Arlington Transit is currently developing a proof of concept Intelligent Transportation System on the Columbia Pike Corridor. This program would provide for the extension of that technology to the Secondary Transit Network through deployment in the ART fleet and bus shelters. The same ITS technology will be extended throughout the Primary Transit Network as part of the Complete Streets arterial program and through deployment in Metro and ART buses and shelters. Total Project Cost is estimated to be \$0.4 million.

**Columbia Pike ITS** – The project will design and deploy a high speed transit bus communications system utilizing mobile and stationary sources along the Columbia Pike. The communications network will be connected to a transit operations control center, co-hosted with the County's signal control center. The communications system will be used to provide real time traveler information to customers, to control signal systems, and transit operations. Implementation will begin in August 2010 with the testing period continuing until December 2011. Total Project Cost is estimated to be \$0.5 million.

**Commuter Information Systems** – Develop and maintain multiple channels of real time arrival information for the commuting community. Systems currently in place include desktop mapping with arrival predictions and mobile phone web based arrival system. Future projects include numbering all ART stops with an unique identifier allowing the commuter to obtain arrival information via smart phone at the stop and an Interactive Voice Response (IVR) phone system for direct dial in arrival times. Total Project Cost is estimated to be \$0.5 million.

**East Falls Church Area Study** – This project supports the County goals of promoting transit-oriented development as well as improving access to transit stations, particularly for pedestrians and bicyclists. The East Falls Church station area is an emerging hub of development in Arlington County and the City of Falls Church. The Virginia Department of Rail and Public Transportation is exploring expanding bus service along Interstate 66, potentially including a bus rapid transit system. East Falls Church would be an important station along such a system. The East Falls Church Station will be the westernmost transfer point between the Orange and Silver Metrorail Lines, beginning in 2013. Therefore, this station is expected to serve high volumes of transferring passengers and additional originating passengers traveling to Tysons Corner and the Dulles area, necessitating capacity improvements. It is anticipated the project would include improvements to arterial streets and intersections near the East Falls Church Metrorail Station to increase safety and convenience for pedestrians and bicyclists accessing the station. It is also anticipated that a new station entrance would be constructed at the west end of the platform, connecting to Washington Boulevard. As part of site redevelopment, reconfiguring and enhancing bus bays and the Kiss and Ride facilities would be included. Total Project Cost: the planning and engineering costs is estimated to be \$0.5 million.

**North County ART bus storage and fueling facility** – As the ART fleet grows and service is added in the northern part of the County, a second storage facility will be needed. In addition, existing CNG fueling facilities are all located in the southern, low-lying portions of the County that have increased flooding risk. Total project cost for a new storage and fueling facility is \$15 million<sup>8</sup>.

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<sup>8</sup> 4 acre site (2x ART House) @ \$1M/acre purchase; all paved or landscaped at \$20/SF; plus 20,000 SF wash and fueling @\$200/SF; plus 50% engineering, finance, and contingency on construction cost.

## **Metro Matters, WMATA Capital Program**

The Washington Metropolitan Area Transit Authority (WMATA/Metro) is a unique federal-state-local partnership formed to provide mass transit service to the Washington Metropolitan region. Since 2004, WMATA has utilized a multi-year funding strategy, the Metro Matters Agreement, to fund its capital improvements. This agreement expired June 30, 2010 and a new agreement is currently being negotiated. The 6-year recommendation is an estimate of Arlington County's contribution. County funding of Metro's capital program supports the rehabilitation of the 30 plus year old system infrastructure. Total Program Cost is estimated to be \$85.8 million over the six years of this TDP.

### **Funding Requirements**

Operating and capital cost estimates were estimated for the service and facility needs identified above. Table 6 above identifies ART's Service Needs Plan, identifying service needs by service change category, additional annual bus hours to supply the service, and estimated annual operating and maintenance (O&M) costs associated with each service initiative.

Tables 9 and 10 identify ART's capital improvement program needs categorized under vehicle needs, passenger amenities and access improvements, special transit projects and maintenance facility needs.

**Table 9: Passenger Facilities in FY 2011 Capital Improvements Program**

Program	Previous Funding (000s)	FY 2011 (000s)	FY 2012 (000s)	FY 2013 (000s)	FY 2014 (000s)	FY 2015 (000s)	FY 2016 (000s)	Total for FY 2011-16 (000s)	Future Funds Req. (000s)	Total Project Cost (000s)
Bus Replacements		5,995	2,292	4,249		1,503	516			
WALK Arlington	1,225	2,050	1,550	2,100	1,000	1,500	1,000	9,200		10,425
Rosslyn Metro Station Access	36,942	3,500	3,975	0	0	0	0	7,475		44,417
Columbia Pike Streetcar	3,764	1,500	0	22,500	43,750	46,250	20,236	134,236		138,000
Fairfax Dr Pedestrian & Bus Stop Improvements	400	500	2,050	0	0	0	0	2,550		2,950
Bus Stop and Shelter Program	1,034	75	125	75	75	75	75	500		1,534
Columbia Pike SuperStops	4,150	0	0	0	0	0	0	0		4,150
Transit ITS and Plan	138	31	31	31	31	31	31	186		324
Pentagon City Pedestrian Tunnel	660	140	0	0	0	0	0	140		800
Pentagon City Elevator	5,085	0	0	0	0	0	0	0		5,085
EFC Metro Study	0	0	0	0	0	0	313	313	187	500
Ballston West Entrance	0	150	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Crystal City East Entrance	0	200	200	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Crystal City Streetcar Planning, Infrastructure & Environmental Clearance	0	0	700	700	18,000	32,500	17,580	69,480	70,520	140,000
CCPY transitway	17,319	0	0	0	0	0	0	0		17,319

Transit capital investments funded under previous CIPs and still on-going are:

- Crystal City Potomac Yard Transitway
- Pentagon City Station Elevator
- Columbia Pike Superstops

**Table 10**  
**TDP Financial Plan for Capital Costs (Year of Expenditure Dollars)**

<b>Service Statistic/ Funding Category</b>	<b>Budget FY 2011</b>	<b>Project'd. FY 2012</b>	<b>Project'd. FY 2013</b>	<b>Project'd. FY 2014</b>	<b>Project'd. FY 2015</b>	<b>Project'd. FY 2016</b>	<b>6-Year Total</b>
<b>Bus Replacements</b>	<b>\$5,955,000</b>	<b>\$2,292,000</b>	<b>\$4,249,000</b>		<b>\$1,503,000</b>	<b>\$516,000</b>	<b>\$14,515,000</b>
# of buses	<b>12 buses</b>	<b>5 buses</b>	<b>9 buses</b>		<b>3 buses</b>	<b>1 bus</b>	
Transportation Investment Fund	\$4,764,000	\$1,834,000	\$3,399,000		\$1,202,000	\$413,000	\$11,612,000
State Funding	\$1,191,000	\$458,000	\$850,000		\$301,000	\$103,000	\$2,903,000
<b>WALK Arlington</b>	<b>\$2,050,000</b>	<b>\$1,550,000</b>	<b>\$2,100,000</b>	<b>\$1,000,000</b>	<b>\$1,500,000</b>	<b>\$1,000,000</b>	<b>\$9,200,000</b>
Transportation Investment Fund	\$200,000	\$200,000	\$250,000	\$250,000	\$250,000	\$250,000	\$1,400,000
Federal Funding	\$1,000,000	\$1,000,000	\$1,000,000	\$400,000	\$400,000	\$400,000	\$4,200,000
State Funding	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	\$2,100,000
County Funding	\$500,000		\$500,000		\$500,000		\$1,500,000
<b>ART House Funding</b>	<b>\$3,750,000</b>	<b>\$7,000,000</b>	<b>\$2,500,000</b>				<b>\$13,250,000</b>
Transportation Investment Fund	\$3,000,000	\$5,600,000	\$2,000,000				\$10,600,000
State Funding	\$750,000	\$1,400,000	\$500,000				\$2,650,000
<b>Rosslyn Metro Station Access</b>	<b>\$3,500,000</b>	<b>\$3,975,000</b>					<b>\$7,475,000</b>
Transportation Investment Fund	\$2,000,000	\$3,180,000					\$5,180,000
Federal Funding	\$1,000,000						\$1,000,000
State Funding	\$500,000	\$795,000					\$1,295,000
<b>Columbia Pike Streetcar</b>	<b>\$1,500,000</b>		<b>\$22,500,000</b>	<b>\$43,750,000</b>	<b>\$46,250,000</b>	<b>\$20,236,000</b>	<b>\$134,236,000</b>
Transportation Investment Fund	\$1,200,000		\$10,000,000	\$23,000,000	\$25,000,000	\$16,189,000	\$75,389,000
Federal Funding			\$10,000,000	\$15,000,000	\$15,000,000		\$40,000,000
State Funding	\$300,000		\$2,500,000	\$5,750,000	\$6,250,000	\$4,047,000	\$18,847,000
<b>Fairfax Dr. Improvements</b>	<b>\$500,000</b>	<b>\$2,050,000</b>					<b>\$2,550,000</b>
Transportation Investment Fund	\$400,000	\$1,640,000					\$2,040,000
State Funding	\$100,000	\$410,000					\$510,000
<b>Bus Stop and Shelter Program</b>	<b>\$75,000</b>	<b>\$125,000</b>	<b>\$75,000</b>	<b>\$75,000</b>	<b>\$75,000</b>	<b>\$75,000</b>	<b>\$500,000</b>
Transportation Investment Fund		\$40,000					\$40,000
County Funding	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$360,000
State Funding	\$15,000	\$25,000	\$15,000	\$15,000	\$15,000	\$15,000	\$100,000
<b>Transit ITS and Plan</b>	<b>\$31,000</b>	<b>\$31,000</b>	<b>\$31,000</b>	<b>\$31,000</b>	<b>\$31,000</b>	<b>\$31,000</b>	<b>\$186,000</b>
Transportation Investment Fund	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$150,000
State Funding	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$36,000
<b>Pentagon City Ped. Tunnel (Costs TBD)</b>	<b>\$0</b>						<b>\$0</b>
Transportation Investment Fund	\$0						\$0
State Funding	\$0						\$0
<b>EFC Metro Study</b>						<b>\$313,000</b>	<b>\$313,000</b>
Transportation Investment Fund						\$250,000	\$250,000
State Funding						\$63,000	\$63,000
<b>Columbia Pike SuperStops (Costs TBD)</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Transportation Investment Fund	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State Funding							
<b>Pentagon City Elevator</b>	<b>\$630,000</b>	<b>\$2,105,000</b>	<b>\$2,300,193</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$5,035,193</b>
Transportation Investment Fund							
FTA Funding	\$630,000	\$1,505,000	\$2,300,193				\$4,435,193
State Funding		\$600,000					\$600,000

**Table 11 (Continued)**  
**TDP Financial Plan for Capital Costs**  
**(Year of Expenditure Dollars)**

<b>Service Statistic/Funding Category</b>	<b>Budget FY 2011</b>	<b>Project'd. FY 2012</b>	<b>Project'd. FY 2013</b>	<b>Project'd. FY 2014</b>	<b>Project'd. FY 2015</b>	<b>Project'd. FY 2016</b>	<b>6-Year Total</b>
<b>Ballston West Entrance</b>	<b>\$150,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$150,000</b>
Transportation Investment Fund	\$0	\$0	\$0	\$0	\$0	\$0	\$0
County Funding	\$150,000	\$0	\$0	\$0	\$0	\$0	\$150,000
State Funding							
<b>Crystal City East Entrance</b>	<b>\$200,000</b>	<b>\$200,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$400,000</b>
Transportation Investment Fund	\$200,000	\$200,000	\$0	\$0	\$0	\$0	\$400,000
State Funding							
<b>Crystal City Streetcar Planning, Infrastructure &amp; Environmental Clearance</b>	<b>\$0</b>	<b>\$700,000</b>	<b>\$700,000</b>	<b>\$18,000,000</b>	<b>\$32,500,000</b>	<b>\$17,580,000</b>	<b>\$69,480,000</b>
Transportation Investment Fund	\$0	\$700,000	\$700,000	\$18,000,000	\$32,500,000	\$17,580,000	\$69,480,000
State Funding							
<b>CCPY transitway (Costs TBD)</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Transportation Investment Fund							
State Funding							
<b>TOTAL COSTS FOR PROJECTS</b>	<b>\$18,341,000</b>	<b>\$20,028,000</b>	<b>\$34,455,193</b>	<b>\$62,856,000</b>	<b>\$81,859,000</b>	<b>\$39,751,000</b>	<b>\$257,290,193</b>
<b>TOTAL FUNDING SOURCES</b>							
Transportation Investment Fund	\$11,789,000	\$13,419,000	\$16,374,000	\$41,275,000	\$58,977,000	\$34,707,000	\$176,541,000
County Funding	\$710,000	\$60,000	\$560,000	\$60,000	\$560,000	\$60,000	\$2,010,000
Federal Funding	\$2,630,000	\$2,505,000	\$13,300,193	\$15,400,000	\$15,400,000	\$400,000	\$49,635,193
State Funding	\$3,212,000	\$4,044,000	\$4,221,000	\$6,121,000	\$6,922,000	\$4,584,000	\$29,104,000
<b>Total Funding Sources</b>	<b>\$18,341,000</b>	<b>\$20,028,000</b>	<b>\$34,455,193</b>	<b>\$62,856,000</b>	<b>\$81,859,000</b>	<b>\$39,751,000</b>	<b>\$257,290,193</b>

**NOTES:**

- # of buses needed during TDP time period based on TDP bus replacement/expansion table (Table 5-1).
- Bus costs assume \$650,000 for 3 buses in FY2011 for Design Lines buses, and \$445,000 for all other buses (in FY2011 dollars).
- A 80/20 state/local match assumed for bus purchases.
- An inflation rate of 3% year assumed for future year bus purchases (FY 2012 through FY 2016).
- Costs and funding sources for all other transit program capital projects obtained from Arlington County QP document.