

# Master Transportation Plan Transit Element



**March, 2009**



# Table of Contents

<b>I.</b>	<b>Introduction .....</b>	<b>1</b>
<b>II.</b>	<b>Summary .....</b>	<b>2</b>
<b>III.</b>	<b>Policies, Implementation Actions and Performance Measures.....</b>	<b>4</b>
<b>IV.</b>	<b>The Primary and Secondary Transit Networks.....</b>	<b>13</b>
	○ Primary Transit Network	
	○ Definition of a Primary Transit Network	
	○ Characteristics of a Primary Transit Network	
	○ What Makes the Primary Transit Network Function?	
	○ Strategies for Enhancing Bus Travel Speed	
	○ PTN in Practice: Columbia Pike	
	○ Corridors, Key Characteristics, and Improvements	
	○ Primary Network Assessment and Priority Improvements	
	○ Secondary Transit Network	
	○ Amenities	
	○ Vehicle Standards	
	○ Accessibility Improvements	
	○ Implications of the Increase in Bus Service	
	○ Paratransit	
<b>V.</b>	<b>Planned Rail System Improvements .....</b>	<b>24</b>
	○ Metrorail System Capacity Improvements	
	○ Northern Virginia High-Capacity Transit Improvements	
	○ Station Enhancements and Access Improvements	
<b>VI.</b>	<b>Program Implementation Strategies.....</b>	<b>26</b>
	○ Transit Development and Coordination Plan	
	○ Regional Coordination	
	<b>Appendix A: The Existing Transit System .....</b>	<b>28</b>
	○ Existing Systems Managed by Arlington, WMATA or NVTC	
	○ Bus Service Facilities	
	○ Additional Public Transit Services	
	○ Private Commuter, Employee/Student, and Airport Service	
	○ Paratransit and Taxicab Services	
	○ Department of Human Services and other Specialized Transportation Services	

## I. Introduction

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: integrating transportation with land use, supporting the design and operation of complete streets, and managing travel demand and transportation systems. Increasing transit use will be a prerequisite to accommodating continued long-term growth in Arlington's population and business activity.

As noted in the MTP, the integration of transit and land use, the organization of community development around high quality transit service, has been a foundational policy for the Metrorail corridors in the County for more than 30 years. That policy is now extended in the MTP and this Transit Element to the Primary Transit Network, and it calls for a higher level of investment in transit infrastructure and services along these corridors, such as Columbia Pike, that are planned for an appropriate level of development and that create a demand for services.

The County's strong commitment to this policy linking land use and investments in transit will be critical to its continued success as it plans and achieves future growth along the Primary Transit Network. As the County has grown over the last 30 years, the number of trips made on transit has grown by an even more substantial rate, with a 43 percent increase between 1996 and 2008 alone. More than a quarter of a million daily weekday transit trips or nearly 84 million annual trips are expected to either originate or end in Arlington during 2009.

To keep pace with projected residential and commercial development growth through 2030, while reducing reliance on single-occupant vehicle travel, Arlington's array of transit facilities and services will need to support a 35 to 40 percent increase in transit trips from 2009 to 2030, yielding 112 to 116 million Arlington-based annual transit trips in 2030. Major investments in a range of local and regional transit facilities will be required to support this level of ridership.

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 identified in this document.

Those goals are to:

1. Provide high-quality transportation services.
2. Move more people without more traffic.
3. Promote safety.
4. Establish equity.
5. Manage effectively and efficiently.
6. Advance environmental sustainability.

Those goals are supported by 27 strategy directives including the following statements which are directly related to transit policy:

- Allocate transit resources to emphasize fast, frequent, and reliable service on the Primary Transit Network and increase neighborhood access with feeder and connector service of the Secondary Transit Network.
- Integrate local transportation facilities and transit services with those of neighboring jurisdictions to enhance regional connections.

- Encourage the use of environmentally sustainable modes including bicycling, walking, transit, carpooling and telecommuting.
- Minimize rates of injuries and accidents for each mode and ensure that transit riders, pedestrians, bicyclists, and motorists feel safe and comfortable to all times when traveling in Arlington.
- Implement land use policies such as transit-oriented and mixed use development that result in better access and use of the transportation system.
- Increase energy efficiency and reduce hydrocarbon emissions by encouraging and accommodating non-motorized travel, public transit, carpooling, telecommuting and alternative fuel vehicles.

## **Societal Benefits and Costs of Transit Provision**

The provision of public transit enables a number of societal benefits including:

- Access for persons regardless of physical ability, age or income,
- Concentration of activity that can strengthen business opportunities,
- Reduced traffic congestion, particularly at peak hours,
- Enhanced travel reliability during extreme weather, emergencies and events,
- Reduced consumption of gasoline and other non-renewable energy sources,
- Reduced production of greenhouse gases and other air and water pollutants,
- Greater safety when compared to driving and other travel modes, and
- Employment for many persons.

The benefits that society gains from transit provision must be weighed against the costs that are incurred, usually by government agencies and taxpayers, they include:

- Substantial public financial investments to purchase vehicles and construct facilities,
- Ongoing public costs for service operation and maintenance that typically exceed collected revenue,
- Utilization of public rights-of-way and properties for transit stops and facilities, and
- Opportunity costs that result from actions to provide or enhance transit instead of roadways, or other public facilities and services.

Both the societal benefits and costs should be considered when making decisions regarding whether and how best to make investment in public transit.

## **II. Summary**

Public transit facilities and services have long been a cornerstone of the Arlington transportation network. Arlingtonians recognize that an effective transit system is critical to meet their mobility needs, facilitate continued development, and support a high quality of life. 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. Public transit moves over a quarter million people in Arlington every day. 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 area residents take transit to work at the nearly 200,000 jobs clustered around transit stops within Arlington’s higher-density corridors. Public transit is currently used to a lesser extent for non-commute trips, particularly those made on

weekends and completely within Arlington. Altogether more than one-quarter million transit trips are made in Arlington on an average day. The extensive utilization of public transit during recent decades has made it possible for Arlington to continue to grow and become more economically prosperous without experiencing the pollution, traffic congestion, reduced land values and other problems typically experienced in auto-oriented communities. Transit is also supporting a lifestyle where car ownership is not a requirement for daily life.

Other elements of the local transit network include paratransit for people with disabilities, shuttle services provided for office and residential tenants, hotel guests, universities and government agencies as well as transit commuter buses sponsored by both the public and private sectors.

This Transit Element provides implementation actions to maximize the potential of the existing transit system while the County makes improvements to local and regional transit service and implements new transit service such as streetcar or Bus Rapid Transit (BRT). The Arlington Master Transportation Plan envisions public transit becoming an even more important part of our transportation system. As our resident and employment populations grow in coming decades, public transit—and other measures that reduce automobile traffic—will be critical in maintaining mobility while minimizing traffic congestion and other adverse environmental impacts. By the year 2030, it is expected that the transit mode share for Arlingtonians will rise from its current level of approximately one-in-four commuters (25 percent) to about one-in-three (33 percent). Transit and other non-automotive modes will also be used much more frequently for non-commute travel, including evening and weekend intra-County trips. To achieve these objectives, substantial improvements will need to be made to facilities and services to make transit accessible and convenient for more people. In addition, Arlington will need to continue to develop in a transit-supportive manner with significant public direction towards a mixing of land uses, higher densities in close proximity to transit stops and a built form that embraces both transit and walking as preferred travel modes.

A key aspect of this plan is the establishment of a Primary Transit Network (PTN) of high-quality, high-frequency transit service along Arlington's primary development corridors. The PTN will build on existing transit facilities and services such as Metrorail, Metrobus and ART services to create a primary network of east-west and north-south routes that can be easily accessed by the majority of Arlington residents. Existing services will be supplemented by new transit alignments, technologies and services such as streetcars and BRT. The PTN, which will start as five high-density corridors, may be expanded to encompass other routes if parts of Arlington and/or adjacent communities are redeveloped at substantially higher densities. The level of transit services or investments in enhanced transit services in any particular corridor will be coordinated with land use planning and driven by land development patterns that create the necessary densities and demand to warrant those investments.

Supplementing the PTN will be a Secondary Transit Network (STN) comprising more localized Metrobus and ART service. The STN will serve the low- to moderate-density portions of Arlington and adjacent communities. Service on the STN routes will not have the frequency or capacity of the PTN, but will penetrate deeper into lower-density areas, focusing on bringing people to Metrorail stations, other PTN service transfer points, and serving important neighborhood destinations. Many improvements in the form of vehicles, bus stop enhancements, electronic payment measures, and upgraded information systems are also envisioned for both the PTN and STN. Regional express bus routes may also be established to complement PTN service.

A key objective of this plan is to upgrade the vehicles, stops, and surrounding environment to make the transit system accessible to a greater number and higher percentage of our local population. Although those people physically unable to access the public transit system will continue to have high-quality paratransit service provided for them, some of the current paratransit and secondary transit services may be reformatted to make greater use of fixed route and variable-route services and shared-ride vans.

Substantial facility improvements are envisioned for nearly all of Arlington's Metrorail stations. The improvements include additional entrances at the Ballston, Pentagon City, and Crystal City stations. Other stations, such as Rosslyn, require additional elevators to improve station entry and ensure access for people with disabilities. Stations with substantial bus transfers and large pedestrian plazas, including Ballston and Pentagon City, will be redesigned and redeveloped to enhance pedestrian and bicyclist access and improve the convenience of vehicle transfers.

Critical to the long-term performance of the transit system will be expansion of the Metrorail system's capacity. Increasing train lengths and train frequencies can accommodate growth only to a point beyond which expansion of the system's core capacity will be necessary.

The major initiatives of the MTP's Transit Element will require substantial new investments for both facilities and on-going service provision. Arlington will need to work cooperatively with local property owners and developers, neighboring jurisdictions, the Washington Metropolitan Area Transit Authority (WMATA), the Commonwealth of Virginia, and the federal government to obtain the funding needed to implement the plan proposals.

### **III. 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. This element also sets out performance measures to be used to assess progress towards achieving the policies.

#### **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.

***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 the transit services both rail and bus 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.

#### *Implementation Actions*

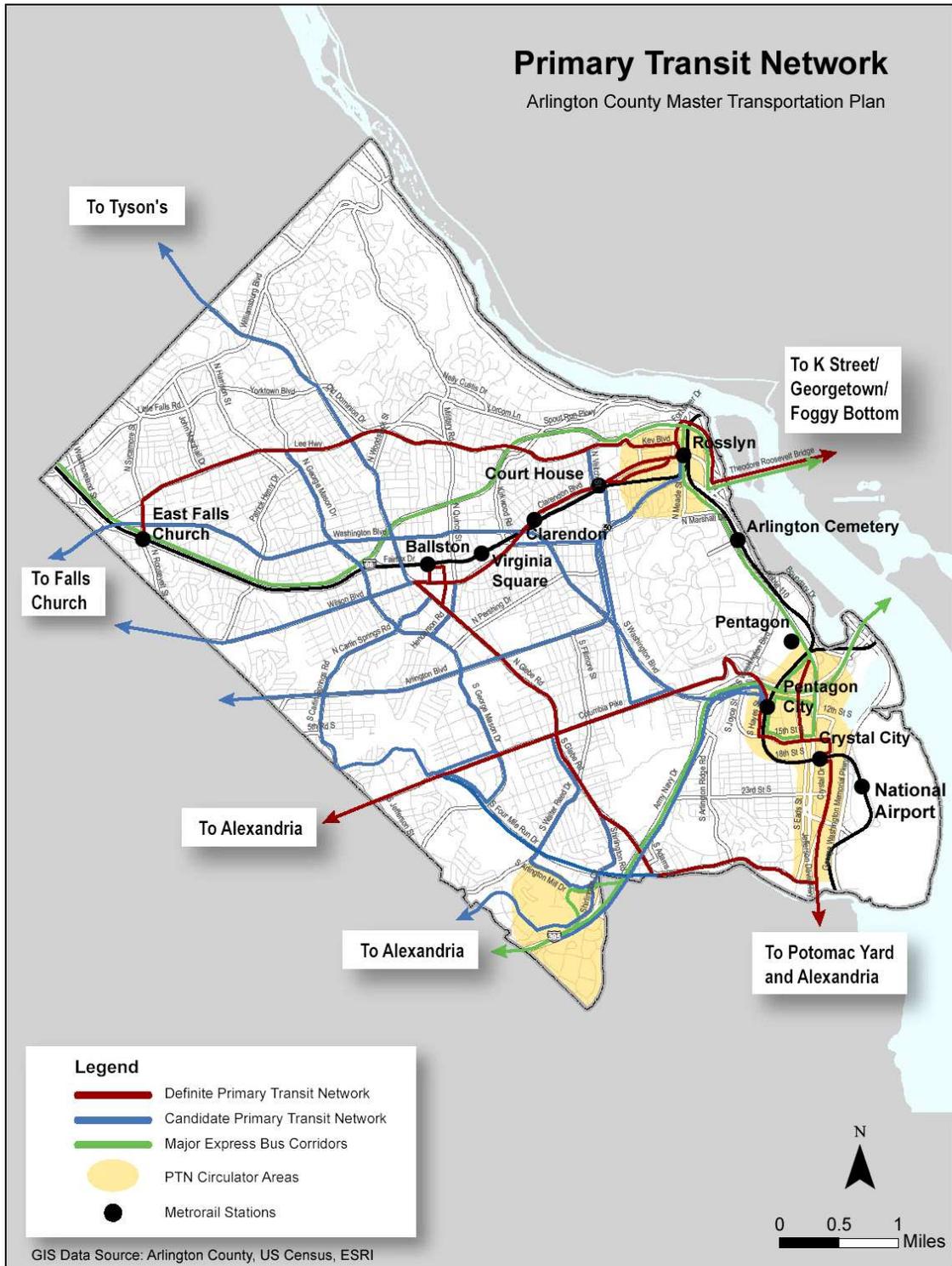
- a. Implement the Crystal City/Potomac Yard Transitway with high-frequency bus service on an interim basis and with streetcar service between the Pentagon City and Braddock Road Metrorail stations.
- b. Implement the Columbia Pike streetcar to provide service along the Pike and link the Pentagon City 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 including routes, such as Glebe Road, that link Shirlington with the Rosslyn-Ballston corridor, Crystal City and Pentagon City.
- 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) Measure the number of residents and jobs within a short walk of PTN service and seek to increase those figures by 30 percent between the years 2009 and 2030.
- 3) Achieve 35 passengers per revenue hour during peak hours and 15 passengers per off peak revenue hour on all PTN routes.
- 4) Maintain a minimum 35% farebox recovery ratio for all PTN routes.
- 5) PTN bus and streetcar stops should be spaced at intervals PTN around 1,320 feet (1/4 mile) apart.

# Primary Transit Network

Arlington County Master Transportation Plan



***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.

#### *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 12 revenue passengers per service 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.

***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.

*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) Measure customer satisfaction on a basis of number of reported complaints per 1,000 passenger boardings and annually seek 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 14<sup>th</sup> 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 14<sup>th</sup> 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.

## **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 (see page 21 for details).
- 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. 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.
- b. Include pedestrian access to transit as an element of all Complete Streets projects.
- c. 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.
- d. 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.
- e. 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.

**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.

**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. Also 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 curbspace 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 curbspace 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.

**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 MWC0G 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 point 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.

### **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.

## **IV. The Primary and Secondary Transit Networks**

### **Definition of a Primary Transit Network**

The key concept of the County's long-range transit plan is the development of a network of high-quality transit routes that will be known as the Primary Transit Network (PTN). The PTN is envisioned as a network of transit lines that operate every 15 minutes or better for at least 18 hours every day. In addition to Metrorail, it will include Metrobus and ART bus operations and new streetcar or Bus Rapid Transit service. On designated PTN roadways, facilities for all travel

modes will be provided; however, transit operations will receive priority because of their ability to carry high volumes of people. The PTN is defined on the basis of performance criteria for six key dimensions of transit quality:

- **Frequency.** As a general rule, PTN services run at least every 15 minutes. The threshold frequency of 15 minutes is the point at which the benefits of transit tend to grow exponentially as it permits both relatively short waits and quick transfers between routes. The 15-minute frequency is the operational recommendation for off-peak service along the PTN; during peak hours, PTN service is anticipated to operate with greater frequency.
- **Span.** The PTN runs a minimum 15-minute frequency for at least 18 hours per day, seven days per week. The service may operate additional hours at reduced frequencies.
- **Speed.** PTN services have an average operating speed of no less than 30 percent of the speed limit. This operating speed accounts for stops.
- **Reliability.** Reliability is an anchor of the PTN. Users can expect the PTN services to operate on schedule. Real-time travel information should be provided at stops and through wireless communication devices.
- **Loading.** Although standing loads are acceptable, passing transit riders because of insufficient space on the vehicle is not. Greater trip frequencies and higher-capacity vehicles may be required to service high demands and ensure passenger comfort.
- **Identity.** The PTN services may require a distinctive public image. Some PTN routes should have unique branding (including mapping, logos, and vehicle and stop amenities) that are promoted through marketing to elevate public recognition and perception.

## Characteristics of a Primary Transit Network

Based on the operating and performance criteria defined above, the characteristics of a PTN include efficiencies, convenience, enhanced visibility, and other elements that make it an attractive travel choice. At a minimum, the PTN should appeal to many rider groups, reduce trips made by automobile, offer highly productive service, and require low passenger subsidies.

- **Appeal to many rider groups.** PTN services are designed to serve the widest range of travelers, providing reliable service at frequent intervals all day. Commuters will likely be the primary users of PTN services during rush hour. Seniors will ride midday to access services or to go shopping. Tourists will be comfortable using the service because it is frequent and reliable throughout the day and evening. Students will rely on PTN services throughout the day to go to classes, and theatergoers or other recreational users will ride PTN services late into the evening or on weekends. PTN services fill at least some critical travel needs for most rider groups.
- **Reduce person trips made by automobiles by providing a competitive alternative.** PTN services are designed to meet the transportation needs of not only transit-dependent persons, but also individuals who choose to use transit instead of driving cars. To appeal to a wide array of rider groups, PTN services should—
  - Be convenient to access, and located near the highest densities in the County.
  - Offer travel times—including time to access transit, ride on transit, and travel from the stop to the destination—that are competitive with a private automobile.
  - Charge fares that are competitive with the cost of driving.
  - Be reliable, operating readily identifiable vehicles on a consistent schedule.

- Offer long service hours to allow travel at early and late hours.
- Offer frequent service.
- **Achieve maximum efficiency.** Because the PTN meets such a wide range of travel needs for many population segments, PTN services should have the highest ridership of all intra-Arlington services. It also will operate in the highest-density areas where congestion and other factors reduce the desirability of driving. Higher ridership will maximize efficiency and addresses the markets where transit can have the greatest impact, maximizing the utility of existing infrastructure.
- **Require the lowest operating subsidies per passenger.** Because PTN services attract high volumes of riders, the transit system will spend less per passenger on the PTN than on other transit services in Arlington.

## What Makes the Primary Transit Network Function?

The PTN is envisioned as the most effective way for moving people in Arlington because it is designed to serve a large share of the population with a minimum number of line miles, operate in the densest areas and provide frequent trips. The PTN relies on concentration of demand and high service quality to attract substantial use. Greater ridership also depends upon the provision of better service – including more frequent service throughout the day and improved travel speed and trip reliability.

### Concentration of Demand

Arlington has relatively dense, transit-friendly development in key corridors. These corridors will form the basis for the PTN. PTN service should be a focus for building orientation and pedestrian accessibility, so that development maximizes convenience for the transit rider. In general, the PTN should be a focal point for the full range of transit-oriented development practices that create true mixed use communities with all day travel demands in both boardings and alightings. This integration of land use and transit services is the realization of the policies defined in the County’s General Land Use Plan (GLUP).

### Service Quality

For the PTN to attract high numbers of riders and to justify the increased densities adjacent to it, the service itself must be of a very high quality. The service reliability and quality characteristics should include travel times that are competitive with private automobiles, reasonable fares, excellent reliability, a long service span, and high-frequency service. In addition, PTN services should have enhanced amenities to emphasize their distinction from other services.

Metrorail already has significant service amenities that buses do not have, including dedicated stations with comfortable waiting areas, unique vehicles, and top-notch public information. Buses can offer similar amenities, and future investments should give priority to low-floor, high-capacity vehicles (or any new technologies that enhance comfort or expedite operations); premium shelters with many of the amenities associated with rail stations; information features, including real-time information in shelters and informational displays within buses (such as the time and the next stop); and a distinct brand that sets the PTN apart from other services.

### Ridership

With reliable, high-frequency service connecting the densest activity centers and corridors, the

PTN will attract riders. High ridership is a justification for investment in the transit services and amenities required for the PTN to be successful and attract more riders. Nevertheless, the County cannot continue to invest in the PTN unless the ridership is there. Continuing land-use policies that encourage corridors of higher densities of mixed-land uses, paired with investment in transit, ultimately will provide the County the greatest opportunities to move more people efficiently and access greater economic, community, and educational activities in the region.

### **Travel Time**

The importance of travel speed cannot be overstated. Most travelers place a high value on their personal time, and many travelers make their travel choices based primarily on trip time. If it's much faster to take one mode than another, most people will opt for the fastest mode, almost regardless of other characteristics, including fare. Travel time also relates to service frequency and reliability. If average travel time on a bus route can be cut in half, frequency can be doubled at little or no additional cost, because buses can complete a return route more frequently. Conversely, delays in travel time can affect reliability and, in turn, ridership.

## **Strategies for Enhancing Bus Travel Speed**

Conflicts with automobiles, roadway congestion, frequent stops, and slow passenger boarding impede bus travel speed and diminish operation efficiency and reliability. This is especially important on the limited number of north-south routes, which have historically not been effective for transit operations. Several strategies should be considered to ensure that the travel times on PTN services meet performance standards over the long term. Although comprehensive implementation of all the strategies described below would maximize effectiveness, incremental implementation is viable.

### **Traffic Signal Priority (TSP)**

Time spent waiting at traffic signals significantly affects bus travel time and travel efficiency. Two approaches exist to reduce bus wait time. One approach is to coordinate signal timings at average bus speed instead of the average automobile speed to allow buses to travel a corridor with fewer stops.<sup>1</sup> Another approach is to implement a traffic signal priority system that enhances transit operations through the use of a device that enables traffic signals to respond to approaching transit vehicles. Typically, the signal priority extends the length of a green light cycle to allow the transit vehicle to move through the intersection. Once the remote signal from the transit vehicle is interrupted or terminated, normal traffic control signal operation continues. The system requires active management to minimize delays to other traffic at cross streets.

### **Stop Consolidation and Stop Improvement**

Frequent stopping is one of the primary impediments to efficient transit speeds. Express or limited-stop bus trips can produce a quicker travel speed by minimizing time stopped. By consolidating stops and providing boarding opportunities approximately every one-quarter mile along most of the PTN, buses can travel much more quickly. In addition to increasing travel speeds, this also enhances reliability.

At the intersections of PTN routes, basic stops should be replaced by "Super Stops." Super Stops

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<sup>1</sup>Federal Transit Administration, Bus Rapid Transit (BRT) Demonstration Program Signal Prioritization Reference Guide, [http://www.fta.dot.gov/2340\\_7260\\_ENG\\_HTML.htm](http://www.fta.dot.gov/2340_7260_ENG_HTML.htm).

will have longer street frontage that can accommodate two buses at a time, with attractive shelters to accommodate 10 to 15 passengers and extensive passenger amenities. Consolidating the stops will reduce the time vehicles spend picking up and dropping off passengers, while Super Stops will facilitate transfers at key points. The combination of both initiatives will increase travel time efficiency as less time is spent stopped.

### **Low-Level Vehicle Boarding**

Until recently, most buses the Metrobus and ART fleets used in Arlington have required riders to step up and into the vehicle at the front of the bus. This condition makes use of fixed-route transit difficult for individuals with mobility impairments or small children. Boarding and alighting buses by using steps or wheelchair lifts lengthen stop times, and slow down travel speeds. Metrobus and ART now purchase low-floor buses with wheelchair ramps especially for routes with higher ridership.

### **Queue Jump Lanes**

Signal priority can be combined with buses using right turn lanes or short bus-only lanes to enable buses to “jump out” in front of waiting traffic. Often called queue jump lanes, these allow buses to bypass traffic and jump to the front to get a green signal. In some systems, the queue jump lane doubles as a right-turn-only lane for other traffic; a queue jump lane can also be installed between right-turn lanes and the other lanes of traffic.



### **Bus Nubs**

By extending the curb out to the travel lane, bus nubs allow the buses to stop in the travel lane so they are not delayed waiting to pull back into traffic. A related measure is to eliminate the bus pull-out lanes that exist on some roads such as Lee Highway. Having buses stop to board/alight passengers in a traffic lane improves transit travel speeds and reliability.

### **Prepayment of Fares**

Prepayment of fares can significantly decrease passenger loading time. People who have paid in advance can enter through any door, and special vehicles with multiple doors can be used to reduce the amount of time it takes passengers to board. Greater use of electronic payment systems, such as SmarTrip cards permit quicker passenger boarding. Customers should be encouraged and enabled to pay fares and add value to their fare media at convenient locations.

## **PTN in Practice: Columbia Pike**

The County has already begun implementing PTN bus service on Columbia Pike (the Metrorail system also meets the criteria for PTN service). Known as Pike Ride, the service along the Columbia Pike corridor includes a collection of street infrastructure improvements and enhanced transit facilities and services. The objective of these improvements is to improve access to regional and local transit services and to encourage redevelopment along Columbia Pike. The transit projects under way in the corridor include the following:

- Implementation of Pike Ride bus service.

- Extensive transit marketing and promotion activities.
- Implementation of intersection improvements to improve traffic flow and turning.
- Implementation of a transit priority signal system.
- Construction of enhanced bus stops (Super Stops) at key locations.
- Improved provision of real-time information at stops.

Arlington has initiated several related transportation projects in the corridor, including the improvement of key intersections along Columbia Pike and the installation of a transit signal priority system. Twenty-two Super Stops are planned to support transit service along Columbia Pike. Projects also include sidewalk and pedestrian improvements for greater accessibility.

The implementation of Pike Ride enhanced bus service with high-quality stops is a precursor to high-capacity system improvements being planned for the corridor. Arlington County and Fairfax County, in cooperation with WMATA, the Virginia Department of Rail and Public Transportation (VDRPT) and Virginia Department of Transportation (VDOT), undertook a transit alternatives analysis that identified a streetcar system along with enhanced bus service as the preferred high-capacity transit solution for the corridor. In May 2006, the boards in Arlington and Fairfax counties adopted the recommended preferred alternative.

The improvements planned for Columbia Pike and the lessons learned from implementing those plans will be used to guide the development of other corridors in Arlington's PTN.

## **Corridors, Key Characteristics, and Improvements**

Three categories of PTN routes are recommended: Primary Routes, Candidate Primary Corridors, and Major Express Bus Corridors. While implementation of all elements of this plan are recommended, the highest priority is the establishment of the Primary Routes with the characteristics described above, coupled with the on-street improvements described below.

### **Primary Routes**

Primary Routes operate along the corridors that the County's General Land Use Plan has identified for higher-density development. The PTN will therefore support the County's planned development, providing transportation to the key trip generators and reducing the need for single-occupancy-vehicle trips to the densest areas within Arlington. Primary Routes are included for some corridors with lower density and high vehicle and transit volumes because of their role in the regional transportation network. While the traditional east-west roadways (Columbia Pike, Clarendon Boulevard, Wilson Boulevard, and Lee Highway) are obvious choices for Primary Routes, the list also includes Glebe Road. Glebe Road is possibly the most highly valued corridor in the County as it offers north-south connectivity nearly the length of the County, intersecting and linking the east-west PTN corridors.

#### **Planned Primary Transit Routes include the following corridors:**

- Columbia Pike from Bailey's Crossroads to Crystal City, Pentagon City, and Pentagon
- Wilson and Clarendon Boulevards from Ballston to Rosslyn and D.C.
- Parallel to Route 1 from Alexandria to Crystal City, Pentagon City, and the Pentagon
- Glebe Road from Potomac Avenue to Fairfax Drive
- Lee Highway from East Falls Church to Rosslyn and D.C.

The existing Pike Ride and Metrorail's Orange, Yellow, and Blue lines currently operate as Primary Routes; these routes will continue as part of the Primary Transit Network. WMATA is proceeding with PTN-compatible improvements in the Wilson Boulevard corridor, with the intent to improve reliability for local trips in the corridor.

### **Candidate Primary Corridors**

Candidate Primary Corridors serve low- to medium-density areas (based on land use) and have some long-term potential to become part of the Primary Routes. As warranted by ridership demands, these Candidate Primary Corridors should have at least 30-minute headways 15 hours per day, seven days per week. The success of transit service is greatly influenced by the intensity of the adjacent land development. Substantial public investment to enhance the transit services in the Candidate Primary Corridors will have to be preceded by increases to the existing land use densities.

Candidate Primary Corridors might include the following:

- Glebe Road from Fairfax Drive to Lee Highway.
- Walter Reed Drive from Columbia Pike to Shirlington.
- Carlin Springs Road from N. Glebe Road to points in Fairfax County.
- Veitch Street and Courthouse Road from Lee Highway to Columbia Pike.
- Wilson Boulevard from Ballston to Seven Corners.
- George Mason Drive from Lee Highway to Columbia Pike.
- Washington Boulevard from Falls Church to Pentagon City.
- Four Mile Run Drive from Columbia Pike to Shirlington.
- Army Navy Drive from Pentagon City to Shirlington.

### **Candidate Express Bus Corridors**

In addition to the PTN routes, express bus corridors could operate along arterial streets and limited-access highways and make limited stops to provide service between residential and key employment locations. The PTN routes may also have express service during peak commute hours, with some bus trips boarding passengers only at selected stops.

The express bus corridors will provide service for the following areas:

- East Falls Church/Rosslyn/Washington, D.C., via I-66.
- Shirlington/Pentagon City/Crystal City/Rosslyn/Washington, D.C., via I-395.
- Fairfax City/Seven Corners/Arlington Hall/Rosslyn/Pentagon City/Washington, D.C., via Arlington Boulevard.

## **Secondary Transit Network**

### **Definition of a Secondary Transit Network**

While the Primary Transit Network is intended to provide high-frequency, concentrated service on high-demand corridors, other parts of Arlington also require transit service. Where land use is less intensive and demand is lower, lower-frequency service is warranted. These services make up Arlington's Secondary Transit Network (STN) for which the goal is to cover



sufficient area to provide service throughout the County, while minimizing the route miles traveled.

The STN should be developed based on the following performance criteria for distances to transit:

- 95 percent of residents are within a 0.3-mile walk of a bus stop.
- 75 percent of major activity centers within the Beltway (DC and Virginia area) are within 60 minutes and two vehicle transfers of all County residents.
- All Arlington residents are within two vehicle transfers of all Arlington activity centers and community facilities.

### **Location, Rationale, and Key Characteristics of the STN**

Because STN routes are intended to provide coverage and connectivity, they should provide access to the PTN, Metrorail, VRE, and commercial and community activity centers. Regional connections not served by the PTN, including routes to Tysons Corner, McLean, and Alexandria, are part of the STN. Providing timed transfers to these services is important to ensure riders can rely on both elements of the system and receive the greatest value from the closest routes.

STN routes serve two key markets. The first market is areas defined by the GLUP as low-medium and low-density residential (36 or fewer units per acre) where demand for transit is limited but still significant. Service is generally provided along arterial streets within residential areas. These routes may operate with relatively infrequent service with 20- to 30-minute intervals during the weekday peak periods, every 60 minutes during the weekday off-peak, and with no weekend service.

Secondary transit routes can also provide local access to dense neighborhoods. These routes serve two purposes: support connections to PTN routes, and connect neighborhoods with Arlington's urban villages. The operating characteristics of the secondary transit routes mirror those of the PTN during the peak hours and provide reduced service during off-peak hours. STN routes are proposed for the following areas of Arlington:

- Rosslyn and Fort Myer Heights, south of Arlington Boulevard.
- Jefferson Davis corridor, including Pentagon, Pentagon City, Crystal City, Ronald Reagan Washington National Airport, and Potomac Yard.
- Shirlington and Fairlington (including the County's Trades Center and Fairlington Center).
- North Arlington to serve neighborhoods with moderate to low population densities.

Circulator services would provide targeted off-peak service to neighborhoods to maintain accessibility to and from PTN routes at designated transfer points, provide more efficient mobility for neighborhood seniors and people with disabilities, and allow guaranteed off-peak access home to commuters.

Flexible-route Circulator services can be used in low and medium-density neighborhoods with higher senior populations to divert demand from more expensive paratransit services and provide more efficient and attractive transit service for all users. One strategy would use Flexible-Route Circulators to intensively serve neighborhoods with significant populations of older seniors on designated weekdays.

Vehicles on the Secondary Transit Network can be full-sized Metrobuses or smaller vehicles such as those ART uses on its routes. The vehicles should fit the demand on the route to minimize operating costs and impacts on the streets on which they travel. Amenities on the STN should use the same ridership scale as on the PTN. Circulator services may be fixed route, route deviation, point-deviation or zone dial-a-ride.

### Amenities

For the public to perceive the PTN as a first-class transportation system, it must provide customers with protection against inclement weather and information about service. It must also be well lit and offer a safe, secure location at all times. For the following specific amenities, levels of improvements are based on the daily number of boardings, including transfers, per stop.



- All stops should have:
  - A level concrete pad.
  - Reliable pedestrian access.
  - Adequate lighting.
  - Route and schedule information.
- Stops with 40 or more boardings a day should also have:
  - A bus shelter with bench.
  - A system map.
  - A trash receptacle.
- Stops with more than 300 boardings a day should also have:
  - A Super Stop shelter.
  - Real-time travel information.
  - A rack for bicycles and scooters.

### Vehicle Standards

New transit vehicles put into service in Arlington, whether bus or rail, should meet several design and operating guidelines:

- Low floor or otherwise easily accessed by people with disabilities.
- Fuel efficient and alternative fueled.
- Cost-efficient to purchase and operate.
- Accommodating of bicycle transport either within or on the outside of the vehicle.
- Accepting of SmarTrip or other electronic fare media.

As appropriate, vehicles may be equipped with transponders that permit them to communicate with traffic signals and receive signal priority. Vehicles may also be equipped to transmit real-time location data to stations, selected stops, personal computer devices, and via the Internet.

### Accessibility Improvements

In addition to ensuring that all transit vehicles and those used for STAR and MetroAccess service meet ADA requirements, the transit environment must be made accessible too. Bus stops throughout Arlington must be improved to provide this level of accessibility, including the following components:

- Boarding/alighting areas should provide a 40-foot by 4-foot clear zone at each stop, unobstructed by street furniture, landscaping, or signage to allow ingress and egress

- from both the front and back doors for travelers of all abilities.
- Pedestrian paths of travel, at least 5 feet wide, should be provided between bus stops and sidewalks to allow pedestrians of all abilities to pass in opposite directions. This standard, which is recommended for implementation on streets throughout the County, is discussed in more depth in the Pedestrian Element of the MTP.

## **Implications of the Increase in Bus Service**

The proposed expansions of bus service to implement the Primary Transit Network recommendations and to strengthen the secondary network are significant. Even with efficiencies achieved through travel speed increases and route redesign, achieving more frequent service headways and broader spans of service will require putting more buses on the street. Most likely, that will require the purchase of more vehicles for both the Metrobus and ART bus fleets. In 2007, the County acquired land for the development of an ART bus facility within Arlington and moved into temporary quarters on the site. WMATA's one bus facility in Arlington, at Four Mile Run, is near capacity.

The addition of improved or new bus services will result in higher operating costs for bus operators, fuel, and other expenses. While the added bus service is anticipated to generate an increase in revenue from passenger fare collections that will partially offset the new costs, there will certainly be a substantial increase in transit operating expenses for the County.

## **Paratransit**

### **Definition of Paratransit**

Paratransit encompasses the family of transportation services which falls between the single occupant automobile and fixed route transit. Examples of paratransit include taxis, carpools, vanpools, minibuses, jitneys, demand responsive bus services, and specialized bus services for the mobility impaired or transportation disadvantaged. Unlike transit, paratransit vehicles do not follow published and fixed timetables and routes. Paratransit services may be open to the general public in a low-density neighborhood, restricted to clients of social service agencies or to those who qualify due to the effects of age or disability. Rides are scheduled in advance on an individual basis, on a group basis, or on a regular weekly schedule by location. The parameters of a particular paratransit service are dependent upon the requirements of its funding source.

The County subsidizes two paratransit systems to serve those who, due to a disability, can not use public transit. MetroAccess is the regional paratransit system established under provisions of the Americans with Disabilities Act (ADA). Certified consumers can pre-arrange rides anywhere within the Washington, D.C. metropolitan area at any time that public transportation is operational. All rides are scheduled by a broker under contract to WMATA. The bulk of MetroAccess rides are provided on dedicated vans and sedans owned by WMATA and operated by the contractor or its subcontractors.

Specialized Transportation for Arlington Residents (STAR) is the County's alternative to



MetroAccess. Arlington residents certified by MetroAccess can instead book rides through the STAR call center, operated by a contractor under contract to the County. Approximately one-third of STAR rides are provided by dedicated vehicles operated by two contractors. The remaining two-thirds of STAR rides are provided by Red Top Cab on non-dedicated sedans and wheelchair-accessible minivans. The use of taxis in effect quadruples the number of vehicles available to transport STAR clients, thereby reducing wait times, supports the viability of the taxi industry for all users (especially wheelchair users), and provides a cost-efficient means of transporting individuals with special travel needs. STAR also has arrangements with several other human service agencies to administer and operate their client transportation services. These include the Senior Loop, the Senior Center Adult Transportation (SCAT) service, the Carver Loop, and trips for the Madison Adult Day Health Care Center.

MetroAccess and STAR differ in several other aspects. MetroAccess is a door-to-door service: riders are assisted to and from the building entrance if it is within reasonable distance of the MetroAccess vehicle. STAR is a curb-to-curb service: riders are assisted into and out of the vehicle, but only as far as the curb. Arlington Department of Human Services will subsidize the added cost of door-to-door service for a limited number of clients who require that assistance.

STAR has a tiered fare structure. There is a flat fare for all trips within Arlington, however for trips between Arlington and other areas inside the Beltway there is a higher fare with the fare increased significantly for those destinations outside the Beltway or to Maryland. Companion passengers are charged the same fare as the STAR customer, while personal care attendants are not charged. As the regional paratransit service, MetroAccess is positioned to provide long-distance trips more efficiently than STAR.

Paratransit costs per ride can be controlled through encouraged use of regularly-scheduled grouped rides and increased ridership via fixed-route services. Some paratransit users can be enabled to use fixed route transit through travel-training, at least for their most frequent rides, provision of accessible pathways to bus stops and Metrorail stations, and paratransit zone dial-a-ride feeder services connecting a geographically-defined area with a Metrorail station or transit center. Paratransit users can be encouraged to use fixed route transit through fare discounts offered on ART or free fares offered on Metrobus and Metrorail.

## **V. Planned Rail System Improvements**

### **Implementation of Metrorail System Capacity Improvements**

Each year Metrorail ridership in Arlington grows by several thousand trips per day. In recent years the system's capacity has been severely taxed during peak hours, particularly in the eastbound direction at the Ballston and Courthouse stations in the morning peak hours. Frequently, the trains are at "crush capacity" when they arrive at the station, and riders must wait for several full trains to pass before gaining an opportunity to board. WMATA is working to improve the situation by purchasing new rail cars that will allow for eight-car trains that fully utilize the platform capacity. Additional bus routes have been established that provide "one seat" rides from Arlington directly into the District of Columbia, thereby eliminating the need for some bus riders to transfer to Metrorail. Such changes, plus some planned train re-routings in Northern Virginia, should allow the system to move more passengers with the current stations and rails.

Continuing to expand the capacity of the Orange and Blue/Yellow lines is critical to the viability of Metrorail as a regional service within Arlington, to facilitate Arlington's planned development, and to accommodate the resulting demand. The expansion of service on the western portion of the Orange Line, with the new Dulles Airport rail connection, will further exacerbate the severe congestion on existing facilities and will require appropriate increases in the Orange Line's capacity to accommodate passengers to and boarding in Arlington.

It is WMATA policy to employ eight-car trains as the standard operating configuration on the Orange Line prior to initiation of the Dulles Rail service. The expanded use of eight-car Metrorail trains will likely be phased as additional train cars are purchased and required upgrades to maintenance yards, power supplies, and shops are made to accommodate the larger train car fleet.

WMATA has also studied various other solutions to the existing and anticipated Orange Line capacity crush including: rerouting some of the Blue and Orange Line trains across the Yellow Line's Potomac River bridge; additional tunnel capacity under the Potomac from Rosslyn to Georgetown; and better rail connections between the Blue and Orange lines at the Rosslyn Station and between the Yellow and Blue lines at the Pentagon station. Each of these proposals has positive attributes and negative impacts upon existing services, riders and the community. None has been adopted: each will require further study and significant cost and time to be implemented.

The growth of office and retail employment around Orange Line stations from Ballston to Rosslyn may free up boarding capacity for inbound Orange Line riders in the morning as some eastbound commuting passengers exit the trains at the preceding stops. The development of employment sites at these Metrorail stations also has contributed to a more-balanced demand on the system as growth in the numbers of passengers traveling counter to the traditional flow can be accommodated relatively easily within the current system capacity.

### **Northern Virginia High-Capacity Transit Improvements**

Efforts to expand the regional transit network, geographically and for capacity gains, are being

developed. Several key proposals for new high-capacity service would directly affect Arlington.<sup>2</sup>

- Construction of the Silver Line from the East Falls Church Metrorail station to Tyson's Corners, Reston, Dulles Airport and other locations in Fairfax and Loudoun counties to provide a one-seat ride between the airport and Arlington or Washington, D.C.
- Implementation of high-capacity transit along Columbia Pike. As approved by Arlington and Fairfax Counties in May 2006, the Pike Transit Initiative will include a streetcar line with supplemental bus service. This corridor connects the region's southwest sector to employment centers in Arlington and Washington, D.C. A storage and maintenance facility for this new service will be required in Arlington or Fairfax County.
- Implementation of higher-capacity transit service along the Route 1 corridor. This service, likely initially BRT with later conversion to streetcar service, is planned by the County in cooperation with the City of Alexandria. The new transit capacity would improve travel along this corridor, which connects to employment centers in Arlington and Washington, D.C. The Columbia Pike and Route 1 corridors streetcar systems would be linked via a transfer station in the Pentagon City area.
- The County should continue to cooperate with the District of Columbia, which is also planning new streetcar services, to examine the potential for connecting across the Potomac River.

## Station Enhancements and Access Improvements

Several access improvements to Metrorail stations in Arlington are required to increase passenger flow at these facilities and to help make Metrorail accessible for all users. These improvements, which should be integrated with new development to the extent possible, include new station entrances and additional elevators. At least two elevators should be provided between the street and train platforms at all Metrorail stations to provide continuous accessibility and minimize costs for shuttles. In 2006, Ballston became the first Orange Line station in Arlington to have multiple elevators to the station mezzanine level when three additional elevators were constructed. Additional station entrances should be developed where feasible to improve passenger circulation, access and safety. As part of this effort to ensure reliable access, WMATA should examine the need for improved elevator access from station mezzanines to the train platforms. At all stations, improved bus connections should be provided, including increased curb space and pullout areas for buses.

Transit use and multimodal travel will also be enhanced by improvements to the station entrance plazas and immediate surroundings. Projects should focus on improving multimodal access to stations, particularly pedestrian access to the stations through better street markings and crossings, wider sidewalks, elimination of obstructions in the walkways, installation of directional signage, and traffic management measures. Bicycle access to transit stations can be improved by



<sup>2</sup>Note: Not all of these proposals been approved, programmed, or funded.

adding bicycle lanes, directional signage, and secure, covered bicycle parking. Motor vehicle access for transit riders can benefit from the designation of convenient drop-off/pickup, or “kiss-and-ride,” curb space. Of great significance, particularly to the Ballston, Rosslyn, Pentagon City, Pentagon, and East Falls Church Metrorail stations, are the facilities provided for buses. Such facilities should remain convenient for bus access and passenger transfer between bus and rail. Critical components include bus waiting areas, passenger shelters, ADA-accessible pedestrian routes, and informational signage and displays.

Designated areas for taxicabs and car-sharing vehicles should also be provided at all Metrorail stations with street frontages. The planning and development schedule for particular improvements at each Metrorail station will be set forth through the County’s Transit Development Plan and Capital Improvement Program (CIP). The FY2009-2014 CIP includes planning, design and construction of major facility access improvements at the Rosslyn, Ballston, Clarendon and Pentagon City Metrorail stations. Future facility and access improvements are also being studied or are envisioned at East Falls Church, Courthouse, Crystal City and Virginia Square.

## **VI. Program Implementation Priorities**

### **Transit Development and Coordination Plan**

The Transit Element of the Master Transportation Plan establishes a framework for future improvements to WMATA’s regional transit services and to Arlington’s local transit services. As the County moves toward making the improvements outlined in this plan, strategic decisions will need to be made about priorities—how best to invest limited resources to maximize use of existing and new infrastructure while ensuring that all citizens have access to essential mobility services. These decisions will require foresight and difficult choices among competing priorities and are best made in the context of a thorough and comprehensive implementation plan. It is envisioned that the County will develop a Transit Development and Coordination Plan (TDCP), which will guide decisions about investments in the County’s transit infrastructure and new services. The TDCP should address regional and local rail, bus, and paratransit services regardless of the provider. It should also include capital and operations planning for those programs and services. As an implementation plan, the TDCP should have a six year time frame to correspond with the Northern Virginia Transportation Authority’s planning timeframe, and should be updated regularly. Capital Projects identified in the TDCP will be funded and implemented through the County’s six-year Capital Improvement Program (CIP), the State Transportation Improvement Program (STIP), and the regional Constrained Long Range Plan (CLRP) and Transportation Improvement Plan (TIP).

### **Regional Coordination**

While the County must work intently to improve the transit facilities and services within Arlington that provide transit options for its residents and employees, it must work equally hard to upgrade transit services that travel to and through the County. Arlington must work with regional agencies—such as WMATA, VRE, and the Northern Virginia Transportation Commission (NVTC)—to ensure that they are adequately funded and sufficiently informed to

provide the services needed by Arlington residents, businesses, and visitors. Likewise, the County must regularly work with our neighboring jurisdictions, in particular the District of Columbia, Fairfax County, and the City of Alexandria, to plan effectively for and manage efficiently the transit services that cross jurisdictional boundaries.

## Appendix A. The Existing Transit System

Arlington is well served by a rich network of transit modes, including bus, rail and paratransit (see services described below). Together on an average weekday more than one quarter million people utilize these services. Over one-third of all transit trips that take place in Virginia either originate or end in Arlington.

### Systems Managed by Arlington, WMATA or NVTC

**Metrorail** Arlington has 12 miles of Metrorail lines and 11 stations, operated by WMATA. Besides being the direct link to Washington, D.C., Metrorail's Orange Line makes it easy to travel within the Rosslyn-Ballston corridor. The Blue Line connects to Ronald Reagan Washington National Airport, Crystal City, Pentagon City, and beyond to Alexandria and Washington, D.C. The Pentagon and the Jefferson Davis corridors are also served by the Yellow Line. In FY2008, approximately 65.5 million Metrorail trips began or ended at an Arlington station. The most heavily used Metrorail stations in Arlington, based on average weekday ridership are Rosslyn, Pentagon City, Pentagon, Crystal City, and Ballston. Average weekday boardings and alightings in June 2008 totaled 211,071 for all Arlington stations (a 2.6 percent increase over the previous year and a 22 percent increase since 2000).

**Metrobus** The D.C. area's regional bus service, operated by WMATA, has 25 major bus lines and approximately 100 individual route variations serving Arlington. On average, about 50,000 people board Metrobus each weekday in Arlington; the most heavily used routes are #16 (Bailey's Crossroads, Columbia Pike, Navy Annex, Pentagon City); #7 (North Fairlington, Shirlington, Pentagon); and #1 (Seven Corners, Dominion Hills, Ballston).

**Arlington Transit (ART)** ART is Arlington's local bus service. ART provides trips wholly within Arlington and is intended to provide service deeper into the neighborhoods than Metrobus or other transit providers. The fleet of 21 primarily CNG-fueled buses operates on 11 routes, complementing the 25 Metrobus lines serving Arlington. Since its inception in 1999, ART ridership has increased almost 1000 percent. In 2008 the system provided more than 1,200,000 rides. ART bus service is operated through a contract with a private-sector company. Funding for ART is derived from a variety of sources, including fares, private-sector contributions, grant funds, Metrobus subsidy savings, and County tax support.



**Arlington Public Schools** School buses transport approximately 45 percent of all County public school students.

**Virginia Railway Express (VRE)** Virginia Railway Express is the commuter rail service connecting Northern Virginia and Washington, D.C. VRE is operated as a partnership of PRTC and 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 Washington, D.C. Daily ridership on VRE averages more than 15,000 passenger trips on 26 trains per day. More than 4,000 total riders a day (approximately 1 million per year) use the Crystal City station.



## **Bus Service Facilities**

**Shirlington Bus Station** This new station for Metrobus and ART routes is located along and S. Quincy Street in Shirlington. The County-owned bus station provides a climate-controlled waiting area with customer seating and restrooms. Covered, outdoor seating, as well as bicycle parking, informational displays and pedestrian walkways are also provided. This facility is the principal transfer point for Metrobus and ART service throughout the County.

**ART House** The County has developed a new operations center, using a temporary building, along Route 1 and Eads Street adjacent to the Metrobus Four Mile Run facility. This facility, occupied Oct. 1, 2007, has enabled the County to avoid operating costs associated with excessive "deadhead" travel to and from a distant garage. This ART House facility will be redeveloped to provide the first permanent Arlington location for ART bus parking, fueling and servicing. Construction of permanent facility improvements is anticipated by 2015.

**WMATA Bus Garage** As of 2009 WMATA has one bus garage operating in Arlington. The Four Mile Run garage located at Route 1 and S. Glebe Road stores and services most of the Metrobuses that operate within Arlington. A high-capacity natural gas line installed at the yard provides fuel for the many compressed natural gas buses that operate from that location. Although many of the garage facilities are several decades old, no substantial upgrades are proposed for the near term.

## **Additional Public Transit Services**

In addition to the transit services described above, many other public and private carriers within the region provide services that are used to access Arlington.

**DASH** The Alexandria Transit Company's DASH bus system connects the City of Alexandria with Metrobus, Metrorail, VRE, and the Fairfax Connector. DASH serves all Metrorail stations within the City of Alexandria as well as the Pentagon Transit Center during peak hours.

**Fairfax Connector** The Fairfax Connector bus system operates throughout Fairfax County and to Metrorail stations on the Orange, Blue, and Yellow lines, including the Pentagon Transit Center.

**GEORGE** GEORGE is the City of Falls Church's local transit service to and from the East and West Falls Church Metrorail stations and throughout the city.

**Georgetown Metro Connection** The Georgetown Metro Connection operates high-frequency service between Rosslyn, Georgetown, and Dupont Circle.

**Georgetown University Transportation Shuttle (GUTS)** GUTS operates five shuttle routes, connecting the Georgetown University campus to the Law Center on Capitol Hill, University offices on Wisconsin Avenue, Metrorail stations at Rosslyn and Dupont Circle, and to stops in Arlington.

**Loudoun County Transit** This weekday bus service goes to Washington, D.C., the Pentagon, and Rosslyn from stops in Purcellville, Hamilton, Leesburg, and Sterling. A reverse commute bus service is now available from West Falls Church to Loudoun County.

**OmniRide** This weekday express bus service operated by the Potomac and Rappahannock Transportation Commission (PRTC) goes from the Manassas, Dale City, Triangle, Dumfries, and Lake Ridge areas to the Franconia/Springfield, West Falls Church, and Vienna Metrorail stations, Crystal City, the Pentagon, Rosslyn-Ballston corridor and Washington, D.C.

### **Private Commuter, Employee/Student, and Airport Service**

**Commuter service** Several firms provide private bus service to the Pentagon, Crystal City, and Rosslyn from the City of Fredericksburg, Stafford County, and Loudoun County.

**Shuttle service** Marymount University, the federal government, and several private property owners provide shuttle service for their students, employees, and residents. Each of the shuttles connects to at least one Metrorail station: Ballston (Marymount and Ballston area shuttles), Rosslyn (U.S. State and Defense departments), and Crystal City/Pentagon (U.S. Defense Department and Smith Company).

**Airport service** The Washington Flyer provides service to both National and Dulles airports from points around the region. Shared-ride van service is also provided to/from National Airport.

### **Paratransit and Taxicab Services**

Two paratransit services are currently provided in Arlington for use by persons with disabilities that may be unable to utilize the existing transit services.

**WMATA's MetroAccess** The County is a member of the regional transportation agency, the Washington Metropolitan Area Transit Authority (WMATA). As such, residents of Arlington who are eligible under the Americans with Disabilities Act (ADA) may use WMATA's regional ADA paratransit service, called MetroAccess. Residents are eligible for MetroAccess under provisions of the ADA if they have a disability that prevents them from reaching the transit stop, from boarding the transit vehicle, or from navigating



the system. The ADA requires that paratransit services be offered to those certified as eligible within ¼ mile of local transit services and 1.5 miles of a transit station. All of Arlington falls within this geographic definition. In FY2008 Arlington residents took 20,380 trips on MetroAccess.

WMATA and local transit services, including ART, allow those certified for MetroAccess service to use fixed-route transit (ART, Metrobus, and Metrorail) without charge. Many individuals with disabilities are able to reach transit stops if the path is accessible. All of the vehicles used by ART and WMATA are wheelchair-accessible. Both WMATA and ART offer transit orientations and WMATA offers free fare media to travel-training services that can teach some individuals with disabilities how to navigate transit including recognizing stops, recognizing buses on the appropriate routes, boarding, recognizing where to alight, and transferring between vehicles.

**Specialized Transit for Arlington Residents (STAR)** The County provides ArlingtonSTAR (Specialized Transit for Arlington Residents, a.k.a. STAR) as an option for residents who need some travel assistance. STAR was developed to reduce the demand for MetroAccess while providing a higher level of service for residents at a lower per trip cost. The number of completed trips on STAR in FY2008 was 126,164.

Arlington residents who are certified through MetroAccess as ADA-paratransit eligible can choose between the two services. STAR also has arrangements with several other human service agencies to administer/operate their client transportation services. These include the Senior Loop, the Senior Center Adult Transportation (SCAT) service, the Carver Loop, and trips for the Madison Adult Day Health Care Center.



**Taxicab and Car-Share Services** Taxicabs are often an important supplement or link for people who carpool or use public transportation. The County works with multiple taxi providers to regulate fares and the size and condition of the fleet. Aside from standard trips, taxi service in Arlington is used as an extension of the County's provision of specialized transportation services, including reserved trips for individuals with disabilities, and to provide discounted taxi service for seniors. Currently four taxi companies (Yellow, Blue Top, EnviroCAB and Red Top) provide on-call taxi service throughout Arlington, while three companies (Hess, Crown, and Friendly) lack radio-dispatch capability and operate primarily from taxi stands. Taxi service from Dulles Airport to Northern Virginia is provided exclusively by the Washington Flyer taxicab service.

The County regulates the cab companies that make up its taxicab industry. That regulation includes driver licensing, vehicle inspection, fare setting, and the issuance of taxicab operating certificates. As of March 2009, 730 standard taxi vehicles and 26 wheelchair-accessible taxi vehicles had been authorized to operate in Arlington.

Taxicab stands are provided at or near all Metrorail stations to facilitate intermodal travel. Most Metro stations in Arlington also have reserved spaces for car-share vehicles. A private company, Zipcar, provides car-sharing short-term rentals to their more than 3,000 Arlington members. Car-sharing provides persons with occasional access to private vehicles without the need for auto ownership. Surveys have found that access to car-sharing allows members to sell, or not purchase personal vehicles and leads to higher rates of travel by transit, carpool, walking, or bicycle.

## **Arlington Department of Human Services and Other Specialized Transportation Services**

In addition to STAR's standard prearranged reserved trip service, the STAR call center oversees several transportation systems, working with the County's Department of Parks, Recreation, and Cultural Resources (PRCR); and the Department of Human Services (DHS). In FY2008 a total of 19,087 trips were made using the four senior services; an average 7.1 percent annual rate of increase over the previous three years. The following local transportation services are provided by social service agencies or can be arranged directly through several taxicab companies.

**Senior Loop** The Senior Loop provides weekly grocery shopping for residents of four retirement housing facilities (The Carlin, Culpeper Gardens, Claridge House and Woodland Hill). A contractor provides the service using wheelchair-accessible, 10-passenger vans that operate on two loops. The Senior Loop service is operated at no charge to passengers.

**Senior Center Adult Transportation (SCAT)** SCAT is a prearranged shared-ride cab service that Arlington residents can use to travel to and from their homes to the senior centers in their zone on specific days and times. Anyone 55 or older may use the service. The fare for each one-way trip is \$2.00. All rides must be reserved at least one day in advance.

**Carver Loop** The Carver Loop picks up seniors at their homes and brings them to the Carver Senior Center. The service is available five days per week, and trips are scheduled by Center staff rather than individual clients. The service is operated by Diamond Transportation Services through a contract with the Agency for Aging, and it is managed through the STAR call center. Most of the 550 trips each month are standing orders. There is no fare for this service.

**Madison Adult Day Health Care Center Field Trips** The Madison Adult Day Health Care Center conducts field trips approximately once a week, operated by Diamond Transportation Services and using the Carver Loop bus after the morning rush hour is over. Approximately 200 trips are scheduled on this service each month.

**American Red Cross** The American Red Cross–Arlington Chapter operates a volunteer driver transportation program for individuals age 60 and over who are *not* certified to use STAR or MetroAccess. They also purchase STAR coupon books and provide those coupons to their clients at no charge when volunteer transportation cannot be provided.

**Medicaid Transportation** Medicaid recipients who have no other transportation available are eligible to receive nonemergency transportation to the nearest enrolled Medicaid provider for an approved treatment. Trip reservations and service are arranged by calling at least 48 hours in advance. There is no cost to the eligible individual for an authorized trip.

**Senior Center Nutrition Programs** Seniors participating in the nutrition programs at the Carver, Langston-Brown, and Dawson Terrace senior centers are eligible to receive curb-to-curb transportation service. Participants must contact the specific center at least one day in advance, or they may set up a standing order. The service is provided by Blue Top Cab using taxis. There is no fare for the service, but donations are requested.

**Community Services Board Transportation** The Community Services Board of Arlington deals with services related to mental health, mental retardation (MR), and substance abuse. Transportation services are an essential component of the service delivery system. The MR transportation program provides transportation from clients' homes to day placement jobs or other service facilities. Transportation is provided by Diamond Transportation and Blue Top under contract with the County. Since many of the clients are Medicaid eligible, the County submits requests for reimbursement of approximately 50 percent of costs from Medicaid for all such clients.

**Super Senior Taxi (SST)** Super Senior Taxi is a subsidized taxi program for Arlington residents 70 years of age and over. The program allows seniors to purchase a \$20 book of vouchers for half price, at \$10 for use on Red Top and Yellow cabs. The number of coupon books is limited, and participants can purchase up to 15 coupon books per year. Seniors wanting to join the program apply to the County's Agency on Aging.