



# ARLINGTON

## Transit Strategic Plan

FY2025-2034



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# Chapter 1

# System Overview and Strategic Vision



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# 1.1. System Overview

## 1.1.1. Services Provided and Areas Served

The Arlington County Department of Environmental Services' Transit Bureau oversees transit operations and provides public transportation services to accommodate the needs of County residents, employees, and visitors. The Arlington Transit (ART) bus service is operated through a competitively procured contract with a private sector company (currently First Transit). Funding for the ART bus service is derived from the County general funds, fares, state transit aid, and several private sources.

### Arlington Transit (ART)

ART is Arlington's local bus service, providing service to most neighborhoods in the county, including Rosslyn, Ashton Heights, Shirlington, and Crystal City. Prior to the creation of ART, WMATA was the only transit agency that provided fixed route bus service in the County. Arlington began operating ART in November 1998, starting with service in the Crystal City area. Over time, ART increased its span and frequency of service and expanded coverage to neighborhoods previously not served by transit.

ART's bus route network serves some of the County's busiest corridors and complements WMATA's Metrorail and Metrobus services to provide additional connections between key destinations. For example, both ART and WMATA have coordinated to provide the high frequency 'Pike Ride' service along Columbia Pike since 2003. Columbia Pike is the most diverse corridor in Arlington, home to over 36,000 residents per the 2010 Census.

ART also serves several high-profile Federal agencies and facilities, such as the Pentagon, Transportation Security Administration (TSA), U.S. Marshals Service, U.S. State Department, and the Defense Advanced Research Projects Agency (DARPA). The transit service network also includes the Shirlington Transit Center as the only enclosed public bus station in Arlington, and is the principal transfer point for ART, Metrobus, and DASH bus service in the south end of the County. The Pentagon Transit Center and Ballston Transit Hub are two other major transit transfer locations in Arlington.

ART currently operates 16 routes and provides service seven days per week. More information on the existing services provided by ART can be found in Chapter 2. The ART bus network is shown in Figure 1.

**ART System Map**  
Effective August 2019

**System Map Legend**

- Capital Square Location
- Library
- Community Center
- Point of Interest
- Hospital
- High School
- Middle School
- Elementary School
- Metropolitan Express
- Metropolitan Station
- Metropolitan Rail Station
- Metropolitan Rail Station

**ART Bus Routes**

- More Frequent**  
(Thick line, 20 min. or less frequency at all day)
- Local Frequent**  
(Thick line, 20 min. or less frequency during portion of the day or all day)
- Local**  
(Thin line, 30 min. or less frequency during portion of the day or all day)
- Express**  
(Thin line, 30 min. or less frequency during portion of the day or all day)
- Metropolitan Express**  
(Thin line, 30 min. or less frequency during portion of the day or all day)
- Metropolitan Station**  
(Thin line, 30 min. or less frequency during portion of the day or all day)
- Metropolitan Rail Station**  
(Thin line, 30 min. or less frequency during portion of the day or all day)

**ART Arlington Transit**  
ArlingtonTransit.com  
703-228-RIDE

### Existing Fare Structure

Customers can pay fares with cash or SmarTrip, a uniform payment platform used by agencies in the region and administered by WMATA. Fares to use the ART system are shown in Table 1.

TABLE 1 | ART FARES

Customer	Payment Method	Fare
Adult	SmarTrip	\$2.00
	Cash	\$2.00
Senior Citizen (65+)	SmarTrip	\$1.00
	Cash	\$1.00
Person with Disability (with Senior SmarTrip or Medicare Card)	Senior SmarTrip	\$1.00
	Cash and Medicare Card	\$1.00
K-12 Student (with iRide SmarTrip or Student ID)	iRide SmarTrip	Free
	Cash and Student ID	\$1.00
Children under Five	-	Free

### Specialized Transportation for Arlington Residents (STAR)

Specialized Transportation for Arlington Residents (STAR) is the County's designated Americans with Disabilities Act (ADA) paratransit service. This service is provided to Arlington residents who are not able to use public fixed-route transit due to a qualifying disability and offers a higher level of service for residents eligible for WMATA's MetroAccess service.

STAR is available between 5:30 AM and midnight, seven days per week. All peak period, night, and weekend trips must begin or end in Arlington. This service may be used for most types of trips that are comparable to the level of transportation provided by ART, Metrobus, and Metrorail with a few exceptions in regard to the purpose of the trip.

All trips are scheduled through the STAR Call Center either by phone or on STAR's website. Trips must be booked one to seven days in advance. STAR allows same-day scheduling of medical trips, including medical return trips.

### Existing Fare Structure

Customers can pay STAR fares with STAR coupons, worth either \$4.00 or \$5.50, and sold in books of 10. Fares to use STAR are shown in Table 2.

TABLE 2 | STAR FARES

Zone	Payment Method	Fare
Zone 1 – Trips inside Arlington.	One \$4.00 Coupon	\$4.00
Zone 2 – Trips to DC, Alexandria, Falls Church, Fairfax inside the Capital Beltway, or Inova Fairfax Hospital/Woodburn Mental Health campus.	One \$5.50 Coupon	\$5.50
Zone 3 – Trips to Fairfax County outside the Capital Beltway, Montgomery County, or Prince George's County.	One \$4.00 Coupon	\$9.50
	One \$5.50 Coupon	

## 1.1.2. Current and Recent Initiatives

Recently completed and ongoing transportation engagement efforts are summarized in Table 3.

TABLE 3 | CURRENT AND RECENT INITIATIVES

Initiative	Summary
Transit Strategic Plan (TSP)	The County is preparing this update of its 2016 Transit Development Plan per DRPT's new TSP requirements. DRPT requires each transit agency to complete a minor TSP update every five years, with an annual update produced to report on anything that has changed from the previous year. A TSP overhaul can be completed at the discretion of the transit agency in consultation with their DRPT Program Manager.
Vision Zero	In July 2019, the Arlington County Board adopted a resolution committing to Vision Zero. The program now includes a five-year Vision Zero Action Plan that was adopted in May 2021. Arlington is committed to fostering Vision Zero policies that emphasize the importance of safe access to transit (e.g., ensuring adequate crossing opportunities at every stop/station; bus stop placement and surrounding infrastructure; etc.) and prioritizes the importance of safe and accessible transit facilities for everyone.
Northern Virginia Transportation Commission (NVTC) Free Fare White Paper	The white paper provides Commissioners and Northern Virginia's bus system decision-makers with policy and technical considerations for zero-fare and reduced-fare transit service. It provides a high-level overview of the options and topics to consider when evaluating new potential fare programs that eliminate or reduce fares.
Low Income Fare Pilot	The County began a pilot program in February 2022 to provide no-fare assistance to 7,200 low-income Arlington residents. The pilot distributes one-time SmarTrip cards preloaded with \$150 (the approximate value of 75 trips).
Student Fare Pilot	The County conducted a pilot program with Arlington Public Schools (APS) between February 2022 and June 2023 to determine if 2,400 identified middle and high school students, who live beyond the reach of APS school buses, can ride the ART bus to and from school safely and on time. The pilot provided preloaded iRide SmarTrip cards to students to ride the ART bus for free to get to and from school.
2020 Arlington County Title VI Program Update	The County prepared its update to the Title VI Program. This is to ensure that the level and quality of ART's fixed route service and the demand response service of STAR are provided in a nondiscriminatory manner and the opportunity for full and fair participation is offered to passengers and others in the community. The 2023 update is in progress.
2020 Comprehensive Operations Assessment (COA)	In preparation for the FY 2022 Transit Strategic Plan and the major service changes expected on Columbia Pike in FY 2023, a COA was performed of ART operations in FY2020.
Arlington County Zero Emission Bus (ZEB) Study	The County anticipates transitioning the ART fleet to zero emission buses (ZEBs) in keeping with Board guidance. Final decisions are pending completion of a ZEB study. The County conducted a BEB demonstration program during fall 2022 / winter 2023 where participating bus manufacturers deployed their BEBs along select ART routes.

Initiative	Summary
Bus Stop Accessibility Improvements	The Bus Stop Accessibility Improvements program is an on-going program to address 554 of the County's bus stops previously identified as being non-compliant with the Americans with Disabilities Act (ADA). Since FY 2014, approximately 271 bus stops have been made ADA compliant.
Bus Stop and Shelter Program	This is an ongoing program that replaces existing bus shelters that are aging, installs new shelters where needed, and makes repairs and improvements.
Premium Transit Network (PrTN): Off-Vehicle Fare Collection	This project involves regional coordination for the feasibility, planning, development, implementation, and procurement of off-vehicle fare collection technology to speed up bus boarding. WMATA and regional partner jurisdictions are currently investigating several off-vehicle payment strategies. However, in the interim, Arlington plans to pursue a "no cash loading" of SmarTrip by offering fare loading machines at strategic locations within the service area and/or installing rear door fare validators to facilitate rear door boardings.
PrTN: Transit ITS and Security Program	The Transit Intelligent Transportation System (ITS) and Security Program funds the use of technology to improve transit operations and rider information systems and identifies and mitigates agency security and safety issues. This program builds upon and expands technologies in place and introduces new technologies as recommended in the Transit ITS Master Plan. The program also provides funding for replacement of existing technology as it reaches its useful life.
Transit Signal Priority	As part of a countywide effort to implement various transit technologies throughout Arlington, the County is implementing Transit Signal Priority (TSP) for better running times of buses in congested corridors, particularly for ART routes 41 and 55.



## 1.2. Strategic Vision

### 1.2.1. Goals and Objectives

The goals and objectives developed for the 2024-2033 Transit Strategic Plan were informed by Arlington Transit's vision and mission and vetted with stakeholders and the public during a fall 2022 engagement.

The vision for transit is to:

***“Provide a safe, equitable, accessible, reliable, and convenient transportation system that effectively and efficiently sustains the environment, economy, and quality of life in Arlington.”***

Arlington Transit's mission is to:

***“Move Arlington forward by working together to plan, build, operate, and maintain the transit network.”***

ART developed the following eight goals consulting its vision, mission, and values and conducting a review of peer agencies and industry best practices. The goals can be divided into three broader themes:

- Safety, Quality, and Performance
- Equity and Sustainability
- Communication and Collaboration

FIGURE 2 | TRANSIT STRATEGIC PLAN GOALS



TABLE 4 | ART TSP GOALS AND OBJECTIVES

Goal	Objective
<b>Goal 1</b> <b>Promote transit as an attractive transportation option</b>	Maintain a clean, reliable fleet
	Promote transparency and customer satisfaction
	Meet or exceed transit performance metrics
<b>Goal 2</b> <b>Provide infrastructure and services that create and maintain a safe and secure transit environment</b>	Promote a culture of safety
	Support Vision Zero goals
	Identify and implement safety improvements
	Maintain security of transit services and facilities
<b>Goal 3</b> <b>Deploy infrastructure and services equitably throughout Arlington</b>	Identify and correct disparities for low-income and minority populations with service
	Provide enhanced economic opportunity for low-income and minority populations through transit
	Ensure transit amenities and service provide a positive impact on underserved communities
	Provide high-quality paratransit service and accessible infrastructure that allows everyone access to transportation
<b>Goal 4</b> <b>Exercise sound financial management in delivering infrastructure and services</b>	Identifying grant opportunities to leverage local funding
	Deliver efficient and effective services
	Ensure facilities and vehicles are maintained in a state of good repair
<b>Goal 5</b> <b>Connect Arlington and the region through shared, sustainable transportation and create a resilient community through environmentally sustainable transportation</b>	Contribute to the reduction of greenhouse gas emissions
	Convert trips taken with SOV's to shared transit trips
	Design and build following "green" principles, promote energy management and renewable energy creation
<b>Goal 6</b> <b>Ensure accessible communications that inform, involve, and empower staff and the public to shape the delivery of transit service and transit infrastructure</b>	Engage with residents and commuters to inform development of transit projects and services
	Provide proactive customer service and passenger notifications
	Notification to the public of new projects and services in a timely manner
<b>Goal 7</b> <b>Create a safe and positive workplace where the entire team responsible for service delivery can focus on their work</b>	Cultivate and maintain positive relationships with stakeholders
	Create a collaborative and inclusive work environment
	Attract, recruit, and retain effective employees
	Enhance relationships and partnerships with our regional transit stakeholders
<b>Goal 8</b> <b>Proactively collaborate with regional partners to improve transit infrastructure, effectively coordinate, communicate, and plan transit service, and establish emergency response procedures</b>	Provide robust regional service transit service
	Improve shared transit infrastructure within the County
	Continuity of service during weather, emergency, and special events
	Coordination and communications plan for weather, emergency, and special events

## 1.2.2. Service Design Standards

### Existing Service Design Standards

Arlington adopted service standards during the 2017 ART Transit Development Plan, that are used to assist in evaluating the service and making proposed changes. All proposed system recommendations consider gaps in meeting these service standards in addition to public engagement. Some of these standards were not incorporated into this process due to their non-service-related aspects or a lack of available data.

Service Design Standards outlines how minimum service is provided through-out the County and the measures used to evaluate the service. Currently, the transit network and route classification use the same nomenclature, which can cause confusion. Arlington uses three network designations to classify the fixed-route service it provides.

TABLE 5 | EXISTING NETWORK SERVICE AND PERFORMANCE DESIGN STANDARDS (FROM 2017 TDP)

Category and Subcategories		Standard
<b>Frequency</b> (Minimum)	Premium Transit Network (PrTN)	10-minute peak / 12-minute off peak headways
	Primary Transit Network (PTN)	15-minute headways
	Secondary Transit Network (STN)	30-minute peak / 30-minute off peak headways or availability of Flex service
<b>Span of Service</b> (Minimum)	Premium Transit Network (PrTN)	18-hours/day, 7 days/week
	Primary Transit Network (PTN)	18-hours/day, 7 days/week
	Secondary Transit Network (STN)	8-hours/day, 5 days/week
<b>Vehicle Load Factor</b>		1.2
<b>On Time Performance</b>		95%
<b>Service Availability</b>		90% or residents live within ¼ of transit
<b>Bus Stop Spacing</b>	Limited Stop Service	1,760 – 2,640 feet
	Premium Transit Network (PrTN)	1,320 – 2,649 feet
	Primary Transit Network (PTN)	1,320 feet
	Secondary Transit Network (STN)	660 – 1,320 feet

The Primary (PTN) and Secondary (STN) Transit Networks are largely defined by their service levels, while the Premium (PrTN) Transit Network is both a high-frequency service and a geographic designation characterized by corridors with an effective (shared) 10-minute peak period headway and corridors with transit priority infrastructure. This has often led to confusion when discussing the concepts both internally and externally due to routes operating on a certain defined network may not share the same classification as the network. For example, Route 74, which is a Secondary Transit Network Route (STN) operates exclusively along the Premium Transit Network (PrTN).





## Proposed Service Design Standards

Post-pandemic commute patterns for transit users have changed with less emphasis on the peak period and more use during off peak times. The way service is provided in the County will change from an emphasis on peak period service to more all day, weekend, and evenings. Due to the change in the philosophy of providing service, significant changes should be made to the service standards to better evaluate the service. The network classification will remain the same with some slight adjustment to standards.

It is proposed that high-frequency, high-productivity routes be reclassified as “**Core**” routes in the network; moderate to high-frequency routes, with moderate to high-productivity be classified as “**Connector**” routes; and routes with low-frequency, low-productivity that provide important auxiliary connections be classified as “**Coverage**” routes.

TABLE 6 | PROPOSED ROUTE CLASSIFICATIONS

Classification	Description	Routes
<b>Core:</b>	High-frequency and high-productivity routes that predominantly provide service to the Premium (PrTN)	41,42,45,55
<b>Connector:</b>	Moderate to high-frequency and moderate to high-productivity routes that provide connections to Core routes and the PrTN	43,72,75,77
<b>Coverage:</b>	Moderate-frequency and moderate-productivity routes that predominately provide coverage to areas with low transit propensity that maintain coverage across the County providing transit access to all Arlington County residents.	51, 52, 53, 61, 62, 74,84,87

To reduce confusion with the service versus infrastructure nature of the classifications described above, PrTN will be used to identify corridors and not individual routes. It is proposed that the entirety of the Pike Ride corridor and the WMATA Metroway comprise Arlington’s Premium Transit Network (PrTN).

The Premium Transit Network (PrTN) classification applies to the following high-frequency and high-productivity corridors:

- Pike Ride Transit Priority Corridor / Columba Pike, between Skyline and the Pentagon (PTN Route 41 and STN Routes 45 and 72, as well as multiple Metrobus services)
- Langston Boulevard (PTN Route 55)
- Glebe Road (PTN Route 41 and STN Route 72, as well as multiple Metrobus services).

TABLE 7 | PROPOSED SERVICE STANDARDS

Category	Frequency (minimum)
<b>Core</b>	12-minute peak headways / 12 minute off-peak headways
<b>Connector</b>	30-minute headways
<b>Coverage</b>	60-minute headways / Can be peak only service
Category	Span Of Service (minimum)
<b>Core</b>	18-hours per day; 7 days a week
<b>Connector</b>	12-hours per day; 7 days a week
<b>Coverage</b>	7-hours per day; 5 days a week

### 1.2.3. Performance Standards

ART's existing network was compared against the following performance standards, which were developed out of ART's 2020 Title VI program.

TABLE 8 | PROPOSED NETWORK DESIGN STANDARDS

Category and Subcategories		Standard
<b>On Time Performance</b>		95%
<b>Farebox Recovery (Minimum)</b>		20%
<b>Service Availability</b>		90% of residents live within ¼ of transit
<b>Bus Stop Spacing</b>	Limited Stop Service	1,760 – 2,640 feet
	Core	1,320 – 2,640 feet
	Connector	1,320 feet
	Coverage	660 – 1,320 feet
<b>Average Mean Distance Between Failures</b>		11,000 miles

The following table displays the proposed service performance metrics for the new proposed route classifications. These metrics are based on the average performance of the existing ART routes. Routes were first categorized by performance and then the target for each category was determined by calculating the average performance level per category. The proposed service metrics will be evaluated annually as recommendations from the TSP are implemented.

TABLE 9 | PROPOSED SERVICE PERFORMANCE METRICS

Proposed Standard	Route Classification	Weekday	Saturday	Sunday
<b>Passengers per Trip</b>	Core	19	16	14
	Connector	10	8	-
	Coverage	4	4	4
<b>Passengers per Revenue Hour</b>	Core	16	13	12
	Connector	9	8	-
	Coverage	5	6	5
<b>Passengers per Revenue Mile</b>	Core	2	1	1
	Connector	1	1	-
	Coverage	1	1	1
<b>Average Daily Ridership</b>	Core	1060	740	615
	Connector	375	250	-
	Coverage	115	155	100

# Chapter 2

# System Performance and Operations Analysis



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## 2.1. System and Service Data

ART is Arlington's local bus service, providing service to most neighborhoods in the 26-square-mile county, including Rosslyn, Ashton Heights, Shirlington, and Crystal City.<sup>1</sup> ART's service area is coterminous with Arlington County, encompassing roughly 234,200 residents (about 9,000 people per square mile).<sup>2</sup> Prior to the creation of ART, WMATA was the only transit agency that provided fixed route bus service in the County. Arlington began operating ART in November 1998, starting with service in the Crystal City area. Over time, ART increased its span and frequency of service; expanding coverage to neighborhoods previously not served by transit.

ART's bus route network serves some of the county's busiest corridors and complements WMATA's Metrorail and Metrobus services to provide additional connections between key destinations. For example, both ART and WMATA have coordinated to provide the high frequency Pike Ride transit corridor along Columbia Pike since 2003. Columbia Pike is the most diverse corridor in Arlington, home to over 36,000 residents per the 2010 Census.

ART also serves several high-profile federal agencies and facilities, such as the Pentagon, Transportation Security Administration (TSA), U.S. Marshals Service, U.S. State Department, and the Defense Advanced Research Projects Agency (DARPA). The transit service network also includes the Shirlington Transit Center as the only enclosed public bus station in Arlington, and is the principal transfer point for ART, Metrobus, and DASH bus service in the south end of the County. The Pentagon Transit Center and Ballston Transit Hub are two other major transit transfer locations in Arlington.

ART currently operates 16 routes and provides service seven days per week. This section provides an overview of transit ridership, service levels, and productivity in Arlington County. It examines current ridership and productivity metrics (as of 2022), as well as historical trends to visualize the impact of the COVID-19 pandemic on transit supply, demand, and productivity. The level of detail varies by mode and agency, depending on data availability:

- For ART fixed-route transit, system-level ridership, level of service, and productivity metrics are presented. For a route-level analysis, please see Chapter 3 – Planned Improvements and Modifications.
- For STAR service (Arlington Transit's paratransit operations), system level ridership, level of service, and productivity metrics are presented.
- For ART and WMATA fixed-route (Metrobus) service, stop-level ridership and level of service are presented.
- For WMATA Metrobus service, route level of service and ridership are presented.
- For WMATA Metrorail service, route level of service and station-level ridership levels are presented.
- For all transit providers, route level of service is presented.

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<sup>1</sup> NTD, 2021. Arlington Transit Agency Profile. Accessed at [https://www.transit.dot.gov/sites/fta.dot.gov/files/transit\\_agency\\_profile\\_doc/2021/30080.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/transit_agency_profile_doc/2021/30080.pdf)

<sup>2</sup> NTD, 2021. Arlington Transit Agency Profile. Accessed at [https://www.transit.dot.gov/sites/fta.dot.gov/files/transit\\_agency\\_profile\\_doc/2021/30080.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/transit_agency_profile_doc/2021/30080.pdf)

As shown in **Table 1**, ART maintained a fleet of 78 fixed-route buses and 30 paratransit vehicles in 2021. Based on 2021 service levels, ART requires 54 fixed-route buses and 25 paratransit vehicles for peak service.

TABLE 1 | FLEET CAPACITY (2022)

Mode	2022 Vehicles Available	2022 Peak Vehicle Need
ART Fixed-Route Bus	78	54
STAR Paratransit	30	25

### 2.1.1. Overall Transit Statistics

Average daily transit ridership (2022 total average onboardings per day) in Arlington is largely concentrated in WMATA's Metrorail system, including on weekdays (**Figure 1**), Saturdays (**Figure 2**) and Sundays (**Figure 3**). Across service days, WMATA Metrobus routes serve more than double that of ART bus routes. ART fixed-route service has the highest share of county total during the average weekday. Ridership from other transit services was not available.



FIGURE 1 | ART AND WMATA WEEKDAY SHARE OF RIDERSHIP IN ARLINGTON COUNTY

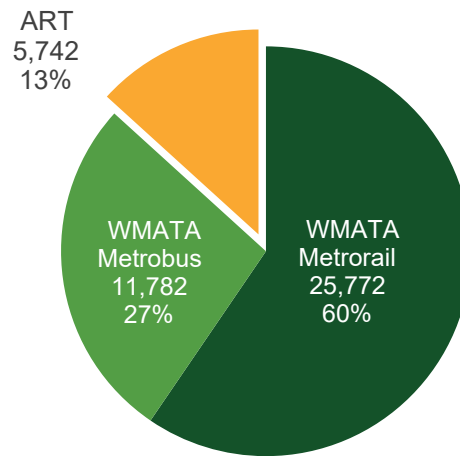


FIGURE 2 | ART AND WMATA SATURDAY SHARE OF RIDERSHIP IN ARLINGTON COUNTY

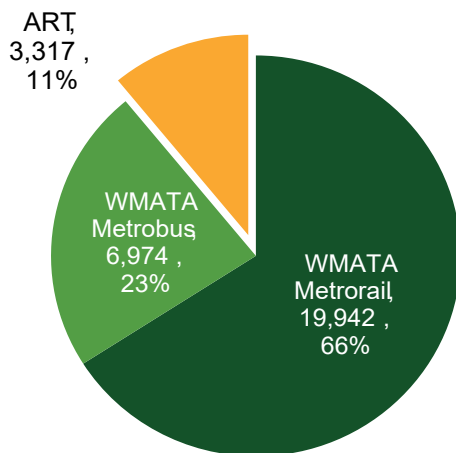
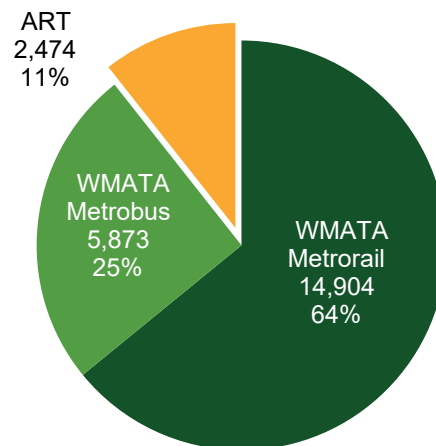


FIGURE 3 | ART AND WMATA SUNDAY SHARE OF RIDERSHIP IN ARLINGTON COUNTY



In Figure 4, WMATA and ART stop-level ridership is shown in a bivariate heatmap, with purples representing overlap between the two systems. Ridership is spread throughout Arlington, with both systems seeing strong ridership along the Rosslyn-Ballston corridor, Glebe Road, Columbia Pike, and in the cores of Pentagon City and Crystal City. Arlington Transit's exclusive ridership is strongest along Langston Boulevard, Washington Boulevard south of the Orange and Silver Lines, and in the southwest portion of the county. WMATA's exclusive ridership is strongest along Washington Boulevard north of the Orange and Silver Lines, along Arlington Boulevard, and along the Metroway Corridor south of Pentagon City.

WMATA and ART bus trips per hour during the AM peak period are shown in Figure 5. The highest trip frequency is around Metrorail stations, along Columbia Pike, and in Shirlington. Trip frequency is lowest in the northern part of the county, along with isolated patches further from major arterial roads.



FIGURE 4 | ART AND WMATA STOP-LEVEL RIDERSHIP

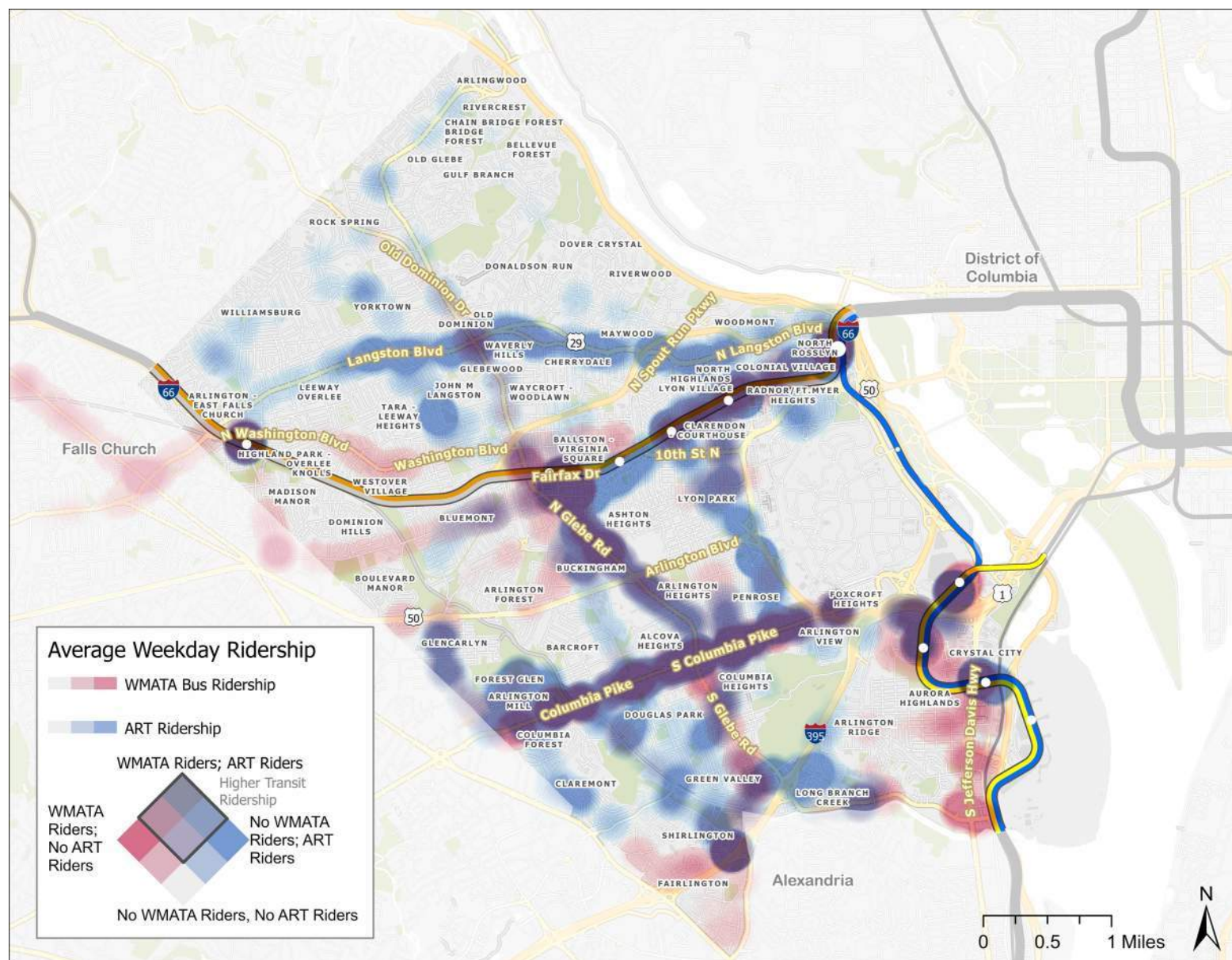
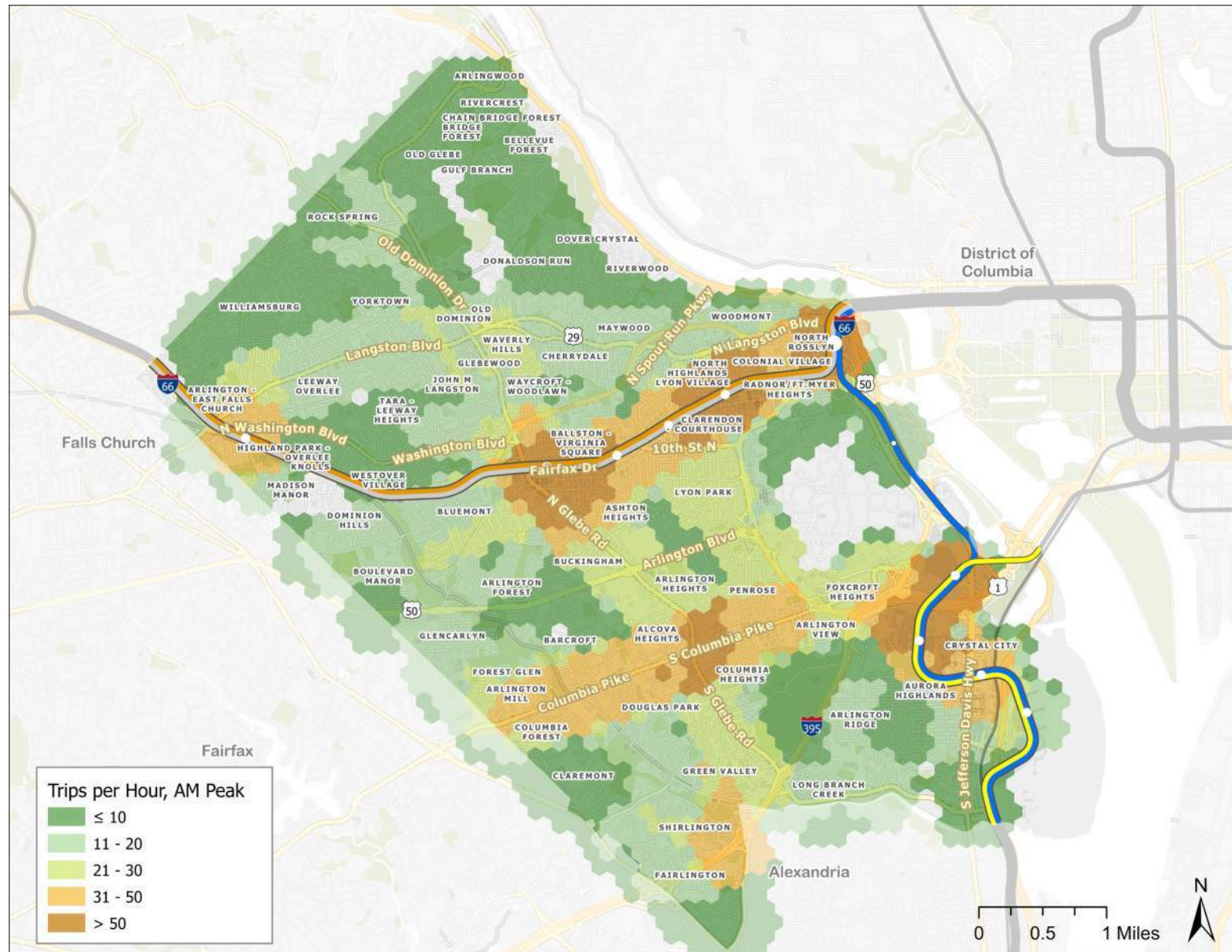






FIGURE 5 | ART AND WMATA COMBINED TRIPS PER HOUR, AM PEAK



## 2.1.2. ART Fixed-Route Bus Service

Arlington Transit's primary service is in the form of fixed-route bus service, which consists of 188.8 directional route miles across 16 conventional bus routes.<sup>3</sup> Table 2 is a selection of system-level performance statistics and metrics between FY 2019 and FY 2022<sup>4</sup>, to be compared against each other and the route level statistics available in the ART route profiles.

TABLE 2 | ART SYSTEM METRICS (FY 2019-FY 2022)

F	Service Type	Passengers	Trips	Revenue Hours	Revenue Miles	Passengers per Revenue Hour	Passengers per Revenue Mile	Passengers per Trip
19	Weekday	2,404,785	150,111	147,418.49	1,491,001.53	16.31	1.61	16.02
19	Saturday	244,079	18,199	18,283.68	181,742.03	13.35	1.34	13.41
19	Sunday	180,336	14,343	14,022.34	141,456.05	12.86	1.27	12.57
20	Weekday	2,050,529	133,352	134,098.40	1,364,874.00	15.29	1.50	15.38
20	Saturday	241,480	15,535	16,553.44	159,403.80	14.59	1.50	15.54
20	Sunday	175,283	12,194	12,690.46	124,372.50	13.81	1.39	14.37
21	Weekday	1,049,519	123,517	129,580.30	1,300,104.00	8.10	0.81	8.50
21	Saturday	188,277	15,825	16,860.36	162,360.30	11.17	1.18	11.90
21	Sunday	150,818	12,434	12,940.91	126,828.50	11.65	1.21	12.13
22	Weekday	1,446,876	151,738	151,587.61	1,549,986.15	9.54	0.93	9.54
22	Saturday	182,455	15,305	16,307.88	157,065.55	11.19	1.16	11.92
22	Sunday	143,492	12,020	12,507.80	122,581.84	11.47	1.17	11.94

<sup>3</sup> NTD, 2021. TS2.1 – Service Data and Operating Expenses Times Series by Mode. Accessed at <https://www.transit.dot.gov/ntd/data-product/ts21-service-data-and-operating-expenses-time-series-mode-2>

<sup>4</sup> ART fiscal years run from July to June. (i.e., FY 2019 began in July 2018 and ended in June 2019).



Table 3 shows ridership and operating statistics by route and by service class in FY 2022. Primary routes 41 and 55 served roughly 84% of the passengers served by the remaining 14 routes classified as Secondary, with route 41 serving by far the most passengers in the ART fixed-route bus system. Primary routes 55 and 41 operated by far the most revenue service in FY 2022. While route 41 served the most customers in FY 2022, Primary route 55 served slightly less customers than Secondary route 45, which ran far fewer revenue miles and hours.

Routes 53, 61, 62, and 74 did not operate in the first two months (July and August) of FY 2022 due to COVID pandemic-related service drawbacks, so ridership may not be directly comparable between these routes and routes with 12 months of ridership data.



TABLE 3 | ANNUAL RIDERSHIP AND OPERATING STATISTICS BY ROUTE AND SERVICE CLASS, FY 2022

Route	Annual Ridership	Annual Revenue Hours	Annual Total Hours	Annual Revenue Miles	Round-Trip Route Length (Miles)	Months Excluded
41	575,120	29,283	30,274	265,084	12.01 (Mon-Sun)	-
55	231,760	24,628	28,042	260,048	11.31 (Mon-Sun)	-
<b>Primary Total</b>	<b>806,880</b>	<b>53,911</b>	<b>58,315</b>	<b>526,031</b>	<b>23.32 (Mon-Sun)</b>	-
42	175,055	15,934	16,648	159,137	12.41 (Mon-Fri) 11.04 (Sat-Sun)	-
43	75,273	12,140	13,370	155,828	8.03 (Mon-Fri)	-
45	237,269	19,942	21,714	177,083	21.47 (Mon-Sun)	-
51	57,990	6,402	6,858	57,618	4.63 (Mon-Sun)	-
52	38,140	6,599	7,167	73,070	11.62 (Mon-Fri)	-
53	8,405	4,686	5,532	57,604	17.46 (Mon-Fri)	July, August
61	7,527	2,684	3,360	21,365	7.22 (Mon-Fri)	July, August
62	4,014	2,626	3,235	29,096	12.18 (Mon-Fri)	July, August
72	71,555	12,714	14,027	122,902	16.94 (Mon-Fri)	-
74	3,954	1,622	1,758	37,020	11.78 (Mon-Fri)	July, August
75	86,342	10,644	11,821	104,644	14.66 (Mon-Fri)	-
77	106,235	11,379	12,285	115,491	11.38 (Mon-Sat)	-
84	10,670	3,600	4,107	53,696	16.64 (Mon-Fri)	-
87	83,314	15,521	16,629	139,049	11.54 (Mon-Fri) 10.18 (Sat-Sun)	-
<b>Secondary Total</b>	<b>965,943</b>	<b>126,492</b>	<b>138,510</b>	<b>1,303,602</b>	<b>177.97 (Mon-Fri)</b> <b>58.70 (Sat)</b> <b>47.32 (Sun)</b>	-
<b>Systemwide Total</b>	<b>1,772,823</b>	<b>180,403</b>	<b>196,826</b>	<b>1,829,634</b>	<b>201.29 (Mon-Fri)</b> <b>82.56 (Sat)</b> <b>70.65 (Sun)</b>	-

**Table 4** details each ART route in terms of the days of operation (i.e., Weekday, Saturday, and Sunday), the span of service which is offered per operating day, and the frequency of service through the various periods of service for each operating day. **Figure 6** shows the highest trip frequency (for trips provided exclusively by Arlington Transit) is along the Rosslyn-Ballston corridor around the Metrorail stations, with moderate frequency seen along Columbia Pike, Langston Boulevard, and Glebe Road.

TABLE 4 | SUMMARY OF ARLINGTON TRANSIT SERVICES BY ROUTE

Route	Weekday								Saturday				Sunday			
	Span	Headway						Daily Trips	Span	Headway		Daily Trips	Span	Headway		Daily Trips
		Early	AM Peak	Midday	PM Peak	Evening	Late			Core	Non-Core			Core	Non-Core	
41	5:25 AM- 1:08 AM	20	16	15	15	20	23	67	6:05 AM-1:57 AM	17	20	63	6:50 AM-12:33 AM	15	16	63
42	6:00 AM- 8:38 PM	-	15	30	15	15	-	45	6:45 AM-8:09 PM	30	30	27	7:00 AM-7:24 PM	30	30	24
43	6:02 AM- 10:51 PM	-	10	20	10	17	-	72		-	-	-		-	-	-
45	5:38 AM- 11:40 PM	20	21	30	23	28	-	39	7:23 AM-12:21 AM	30	30	31	6:43 AM-11:41 PM	30	30	31
51	6:05 AM- 12:30 AM	-	31	30	32	31	30	36	6:05 AM-12:13 AM	30	30	37	6:45 AM-10:34 PM	30	31	31
52	5:51 AM- 9:29 PM	-	31	31	32	29	-	26		-	-	-		-	-	-
53	6:00 AM- 9:14 AM; 2:35 PM- 7:39 PM	-	24	-	25	25	-	16		-	-	-		-	-	-
55	5:00 AM- 1:39 AM	14	12	15	12	21	33	74	5:45 AM-1:13 AM	20	24	53	6:20 AM-12:17 AM	30	30	34
61	6:15 AM- 9:41 AM; 3:03 PM- 7:06 PM	-	25	-	23	25	-	26		-	-	-		-	-	-
62	6:22 AM- 9:36 AM; 3:10 PM- 7:35 PM	-	29	-	39	30	-	10		-	-	-		-	-	-
72	6:24 AM- 9:48 PM	-	30	30	30	32	-	34		-	-	-		-	-	-
74	5:53 AM- 9:10 AM; 3:35 PM- 7:55 PM	-	30	-	30	30	-	13		-	-	-		-	-	-
75	5:30 AM- 10:44 PM	-	27	30	30	34	-	30		-	-	-		-	-	-

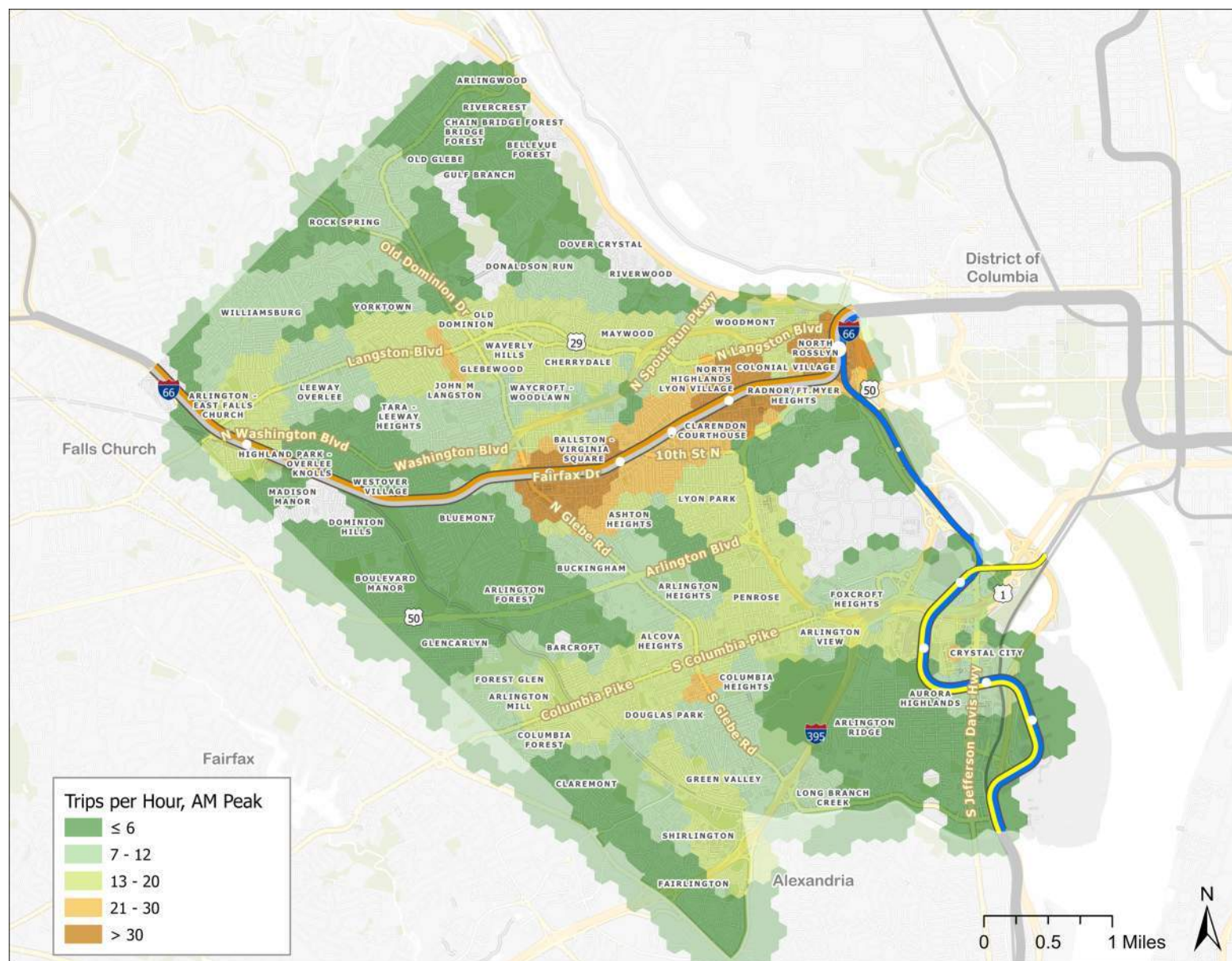


77	6:00 AM- 10:56 PM	-	26	29	27	29	-	35	7:00 AM- 11:56 PM	30	30	34		-	-	-
84	5:50 AM- 9:32 AM; 3:40 PM- 7:46 PM	-	18	-	20	20	-	24		-	-	-		-	-	-
87	5:50 AM- 11:35 PM	-	19	29	21	27	-	56	7:00 AM- 11:53 PM	30	30	33	7:14 AM- 7:11 PM	30	30	24





FIGURE 6 | AVERAGE NUMBER OF WEEKDAY TRIPS BY STOP PROVIDED BY ARLINGTON TRANSIT, AM PEAK



## Operating Costs

ART spent \$21,366,091.28 to operate fixed-route bus service in FY 2022, with 14 routes operating all 12 months and four routes operating only 10 months (September 2021 through June 2022). **Figure 7** breaks down operating cost by route and by service class.

FIGURE 7 | FY 2022 OPERATING COSTS

Route	Operating Costs	Months Excluded
41	\$3,468,154.59	-
55	\$2,916,836.53	-
<b>Primary Total</b>	<b>\$6,384,991.12</b>	-
42	\$1,887,119.81	-
43	\$1,437,814.70	-
45	\$2,361,804.36	-
51	\$758,221.87	-
52	\$781,532.06	-
53	\$554,949.29	July, August
61	\$317,851.59	July, August
62	\$311,010.72	July, August
72	\$1,505,784.63	-
74	\$192,131.44	July, August
75	\$1,260,661.76	-
77	\$1,347,700.93	-
84	\$426,331.05	-
87	\$1,838,185.93	-
<b>Secondary Total</b>	<b>\$14,981,100.14</b>	-



## Service Design Standards

As part of the 2017-2026 TDP, ART defined a set of service design standards by which its route planning and design decisions should be guided. These standards are shown in Table 5.

TABLE 5 | ARLINGTON TRANSIT SERVICE DESIGN STANDARDS

Category and Subcategories			Standard
Vehicle Load Factor	Peak Periods	Express	100% of seated capacity
		Local	125% of seated capacity
	Off-Peak Periods	All Routes	100% of seated capacity
Frequency (minimum)	Premium Transit Network		10-minute peak headways and 12-minute off-peak headways
	Primary Transit Network		15-minute headways
	Secondary Transit Network		30-minute peak headways and either 30-minute off-peak headways or availability of Flex service
Span of Service (minimum)	Premium Transit Network		18-hours a day, 7 days a week
	Primary Transit Network		18 hours a day, 7 days a week
	Secondary Transit Network		7 hours a day, 5 days a week
On-Time Performance			95% <i>(To be on-time, a bus may not depart early and cannot depart more than six minutes late.)</i>
Service Availability			90% of residents live within ¼-mile of transit
Bus Stop Spacing	Limited-Stop Service		1,760-2,640 feet
	Premium Transit Network		1,320-2,649 feet
	Primary Transit Network		1,320 feet
	Secondary Transit Network		660-1,320 feet
Average Mean Distance Between Failure			11,000 miles



### Arlington Transit Route Profiles

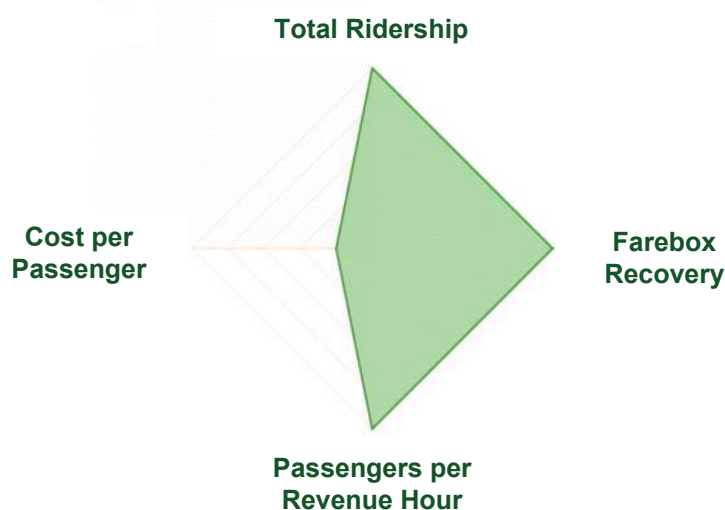
Accompanying this chapter are route profiles that provide a detailed analysis of each of ART's 16 bus routes. In addition to providing an overview of the areas served, each route sheet includes:

- Route operating characteristics such as:
  - Span of service
  - Peak and base period frequencies
  - Number of daily trips
  - Daily revenue miles and revenue hours
- Several metrics for tracking route productivity and performance, including (but not limited to) passengers per revenue hour, cost per passenger, farebox recovery ratio, on-time performance, etc.
- Graphs that display four-year trends of select performance metrics, to illustrate the impact of the pandemic
- Ridership by stop maps for the average weekday in both directions
- Ridership by trips graphs for the average weekday in both directions
- Ridership by stop graphs for the average weekday in both directions
- A spider chart as a visual summary of the route's overall performance against the rest of the system (Figure 8). These charts compare four metrics, with larger values being further from the center of the chart and smaller values being near the center. In the example below, this chart shows that Route 41 has the highest values (and strongest performance) in terms of total ridership, passengers per revenue hour, and farebox recovery. Inversely, it has one of the lowest values for cost per passenger.

FIGURE 8 | EXAMPLE OF SPIDER CHART FOR ROUTE 41

### Customer Survey

ART completed its last Customer Satisfaction and O-D survey in 2018. It did not conduct an updated survey as part of developing this TSP due to capacity constraints because of the COVID-19 pandemic. However, customer satisfaction was indirectly measured through other surveys and public engagement activities conducted as a part of this plan.



### 2.1.3. Paratransit Service

Specialized Transportation for Arlington Residents (STAR) is Arlington County's designated Americans with Disabilities Act (ADA) paratransit service. This service is provided to Arlington residents who are not able to use public fixed-route transit due to a qualifying disability and offers a higher level of service for residents eligible for WMATA's MetroAccess service.

STAR is available between 5:30 AM and midnight, seven days per week. All peak period, night, and weekend trips must begin or end in Arlington. This service may be used for most types of trips that are comparable to the level of transportation provided by ART, Metrobus, and Metrorail with a few exceptions in regard to the purpose of the trip.

All trips are scheduled through the STAR Call Center either by phone to the dispatcher or on STAR's website. Trips must be booked one to seven days in advance. STAR allows same-day scheduling of medical trips, including medical return trips.

Table 6 provides an overview of STAR and MetroAccess operating statistics for FY 2021.

TABLE 6 | TABLE OF PARATRANSIT METRICS

Operating Statistic	FY 2021 Value
Paratransit Operating Cost	\$1,879,643
Paratransit Ridership	31,679
Paratransit Revenue Hours	20,799
Paratransit Total Hours	20,799
Paratransit Revenue Miles	187,336
Paratransit Level of Service	Span: 5:30 AM – midnight, seven days a week Average Daily Trips: 71
Paratransit Directional Mileage	187,336

### 2.1.4. WMATA

WMATA operates 37 Metrobus, one BRT line (Metroway), and four Metrorail routes in Arlington County. Of the Metrobus routes, 15 serve weekday peak periods only, and an additional two operate all day but are limited to weekdays. WMATA's Metrorail and Metroway services provide transportation on both weekends and weekdays. Several Metrobus routes serve similar lines but differ slightly in alignment and/or span of service. Table 7 summarizes route-level spans and headways by service day and time.

TABLE 7 | SUMMARY OF WMATA SERVICES IN ARLINGTON COUNTY BY ROUTE

Route	Weekday							Saturday			Sunday		
	Span	Headway						Span	Headway		Span	Headway	
		Early	AM Peak	Midday	PM Peak	Evening	Late		Core	Non-Core		Core	Non-Core
Metrobus													
10A	4:25 AM- 2:46 AM	30	30	30	30	30	60	5:30 AM- 2:10 AM	30	32	5:25 AM- 2:20 AM	60	60
10B	4:45 AM- 12:33 AM	30	30	30	30	35	-	5:45 AM- 12:34 AM	30	35	5:45 AM- 11:38 PM	30	34
16A	5:37 AM- 12:43 AM	-	30	30	30	35	60	6:00 AM- 12:44 AM	30	34	6:00 AM- 10:47 PM	60	60
16C	4:33 AM- 10:47 PM	30	30	30	30	30	-	7:06 AM- 10:46 PM	30	30	8:07 AM- 10:47 PM	30	30
16E	10:33 PM- 2:46 AM	-	-	-	-	-	29	5:06 AM- 7:51 AM 10:33 PM- 2:46 AM	-	29	6:03 AM- 8:45 AM 10:33 PM- 2:47 AM	-	30
16G <sup>5</sup>	5:34 AM- 11:20 PM	-	25	24	24	26	-	5:37 AM- 11:22 PM	24	25	5:37 AM- 11:22 PM	24	26
16H	6:41 AM- 10:39 PM	-	24	24	24	25	-	6:53 AM- 10:39 PM	24	26	6:42 AM- 10:39 PM	24	25
16Y	6:00 AM- 9:33 AM 4:00 PM- 7:45 PM	-	20	-	24	24	-		-	-		-	-
17B	8:20 AM- 10:00 AM 3:40 PM- 8:08 PM	-	-	-	-	-	-		-	-		-	-
17G	5:59 AM- 8:33 AM 3:55 PM- 7:42 PM	-	26	-	18	23	-		-	-		-	-
17K	5:12 AM- 8:51 AM 4:06 PM- 8:11 PM	24	20	-	24	24	-		-	-		-	-
17M	5:56 AM- 8:40 AM 4:10 PM- 7:31 PM	-	31	-	30	40	-		-	-		-	-
18G	5:19 AM- 8:58 AM 4:05 PM- 7:44 PM	30	30	-	30	30	-		-	-		-	-
18J	6:55 AM- 8:33 AM	-	30	-	35	-	-		-	-		-	-

<sup>5</sup> Since this document was compiled, routes 16G and 16H have been discontinued and their service moved onto WMATA's new 16M service.



Route	Weekday							Saturday			Sunday		
	Span	Headway						Span	Headway		Span	Headway	
		Early	AM Peak	Midday	PM Peak	Evening	Late		Core	Non-Core		Core	Non-Core
18P	5:01 PM- 6:43 PM 5:07 AM- 9:05 AM 3:20 PM- 8:05 PM	20	22	-	17	35	-		-	-		-	-
1A	4:54 AM- 2:51 AM	21	22	20	20	23	44	5:29 AM- 2:51 AM	20	27	7:00 AM- 2:26 AM	20	28
1B	5:39 AM- 10:34 AM 2:10 PM- 7:30 PM	-	23	25	25	25	-		-	-		-	-
21C	5:30 AM- 9:10 AM 4:00 PM- 7:29 PM	-	20	-	22	24	-		-	-		-	-
22A	6:30 AM- 10:19 PM	-	24	60	30	51	-	7:30 AM- 9:19 PM	60	60	7:30 AM- 9:16 PM	60	60
22F	6:00 AM- 9:33 AM 3:45 PM- 7:53 PM	-	30	-	30	30	-		-	-		-	-
23A	9:06 PM- 1:21 AM	-	-	-	-	41	-	5:45 AM- 7:47 AM 9:14 PM- 12:56 AM	-	37	5:45 AM- 7:47 AM 9:14 PM- 12:47 AM	-	36
23B	5:26 AM- 2:30 AM	26	25	30	25	30	60	7:04 AM- 2:37 AM	40	44	7:04 AM- 2:34 AM	40	44
23T	5:32 AM- 9:31 PM	25	25	30	25	30	-	6:44 AM- 9:47 PM	40	41	6:44 AM- 9:51 PM	40	41
25B	5:40 AM- 11:00 PM	-	16	30	16	33	-	6:10 AM- 9:45 PM	30	35	7:41 AM- 8:40 PM	60	60
26A	5:28 AM- 7:48 PM	30	33	60	33	30	-		-	-		-	-
28A	4:18 AM- 3:07 AM	18	13	12	12	14	29	5:30 AM- 2:54 AM	12	17	5:45 AM- 2:55 AM	12	18
28F	6:39 AM- 8:56 AM 3:55 PM- 7:12 PM	-	31	-	30	30	-		-	-		-	-
29G	5:30 AM- 9:40 AM 3:06 PM- 10:21 PM	24	24	-	24	36	-		-	-		-	-
2A	5:45 AM- 12:16 AM	-	32	45	30	44	45	5:45 AM- 12:16 AM	45	45	5:45 AM- 12:16 AM	45	45
38B	5:30 AM- 2:31 AM	15	16	15	15	21	30	5:30 AM- 2:28 AM	30	30	5:30 AM- 2:24 AM	30	30
3F	6:32 AM- 8:15 AM 4:57 PM- 6:27 PM	-	28	-	30	-	-		-	-		-	-

Route	Weekday							Saturday			Sunday		
	Span	Headway						Span	Headway		Span	Headway	
		Early	AM Peak	Midday	PM Peak	Evening	Late		Core	Non-Core		Core	Non-Core
3Y	5:45 AM- 9:10 AM 4:15 PM- 7:23 PM	-	25	-	30	30	-		-	-		-	-
4B	5:05 AM- 12:01 AM	30	30	30	30	31	-	6:20 AM- 11:31 PM	45	46	6:35 AM- 9:44 PM	60	60
7A	4:41 AM- 2:27 AM	16	13	20	12	18	32	5:20 AM- 2:21 AM	20	29	5:20 AM- 2:21 AM	20	29
7M	5:40 AM- 6:55 PM	10	10	15	11	11	-		-	-		-	-
8W	6:06 AM- 8:59 AM 4:00 PM- 7:30 PM	-	24	-	24	30	-		-	-		-	-
<u>Bus Rapid Transit</u>													
Metroway	5:30 AM- 10:24 PM	20	14	12	12	13	-	6:30 AM- 11:03 PM	20	20	7:30 AM- 10:25 PM	20	21
<u>Metrorail</u>													
BLUE	4:54 AM- 12:53 AM	19	20	20	20	20	27	6:54 AM- 1:56 AM	10	11	6:54 AM- 1:02 AM	9	11
ORANGE	5:00 AM- 12:38 AM	22	20	20	20	20	24	7:00 AM- 1:40 AM	10	10	7:00 AM- 12:40 AM	10	10
SILVER	5:01 AM- 12:52 AM	17	20	20	20	20	43	7:00 AM- 1:45 AM	24	23	7:11 AM- 12:45 AM	20	19
YELLOW	5:00 AM- 12:39 AM	16	15	15	15	15	33	7:02 AM- 1:40 AM	20	21	7:02 AM- 12:40 AM	20	21



Among WMATA Metrobus routes that serve Arlington County, those with the highest weekday boardings in Arlington (Table 8) include 7A (serving stops between the Pentagon and Shirlington Transit Centers), several 16 line routes serving stops along Columbia Pike, 23B/T (serving Shirlington Transit Center and Ballston toward McLean), Metroway (WMATA's BRT line serving stops between Pentagon City and Braddock Rd), and 38B (serving Ballston and stops toward Farragut Square). The number of trips per hour during the weekday AM peak are shown in **Figure 9**; Ballston, Columbia Pike, and the Pentagon have the highest trip frequency, while north Arlington has the lowest.

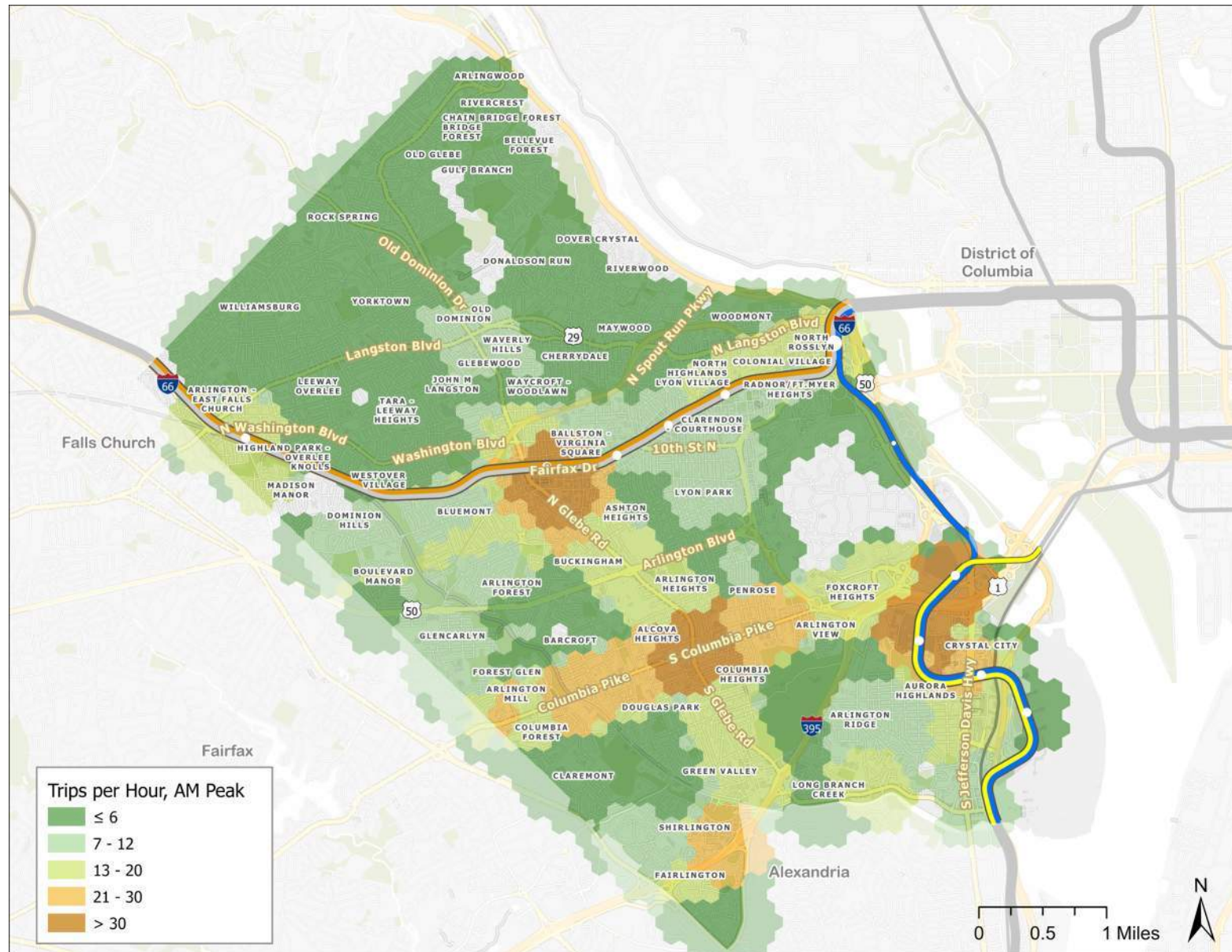
TABLE 8 | AVERAGE DAILY METROBUS BOARDINGS (FALL 2022)

Route	Weekday	Saturday	Sunday
1A	472	406	329
1B	137	-	-
2A	335	173	158
3Y	40	-	-
4B	484	266	180
7A	690	445	393
7M	264	-	-
8W	22	-	-
10A	297	189	119
10B	710	543	496
16A	702	447	232
16C	561	361	331
16E	61	108	109
16G	1059	886	790
16H	938	789	733
16Y	118	-	-

Route	Weekday	Saturday	Sunday
17B	6	-	-
17G	52	-	-
17K	62	-	-
17M	26	-	-
18G	34	-	-
18J	5	-	-
18P	141	-	-
21C	43	-	-
22A	237	191	158
22F	50	-	-
23A	69	93	94
23B	720	322	345
23T	729	393	330
25B	333	148	85
26A	44	-	-
28A	241	173	139
28F	1	-	-
29G	72	-	-
38B	1080	622	521
F99	359	-	-
MW1	509	342	262
V1	1	-	-



FIGURE 9 | AVERAGE NUMBER OF WEEKDAY TRIPS BY STOP PROVIDED BY WMATA METROBUS, AM PEAK



Among Arlington's 11 Metrorail stations, daily average entries (**Table 9**) are highest at Rosslyn, Pentagon, and Pentagon City stations during the week. While all stations except Arlington Cemetery experience lower ridership on Saturday and Sunday, Pentagon weekend entries dramatically decline from their weekday average. Since the onset of the COVID-19 pandemic, ridership has decreased relative to data prior to March 2020. As shown in **Table 9**, the most dramatic differences in Metrorail station entries occurs on weekdays.

TABLE 9 | AVERAGE DAILY METRORAIL STATION ENTRIES (FY 2022 VS FY 2019)

Station	Weekday Entries		Saturday Entries		Sunday Entries	
	FY 2022	% of FY 2019	FY 2022	% of FY 2019	FY 2022	% of FY 2019
Arlington Cemetery	605	55%	964	57%	758	56%
Ballston-MU	2,825	31%	2,433	76%	1,478	74%
Clarendon	1,417	32%	1,446	71%	915	69%
Court House	1,761	28%	1,576	71%	982	69%
Crystal City	2,873	27%	2,249	62%	1,573	60%
East Falls Church	1,155	20%	1,020	65%	680	66%
Pentagon	3,696	27%	589	50%	406	42%
Pentagon City	3,708	31%	3,614	52%	2,402	52%
Ronald Reagan Washington National Airport	3,097	54%	2,492	66%	3,276	66%
Rosslyn	3,576	27%	2,707	63%	1,908	53%
Virginia Square-GMU	1,059	28%	852	68%	526	65%

SOURCE: WMATA RAIL RIDERSHIP DATA VIEWER

## 2.1.5. Other Transit Providers

As part of the dense urban core of the Washington, D.C. metropolitan area, Arlington is also served by several other transit agencies working to connect the region's suburbs and exurbs to the dense urban core. A full inventory of these agencies is available in Section 2.5. Table 10 includes route-level service details for Alexandria DASH, DDOT Circulator, Fairfax Connector (FFX), Loudoun County Transit (LCT), PRTC OmniRide and Virginia Railway Express (VRE). As Figure 10 shows, the greatest number of transit trips cluster at Metrorail stations and along Columbia Pike.



TABLE 10 | SUMMARY OF ALL OTHER TRANSIT SERVICES BY ROUTE

Route <i>Arlington Terminus</i>	Weekday							Saturday			Sunday		
	Span	Early	AM Peak	Midday	PM Peak	Evening	Late	Span	Headway Core Non-Core		Span	Headway Core Non-Core	
<b>DASH</b>													
103 <i>Pentagon Metro</i>	6:00 AM- 9:56 AM 3:00 PM- 8:25 PM	-	30	30	30	30	-		-	-		-	-
104 <i>Pentagon Metro</i>	6:15 AM- 10:09 AM 3:15 PM- 8:39 PM	-	30	30	30	30	-		-	-		-	-
35 <i>Pentagon Metro</i>	4:19 AM- 3:06 AM	17	10	10	10	20	32	5:45 AM- 3:17 AM	15	23	5:45 AM- 2:17 AM	15	23
36A <i>Mark Center</i>	6:00 AM- 11:40 PM	-	30	30	30	34	-	7:00 AM- 11:25 PM	30	34	7:00 AM- 11:25 PM	30	34
36B <i>Mark Center</i>	6:15 AM- 12:15 AM	-	30	30	30	36	-	7:15 AM- 11:12 PM	30	34	7:15 AM- 11:12 PM	30	34
<b>DC Circulator</b>													
RS-DP <i>Rosslyn Metro</i>	6:00 AM- 3:24 AM	-	10	10	10	10	10	7:00 AM- 3:21 AM	10	10	7:00 AM- 12:21 AM	10	10
<b>Fairfax Connector</b>													
306 <i>Pentagon Metro</i>	8:50 AM- 3:53 PM	-	-	61	-	-	-		-	-		-	-



Route <i>Arlington Terminus</i>	Weekday							Saturday			Sunday		
	Span	Early	AM Peak	Headway				Span	Headway		Span	Headway	
				Midday	PM Peak	Evening	Late		Core	Non-Core		Core	Non-Core
393 <i>Pentagon Metro</i>	5:13 AM- 9:08 AM 3:55 PM- 7:59 PM	40	40	-	42	42	-		-	-		-	-
394 <i>Pentagon Metro</i>	5:20 AM- 10:08 AM 3:35 PM- 7:46 PM	-	40	-	42	40	-		-	-		-	-
395 <i>Pentagon Metro</i>	5:05 AM- 9:22 AM 3:00 PM- 7:48 PM	20	17	-	19	22	-		-	-		-	-
396 <i>Pentagon Metro</i>	5:20 AM- 9:23 AM 3:10 PM- 7:50 PM	20	18	-	19	19	-		-	-		-	-
599 <i>Crystal City Metro</i>	5:35 AM- 8:55 AM 3:20 PM- 6:50 PM	-	28	-	21	-	-		-	-		-	-
698 <i>Pentagon Metro</i>	5:40 AM- 8:54 AM 3:30 PM- 6:46 PM	15	19	-	18	-	-		-	-		-	-
715 <i>East Falls Church Metro</i>	5:51 AM- 8:49 AM 3:15 PM- 7:00 PM	-	30	-	32	-	-		-	-		-	-
803 <i>East Falls Church Metro</i>	5:35 AM- 9:43 PM	-	30	40	34	43	-	6:57 AM- 8:35 PM	45	47	6:57 AM- 8:34 PM	45	47
834 <i>Pentagon Metro</i>	6:45 AM- 8:17 AM 4:27 PM- 6:59 PM	-	28	-	29	-	-		-	-		-	-



Route <i>Arlington Terminus</i>	Weekday							Saturday			Sunday		
	Span	Early	AM Peak	Headway				Span	Headway		Span	Headway	
				Midday	PM Peak	Evening	Late		Core	Non-Core		Core	Non-Core
835 <i>Pentagon Metro</i>	5:50 AM- 9:10 AM 3:35 PM- 7:48 PM	-	30	-	30	30	-		-	-		-	-
<u>Loudon County Transit</u>													
282 <i>Crystal City</i>	5:50 AM- 7:32 AM	0	0	-	-	-	-		-	-		-	-
284 <i>Pentagon Metro</i>	5:23 AM- 8:09 AM	0	0	-	-	-	-		-	-		-	-
482 <i>Crystal City</i>	5:30 AM- 8:56 AM	0	13	-	-	-	-		-	-		-	-
682 <i>Rosslyn</i>	3:19 PM- 5:26 PM	-	-	-	15	-	-		-	-		-	-
684 <i>Pentagon Metro</i>	2:45 PM- 6:25 PM	-	-	0	0	-	-		-	-		-	-
882 <i>Rosslyn</i>	2:50 PM- 6:45 PM	-	-	0	15	-	-		-	-		-	-
<u>PRTC</u>													
D-100 <i>Pentagon Metro</i>	4:40 AM- 7:30 AM 12:40 PM- 7:15 PM	30	20	105	58	-	-		-	-	NA	-	-
D-300 <i>Pentagon Metro</i>	4:50 AM- 9:42 AM 1:10 PM- 8:13 PM	20	28	33	24	-	-		-	-	NA	-	-
622 <i>Rosslyn</i>	5:24 AM- 9:08 AM 2:30 PM- 6:25 PM	-	69	-	52	-	-		-	-	NA	-	-



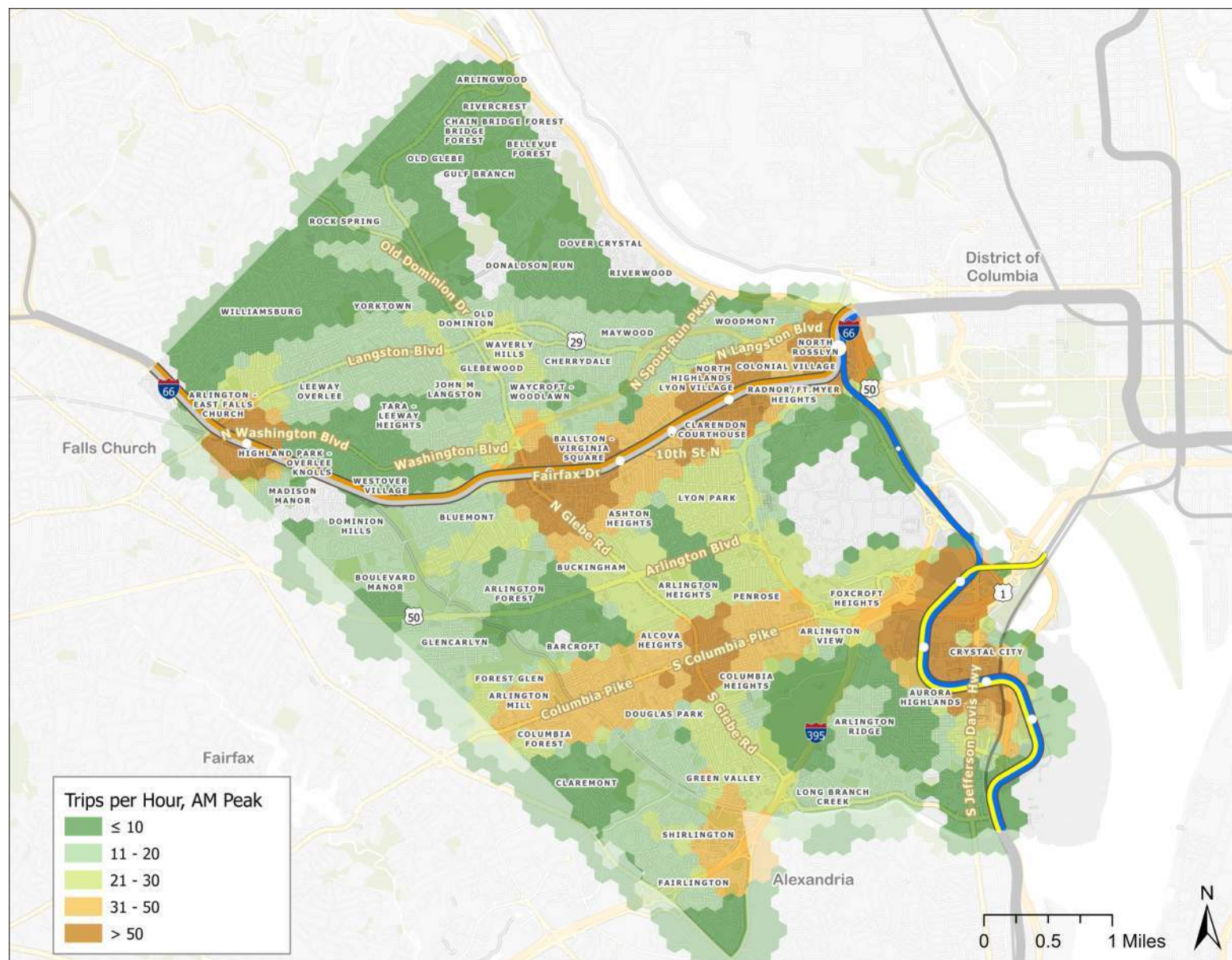
Route <i>Arlington Terminus</i>	Weekday							Saturday			Sunday		
	Span	Early	AM Peak	Headway			Late	Span	Headway		Span	Headway	
				Midday	PM Peak	Evening			Core	Non-Core		Core	Non-Core
612 <i>Pentagon</i>	4:30 AM- 7:52 AM 1:15 PM- 7:02 PM	50	20	60	60	-	-		-	-	NA	-	-
612 <i>Pentagon Metro</i>	4:25 AM- 8:40 PM	13	19	51	14	30	-		-	-	NA	-	-
D-200 <i>Ballston</i>	4:15 AM- 9:11 AM 1:25 PM- 7:06 PM	40	22	80	24	-	-		-	-	NA	-	-
L-100 <i>Pentagon Metro</i>	4:20 AM- 8:22 AM 12:15 PM- 8:38 PM	28	40	103	18	32	-		-	-	NA	-	-
MC100 & MC 200 <i>Pentagon Metro</i>	5:30 AM- 9:33 AM 3:10 PM- 7:00 PM	20	31	-	19	-	-		-	-	NA	-	-
L-200 <i>Crystal City</i>	5:35 AM- 8:15 PM	-	32	64	26	26	-		-	-	NA	-	-
RS South Route 1 <i>Pentagon Metro</i>	4:15 AM- 8:44 AM 12:11 PM- 6:44 PM	28	28	51	31	-	-		-	-	NA	-	-
543 <i>Pentagon Metro</i>	4:40 AM- 9:12 AM 3:25 PM- 8:18 PM	16	28	-	20	25	-		-	-	NA	-	-
942 <i>Pentagon Metro</i>	5:08 AM- 8:06 AM 2:34 PM- 7:54 PM	46	-	-	54	-	-		-	-	NA	-	-
<u>VRE</u>													

Route <i>Arlington Terminus</i>	Weekday							Saturday			Sunday		
	Span	Headway						Span	Headway		Span	Headway	
		Early	AM Peak	Midday	PM Peak	Evening	Late		Core	Non-Core		Core	Non-Core
2 <i>Crystal City</i>	4:52 AM- 9:30 AM 1:00 PM- 8:46 PM	16	35	100	37	40	-	NA	-	-	NA	-	-
4 <i>Crystal City</i>	5:01 AM- 9:20 AM 1:15 PM- 8:19 PM	28	52	-	60	60	-	NA	-	-	NA	-	-





FIGURE 10 | AVERAGE NUMBER OF WEEKDAY TRIPS BY STOP PROVIDED BY ALL TRANSIT PROVIDERS, AM PEAK





### 2.1.6. Support for Transit

Arlington Transit, as a service provided by the government of Arlington County, is itself proof of support for transit from local government. This integration includes briefing local government leaders on that status of the TSP and the recommendations throughout this project. Additionally, the county's support for transit is evident by:

1. Participation in the WMATA Compact Area and as an active stakeholder in WMATA planning studies.
2. The Missing Middle Housing Study which reflects the County's desire to increase housing stock and density, likely increasing transit demand.
3. Fare-free transit passes on WMATA and ART buses for all Arlington Public School students which has been a consideration in the development of recommendations.

Additionally, while it was not presented as an explicit or direct question, survey results from multiple rounds of public engagement indicated strong public support for Arlington Transit and transit in general.



## 2.2. Evaluation of Transit Market Demand and Underserved Areas

### 2.2.1. Transit Demand and Underserved Area Evaluation

#### Density and Land Use

High-density residential and commercial areas in Arlington cluster in Transit Oriented Developments (TOD) along the county's Metrorail corridors and around major roadway intersections.

#### Population Characteristics

Fully understanding the makeup of a transit service area's population allows for a transit agency to deploy their available resources to where services are most needed. For this analysis, a review of population densities and expected population growth were employed so that service planning decisions can be made regarding current and future population centers.

#### CURRENT RESIDENTIAL CHARACTERISTICS

Figure 11 illustrates the 2020 Arlington County population density by block group with an overlay of multi-family housing complexes. The areas with the highest densities include Ballston, Virginia Square, Court House, and Rosslyn on the Orange/Silver Line; Crystal City and Pentagon City on the Blue/Yellow Line; and the western-central portion of the county (Buckingham and Arlington Mill). Multi-family housing complexes tend to be clustered inside or adjacent to these high-density areas, though others exist throughout the county in the lower-density areas as well.

#### POPULATION GROWTH

Population growth through 2030 will remain concentrated in similar high population-density areas, including Rosslyn, Arlington Mill, Pentagon City and Crystal City (Figure 12). Other areas with higher growth rates include East Falls Church, Cherrydale, Clarendon, Bluemont, Arlington Heights, and Green Valley. Growth projections are from the Round 9.2 Cooperative Forecast model developed by MWCOG in 2021 and may not include recent development proposals. Growth in these areas is generally facilitated by transit service seen in a pattern of growth that follows the county's Metrorail corridors and major roadways.

#### Commercial and Employment Characteristics

It is equally as important to understand where Arlington County employees are working, both now and in the future, so that ART transit services provide adequate transit options to major and growing job centers. Connecting people to their jobs is an important characteristic of a successful transit agency and doing so in a timely manner allows for transit to be as competitive as possible with other modes of transportation.

#### CURRENT COMMERCIAL CHARACTERISTICS

Employment density clusters close to Metrorail Stations at Rosslyn, Court House, Clarendon, and Ballston/Virginia Square (on the Orange/Silver Line) and Pentagon City and Crystal City (on the Blue/Yellow Line) are shown in Figure 13. Commercial destinations (which include major commercial destinations that may or may not be high-employment density) can be found throughout the county with clustering around the higher population- and job-density areas. Commercial destinations were defined using a series of keywords such



as “Mall,” “Supermarket,” “Target,” “Wal-Mart,” and others in a Google Maps automated scraper tool and are more illustrative rather than a definitive set. These commercial and employment destinations represent significant trip generators both during the peak and off-peak hours for individuals traveling to work and utilizing the services provided at each location. Similar to activity centers, these employment/commercial clusters generate trips and should be well-served by transit.

### EMPLOYMENT GROWTH

The areas with the highest expected employment growth (through 2030) are detailed in Figure 14. The figure shows clustering of growth areas in Pentagon City and Crystal City, as well as additional growth areas south of the Rosslyn-Ballston corridor. Other areas with significant job growth projections include Green Valley, Bluemont, Lyon Park, East Falls Church, Cherrydale, and National Landing. These growth projections were developed before the COVID-19 pandemic and its impacts on economic growth, commuting patterns, and use trends of commercial office spaces. Growth projections are from the Round 9.2 Cooperative Forecast model developed by MWCOC in 2021, which may not include more recent development trends and proposals. Similar to the aforementioned commercial destinations, the areas of expected employment growth are areas that are anticipated to generate more trips in the future and the transit that serves these areas can be adjusted accordingly.

Employment growth informs future planning decisions by showing areas of growth and transit need as individuals commute home to work or work to home. Residential population adjacent to these employment growth areas is also expected to rise as new workers move close to job centers and as Amazon’s headquarters adds thousands of additional jobs to the area. In addition to highlighting areas of growth where service may need to become more frequent or operating over a longer span, employment growth also shows areas such as the Green Valley neighborhood that may not currently have adequate service to serve a growing workforce population.

### ACTIVITY CENTER GROWTH

**Error! Reference source not found.** depicts 15 activity centers and eight neighborhood clusters in Arlington. Activity Centers are shown in shades of brown and are defined by MWCOC, except for Virginia Hospital Center and National Airport, which are defined as Activity Centers for the purposes of analysis in this study. MWCOC defines Activity Centers as locations that will support the most sustainable growth and provide higher standards of walkability, transit access, livability, and accessibility.<sup>6</sup>

For simpler analysis and visualization, neighborhood clusters are contiguous combinations of existing transportation analysis zones (TAZs) and contain several neighborhoods. To the extent possible, clusters minimize splitting neighborhoods and/or civic associations and are bounded by major roadways or Activity Centers. Population and employment statistics for Arlington’s Activity Centers and neighborhood clusters are shown in **Error! Reference source not found.**, Table 11, and Table 12, respectively.

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<sup>6</sup> <https://www.mwcog.org/documents/2013/01/13/activity-centers-maps/>





FIGURE 11 | POPULATION DENSITY BY BLOCK GROUP AND MULTI-FAMILY HOUSING IN ARLINGTON COUNTY





FIGURE 12 | POPULATION GROWTH ESTIMATES IN ARLINGTON COUNTY (2020 - 2030) BY TAZ

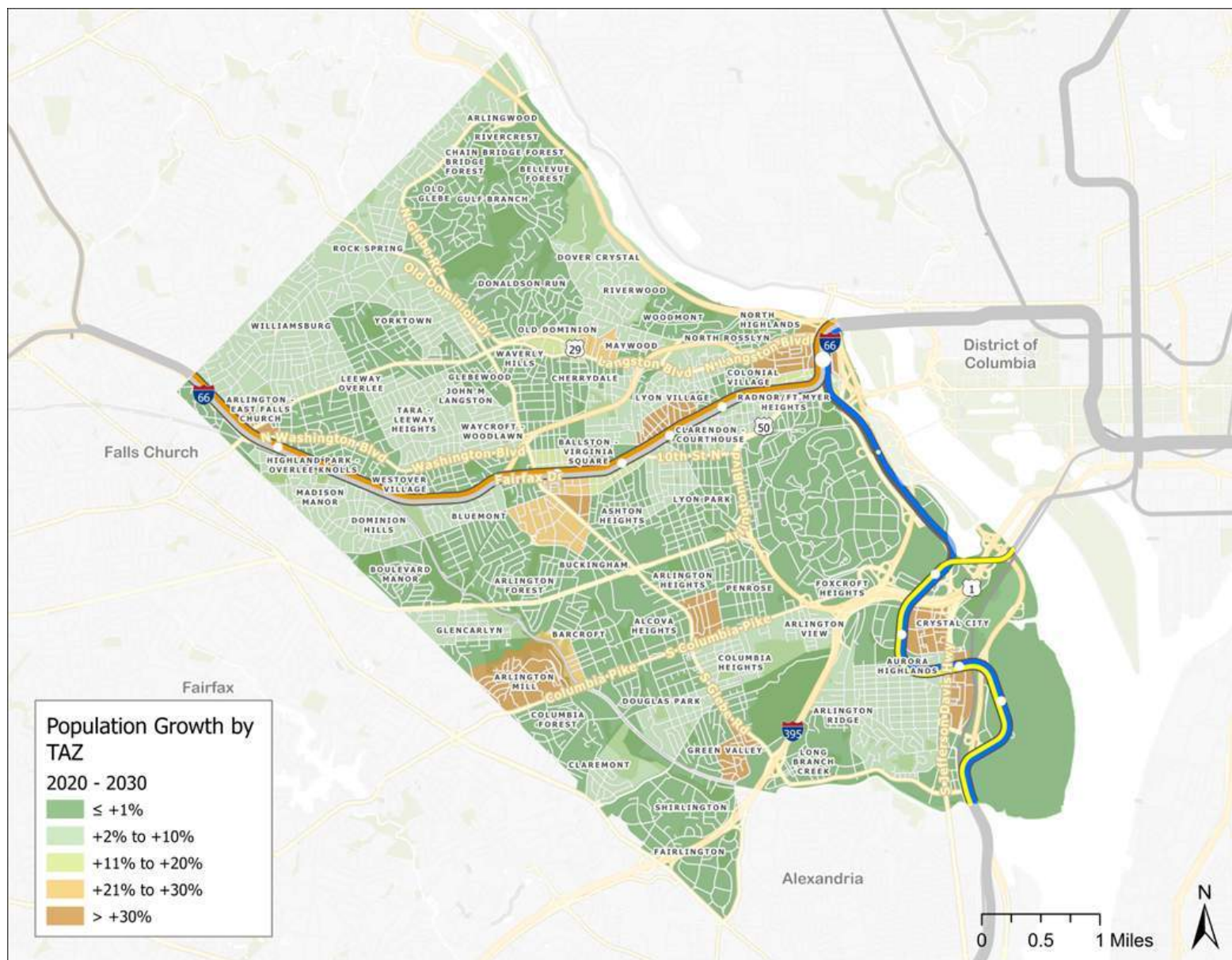






FIGURE 13 | JOB DENSITY BY BLOCK GROUP AND COMMERCIAL DESTINATIONS IN ARLINGTON COUNTY

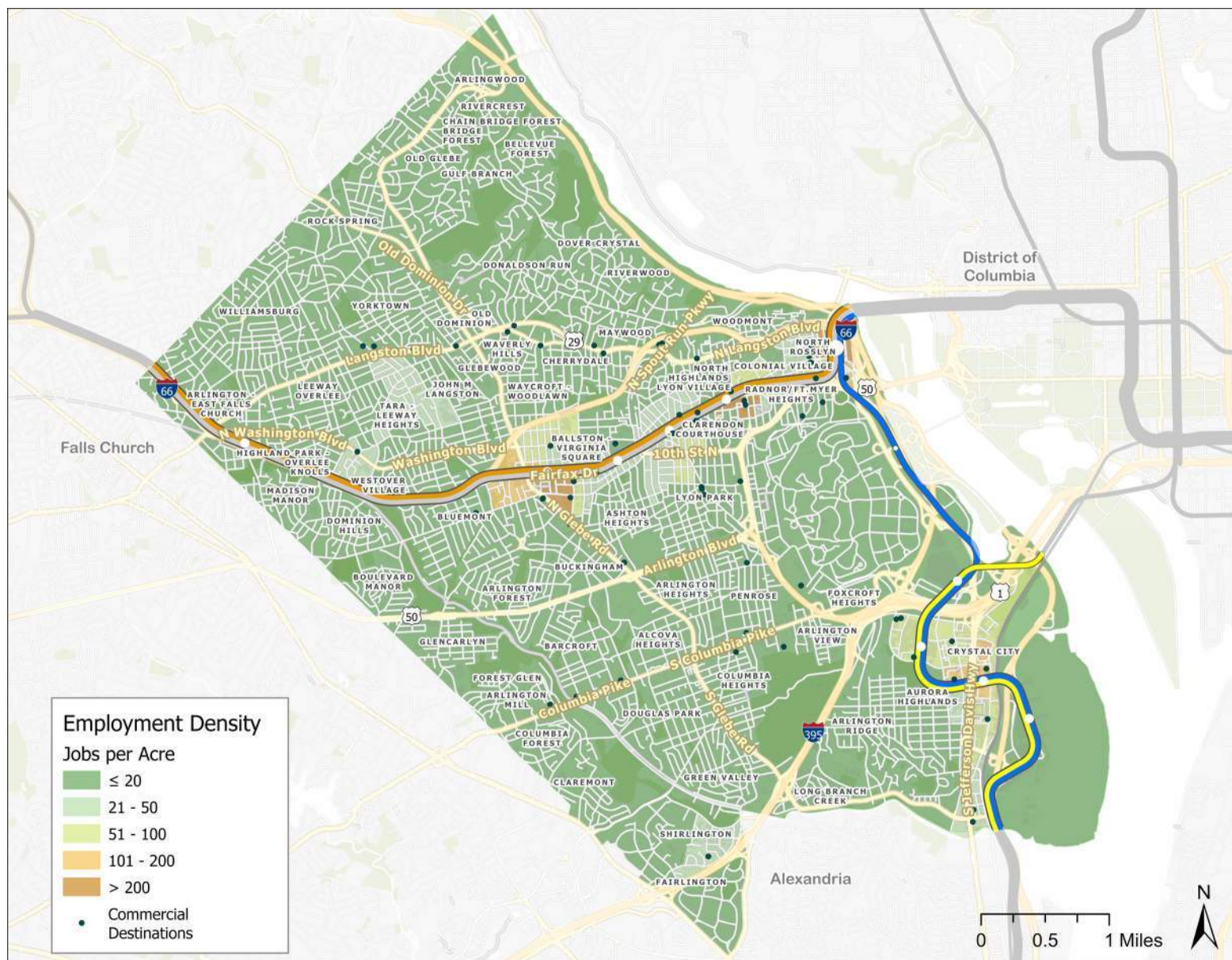




FIGURE 14 | JOB GROWTH ESTIMATES IN ARLINGTON COUNTY (2020 - 2030) BY TAZ

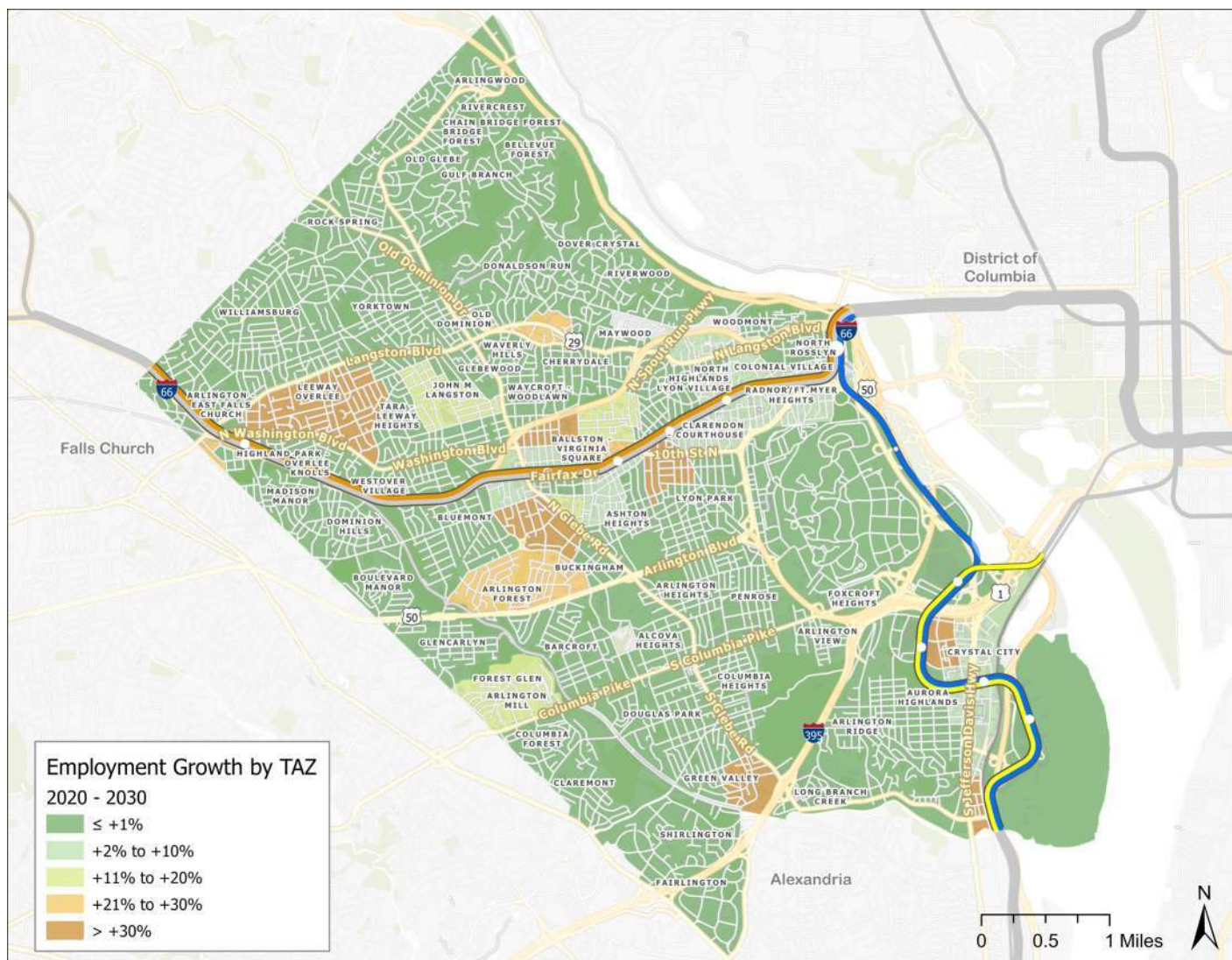






TABLE 11 | ARLINGTON COUNTY ACTIVITY CENTER STATISTICS

Activity Center Name	Estimated Population (2020)	Estimated Population (2030)	Estimated Jobs (2020)	Estimated Jobs (2030)
Baileys Crossroads-Western Gateway	16,466	18,403	1,516	1,559
Ballston	15,575	20,830	27,077	28,728
City of Falls Church (Arlington Portion)	1,601	2,877	618	793
Clarendon	6,919	9,613	9,437	9,806
Columbia Pike Town Center	12,599	15,203	4,587	4,525
Columbia Pike Village Center	11,484	11,744	1,558	1,538
Courthouse	15,042	16,617	15,074	16,079
Crystal City	11,714	16,294	42,767	47,290
National Airport*	-	-	7,812	7,864
Pentagon	-	-	26,000	26,000
Pentagon City	8,732	9,057	10,699	29,742
Rosslyn	13,043	18,259	36,578	34,944
Shirlington	5,433	5,433	3,241	3,193
Virginia Hospital Center*	2,598	2,641	3,189	3,585
Virginia Square	7,970	7,970	8,764	10,572

\*National Airport and Virginia Hospital Center are not MWCOC-defined Activity Centers



TABLE 12 | ARLINGTON COUNTY NEIGHBORHOOD CLUSTER STATISTICS

Neighborhood Cluster Name	Estimated Population (2020)	Estimated Population (2030)	Estimated Jobs (2020)	Estimated Jobs (2030)	Civic Associations Included
NW Arlington I	11,425	11,552	3,473	3,471	<ul style="list-style-type: none"> <li>• Arlington-East Falls Church</li> <li>• Glebewood</li> <li>• John M Langston</li> <li>• Leeway Overlee</li> <li>• Old Dominion</li> <li>• Rock Spring</li> <li>• Waverly Hills</li> <li>• Williamsburg</li> <li>• Yorktown</li> </ul>
NW Arlington II	10,640	10,734	1,608	1,786	<ul style="list-style-type: none"> <li>• Arlington-East Falls Church</li> <li>• Bluemont</li> <li>• Dominion Hills</li> <li>• Glebewood</li> <li>• Highland Park-Overlee Knolls</li> <li>• John M Langston</li> <li>• Leeway Overlee</li> <li>• Madison Manor</li> <li>• Old Dominion</li> <li>• Tara-Leeway Heights</li> <li>• Waverly Hills</li> <li>• Waycroft-Woodlawn</li> <li>• Westover Village</li> <li>• Yorktown</li> </ul>
NE Arlington I	11,393	11,522	1,535	1,530	<ul style="list-style-type: none"> <li>• Arlingwood</li> <li>• Bellevue Forest</li> <li>• Chain Bridge Forest</li> <li>• Cherrydale</li> <li>• Donaldson Run</li> <li>• Dover Crystal</li> <li>• Gulf Branch</li> <li>• Maywood</li> <li>• Old Dominion</li> <li>• Old Glebe</li> <li>• Rivercrest</li> <li>• Rock Spring</li> <li>• Stafford-Albemarle-Glebe</li> <li>• Waverly Hills</li> <li>• Woodmont</li> <li>• Yorktown</li> </ul>
NE Arlington II	16,16,140	18,399	3,917	4,685	<ul style="list-style-type: none"> <li>• Ballston-Virginia Square</li> <li>• Bluemont</li> <li>• Cherry Valley Nature Area</li> <li>• Cherrydale</li> <li>• Colonial Village</li> <li>• Donaldson Run</li> <li>• Glebewood</li> <li>• Lyon Village</li> <li>• Maywood</li> <li>• North Highlands</li> <li>• North Rosslyn</li> <li>• Old Dominion</li> <li>• Riverwood</li> <li>• Waverly Hills</li> <li>• Waycroft-Woodlawn</li> <li>• Woodmont</li> </ul>
WC Arlington	14,649	14,826	1,929	2,014	<ul style="list-style-type: none"> <li>• Alcova Heights</li> <li>• Arlington-East Falls Church</li> <li>• Arlington Forest</li> <li>• Barcroft, Bluemont</li> <li>• Boulevard Manor</li> <li>• Buckingham</li> <li>• Dominion Hills</li> <li>• Glencarlyn</li> <li>• Madison Manor</li> </ul>
EC Arlington	13,302	13,697	12,614	12,583	<ul style="list-style-type: none"> <li>• Alcova Heights</li> <li>• Arlington Heights</li> <li>• Ashton Heights</li> <li>• Barcroft</li> <li>• Buckingham</li> <li>• Clarendon-Courthouse</li> <li>• Foxcroft Heights</li> <li>• Lyon Park</li> <li>• Penrose</li> <li>• Radnor-Ft. Myer Heights</li> </ul>
S Arlington I	15,625	16,320	3,102	3,725	<ul style="list-style-type: none"> <li>• Arlington View</li> <li>• Claremont</li> <li>• Douglas Park</li> <li>• Fairlington</li> <li>• Green Valley</li> <li>• Shirlington</li> </ul>
S Arlington II	8,890	9,638	1,774	1,763	<ul style="list-style-type: none"> <li>• Arlington Ridge</li> <li>• Aurora Highlands</li> <li>• Crystal City</li> <li>• Long Branch Creek</li> </ul>

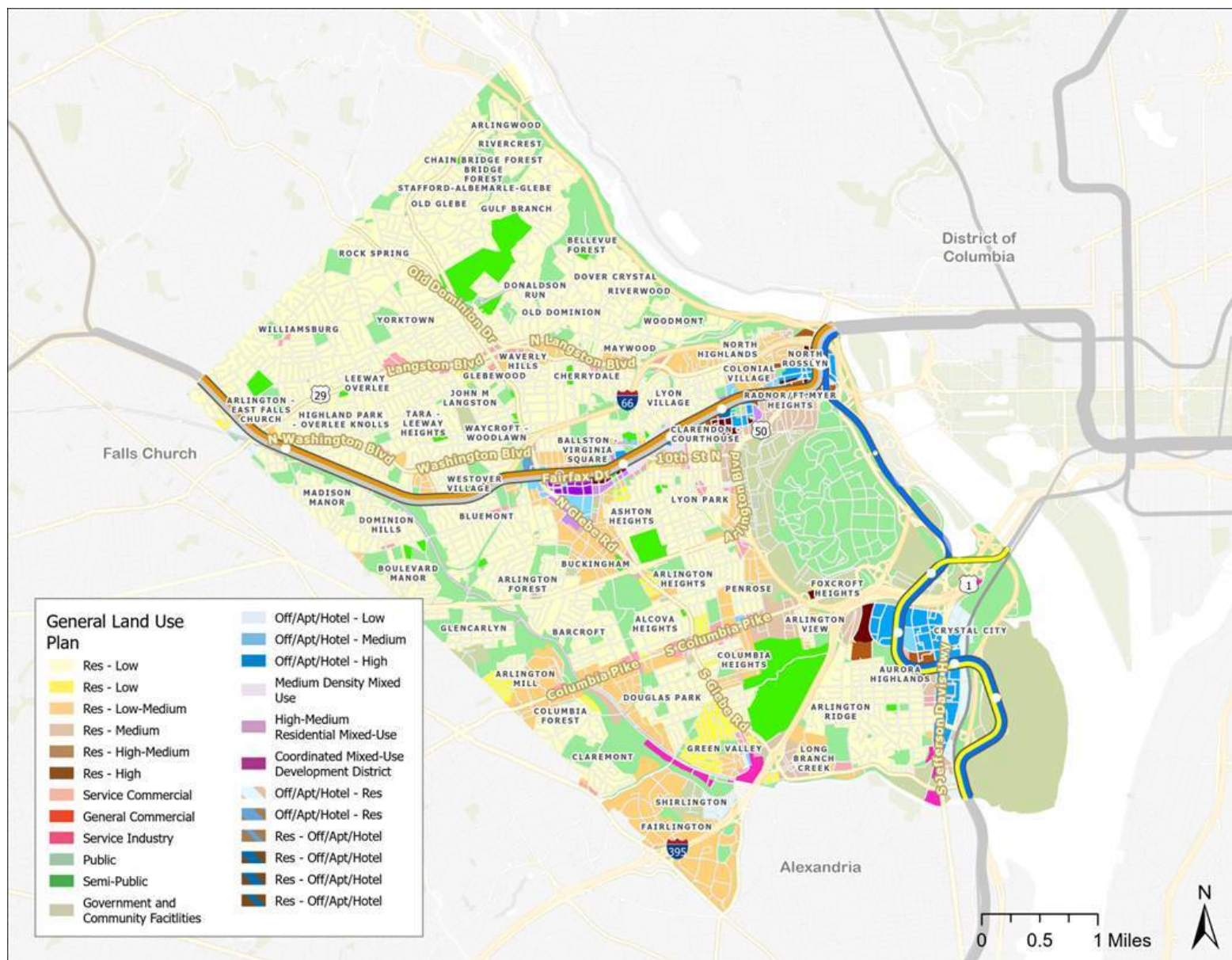
### Current Land Use

Figure 15 shows the existing land use in Arlington County at the parcel level, which provides an additional, more granular perspective of residential and commercial areas to block-group level population and job data. This map was created using the 2021 General Land Use Plan (GLUP) dataset. While the bulk of Arlington is currently low-density residential, high-density residential land uses exist on most of the major corridors, including Columbia Pike, Langston Boulevard, Glebe Road, Washington Boulevard, and in the Shirlington area. High-density parcels of other uses (including apartments, mixed-use, service, and institutional) can be seen along Columbia Pike, as well as Crystal City, Pentagon City, and the Rosslyn-Ballston Metrorail corridor.

These findings are generally congruent with the densities and points of interest identified earlier in this section. Since 2020, Arlington has explored methods for addressing the County's shortfall in housing supply through the Missing Middle Housing Study, which may impact the density of Arlington's residential land use in coming years. A key component in understanding the Arlington Transit service area is knowing where potential transit users live and where they want to go. Highlighting the high-density areas particularly along the Ballston-Rosslyn corridor inform service planning decisions and an understanding of where gaps may exist. The continuation of growth in these areas suggests that adjustments to span and frequency in the future may be more critical to providing adequate service than new or additional service.



FIGURE 15 | ARLINGTON COUNTY LAND USE (FROM THE 2021 GENERAL LAND USE PLAN)





### Underserved Area Evaluation

Some subpopulations are more likely to depend on transit services and understanding where they reside is an essential part of identifying public transportation needs. Historically, public transit agencies focused on ensuring federally protected populations—racial minority and low-income populations—received equitable transit access. In more recent years, local governments have included additional demographic groups to include youths, seniors, households with limited or no vehicle availability, persons with a disability, and limited English proficiency populations.

### Equity Emphasis Areas

This analysis uses the Transit Propensity Index to identify where there are concentrations of populations that depend upon public transit.<sup>7</sup> It employs several different demographic factors to determine geographic areas of high transit origin and destination need, and consists of four transit indices, including:

- Transit-oriented populations
- Workers
- Employment destinations
- Non-work destinations

The analysis combines several metrics including population density, employment density, household density, and the presence of people who do not have access to, or have chosen not to use, a car to meet their travel needs. Each index is comprised of weighted categories, and each weighted category is comprised of individual data sets obtained from the 2016–2020 American Community Survey (ACS) at the Census block group level. Weighting is based on the expected overall contribution of each category to the overall index. Data sets typically include both raw totals and densities to ensure the scoring is comprehensive. The result for each index is a score from 0 to 100 for each block group. The scores are calculated based on each block group's ranking in each data set when compared to all the block groups in the study area.

The Transit Equity Emphasis Analysis consists of six categories: population, age, households, income, vehicle ownership, and people with disabilities. The data sets that contribute to these categories are all indicative of persons that are likely to be more reliant on transit and seek to identify where transit dependent populations are located. The weights for each category, based on the projected impact of each in defining transit equity emphasis areas, is included in the Appendix.

### Transit Propensity

Figure 16 details the transit-oriented population origin index for those populations that are reliant on all-day service. The Barcroft and Arlington Mill neighborhoods in southwest Arlington show a high propensity for needing all-day service, along with the Ashton Heights and Buckingham neighborhoods bordering S Glebe Road, and small populations in Rosslyn and Pentagon City. Rosslyn and Ashton Heights are served by the Orange and Silver Metro lines and Pentagon City is served by the Blue and Yellow Metro lines. ART Bus routes provide service across Arlington.

### Race and Ethnicity Populations

Under the Title VI Act of 1964, public transit agencies that receive federal funds are required to identify where “racial minority populations” live and supply equitable service to the community. As indicated in the Figure 17 and displayed in its legend, racial minorities make up 38.1% (other than non-white/non-Hispanic) percent of Arlington’s population. While there are high concentrations of racial minority populations dispersed throughout Arlington, the majority live in the southern portion and within the vicinity of Columbia Pike. The census block groups with racial minority populations above the county aver

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<sup>7</sup> The Transit Propensity Index was used in the previous Arlington County Transit Development Plan.





age are generally within a ¼-mile radius of ART bus routes. For future service planning, it is important to consider the level of service being provided to these areas, Arlington Mills and Columbia Forest, to ensure that these federally protected populations are well served. By improving transit service in these areas of Arlington County in an equitable manner, ART can provide service to many historically underrepresented populations.

### Low-Income Population

In compliance with Executive Order 12898, public transit agencies that receive federal funds are also required to identify where populations living below the federal poverty level (150 percent of the poverty level) live and to supply equitable service to these communities. As shown in the Figure 18 and displayed in its legend, low-income populations make up nine percent of Arlington's population. While there is a relatively small percentage of low-income populations in the county, the distribution is similar to those of racial minority groups. There is a higher concentration of low-income populations located in proximity to Columbia Pike and located in the southern half of the county in general; both are well served by ART transit services. The aforementioned low-income populations have lower rates of car ownership, work more jobs that are reliant on having access to transportation (versus working from home), and rely on local bus service for many home-based trips in the County.

### Youth Population

Persons ages 10 to 17 are often transit dependent as they either cannot drive or are just beginning to drive and may not have a personal automobile available. As detailed in the Figure 19 and displayed in its legend, youth make up 18 percent of Arlington's population. Census block groups with higher-than-average percentages are found throughout the county, particularly in the northern and western portions. The census block groups that consist of youth populations that are above the county average generally have direct access or are within a ¼-mile radius of ART bus service.

### Older Adult Population

Older adults (age 65 and older) may begin to decrease their use of personal vehicles and rely on public transit as they age. As shown in Figure 20 and detailed through the data in its legend, persons 65 years and older currently make up 11 percent of Arlington's population. It is significant to note that within the next five years, older adults are expected to make up a larger share of the population than those under the age of 18. Census block groups above the county average for older adults are dispersed throughout the county. While there are census block groups above the county average with no direct ART bus service, this demographic group is more likely to qualify for demand response services. Older adults are also less likely to own a car than younger residents and may lean more heavily on local transit service. This population is also more likely to have non-traditional trips spread throughout the day rather than being limited to the morning and evening peak.

### Limited English Proficiency Populations

Populations with Limited English Proficiency are most likely to be a part of a racial minority group and/or low-income group. As shown in Figure 21 and displayed in its legend, persons with limited English proficiency make up 8.3 percent of Arlington's population. This demographic's spatial distribution pattern mirrors the racial minority and low-income populations across the county, with census block groups with notable concentrations of Limited English Proficient populations clustered along Columbia Pike. These populations generally have direct access to or are within a ¼-mile radius of existing ART bus service. As is the case with minority populations, this group of transit riders reflects federally protected and historically underrepresented populations that rely on transit services. Considering the concentrations of these groups when planning future service improvement and changes is critical.



### Zero Car Households

Arlington's long history of encouraging Transit Oriented Development (TOD) has developed one of the few places in the country where a large segment of the population can meet their transportation needs without a car. In many parts of the country, a zero-car household may denote hardship. In walkable, transit-oriented places like Arlington, however, many people choose not to use a car but instead walk, bike, or take public transit. As shown in Figure 22 and displayed in its legend, households with zero vehicles available make up 12 percent of the county's households. Most block groups in the county are less than or equal to the county average, with higher concentration pockets seen along Columbia Pike, Glebe Road, the Rosslyn-Ballston corridor, and around Pentagon City and Crystal City.

### Persons with Disabilities

Populations with disabilities typically have a reduced ability to travel long distances to reach a bus stop or Metro station. They may also have needs that cannot be met by accessible fixed-route transit and therefore tend to be more reliant on demand response transit services. Figure 23 and the data detailed in its legend, illustrates Arlington's average (five percent) as a baseline for disabled populations. Southwest Arlington (along Columbia Pike and Arlington Boulevard) has the highest concentration of persons with disabilities. Populations with disabilities, in addition to a reduced ability to travel long distances to a bus stop, may have a reduced ability to operate a car thereby increasing their reliance on transit. Riders in wheelchairs also need access to larger wheelchair accessible vehicles, provided by ART's local buses.

FIGURE 16 | TRANSIT PROPENSITY IN ARLINGTON COUNTY

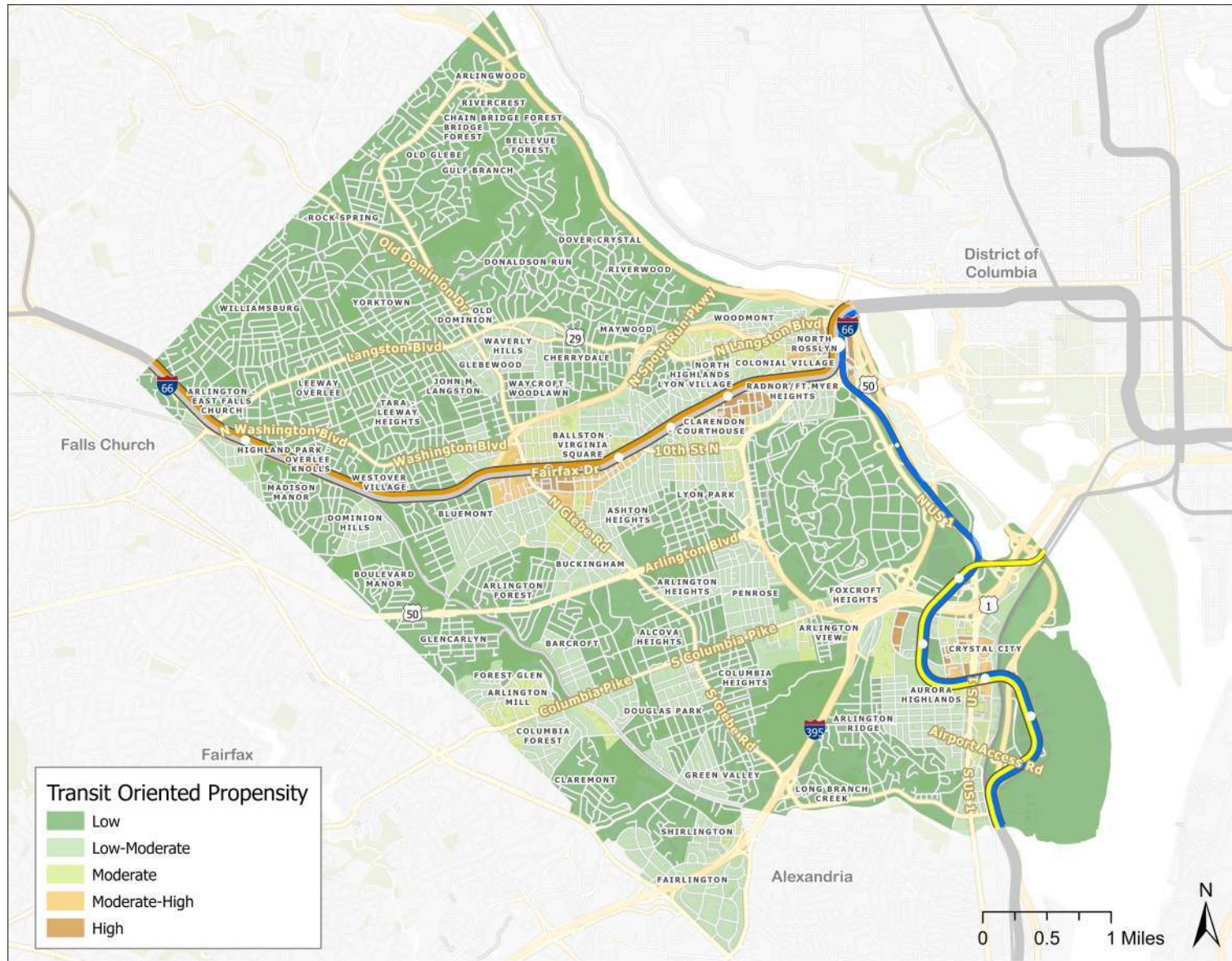






FIGURE 17 | MINORITY POPULATION IN ARLINGTON COUNTY

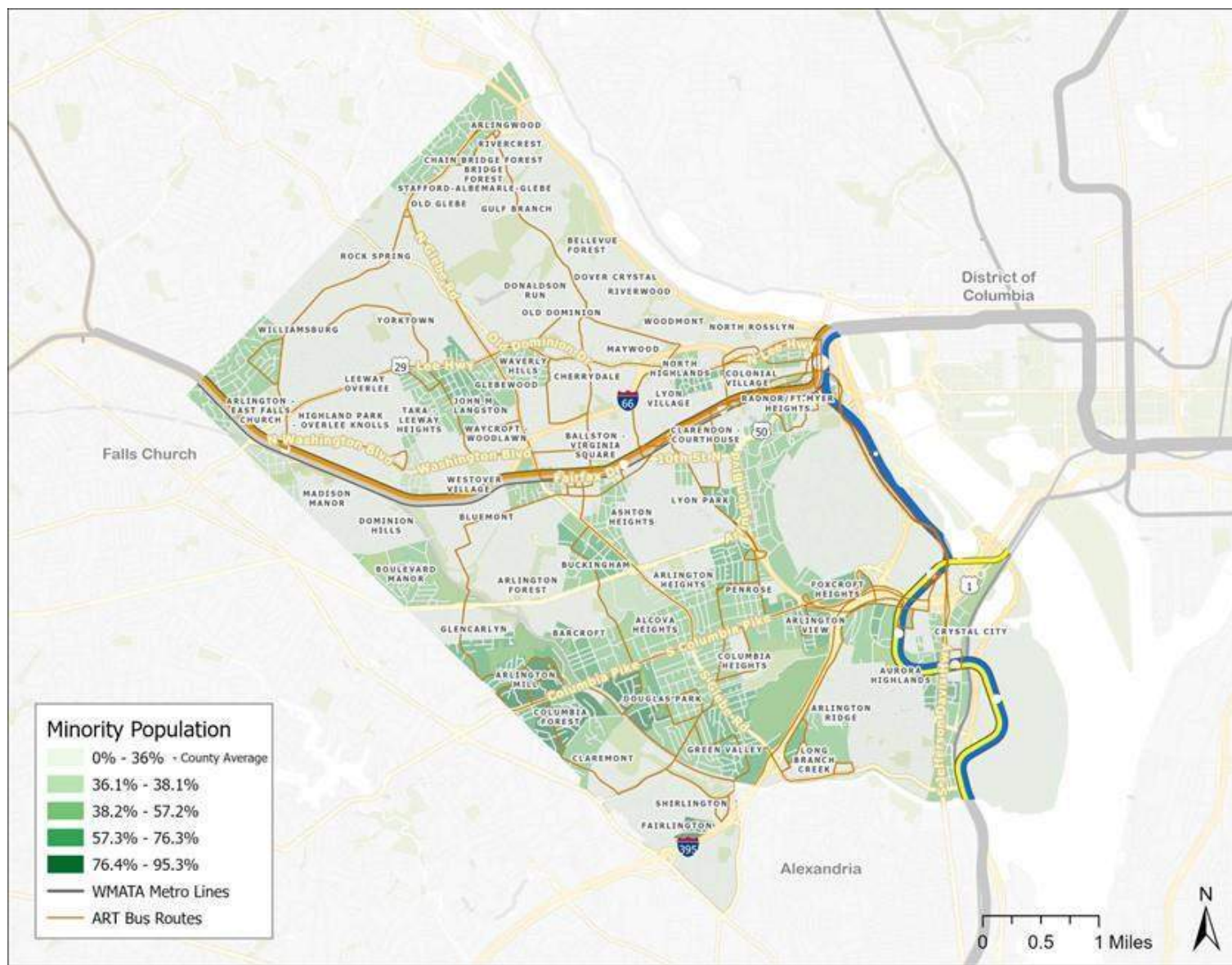




FIGURE 18 | LOW-INCOME POPULATION IN ARLINGTON COUNTY

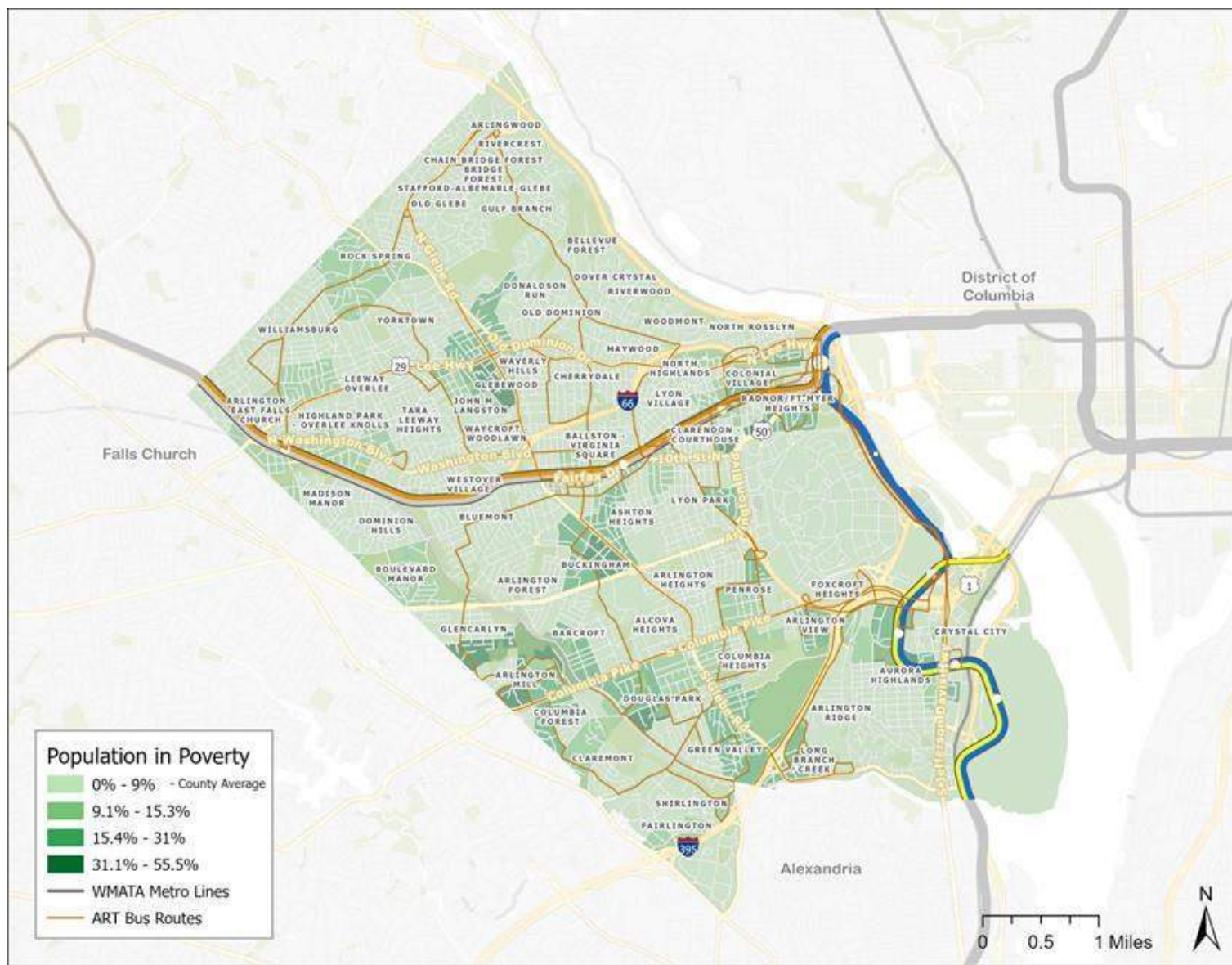






FIGURE 19 | YOUTH POPULATION IN ARLINGTON COUNTY

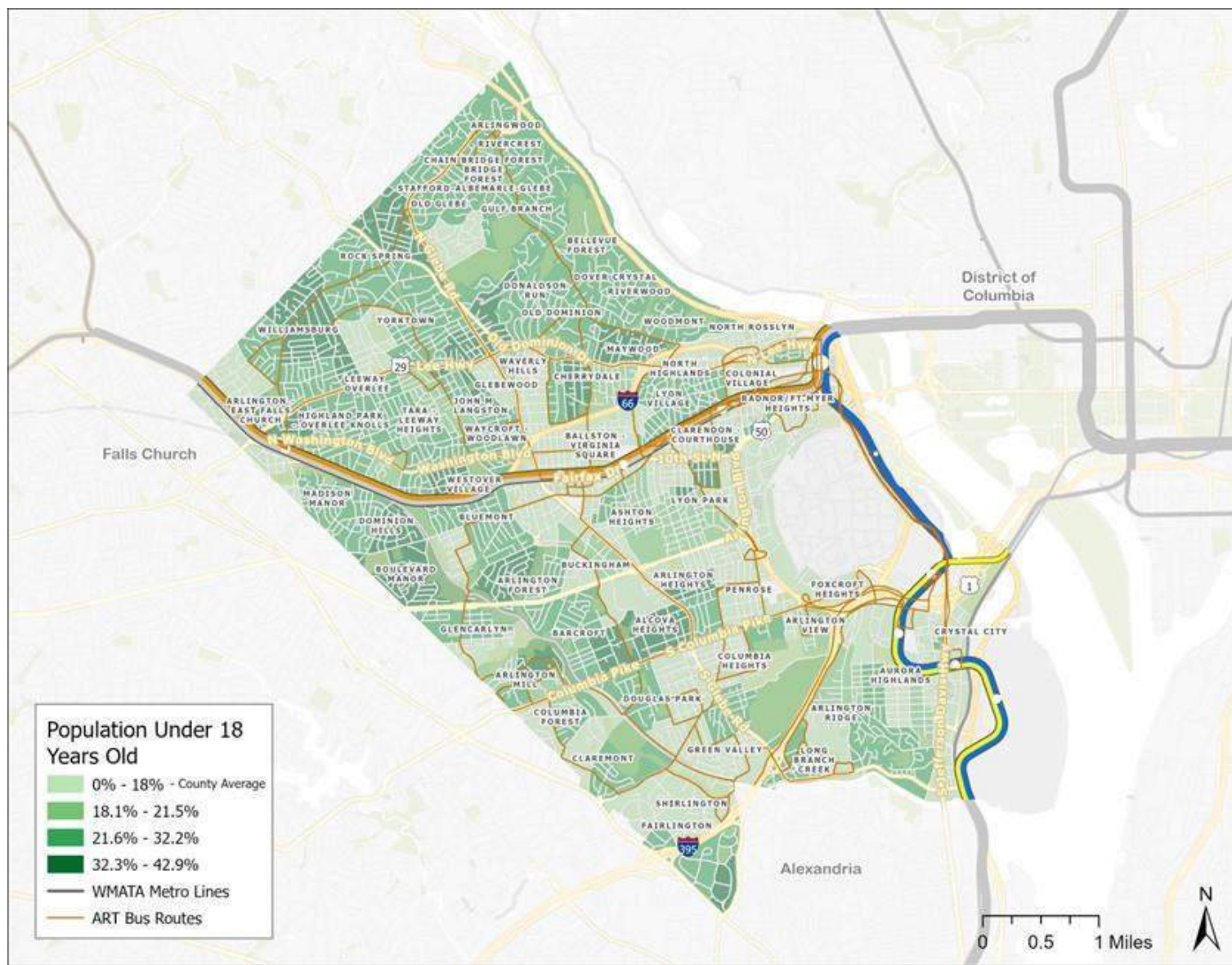




FIGURE 20 | SENIOR POPULATION IN ARLINGTON COUNTY

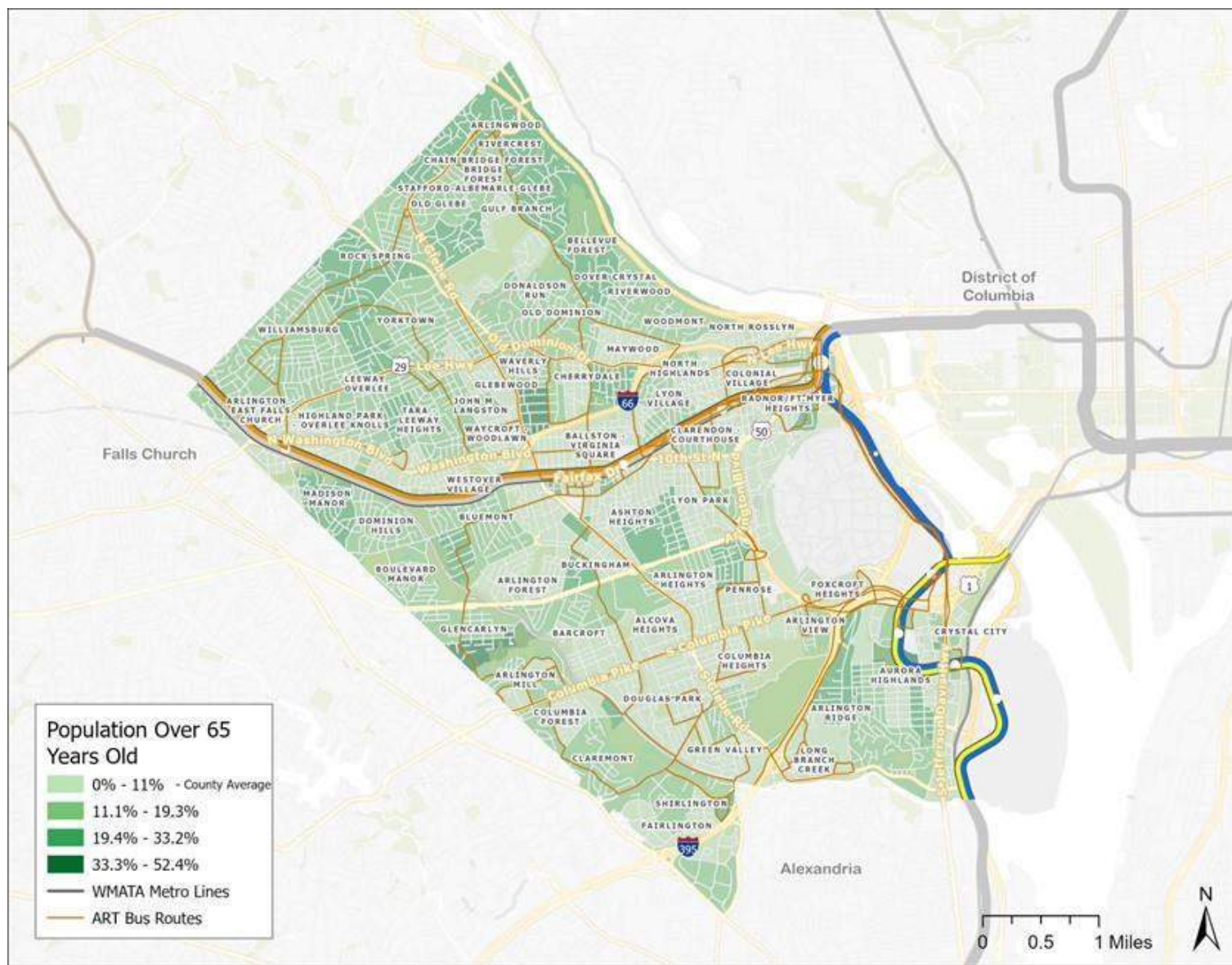






FIGURE 21 | LIMITED ENGLISH PROFICIENCY POPULATIONS

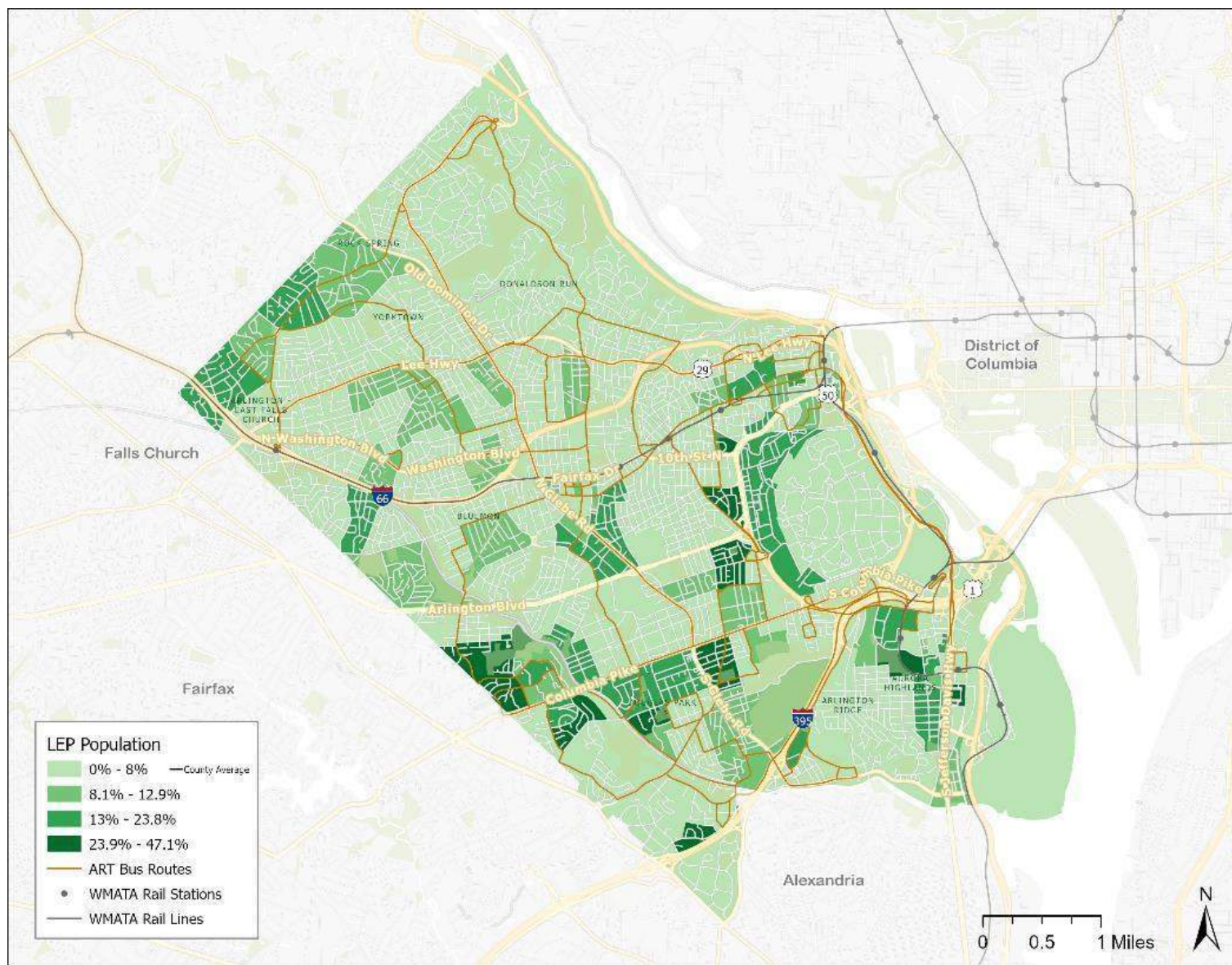






FIGURE 22 | ZERO CAR HOUSEHOLDS IN ARLINGTON COUNTY

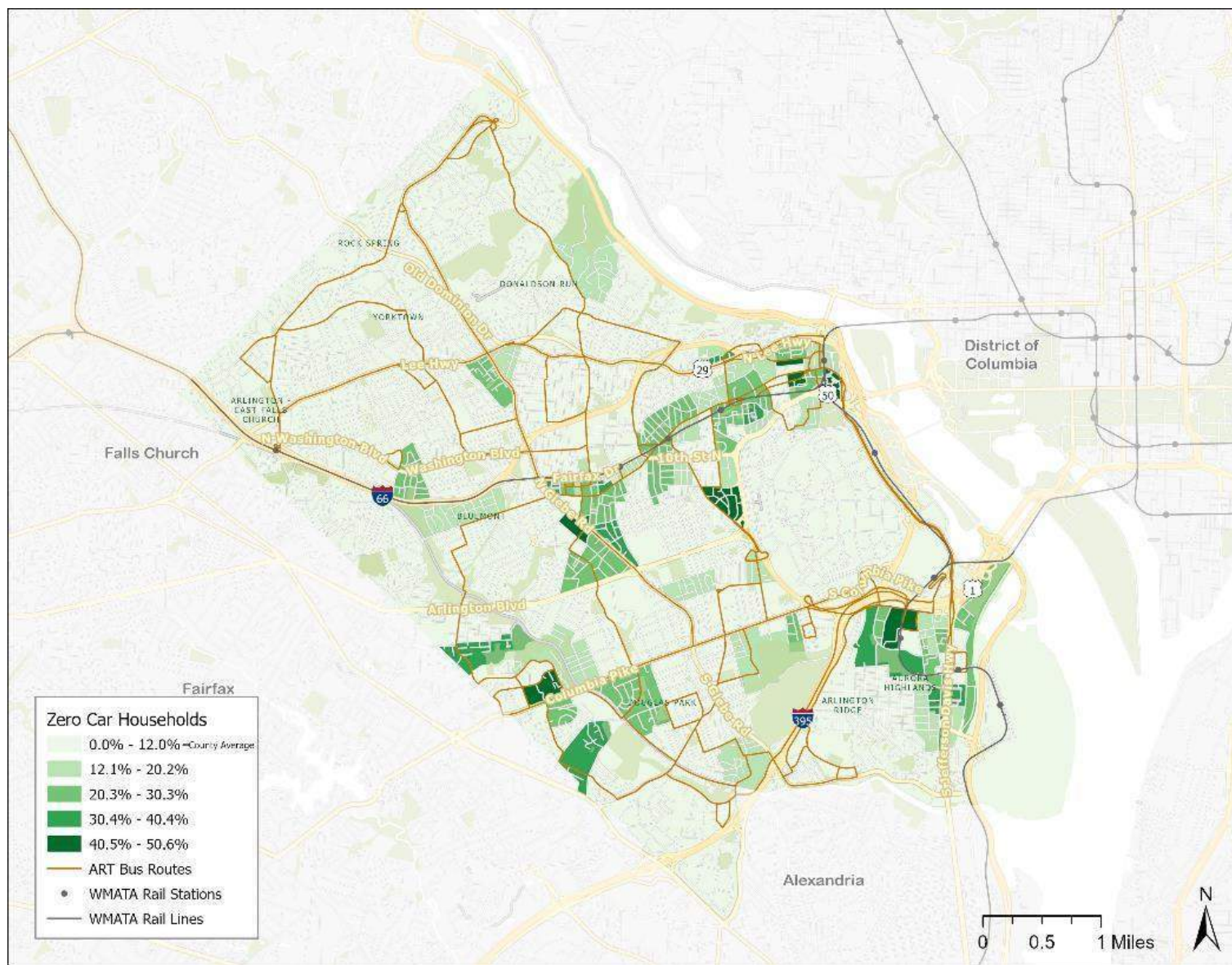
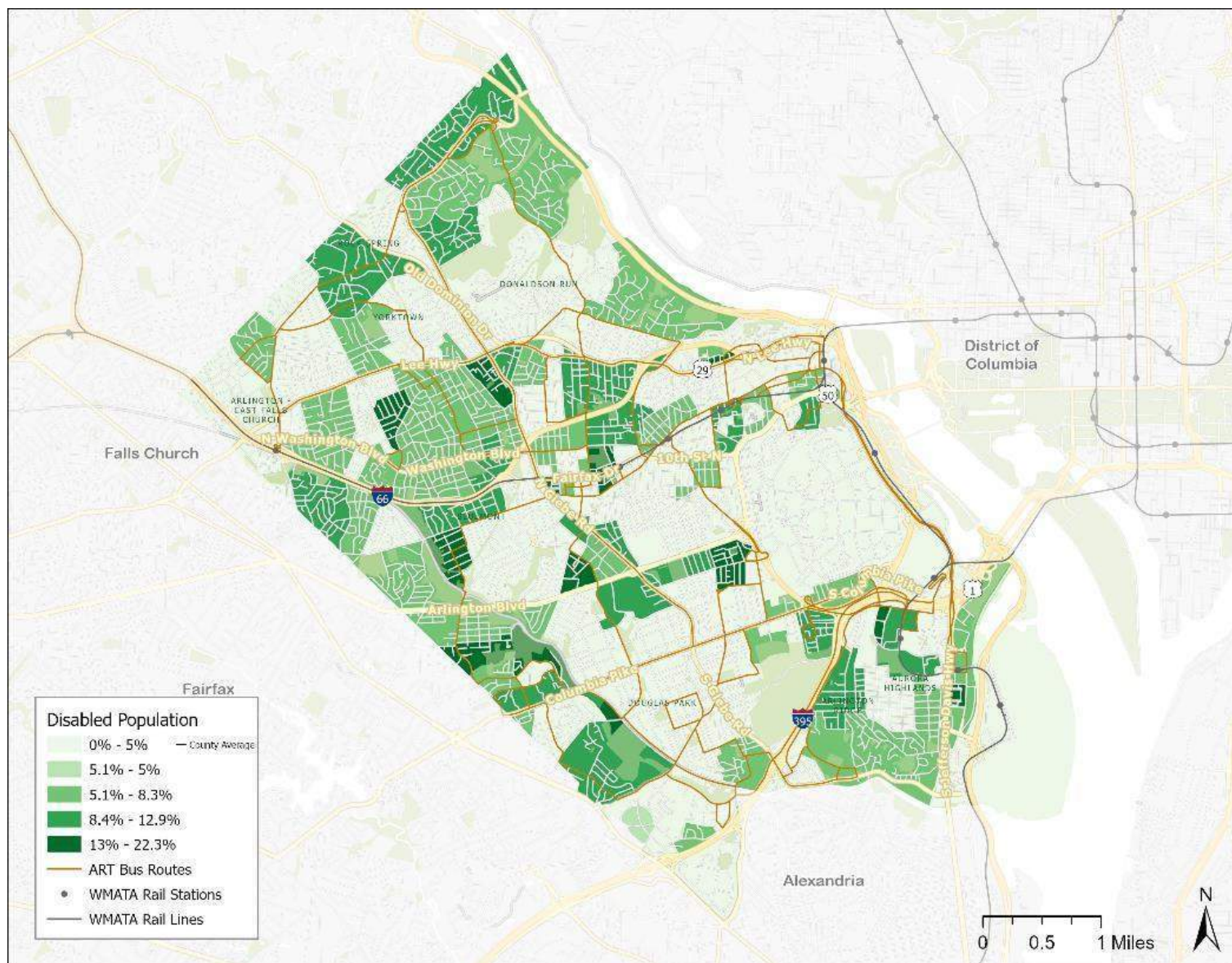






FIGURE 23 | DISABLED POPULATION IN ARLINGTON COUNTY





### 2.2.2. Transit Demand and Underserved Area Opportunities for Improvement

The following section identified areas within Arlington County that could benefit from new or additional transit service via a three-pronged gaps analysis: a travel pattern gaps analysis, a supply vs. demand bivariate analysis, and an analysis focused on identified Activity Centers within Arlington County. This analysis was limited to within Arlington County due to interjurisdictional agreements regarding cross-county services with WMATA (the regional transit provider) and neighboring local providers (such as DASH and Fairfax Connector). For more information on these providers, see section 2.5.1.

#### Travel Patterns Gaps Analysis

The travel patterns gaps analysis aims to identify one-way origin-destination trips with high numbers of travelers but lower levels of transit service provided per person. The analysis uses the neighborhood clusters and activity centers identified for this study (see **Error! Reference source not found.**) and the general travel patterns between and within them, seen below in Figure 24.

For each possible one-way origin and destination combination, the number of trips were calculated – persons trips were pulled from Replica® estimates, while bus trips were pulled from the ART and WMATA GTFS feeds. Replica is a nationwide activity-based travel model that uses anonymized mobile location, consumer transaction and related data sources and provides the ability to easily evaluate patterns and trends. Both the Replica and GTFS data were aggregated at the cluster/center level to create a single geographic level of analysis. If a cluster travel pair were found to have a relatively high number of Replica travel flows but a relatively low number of bus trips, that would indicate a potential gap in service. This is because trip pairs with the highest travel demand would ideally have more transit trips between them. Alternatively, if a cluster travel pair had a low number of person trips but a high number of bus trips, it would indicate there is potentially more service being provided compared to what is needed.

The relationship between these two numbers is reflected in the following as a ratio. Each ratio was compared to the median across all possible cluster travel pairs and those shown in the following table represent the top twenty-five pairs with the lowest transit to person trip ratios. The trip clusters are one-directional, so if both directions are shown in the table it indicates a bidirectional transit gap (i.e., a gap in both directions of travel).

The top bidirectional gaps from this analysis are between:

- Crystal City and Northeast Arlington II
- Northwest Arlington II and West-Central Arlington
- Crystal City and Northeast Arlington I

This analysis identifies Crystal City as having a significant gap, as it is included in 12 of the 30 travel pairs with the lowest ratios (Table 13 and Figure 25). This means that compared to overall ART and WMATA bus service in the county, there are fewer bus trips than people that are traveling there, so Crystal City is identified as having the most origin/destination (O/D) gaps in bus service in Arlington.





TABLE 13 | TRAVEL CLUSTER PAIRS WITH THE LOWEST BUS TRIPS PER PERSON TRIP

Origin-Destination Pair	Ratio of Bus Trips per Person Trip	Difference from Median Bus Trips per Person Trip
Crystal City-NE Arlington II	0.0102	-0.3083
NE Arlington II-Crystal City	0.0111	-0.3074
NW Arlington II-WC Arlington	0.0166	-0.3019
WC Arlington-NW Arlington II	0.0172	-0.3012
NE Arlington I-Crystal City	0.0188	-0.2997
Crystal City-NE Arlington I	0.0190	-0.2995
S Arlington II-NE Arlington II	0.0192	-0.2992
NW Arlington I-WC Arlington	0.0218	-0.2967
WC Arlington-NW Arlington I	0.0228	-0.2957
Baileys Crossroads-Western Gateway-S Arlington I	0.0228	-0.2957
NE Arlington II-S Arlington II	0.0230	-0.2955
NW Arlington II-Crystal City	0.0230	-0.2955
Crystal City-NW Arlington II	0.0233	-0.2952
S Arlington I-Baileys Crossroads-Western Gateway	0.0239	-0.2946
NW Arlington I-Crystal City	0.0383	-0.2802
Crystal City-NW Arlington I	0.0394	-0.2791
NW Arlington II-S Arlington II	0.0404	-0.2781
S Arlington II-NW Arlington II	0.0421	-0.2764
Columbia Pike Town Center-Crystal City	0.0436	-0.2749
NE Arlington I-NW Arlington I	0.0442	-0.2743
Crystal City-Columbia Pike Town Center	0.0442	-0.2742
NW Arlington I-NE Arlington I	0.0465	-0.2720
Virginia Hospital Center-Crystal City	0.0471	-0.2714
Pentagon City-WC Arlington	0.0474	-0.2710
WC Arlington-Pentagon City	0.0487	-0.2698

FIGURE 24 | TRAVEL PATTERNS WITHIN ARLINGTON COUNTY

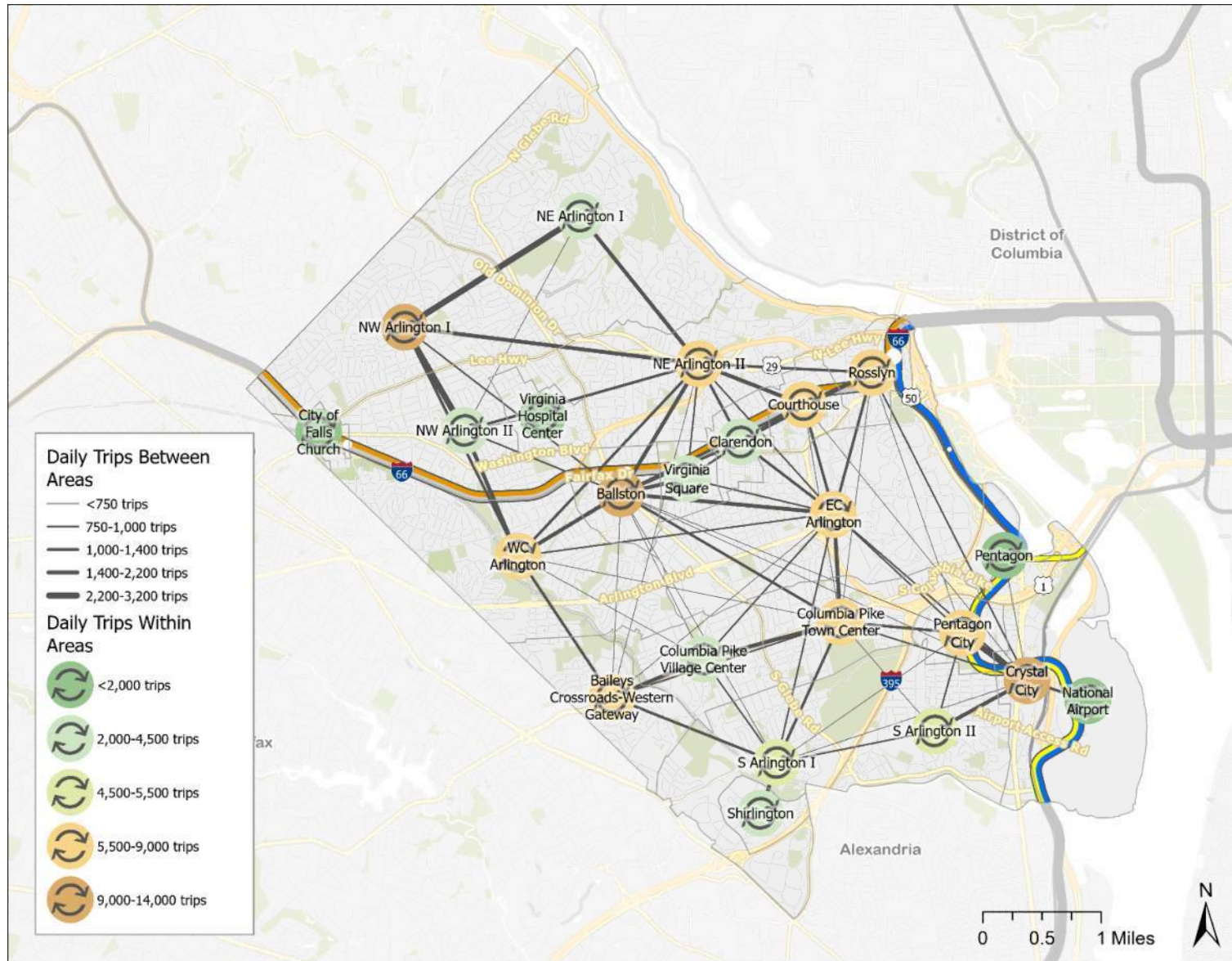
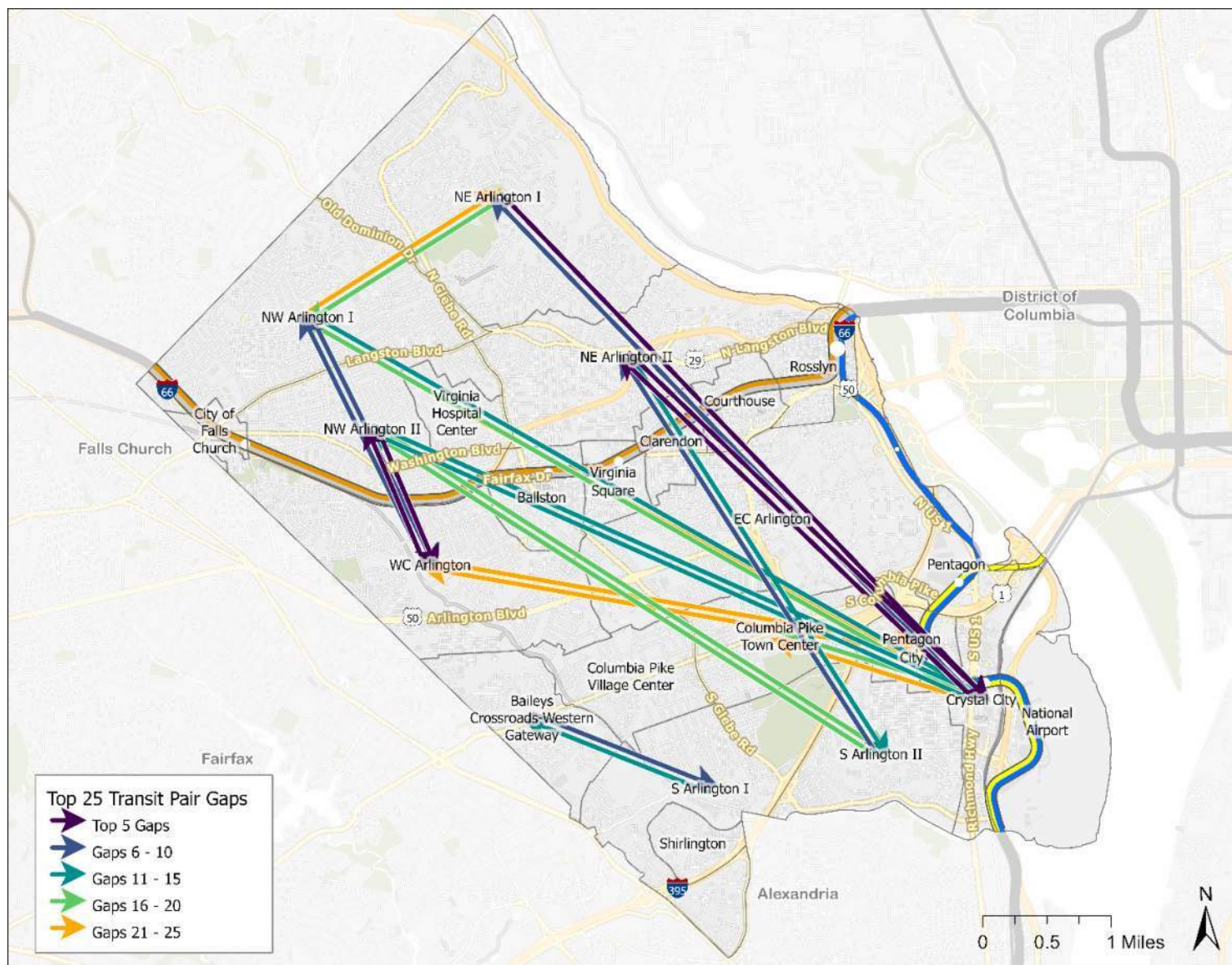




FIGURE 25 | TRAVEL CLUSTER PAIRS WITH THE LOWEST BUS TRIPS PER PERSON TRIP







### Supply vs. Demand Bivariate Analysis

The analysis in this section uses a bi-variate mapping technique. It combines two different variables on one map using a “heatmap” approach to shading. It allows for the identification of gaps between the level of ART-only or ART+WMATA bus service supplied and measures of transit demand, including:

- Transit Oriented Population Propensity
- Daily Ridership
- Projected Population Growth
- Projected Job Growth
- Equity Populations

Areas on the maps shaded in dark to light red represent high to low concentrations of the various demand metrics, while areas shaded in dark to light blue represent high to low numbers of bus service supplied. Areas where both metrics score highly are blended in purple, and in grey where both measures are low.

It should be noted that the ART Service Only and ART+WMATA maps are not comparative and represent different levels and distribution of transit service supplied to the same baseline transit demand. WMATA service tends to serve regional trips on arterial roads, while ART service is focused on connecting neighborhoods and destinations within Arlington. Furthermore, WMATA service tends to be concentrated on major routes, while ART service is distributed more evenly across the county. The result of analyzing the same level of demand with a different type of service is that some areas on the maps may show no gap for the ART Service Only map but a gap for the ART+WMATA map. For these reasons, the maps should be considered as two separate supply analyses for each demand metric.

### Bus Trips vs. Transit Oriented Population Propensity

#### ART SERVICE ONLY

A comparison of where ART services are currently provided versus where service may be needed for daily travel was conducted to identify potential gaps in terms of geography. The need for service in an area is quantified by its transit propensity score. This is a composite metric based off demographic factors that indicate a higher likelihood to use and/or rely on transit. These groups are: the young and elderly, low-income household residents, low car-ownership household residents, and persons with disabilities. The transit indices that are considered for Transit Propensity include: transit oriented populations, workers, employment destinations, and non-work destinations.

The analysis combines a number of different metrics including population density, employment density, household density, and the presence of people who do not have access to or have chosen not to use a car to meet their travel needs. Each index is comprised of weighted categories and each weighted category is comprised of individual data sets obtained from the 2016 – 2020 American Community Survey (ACS) at the Census block group level.

The areas shaded in red or pink in **Figure 26** represent concentrations of populations with higher tendencies to use transit. The darker shade of red shows a higher likelihood to use transit. The areas shaded in red or pink are locations where gaps in service and demand may exist.

These areas identified include Aurora Highland and Crystal City / Pentagon City in the southeastern portion of the County where there is a high demand for all day transit service but no existing ART service. It should be noted that these areas are served by WMATA including Metrorail, as well as Metrobus, which includes the Metroway. All three WMATA services provide connections into the City of Alexandria. In the south of the County, the Long Branch Creek area also displays a higher demand for transit but lacks nearby ART service. Other communities that exhibit a higher propensity for all day



transit service (although some ART service is provided) include areas along US 1 in Long Branch Creek, near Shirlington, Boulevard Manor, and Radnor / Ft. Myer Heights.

Conversely, there are areas where there is limited demand for all day transit service yet ART service is provided at levels that may surpass demand. These areas are shown in the blue and lighter blue shades representing Average Daily ART Trips. Again, the intensity of the shade corresponds with the number of daily trips. The blue areas include locations along Washington Boulevard near Lyon Village, areas adjacent to Fairfax Drive and N Glebe Road in Bluemont, and a few areas south of 10th Street N in Lyon Park.

There are light blue areas spread across the County. This includes areas in northeast Arlington from east to west along US 29, along Route 66 in Madison Manor, Highland Park and Overlee Knolls, and in Riverwood and Woodmont. In central Arlington which includes Ashton Heights, Lyon Park, Arlington Heights and Alcova Heights, as well as Douglas Park and Claremont in south Arlington.

Service in these areas may be reviewed in order to realize resource savings; however, many of these areas are in the central Arlington region which is a natural throughput area for transit connections, especially with both the Silver and Orange lines providing Metrorail connections region-wide.

### ART AND WMATA SERVICE

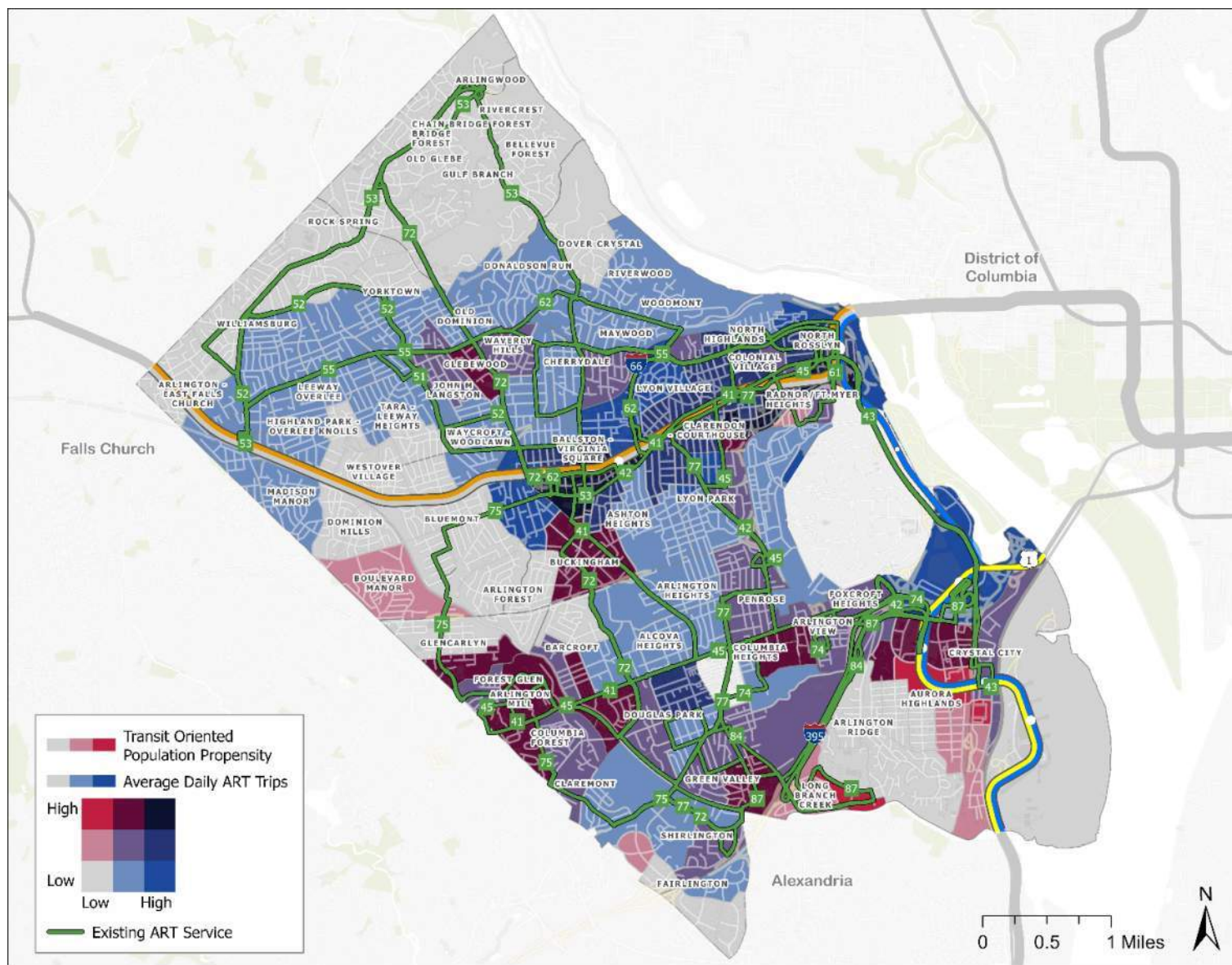
This analysis considers where people who need all day transit live versus where ART and WMATA Metrobus services are provided, offering a more comprehensive and holistic review of the bus transit supply versus the all-day transit demand. When adding the Metrobus services to the analysis the areas previously identified as underserved by ART service in Aurora Highlands and Crystal City / Pentagon City now appear to be adequately served through the overall bus network. However, there are areas in the following communities and shown in **Figure 12** that are underserved by bus, including:

- Long Branch Creek
- Boulevard Manor
- Glencarlyn
- Glebewood
- Douglas Park
- Claremont
- Penrose
- Lyon Park

Conversely, there are a few areas that are overserved by bus transit within the county which is certainly a positive for those who live and/or work in Arlington. A few of the communities that are overserved by bus include areas in Columbia Heights, Alcova Heights, and Bluemont.



FIGURE 26 | ART TRIPS VS. TRANSIT ORIENTED POPULATION PROPENSITY





The map displays the following legend:

- Transit Oriented Population Propensity:**
  - High (Red)
  - Low (Blue)
- Average Daily ART & WMATA Trips:**
  - High (Dark Blue)
  - Low (Light Blue)
- Existing ART Service:** (Green line)

The map includes a scale bar from 0 to 1 mile and a north arrow. Surrounding areas are labeled: Falls Church to the west, District of Columbia to the east, and Alexandria to the south. The Potomac River is visible on the eastern edge.



### Bus Trips vs. Daily Ridership

#### ART SERVICE ONLY

This assessment considers where areas with the highest ridership exist throughout the County—in terms of passenger boardings and alightings versus where the highest levels of ART service are provided (FIGURE 28). If major gaps are identified, (i.e., places where service demand is extremely high, yet the level of ART service provided is either minimal or non-existent) they would be shown on the map in red; however, this situation does not exist within the County. There is one community in southern Arlington, Long Branch Creek, which does show a higher level of passenger activity where additional service may be required.

There are a handful of communities along Fairfax Drive near Bluemont, in Ashton Heights, in Ballston-Virginia Square, and in Lyon Village where ART service may be provided at levels higher than demand warrants. However, as noted previously, the central part of the County's built environment and roadway network serves as a natural funnel for bus service through these communities. More importantly, these bus routes provide connections to Metrorail for communities throughout the County.

#### ART AND WMATA SERVICE

Similarly, this assessment considered both ART and Metrobus service ridership combined versus where service by both agencies is provided (FIGURE 29). There is no single location in the County where ridership activity far exceeded the services provided. In fact, outside of a single community at the southeastern tip of Arlington County abutting US 1, which shows in pink (i.e., moderately high ridership activity, yet a lower number of trips provided), there are no areas of concern regarding a lack of service where it is most needed.

There are some communities that appear to have more service than needed, those shown in blue, such as in Columbia Heights and Ashton Heights. However, as noted before, these areas are located closer to major arterials and roadways where transit service is naturally funneled and where connections to other systems are most easily provided.

### Bus Trips vs. Projected Population Growth

#### ART SERVICE ONLY

This supply versus demand gaps analysis compares the level of ART bus trips provided versus the projected countywide population growth by the year 2030. As shown in Figure 30, the sole area that may require additional ART service is along US 1 in the southeastern portion of the County. This area is projected to have a high level of population growth yet has limited ART bus service. The area to the north of this community is also projected to have higher than expected growth but limited ART service available.

There are a few communities in the northern portion of the county, specifically near the Metrorail line that offers service near Clarendon Boulevard and Wilson Boulevard, as well as locations at and around Crystal City that display a higher level of growth compared to the rest of the region. These results are not surprising, as the Clarendon Boulevard / Wilson Boulevard corridor is one of the more highly dense locations across the entire region, and Crystal City is experiencing a significant amount of development and investment.

#### ART AND WMATA SERVICE

When considering the expected population growth versus the bus trips offered by both ART and Metrobus, there is really only a single location where a deficiency has been exhibited: the community in the southeastern portion of the County along US 1, just south of Crystal City. This locations details a moderately higher than expected level of growth yet has only limited bus options available (FIGURE 31).

There are also a few areas where transit may oversaturate the market with service. Columbia Pike in the central portion of the county does show some signs of having too much transit service; however, as one





of the most important travel corridors in the region, both Columbia Pike and the roads that feed it need adequate transit connections so that transfer possibilities can be maximized. Additionally, while Langston Boulevard is currently oversaturated, the area is projected to have population growth as a result of a change to the zoning and general land use plans in 2023 and will require that existing levels of transit service be preserved to support this increase in anticipated transit demand.

### Bus Trips vs. Projected Job Growth

#### ART SERVICE ONLY

The projected job growth through 2030 was also compared to ART services, detailing where potential gaps may exist in terms of getting users to where jobs will be located in the future. While a majority of Arlington is afforded decent transit coverage by ART, a gap does exist along the US 1 corridor in the southeastern portion of the county, with the community abutting the Alexandria border showing the highest expected growth with only limited bus options available (FIGURE 32).

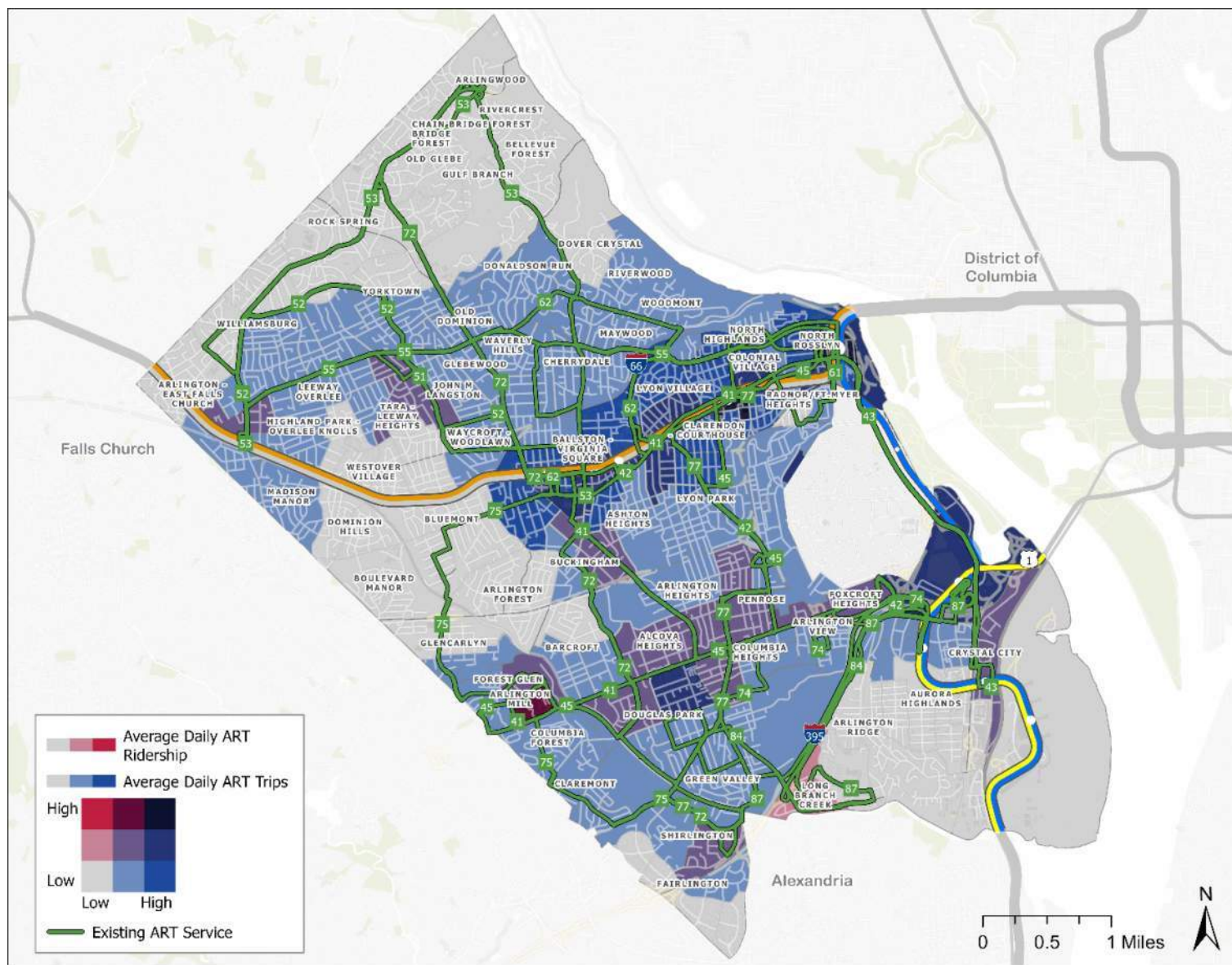
There are also areas where lower job growth is expected, with a high number of ART trips available, including along Columbia Pike in central Arlington, and along US 29 in the northern portion of the county. However, these are important job destinations to serve, so having significant service throughout the area is justified.

#### ART AND WMATA SERVICE

When considering both ART and Metrobus service together as compared to the projected job growth across the County by 2030, additional areas emerge as needing transit service to facilitate accessibility to these jobs for both Arlington residents through ART and Out of County residents through WMATA (FIGURE 33), specifically along US 29 in the northwestern portion of the County. As this area was deemed to be served fairly well by ART service, it is likely that the connections to areas outside of the County need to be improved, while enhancements to bus service that connect to Metrorail should also be explored. Similar to the comparison of job growth versus ART trips, the community in the southeastern portion of the County exhibits a need for additional transit service; however, the areas to the north of this community which appear in pink in the ART-only analysis, does show that it is served well by bus transit when WMATA is also considered.



FIGURE 28 | ART TRIPS VS. DAILY RIDERSHIP



The map displays the following information:

- Average Daily ART & WMATA Ridership:** Represented by a color scale from Low (light blue) to High (dark red).
- Average Daily ART & WMATA Trips:** Represented by a color scale from Low (light blue) to High (dark red).
- High/Low Legend:** A 2x2 grid showing the color scale for ridership and trips.
- Existing ART Service:** Indicated by green lines.

Geographic labels include: Falls Church, District of Columbia, Alexandria, and various Arlington neighborhoods such as Arlington Heights, Crystal City, and Rosslyn. A scale bar (0 to 1 mile) and a north arrow are located in the bottom right corner.





FIGURE 30 | ART TRIPS VS. PROJECTED POPULATION GROWTH

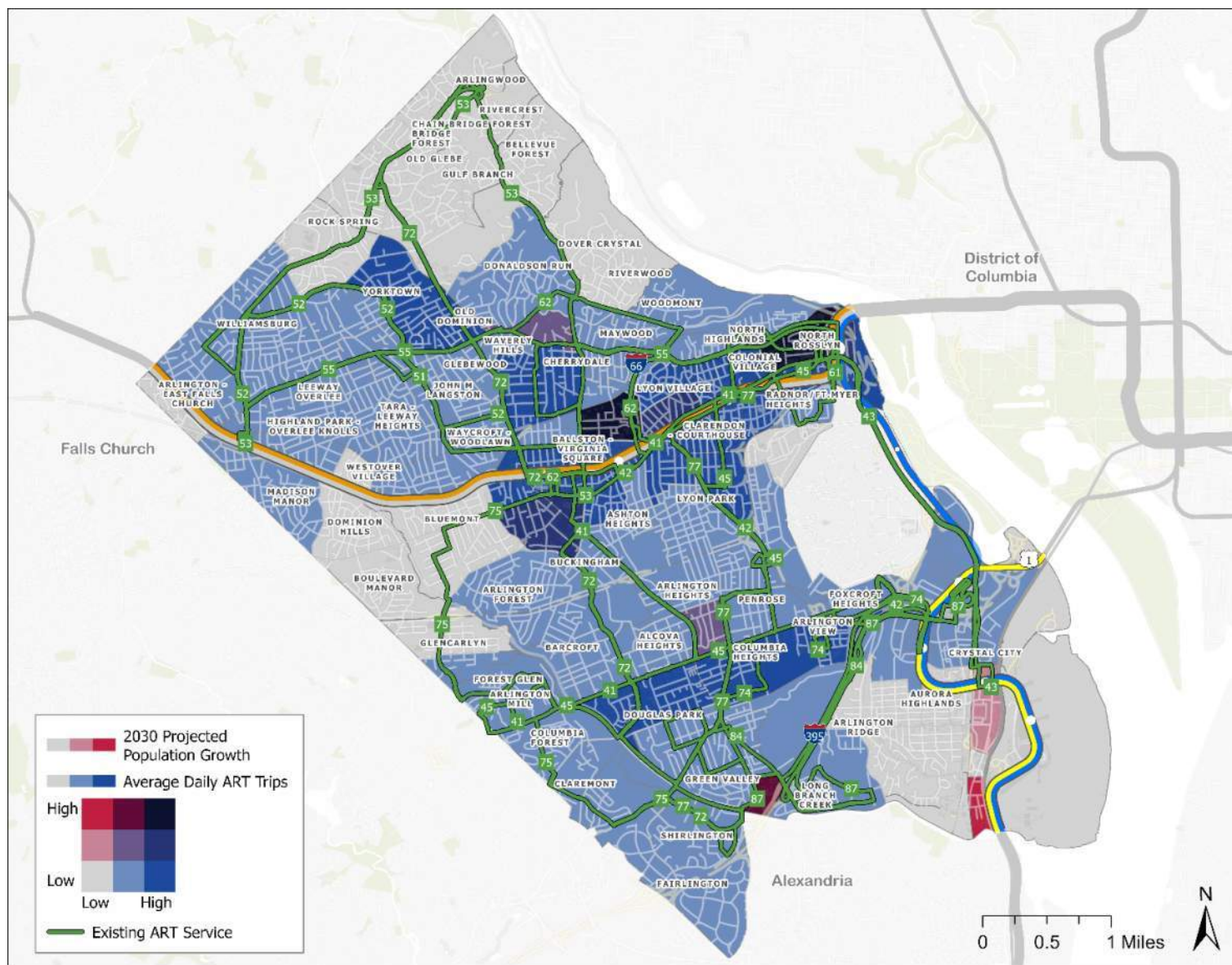




FIGURE 31 | ART AND WMATA TRIPS VS. PROJECTED POPULATION GROWTH

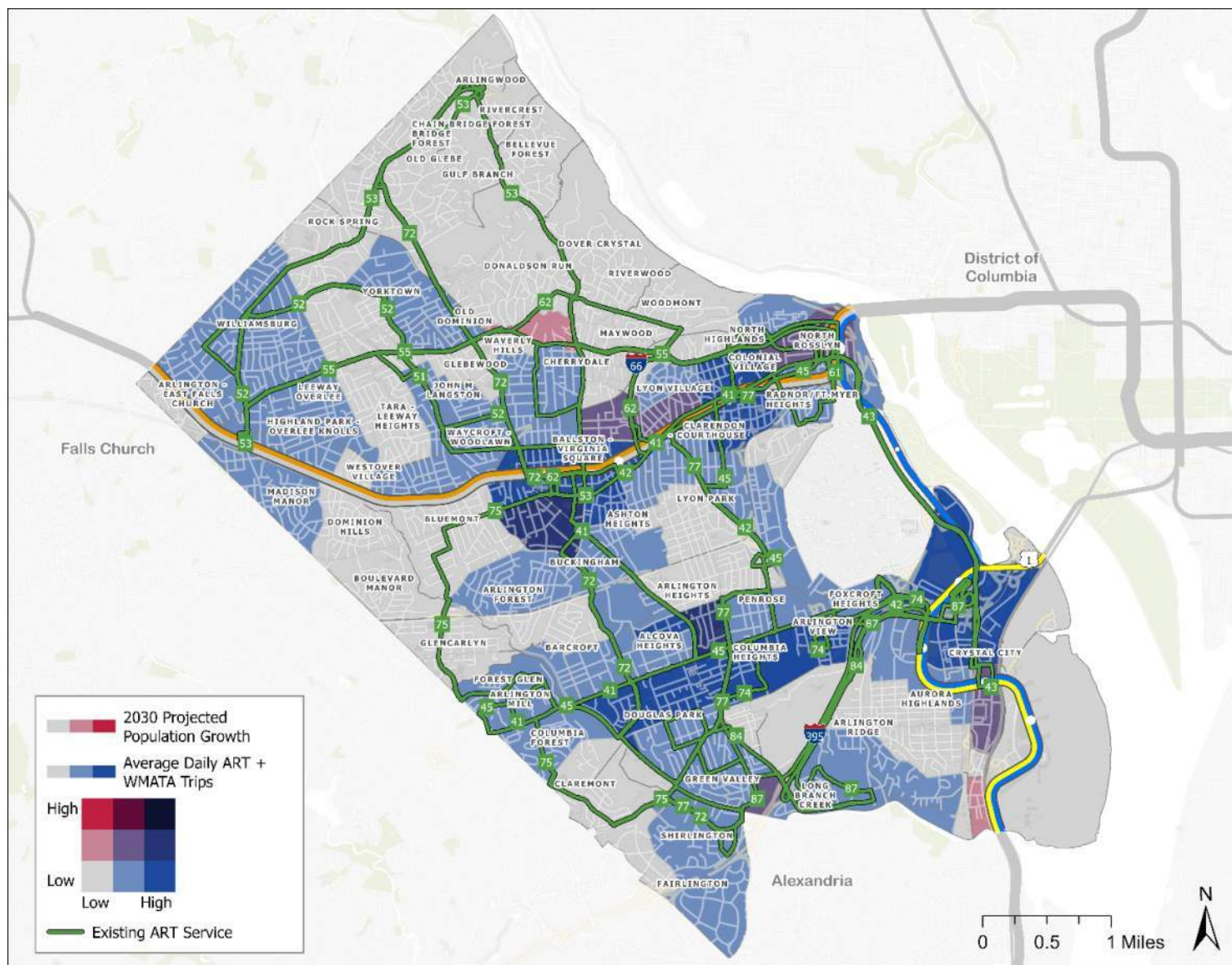






FIGURE 32 | ART TRIPS VS. PROJECTED JOB GROWTH

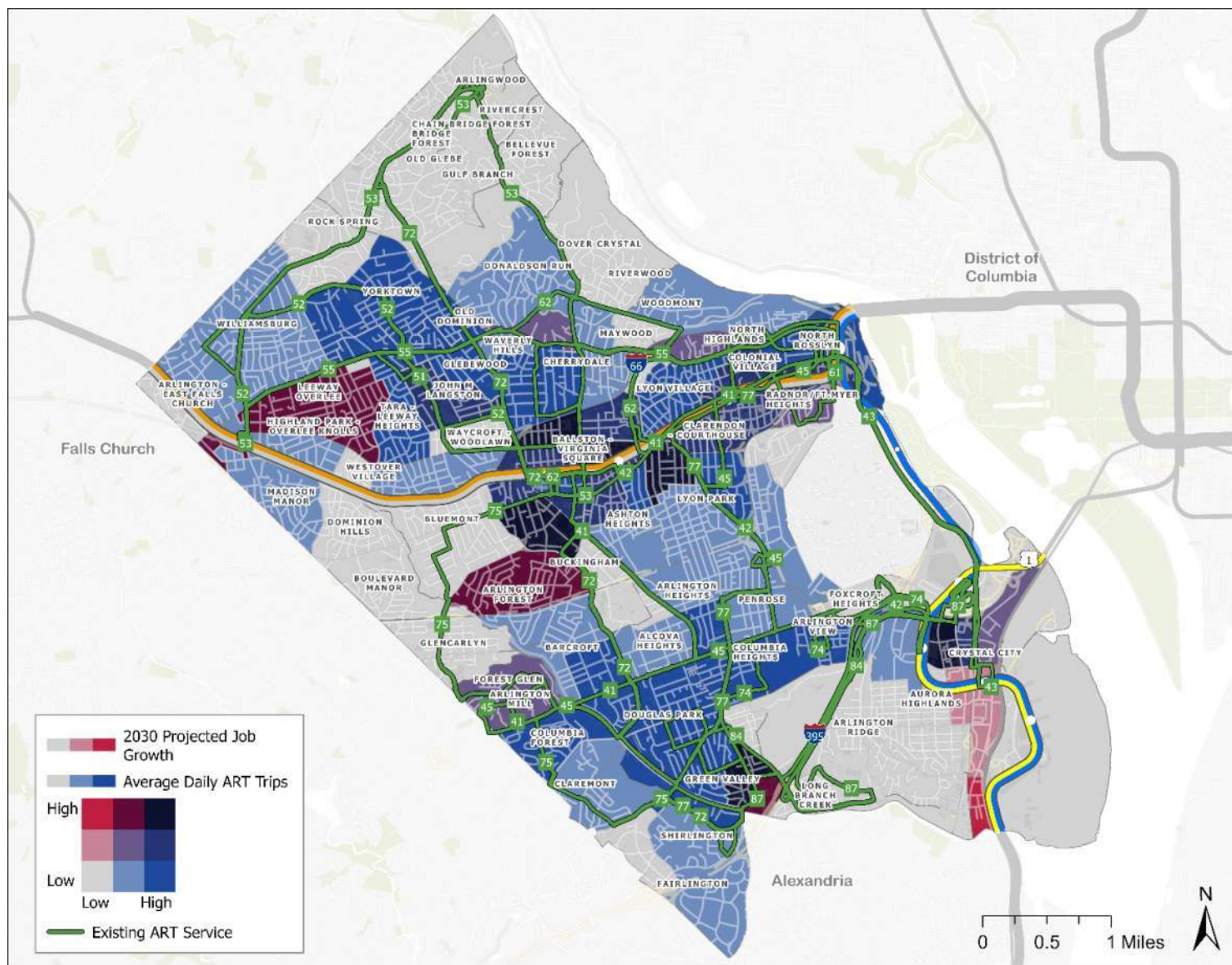
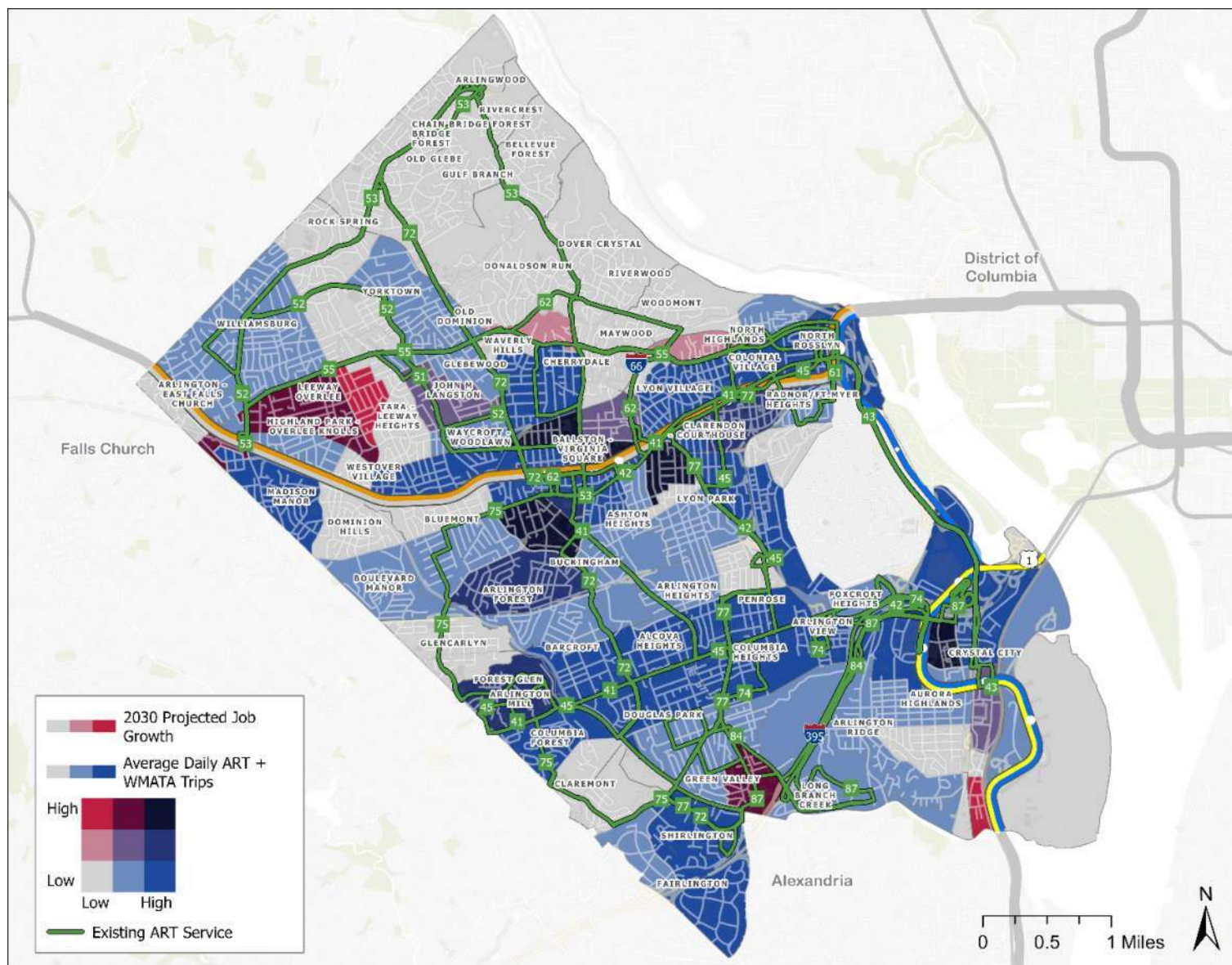






FIGURE 33 | ART AND WMATA TRIPS VS. PROJECTED JOB GROWTH





### Bus Trips vs. Equity Population

#### ART SERVICE ONLY

The assessment that reviewed the transit need for equity populations versus the ART service provided details that the greatest area of need is in the western portion of the County along and near Columbia Pike. The dark red shaded areas indicate a higher concentration of disadvantaged populations (including but not limited to people of color, aging populations, zero car households etc.). Other areas of significant need are shown in the Crystal City area south of Arlington Cemetery immediately adjacent to I-395. There are also pockets of moderately high equity populations that receive limited bus service via ART in the vicinity of US 29 and Washington Boulevard in the northern portion of the County, particularly Rock Spring. This area is more suburban residential than some of the more densely developed areas of the County, with more household car ownership and likely less reliance on transit (and therefore less need); however, it is important to provide some type of transit options to these areas, as more commuter and/or microtransit options may be better solutions for these types of areas (FIGURE 34).

#### ART AND WMATA SERVICE

Similar to the pattern that was observed with projected job growth across the County by 2030, when total trips for ART and WMATA are considered, additional areas of need are highlighted along the northwestern portion of US 29 (in proximity to the Tara-Leeway Heights community). However, it does appear that when WMATA trips are considered in addition to ART trips, the Madison Manor area near Route 29 is better served. With the additional consideration of Metrobus trips, there is also need that is highlighted in the southern tip of the County immediately adjacent to Alexandria, likely representing that connections outside of the County need to be considered (Figure 35).

### Bivariate Analysis Summary

To identify possible gaps in the level of ART and ART+WMATA bus service supplied, this analysis pinpoints neighborhoods that simultaneously have relatively low bus service supply (measured by average weekday daily trips) and relatively high transit demand metrics. The focus of the Arlington Transit Strategic Plan is on filling gaps between neighborhoods and other destinations in Arlington with improved ART service.

Areas with at least one gap (for example, relatively low ART trips supplied and a relatively high demand metric, or one with a high supply and low demand) are listed in Table 14 and Figure 36. Any gap identified within a neighborhood boundary applies to the entire geography of the area, and the largest gap in service supersedes smaller gaps that may occur within block groups or TAZs within the same area. The Top 10 Focus Areas for Neighborhood Gaps are illustrated in Figure 37.

The map displays the following data series:

- Equity Population:** Represented by a color gradient from light red (Low) to dark red (High).
- Average Daily ART Trips:** Represented by a color gradient from light blue (Low) to dark blue (High).
- Existing ART Service:** Indicated by green lines.

The map includes a legend in the bottom left corner, a scale bar (0 to 1 mile), and a north arrow. The map also shows the District of Columbia to the east and the Potomac River to the south.





FIGURE 35 | ART AND WMATA TRIPS VS. EQUITY POPULATION

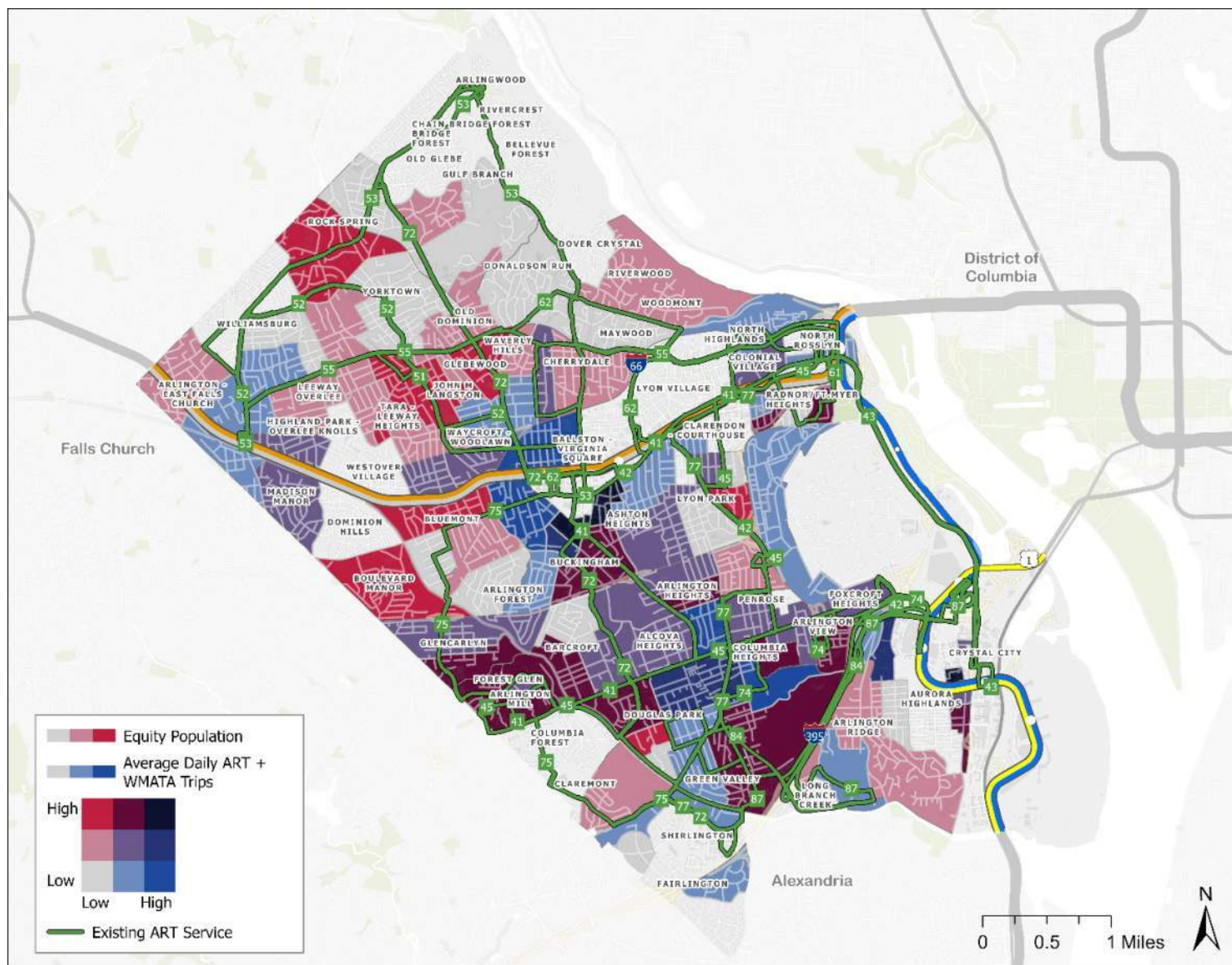




TABLE 14 | SUMMARY OF SUPPLY AND DEMAND GAPS ANALYSIS

Neighborhood	ART ONLY					ART + WMATA					Total Gaps
	TOP	Ridership	Population Growth	Job Growth	Equity Index	TOP	Ridership	Population Growth	Job Growth	Equity Index	
Crystal City	High	Medium	High	High	High	Medium	Medium	Medium	High	Medium	High
Arlington Mill	Medium	Medium	Low	Low	High	Medium	Medium	Low	Low	Medium	Medium
Long Branch Creek	High	Medium	Low	Low	Medium	High	Low	Low	Low	Medium	Medium
Green Valley	Low	Low	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium
Buckingham	Medium	Low	Low	Medium	High	Medium	Low	Low	Low	Medium	Medium
Waverly Hills	Low	Low	Low	Low	Medium	Medium	Low	Medium	Medium	High	Medium
Arlington Ridge	High	Low	Low	Low	Medium	High	Low	Low	Low	Medium	Medium
Glencarlyn	Medium	Low	Low	Low	High	High	Low	Low	Low	Medium	Medium
Aurora Highlands	High	Low	Low	Low	High	Medium	Low	Low	Low	Medium	Medium
Boulevard Manor	Medium	Low	Low	Low	High	Medium	Low	Low	Low	Medium	Medium
Glebewood	Low	Low	Low	Low	Medium	High	Low	Low	Low	Medium	Low



FIGURE 36 | SUMMARY MAP OF SUPPLY-DEMAND GAPS

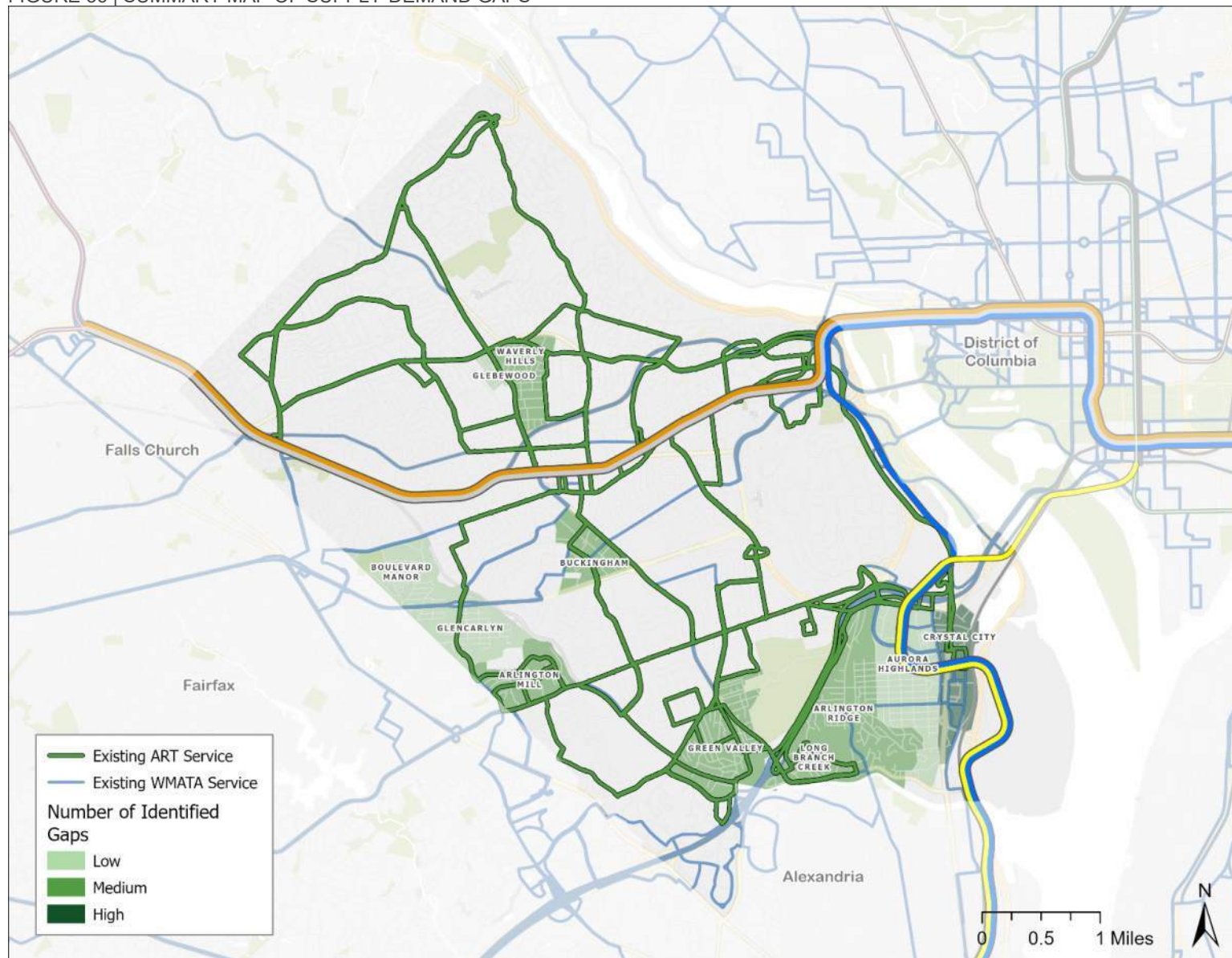
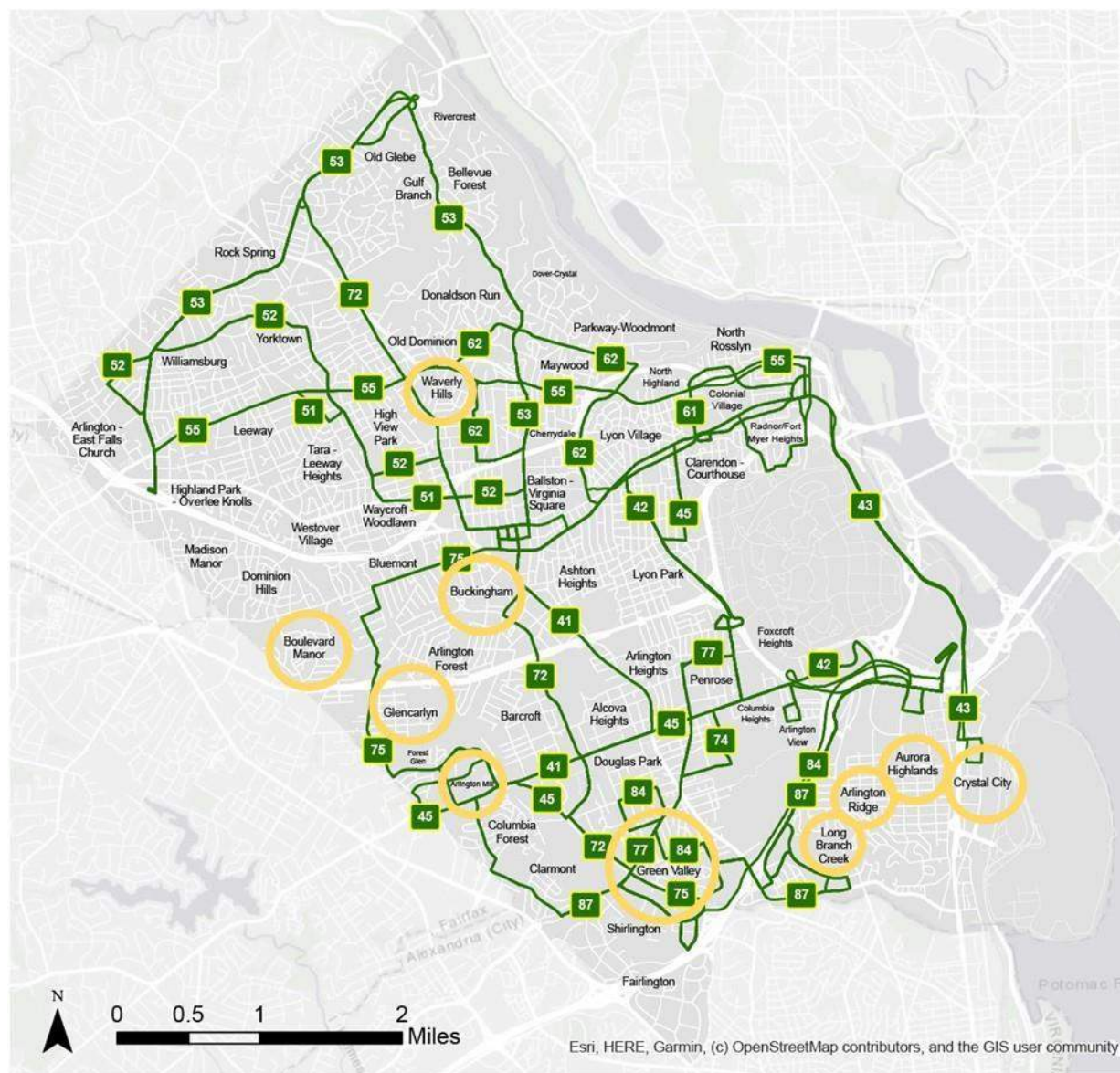


FIGURE 37 | TOP 10 FOCUS AREAS FOR NEIGHBORHOOD GAPS







### Specific Destination Gaps Analysis

One important way to gauge the existing service gaps in the bus network is to review specific County-wide destinations and determine if those locations are being served well by the current ART and Metrobus transit options. This assessment reviewed the current level of transit trips (total transit trips and ART trips, respectively) for a full day of service for transit centers, active and emerging activity centers, secondary and post-secondary schools, and community centers. The results for each location were then compared to the average trips of that destination type (i.e., transit centers, activity centers, schools, and community centers). If a destination has more trips than the average, it received an “above” classification; likewise, if a destination has fewer trips than the average of that destination type, it received a “below” classification.

#### Transit Centers

The review of the existing transit centers includes all 11 WMATA Metrorail stations that offer transit connections within the County, along with the Shirlington Transit Center and the intersection of Dinwiddie Street and Columbia Pike. These transit centers also include parking minimum reductions to better support the use of transit. The 11 Metrorail stations are served by several different ART and Metrobus routes:

- Arlington Cemetery Metrorail Station
  - ART Routes: none
  - WMATA Routes: none
- Ballston – MU Metrorail Station
  - ART Routes: 41, 42, 51, 52, 53, 62, 72, 75
  - WMATA Routes: 1A, 1B, 2A, 10B, 22A, 23A, 23B, 23T, 25B, 38B
- Clarendon Metrorail Station
  - ART Routes: 41, 42, 62, 77
  - WMATA Routes: 38B
- Courthouse Metrorail Station
  - ART Routes: 41, 43, 45, 61, 62, 77
  - WMATA Routes: 4B, 38B
- Crystal City Metrorail Station
  - ART Routes: 43
  - WMATA Routes: 23A, 23B, Metroway
- East Falls Church Metrorail Station
  - ART Routes: 52, 53, 55
  - WMATA Routes: 2A, 3F, 3Y, 26A, 28A
- Pentagon Metrorail Station & Transit Center
  - ART Routes: 42, 87, 87X
  - WMATA Routes: 7A, 7M, 8W, 10A, 16A, 16C, 16E, 17B, 17G, 17K, 17M, 18G, 18J, 18P, 21C, 22A, 22F, 28F, 29G
- Pentagon City Metrorail Station
  - ART Routes: 42, 84, 87, 87A, 87P
  - WMATA Routes: 7A, 10A, 16E, 16M (formerly the 16G and 16H), 22A, Metroway
- Ronald Reagan Washington National Airport
  - ART Routes: none
  - WMATA Routes: 10N
- Rosslyn Metrorail Station
  - ART Routes: 43, 45, 55, 61
  - WMATA Routes: 4A, 4B, 5A, 15K, 38B
- Virginia Square – GMU Metrorail Station
  - ART Routes: 41, 42, 75
  - WMATA Routes: 38B

The transit routes that serve the intersection of **Dinwiddie Street at Columbia Pike** include ART 75, and Metrobus 16A, 16C, 16E, and 16M (formerly the 16G and 16H). The **Shirlington Transit Center** is served by ART 72, 75, 77, 87, and 87X, DASH 36A and 36B, and Metrobus 7A, 10B, 22A, 23A, 23B, and 23T.



Table 15 details the existing transit trips to each transit center, showing how many trips are serving each location for all bus services, including ART, and ART independently of the other services.

Locations such as the Ballston – MU Metrorail Station and the Shirlington Transit Center received “above” average assessments for all bus trips and ART trips only, suggesting that these locations receive adequate bus coverage.

Conversely, locations such as East Falls Church Metrorail Station and the Crystal City Metrorail station have “below” average assessments for all bus trips and when only considering ART services, which strongly suggests that additional solutions should be considered for these locations.

There are several locations where overall bus service is “above” average, yet ART service is “below” average. This suggests that bus service to destinations that are farther away (often provided by Metrobus) are decent; however, bus service to more local destinations should be reviewed in order to ensure all connections can be made. This condition exists at the Pentagon City Metrorail Station and the Pentagon Metrorail Station & Transit Center.

Additionally, there are also several locations where ART service is at “above” average levels, yet the overall bus services are considered “below” average. This situation suggests that coverage oriented towards more local areas is provided at a sufficient level, yet there may be opportunities to provide better connections to jobs in other neighboring areas or for neighboring residents who may be traveling into Arlington via transit. This is occurring at the Clarendon Metrorail Station and the Virginia – GMU Metrorail Station.

Arlington has implemented parking ratio requirements at transit centers in exchange for elements such as transit infrastructure which can benefit all riders at the station. It is worth noting that both the Arlington Cemetery Metrorail Station and the Ronald Reagan Washington National Airport do not currently have any bus services that operate to either location. Both are served by Metrorail and strengthening connections to existing services should continue to be prioritized. Furthermore, the proposed CC2DCA connector will provide a direct ADA- accessible pathway between ART service on Crystal Drive, the Crystal City Metro, a relocated Crystal City VRE station and National Airport.



TABLE 15 | TRANSIT TRIPS PER DAY TO TRANSIT CENTERS

Transit Centers	Total Bus Trips	Relation to Average	ART Trips	Relation to Average
Ballston - MU Metrorail Station	2,270	Above	647	Above
Pentagon City Metrorail Station	1,826	Above	344	Below
Dinwiddie Street at Columbia Pike	1,560	Above	659	Above
Pentagon Metrorail Station & Transit Center	1,526	Above	168	Below
Shirlington Transit Center	1,441	Above	452	Above
Courthouse Metrorail Station	1,384	Above	932	Above
Rosslyn Metrorail Station	1,273	Above	708	Above
East Falls Church Metrorail Station	1,142	Below	423	Below
Crystal City Metrorail Station	1,088	Below	144	Below
Clarendon Metrorail Station	1,045	Below	741	Above
Virginia Square - GMU Metrorail Station	949	Below	645	Above
Arlington Cemetery Metrorail Station	0	Below	0	Below
Ronald Reagan Washington National Airport	0	Below	0	Below
<b>Total Trips</b>	<b>15,504</b>		<b>5,863</b>	
<b>Average Trip per Transit Center</b>	<b>1,193</b>		<b>451</b>	

## Activity

### Centers

The review of the existing activity centers included 15 locations across Arlington County that represent areas where travel and transit activity are the highest. These locations often have either higher densities of residential areas or jobs, or often times both. Each area is presented in terms of the ART services that operate through the area, as well as the bus routes operated by WMATA.

- Baileys Crossroads-Western Gateway
  - ART Routes: 41, 45, 72, 75
  - WMATA Routes: 16A, 16C, 16E, 16M (formerly 16H), 16Y, 22A, 25B
- Ballston
  - ART Routes: 51, 52, 53, 62, 72, 75
  - WMATA Routes: 1A, 1B, 2A, 10A, 10B, 22A, 23A, 23B, 23T, 25B, 38B
  - Omniride: 622, D-200
- City of Falls Church
  - ART Routes: 52, 53, 55
  - WMATA Routes: 2A, 3F, 3Y, 26A, 28A
- Clarendon
  - ART Routes: 41, 42, 45, 55, 62, 75, 77
  - WMATA Routes: 3Y, 4B, 16Y, 38B
- Columbia Pike Town Center
  - ART Routes: 41, 42, 45, 74, 77, 84, 87
  - WMATA Routes: 10A, 10B, 16A, 16C, 16E, 16H, 16Y, 22A, 23A, 23B, 23T
- Columbia Pike Village Center
  - ART Routes: 41, 45, 72, 74, 75, 77, 84
  - WMATA Routes: 10B, 16A, 16C, 16E, 16H, 16Y, 22A, 23A, 23B, 23T
- Courthouse



- ART Routes: 41, 42, 43, 45, 55, 61, 62, 77
  - WMATA Routes: 3Y, 4B, 16Y, 38B
- Crystal City
  - ART Routes: 42, 43, 87
  - WMATA Routes: 7A, 10A, 16A, 16C, 16E, 22A, 23A, 23B, Metroway
- Pentagon
  - ART Routes: 42, 87
  - WMATA Routes: 7A, 7M, 8W, 10A, 16A, 16C, 16E, 17B, 17G, 17K, 17M, 18G, 18J, 18P, 21C, 22A, 22F, 28F, 29G
- Pentagon City
  - ART Routes: 42, 43, 74, 84, 87
  - WMATA Routes: 2A, 7A, 10A, 16A, 16C, 16E, 16M (formerly 16G and 16H), 22A, 23A, 23B, Metroway
- Ronald Reagan Washington National Airport
  - ART Routes: none
  - WMATA Routes: none
- Rosslyn
  - ART Routes: 43, 45, 55, 61
  - WMATA Routes: 3Y, 4B, 5A, 38B
- Shirlington
  - ART Routes: 72, 75, 77, 87
  - WMATA Routes: 7A, 10B, 22A, 22F, 23A, 23B, 23T, Metroway
- Virginia Hospital Center
  - ART Routes: 51, 52, 55, 72
  - WMATA Routes: 2A, 3Y, 23A, 23B, 38B
- Virginia Square
  - ART Routes: 41, 42, 51, 52, 53, 62, 72, 75, 77
  - WMATA Routes: 1A, 1B, 2A, 10B, 22A, 23A, 23B, 23T, 25B, 38B

The table below illustrates the total bus trips and ART bus trips per activity center. Similar to the previous assessment, this analysis reviews the total number of bus trips per individual activity center against the average trips of all activity centers. As shown in the table, there are a number of activity centers where both the total bus trips and the Arlington bus trips are “above” average. This presents an attractive transit situation where both local trips provided by ART and service to destinations farther away provided by WMATA are at adequate levels, such as at Virginia Square and Columbia Pike Town Center.

Conversely, there are also a number of locations where both total bus trips and ART bus trips are below the average levels for activity centers. This suggests that service options should be explored for destinations that are both local and further away. These conditions exist in areas such as Crystal City, around the Pentagon, and in the vicinity of the Virginia Hospital Center. Further research will be required to identify why this pattern currently exists and how to adequately increase transit usage to these areas.

A third condition also exists when considering the Arlington activity centers, where total bus trips are “above” average, yet the number of ART trips to these destinations are “below” average. This situation occurs at the Pentagon City activity center and the Baileys Crossroads-Western Gateway activity center. Specific ART transit solutions which provide better coverage to local destinations from the Baileys Crossroads and Pentagon City areas should be explored.

As noted previously, the Ronald Reagan Washington National Airport does not currently have any bus service. Additional transit solutions could be explored for this activity generator.





TABLE 16 | TRANSIT TRIPS PER DAY TO ACTIVITY CENTERS

Activity Centers	Total Bus Trips	Relation to Average	ART Trips	Relation to Average
Virginia Square	2,942	Above	1,171	Above
Columbia Pike Town Center	2,836	Above	1,154	Above
Ballston	2,806	Above	1,035	Above
Columbia Pike Village Center	2,465	Above	894	Above
Pentagon City	2,424	Above	568	Below
Courthouse	1,943	Above	1,449	Above
Baileys Crossroads-Western Gateway	1,902	Above	718	Below
Clarendon	1,831	Above	1,337	Above
Crystal City	1,574	Below	224	Below
Pentagon	1,526	Below	168	Below
Shirlington	1,456	Below	452	Below
Virginia Hospital Center	1,303	Below	646	Below
Rosslyn	1,279	Below	708	Below
City of Falls Church	1,152	Below	423	Below
Ronald Reagan Washington National Airport	0	Below	0	Below
<b>Total Trips</b>	<b>27,439</b>		<b>10,947</b>	
<b>Average Trips per Activity Center</b>	<b>1,829</b>		<b>730</b>	

## Schools

There were 22 different educational institutions that were reviewed across the County in order to determine if there are any school related gaps in the transit network. These schools include the High Schools and all of the post-secondary education locations across Arlington. Each school is presented in terms of the ART services that operate on roadways adjacent to their campuses, as well as the bus routes provided by WMATA.

- Arlington Community High School
  - ART Routes: 41, 45, 74, 75
  - WMATA Routes: 10B, 16A, 16C, 16E, 16M (formerly 16G and 16H), 16Y
- Arlington Tech/Career Center
  - ART Routes: 41, 45, 74, 77
  - WMATA Routes: 10B, 16A, 16C, 16E, 16M (formerly 16G and 16H), 16Y, 23A, 23B, 23T
- DeVry University
  - ART Routes: 43
  - WMATA Routes: 10A, 23A, 23B, Metroway
- Eunice Kennedy Shriver Program
  - ART Routes: 45, 55, 61
  - WMATA Routes: 3Y, 4B, 38B
- George Mason University (Mason Square)
  - ART Routes: 41, 42, 62, 75
  - WMATA Routes: 38B
- H-B Woodlawn
  - ART Routes: 45, 55, 61
  - WMATA Routes: 3Y, 4B, 38B



- Information Sciences Institute
  - ART Routes: 41, 42, 52, 53, 62, 72, 75
  - WMATA Routes: 1A, 1B, 10A, 22A, 23A, 23B, 23T, 25B, 38B
- Keller Graduate School of Management
  - ART Routes: none
  - WMATA Routes: 10A, 23A, 23B, Metroway
- Langston High School Continuation Program
  - ART Routes: 55, 72
  - WMATA Routes: 3Y, 23A, 23T
- Marymount University
  - ART Routes: 72
  - WMATA Routes: 23A, 23T
- Marymount University – Ballston Center
  - ART Routes: 42, 51, 52, 53, 62, 72, 75
  - WMATA Routes: 1A, 1B, 2A, 23A, 23T, 25B, 38B
- New Directions
  - ART Routes: 41, 42, 45, 62, 77
  - WMATA Routes: 4B, 38B
- Park University at Henderson Hall MCB
  - ART Routes: 42
  - WMATA Routes: 16A, 16C, 16E, 16M (formerly 16G and 16H)
- Strayer University
  - ART Routes: 41, 43, 45, 61, 62, 77
  - WMATA Routes: 4B, 38B
- Syphax Education Center
  - ART Routes: 42, 45, 77
  - WMATA Routes: 16Y
- University of Management and Technology
  - ART Routes: 43, 45, 55, 61
  - WMATA Routes: 3Y, 4B, 5A, 38B
- UVA Darden DC Metro at Sands Family Grounds
  - ART Routes: 43, 45, 55, 61
  - WMATA Routes: 4B, 5A, 38B
- Virginia Tech Research Center - Arlington
  - ART Routes: 42, 51, 52, 53, 62, 72, 75
  - WMATA Routes: 1A, 1B, 2A, 22A, 23A, 23T, 25B, 38B
- Wakefield High School
  - ART Routes: 75
  - WMATA Routes: none
- Washington-Liberty High School
  - ART Routes: 52, 53, 62
  - WMATA Routes: 38B
- Yorktown High School
  - ART Routes: 52
  - WMATA Routes: none

Table 17 shows the total bus trips and the ART trips that serve the different schools that are present within the County (Figure 38), and how those trips compare to the average bus trip for the school category. Interestingly, the majority of those schools that are served well by all of the bus trips (i.e., those that received an “Above” rating) are also served well by ART service (i.e., the locations that receive an “Above” rating), including the Virginia Tech Research Center – Arlington Campus, the Arlington Career Center, and Arlington Tech.

Similarly, most of the schools that received a “Below” rating for total bus trips also received a “Below” rating when only considering ART services. These are likely locations that could be explored for providing new or enhanced bus services, such as to the Keller Graduate School of Management or to Marymount University.



Park University at Henderson Hall MCB has “Above” average service when considering all bus trips, yet “Below” average service when just looking at ART services, suggesting that transit to and from farther away destinations is provided at an adequate level, but connections to local areas could be explored.

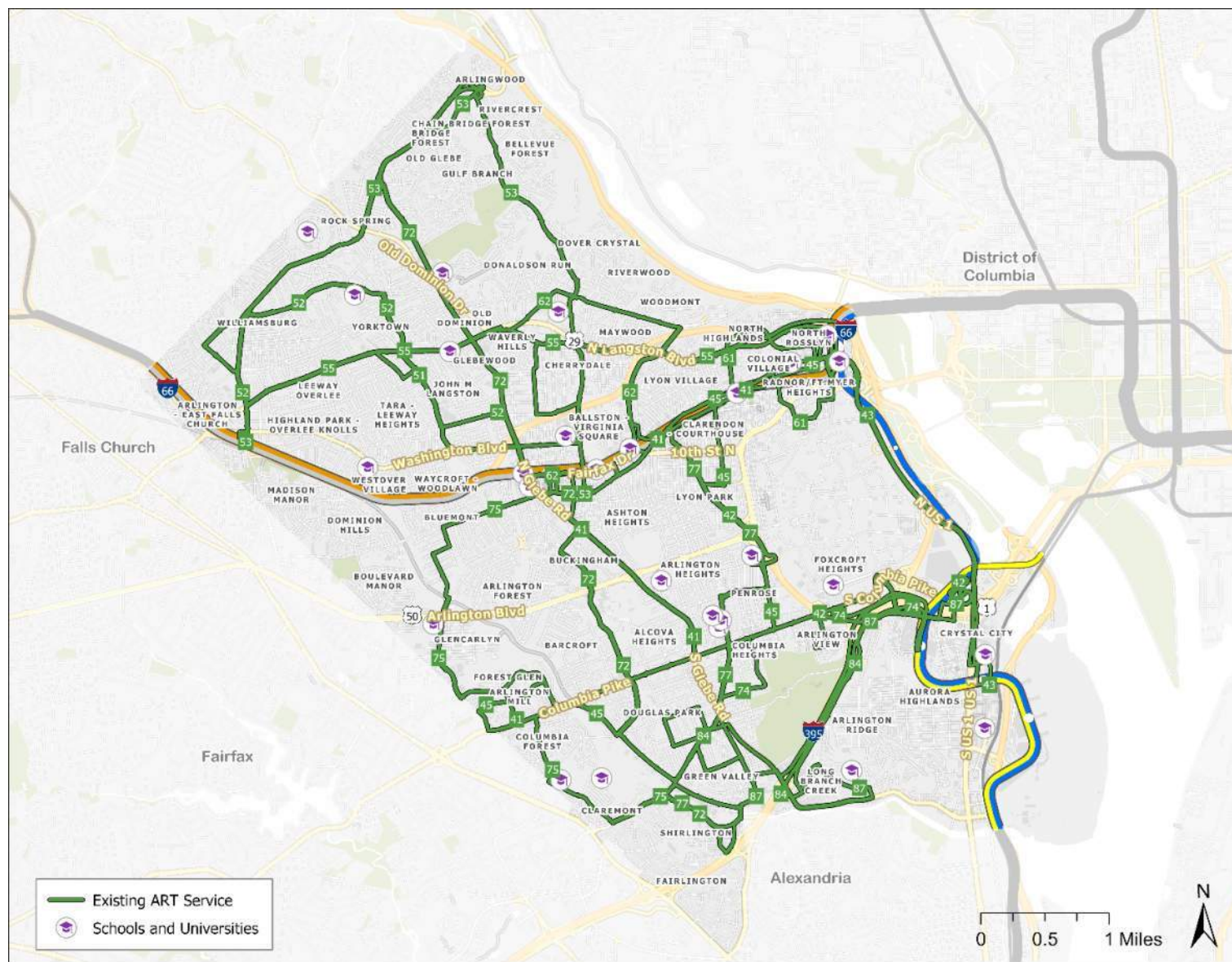
George Mason University (Mason Square) presents the opposite situation, where the total bus trips are “below” average, yet when measuring ART service only, service is considered “above” average, suggesting that ART service is at adequate levels, but service to farther destinations may be worth exploring.

TABLE 17 | TRANSIT TRIPS PER DAY TO SCHOOLS

Schools	Total Bus Trips	Relation to Average	ART Trips	Relation to Average
Virginia Tech Research Center - Arlington	1,897	Above	645	Above
Arlington Career Center	1,859	Above	552	Above
Arlington Tech	1,859	Above	552	Above
Marymount University - Ballston Center	1,725	Above	642	Above
Information Sciences Institute	1,685	Above	798	Above
Arlington Community High School	1,681	Above	552	Above
Strayer University	1,384	Above	932	Above
New Directions	1,296	Above	844	Above
University of Management and Technology	1,279	Above	708	Above
UVA Darden DC Metro at Sands Family Grounds	1,266	Above	708	Above
Park University at Henderson Hall MCB	1,087	Above	192	Below
George Mason University (Mason Square)	974	Below	670	Above
Eunice Kennedy Shriver Program	861	Below	402	Below
H-B Woodlawn	861	Below	402	Below
DeVry University	783	Below	144	Below
Keller Graduate School of Management	741	Below	0	Below
Langston High School Continuation Program	578	Below	379	Below
Syphax Education Center	563	Below	534	Above
Washington-Liberty High School	428	Below	124	Below
Marymount University	240	Below	54	Below
Wakefield	65	Below	65	Below
Yorktown High School	60	Below	60	Below
<b>Total Trips</b>	<b>23,172</b>		<b>9,959</b>	
<b>Average Trips per School</b>	<b>1,053</b>		<b>453</b>	



FIGURE 38 | SCHOOLS IN ARLINGTON COUNTY







### Indoor Recreational Facilities

An assessment of ART service and overall bus service to Arlington area community centers was performed to identify gaps in service to any important community location; 14 community centers were assessed. Each community center is presented in terms of nearby ART and WMATA services, respectively.

- Arlington Mill Community Center
  - ART Routes: 41, 45, 75
  - WMATA Routes: 6A, 16C, 16E, 16M (formerly 16G and 16H), 16Y, 22A
- Aurora Hills Community Center
  - ART Routes: none
  - WMATA Routes: 7A, 10A, 22A
- Barcroft Community Center
  - ART Routes: 45, 72
  - WMATA Routes: 22A
- Carlin Hall Community Center
  - ART Routes: 75
  - WMATA Routes: 4B, 25B
- Carver Center
  - ART Routes: 74
  - WMATA Routes: none
- Charles Drew Community Center
  - ART Routes: 84
  - WMATA Routes: 10B, 23A, 23B, 23T
- Dawson Terrace Community Center
  - ART Routes: 61
  - WMATA Routes: 3Y
- Fairlington Community Center
  - ART Routes: none
  - WMATA Routes: 7A, 10B, 22A, 22F, 23A, 23B, 23T
- Gulf Branch Nature Center
  - ART Routes: 53, 61, 74
  - WMATA Routes: none
- Gunston Community Center
  - ART Routes: 87
  - WMATA Routes: 10A, 10B, 23A, 23B
- Langston-Brown Community Center and Park
  - ART Routes: 55, 72
  - WMATA Routes: 3Y, 23A, 23B
- Long Bridge Park
  - ART Routes: None
  - WMATA Routes: None
- Long Branch Nature Center
  - ART Routes: 75
  - WMATA Routes: 25B
- Lubber Run Community Center
  - ART Routes: 72
  - WMATA Routes: 4B, 22A, 25B
- Madison Community Center
  - ART Routes: 53
  - WMATA Routes: none
- Thomas Jefferson Community Center
  - ART Routes: 41
  - WMATA Routes: 10B, 23A, 23B, 23T
- Walter Reed Community Center
  - ART Routes: 45, 74, 77, 87



- WMATA Routes: 10B 23A, 23B, 23T

A few of the community centers (Figure 39) have “Above” average ratings when considering both total bus trips provided, and the trips offered by ART (Table 18). These locations, which include the Arlington Mill Community Center and the Thomas Jefferson Community Center, should be considered well served by transit.

Conversely, there are several community centers that have neither decent service from ART, nor decent bus service overall, with “Below” ratings for both ART bus trips and total bus trips. This condition exists at the Charles Drew Community Center, the Lubber Run Community Center, the Carlin Hall Community Center, the Gulf Branch Nature Center, the Dawson Terrace Community Center, and the Carver Center. Each of these locations should be explored for further bus services, provided by both ART and WMATA, for connections locally and to other jurisdictions. Amongst these, most are small community centers that would not generate many trips; however, Lubber Run Community Center is a major center that would.

One community center, the Fairlington Community Center, has “Above” average service when considering all bus trips, yet has no service provided by ART. Service to this out of county center could be considered by ART.

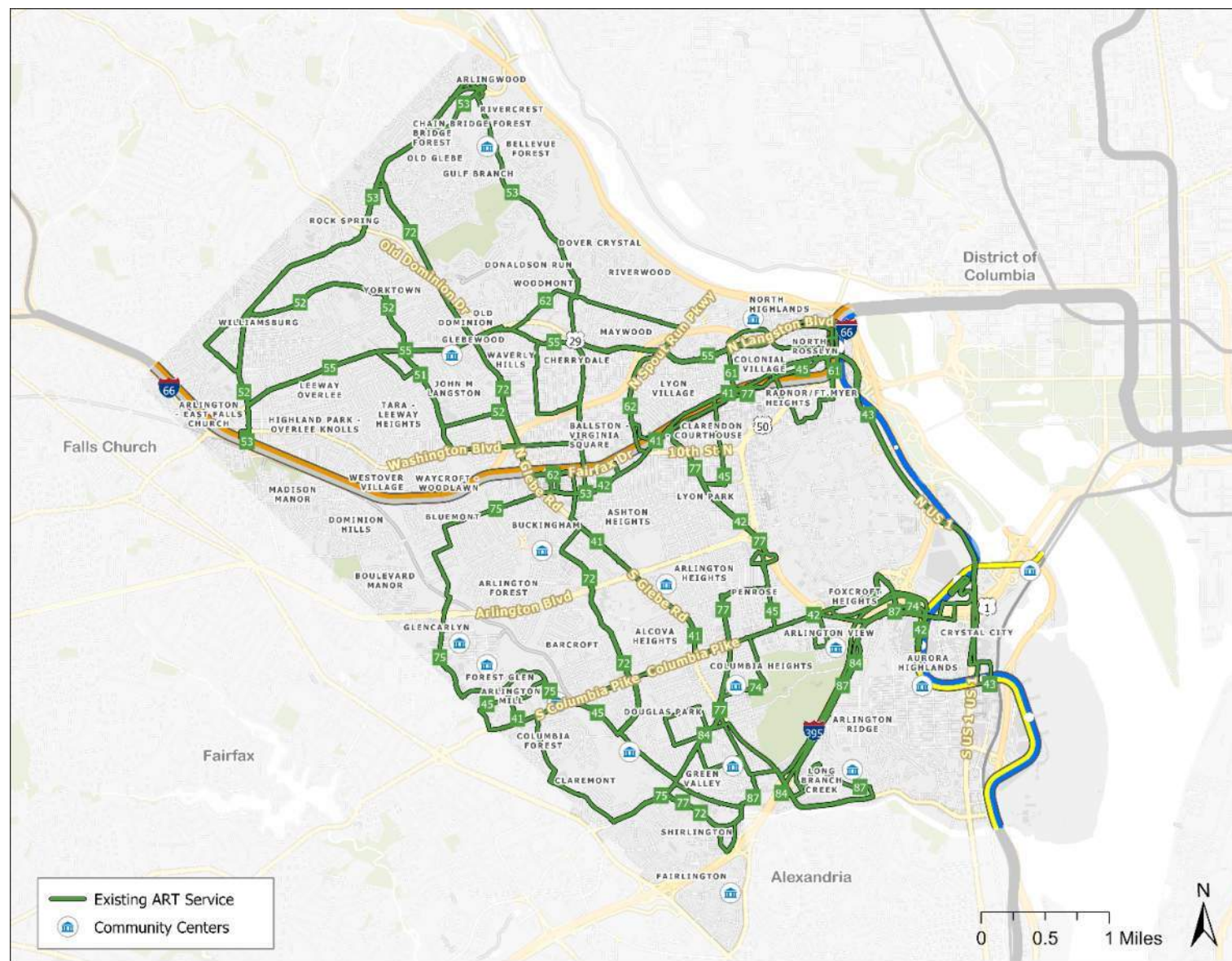
Both the Langston-Brown Community Center and Park and the Barcroft Community Center have situations where they have “Above” average trips provided by ART, but “Below” average trips when considering all transit. There is potential for these locations to be served by transit solutions from farther away destinations; however, since community centers serve a more localized market, this type of service may not be warranted.

TABLE 18 | TRANSIT TRIPS TO COMMUNITY CENTERS

Community Centers	Total Bus Trips	Relation to Average	ART Trips	Relation to Average
Arlington Mill Community Center	1,673	Above	659	Above
Fairlington Community Center	1,004	Above	0	Below
Thomas Jefferson Community Center	945	Above	388	Above
Walter Reed Community Center	855	Above	298	Above
Gunston Community Center	796	Above	192	Above
Aurora Hills Community Center	602	Above	0	Below
Charles Drew Community Center	581	Above	24	Below
Langston-Brown Community Center and Park	578	Below	379	Above
Lubber Run Community Center	461	Below	59	Below
Carlin Hall Community Center	383	Below	65	Below
Barcroft Community Center	349	Below	265	Above
Gulf Branch Nature Center	51	Below	51	Below
Dawson Terrace Community Center	45	Below	32	Below
Carver Center	16	Below	16	Below
Long Branch Aquatic & Recreation Center	0	Below	0	Below
<b>Total Trips</b>	<b>8,339</b>		<b>2,428</b>	
<b>Average Trips per Community Center</b>	<b>555</b>		<b>162</b>	



FIGURE 39 | COMMUNITY CENTERS IN ARLINGTON COUNTY





### Independent and Assisted Living Facilities

The Arlington County Department of Human Services (DHS) provides independent and assisted living facilities as part of their Aging & Disability programs. Independent living is a housing arrangement designed for older adults, generally at least age 55 and over. Assisted living residences are non-medical residential settings that coordinate or provide personal and health care services and 24-hour supervision for four or more individuals. According to the Transit Oriented Propensity measures used in this evaluation, these facilities should be evaluated to ensure that the needs of residents are being met and that no new gaps are created in the service recommendation process.

Independent Living Facilities	Assisted Living Facilities
The Carlin - 4300 N. Carlin Springs Rd.	Culpepper Garden - 4439 N. Pershing Drive
Claridge House - 1500 S. Fern St.	Brookdale Arlington - 3821 Wilson Boulevard
Culpepper Garden - 4435 N. Pershing Drive	The Jefferson (CCRC) - 900 N. Taylor Street
Hunter's Park - 2021 N. Nelson St.	Mary Marshall Residence - 2000 S. 5th Street
The Jefferson (CCRC) - 900 N. Taylor Street	South Irving Street Group Home - 1212 S Irving St
Sunrise at Bluemont Park - 5900 Wilson Blvd.	Sunrise at Bluemont Park - 5920 Wilson Blvd.
Woodland Hill - 610 S. Carlin Springs Rd.	Sunrise of Arlington - 2000 North Glebe Road

### Final Results

These three analyses are reviewed in tandem to assess potential market and travel gaps that the project team should consider when making service recommendations:

- the **Travel Patterns Gaps Analysis**, which compared the relative volume of person trips versus transit trips between clusters within Arlington County,
- the **Supply vs. Demand Gaps Analysis**, which used several demographic and economic variables as a proxy for transit demand, compared against the number of transit trips provided at the block group level, and
- the **Specific Destinations Gaps Analysis**, which reviewed key destinations classes and their transit level of service compared to their peers.

Each analysis provided specific areas of Arlington County for the project team to provide extra consideration towards when reviewing existing routes and preparing service recommendations; if an area is repeated across multiple analyses, it should be prioritized as a gap to address. **Table 19** provides a sample comparison of these results (but is not a comprehensive list of all areas identified in the analysis) – in this example, it becomes clear that Crystal City is a clearly identified gap across all three analyses, as are parts of NE Arlington II, S Arlington II, and Virginia Hospital Center.





TABLE 19 | SAMPLE COMPARISON OF RESULTS FROM SYSTEMWIDE GAPS ANALYSIS

Travel Patterns Gaps Analysis	Supply vs. Demand Analysis (larger Cluster in Parentheses)	Specific Destination Analysis
Crystal City	Crystal City	Crystal City
NE Arlington II	Waverly Hills (NE Arlington II)	Marymount University (NE Arlington II)
NW Arlington II		
WC Arlington	Buckingham (EC Arlington, WC Arlington)	
NE Arlington I		
S Arlington I	Green Valley (S Arlington I)	
Bailey's Crossroads-Western Gateway	Arlington Mill (Bailey's Crossroads-Western Gateway)	
S Arlington II	Long Branch Creek (S Arlington II)	Charles Drew Community Center (S Arlington II)
	Arlington Ridge (S Arlington II)	Aurora Hills Community Center (S Arlington II)
Columbia Pike Town Center		
Virginia Hospital Center		Virginia Hospital Center
		Langston-Brown Community Center and Park (Virginia Hospital Center)
Pentagon City		
		City of Falls Church
		Clarendon
		Virginia Square
		Shirlington
		Rosslyn
		George Mason University (Ballston)

## 2.3. Performance Evaluation

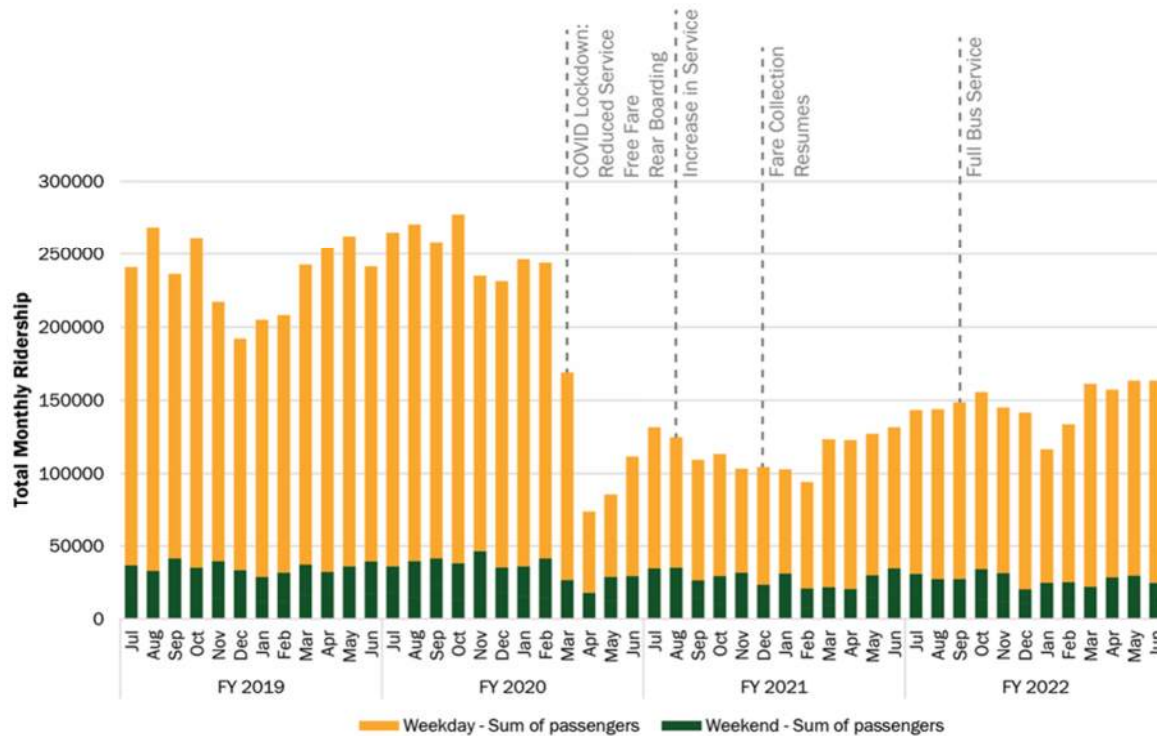
### 2.3.1. Performance Evaluation

Detailed route performance profiles are included in **Appendix B**

#### Fixed-Route Performance

ART monthly ridership trends from FY 19 through FY 22 are depicted in **Figure 40**. When the COVID-19 pandemic caused ART to reduce service in mid-March 2020, ridership declined significantly and reached a four-year minimum of 73,500 riders in April 2020. As COVID cases increased month-over-month, ridership also tended to slump, especially when Arlington reported a pandemic peak of new cases in January 2022.

FIGURE 40 | ART MONTHLY RIDERSHIP TRENDS BY DAY-TYPE (FY19 - FY22)



**Figure 41** shows that while ART service levels have recovered substantially since the onset of the pandemic (with total vehicle trips, revenue hours, and revenue miles shown as a percentage of their four-year maximum), ridership has not yet exceeded 60 percent of its four-year maximum. As a result, efficiency metrics normalized by ridership (**Figure 42**) have suffered, with passengers per revenue mile, passengers per revenue hour, and passengers per trip barely exceeding 50% of their four-year highs.



## Performance Evaluation

FIGURE 41 | ART WEEKDAY PERFORMANCE INDICATOR TRENDS BY MONTH (FY19 - FY22)

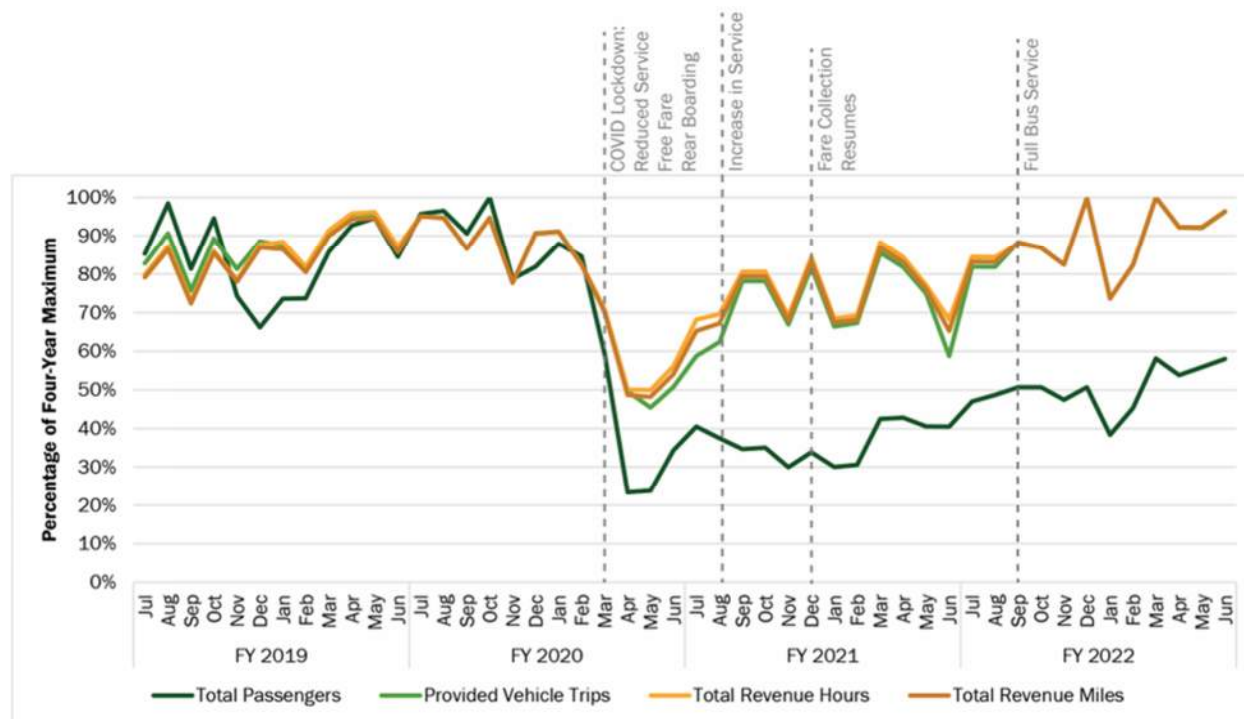
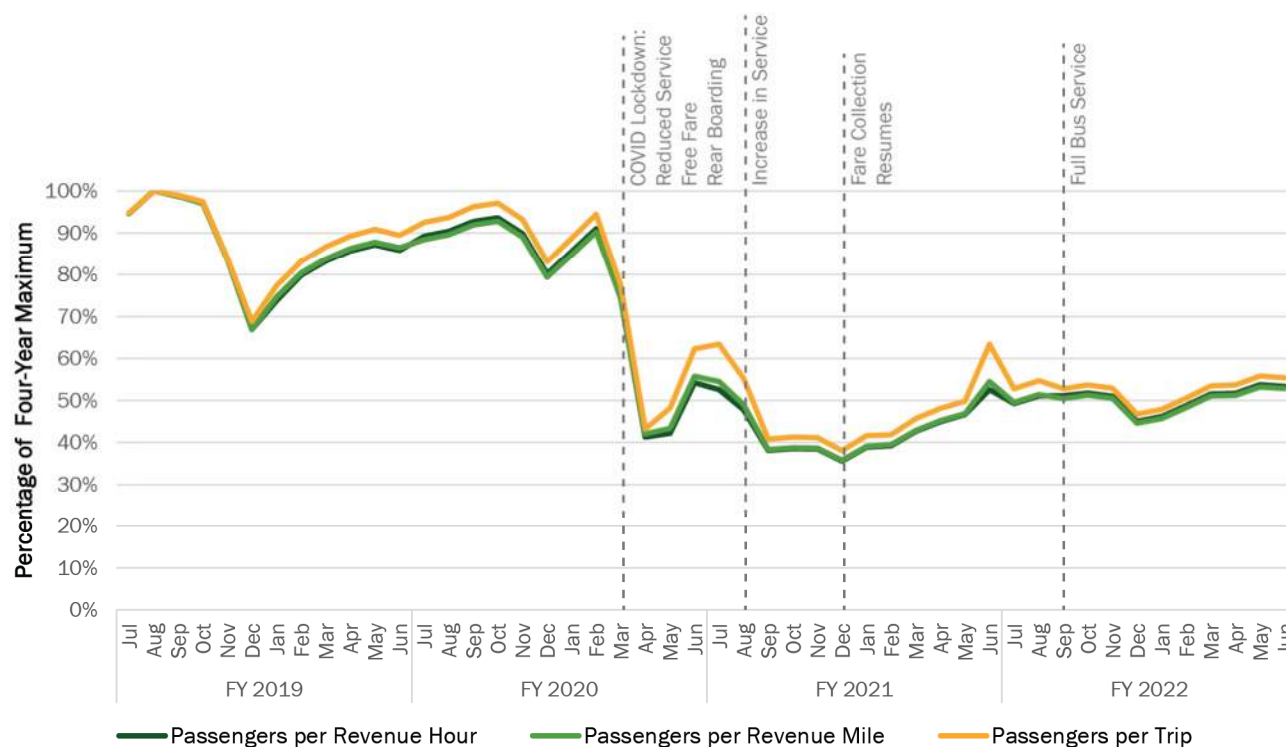


FIGURE 42 | ART PERFORMANCE METRIC TRENDS BY MONTH (FY19 - FY22)





## Ridership Performance

While these trends are helpful for tracking ART's performance throughout the pandemic, a more granular accounting of individual route performance in FY 2022 can illuminate operational performance issues and successes suppressed by system-wide trends. **Table 20** shows weekday route-level ridership performance metrics, including passengers per mile, passengers per hour, and total passenger miles in FY 2022. **Table 21** and **Table 22** show Saturday and Sunday ridership performance metrics, respectively. Across all days of service, Primary Route 41 serves the most riders per revenue mile and revenue hour.

TABLE 20 | ANNUAL WEEKDAY RIDERSHIP PERFORMANCE METRICS, FY 2022

Route	Passengers per Revenue Mile	Passengers per Revenue Hour	Total Passenger Miles	Months Excluded
41	2.24	20.40	This datapoint is unavailable.	-
55	0.90	9.45		-
<b>Primary Average</b>	<b>1.54</b>	<b>15.04</b>		-
42	1.13	11.10		-
43	0.48	6.20		-
45	1.42	12.65		-
51	1.11	10.00		-
52	0.52	5.78		-
53	0.15	1.79		July, August
55	0.90	9.45		-
61	0.35	2.80		July, August
62	0.14	1.53		July, August
72	0.58	5.63		-
74	0.11	2.44		July, August
75	0.83	8.11		-
77	0.97	9.65		-
84	0.20	2.96		-
87	0.64	5.57		-
<b>Secondary Average</b>	<b>0.73</b>	<b>7.56</b>		-
<b>Systemwide Average</b>	<b>0.93</b>	<b>9.54</b>		-

TABLE 21 | ANNUAL SATURDAY RIDERSHIP PERFORMANCE METRICS, FY 2022

Route	Passengers per Revenue Mile	Passengers per Revenue Hour
41	2.15	17.75
42	1.02	10.75
45	1.18	10.46
51	0.85	7.69
55	0.94	9.24
77	0.68	7.71
87	0.47	4.63
<b>Systemwide Average</b>	<b>1.16</b>	<b>11.19</b>





TABLE 22 | ANNUAL SUNDAY RIDERSHIP PERFORMANCE METRICS, FY 2022

Route	Passengers per Revenue Mile	Passengers per Revenue Hour
41	1.84	17.95
42	0.96	10.17
45	1.05	9.31
51	0.65	5.86
55	0.84	9.24
87	0.46	4.53
<b>Systemwide Average</b>	<b>1.17</b>	<b>11.47</b>

## Operating Cost Efficiency

Another set of performance metrics to evaluate ART's fixed-route bus service is cost efficiency, including cost per revenue trip, cost per revenue hour, and farebox recovery. Table 23, Table 24, and Table 25 show these metrics for weekday, Saturday, and Sunday service, respectively.

TABLE 23 | ANNUAL WEEKDAY COST EFFICIENCY METRICS, FY 2022

Route	Cost per Revenue Trip	Cost per Revenue Mile	Farebox Recovery	Months Excluded
41	\$143.31	\$13.03	19.92%	-
55	\$124.56	\$11.29	9.23%	-
42	\$137.39	\$12.01	10.84%	-
43	\$79.36	\$9.23	6.05%	-
45	\$177.66	\$13.34	12.35%	-
51	\$59.22	\$13.16	9.77%	-
52	\$118.83	\$10.70	5.64%	-
53	\$140.66	\$9.63	1.75%	July, August
55	\$124.56	\$11.29	9.23%	-
61	\$48.21	\$14.88	2.74%	July, August
62	\$118.44	\$10.69	1.49%	July, August
72	\$177.66	\$12.25	5.49%	-
74	\$59.22	\$5.19	2.38%	July, August
75	\$168.18	\$12.05	7.92%	-
77	\$129.10	\$11.93	9.42%	-
84	\$71.06	\$7.94	2.89%	-
87	\$102.75	\$13.56	5.44%	-
<b>Systemwide Average</b>	<b>\$118.32</b>	<b>\$11.58</b>	<b>9.32%</b>	-



TABLE 24 | ANNUAL SATURDAY COST EFFICIENCY METRICS, FY 2022

Route	Cost per Revenue Trip	Cost per Revenue Mile	Farebox Recovery
41	\$157.53	\$14.32	17.33%
42	\$118.44	\$11.23	10.49%
45	\$177.66	\$13.34	10.21%
51	\$59.22	\$13.16	7.51%
55	\$118.44	\$10.74	9.02%
77	\$118.44	\$10.48	7.53%
87	\$118.44	\$12.07	4.52%
<b>Systemwide Average</b>	<b>\$126.21</b>	<b>\$12.30</b>	<b>10.92%</b>

TABLE 25 | ANNUAL SUNDAY COST EFFICIENCY METRICS, FY 2022

Route	Cost per Revenue Trip	Cost per Revenue Mile	Farebox Recovery
41	\$133.84	\$12.17	17.53%
42	\$118.44	\$11.23	9.93%
45	\$177.66	\$13.34	9.09%
51	\$59.22	\$13.16	5.72%
55	\$118.44	\$10.74	9.03%
87	\$118.44	\$12.07	4.42%
<b>Systemwide Average</b>	<b>\$123.25</b>	<b>\$12.09</b>	<b>11.20%</b>

## System Accessibility

System accessibility is a key measure by which to evaluate the performance of ART fixed-route bus coverage. Arlington defines jobs and residents as transit-accessible if an ART or WMATA stop is within one-quarter mile.<sup>8</sup> As shown in **Table 26**, over 90% of jobs and residents are within one-quarter mile of transit. Street and sidewalk networks may impact real-world transit accessibility and overstate the accessibility estimated here, as some quarter mile journeys may not be possible.

TABLE 26 | RESIDENTS AND JOBS WITHIN ONE QUARTER MILE OF ART AND WMATA TRANSIT STOPS

Measure	Total within Quarter Mile of Transit	Arlington County Total	Percentage Accessible by Transit
Transit-Accessible Population	221,301	233,464	94.79%
Transit-Accessible Jobs	151,705	163,730	92.67%

## Safety

Data on safety, accidents and injuries is available through Arlington County National Transit Database (NTD) reporting (<https://www.transit.dot.gov/ntd>).

## Fleet

ART's vehicle fleet policies and replacement schedule are detailed in Chapter 4, Sections 4.1.2 and 4.2.1

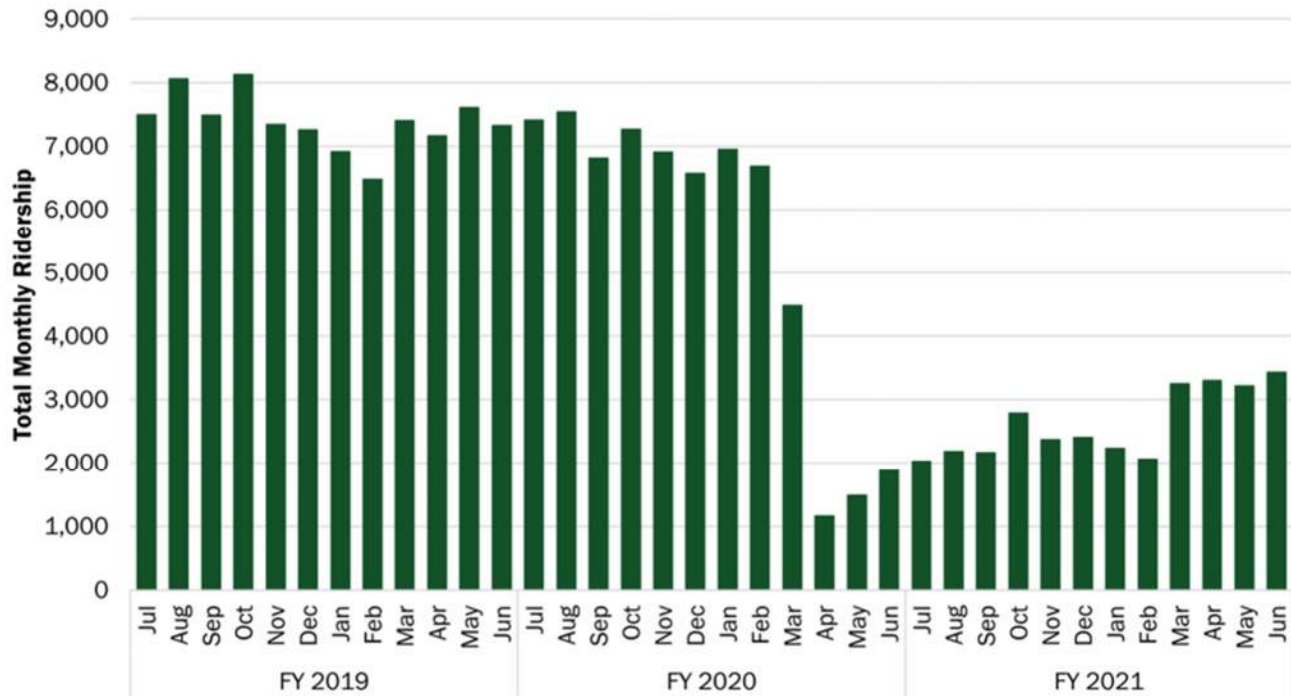
<sup>8</sup> Population and jobs are estimated using 2021 American Community Survey five-year estimates and the 2021 Longitudinal Employer-Household Dynamics, respectively. Jobs and population estimates are assigned to census block groups and interpolated to quarter-mile buffers of all ART and WMATA stops.



### Paratransit Performance

Arlington's Specialized Transit for Arlington Residents (STAR) paratransit services served 31,408 passengers in FY 2021, a 52 percent decrease from FY 2020, which saw a decrease from the prior FY 2019. As shown in **Figure 43**, ridership fell significantly at the beginning of the COVID-19 pandemic, and slowly gained ground over the next several months to a pandemic peak of roughly 3,400 monthly riders in June 2021. As cases rose more rapidly in the fall and winter of 2020, ridership held steady before a small decrease until cases declined again during the spring of 2021.

FIGURE 43 | STAR MONTHLY RIDERSHIP (FY19 - FY21)



Other indicators of STAR's performance show similar declines in April 2020. **Figure 44** shows performance indicators across the past three fiscal years as a percentage of their three-year maximum. Indicators improved relative to their three-year peaks slowly throughout fiscal year 2021, and cost recovery increased to a level above that of pre-pandemic FY 2020. As expected, indicators trend roughly together and cost recovery is at its highest when more passengers are served with fewer revenue hours and revenue miles.

**Figure 45** shows STAR complaints per 1,000 passengers and per 1,000 revenue miles by month, accounting for calls into the STAR call center as well as STAR contractors Red Top and Diamond. April 2020 stands out as the month with the most complaints per passenger, though ridership in this month is also dramatically reduced at the onset of the pandemic and raw complaint numbers are similar to prior months.

Paratransit safety data (including accidents and injuries) was not available during the development of this TSP.



FIGURE 44 | STAR PERFORMANCE INDICATOR TRENDS BY MONTH (FY19 - FY21)

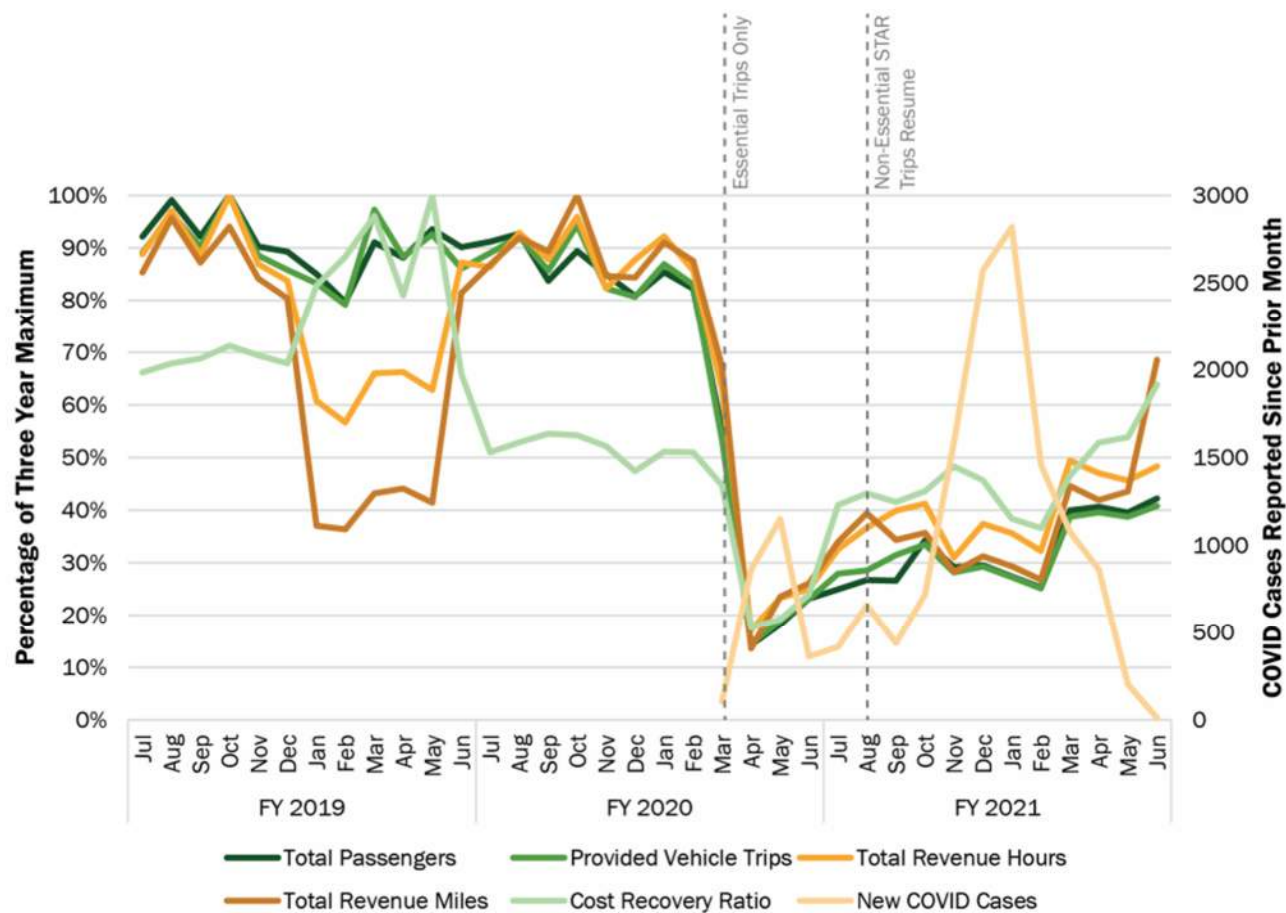
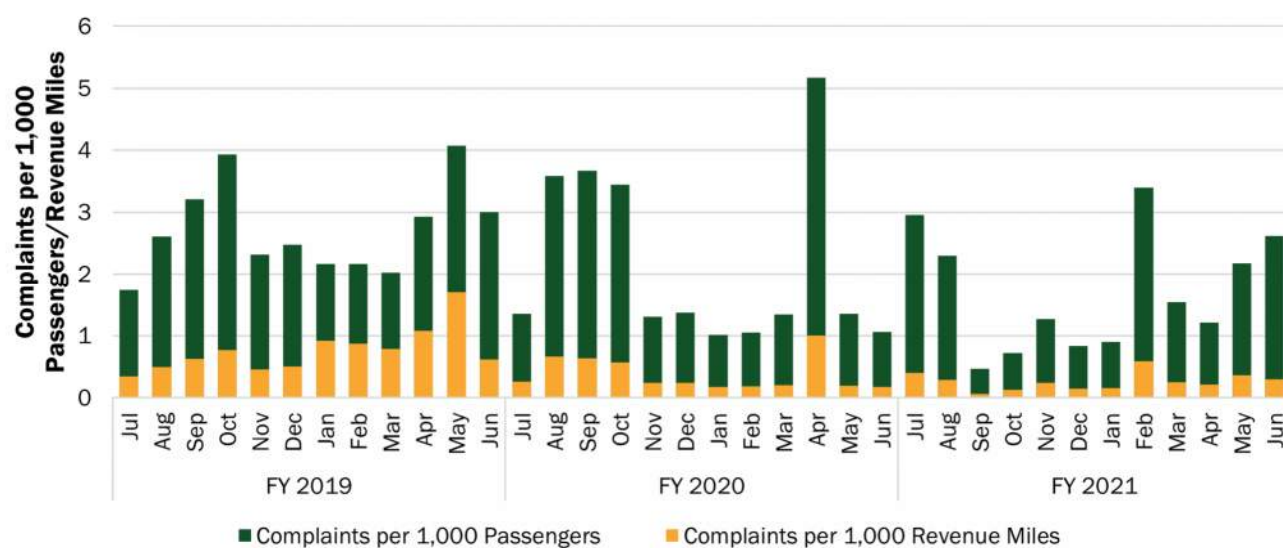


FIGURE 45 | STAR COMPLAINTS PER 1,000 PASSENGERS AND PER 1,000 REVENUE MILES (FY19 - FY21)







### 2.3.2. Performance Based Opportunities for Improvement

Ridership on ART routes has increased from the start of fiscal year 2022 (FY2022), even after experiencing a slump during the months of November to February. In order to provide the most attractive and efficient service to the public, ART needs to consider how routes are currently performing in relation to their established service and performance standards and ways upon which they can be improved. Table 4, also referenced earlier in this chapter outlines current standards. Vehicle load, albeit temporarily impacted by COVID-19, is an important consideration for how the service is being used, whether underutilized or overcrowded. Opportunities for improvement lie in the routes that serve areas of high ridership with low frequency and a high vehicle load factor or areas with low ridership that have high frequency service.



## 2.4. Operating and Network Efficiency Evaluation

### 2.4.1. Efficiency Evaluation

ART ridership from 2019 to 2020 generally trended up until early 2020 when the COVID-19 pandemic began and ridership sharply declined. This affected measuring efficiency statistics as shown in **Table 27**. Ridership numbers recovered until seeing a slight dip when fares returned and have since continued to rise. Ridership still remains at or below pre-pandemic levels and consideration of system performance and efficiency will enable ART to most effectively and efficiently provide service to the County. Routes 41, 42, and 45 remain ART's highest performing routes when considering passengers per revenue hour, while routes 62, 64, and 75 are the lowest performing routes. ART routes 62, 64, and 75 have a very high cost per revenue trip and revenue mile while also seeing very little comparative farebox revenue recovery.

#### On-Time Performance

ART defines buses as on-time when they depart no later than six minutes past the scheduled time and do not depart any earlier than the scheduled time. Table 27 shows on-time performance by route across ART's fixed-route bus system in from FY19 through FY22. The agency strives to provide service with an on-time performance rate of 95% or higher.

TABLE 27 | FY 19-22 FIXED-ROUTE ON-TIME PERFORMANCE

Route	OTP	Target Met:
41	84.8%	No
42	87.3%	No
43	96.5%	Yes
45	83.7%	No
51	94.3%	No
52	80.8%	No
53	86.0%	No
55	89.7%	No
61	90.0%	No
62	91.1%	No
72	80.4%	No
74	80.2%	No
75	84.4%	No
77	87.8%	No
84	73.5%	No
87	73.4%	No
Average OTP (Systemwide)	85.2%	95%

#### Speeds

Fixed-route speed data was not available for the development of this TSP.



## 2.4.2. Efficiency Based Opportunities for Improvement

TABLE 28 | ARLINGTON TRANSIT SERVICE DESIGN STANDARDS

Category and Subcategories			Standard
Vehicle Load Factor	Peak Periods	Express	100% of seated capacity
		Local	125% of seated capacity
	Off-Peak Periods	All Routes	100% of seated capacity
Frequency (minimum)	Premium Transit Network		10-minute peak headways and 12-minute off-peak headways
	Primary Transit Network		15-minute headways
	Secondary Transit Network		30-minute peak headways and either 30 minute off-peak headways or availability of Flex service
Span of Service (minimum)	Premium Transit Network		18-hours a day, 7 days a week
	Primary Transit Network		18 hours a day, 7 days a week
	Secondary Transit Network		7 hours a day, 5 days a week
On-Time Performance			95% <i>(To be on-time, a bus may not depart early and cannot depart more than six minutes late.)</i>
Service Availability			90% of residents live within ¼-mile of transit
Bus Stop Spacing	Limited-Stop Service		1,760-2,640 feet
	Premium Transit Network		1,320-2,649 feet
	Primary Transit Network		1,320 feet
	Secondary Transit Network		660-1,320 feet
Average Mean Distance Between Failure			11,000 miles

ART will have the greatest opportunity to provide effective service in the future by leaning heavily on its best performing routes that serve the highest number of riders for farebox recovery. Routes 74 and 75 serve neighborhoods that have higher concentrations of equity populations previously identified in this report that may rely more on frequent local bus service. In cases such as this where routes provide an important service but lack efficiency, ART could consider revisions to scheduling to address when the highest number of trips are happening throughout the day or adjustments to routes to be shorter, less circuitous, and more direct. ART could also consider fare pricing on certain routes that serve equity populations but also have low farebox recovery as an opportunity to provide income-driven fares or fare free service to those in greatest need.



# 2.5. Opportunities to Collaborate with Other Agencies and Stakeholders

## 2.5.1. Collaboration Analysis

This section highlights partnership opportunities beyond the ART service area, including collaboration among regional public transit services, coordination with connecting public transit options, and other activities that allow passengers to extend their trips outside of Arlington County.

### Regional Public Transit Services

While Arlington is a large self-sustaining urban community, it is also part of the greater Washington D.C. metropolitan area. The region has over five million residents, workers, and visitors. Many of Arlington's residents require access to communities outside of Arlington and throughout the region. Conversely, workers and visitors throughout the region travel to Arlington to access jobs, retail, education, and recreation destinations. Therefore, it is important that Arlington not only ensures that it works to support its own transportation goals and objectives but also does its part to support those of the greater D.C. region to continue to support both the local and regional economy and quality of life.

#### WMATA

As part of the Washington D.C. metropolitan area, Arlington relies heavily on WMATA to provide regional travel between various localities across Northern Virginia, the District, and suburban Maryland. As ART provides feeder service in support of the regional rail and bus network, it is vital that it is closely coordinated with WMATA services to provide the highest level of mobility and access to Arlington residents, workers, and visitors.

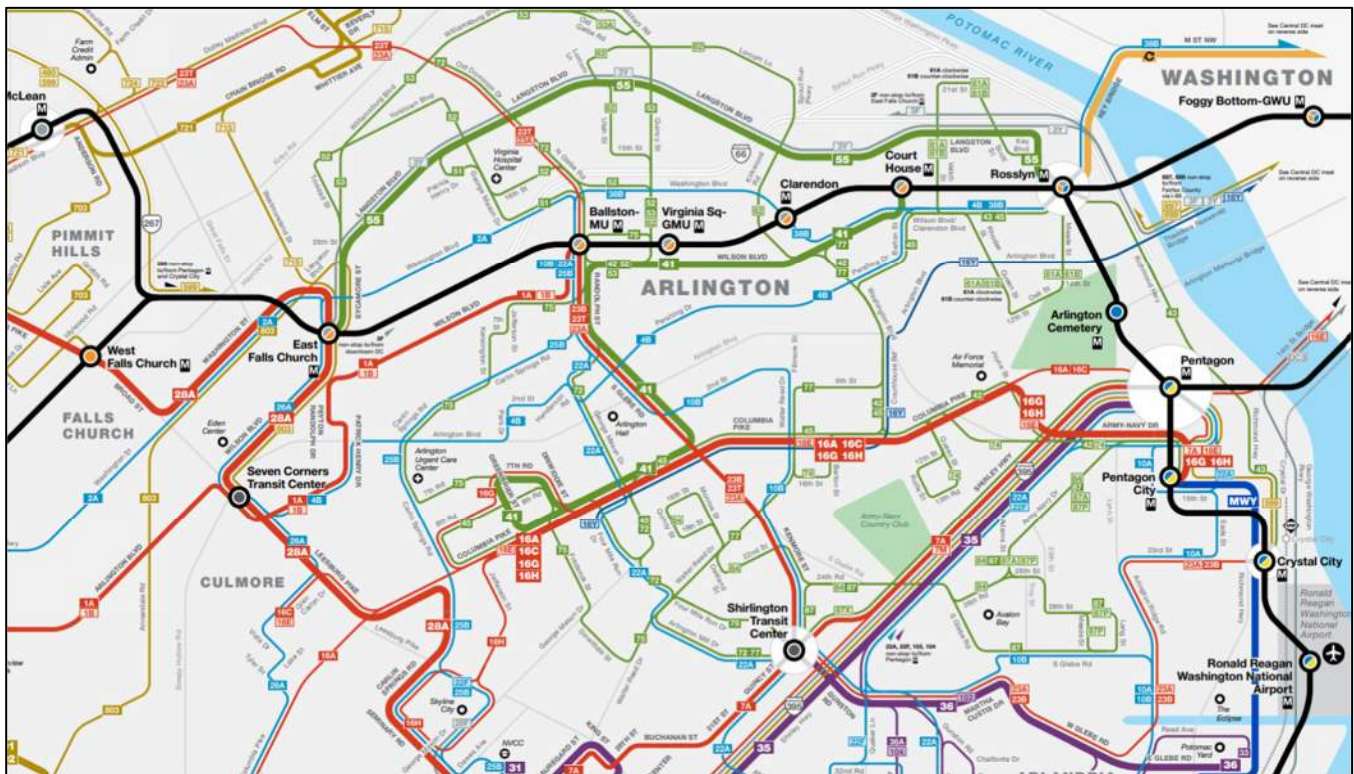


## METROBUS

Metrobus began operating in Arlington County in 1973 and was the primary fixed-route transit service provider in Arlington prior to the inauguration of ART in 1998. Metrobus primarily operates line-haul fixed-route local and express service providing connections to major regional destinations. Currently, there are 37 Metrobus routes operating in Arlington, excluding the Metroway described below. Several Metrobus routes follow similar routings but differ slightly in alignment and/or span of service. Of these routes, 15 serve weekday peak periods only, and an additional two operate all day but are limited to weekdays.

Weekday and Saturday service operates between 5:00 AM and 12:00 AM, and Sundays between 6:00 AM and 11:00 PM. Some routes enter service as early as 4:00 AM and run as late as 3:00 AM. Weekday service frequencies range between 10 and 60 minutes, while weekend service operates at frequencies between 12 and 60 minutes. More information on Metrobus service is provided in the Current Transit Services section. The Metrobus system is shown in **Figure 46**.

**FIGURE 46 | METROBUS SYSTEM (NORTHERN VIRGINIA)<sup>9</sup>**



<sup>9</sup> This map shows WMATA's 16G and 16H service, which have since been discontinued and replaced with WMATA's new 16M service.

## METROWAY

The WMATA system also includes Metroway, a Bus Rapid Transit (BRT) system known as the Potomac Yard Line. It operates between Pentagon City in Arlington and Braddock Road in Alexandria. Metroway operates partially on a bus-only guideway. Service began on August 14, 2014 and replaced the former Metrobus 95 route. Service generally runs from 6:00 AM to 11:00 PM Monday to Saturday, and from 7:00 AM to 11:00 PM on Sunday. Service frequencies generally are 12 or 20 minutes on weekdays, and 20 minutes on weekends. The Metroway system is shown in **Figure 47**.

**FIGURE 47 | METROWAY SYSTEM**



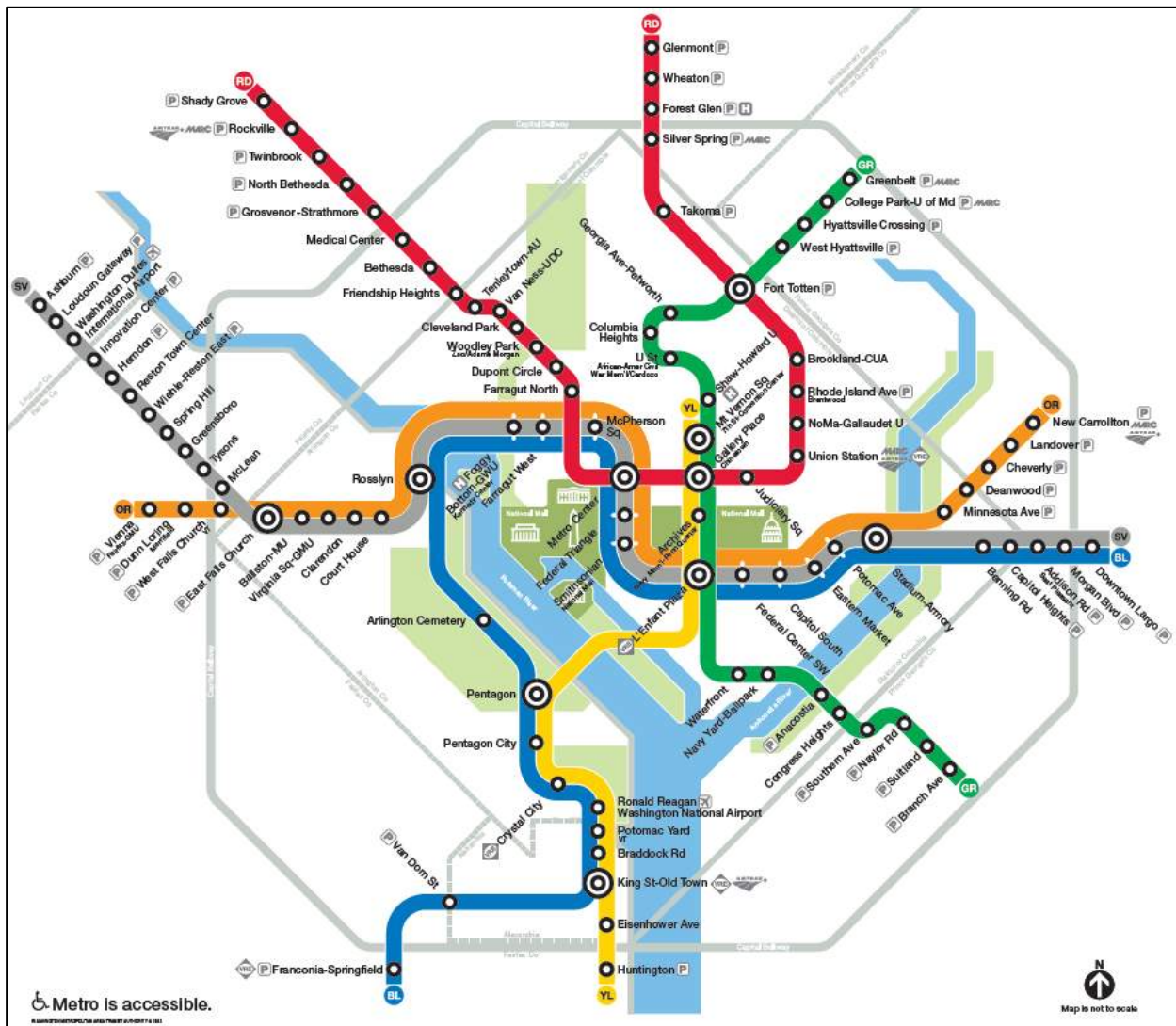
## METRORAIL

WMATA began Metrorail service in Arlington in July 1977 with the opening of the Blue Line. Today, Metrorail operates four heavy rail routes through Arlington along two trunk line corridors comprising 12 miles of track and 11 stations in (**Figure 48**). The Metrorail routes and stations in Arlington include:

- The Orange and Silver Lines serving stations at Rosslyn, Courthouse, Clarendon, Virginia Square-George Mason University, Ballston-Marymount University and East Falls Church. The Silver Line Phase II extension began service in late 2022 providing Arlington with direct rail access to Washington Dulles International Airport.
- The Blue Line serving stations at Rosslyn, Arlington Cemetery, Pentagon, Pentagon City, Crystal City and Ronald Reagan Washington National Airport.
- The Yellow Line service stations at Pentagon, Pentagon City, Crystal City and Ronald Reagan Washington National Airport.

Metrorail trains operate Monday through Thursday from 5:00 AM until midnight, Friday from 5:00 AM until 1:00 AM, Saturday from 7:00 AM until 1:00 AM, and Sunday from 7:00 AM until midnight.

FIGURE 48 | METRORAIL SYSTEM





### **METROACCESS**

Per 49 CFR Part 37 of the Federal Code, the Americans with Disabilities Act requires transit agencies to provide paratransit services to people with qualifying disabilities who are unable to use fixed-route bus or rail service. To meet this requirement WMATA provides MetroAccess service to complement the local and regional rail and bus network. To use MetroAccess, riders must meet the criteria specified under ADA and who have been certified as eligible. Eligibility is based on a person's functional limitations, instead of whether they have a disability or because of their age. The service area includes the District of Columbia, Montgomery County, Prince George's County, Arlington County, Fairfax County, and the cities of Alexandria, Fairfax, and Falls Church.

Core hours of MetroAccess operation mirror the core hours of operation of fixed-route services (i.e., Metrorail and Metrobus), which are: on weekdays and Saturdays between 5:00 AM and 12:00 AM, and Sundays between 6:00 AM and 11:00 PM. Some routes start as early as 4:00 AM and operate as late as 3:00 AM. Reservations can be made outside of those hours if fixed-route service is offered at the same time and along the requested route of MetroAccess travel. MetroAccess fares are two-times the fastest, comparable fixed-route fare, with a maximum fare of \$6.50.





### Virginia Railway Express

Virginia Railway Express (VRE) is a commuter rail service connecting the Northern Virginia suburbs along Interstate 95 and Interstate 66 corridors from Fredericksburg and Manassas to Alexandria, Arlington (Crystal City), and L'Enfant Plaza and Union Station in Washington, D.C. VRE began service in June 1992 and is operated as a partnership of the Northern Virginia Transportation Commission (NVTC) and the Potomac and Rappahannock Transportation Commission (PRTC). The VRE system map is shown in **Figure 49**.

FIGURE 49 | VRE SYSTEM



The only VRE station in Arlington is Crystal City Station located on South Crystal Drive, about five miles south of Union Station. The combined headway of both the Fredericksburg and Manassas lines provides Crystal City with 14 northbound trains to Union Station between 6:00 AM and 9:00 AM, and 15 southbound trains stopping at Crystal City between 1:00 PM and 7:30 PM. Connections are possible to the Metrorail Crystal City Station (Yellow and Blue lines), Metroway Potomac Line, Metrobus (23A, 23B), and ART (Route 43). VRE is currently planning improvements to Crystal City Station that include the conversion to an island platform station within the existing rail right-of-way.

## Connecting Public Transit Services

Similar to Arlington, adjacent localities operate their own fixed route and paratransit services for their residents, workers, and visitors. However, to better support regional transportation goals and objectives, neighboring counties within the D.C. metropolitan area should continue to coordinate to provide connectivity to their adjacent jurisdictions via fixed route and paratransit services.

Arlington County coordinates with adjacent public transportation agencies by providing connections to fixed route local and express bus service, mainly at Arlington's Metrorail stations. Examples of connecting transit services include Alexandria's DASH bus system, the District Department of Transportation's (DDOT) DC Circulator bus service, the Fairfax Connector bus system, Loudoun County Transit, and OmniRide, a weekday express bus service operated by the Potomac and Rappahannock Transportation Commission (PRTC).

### Alexandria Transit Company (DASH)

DASH provides bus service primarily within the city limits of Alexandria and is funded by the city government. The system has 11 routes, a few of which terminate at major transfer points in Arlington County. Route 36A/B terminates at the Shirlington Bus Station while Routes 35, 103, and 104 terminate at the Pentagon Metro Station. The DASH system is displayed in **Figure 50**.

**FIGURE 50 | DASH SYSTEM**

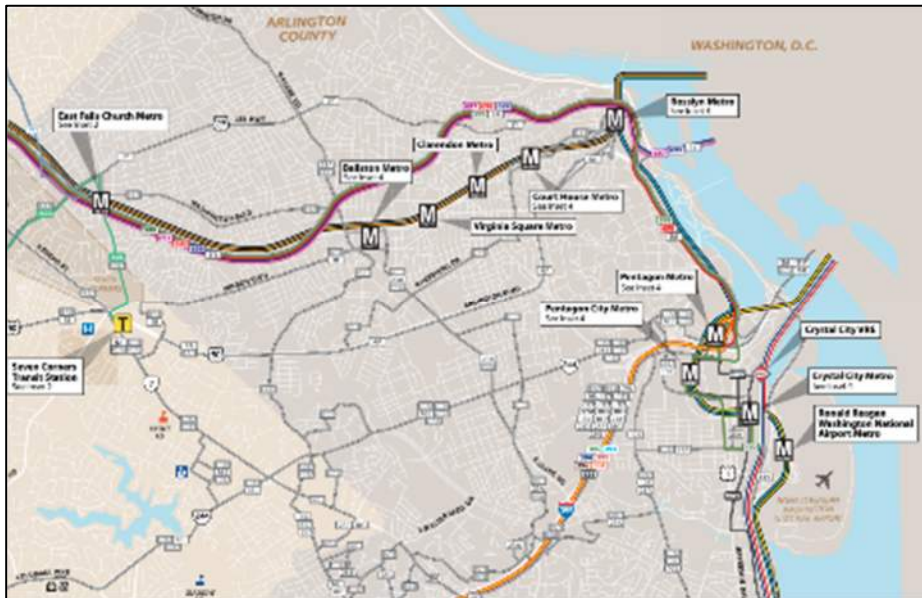


## Fairfax Connector

The Fairfax Connector, operated by Fairfax County, is the largest local bus system in Northern Virginia, and has been in service since 1985. The system has 91 routes, a few which provide service into and/or through Arlington. Route 803 provides service that connects with the East Falls Church Metrorail Station, while the 599 operates between Reston and Arlington, making stops at Pentagon, Pentagon City, and Crystal City Metrorail Stations. Other routes from Fairfax County that terminate at the Pentagon Metrorail Station include the 306, 393, 394, 395, 396, 834, and 835. Base fares are \$2.00 on local routes and \$4.25 on most express routes.

The Fairfax Connector routes serving Arlington are displayed in **Figure 51**.

**FIGURE 51 | FAIRFAX CONNECTOR**





## Loudoun County

Loudoun County provides several transit services within its county limits, including Local Bus, Commuter Bus, Metro Connection Buses, and Paratransit Bus Service. Several of its commuter routes stop in Arlington at Rosslyn, Crystal City, and the Pentagon. The routes that serve Arlington are Routes 282, 284, and 482 in the morning, and Routes 682, 684, and 882 in the afternoon. The Loudoun County bus routes that operate in Arlington are displayed in **Figure 52**.

FIGURE 52 | LOUDON COUNTY TRANSIT SYSTEM





## OmniRide (PRTC)

OmniRide is the operating name for the mobility services offered by the Potomac and Rappahannock Transportation Commission (PRTC). It has been operating service since 1991. As part of its overall transit service area, several of its express routes into Washington D.C. pass through Ballston, Rosslyn, Crystal City, and the Pentagon. The main express services within the County are the Dale City Express [DC-E] (D-100, D-200, D-300, D-400), the Haymarket Express [HY-E] (622), and the Lake Ridge Express [LR-E] (L-100, L-200). Additionally, the Manassas [MN-E] (601/602), Gainesville Express [GV-E] (611/612), and Montclair Express [MC-E] (MC-100, MC-200) are regional services that stop at Pentagon Metrorail station. Local fares are free within Prince William County, while other rides to the DC and Arlington County areas are \$9.00 with a One-Way SmarTrip card (cash fares are no longer accepted). OmniRide routes with service in Arlington are displayed in **Figure 53**.

FIGURE 53 | OMNIRIDE



## DC Circulator (DDOT)

The DC Circulator is a service operated by the District Department of Transportation (DDOT). The service has been in existence since 2005 and provides nearly 1.5 million trips annually. There are six routes within the system, with the Dupont Circle - Rosslyn route being the sole route that enters Arlington. Service is provided Monday - Thursday 6:00 AM - Midnight, Friday 6:00 AM to 3:00 AM, Saturday 7:00 AM to 3:00 AM, and Sunday 7:00 AM - Midnight. Regular fares are \$1.00 with free transfers from most transit services. The DC Circulator Dupont Circle - Rosslyn route is displayed in **Figure 54**.

**FIGURE 54 | DC CIRCULATOR**



## Additional Coordination and Collaboration

Arlington County actively coordinates planning and provision of transit service with providers such as WMATA (Metrobus, Metrorail and MetroAccess) that directly operates service within the County and is in regular communication with providers in adjacent jurisdictions. Arlington has been an active participant in the WMATA Better Bus Network Redesign process and many of the recommendations in this TSP have been developed in coordination with or in response to the findings and recommendations of that parallel planning effort. It is Arlington's intention to continue this pattern of coordination and to further ART's mission in the future to provide connecting and feeder service to and from Metrorail stations to ensure that all residents have convenient access to the regional transit system.

## 2.5.2. Collaboration Based Opportunities for Improvement

Arlington Transit continually collaborates with partner agencies to ensure the efficient operation of services within the county. This includes the coordination of schedules to provide timed transfers, service planning to ensure that corridor-level service standards are met without duplication of service, negotiating the efficient allocation of curb space and transit center bay space, strengthening partnerships and availability of the SmartTrip fare media and discount fare structure. Arlington is committed to continuing to build upon these partnerships to ensure the health and reliability of the local and regional transit system. As population and employment density continues to grow, historical jurisdictional borders will blur and urban areas will become



more intertwined. As transit use and traffic conditions return to pre-pandemic levels, it will be vital to ensure the close coordination between providers so that the regional transit system operates as a closely integrated network.

An example is the planned implementation of the Route 7 Bus Rapid Transit system in Fairfax County. The Service recommendations for ART Route 45 detailed in this TSP propose a future extension of the route to meet with the future BRT corridor to expand access and connectivity for transit riders in each county. Detailed planning and coordination will be required to ensure that implementation timelines are aligned. Additionally, as WMATA refines and expands its Columbia Pike PikeRide and Route 1 MetroWay services, it will be important for ART to coordinate service planning and provision to maximize interconnectivity and reduce potential duplication of services.

## Chapter 3

# Planned Improvements and Modifications





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## 3.1. Planned Service Improvements

### 3.1.1. Methodology

As mentioned in Chapter 1, the Transit Strategic Plan has eight goals developed based on Arlington Transit's vision, mission, and values that can be divided into three broader themes: Safety, Quality, and Performance; Equity and Sustainability; and Communication and Collaboration. This section provides an overview of how these goals were considered in the development of the service recommendations.

The theme of Safety, Quality, and Performance contains three specific goals: Promoting transit as an attractive transportation option; Maintaining a safe and secure transit environment; and Exercising sound financial management. Many of ART's recommendations address this theme by increasing service – either on high-performing routes that indicate demand for more service (such as Route 41 and Route 45) or on routes that provide important connections that need to be strengthened during non-peak hours, such as Route 72 and 77. Additionally, the redesign of routes in the north by extending certain routes and the consolidating of unproductive ones support the goal of sound financial management.

The theme of Equity and Sustainability includes two specific goals: Deploying infrastructure and services equitably; and, Creating a resilient community through environmentally sustainable transportation. Many of these recommendations represent significant service increases in equity-focused areas, such as Route 85 – it provides an area with significant equity-focused populations in Aurora Highlands with new east-west connections to the rest of Arlington County.

The theme of Communication and Collaboration is comprised of three specific goals: Ensuring accessible communications; Creating a safe and positive workplace; and Proactively collaborating with regional partners. The simplification of patterns and service designations on Route 87 helps meet the goal of achieving accessible communications, while the potential extension of Route 45 to the future VA 7 BRT supports collaboration with regional partners. Additionally, these recommendations were all developed simultaneously with those in WMATA's BetterBus Network Redesign, another example of the TSP supporting the goal of regional coordination.

Recommendation	Safety, Quality, and Performance	Equity and Sustainability	Communication and Collaboration
Route 41	◆	◆	
Route 42	◆		
Route 43	◆		
Route 45	◆	◆	◆
Route 51	◆	◆	
Route 52	◆	◆	
Route 53	◆	◆	



Recommendation	Safety, Quality, and Performance	Equity and Sustainability	Communication and Collaboration
Route 54	◆		
Route 55	◆		◆
Route 61	◆	◆	
Route 62	◆	◆	
Route 72	◆		◆
Route 74	◆	◆	
Route 75	◆	◆	◆
Route 77	◆		◆
Route 84	◆	◆	
Route 85		◆	◆
Route 87	◆		◆

These themes, as well as the results of the market analysis, gaps analysis, and public feedback, provided the guidance and input to the development and refinement of the service recommendations.

### 3.1.2. Service Recommendations – Area Level Summary

This section reviews the proposed service recommendations at the area-level, generally the neighborhoods that make up the North, West-Central, South, and East portions of Arlington County.

- North – neighborhoods north of the Rosslyn Ballston Corridor and the Orange/Silver Lines to East Falls Church
- West – Columbia Pike / Western Gateway Area
- East– Pentagon / Crystal City Area
- South – Shirlington Area

Preliminary recommendations are discussed more broadly as to how the various routes are interrelated with others in their respective service areas and how the analysis considered issues and opportunities at the sub-network level. Detailed route-level information will be presented in the following section.

In particular, the changes proposed for Arlington's North would significantly reorient transit service for six routes to address underperforming areas of the network and better allocate service resources to meet the specific needs of area riders. The focus in the West is enhancing service equity with increased frequencies, while new connections and service patterns in the south and east seek to strengthen connections and service frequencies.

#### North

North Arlington is generally defined as the section of the County roughly north of Interstate 66 and including the Rosslyn-Ballston Corridor. These neighborhoods maintain strong connections to nodes along the Metro corridor, which act as neighborhood centers. The proposed recommendations have the potential to impact but also benefit riders who depend on connections along the Rosslyn-Ballston Corridor and between the residential communities to the north.

The broad area is comprised of numerous communities serviced by seven of ART's existing 16 routes. Route 55 is identified as a Primary Transit Network (PTN) route, operating primarily along Langston Boulevard from Rosslyn to East Falls Church. Currently, the remaining six routes (51, 52, 53, 61, 62, 72) are Secondary Transit Network (STN) routes that serve communities in the north. Each of these routes terminate at either the Rosslyn, East Falls Church, or Ballston-MU Metrorail Stations, with the exception of Route 72, which traverses the entire county south to north between Shirlington Transit Center and the intersection of N Glebe Road and Williamsburg Boulevard.

*The proposed recommendations for six of these seven routes respond to the identified gaps and adhere to the goals and objectives. Replacing underperforming service while maintaining coverage can be achieved along with more frequent service and enhanced service equity.*

These routes for the most part have underperformed in the system and are among the least productive except for Route 55. Five of these seven routes currently average weekday ridership rankings in the bottom half of the system, of which four are in the bottom half of productivity. Routes 51 and 52 have higher productivity because of funding from Virginia Hospital Center to provide free rides to its employees.

Route 72 is included in the North Arlington discussion as it is the only area along the route where changes were considered. The route, however, provides service through the West-Columbia Pike area and terminates South at Shirlington Transit Center.

## Service Recommendations

FIGURE 1 | NORTH AREA PROPOSED ART SERVICE NETWORK

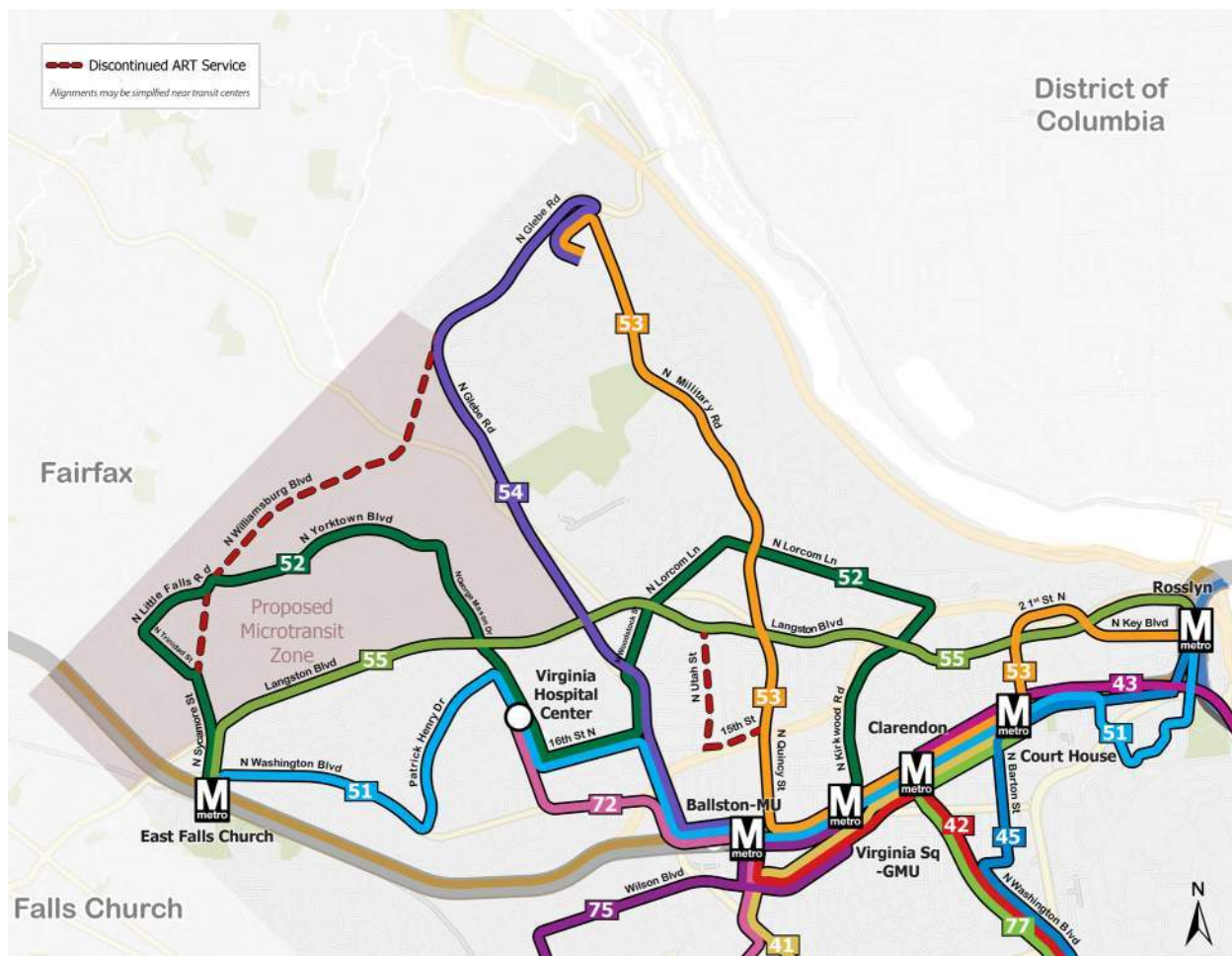






TABLE 1 | EXISTING ART ROUTE PERFORMANCE STATISTICS (NORTH ARLINGTON)

Route	Note	Average Weekday Ridership	Weekday Ridership Ranking (Out of 16)	Productivity Ranking (Out of 16)
<b>51</b>		179	10	4
<b>52</b>		151	11	8
<b>53</b>		33	13	14
<b>54</b>	New	-	-	-
<b>55</b>		740	2	6
<b>61</b>	Discontinue	30	14	13
<b>62</b>	Discontinue	16	15	16
<b>72</b>		284	8	9

Virginia Hospital Center (VHC) is a primary trip attractor in the North, with a high number of trips originating from connections at transit centers and dispersed throughout the neighborhood. Proposed changes on Routes 51, 52, and 53, along with the proposed new Route 54, would provide higher-frequency service to the hospital than is currently provided and would expand connections to transit centers. VHC is also proposed to be one of two on-demand destination zones detailed in the Microtransit/On-Demand Zone discussion below. For these reasons, it is proposed that the VHC be explored as a potential "transit hub" that could function as an anchor for shared travel to and from the hospital.

A Microtransit/On-Demand Zone has been proposed for the most northerly areas of Arlington, namely north of Langston Boulevard and west of North Glebe Road. This zone would allow riders to schedule a short notice, on-demand, door-to-door trip from/to areas in the zone and East Falls Church Metrorail Station or the VHC. The service recommendations only describe where an on-demand zone and program should be considered, with further details to be defined later.

The goal would be to expand this offering if it provides demonstrated value to the community. It is expected that scheduling and service be partially or fully delivered by a Microtransit provider working in partnership with ART. To achieve elements of the goals and objectives, Arlington should pursue innovative technologies for booking, routing, propulsion, and other leading edge Microtransit strategies. It should also be noted that the service recommendations are proposed for implementation prior to the start of any on-demand zone program.

TABLE 2 | NORTH AREA PROPOSED SERVICE RECOMMENDATIONS

NORTH AREA PROPOSED SERVICE RECOMMENDATIONS	
<b>51</b>	Extend Western Terminus to East Falls Church Metro Extend Eastern Terminus to Rosslyn, Shifted from Ballston via Southern portion of Discontinued Route 61 Loop Increase Frequency Resulting from Reassignment of Route 61 Service Hours Segments Eliminated: North Post Office loop (N George Mason Drive, Langston Boulevard, N Harrison Street, and Patrick Henry Drive)
<b>52</b>	Reconfigure East of Virginia Hospital Center to Service Wavery Hills, Lorcom Lane, and N Kirkwood Road to Maintain Service on Discontinued Route 62 Service Discontinued Between VHC and Ballston Metro Increase Frequency Resulting from Reassignment of Route 62 Service Hours Segments Eliminated: Washington Boulevard (N Glebe Road to N Quincy Street) Impacted Areas: Ballston Metro



NORTH AREA PROPOSED SERVICE RECOMMENDATIONS	
<b>53</b>	<p>Shift Western/Northern Terminus from East Falls Church to N Glebe Road and Military Road (Madison Community Center), which It Shares with an Extended Route 72</p> <p>Shift Southern/Eastern Terminus from Ballston to Rosslyn (Service to Ballston Eliminated), via Northern Portion of Discontinued Route 61 Loop</p> <p>Service Discontinued Between East Falls Church and N Glebe Road on N Sycamore Street and Williamsburg Boulevard</p> <p>Service discontinued to Discovery Elementary School and Williamsburg Middle School</p> <p>Increase Span of Service to Maintain STN Guidelines, Slight Decrease in Frequency (25 minutes to 30 minutes During Peak/Evening hours) to Match STN Guideline</p> <p>Segments Eliminated (Neighborhoods of Williamsburg and Rock Spring): N Glebe Road (N Old Glebe Road to Military Road), N Sycamore Street (26<sup>th</sup> Street N to Williamsburg Boulevard), Williamsburg Boulevard (N Sycamore Street to N Glebe Road)</p> <p>Impacted Areas: Williamsburg Middle School</p>
<b>54</b>	New Route with New Connection between VHC and Madison Community Center, Created from Portions of Route Alignment and Service Hours from Routes 53 and 72.
<b>55</b>	Increased frequency during early morning, evening, and late weekday periods, as well as weekends. Increase the Sunday span to match Saturday.
<b>61</b>	<p>Discontinue. Entire Route Absorbed by Routes 51 and 53</p> <p>Impacted Areas: Dawson Terrace Community Center, Rosslyn Metro, Courthouse Metro</p>
<b>62</b>	<p>Discontinue. Most Segments Absorbed by Routes 52 and 53</p> <p>Segments Eliminated: N Utah Street /15<sup>th</sup> Street N</p> <p>Impacted Areas: Washington-Liberty High School, Clarendon Metro, Courthouse Metro, Ballston Metro, Dorothy Hamm Middle School</p>
<b>72</b>	<p>Shift Northern Terminus from N Glebe Road and Williamsburg Road to VHC Transit Hub</p> <p>Assume the Ballston Metro to VHC Connection Eliminated from Route 52</p> <p>Segments Eliminated: Williamsburg Boulevard/36<sup>th</sup> Street N</p> <p>Impacted Areas: Rock Spring, Old Glebe, Chain Bridge Forest</p>

TABLE 3 | NORTH AREA ANNUAL VEHICLE REVENUE HOURS (VRH) REQUIRED

Route	Existing VRH (FY 21)	Proposed VRH (FY 25)	Difference
<b>51</b>	7,277	14,982	+7,705
<b>52</b>	8,033	10,098	+2,065
<b>53</b>	5,483	10,812	+5,329
<b>54</b>	-	5,610	+5,610
<b>55</b>	23,730	28,499	+6,489
<b>61</b>	3,825	-	-3,825
<b>62</b>	3,366	-	-3,366
<b>72</b>	10,379	14,260	+3,881

TABLE 4 | INVESTMENT REQUIRED TO IMPLEMENT THE NORTH AREA SERVICE PLAN

Route	Existing Operating Cost (Based on FY 21)	Proposed Operating Cost (Based on FY 21)	Difference
<b>51</b>	\$0.85 M	\$1.75 M	+\$0.90 M
<b>52</b>	\$0.94 M	\$1.18 M	+\$0.24 M
<b>53</b>	\$0.64 M	\$1.26 M	+\$0.62 M
<b>54</b>	-	\$0.66 M	+\$0.66 M
<b>55</b>	\$2.78 M	\$3.33 M	+ \$0.55 M
<b>61</b>	\$0.45 M	\$0.00 M	-\$0.45 M
<b>62</b>	\$0.39 M	\$0.00 M	-\$0.39 M
<b>72</b>	\$1.21 M	\$1.67 M	+\$0.46 M

### Other Mobility Considerations

The realignment of Route 53 will result in a loss of service along Williamsburg Boulevard, particularly in the Rock Spring and Williamsburg communities. This region is proposed for Microtransit connecting service to other adjacent routes, particularly the East Falls Church Metro area, or Langston Boulevard serviced by Route 55. Additionally, the North of the County has several main thoroughfares with dedicated bike lanes, including Williamsburg Boulevard, Yorktown Boulevard, Sycamore Street, and portions of George Mason Drive and John Marshall Drive. Many roads in the North have sidewalks for pedestrian access.

### Equity Metrics

The following two tables provide a brief overview of the minority and low-income residents along the routes covered in this section.

TABLE 5 | SHARE OF POPULATION WITHIN QUARTER MILE OF ROUTE IDENTIFIED AS MINORITY GROUPS (NORTH AREA)

Route	Existing Minority Share	Proposed Minority Share	Difference
<b>51</b>	31%	39%	+8%
<b>52</b>	29%	28%	-1%
<b>53</b>	27%	31%	+4%
<b>54</b>	-	32%	-
<b>55</b>	34%	34%	0%
<b>61</b>	35%	-	-35%
<b>62</b>	29%	-	-29%
<b>72</b>	42%	42%	0%

TABLE 6 | SHARE OF POPULATION WITHIN QUARTER MILE OF ROUTE IDENTIFIED AS LOW-INCOME INDIVIDUALS (NORTH AREA)

Route	Existing Low-income Share	Proposed Low-income Share	Difference
<b>51</b>	10%	24%	+14%
<b>52</b>	9%	9%	0%
<b>53</b>	7%	10%	+3%
<b>54</b>	-	11%	-
<b>55</b>	34%	34%	0%
<b>61</b>	13%	-	-
<b>62</b>	10%	-	-
<b>72</b>	19%	19%	0%

### West-Columbia Pike

The West area of the County is generally defined as the Columbia Pike Corridor between Foxcroft Heights and Arlington Mill. This corridor supports some of the highest bus ridership in all of Virginia, due to its high-density residential properties and commercial activity. Columbia Pike forms the spine of Arlington's Premium Transit Network "Pike Ride" corridor due to the high level of frequency of service that comes from six routes on the ART system and various patterns of Route 16 on the WMATA system (A/B/E/H/J/M/P/X).

FIGURE 2 | WEST-COLUMBIA PIKE AREA PROPOSED ART SERVICE NETWORK

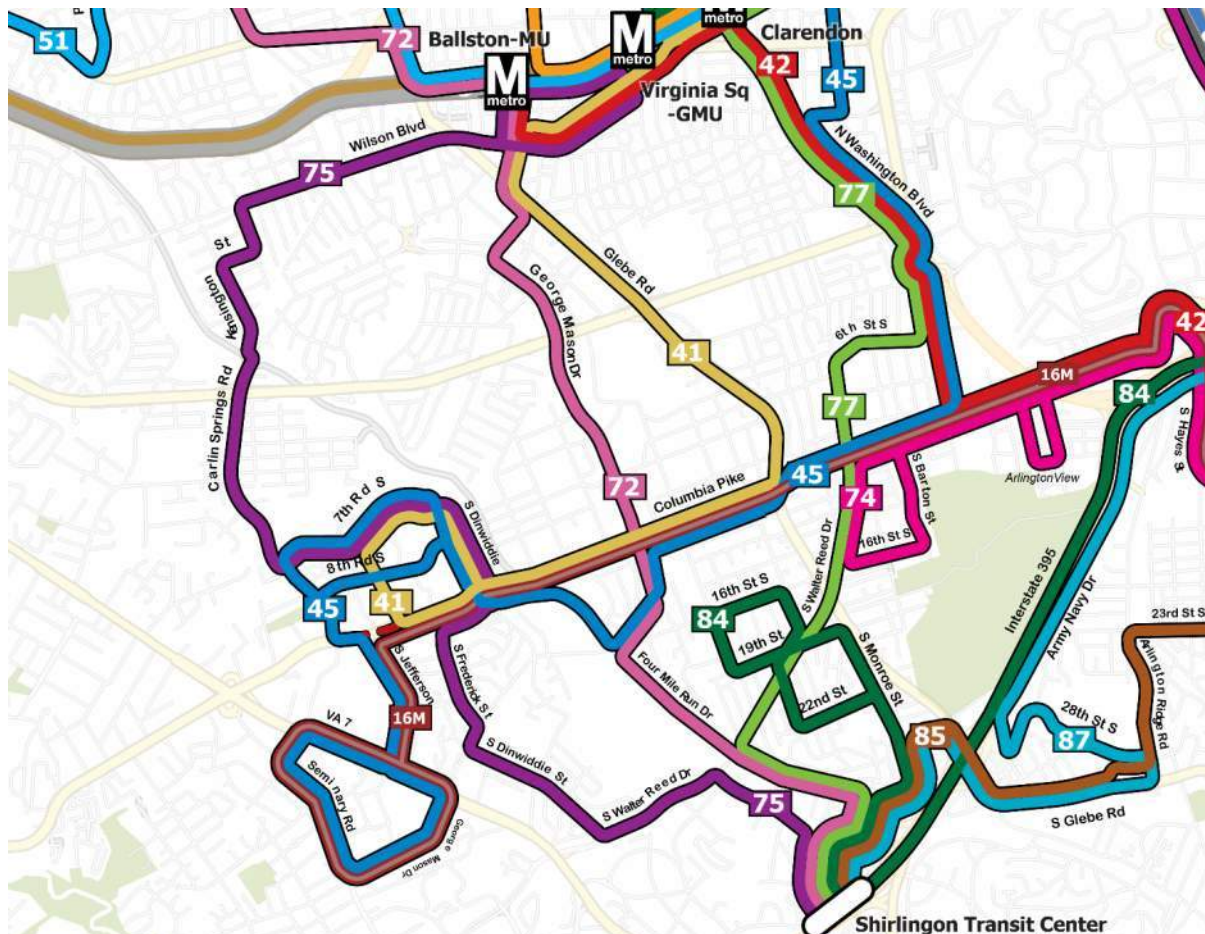




TABLE 7 | EXISTING ART ROUTE PERFORMANCE STREETATISTICS (WEST-COLUMBIA PIKE)

Route	Average Weekday Ridership	Weekday Ridership Ranking (Out of 16)	Productivity Ranking (Out of 16)
<b>41</b>	1,664	1	1
<b>42</b>	574	4	3
<b>45</b>	733	3	2
<b>74</b>	16	15	15
<b>75</b>	343	6	7
<b>77</b>	365	5	5

The “Pike Ride” Corridor runs along Columbia Pike, connecting Annandale in Fairfax County with the Pentagon and Pentagon City Metrorail Stations and downtown Washington, DC. Transit improvements include Transit Signal Priority (TSP), enhanced bus stops, with Bus Rapid Transit-like (BRT) amenities such as near-level boarding, real-time bus arrival information and branded Metrobus vehicles that show the “Pike Ride” logo. Dedicated lanes were studied for implementation but were ultimately deemed too challenging within this corridor. Future improvements may include all-door boarding and other reliability and priority measures. The WMATA operated Metroway, with dedicated right-of-way (ROW) in Crystal City/Potomac Yard, is not part of the ART Premium Network and ART service is not currently operated on the corridor.

Route 41 services most of Columbia Pike, from S Glebe Road west to Arlington Mill at S Greenbrier Street. Route 45 services generally the same segment as Route 41, with the exception of the segment between S Four Mile Run Drive and S George Mason Drive. Route 42 services Columbia Pike from S Courthouse Road east to Army Navy Drive, and Route 74 serves from Washington Boulevard to S Walter Reed Drive. Routes 72, 75, and 77 intersect Columbia Pike but generally do not operate on the Pike. The headways for each of these routes are shown below:

TABLE 8 | EXISTING FREQUENCY - COLUMBIA PIKE ART ROUTES

Route	Weekday						Saturday		Sunday		Target
	Early	AM Peak	Midday	PM Peak	Evening	Late	Core	Non-Core	Core	Non-Core	
<b>41</b>	20	16	15	15	20	23	17	20	15	20	15
<b>42</b>	-	15	30	15	30	-	30	30	30	30	30
<b>45</b>	-	20	30	20	30	-	30	30	30	30	30
<b>74</b>	-	30	-	30	-	-	-	-	-	-	30
<b>75</b>	-	30	30	30	40	-	-	-	-	-	30
<b>77</b>	-	30	30	30	30	-	30	30	-	-	30

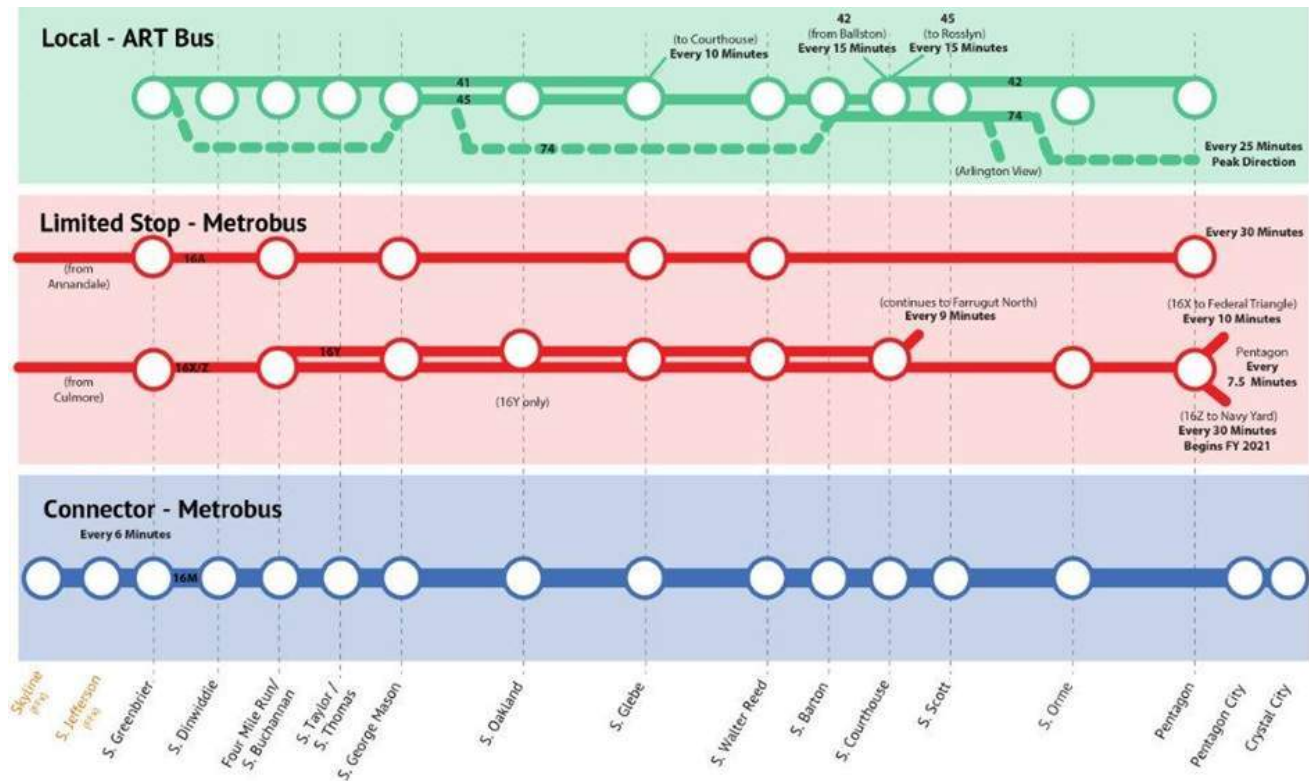
\* Red font cells represent where current service is not meeting service design STN

Additionally, the corridor is an emphasized study area in the WMATA Bus Network Redesign project, which began in summer 2022. The redesign project includes studying implementation of Route 16M, a limited-stop service along the corridor between Skyline and Pentagon City. This network, which is defined by a select

number of stops, sees 1,192 average daily boardings on ART routes and 266 average daily boardings on WMATA routes.

Figure 3 illustrates the Premium Transit Service pattern operated along the Pike Ride corridor. Metrobus will provide Limited Stop service to the DC core, skipping select stops by route. The Metrobus Connector Route 16M will make all local stops between Crystal City and Fairfax. The ART service plan will continue to serve portions of the route, providing neighborhood feeders to the high-frequency corridor.

FIGURE 3 | PREMIUM TRANSIT NETWORK SERVICE PLAN DIAGRAM



### Service Recommendations

The proposed changes for routes in this corridor will address projected population growth as part of the Columbia Pike Vision. Columbia Pike, anchored by major community and activity centers such as Pentagon City, Arlington Mill, and Bailey's Crossroads in Fairfax County, will continue to make this transit corridor one of the most used in the Commonwealth. More importantly, as a result of WMATA's proposed elimination of Route 16G and 16H ART will need to ensure that service is increased in this corridor to offset any loss of service from this change. While the addition of WMATA Route 16M will mostly ensure that service frequencies are maintained along Columbia Pike itself, elimination of Route 16G would result in a direct impact to Arlington Mill.

TABLE 9 | PROPOSED FREQUENCY (MINUTES) COLUMBIA PIKE ROUTES

Route	Weekday						Saturday		Sunday		
	Early	AM Peak	Midday	PM Peak	Evening	Late	Core	Non-Core	Core	Non-Core	Target
<b>41</b>	15	12	12	12	15	15	15	15	15	15	15



	Weekday						Saturday		Sunday		
<b>42</b>		15	30	15	30		30	30	30	30	30
<b>45</b>	25	15	15	20	30		15	15	30	30	30
<b>74</b>	-	30	30	30	30		30		30		30
<b>75</b>	-	20	20	20	<b>30</b>	40	30		30		30

Additionally, ART will need to ensure that Columbia Pike works as a spine to connect to other nearby major destinations in Fairfax County. Route 74, as proposed, would have a significant increase in span of service and frequency, including a new terminus of Long Bridge Park, which should draw riders. The extension of Route 45 to the West would effectively replace WMATA Route 16G's direct service to Bailey's Crossroads, however this will require further coordination with Fairfax County and only be implemented if the segment will no longer be covered by WMATA. Planning for this extension must be closely coordinated with the implementation of the Route 7/Leesburg Pike BRT corridor.

The changes proposed for the West-Columbia Pike Area significantly reorient transit service for six routes to address underperforming lines and better allocate service resources to meet specific needs of area riders. The proposed recommendations have the potential to impact but also benefit riders who depend on connections along Columbia Pike and between adjacent and outlying neighborhoods. These routes include 41, 42, 45, 74, 75:

TABLE 10 | WEST-COLUMBIA PIKE AREA PROPOSED SERVICE RECOMMENDATIONS

WEST – COLUMBIA PIKE AREA PROPOSED SERVICE RECOMMENDATIONS	
<b>41</b>	Improve AM/PM Peak Hour Frequency from 15 minutes to 12 minutes Improve Weekday Midday Frequency from 15 minutes to 12 minutes Improve Weekday Early/Evening Frequency from 20/25 minutes to 15 minutes Improve Saturday Non-Core Frequency from 20/25 minutes to 15 minutes
<b>42</b>	Eastern Terminus Shifted from Pentagon City to Pentagon Transit Center Segments Added: Columbia Pike in Lieu of Southgate, 9 <sup>th</sup> Street S/S Veitch Road Segments Eliminated: Foxcroft Heights (Southgate Road/S Nash Street) Impacted Areas: Park University at Henderson Hall MCB
<b>45</b>	Improve AM/PM Peak Hour Frequency from 20/25 Minutes to 15/20 Minutes Improve Midday Weekday Frequency from 30 Minutes to 15 Minutes Improve Saturday Frequency from 30 Minutes to 15 Minutes Service Shifted from Columbia Pike to 8 <sup>th</sup> Road South Between S Dinwiddie Street and S Carlin Springs Road Western Terminus Extended to Leesburg Pike and Skyline Place Extend Toward Bailey's Crossroads if WMATA 16M Changes Do Not Connect Arlington to the BRT on Route 7 Segments Added: 8 <sup>th</sup> Road South Between S Dinwiddie Street and S Carlin Springs Road, S Jefferson Street, Leesburg Pike (Gorham Street to S George Mason Drive), Seminary Road



WEST – COLUMBIA PIKE AREA PROPOSED SERVICE RECOMMENDATIONS	
	(Gorham Street to S George Mason Drive), S George Mason Drive (Leesburg Pike to Seminary Road), Gorham Street Segments Eliminated: Columbia Pike (S Jefferson Street to S Greenbrier Street) Impacted Areas: None
<b>74</b>	Extend to Crystal City and Long Bridge Recreation Center Eastern Terminus shifted from Pentagon City to Long Bridge Park via Crystal City Segments Added: S Hayes Street (15 <sup>th</sup> Street S to S Bell Street), Long Bridge Drive, S Rolfe Street (Columbia Pike to 12 <sup>th</sup> Street S) Impacted Areas: Crystal City Metro, Pentagon City Metro, Aurora Hills Community Center, Long Bridge Park
<b>75</b>	Improve Peak and Midday Frequency from 30 minutes to 20 minutes Improve Evening Hours Frequency from 40 minutes to 30 minutes Extend Weekday Service into Late Period Adding Weekend Service at 30 Minute Frequency
<b>77</b>	Improve Peak, Midday, and Evening Frequency from 30 Minutes to 20 Minutes Add Sunday Service at 30 Minute frequency

Direct access to Ronald Reagan Washington National Airport was requested during public engagement, however it was determined that this connection was not feasible at this time and a premium connection is available via Metrorail. The proposed changes will impact the system as follows:

TABLE 11 | ANNUAL VEHICLE REVENUE HOURS (VRH) REQUIRED (WEST - COLUMBIA PIKE)

Route	Existing VRH (FY 21)	Proposed VRH (FY 25)	Difference
<b>41</b>	30,157	36,054	+5,897
<b>42</b>	16,262	16,789	+ 527
<b>45</b>	18,875	37,656	+18,782
<b>74</b>	2,117	9,967	+7,850
<b>75</b>	11,271	17,760	+6,489
<b>77</b>	11,462	16,208	+4,746

TABLE 12 | INVESTMENT REQUIRED TO IMPLEMENT THE WEST-COLUMBIA PIKE AREA SERVICE PLAN

Route	Existing Operating Cost (FY 21)	Proposed Operating Cost (FY 21)	Difference
<b>41</b>	\$3.53 M	\$4.22 M	+\$0.69 M
<b>42</b>	\$1.90 M	\$1.96 M	+\$0.06 M
<b>45</b>	\$2.21 M	\$4.40 M	+\$2.20 M
<b>74</b>	\$0.25 M	\$1.17 M	+\$0.92 M
<b>75</b>	\$1.32 M	\$2.08 M	+\$0.76 M



<b>77</b>	\$1.34 M	\$1.90 M	+\$0.56 M
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### Other Mobility Considerations

Columbia Pike has undergone a long-term improvement program and continues to evolve into a more functional, complete street that better accommodates all uses of this regional spine. Plans for additional pedestrian and bicycle safety infrastructure, transit priority and geometric optimization will continue to shape the corridor into the future. Columbia Pike is bisected by several main thoroughfares including Glebe Road, Walter Reed Drive, George Mason Drive and Carlin Springs Road. Some of these have been upgraded with dedicated bike lanes and many local roads near Columbia Pike have sidewalks for pedestrian access. Although WMATA Routes 16G and 16H are being eliminated, other Route 16M variants of Route 16A, 16C and 16E are still being preserved as part of the Premium Network.

### Equity Metrics

The following two tables provide a brief overview of the minority and low-income residents along the routes covered in this section.

TABLE 13 | SHARE OF POPULATION WITHIN QUARTER MILE OF ROUTE IDENTIFIED AS MINORITY GROUPS (WEST-COLUMBIA PIKE)

Route	Existing Minority Share	Proposed Minority Share	Difference
<b>41</b>	49%	49%	0%
<b>42</b>	38%	38%	0%
<b>45</b>	51%	52%	+1%
<b>72</b>	42%	41%	-1%
<b>74</b>	50%	49%	-1%
<b>75</b>	47%	46%	-1%
<b>77</b>	37%	37%	0%

TABLE 14 | SHARE OF POPULATION WITHIN QUARTER MILE OF ROUTE IDENTIFIED AS LOW-INCOME INDIVIDUALS (WEST-COLUMBIA PIKE)

Route	Existing Low-income Share	Proposed Low-income Share	Difference
<b>41</b>	20%	20%	0%
<b>42</b>	13%	13%	0%
<b>45</b>	19%	21%	+1%
<b>72</b>	19%	17%	-2%
<b>74</b>	12%	13%	1%
<b>75</b>	18%	18%	0%
<b>77</b>	12%	12%	0%

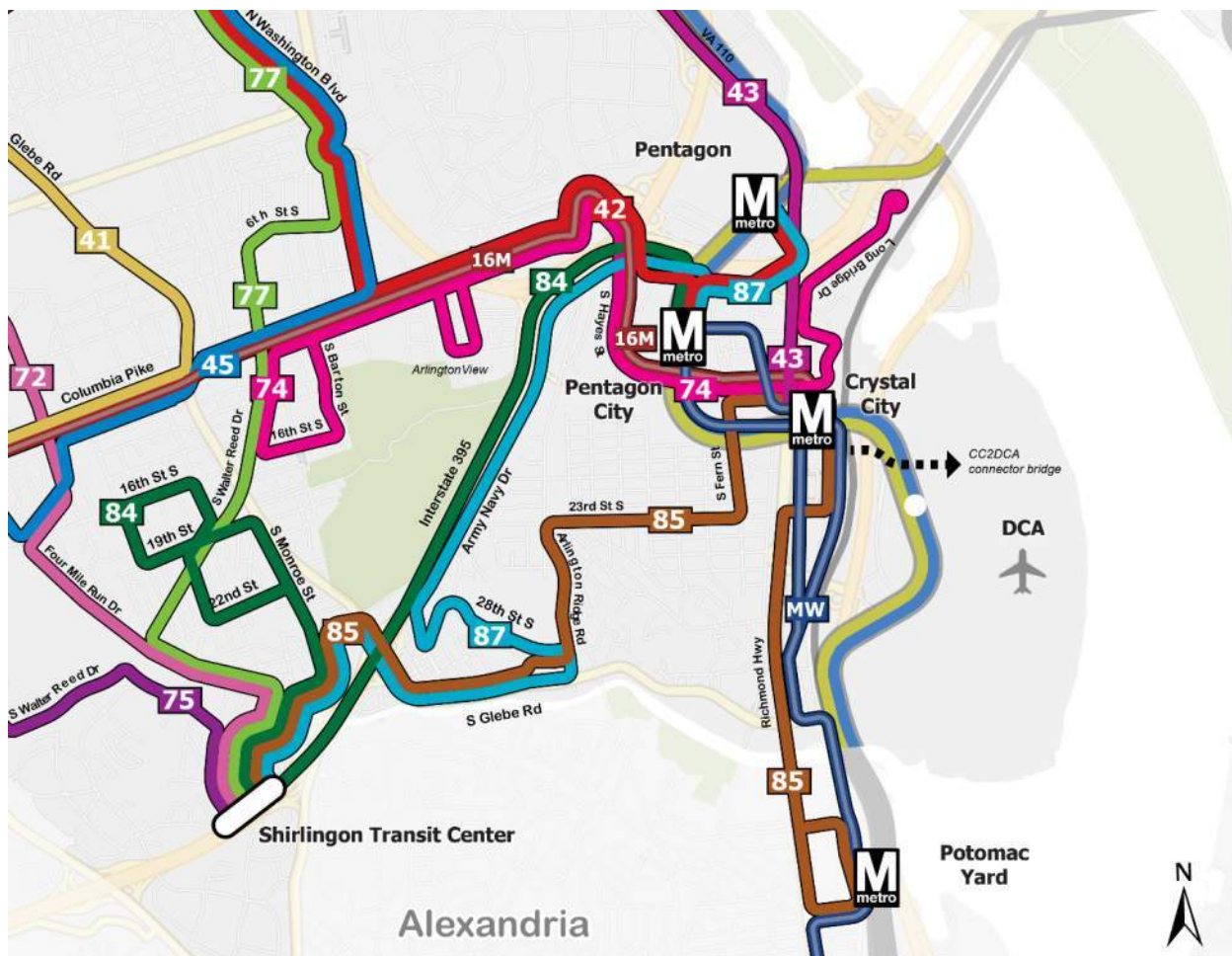
## South-Shirlington

The South Arlington area is generally defined as the southernmost part of Arlington centered around Shirlington, and including the Claremont, Green Valley, and Fairlington neighborhoods. Each of the ART routes that operate in this area terminate at the Shirlington Transit Center (STC). The STC is a major regional transit hub without Metrorail service. Five ART routes provide service through this area, including Routes 72, 75, 77, 84, and the three variants of Route 87(A/P/X), all part of the secondary network. WMATA also operates in the Shirlington area, with Metrobus routes 23 A/B/T, 7A, 22A, and 10B. Shirlington is also the lone DASH connection point to the ART network.

Routes 72, 75, and 77 operate as North-South routes across Arlington, with Route 72 traveling the full extent to northeast Arlington via Ballston and connecting to Columbia Pike. Additionally, Route 75 travels to Virginia Square through the southwest portion of Arlington via Columbia Forest and Arlington Mill, and Route 77 travels to the Courthouse Metro via Walter Reed Drive. Routes 84 and 87 connect Shirlington to the Pentagon and Pentagon City area via I-395.

## Service Recommendations

FIGURE 4 | PROPOSED SOUTH AND EAST AREAS PROPOSED ART SERVICE NETWORK



The proposed changes for routes in South Arlington will streamline connections to other parts of the county. The proposed new Route 85 will provide improved connectivity between Shirlington, Aurora Highlands, Crystal City, and Potomac Yard. The addition of Route 85 responds to an identified gap in Long Branch Creek, Arlington Ridge, Aurora Highlands, and Crystal City. However, there will need to be further evaluation on



whether WMATA Route 23A will be eliminated or reduced and further coordination will be required with the City of Alexandria to operate through its jurisdiction.

Route 84 will maintain its current routing through the Douglas Park neighborhood but deviate slightly to stop at Shirlington Transit Center before operating express to Pentagon Transit Center. Route 87 will consolidate service hours of the existing Route 87 A/P/X variants, resulting in an increase in frequency peak and off-peak hours.

TABLE 15 | SOUTH-SHIRLINGTON AREA PROPOSED SERVICE RECOMMENDATIONS

SOUTH-SHIRLINGTON AREA PROPOSED SERVICE RECOMMENDATIONS	
<b>84</b>	Provide Additional Connectivity by Adding a Stop at Shirlington Transit Center Between the Douglas Park Neighborhood and Pentagon City Impacted Areas: Douglas Park, Shirlington Transit Center, Pentagon Transit Center
<b>85</b>	New Route with New Connection Between Shirlington, Long Bridge Creek, Aurora Highlands, Arlington Ridge, Crystal City and Potomac Yard Segments Added: Richmond Highway, Potomac Ave (City of Alexandria), S Arlington Ridge Road, 23rd Road Street S, S Fern Street, 15th Street S, Crystal Drive Impacted Areas: Crystal City Metro, Gunston CC
<b>87</b>	Consolidate Routing Service Patterns of Variants Improve AM/PM Peak Hour Frequency from 20 Minutes to 12 Minutes Improve Evening Hours Frequency from 27 Minutes to 23 Minutes Segments Eliminated: 28th Street S (Army Navy Drive to 26th Street S) Impacted Areas: None

TABLE 16 | ANNUAL VEHICLE REVENUE HOURS (VRH) REQUIRED

Route	Existing VRH (FY 21)	Proposed VRH (FY 25)	Difference
<b>84</b>	3,953	3,366	- 587
<b>85</b>	-	9,415	+9,415
<b>87</b>	13,817	14,251	+434

TABLE 17 | INVESTMENT REQUIRED TO IMPLEMENT THE SOUTH-SHIRLINGTON AREA SERVICE PLAN

Route	Existing Operating Cost (FY 21)	Proposed Operating Cost (FY 21)	Difference
<b>84</b>	\$0.46 M	\$0.39 M	-\$0.07 M
<b>85</b>	-	\$1.10 M	+\$1.10 M
<b>87</b>	\$1.62 M	\$1.67 M	+\$0.05 M

### Other Mobility Considerations

Shirlington has several main thoroughfares with dedicated bike lanes, while many local roads near the Transit Center have sidewalks for pedestrian access.

### Equity Metrics

The following two tables provide a brief overview of the minority and low-income residents along the routes covered in this section.

TABLE 18 - SHARE OF POPULATION WITHIN QUARTER MILE OF ROUTE IDENTIFIED AS MINORITY GROUPS (SOUTH-SHIRLINGTON)

Route	Existing Minority Share	Proposed Minority Share	Difference
<b>84</b>	52%	50%	-2%
<b>85</b>	-	48%	+48%
<b>87</b>	51%	51%	0%

TABLE 19 - SHARE OF POPULATION WITHIN QUARTER MILE OF ROUTE IDENTIFIED AS LOW-INCOME INDIVIDUALS (SOUTH-SHIRLINGTON)

Route	Existing Low-income Share	Proposed Low-income Share	Difference
<b>84</b>	17%	17%	0%
<b>85</b>	-	17%	+17%
<b>87</b>	21%	21%	0%

### East-Crystal City/Pentagon City/Pentagon Transit Center (PTC)

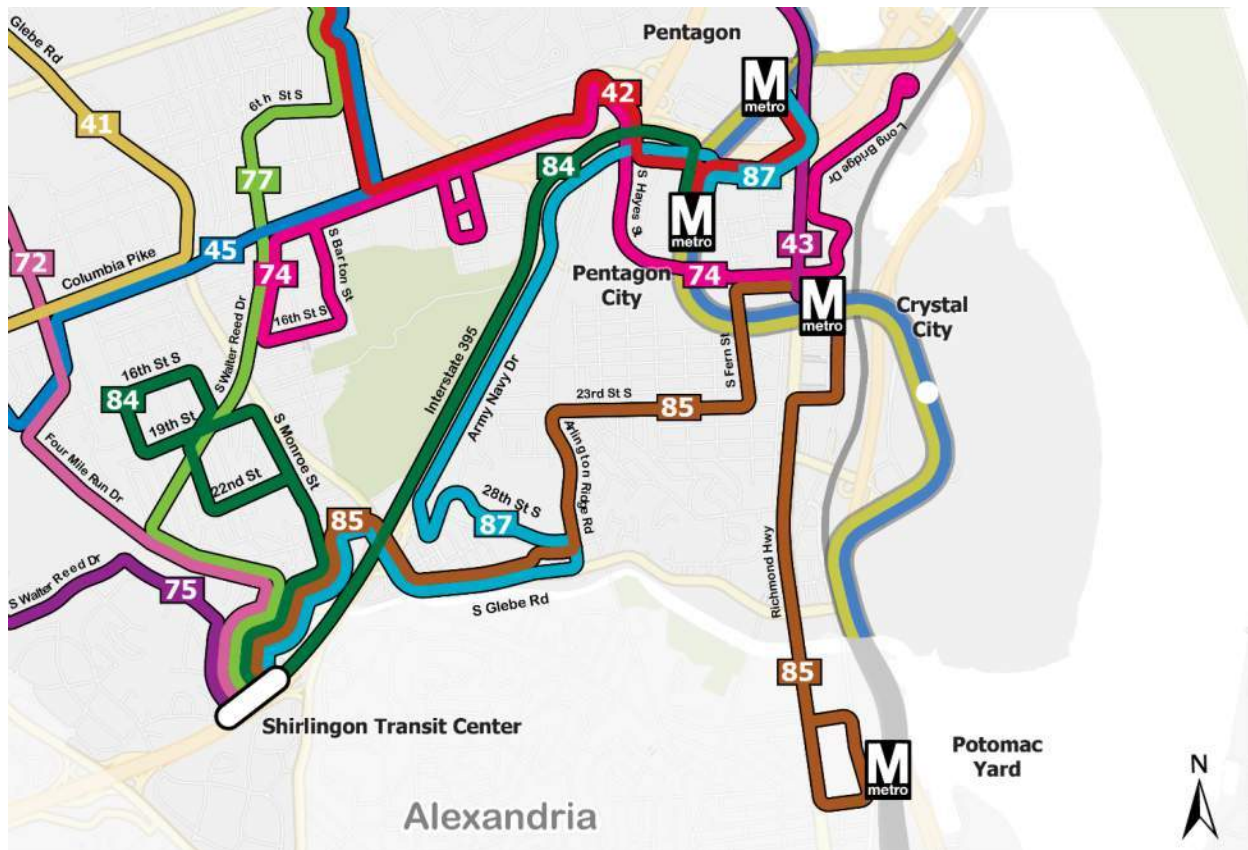
The East area of the County is generally defined as centered around the Pentagon, Crystal City and the neighborhoods of Aurora Highlands, Arlington Ridge, and Long Bridge Creek. The routes that operate in this area terminate at either Pentagon Transit Center (PTC), Pentagon City Metro, or Crystal City Metro. The area is also spanned by the Metroway line, a BRT corridor that Metrobus operates between Crystal City, Potomac Yard, and Braddock Road in Alexandria. This corridor is not currently identified as an Arlington Premium Transit Network corridor.

Pentagon City and Crystal City are fast-growing communities in Arlington due to rapid development including Amazon facilities with an eventual capacity for 14,000 employees. With a high demand for residential growth, transit gaps in this community must be filled to deliver workers to their jobs. This not only includes the ART transit system, but WMATA, Virginia Railway Express (VRE) commuter rail, and other adjacent transit agencies.

Five ART routes provide service through this area, including Routes 42, 43, 74, 84, and the variants of Route 87(A/P/X), all part of the secondary network. Metrobus also serves this area via Routes 10A/B, 23A/B, 7A, 16E/G/H, and the Metroway, while Metrorail service is available via the Blue and Yellow Lines.



FIGURE 5 | PROPOSED EAST AND SOUTH AREAS PROPOSED ART SERVICE NETWORK



Route 42 connects the PTC and Pentagon City Metro to the Ballston-MU Metro via Washington Boulevard, while Route 43 connects Crystal City Metro to Rosslyn Metro via Richmond Highway. Route 74 acts as a connector route between Pentagon City Metro and Columbia Heights via Columbia Pike, while Routes 84 and Route 87 connect Shirlington to the Pentagon and Pentagon City area via I-395.

### Service Recommendations

The proposed changes in this area will streamline connections to other parts of Arlington. Route 43 is proposed to see increased frequency and service hours to improve connectivity between Rosslyn and Crystal City. Existing conditions and proposed recommendations for Routes 42 and 74 were discussed in the West sub-section and the new Route 85 and modifications to Routes 84 and 87 were discussed in the South sub-section of this report.

Route 42 includes no major proposed changes but will shift its terminus from Pentagon City to Pentagon Transit Center to improve connectivity and operations. Route 74 will be extended from Pentagon City Metro to Long Bridge Park via Crystal City Metro. The addition of Route 54 along with the extension of Route 74 to Crystal City Metro and VRE, and the increased frequency/span of service on Route 43 will all address a major gap in service at Crystal City created by growth outstripping service delivery.



TABLE 20 | EAST-CRYSTAL CITY/PENTAGON CITY/PTC AREA PROPOSED SERVICE

EAST-CRYSTAL CITY/PENTAGON CITY/PTC AREA PROPOSED SERVICE	
<b>43</b>	Improve Off-Peak Weekday Frequency from 17/20 minutes to 15 minutes

TABLE 21 | ANNUAL VEHICLE REVENUE HOURS (VRH) REQUIRED (EAST AREA)

Route	Existing VRH (FY 21)	Proposed VRH (FY 25)	Difference
<b>43</b>	11,654	17,011	+ 5,358

TABLE 22 | INVESTMENT REQUIRED TO IMPLEMENT THE EAST AREA SERVICE PLAN (EAST AREA)

Route	Existing Operating Cost (FY 21)	Proposed Operating Cost (FY 21)	Difference
<b>43</b>	\$1.36 M	\$1.99 M	+\$0.63 M

### Other Mobility Considerations

The main transit terminals in the East are all Metrorail stations served by the Metrorail Blue and Yellow lines. This includes Pentagon Metro (PTC), Pentagon City Metro, Crystal City Metro and the new Potomac Yard station. Additionally, Metrobus provides service in the area on Routes 10A/B, 23A/B, 7A, 16M, and the Metroway. All local roads in the East have sidewalks for pedestrians and several main thoroughfares have bike lane infrastructure including 15<sup>th</sup> Street, 18<sup>th</sup> Street, S Bell Street and Crystal Drive with more to come.

### Equity Metrics

The following two tables provide a brief overview of the minority and low-income residents along the routes covered in this section.

TABLE 23 | SHARE OF POPULATION WITHIN QUARTER MILE OF ROUTE IDENTIFIED AS MINORITY GROUPS (EAST AREA)

Route	Existing Minority Share	Proposed Minority Share	Difference
<b>43</b>	40%	37%	-3%

TABLE 24 | SHARE OF POPULATION WITHIN QUARTER MILE OF ROUTE IDENTIFIED AS LOW-INCOME INDIVIDUALS (EAST AREA)

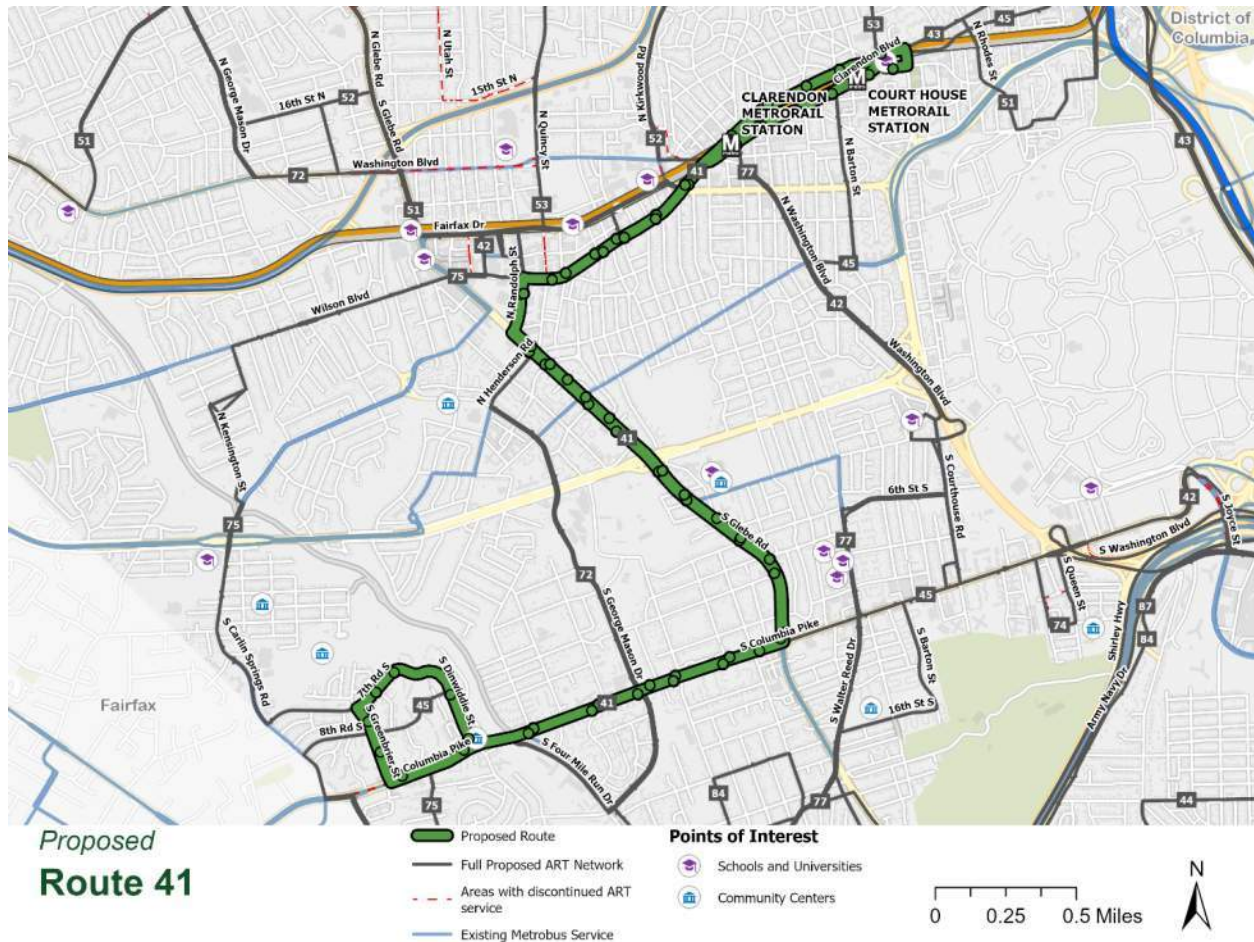
Route	Existing Low-income Share	Proposed Low-income Share	Difference
<b>43</b>	12%	11%	-1%

### 3.1.3. Service Recommendations – Route Level Summary

The following section details the recommendations at the route level, and includes route background, the service recommendations, expected outcomes, as well as operating details.

#### Route 41

FIGURE 6 | ROUTE 41 (PROPOSED)



#### Background

Route 41 has the highest ridership and productivity in the ART system. Route 41 is a PTN route connecting Arlington Mill and neighborhoods along Columbia Pike and S. Glebe Road to Metrorail stations and other destinations in Ballston, Clarendon, and Courthouse. It also provides service to many equity-focus neighborhoods and valuable connections between busy and vital travel corridors and destinations with above-average ridership, including:

- Metrorail
  - Clarendon
  - Courthouse
- Neighborhood Centers
  - Baileys Crossroads-Western Gateway
  - Columbia Pike Town Center
  - Virginia Square
- Schools (Middle, High, Post-Secondary)
  - Arlington Tech
  - Arlington Community High School
  - George Mason University
- Community Centers
  - Arlington Mill CC
  - Thomas Jefferson CC



The two busiest stops on the route are Courthouse Metro, with 176 average weekday boardings in 2021, and S Dinwiddie Street southbound at Columbia Pike, with 90 average weekday boardings over the past five years.

Route 41 ridership peaked in July 2019 at 2,398 average weekday boardings and saw its lowest ridership during the pandemic in April 2020 at 1,109 average weekday boardings. While ridership dropped to 51% of its 2019 high, many other routes experienced a much greater drop, illustrating the degree to which people within the service area depend on transit for employment and other basic needs.

The route currently operates as one of two PTN routes with weekday service operating between 5:30 AM and 1 AM. Buses run every 15 minutes during peak and midday periods and every 20 minutes or less during off-peak. Columbia Pike is part of the ART Premium Transit Network (PTN). Route 41 shares the bus priority treatments along the corridor with multiple ART and WMATA bus routes.

During Fall 2022 public engagement, 28% of respondents commented that buses do not come often enough to meet community needs. Additionally, 17% said buses don't come at the time they need to travel, suggesting demand for more off-peak, evening and weekend service. Respondents indicated the importance of providing equitable access and high-quality service for equity-focus neighborhoods. Direct Service from Bailey's Crossroads/Columbia Pike to Rosslyn was identified as a missing travel connection for the area.

Analysis of population density by block group found a large concentration of multi-family housing along the length of Route 41. Population is projected to grow over 30% in Arlington Mill between 2020 and 2030, and by at least 20% in Buckingham, which is a faster rate than most of Arlington. Also projected: over 200 jobs per acre in Virginia Square and an employment growth rate of over 30% from 2020 to 2030 in both Clarendon and Buckingham.

Arlington Mill is primarily comprised of low-income- and minority-defined census block groups and was identified as a focus area with gaps between the current level of transit service provided to Transit Oriented Populations (TOP) and equity-focus areas. The Gaps and Needs Analysis includes a number of bivariate maps comparing transit trips and demographic characteristics. Arlington Mill and Buckingham were identified on each map as having a lower number of transit trips provided per person on the transit propensity and equity-focus measures than the countywide average.

Furthermore, WMATA is proposing as part of its Better Bus network redesign to discontinue Metrobus Route 16G and its service through Arlington Mill, which would decrease frequency from approximately 7.5 minutes to 10 along the corridor during peak service. Pike Ride Route 16M was implemented in 2023 with the long-term vision for Columbia Pike being service similar to Route 16G, which operates to Skyline and Culmore, plus "long" service ending in Annadale. The existing Route 16 commuter options to Washington, DC would also continue.



### Service Recommendations

A transit service gap is projected for Route 41, with the current (ART/WMATA) level of service not keeping up with expected demand. Equity-focus communities along the route should receive more frequent service over a longer period of time on weekdays and weekends in order to ensure parity. Additionally, more buses will be required on the route to mitigate elimination of WMATA Route 16G service in Arlington Mill.

1. Increase peak period and midday frequency from every 15 minutes to every 12 minutes and off-peak frequency from 20 minutes to 15 minutes.
2. Provide 15-minute frequency service all day on the weekend and increase the span of service on Sunday by one-hour.
3. Provide a standardized “clockface” schedule that is clear and easy to understand. This includes coordinating service with other routes along the Columbia Pike Premium Transit Networks (PrTN).

### Expected Outcomes

The proposed recommendations would increase ART’s level of service provided to equity-focus areas and high-transit propensity neighborhoods. This need was illustrated by the relatively high ridership numbers maintained by the service, even when pandemic-related weekday services shifted to a weekend schedule. Route 41 operates in an area where 49% of the population within a quarter mile are minority individuals, and 20% of the population within a quarter mile are considered low income. This is well above the countywide shares of each classification of 39% and 14% respectively. The most recent ART Title VI plan identifies Route 41 as a Minority Route, the result of at least a third of the route’s revenue mileage located within a census block group whose minority population share exceeds the countywide minority population of 38.5%.

This service increase will also allow the route to exceed the PTN route service guidelines, which target service every 12 minutes or better from approximately 6:42 AM to 6:42 PM and every 15 minutes early AM/evening and night. The increase in frequency will mostly offset any loss of service from the discontinuation of Route 16G through Arlington Mill, resulting in a slight reduction of combined frequency from 7.5 minutes to 8.5 during peak service along Columbia Pike.

Additionally, the remainder of Route 41 along Glebe Road and in Clarendon would gain frequency during peak hours. These changes would likely result in a positive equity impact. Increased weekday and weekend frequency and extended Sunday service span is anticipated to improve ridership productivity metrics and support riders who depend on this route for daily activities.

TABLE 25 | ROUTE 41 EXISTING PERFORMANCE METRICS

	Target (PTN)	Weekday ART Rank	Weekday	Saturday	Sunday
<b>Average Daily Ridership</b>	-	1 <sup>st</sup>	1,664	1,487	1,275
<b>Farebox Recovery</b>	35%	1 <sup>st</sup>	20%	17%	17%
<b>Passengers Per One Way Trip</b>	-	1 <sup>st</sup>	24.7	23.6	20.3
<b>Passengers Per Revenue Hour</b>	35	1 <sup>st</sup>	20.4	17.8	18.0
<b>Passengers Per Revenue Mile</b>	-	1 <sup>st</sup>	2.2	2.1	1.8
<b>On-Time Performance</b>	95%	9 <sup>th</sup>	84.8%	-	-

Table 26 | Route 41 Existing and Proposed Operating Statistics

Performance Evaluation Metrics			Current	Proposed	Difference	Target / Average
From			Arlington Mill			
To			Courthouse			
Service Times	Weekday	Start Time	5:25 AM	5:25 AM	-	n/a
		End Time	1:08 AM	12:15 AM	-0:53	n/a
	Saturday	Start Time	6:05 AM	6:45 AM	-0:40	n/a
		End Time	1:57 AM	1:15 AM	-0:42	n/a
	Sunday	Start Time	6:50 AM	6:00 AM	+0:50	n/a
		End Time	12:33 AM	12:00 AM	-0:33	n/a
Span (Hours/Minutes)	Weekday		19:43	18:50	-0:53	>=18:00
	Saturday		19:52	18:30	-1:22	
	Sunday		17:43	18:00	+0:17	
Frequency (Minutes)	Weekday	Early	20	15	+5	<=15
		AM Peak	16	12	+4	
		Midday	15	12	+3	
		PM Peak	15	12	+3	
		Evening	20	15	+5	
		Late	23	15	+8	
	Saturday	Core *	17	15	+2	
		Non-Core *	20	15	+5	
	Sunday	Core *	15	15	0	
		Non-Core *	20	15	+5	
Vehicle Revenue Hours	Weekday		86	105	+19	n/a
	Saturday		81	92	+11	n/a
	Sunday		69	76	+7	n/a
	Annual		30,157	36,054	+5,897	n/a
Equity Share	Minority		49%	49%	0%	42%
	Low income		20%	20%	0%	15%
	Limited English Proficiency		5%	5%	0%	5%
Peak Vehicles			6	7	+1	n/a
Annual Operating Cost**			\$3.53 M	\$4.22 M	+\$0.69 M	n/a
Estimated Ridership Impact (FY21 base)			1,779	1,774	-5	n/a

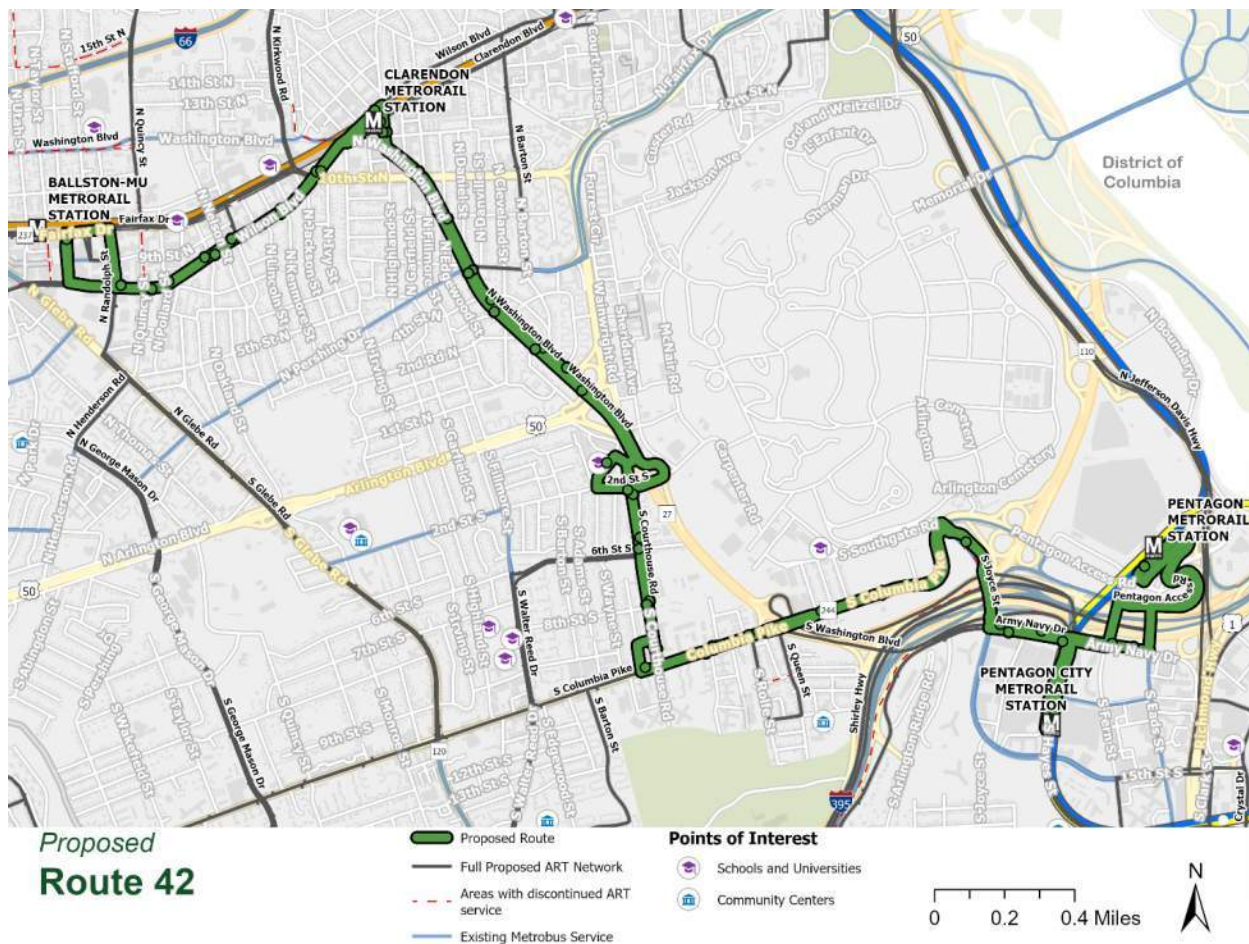
Note: Red font cells represent where current service is not meeting service design standards.

\* Core hours vary by weekend day, but represent the busiest hours of the day, while non-core hours are those outside of dominant travel times.

\*\*Based on FY 2021 Estimated Operating Costs, Data Source: National Transit Database

## Route 42

TABLE 27 | ROUTE 42 (PROPOSED)



### Background

Route 42 currently attracts the fourth highest ridership and third highest productivity in the ART system. Route 42 is an STN route connecting Ballston, Clarendon, Columbia Heights, the Pentagon, and Pentagon City. The route operates primarily along Wilson Boulevard, Washington Boulevard, Courthouse Road, Columbia Pike, and Army-Navy Drive. It provides service for many equity-focus neighborhoods along Columbia Pike and Washington Boulevard, a cluster of educational institutions along Washington Boulevard and a valuable connection between the busy Pentagon/Pentagon City areas and the western portion of the Rosslyn-Ballston Corridor. Other destinations with above-average ridership include:

- Metrorail
  - Ballston-MU
  - Virginia Square - GMU
  - Clarendon
  - Pentagon/Pentagon City
- Neighborhood Centers
  - Courthouse /Clarendon
  - Virginia Square
  - Columbia Pike Town Center
- Crystal City/Pentagon City
- Schools
  - Marymount University - Ballston Center
  - Information Sciences Institute
  - George Mason University
  - New Directions
  - Park University at Henderson Hall MCB
  - Syphax Education Center
  - Virginia Tech Research Center
- Community Centers - None



The route currently operates as a STN route with a portion running on the Columbia Pike PTN. Weekday service operates between 6 AM and 8:38 PM. Buses operate every 15-minutes during peak and 30-minutes during midday and off-peak periods.

The two busiest stops on the route are Pentagon Transit Center, with 232 average weekday boardings in 2021, and S Uhle Street southbound at S Walter Reed Drive, with 96 average weekday boardings. Over the past five years, ridership peaked in October 2019 at 1,127 average weekday boardings, and saw its lowest level during the pandemic in April 2020 at 145 average weekday boardings, a drop of 87%. The route has since recovered only 51% of its 2019 ridership high based on average monthly ridership during 2022. This illustrates how the rise of remote working has had a huge impact on transit usage along certain routes.

During the Fall 2022 public engagement, 17% of respondents said that buses do not come at the time they need to travel, suggesting need for more off-peak, evening and weekend service. Respondents also noted that nearby educational institutions hold classes until 9 PM and that the span of service should be extended in the evening to accommodate students who depend on transit. Students do not have access to the route after 8:38 PM and therefore may not have access to a return trip after class.

The Gaps and Needs Analysis identified the Pentagon City area as having a lower number of transit trips provided per person on measures of transit propensity and equity-focus populations than countywide averages. Analysis of population density by block group and multi-family housing completed found a large concentration of multi-family housing along the length of Route 42, with population and employment projected to grow over 30% in Clarendon/Courthouse between 2020 and 2030. That is a faster rate than most of Arlington. It also found over 200 jobs per acre in Ballston/Virginia Square, and that population is expected to grow there by at least 10% between 2020 and 2030.

### Service Recommendations

1. Shift routing to stay on Columbia Pike rather than follow Southgate Road.
2. Decrease weeknight frequency from 15 minutes to 30 minutes.

### Expected Outcomes

The proposed Service Recommendations are expected to result in a positive benefit to the community and would likely have negligible impact on ART's level of service provided to equity-focus areas and high-transit propensity neighborhoods. Route 42 operates in an area where 38% of the population within a quarter mile are minority individuals, and 13% of the population within a quarter mile are considered low income. This is slightly below the countywide population of each classification of 39% and 14% respectively.

The existing Route 42 is often delayed by traffic congestion at Southgate Road. The proposed shift in the routing to stay on Columbia Pike would however result in a loss in direct service to Park University at Henderson Hall MCB. Service to Foxcroft Heights (Southgate Road and S Nash Street) would still be available on Route 42, a short walk away on Columbia Pike.

The extended span of service would improve accessibility to students of nearby educational institutions and assist in restoring some degree of pre-pandemic ridership. Increased weekday service span is anticipated to improve ridership productivity metrics and support riders who depend on this route daily.

Closer to implementation, ART will further consider the operational and facility logistics for ending the route at the Pentagon Transit Center versus at Pentagon or Crystal City.





TABLE 28 | ROUTE 42 EXISTING PERFORMANCE METRICS

	Target (STN)	Weekday ART Rank	Weekday	Saturday	Sunday
Average Daily Ridership	-	4 <sup>th</sup>	574	295	244
Farebox Recovery	20%	3 <sup>Rd</sup>	11%	10%	10%
Passengers Per One Way Trip	-	3 <sup>Rd</sup>	12.9	10.7	10.2
Passengers Per Revenue Hour	15	3 <sup>Rd</sup>	11.1	10.7	10.2
Passengers Per Revenue Mile	-	3 <sup>Rd</sup>	1.1	1.0	1.0
On-Time Performance	95%	7 <sup>th</sup>	87.3%	-	-

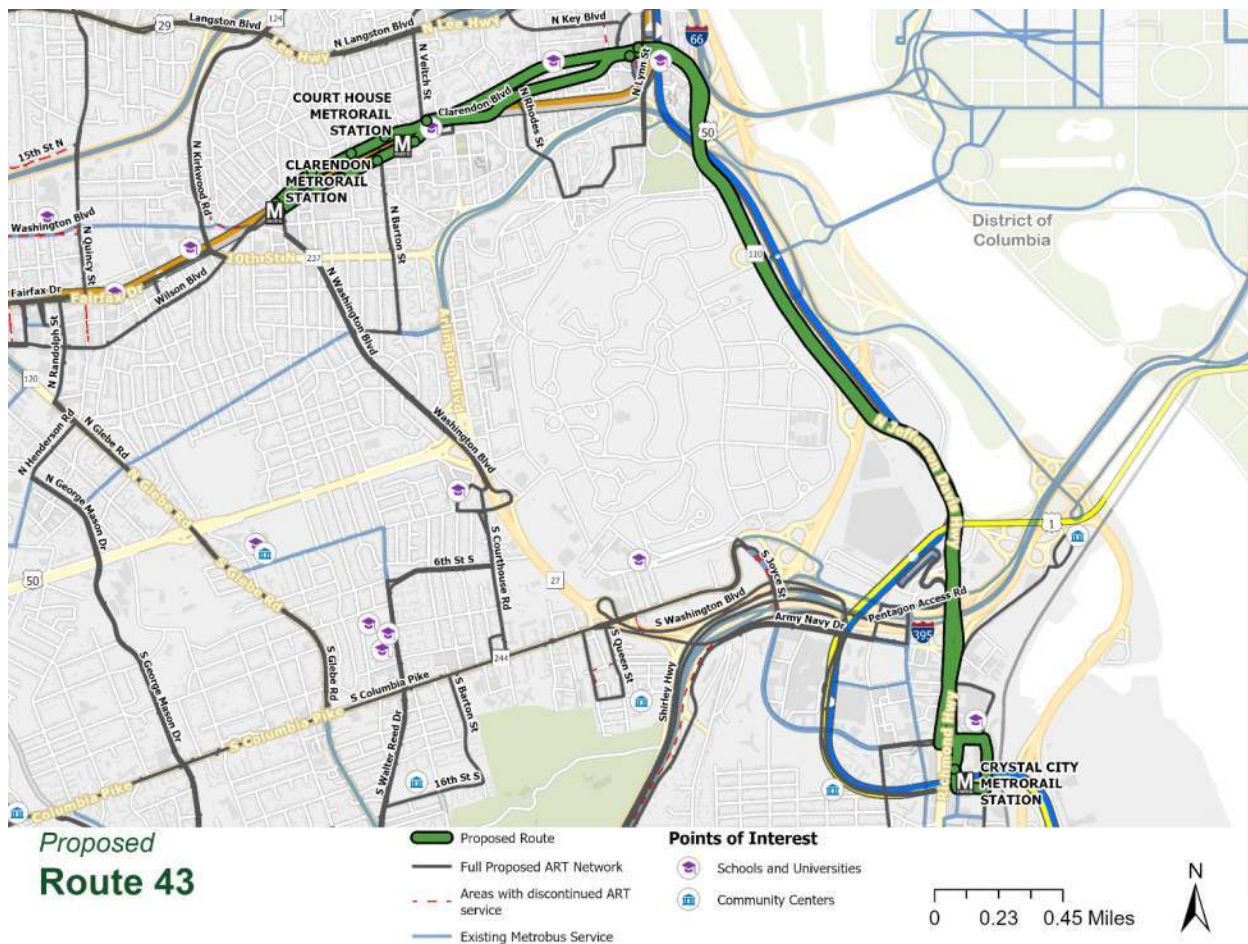
TABLE 29 | ROUTE 42 EXISTING AND PROPOSED OPERATING STREETATISTICS

Performance Evaluation Metrics			Current	Proposed	Difference	Target / Average
From			Ballston			
To			Pentagon Transit Center			
Service Times	Weekday	Start Time	6:00 AM	6:00 AM	-	
		End Time	8:38 PM	8:00 PM	-0:38	
	Saturday	Start Time	6:45 AM	7:15 AM	-0:30	
		End Time	8:09 PM	7:45 PM	-0:24	
	Sunday	Start Time	7:00 AM	7:00 AM	-	
		End Time	7:24 PM	7:00 PM	-0:24	
Span (Hours/ Minutes)	Weekday		14:38	14:00	-0:38	>=18:00
	Saturday		13:24	12:30	-0:54	
	Sunday		12:24	12:00	-0:24	
Frequency (Minutes)	Weekday	Early	-	-	-	<=30
		AM Peak	15	15	0	
		Midday	30	30	0	
		PM Peak	15	15	0	
		Evening	30	30	0	
		Late	-	-	-	
	Saturday	Core *	30	30	0	
		Non-Core *	30	30	0	
	Sunday	Core *	30	30	0	
		Non-Core *	30	30	0	
Vehicle Revenue Hours	Weekday		53	54	+1	n/a
	Saturday		27	28	+1	n/a
	Sunday		25	26	+1	n/a
	Annual		16,262	16,789	+527	n/a
Equity Share	Minority		38%	38%	0%	39%
	Low income		13%	13%	0%	14%
	Limited English Proficiency		5%	5%	0%	5%
Peak Vehicles			6	6	0	n/a
Annual Operating Cost			\$1.90 M	\$1.96 M	+\$0.06 M	n/a
Estimated Ridership Impact (FY21 base)			543	614	+71	n/a

\*Core hours vary by weekend day, they represent the busiest hours of the day, while non-core hours are those outside of dominant travel times

## Route 43

FIGURE 7 | ROUTE 43 (PROPOSED)



## Background

Route 43 provides a valuable north-south bus connection between Courthouse, Rosslyn, and Crystal City. It has the seventh highest ridership and is ranked tenth for the ART system in terms of productivity. It currently operates as an STN route with weekday service operating between 6 AM and 10:51 PM. Buses operate every ten minutes during peak and midday periods and 20 minutes or less during off-peak periods. The route also provides service to equity-focus communities and other destinations with above-average ridership including:

- Metrorail
  - Court House
  - Rosslyn
  - Crystal City
- Neighborhood Centers
  - Courthouse
  - Crystal City
  - Pentagon City
  - Rosslyn
- Schools
  - DeVry
  - Strayer
  - University of Management and Technology
  - UVA Darden DC Metro at Sands Family Grounds
- Community Centers
  - None

The two busiest stops on the route are Wilson Boulevard at N Veitch Street, with 209 average weekday boardings in 2021, and Clarendon Boulevard at N Uhle Street, with 177 average weekday boardings. Over the previous four years, Route 43 ridership peaked in August 2018, at 1,321 average weekday boardings, with the

lowest ridership of the pandemic in May 2020 at 65 average weekday boardings. Ridership dropped to 5% of its 2018 high as many such routes experienced similar drops.

The Gaps and Needs Analysis identified Crystal City as having a lower number of transit trips provided per person on transit propensity and equity-focus population measures than countywide averages.

### Service Recommendations

1. No Change to Route Alignment.
2. Increase weekday Frequency to 15-minutes or better.
3. Add new 30-minute headway weekend service.

### Expected Outcomes

The recommended service increase will allow the route to meet and exceed PTN service guidelines, which target service every 15 minutes or better at all times of the day. Increased weekday frequency and extended weekend service is expected to improve ridership productivity metrics and support riders who depend on this route for daily activities. The proposed Service Recommendations are geared to benefit the community with an increase in ART service, resulting in little to no anticipated equity impacts. Closer to implementation, ART will consider the resources required and space availability for extending Route 43 to Ballston Metrorail Station.

The proposed recommendations would increase ART's level of service provided to equity-focus areas and high-transit propensity neighborhoods. Route 43 operates in an area where 40% of the population within a quarter mile are minority individuals and 12% of the population are considered low income. This basically mirrors countywide shares of each classification at 39% and 14% respectively.

TABLE 30 | ROUTE 43 EXISTING PERFORMANCE METRICS

	Target (STN)	Weekday ART Rank	Weekday	Saturday	Sunday
Average Daily Ridership	-	7 <sup>th</sup>	299	-	-
Farebox Recovery	20%	8 <sup>th</sup> (Tied)	6%	-	-
Passengers Per One Way Trip	-	11 <sup>th</sup>	4.2	-	-
Passengers Per Revenue Hour	15	8 <sup>th</sup>	6.2	-	-
Passengers Per Revenue Mile	-	10 <sup>th</sup> (Tied)	0.5	-	-
On-Time Performance	95%	1 <sup>st</sup>	96.5%	-	-



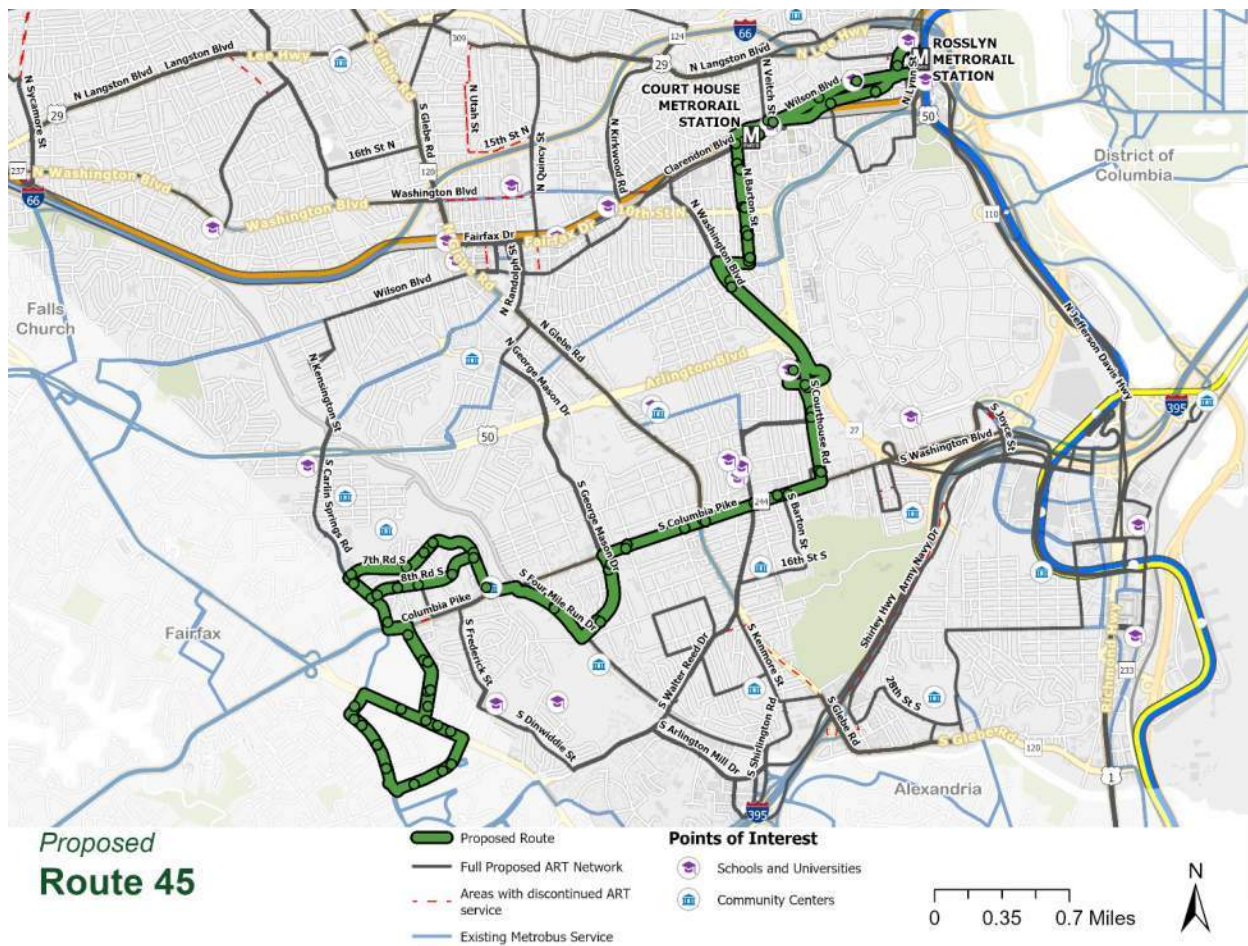
TABLE 31 | ROUTE 43 EXISTING AND PROPOSED OPERATING STREETATISTICS

Performance Evaluation Metrics			Current	Proposed	Difference	Target / Average
From			Courthouse			
To			Crystal City			
Service Times	Weekday	Start Time	6:02 AM	6:00 AM	+0:02	
		End Time	10:51 PM	10:45 AM	-0:06	
	Saturday	Start Time	-	6:00 AM	-	
		End Time	-	10:45 PM	-	
	Sunday	Start Time	-	7:00 AM	-	
		End Time	-	7:00 PM	-	
Span (Hours/Minutes)	Weekday		16:49	16:45	-0:04	>=18:00
	Saturday		N/A	16:45	+16:45	
	Sunday		N/A	12:00	+12:00	
Frequency (Minutes)	Weekday	Early	-	-	-	<=15
		AM Peak	10	10	0	
		Midday	20	15	+5	
		PM Peak	10	10	0	
		Evening	20	15	+5	
		Late	-	-	-	
	Saturday	Core *	-	30	+30	
		Non-Core *	-	30	+30	
	Sunday	Core *	-	30	+30	
		Non-Core *	-	30	+30	
Vehicle Revenue Hours	Weekday		46	54	+8	n/a
	Saturday		-	29	+29	n/a
	Sunday		-	29	+29	n/a
	Annual		11,654	17,011	+5,357	n/a
Equity Share	Minority		40%	37%	-3%	39%
	Low income		12%	11%	0%	14%
	Limited English Proficiency		5%	4%	-1%	5%
Peak Vehicles			5	5	0	n/a
Annual Operating Cost			\$1.36 M	\$1.99 M	+\$0.63 M	n/a
Estimated Ridership Impact (FY21 base)			456	438	-18	n/a



## Route 45

FIGURE 8 | ROUTE 45 (PROPOSED)



### Background

Route 45 has the third highest ridership and is the second most productive Route in the ART system. Route 45 is an STN route connecting Arlington Mill, Rosslyn, and Courthouse, as well as neighborhoods along Columbia Pike and Courthouse Road to the Rosslyn and Courthouse Metrorail Stations. It also provides service to many equity-focus neighborhoods and valuable connections between busy and vital travel corridors and destinations with above-average ridership, including:

- Metrorail
  - Rosslyn
  - Courthouse
- Neighborhood Centers
  - Baileys Crossroads-Western Gateway
  - Clarendon
  - Columbia Pike Town/Village Center
- Community Centers
  - Arlington Mill CC
  - Barcroft CC
  - Walter Reed CC
- Schools
  - Arlington Career Center
  - Arlington Community High School
  - Eunice Kennedy Shriver Program
  - H-B Woodlawn
  - New Directions
  - Arlington Tech
  - Syphax Education Center
  - University of Management and Technology
  - UVA Darden DC Metro at Sands Family Ground

The two busiest stops on the route are S Dinwiddie Street at Columbia Pike, with 391 average weekday boardings in 2021, and 180 N Moore Street, with 188 average weekday boardings. Over the past five years, Route 45 ridership peaked in September 2019 at 1,278 average weekday boardings, with its lowest ridership during the pandemic crisis in April 2020, at 416 average weekday boardings. While ridership dropped to 33% of its 2019 high, many other routes experienced a much greater drop in usage. This illustrates the degree to which people within its service area depend on transit to access employment and other basic needs.

The route currently operates as a STN route with weekday service operating between 5:38 AM and 11:40 PM. Buses operate every 20-25 minutes during peak and midday periods and 30 minutes or less during off-peak periods. Columbia Pike is part of the ART Premium Transit Network and Route 45 shares the bus priority treatments along the Pike Ride corridor with multiple ART and WMATA bus routes.

WMATA is proposing, as part of its Better Bus network redesign, to make changes to the Metrobus Route 16G in the Arlington Mill neighborhood, which would decrease frequency from approximately 7.5 minutes to 10 along the corridor during peak service. Increased frequency on Route 45 will help to maintain high-frequency service to the neighborhood.

### Service Recommendations

1. Add frequency to mitigate loss of service from discontinuation of WMATA 16G.
2. Improve Weekday Frequency during AM Peak and Midday periods to 15 minutes, PM peak to 20 minutes, and improve Saturday frequency from 30 minutes to 15 minutes.
3. Proposed extension of the western terminus to Leesburg Pike and Skyline Place in line with planned Route 7 BRT if new WMATA 16M does not connect Arlington to the BRT.

### Expected Outcomes

The proposed recommendations would increase ART's level of service provided to equity-focus areas and high-transit propensity neighborhoods. The route operates in an area where 51% of the population within a third of a mile are minority individuals, and 19% of the population are considered low income. This is well above Countywide shares of 39% and 14% respectively. The additional frequency and extended service span provided throughout the day will increase Annual Vehicle Revenue Hours by approximately 94%. Increased weekday and weekend service are expected to improve ridership productivity metrics and support riders who depend on this route daily.

The proposed Service Recommendations are expected to benefit the community with an increase in ART service. The increase in frequency will mostly offset any potential loss of service from changes to the WMATA Route 16G and fill gaps due to the reduced Metrobus service. The proposed future extension to the planned Route 7 BRT would provide better connectivity to key neighborhood centers such as Bailey's Crossroads, Skyline Place, and parts of Columbia Forest/Douglas Park. The proposed realignment along 8<sup>th</sup> Road South will enable more efficient operations as a result of implementing bi-directional service through Arlington Mill.

TABLE 32 | ROUTE 45 EXISTING PERFORMANCE METRICS

	Target (STN)	Weekday ART Rank	Weekday	Saturday	Sunday
<b>Average Daily Ridership</b>	-	3 <sup>Rd</sup>	733	494	439
<b>Farebox Recovery</b>	20%	2 <sup>nd</sup>	12%	10%	10%
<b>Passengers Per One Way Trip</b>	-	2 <sup>nd</sup>	19.0	15.7	14.0
<b>Passengers Per Revenue Hour</b>	15	2 <sup>nd</sup>	12.7	10.5	9.3
<b>Passengers Per Revenue Mile</b>	-	2 <sup>nd</sup>	1.4	1.2	1.0
<b>On-Time Performance</b>	95%	11 <sup>th</sup>	83.7%	-	-



TABLE 33 | ROUTE 45 EXISTING AND PROPOSED OPERATING CHARACTERISTICS

Performance Evaluation Metrics			Current	Proposed	Difference	Target /Average
From			Arlington Mill			
To			Rosslyn			
Service Times	Weekday	Start Time	5:38 AM	5:30 AM	+0:08	
		End Time	11:40 PM	10:00 PM	-1:40	
	Saturday	Start Time	7:23 AM	6:00 AM	-1:23	
		End Time	12:21 AM	12:00 AM	-0:21	
	Sunday	Start Time	6:43 AM	6:00 AM	-0:43	
		End Time	11:41 PM	12:00 AM	+0:19	
Span (Hours/Minutes)	Weekday		18:02	16:30	-1:32	>=18:00
	Saturday		16:58	18:00	+1:02	
	Sunday		16:58	18:00	+1:02	
Frequency (Minutes)	Weekday	Early	0	20	0	<=30
		AM Peak	20	15	+5	
		Midday	30	15	+15	
		PM Peak	20	20	0	
		Evening	30	30	0	
		Late	-	-	-	
	Saturday	Core *	30	15	+15	
		Non-Core *	30	15	+15	
	Sunday	Core *	30	30	0	
		Non-Core *	30	30	0	
Vehicle Revenue Hours	Weekday		56	97	+41	n/a
	Saturday		43	118	+75	n/a
	Sunday		41	116	+75	n/a
	Annual		18,875	37,656	18,782	n/a
Equity Share	Minority		51%	52%	+1%	39%
	Low income		19%	21%	+2%	14%
	Limited English Proficiency		6%	6%	0%	5%
Peak Vehicles			5	8	+3	n/a
Annual Operating Cost			\$2.21 M	\$4.40 M	+\$2.19 M	n/a
Estimated Ridership Impact (FY21 base)			844	1,278	+435	n/a







ridership peaked in October 2018 at 359 average weekday boardings and saw its lowest ridership during the pandemic in February 2021 at 110 average weekday boardings. While ridership dropped to 31% of its 2018 high, many other routes experienced a much greater drop in usage. This illustrates the degree to which people within the service area depend on transit to access employment and other basic needs.

### Service Recommendations

1. Extend in both directions to East Falls Church and Rosslyn to extend reach and maintain service on the discontinued southern half of Route 61 Loop.
2. Discontinue service on North Post Office Loop (N George Mason, Langston Boulevard, N Harrison Street and Patrick Henry Drive).

### Expected Outcomes

The service recommendations would provide improved service between Metrorail and VHC, which is a vital connection. Essential hospital workers will benefit from the proposed recommendations and equity benefits to the community. Additionally, the proposed recommendations restore a transit connection to Swanson Middle School.

This service increase will also allow the route to meet the STN service guidelines, which target service every 30 minutes at all times of the day. The proposed changes will result in an increase of about 36 Vehicle Revenue Hours during each weekday, and an annual increase of approximately 12,000 vehicle revenue hours, an increase of about 223%.

The proposed recommendations would increase ART's level of service provided to equity-focus populations. The proposed Route 51 would absorb portions of Route 61, which is recommended for elimination. The proposed new alignment would create a second east-to-west route between East Falls Church and Rosslyn (south of Route 55), which would improve transit access in neighborhoods such as Highland Park, Westover Village, Tara-Leeway Heights, Clarendon/Courthouse, and Ft. Myer Heights. This would extend route coverage and reach to nearby neighborhoods and improve network connectivity. The recommendations aim for improved levels of service for existing Route 51 and Route 61 passengers by reducing the need for transfer, which may potentially reduce overall travel times.

TABLE 34 | ROUTE 51 EXISTING PERFORMANCE METRICS

	Target (STN)	Weekday ART Rank	Weekday	Saturday	Sunday
<b>Average Daily Ridership</b>	-	10 <sup>th</sup>	733	494	439
<b>Farebox Recovery</b>	20%	4 <sup>th</sup>	12%	10%	10%
<b>Passengers Per One Way Trip</b>	-	9 <sup>th</sup>	19.0	15.7	14.0
<b>Passengers Per Revenue Hour</b>	15	4 <sup>th</sup>	12.7	10.5	9.3
<b>Passengers Per Revenue Mile</b>	-	3 <sup>Rd</sup> (Tied)	1.4	1.2	1.0
<b>On-Time Performance</b>	95%	2 <sup>nd</sup>	83.7%	-	-



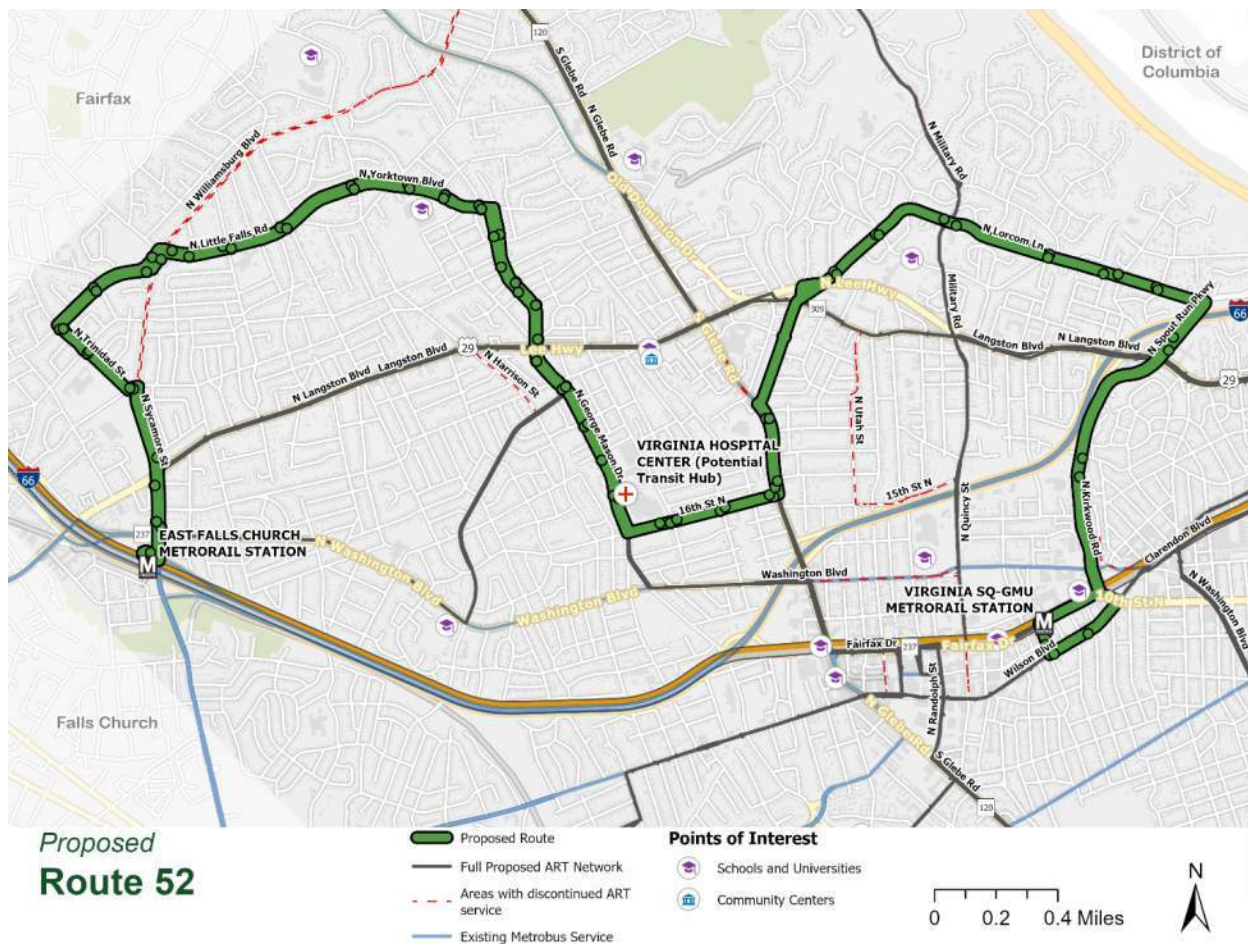
TABLE 35 | ROUTE 51 EXISTING AND PROPOSED OPERATING STREETATISTICS

Performance Evaluation Metrics			Current	Proposed	Difference	Target/Average
From			Ballston-MU	Rosslyn		
To			Virginia Hospital Center	East Falls Church		
Service Times	Weekday	Start Time	6:05 AM	6:00 AM	+0:05	
		End Time	12:30 AM	10:00 PM	-2:30	
	Saturday	Start Time	6:05 AM	6:00 AM	+0:05	
		End Time	12:13 AM	12:00 AM	-0:13	
	Sunday	Start Time	6:45 AM	6:00 AM	+0:45	
		End Time	10:34 PM	12:00 AM	+1:26	
Span (Hours/Minutes)	Weekday		18:25	16:00	-2:25	>=18:00
	Saturday		18:08	18:00	-0:08	
	Sunday		15:49	18:00	+2:11	
Frequency (Minutes)	Weekday	Early	-	-	-	<=30
		AM Peak	30	30	0	
		Midday	30	30	0	
		PM Peak	30	30	0	
		Evening	30	30	0	
		Late	-	-	-	
	Saturday	Core *	30	30	0	
		Non-Core *	30	30	0	
	Sunday	Core *	30	30	0	
		Non-Core *	30	30	0	
Vehicle Revenue Hours	Weekday		20	40	+20	n/a
	Saturday		22	44	+22	n/a
	Sunday		19	44	+25	n/a
	Annual		7,277	14,982	+7,705	n/a
Equity Share	Minority		31%	39%	+8%	39%
	Low income		10%	24%	+14%	14%
	Limited English Proficiency		4%	3%	-1%	5%
Peak Vehicles			2	3	+1	n/a
Annual Operating Cost			\$0.85 M	\$1.75 M	+\$0.90 M	n/a
Estimated Ridership Impact (FY21 base)			125	694	+569	n/a

\* Core hours vary by weekend day, but represent the busiest hours of the day, while non-core hours are those outside of dominant travel times.

## Route 52

FIGURE 10 | ROUTE 52 (PROPOSED)



### Background

Route 52 is an STN route connecting East Falls Church and Ballston-MU Metro Stations along Williamsburg Boulevard, Little Falls Road, Yorktown Boulevard and N George Mason Drive. The route currently operates weekday service between 5:51 AM and 9:29 PM. Buses operate approximately every 30 minutes during peak and midday periods and 30 minutes or less during off-peak periods.

It is currently ranked 11th of 16 routes in total ridership and is at the median (eighth) range of ART system productivity. This is partially due to the subsidy it receives from Virginia Hospital Center allowing employees to ride free. It generally operates in non-minority and higher income neighborhoods but provides transportation for essential hospital workers, therefore providing an equity-focused opportunity for improvements. The route offers service to the following points of interest:

- Metrorail
  - Clarendon
  - East Falls Church
- Neighborhood Centers
  - Ballston / Virginia Square
  - City of Falls Church
  - Virginia Hospital Center
- Schools
  - Marymount University - Ballston Center
  - Virginia Tech Research Center - Arlington
  - Washington-Liberty High School
  - Yorktown High School

The two busiest stops on the route are East Falls Church Metro Station, with 174 average weekday boardings in 2021, and Virginia Hospital Center, with 63 average weekday boardings. Over the past five years, Route 52 ridership peaked in September 2019 at 349 average weekday boardings, with service suspended from April 2020 to July 2020, as well as in June 2021. Ridership was at its lowest point at 21 per day in August 2020, 6% of its 2019 high. This illustrates how telework during COVID has had a huge impact on transit along certain routes.

### Service Recommendations

1. Extend eastern terminus from Ballston to Clarendon to maintain service on western leg of Route 62, which is proposed to be discontinued.
2. Reconfigure service east of Virginia Hospital Center to serve Wavery Hills, Lorcom Lane, and N Kirkwood Road to maintain service on discontinued Route 62.

### Expected Outcomes

The Waverly Hills neighborhood, currently served by Route 62, is primarily comprised of low income and minority-defined census block groups. It was identified as a focus area with a gap between the current level of transit service and the analysis of transit propensity measures and the concentration of equity-focus populations. The proposed recommendation seeks to optimize the efficiency of the network while maintaining service levels in this part of Arlington.

The eastward extension of Route 52 to Clarendon, to absorb the western leg of Route 62 (which is proposed to be discontinued), will also result in Route 52 no longer providing a connection to Ballston Metro. Metro connections will continue at East Falls Church and Clarendon. The connection between Ballston and VHC is to be assumed by Route 51. This would also require the private subsidy covering VHC employee service to be redistributed to cover Route 51 operating expenses.

This recommended service increase will allow the route to meet the STN service guidelines, which target service every 30 minutes at all times of the day. Due to the reallocation of service hours from Route 62, the proposed changes will only result in an increase of about eight Vehicle Revenue Hours during each weekday while maintaining connections to equity-focus areas. The annual increase will be approximately 2,056 vehicle revenue hours, an increase of about 25%.

The proposed Service Recommendations are expected to result in a positive benefit to the community, in conjunction with other proposed routes changes, by improving the efficiency of ART service. The proposed realignment and absorption of Route 62 service will extend the route to reach other nearby neighborhoods to improve network connectivity.

TABLE 36 | ROUTE 52 EXISTING PERFORMANCE METRICS

	Target (STN)	Weekday ART Rank	Weekday	Saturday	Sunday
Average Daily Ridership	-	11 <sup>th</sup>	151	-	-
Farebox Recovery	20%	8 <sup>th</sup> (Tied)	6%	-	-
Passengers Per One Way Trip	-	8 <sup>th</sup>	5.8	-	-
Passengers Per Revenue Hour	15	9 <sup>th</sup>	5.8	-	-
Passengers Per Revenue Mile	-	10 <sup>th</sup> (Tied)	0.5	-	-
On-Time Performance	95%	12 <sup>th</sup>	80.8%	-	-



TABLE 37 | ROUTE 52 EXISTING AND PROPOSED OPERATING STATISTICS

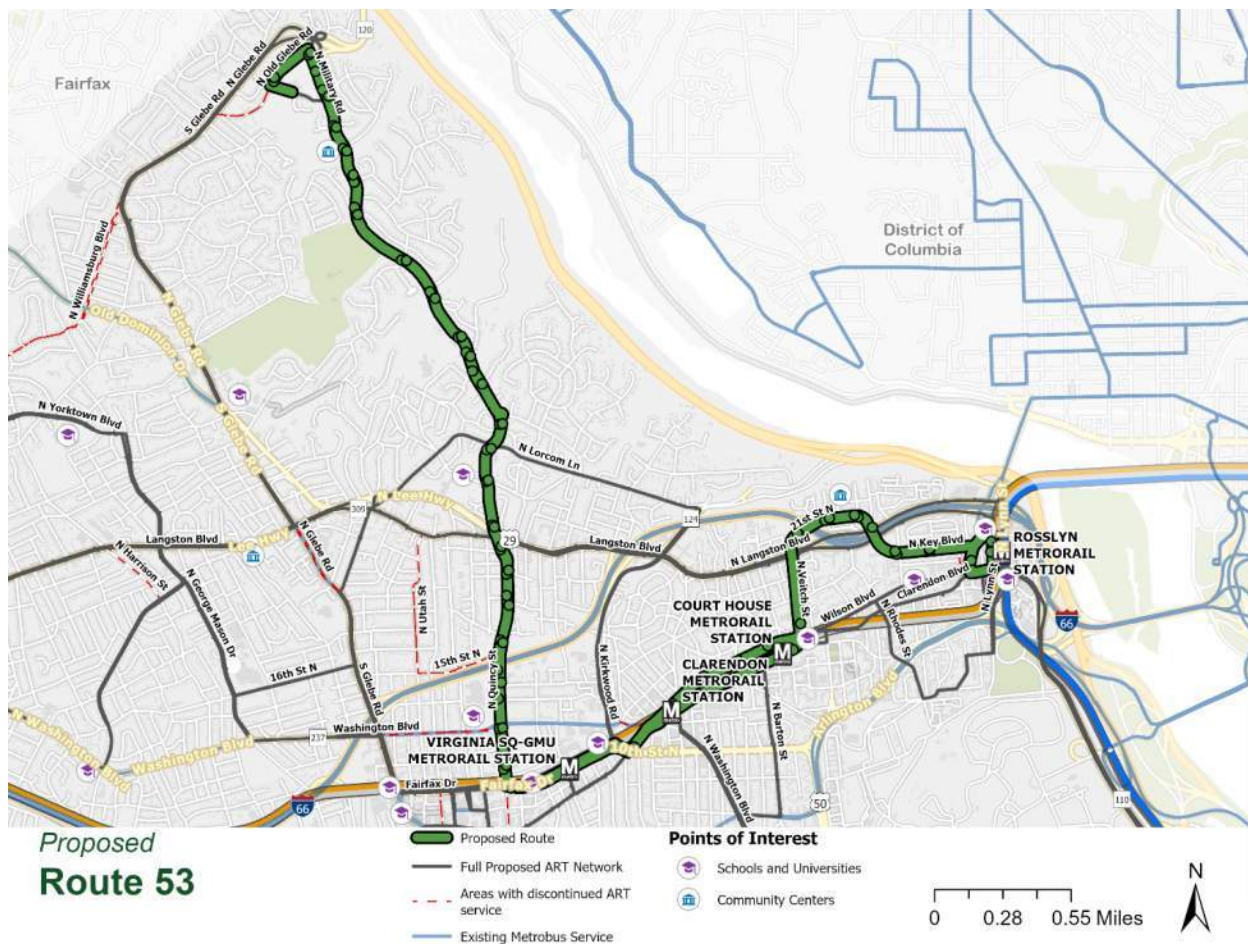
Performance Evaluation Metrics			Current	Proposed	Difference	Target / Average
From			Ballston	Courthouse		
To			East Falls Church			
Service Times	Weekday	Start Time	5:51 AM	6:15 AM	-0:24	
		End Time	9:29 PM	8:30 PM	-0:59	
	Saturday	Start Time	-	-	-	
		End Time	-	-	-	
	Sunday	Start Time	-	-	-	
		End Time	-	-	-	
Span (Hours/Minutes)	Weekday		15:38	14:15	-1:23	>=18:00
	Saturday		-	-	-	
	Sunday		-	-	-	
Frequency (Minutes)	Weekday	Early	-	-	-	<=30
		AM Peak	30	30	0	
		Midday	30	30	0	
		PM Peak	30	30	0	
		Evening	30	30	0	
		Late	-	-	-	
	Saturday	Core *	-	-	-	
		Non-Core *	-	-	-	
	Sunday	Core *	-	-	-	
		Non-Core *	-	-	-	
Vehicle Revenue Hours	Weekday		32	40	+8	n/a
	Saturday		-	-	-	n/a
	Sunday		-	-	-	n/a
	Annual		8,033	10,098	+2,065	n/a
Equity Share	Minority		29%	28%	-1%	39%
	Low income		9%	9%	0%	14%
	Limited English Proficiency		3%	2%	-1%	5%
Peak Vehicles			3	3	0	n/a
Annual Operating Cost			\$0.94 M	\$1.18 M	+\$0.24 M	n/a
Estimated Ridership Impact (FY21 base)			117	372	+255	n/a

Note: Red font cells represent where current service is not meeting service design standards.

\* Core hours vary by weekend day, but represent the busiest hours of the day, while non-core hours are those outside of dominant travel times.

## Route 53

FIGURE 11 | ROUTE 53 (PROPOSED)



## Background

The existing Route 53 has the third lowest ridership and is the third least productive route in the ART system. Route 53 is a STN route connecting the Ballston-MU and East Falls Church Metrorail Stations with Westover and other neighborhoods in North Arlington. It currently operates as an STN route with weekday peak period-only service between 6 AM to 9:14 AM, and from 2:35 PM to 7:39 PM. Buses operate every 25 minutes during these times. The route generally operates through non-minority and higher income neighborhoods and serves the following areas:

- Metrorail
  - Ballston-MU
  - East Falls Church
- Neighborhood Centers
  - Ballston
  - City of Falls Church
- Virginia Square
- Schools
  - Information Sciences Institute
  - Marymount University - Ballston Center
  - Washington-Liberty High School
  - Virginia Tech Research Center - Arlington
- Community Centers
  - Gulf Branch Nature Center

The two busiest stops on the route are East Falls Church Metrorail Station, with 174 average weekday boardings in 2021, and Williamsburg Boulevard at N Glebe Road, with 13 average weekday boardings. Over the past five years, Route 53 ridership peaked in July 2019 at 260 average weekday boardings, service suspended from April 2020 to August 2021. Ridership was at its lowest at 26 boardings in January 2022, 10%

of the 2019 high. This illustrates how telework resulting from the COVID-19 pandemic has had a huge impact on transit usage along certain routes.

### Service Recommendations

1. Discontinue Service between East Falls Church and N Glebe Road on N Sycamore Street and Williamsburg Boulevard in conjunction with the implementation of an On-Demand Service Zone.
2. Shift Western/Northern Terminus from East Falls Church to N Glebe Road and Military Road (Madison Community Center), which is shared with an extended Route 72.
3. Shift Southern/Eastern Terminus from Ballston to Rosslyn (service to Ballston eliminated), via northern portion of discontinued Route 61 loop.
4. Extend service coverage by absorbing Route 61 alignment and service hours (inherits better of two service levels).
5. Increase Span of Service to maintain STN guidelines, by adding midday service with the same 25-minute frequency from peak period to match the STN 30-minute guideline.

### Expected Outcomes

The proposed Route 53 would absorb portions of Route 61, which is recommended for elimination. The proposed new alignment would create a direct connection between Rosslyn and Arlington's northern tier. Because of the realignment, ART service will be discontinued to Discovery Elementary School and Williamsburg Middle School.

The recommendations would increase ART's level of service provided to equity-focus populations and high-transit propensity neighborhoods as defined in Tech Memo #4 Gaps and Needs. This would extend route coverage and reach nearby neighborhoods, improving network connectivity. The recommendations aim to provide improved levels of service for existing Route 51 and Route 61 passengers by reducing the need for transfer, which may potentially reduce overall travel times.

The proposed changes will increase the share of the minority population within a quarter mile of the route from 27% to 31% and low-income population from 7% to 10%, a 4% and 3% increase respectively.

This service increase will also allow the route to meet and exceed the STN service guidelines, with the inclusion of midday and extended evening service. This extended span is expected to improve ridership productivity metrics and support riders who depend on this route daily.

The proposed changes will keep an average headway of 25 minutes and result in an increase of about 21 Vehicle Revenue Hours during each weekday, with an annual increase of approximately 5,330 Vehicle Revenue Hours, an increase of about 97%.

TABLE 38 | ROUTE 53 EXISTING PERFORMANCE METRICS

	Target (STN)	Weekday ART Rank	Weekday	Saturday	Sunday
<b>Average Daily Ridership</b>	-	13 <sup>th</sup>	33	-	-
<b>Farebox Recovery</b>	20%	14 <sup>th</sup> (Tied)	2%	-	-
<b>Passengers Per One Way Trip</b>	-	12 <sup>th</sup>	2.1	-	-
<b>Passengers Per Revenue Hour</b>	15	15 <sup>th</sup>	1.8	-	-
<b>Passengers Per Revenue Mile</b>	-	14 <sup>th</sup> (Tied)	0.1	-	-
<b>On-Time Performance</b>	95%	8 <sup>th</sup>	86.0%	-	-



TABLE 39 | ROUTE 53 EXISTING AND PROPOSED OPERATING STATISTICS

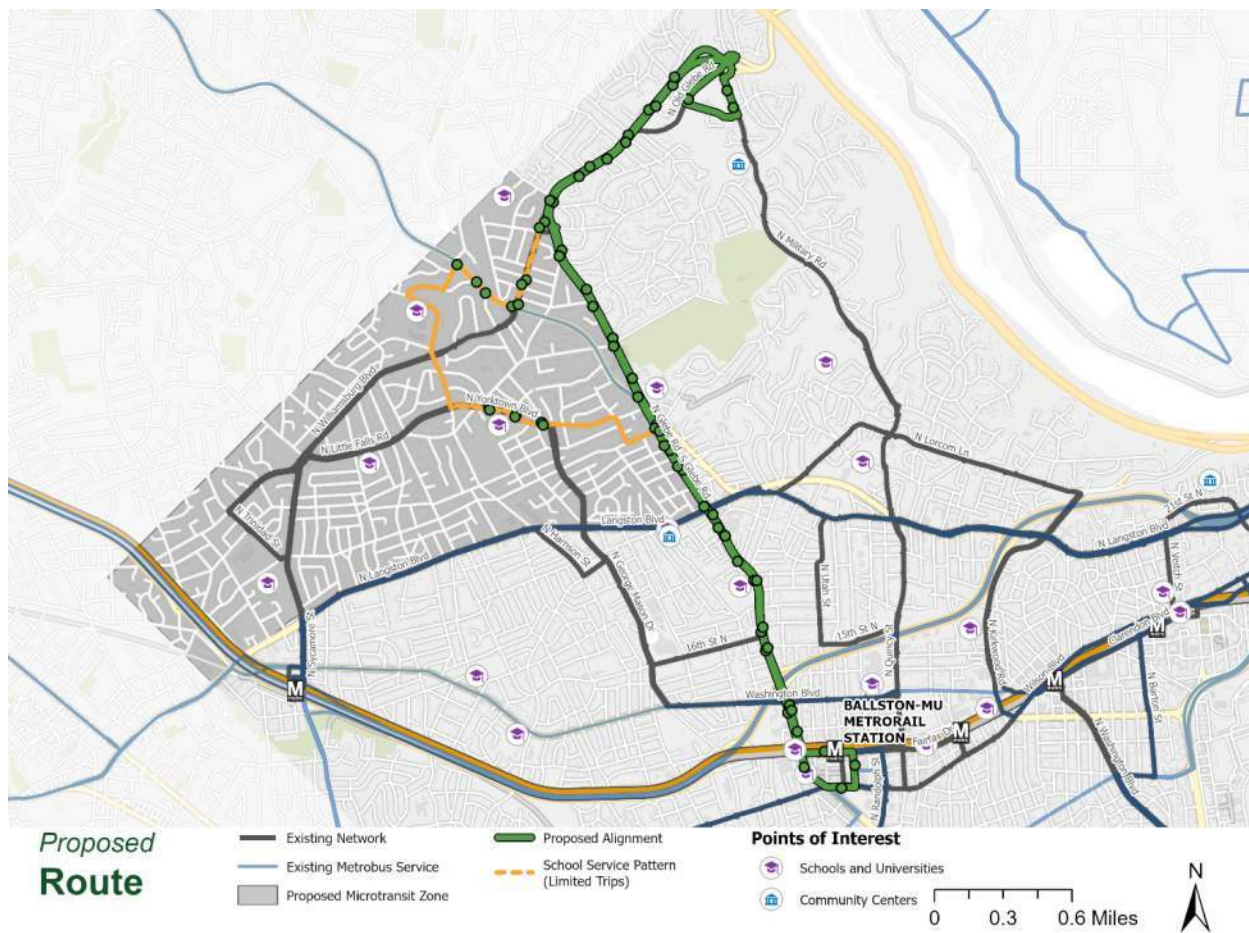
Performance Evaluation Metrics			Current	Proposed	Difference	Target / Average
From			Westover	Rosslyn		
To			East Falls Church	Madison Community Center		
Service Times	Weekday	Start Time	6:00 AM/2:35 PM	6:00 AM	-	
		End Time	9:14 AM/7:39 PM	10:00 PM	+2:21	
	Saturday	Start Time	-	-	-	
		End Time	-	-	-	
	Sunday	Start Time	-	-	-	
		End Time	-	-	-	
Span (Hours / Minutes)	Weekday		8:18	16:00	+7:42	>=18:00
	Saturday		-	-	-	
	Sunday		-	-	-	
Frequency (Minutes)	Weekday	Early	-	-	-	<=30
		AM Peak	25	25	0	
		Midday	0	25	+25	
		PM Peak	25	25	0	
		Evening	0	25	+25	
		Late	-	-	-	
	Saturday	Core *	-	-	-	
		Non-Core *	-	-	-	
	Sunday	Core *	-	-	-	
		Non-Core *	-	-	-	
Vehicle Revenue Hours	Weekday		22	42	+20	n/a
	Saturday		-	-	-	n/a
	Sunday		-	-	-	n/a
	Annual		5,483	10,812	+5,329	n/a
Equity Share	Minority		27%	31%	+4%	39%
	Low income		7%	10%	+3%	14%
	Limited English Proficiency		3%	3%	0%	5%
Peak Vehicles			3	4	+1	n/a
Annual Operating Cost			\$0.64 M	\$1.26 M	+\$0.62 M	n/a
Estimated Ridership Impact (FY21 base)			64	395	+331	n/a

\* Core hours vary by weekend day, but represent the busiest hours of the day, while non-core hours are those outside of dominant travel times.



## Route 54

FIGURE 12 | ROUTE 54 (PROPOSED)



## Background

Route 54 is a proposed new route in the ART system that maintains a connection between Ballston Metrorail Station and communities to the north that are proposed to lose Route 72. The new line would also maintain service along N Glebe Road from Williamsburg Road to Military Road, a stretch facing proposed elimination from Route 53. Service would operate along N George Mason Drive, Langston Boulevard, N Glebe Road and Williamsburg Road to a shared terminus with Route 53 at N Glebe Road and Military Road (Madison Community Center). The route would provide service through generally non-minority and higher income neighborhoods and serve the following areas:

- Metrorail
  - Ballston
- Neighborhood Centers
  - Virginia Hospital Center
- Schools
  - Marymount University
- Community Centers
  - Madison Community Center

## Service Recommendations

1. New route proposed to maintain connection along N Glebe Road from VHC to Williamsburg Road, a stretch that is proposed to be lose Route 72, with N Glebe Road to Military Road proposed to lose Route 53.

### Expected Outcomes

The proposed Route 54 would absorb portions of Routes 53 and 72, which are recommended for elimination. The proposed new alignment would create a new direct connection between Virginia Hospital Center (VHC) and North Arlington. This would extend route coverage and reach nearby neighborhoods and improve network connectivity. The recommendations are anticipated to provide improved levels of service for existing Route 53 and Route 72 passengers by reducing the need for transfer, which may potentially reduce overall travel times. The service will ensure that the route meets and exceeds the STN service guidelines. The proposed reassignment of route alignment and service hours to Route 54 aims to improve ridership productivity metrics in the area and support riders who depend on this route daily.

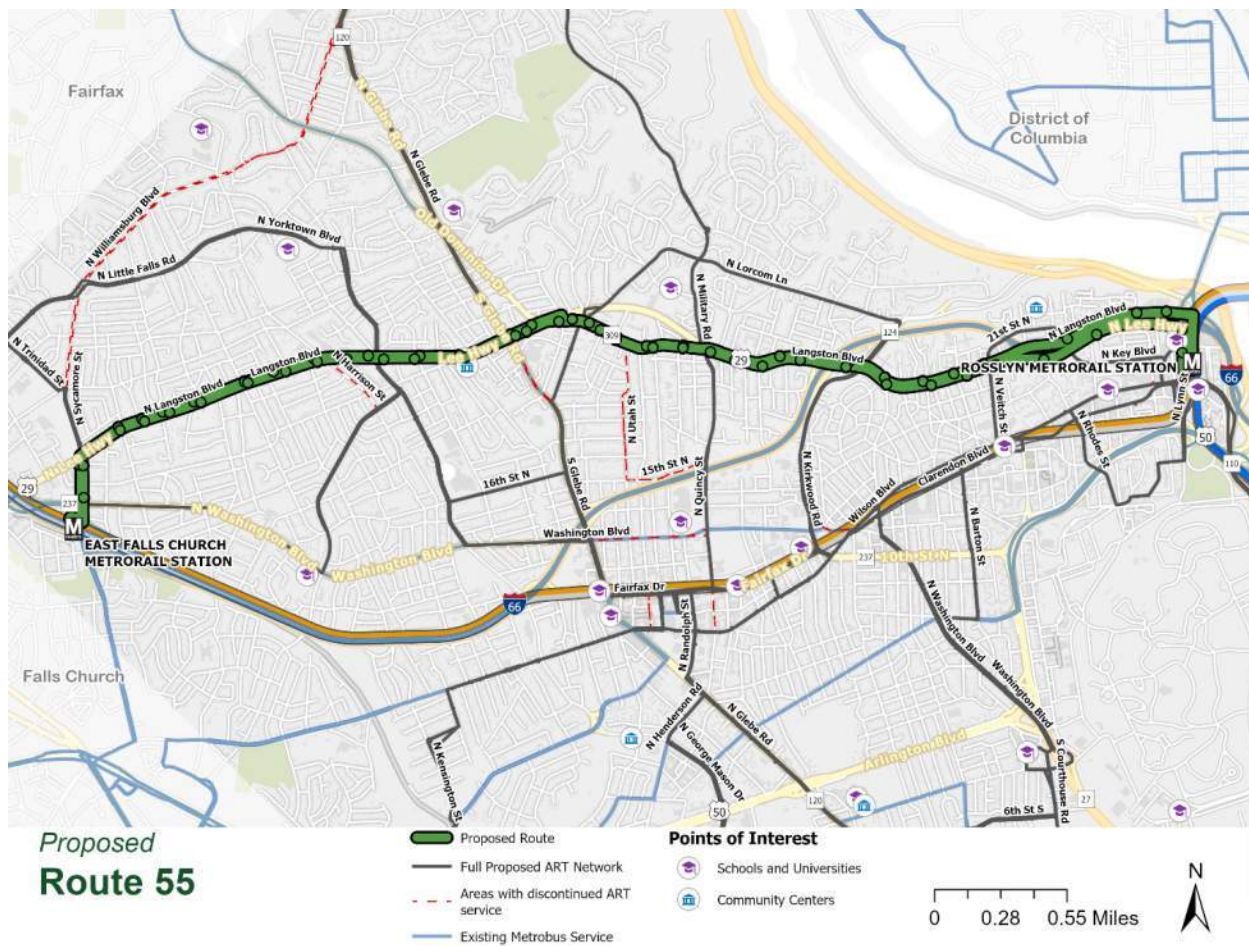
TABLE 40 | ROUTE 54 EXISTING AND PROPOSED OPERATING STREETATISTICS

Performance Evaluation Metrics			Current	Proposed	Difference	Target / Average
From			-	VHC		
To			-	Madison CC		
Service Times	Weekday	Start Time	-	7:00 AM	-	
		End Time	-	7:00 PM	-	
Span (Hours/Minutes)	Weekday		-	12:00	+12:00	
	Saturday		-	-	-	
	Sunday		-	-	-	
Frequency (Minutes)	Weekday	Early	-	-	-	-
		AM Peak	-	30	+30	30
		Midday	-	30	+30	30
		PM Peak	-	30	+30	30
		Evening	-	30	+30	30
		Late	-	-	-	-
	Saturday	Core/Non-core *	-	-	-	-
	Sunday	Core/Non-core *	-	-	-	-
Vehicle Revenue Hours	Weekday		-	22	+22	
	Annual		-	5,610	+5,610	
Equity Share	Minority		-	32%	+32%	39%
	Low income		-	11%	+11%	24%
	Limited English Proficiency		-	1%	+1%	3%
Peak Vehicles			-	3	+3	
Annual Operating Cost			-	\$0.66 M	+\$0.66 M	
Estimated Ridership Impact (FY21 base)				481	+481	

\* Core hours vary by weekend day, but represent the busiest hours of the day, while non-core hours are those outside of dominant travel times

## Route 55

FIGURE 13 | ROUTE 55 (PROPOSED)



### Background

Route 55 is a PTN route connecting East Falls Church and Rosslyn Metro Stations to the neighborhoods along Langston Boulevard. It has the second highest ridership among routes and is the sixth most productive in the ART system. Route 55 generally operates in non-minority and higher income neighborhoods and provides valuable connections between busy and vital travel corridors and destinations with above-average ridership, including:

- Metrorail
  - East Falls Church
  - Rosslyn
- Neighborhood Centers
  - City of Falls Church
  - Clarendon
  - Courthouse
  - Rosslyn
  - Virginia Hospital Center
- Schools
  - Eunice Kennedy Shriver Program
  - H-B Woodlawn
  - Langston High School Continuation Program
  - University of Management and Technology
  - UVA Darden DC Metro at Sands Family Grounds
- Community Centers
  - Langston-Brown Park

Route 55 is currently one of two PTN routes with weekday service operating between 5 AM and 1:39 AM. Buses run every 12 minutes during peak and midday periods and 33 minutes or less during off-peak periods.



The two busiest stops on the route are Rosslyn Metro, with 246 average weekday boardings in 2021, and East Falls Church, with 130 average weekday boardings.

Over the past four years, Route 55 ridership peaked in September 2019 at 1,658 average weekday boardings and saw its lowest ridership during the pandemic in April 2020 at 343 average weekday boardings. While ridership dropped to 21% of its 2019 high, many other routes saw a much greater drop in usage. This illustrates the degree to which people within its service area depend on transit to access employment and other basic needs. This is an important finding as Route 55 has traditionally been viewed as a “commuter route,” but the relatively small drop in ridership during the pandemic crisis seems to indicate many essential workers are also using it.

Analysis of population density by block group and multi-family housing found a large concentration of multi-family housing along the length of Route 55 in Rosslyn and Waverly Hills. That population is projected to grow over 30% in Rosslyn between 2020 and 2030. It also found that there is an anticipated employment growth rate of over 30% from 2020 to 2030 in Leeway and over 20% in parts of Waverly Hills.

The Waverly Hills neighborhood is primarily comprised of low income and minority defined census block groups and was identified as a focus area with gaps in the level of service provided with respect to transit propensity measures and the concentration of equity-focus populations.

### Service Recommendations

1. Increase early weekday frequency from 15 minutes to 12 minutes (implementation will be contingent on and align with ridership growth and development in the Langston Boulevard planning area).
2. Increase evening and late weekday frequency from 30 minutes to 15 minutes (implementation will be contingent on and align with ridership growth and development in the Langston Boulevard planning area).
3. Increase Saturday and Sunday service to 20-minute frequency all day each day.
4. Extend Sunday span to match Saturday span.

### Expected Outcomes

Route 55 is proposed to maintain existing service levels and expenditures. The realignments of Route 51 from East Falls Church to Rosslyn and Route 52 from East Falls Church to Virginia Square provide a satisfactory number of options connecting East Falls Church to points east in the county.

TABLE 41 | ROUTE 55 EXISTING PERFORMANCE METRICS

	Target (PTN)	Weekday ART Rank	Weekday	Saturday	Sunday
Average Daily Ridership	-	2 <sup>nd</sup>	740	488	318
Farebox Recovery	35%	5 <sup>th</sup> (Tied)	9%	9%	9%
Passengers Per One Way Trip	-	6 <sup>th</sup>	9.9	9.2	9.2
Passengers Per Revenue Hour	35	6 <sup>th</sup>	9.5	9.2	9.2
Passengers Per Revenue Mile	-	6 <sup>th</sup>	0.9	0.8	0.8
On-Time Performance	95%	5 <sup>th</sup>	89.7%	-	-





TABLE 42 | ROUTE 55 EXISTING AND PROPOSED OPERATING STATISTICS

Performance Evaluation Metrics			Current	Proposed	Difference	Target / Average		
From			Rosslyn					
To			East Falls Church					
Service Times	Weekday	Start Time	5:00 AM	5:00 AM	0:00			
		End Time	1:39 AM	1:39 AM	0:00			
	Saturday	Start Time	5:45 AM	5:45 AM	0:00			
		End Time	1:13 AM	1:13 AM	0:00			
	Sunday	Start Time	6:20 AM	5:45 AM	+0:35			
		End Time	12:17 AM	1:13 AM	+0:56			
Span (Hours/Minutes)	Weekday		20:39	20:39	0:00	>=18:00		
	Saturday		19:28	19:28	0:00			
	Sunday		17:57	19:28	+1:31			
Frequency (Minutes)	Weekday	Early	15	12	+3	<=15		
		AM Peak	12	12	0			
		Midday	15	15	0			
		PM Peak	12	12	0			
		Evening	30	15	+15			
		Late	30	15	+15			
	Saturday	Core *	20	20	0		<=15	
		Non-Core *	30	20	+10			
	Sunday	Core *	30	30	+10			<=15
		Non-Core *	30	20	+10			
Vehicle Revenue Hours	Weekday		74	87	+13	n/a		
	Saturday		53	57	+4	n/a		
	Sunday		35	57	+22	n/a		
	Annual		23,730	28,499	+4,769	n/a		
Equity Share	Minority		34%	34%	0%	39%		
	Low income		12%	12%	0%	14%		
	Limited English Proficiency		4%	4%	0%	5%		
Peak Vehicles			6	6	0	n/a		
Annual Operating Cost			\$2.78 M	\$3.33 M	\$0.55 M	n/a		
Estimated Ridership Impact (FY21 base)			851	851	0	n/a		

\* Core hours vary by weekend day, but represent the busiest hours of the day, while non-core hours are those outside of dominant travel times.

## Route 61

*This route is proposed to be discontinued with service absorbed by proposed Routes 51 and 53. The existing route alignment and levels of service will be fully maintained, and it is anticipated that this will provide better coverage and network connectivity to all riders.*

FIGURE 14 | ROUTE 61 (PROPOSED)



## Background

The existing Route 61 is a secondary STN route that acts as a circulator between Courthouse and Rosslyn Metro Stations, with connections to the Colonial Village and Radnor/Ft. Myer neighborhoods. It has the second lowest ridership and is the fourth least productive route in the ART system. Service operates every 20 to 25 minutes during weekday peak periods only, 6:15 AM to 9:41 AM and from 3:03 PM to 7:06 PM. Route 61 generally operates in non-minority and higher income neighborhoods and provides valuable connections between busy, vital travel corridors and destinations with above-average ridership, including:

- Metrorail
  - Rosslyn
  - Courthouse
- Neighborhood Centers
  - Rosslyn
  - Courthouse
  - Community Centers
  - Gulf Branch Nature Center
  - Dawson Terrace Community Center
- Schools
  - UVA Darden DC Metro at Sands Family Grounds
  - University of Management and Technology
  - Eunice Kennedy Shriver Program
  - H-B Woodlawn
  - Strayer University

The two busiest stops on the route are Wilson Boulevard at N Veitch Street, with 209 average weekday boardings in 2021, and Rosslyn Metrorail Station, with 188 average weekday boardings. Over the past four years, Route 61 ridership peaked in July 2019 at 154 average weekday boardings. Service was suspended from April 2020 to August 2021. Ridership was at its lowest point at 22 average weekday boardings in January 2022, 14% of the 2019 high. This illustrates how telework during and after the COVID crisis had a huge impact on transit usage along certain routes.

### Service Recommendations

1. Discontinue Route 61 - southern portion of loop replaced by Route 51, northern portion of loop replaced by Route 53.

### Expected Outcomes

The southern portion of the discontinued route to be serviced by Route 51 would see a substantial increase in span of service. Route 61's peak-period-only service along the southern portion of the existing loop would expand to include midday, late-night and weekend service.

The northern portion of the existing Route 61 loop, to be replaced by Route 53, would see new midday and late-night weekday service added. Additionally, the expanded Routes 51 and 53 will provide more efficient service and expand network connectivity, which may reduce transfers and provide additional mobility benefits.

The proposed recommendations would ultimately increase ART's level of service provided to equity-focus population areas and high-transit propensity neighborhoods. While the discontinuation of a route would normally result in a negative impact, these are being offset by the proposed absorption of the alignment and the service hours of Route 61 into Routes 51 and 53.

TABLE 43 | ROUTE 61 EXISTING PERFORMANCE METRICS

	Target (STN)	Weekday ART Rank	Weekday	Saturday	Sunday
Average Daily Ridership	-	14 <sup>th</sup>	30	-	-
Farebox Recovery	20%	12 <sup>th</sup> (Tied)	3%	-	-
Passengers Per One Way Trip	-	16 <sup>th</sup>	1.1	-	-
Passengers Per Revenue Hour	15	13 <sup>th</sup>	2.8	-	-
Passengers Per Revenue Mile	-	12 <sup>th</sup>	0.4	-	-
On-Time Performance	95%	4 <sup>th</sup>	90%	-	-



TABLE 44 | ROUTE 61 EXISTING AND PROPOSED OPERATING STATISTICS

Performance Evaluation Metrics			Current	Proposed	Difference	Target / Average
From			Rosslyn			
To			Courthouse			
Service Times	Weekday	Start Time	6:15 AM/3:03 PM	-	-	n/a
		End Time	9:41 AM/7:06 PM	-	-	n/a
	Saturday	Start Time	-	-	-	n/a
		End Time	-	-	-	n/a
	Sunday	Start Time	-	-	-	n/a
		End Time	-	-	-	n/a
Span (Hours / Minutes)	Weekday		7:28	0:00	-7:28	>=18:00
	Saturday		-	-	-	
	Sunday		-	-	-	
Frequency (Minutes)	Weekday	Early	-	-	-	<=30
		AM Peak	25	0	-25	
		Midday	-	-	-	
		PM Peak	25	0	-25	
		Evening	-	0	-	
		Late	-	-	-	
	Saturday	Core/Non-core *	-	-	-	
	Sunday	Core/Non-core *	-	-	-	
Vehicle Revenue Hours	Weekday		15	0	-15	n/a
	Annual		3,825	0	-3,825	n/a
Equity Share	Minority		35%	0%	-35%	39%
	Low income		13%	0%	-13%	14%
	Limited English Proficiency		3%	0%	-3%	5%
Peak Vehicles			3	0	-3	n/a
Annual Operating Cost			\$0.45 M	-	-\$0.45 M	n/a
Estimated Ridership Impact (FY21 base)			146	0	-146	n/a

\* Core hours vary by weekend day, but represent the busiest hours of the day, while non-core hours are those outside of dominant travel times.



## Route 62

*This route is proposed to be discontinued with service to be absorbed by proposed Routes 52 and 53. The existing route alignment and levels of service will be fully maintained, providing better coverage and network connectivity to all riders.*

FIGURE 15 | ROUTE 62 (PROPOSED)



## Background

Route 62 currently operates as an STN route connecting Courthouse and Ballston along Locom Lane with weekday peak service only. Buses operate every 30 to 40 minutes between 6:22 AM to 9:36 AM and from 3:10 PM to 7:35 PM. It is tied for the lowest route ridership and is the least productive route in the ART system. It generally operates in non-minority and higher income neighborhoods and provides valuable connections between busy, vital travel corridors and destinations with above-average ridership, including:

- Metrorail
  - Clarendon
  - Courthouse
  - Ballston-MU
- Neighborhood Centers
  - Ballston
  - Clarendon
  - Courthouse
  - Virginia Square
- Schools
  - George Mason University (Mason Square)
  - Information Sciences Institute
  - Marymount University - Ballston Center
  - New Directions
  - Strayer University
  - Virginia Tech Research Center - Arlington
  - Washington - Liberty High School

The two busiest stops on the route are Wilson Boulevard at N Veitch Street, with 209 average weekday boardings in 2021, and Wilson Boulevard at N Herndon Street, with 125 average weekday boardings. Over the past four years, ridership peaked in February 2020 at 94 average weekday boardings. Service was suspended from April 2020 to August 2021 during the pandemic crisis. Ridership was at its lowest with 13 average weekday boardings in January 2022, 14% of the 2019 high. This illustrates how teleworking during the COVID crisis and after has had a huge impact on transit usage along certain routes.

### Service Recommendations

1. Discontinue Route 62 - service to be absorbed by Route 52.

### Expected Outcomes

The portion of the discontinued Route 62, to be absorbed by Route 52, would see a substantial increase in span of service. Additionally, midday service with consistent 30-minute headways would be added to the existing peak periods and evening service.

The only portion of the route that would see a loss of service would be Utah Street at 15th Street N. This is not expected to have a disparate impact as customers in the area have the option to use nearby Route 53 along N Quincy Street or Route 72 along N Glebe Road.

The proposed recommendations would ultimately increase ART's level of service provided to equity-focus population areas and high-transit propensity neighborhoods. While the discontinuation of a route would normally result in a negative impact, an offset would result from the proposed absorption of a majority of the Route 62 alignment and service hours into Route 52.

TABLE 45 | ROUTE 62 EXISTING PERFORMANCE METRICS

	Target (STN)	Weekday ART Rank	Weekday	Saturday	Sunday
Average Daily Ridership	-	15 <sup>th</sup> (Tied)	16	-	-
Farebox Recovery	20%	16 <sup>th</sup>	1%	-	-
Passengers Per One Way Trip	-	14 <sup>th</sup>	1.5	-	-
Passengers Per Revenue Hour	15	16 <sup>th</sup>	1.5	-	-
Passengers Per Revenue Mile	-	14 <sup>th</sup> (Tied)	0.1	-	-
On-Time Performance	95%	3 <sup>Rd</sup>	91.1%	-	-



Table 46 | Route 62 Existing and Proposed Operating STATISTICS

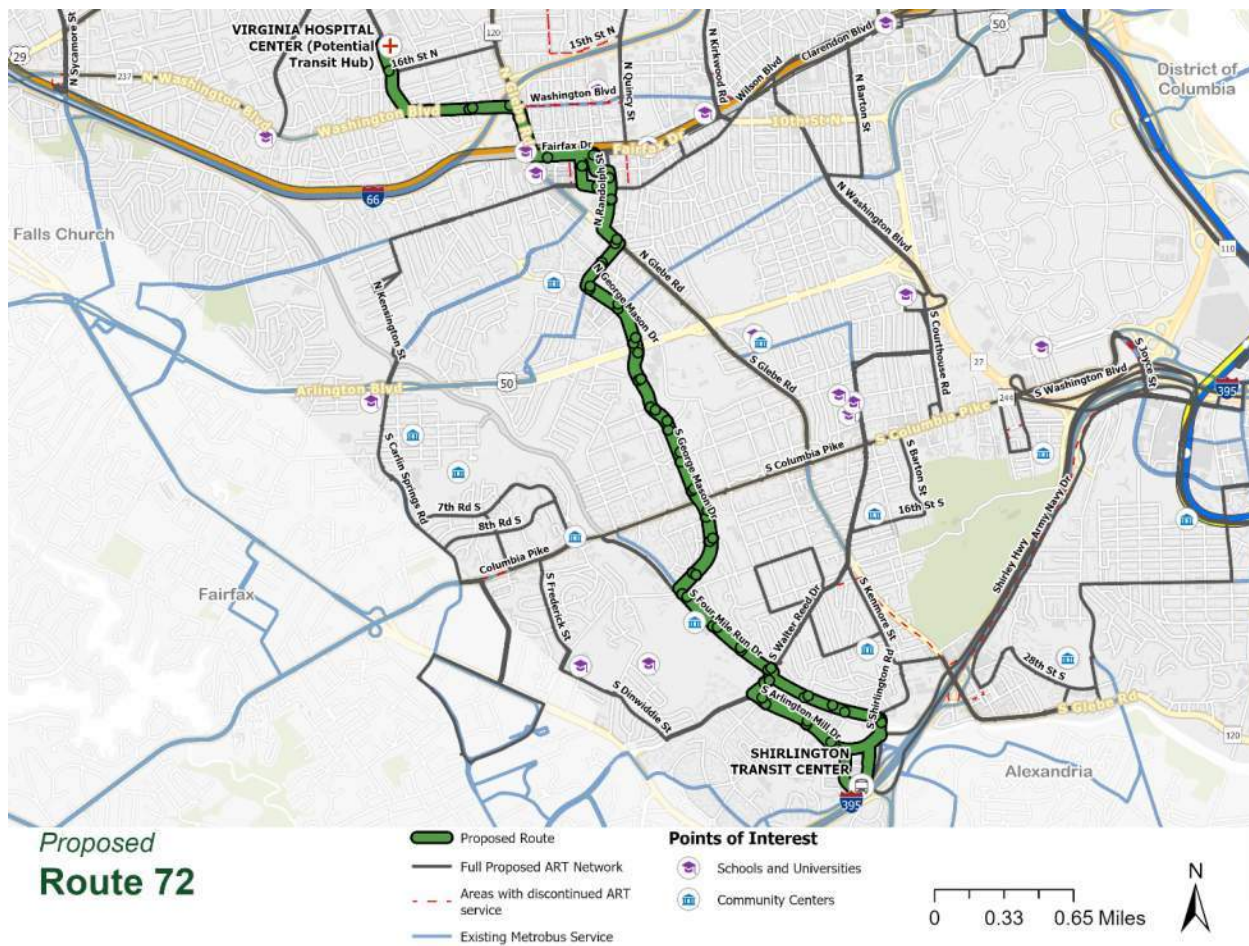
Performance Evaluation Metrics			Current	Proposed	Difference	Target/Average
From			Ballston			
To			Courthouse			
Service Times	Weekday	Start Time	6:22 AM / 3:10 PM	-	-	n/a
		End Time	9:36 AM / 7:35 PM	-	-	n/a
Span (Hours / Minutes)	Weekday		7:39	0:00	-7:39	>=18:00
	Saturday		-	-	-	
	Sunday		-	-	-	
Frequency (Minutes)	Weekday	Early		-	0	<=30
		AM Peak	30	-	-30	
		Midday	-	-	0	
		PM Peak	30	-	-30	
		Evening	-	-	-	
		Late	-	-	0	
	Saturday	Core/Non-core *	-	-	-	
	Sunday	Core/Non-core *	-	-	-	
	Vehicle Revenue Hours	Weekday		13	-	
Annual		3,366	-	-3,366	n/a	
Equity Share	Minority		29%	0%	-29%	39%
	Low income		10%	0%	-10%	14%
	Limited English Proficiency		3%	0%	-3%	5%
Peak Vehicles			3	0	-3	n/a
Annual Operating Cost			\$0.39 M	\$0.00	-\$0.39 M	n/a
Estimated Ridership Impact (FY21 base)			76	0	-76	n/a

Note: Red font cells represent where current service is not meeting service design standards.

\* Core hours vary by weekend day, but represent the busiest hours of the day, while non-core hours are those outside of dominant travel times.

## Route 72

FIGURE 16 | ROUTE 72 (PROPOSED)



### Background

Route 72 is a secondary STN route connecting North Arlington, Rock Spring and Shirlington along George Mason Drive, Glebe Road, and S Four Mile Run Drive, with stops at Ballston Metrorail Station. It currently operates between 6:24 AM and 9:48 PM with frequencies of 30 to 32 minutes during peak, midday, and off-peak periods. It has the eighth highest ridership and is the ninth most productive route in the ART system. It also provides service to many equity-focus neighborhoods with valuable connections between busy, vital travel corridors and destinations with above-average ridership, including:

- Metrorail
  - Ballston - MU
- Neighborhood Centers
  - Shirlington
  - Baileys Crossroads-Western Gateway
  - Ballston
  - Virginia Square
  - Virginia Hospital Center
- Schools
  - Information Sciences Institute
  - Langston High School Continuation Program
  - Marymount University — Ballston Center
  - Virginia Tech Research Center - Arlington
  - Virginia Tech Research Center - Arlington
- Community Centers
  - Barcroft CC
  - Langston-Brown CC and Park
  - Lubber Run CC



The two busiest stops on the route are N Randolph Street at Wilson Boulevard, with 141 average weekday boardings in 2021, and Shirlington Transit Center, with 56 average weekday boardings. Over the past four years, Route 72 ridership peaked in February 2020 at 620 average weekday boardings, with lowest ridership during the pandemic crisis in September 2020 at 115 average weekday boardings.

Green Valley, Buckingham, and Waverly Hills are primarily comprised of low income and minority defined census block groups with a gap between the current level of transit service provided and the concentration of transit-oriented propensity and of equity-focus populations. All three communities were identified in the Gaps and Needs Analysis as having a lower number of transit trips provided per person than the countywide average. The route operates in an area where 42% of the population within a quarter mile are minority individuals, and 19% of the population are considered low income. This is well above the county levels of each classification at 39% and 14% respectively.

### Service Recommendations

1. Shift Northern Terminus from N Glebe Road and Williamsburg Road to Virginia Hospital Center. Connection maintained by proposed new Route 54.
2. Shift service west off N Glebe Road to N George Mason Drive between 16th Street N and Langston Boulevard to serve VHC.
3. Maintain the Ballston Metro to VHC connection eliminated from Route 52 and share Northern Terminus with Route 53.
4. Start weekend service.

### Expected Outcomes

Ridership patterns on the existing Route 72 differ north and south of the Rosslyn-Ballston Corridor. The proposed service modifications would shift the northern terminus from N Glebe Road and Williamsburg Road to Virginia Hospital Center with service along N Glebe assumed to the proposed Route 54. Service would turn west off N Glebe Road to N George Mason Drive between 16th Street N and Langston Boulevard to serve VHC. This proposed change keeps the Ballston-Metro-to-VHC connection eliminated from Route 52 and shares a northern terminus with Route 53, resulting in a 37% increase in service hours operated on this route.

TABLE 47 | ROUTE 72 EXISTING PERFORMANCE METRICS

	Target (STN)	Weekday ART Rank	Weekday	Saturday	Sunday
Average Daily Ridership	-	8 <sup>th</sup>	284	-	-
Farebox Recovery	20%	10 <sup>th</sup> (Tied)	5%	-	-
Passengers Per One Way Trip	-	7 <sup>th</sup>	8.4	-	-
Passengers Per Revenue Hour	15	10 <sup>th</sup> (Tied)	5.6	-	-
Passengers Per Revenue Mile	-	8 <sup>th</sup> (Tied)	0.6	-	-
On-Time Performance	95%	13 <sup>th</sup>	80.4%	-	-

TABLE 48 | ROUTE 72 EXISTING AND PROPOSED OPERATING STATISTICS

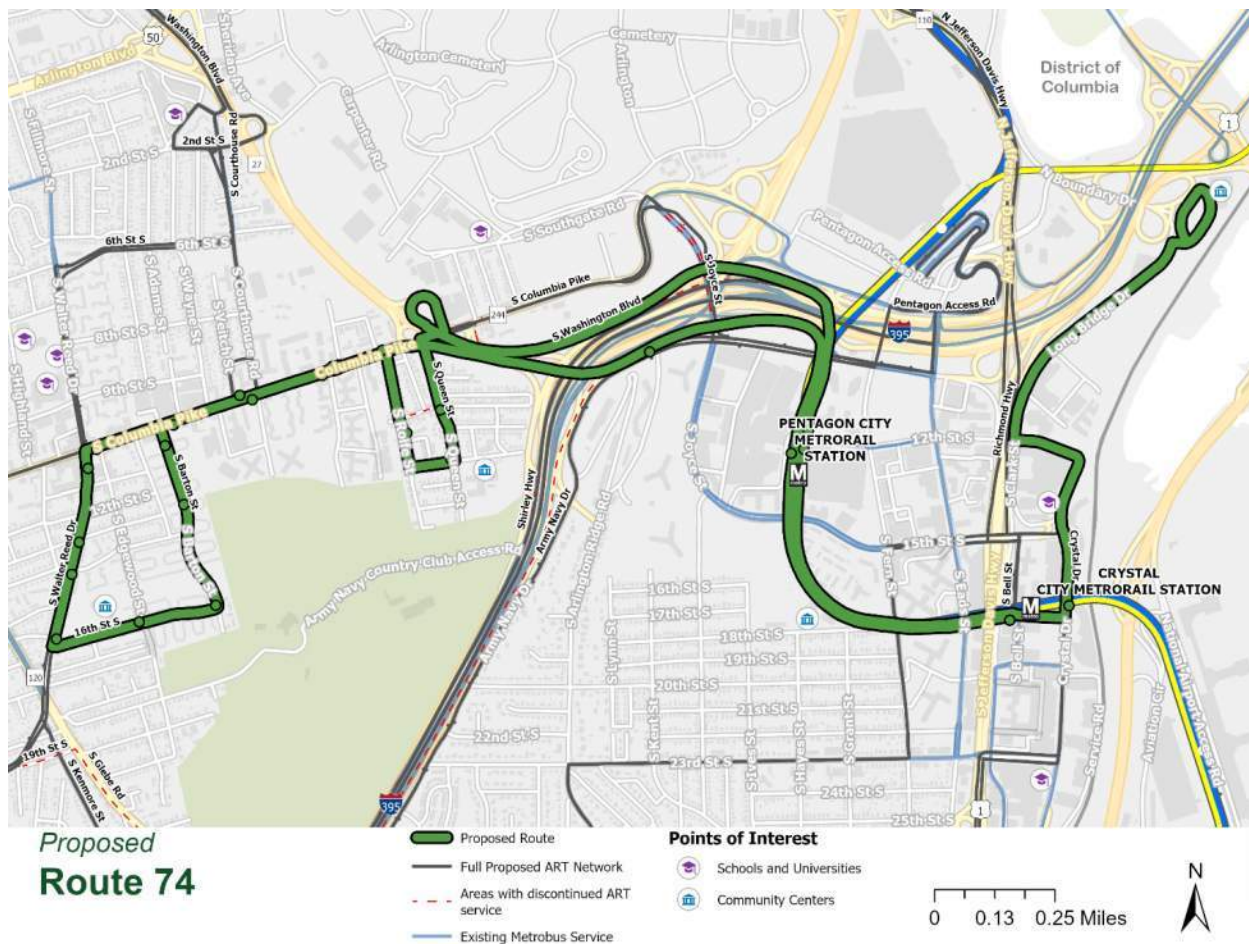
Performance Evaluation Metrics			Current	Proposed	Difference	Target/Average
From			Rock Spring	VHC		
To			Shirlington			
Service Times	Weekday	Start Time	6:24 AM	7:00 AM	-0:36	n/a
		End Time	9:48 PM	9:30 PM	-0:18	n/a
	Saturday	Start Time	-	7:00 AM	-	n/a
		End Time	-	7:00 PM	-	n/a
	Sunday	Start Time	-	7:00 AM	-	n/a
		End Time	-	7:00 PM	-	n/a
Span (Hours/Minutes)	Weekday		15:24	14:30	0	>=18:00
	Saturday		-	12:00	-	
	Sunday		-	12:00	-	
Frequency (Minutes)	Weekday	Early	-	-	-	<=30
		AM Peak	30	20	+10	
		Midday	30	20	+10	
		PM Peak	30	20	+10	
		Evening	30	30	0	
		Late	-	-	-	
	Saturday	Core *	-	20	-	
		Non-Core *	-	-	-	
	Sunday	Core *	-	30	-	
		Non-Core *	-	-	-	
Vehicle Revenue Hours	Weekday		41	41	0	n/a
	Saturday		-	23	+23	n/a
	Sunday		-	23	+23	n/a
	Annual		10,379	14,260	+3,881	n/a
Equity Share	Minority		42%	42%	0%	39%
	Low income		19%	19%	0%	14%
	Limited English Proficiency		5%	5%	0%	5%
Peak Vehicles			4	4	0	n/a
Annual Operating Cost			\$1.21 M	\$1.67 M	+\$0.46 M	n/a
Estimated Ridership Impact (FY21 base)			380	457	+78	n/a

Note: Red font cells represent where current service is not meeting service design standards.

\* Core hours vary by weekend day, but represent the busiest hours of the day, while non-core hours are those outside of dominant travel times.

## Route 74

FIGURE 17 | ROUTE 74 (PROPOSED)



### Background

Route 74 is tied for the lowest ridership and operates as the second least productive route in the ART system. It currently operates as one of the STN routes with 30-minute peak-period-only service operating between 6:09 AM and 9:49 PM and between 8:08 AM and 7:46 PM. Route 74 provides connections from Arlington Village and Arlington View along Columbia Pike and S Hayes Street to Washington Boulevard, connecting with the Pentagon City Metro Station and other destinations in Pentagon City. It also provides service to many equity-focus neighborhoods and valuable connections between busy and vital travel corridors and destinations with above-average ridership, including:

- Metrorail
  - Pentagon City
- Neighborhood Centers
  - Columbia Pike Village Center
  - Columbia Pike Town Center
  - Columbia Pike Village Center
  - Pentagon City
- Schools
  - Arlington Career Center
  - Arlington Community High School
  - Arlington Tech
- Community Centers
  - Carver Center
  - Gulf Branch Nature Center
  - Walter Reed CC

The two busiest stops on the route are S Hayes Street at 12<sup>th</sup> Street S with 32 average weekday boardings in 2021, and S Walter Reed Drive at Columbia Pike, with 26 average weekday boardings. Over the past four years, Route 74 ridership peaked in February 2020 at 95 average weekday boardings, with service suspended from April 2020 to August 2021. Ridership was at its lowest point at 12 average weekday boardings in January 2022, 13% of the 2019 high. This illustrates how teleworking during the COVID crisis and afterward has had a huge impact on transit usage along certain routes.

### Service Recommendations

1. Extend to Crystal City and Long Bridge Aquatic Center.
2. Shift eastern terminus from Pentagon City to Long Bridge Park via Crystal City.
3. Add weekend services and lengthen the weekday span with midday/evening service.

### Expected Outcomes

The proposed Service Recommendations should generate a positive benefit to the community with an increase in ART service to operate all-day 30-minute headways on weekdays and weekends. This would significantly increase the level of service provided to equity-focus populations and high-transit propensity neighborhoods. The route currently operates in an area where half the population within a quarter mile are minority individuals, well above the countywide share of 39%. Adding midday and weekend services should improve ridership productivity metrics and support riders who depend on this route daily. The proposed changes will add 22 Vehicle Revenue Hours per weekday, and an approximate annual increase in Vehicle Revenue Hours of about 7,850 hours, an increase of 371%. There is no anticipated need for additional vehicles to support this new service.

TABLE 49 | ROUTE 74 EXISTING PERFORMANCE METRICS

	Target (STN)	Weekday ART Rank	Weekday	Saturday	Sunday
<b>Average Daily Ridership</b>	-	15 <sup>th</sup> (Tied)	16	-	-
<b>Farebox Recovery</b>	20%	14 <sup>th</sup> (Tied)	2%	-	-
<b>Passengers Per One Way Trip</b>	-	15 <sup>th</sup>	1.2	-	-
<b>Passengers Per Revenue Hour</b>	15	14 <sup>th</sup>	2.4	-	-
<b>Passengers Per Revenue Mile</b>	-	14 <sup>th</sup> (Tied)	0.1	-	-
<b>On-Time Performance</b>	95%	14 <sup>th</sup>	80.2%	-	-





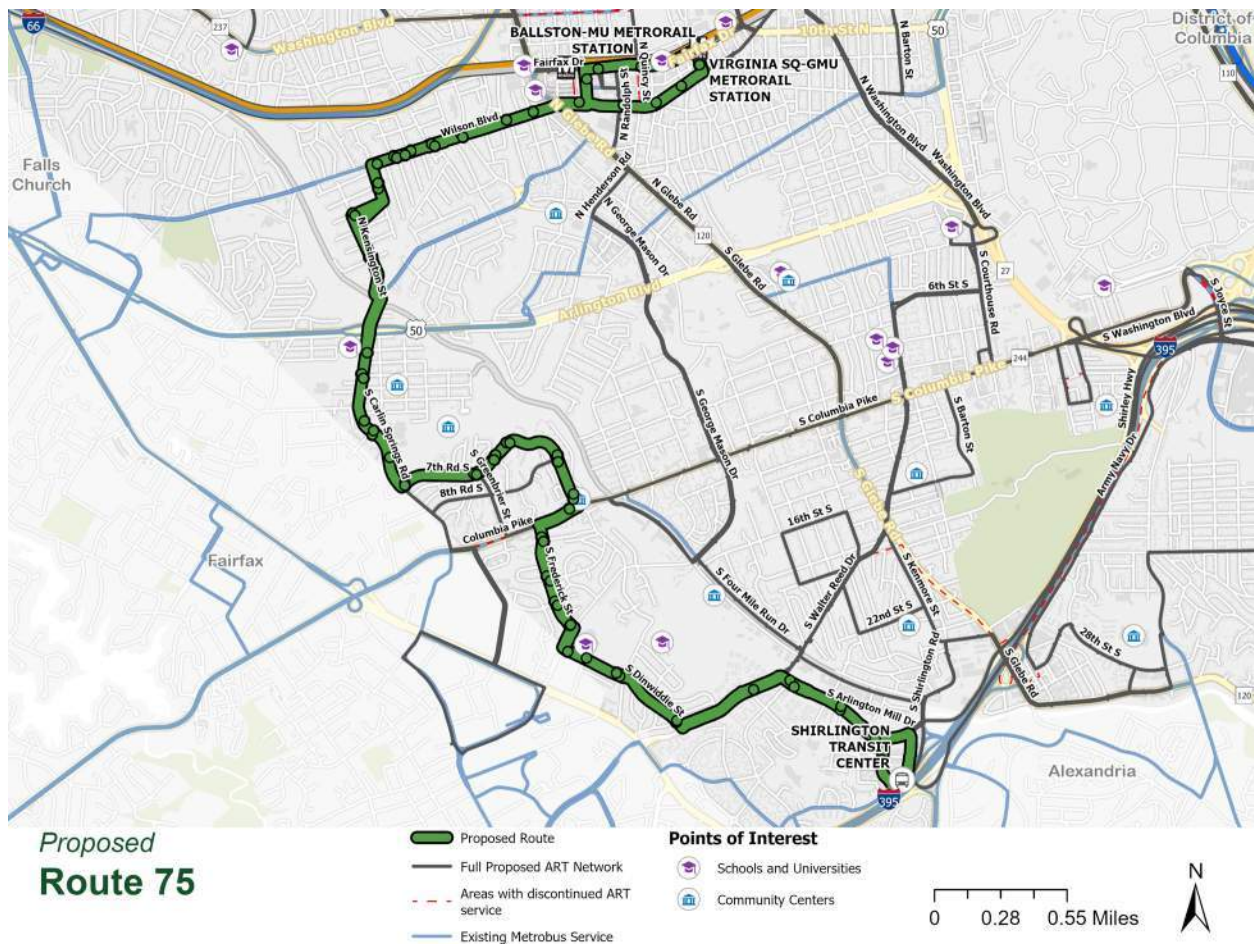
TABLE 50 | ROUTE 74 EXISTING AND PROPOSED OPERATING STATISTICS

Performance Evaluation Metrics			Current	Proposed	Difference	Target/Average
From			Arlington Village			
To			Pentagon City	Long Bridge Park		
Service Times	Weekday	Start Time	5:53 AM/3:35 PM	6:00 AM	-0:07	
		End Time	9:10 AM/7:55 PM	9:00 PM	+1:05	
	Saturday	Start Time	-	8:00 AM		
		End Time	-	7:00 PM		
	Sunday	Start Time	-	8:00 AM		
		End Time	-	7:00 PM		
Span (Hours / Minutes)	Weekday		7:37	15:00	+ 7:23	>=18:00
	Saturday		-	11:00	+11:00	
	Sunday		-	11:00	+11:00	
Frequency (Minutes)	Weekday	Early	-	-	0	<=30
		AM Peak	30	30	0	
		Midday	-	30	+30	
		PM Peak	30	30	0	
		Evening	-	30	+30	
		Late	-	-	0	
	Saturday	Core *	-	30	+30	
		Non-Core *	-	-	-	
	Sunday	Core *	-	30	+30	
		Non-Core *	-	-	-	
Vehicle Revenue Hours	Weekday		8	31	+23	n/a
	Saturday		-	20	+20	n/a
	Sunday		-	20	+20	n/a
	Annual		2,117	9,967	+7,850	n/a
Equity Share	Minority		50%	49%	-1%	39%
	Low income		12%	13%	+1%	14%
	Limited English Proficiency		4%	7%	+3%	5%
Peak Vehicles			2	2	0	n/a
Annual Operating Cost			\$0.25 M	\$1.17 M	+\$0.92 M	n/a
Estimated Ridership Impact (FY21 base)			86	181	+95	n/a

\* Core hours vary by weekend day, but represent the busiest hours of the day, while non-core hours are those outside of dominant travel times.

## Route 75

FIGURE 18 | ROUTE 75 (PROPOSED)



## Background

Route 75 ranks sixth in ridership and seventh in productivity in the ART system. It currently operates as an STN route with weekday service operating between 5:30 AM and 10:44 PM. Buses operate every 27 to 30 minutes during peak and midday periods and 34 minutes during off-peak periods. Route 75 connects Shirlington and neighborhoods along Four Mile Run, Frederick Street, Carlin Springs Road and Wilson Boulevard to Metrorail stations and other destinations in Ballston and Virginia Square. It also provides service to many equity-focus neighborhoods and valuable connections between busy, vital travel corridors and destinations with above-average ridership, including:

- Metrorail
  - Ballston
  - Virginia Square
- Neighborhood Centers
  - Baileys Crossroads-Western Gateway
  - Ballston
  - Clarendon
  - Columbia Pike Village Center
  - Shirlington
  - Virginia Square
- Schools
  - George Mason University (Mason Square)
  - Arlington Community High School
  - Information Sciences Institute
  - Marymount University – Ballston
  - Virginia Tech Research Center - Wakefield
- Community Centers
  - Arlington Mill CC
  - Carlin Hall CC

The two busiest stops on the route are S Dinwiddie Street at Columbia Pike, with 481 average weekday boardings, and Shirlington Transit Center, with 51 average weekday boardings in 2021. Over the past five years, Route 75 ridership peaked in September 2018 at 628 average weekday boardings, with service suspended from April 2020 to June 2020. The lowest ridership during the pandemic crisis came in October 2020 with 129 average weekday boardings. While ridership dropped to 20% of its 2018 high, many other routes experienced a much greater fall in usage. This illustrates the degree to which people within this service area depend on transit to access employment and other basic needs. Route 75 currently carries the greatest number and share of student riders in the ART system, with ridership recovering in patterns like other essential routes.

Route 75 passes through many low income and minority-defined neighborhoods identified as a focus area, with a gap identified between the current level of transit service and the analysis of transit propensity measures and the concentration of equity-focus populations. The Gaps and Needs Analysis includes several bivariate maps comparing transit trips and demographic characteristics. Buckingham, Glencarlyn, Arlington Mill, and Green Valley were identified on each map as having a lower number of transit trips provided per person on the transit propensity, equity-focus population measures than the County average.

### Service Recommendations

1. Increase frequency during peak periods to 20 minutes to better serve schools and consider “trippers” for school specific needs.
2. Slight evening frequency reduction to balance increased peak service hours.
3. Add weekend service.

### Expected Outcomes

The proposed recommendations would increase ART’s level of service provided to equity-focus areas and high-transit propensity neighborhoods. Route 75 operates in an area where 47% of the population within a quarter mile are minority individuals. The most recent ART Title VI plan identifies Route 75 as a Minority Route, the result of at least one-third of the revenue mileage operating within a census block group whose minority population share exceeds the county minority population of 38.5%.

Frequency will increase during peak periods from 30 minutes to 20 minutes. This service adjustment will also allow the route to meet and exceed STN service guidelines during peak and midday hours, which target service every 30 minutes at all times of the day. Increased frequency during peak periods will also maintain the overall transit level of service. The proposed adjustments will also increase evening frequency from 40 minutes to 30 minutes, to meet the STN guidelines.

These proposed changes will increase weekday vehicle revenue hours by 14 hours, and increase Annual Vehicle Revenue Hours by 9,899, an increase of about 88%. These proposed changes would result in one additional vehicle needed during peak service.

TABLE 51 | ROUTE 75 EXISTING PERFORMANCE METRICS

	Target (STN)	Weekday ART Rank	Weekday	Saturday	Sunday
<b>Average Daily Ridership</b>	-	6 <sup>th</sup>	343		
<b>Farebox Recovery</b>	20%	7 <sup>th</sup>	8%		
<b>Passengers Per One Way Trip</b>	-	4 <sup>th</sup>	11.5		
<b>Passengers Per Revenue Hour</b>	15	7 <sup>th</sup>	8.1		
<b>Passengers Per Revenue Mile</b>	-	7 <sup>th</sup>	0.8		
<b>On-Time Performance</b>	95%	10 <sup>th</sup>	84.4%	-	-



TABLE 52 | ROUTE 75 EXISTING AND PROPOSED OPERATING STATISTICS

Performance Evaluation Metrics			Current	Proposed	Difference	Target/Average		
From			Shirlington					
To			Virginia Square					
Service Times	Weekday	Start Time	5:30 AM	6:15 AM	-0:45			
		End Time	10:44 PM	11:00 PM	+0:16			
	Saturday	Start Time	-	7:00 AM	-			
		End Time	-	7:00 PM	-			
	Sunday	Start Time	-	7:00 AM	-			
		End Time	-	7:00 PM	-			
Span (Hours/Minutes)	Weekday		17:14	16:45	-0:29	>=18:00		
	Saturday		-	12:00	+12:00			
	Sunday		-	12:00	+12:00			
Frequency (Minutes)	Weekday	Early	-	-	-	<=30		
		AM Peak	30	20	+10			
		Midday	30	20	+10			
		PM Peak	30	20	+10			
		Evening	40	30	+10			
		Late	-	40	-			
	Saturday	Core *	-	30	-			
		Non-Core *	-	-	-			
	Sunday	Core *	-	30	-			
		Non-Core *	-	-	-			
Vehicle Revenue Hours	Weekday		44	58	+14	n/a		
	Saturday		-	27	+27	n/a		
	Sunday		-	27	+27	n/a		
	Annual		11,271	17,760	+6,489	n/a		
Equity Share	Minority		47%	47%	0%	39%		
	Low income		18%	18%	0%	14%		
	Limited English Proficiency		5%	5%	0%	5%		
Peak Vehicles			4	5	+1	n/a		
Annual Operating Cost			\$1.32 M	\$2.08 M	+\$0.76 M	n/a		
Estimated Ridership Impact (FY21 base)			411	739	+328	n/a		

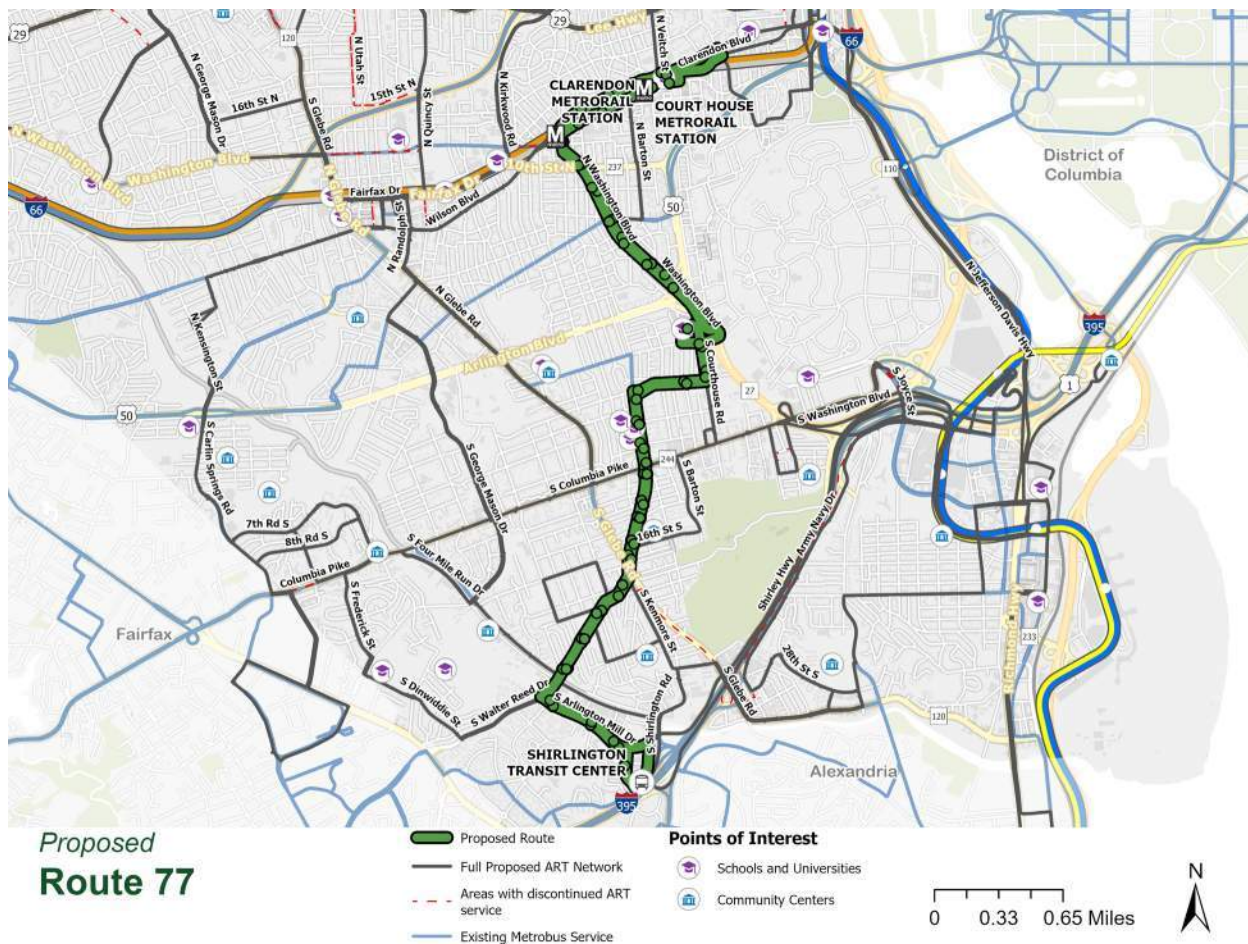
Note: Red font cells represent where current service is not meeting service design standards.

\* Core hours vary by weekend day, but represent the busiest hours of the day, while non-core hours are those outside of dominant travel times.



## Route 77

FIGURE 19 | ROUTE 77 (PROPOSED)



### Background

Route 77 ranks fifth in ridership and productivity in the ART system. Route 77 is an STN route that currently operates weekday service between 6:30 AM and 11:27 PM. Buses run every 26 to 27 minutes during peak periods, 29 minutes during midday periods and during off-peak periods. On Saturdays, service operation is every 30 minutes between 7 AM - 11:56 PM.

The route provides connections between Shirlington and neighborhoods along Walter Reed Drive and Washington Boulevard to Metrorail stations and other destinations in Clarendon and Courthouse. It also provides service to many equity-focus neighborhoods and valuable connections between busy, vital travel corridors and destinations with above-average ridership, including:

- Metrorail
  - Clarendon
  - Courthouse
- Neighborhood Centers
  - Shirlington
  - Virginia Square
  - Columbia Pike Village Center
  - Columbia Pike Town Center
- Schools
  - Arlington Tech
  - Arlington Career Center
  - Strayer University
  - Syphax Education Center
  - New Directions
- Community Centers
  - Walter Reed CC

The two busiest stops on the route are Wilson Boulevard at N Veitch Street, with 209 average weekday boardings in 2021, and 15<sup>th</sup> Street N at N Uhle Street, with 176 average weekday boardings. Over the past four years, Route 77 ridership peaked in October 2019 at 704 average weekday boardings, with lowest ridership during the pandemic crisis in January 2021 at 201 average weekday boardings. While ridership dropped to 29% of its 2019 high, many other routes experienced a much greater fall in usage. This illustrates the degree to which people within its service area depend on transit to access employment and other basic needs.

### Service Recommendations

1. Increase weekday frequency from 30 minutes to 20 minutes.
2. Start Sunday service.

### Expected Outcomes

During the fall 2022 public engagement, respondents did not cite any direct concerns regarding Route 77 and the analysis did not identify any obvious performance gaps. It is proposed that weekday frequency be increased from 30 to 20 minutes to provide clockface headways and promote a more efficient network.

This adjustment will result in an increase of 14 Vehicle Revenue Hours per weekday, and an approximate annual increase in Vehicle Revenue Hours of 4,746, about 41%. This will also result in increasing the number of required vehicles during peak service from three to four.

TABLE 53 | ROUTE 77 EXISTING PERFORMANCE METRICS

	Target (STN)	Weekday ART Rank	Weekday	Saturday	Sunday
Average Daily Ridership	-	5th	365	259	-
Farebox Recovery	20%	5th (Tied)	9%	8%	-
Passengers Per One Way Trip	-	5th	10.5	7.7	-
Passengers Per Revenue Hour	15	5th	9.7	7.7	-
Passengers Per Revenue Mile	-	5th	1.0	0.7	-
On-Time Performance	95%	6 <sup>th</sup>	87.8%		-



TABLE 54 | ROUTE 77 EXISTING AND PROPOSED OPERATING STATISTICS

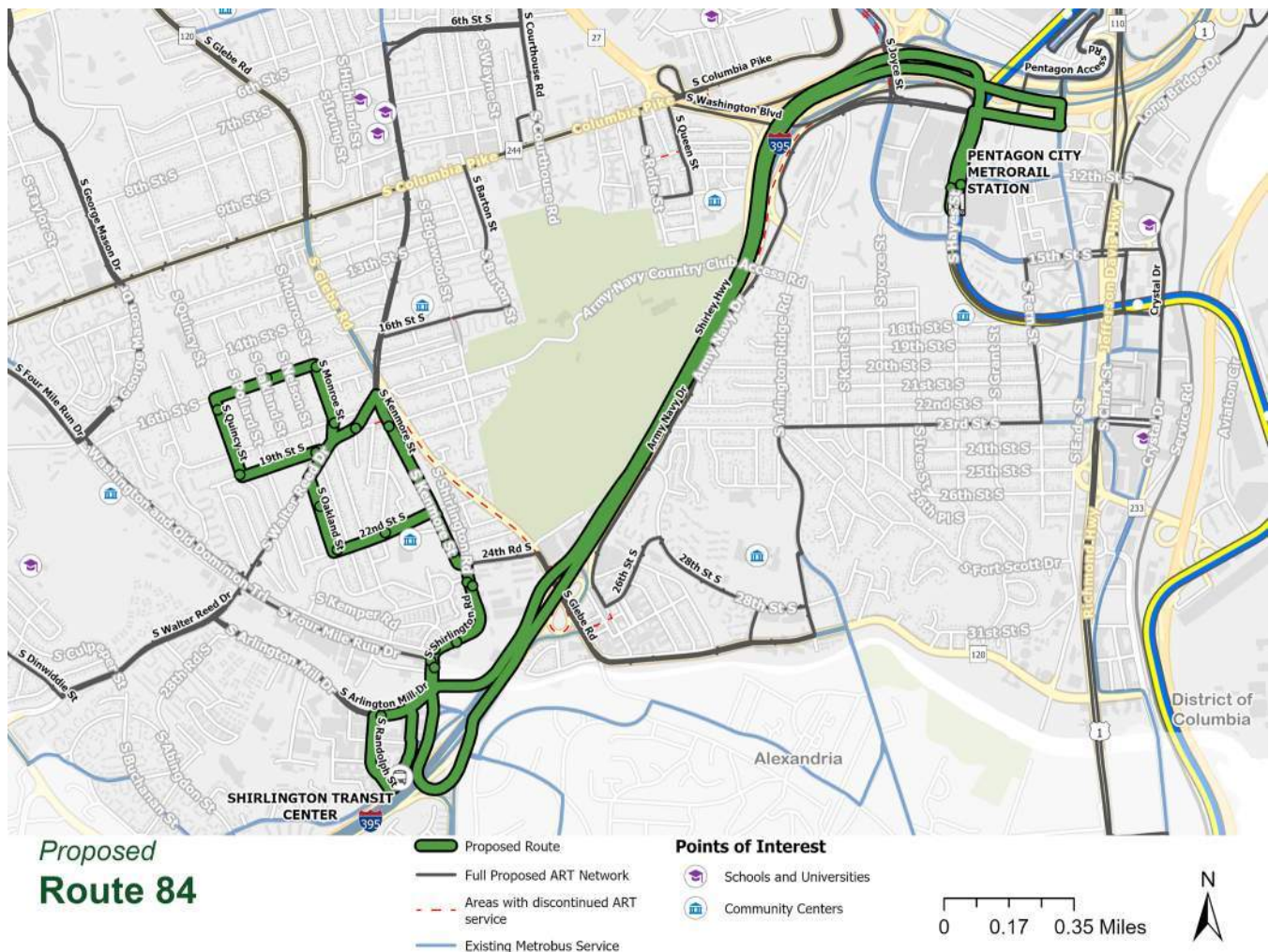
Performance Evaluation Metrics			Current	Proposed	Difference	Target / Average
From			Shirlington			
To			Courthouse			
Service Times	Weekday	Start Time	6:00 AM	6:30 AM	-0:30	n/a
		End Time	10:56 PM	10:30 PM	-0:26	n/a
	Saturday	Start Time	7:30 AM	7:30 AM	0:00	n/a
		End Time	11:30 PM	11:30 PM	0:00	n/a
	Sunday	Start Time	-	8:00 AM	-	n/a
		End Time	-	6:00 PM	-	n/a
Span (Hours / Minutes)	Weekday		16:56	16:00	-0:56	>=18:00
	Saturday		16:00	16:00	0:00	
	Sunday		-	10:00	+10:00	
Frequency (Minutes)	Weekday	Early	-	-	-	<=30
		AM Peak	30	20	+10	
		Midday	30	20	+10	
		PM Peak	30	20	+10	
		Evening	30	20	+10	
		Late	-	-	-	
	Saturday	Core *	30	30	0	
		Non-Core *	30	30	0	
	Sunday	Core *	-	30	+30	
		Non-Core *	-	-	-	
Vehicle Revenue Hours	Weekday		38	52	+14	n/a
	Saturday		34	34	0	n/a
	Sunday		-	20	+20	n/a
	Annual		11,462	16,208	+4,746	n/a
Equity Share	Minority		37%	37%	0%	39%
	Low income		12%	12%	0%	14%
	Limited English Proficiency		5%	5%	0%	5%
Peak Vehicles			3	4	+1	n/a
Annual Operating Cost			\$1.34 M	\$1.90 M	+\$0.56 M	n/a
Estimated Ridership Impact (FY21 base)			484	425	-59	n/a

\* Core hours vary by weekend day, but represent the busiest hours of the day, while non-core hours are those outside of dominant travel times.



## Route 84

FIGURE 20 | ROUTE 84 (PROPOSED)



## Background

Route 84 ranks 12<sup>th</sup> in ridership and productivity in the ART system. It currently operates as an STN route with weekday service operating every 18 to 20 minutes between 5:45 AM and 9:40 AM in the morning and between 3:40 PM to 7:46 PM at night. It provides connections between Douglas Park and neighborhoods along Shirley Highway to Metrorail stations and other destinations in Pentagon City. It also provides service to many equity-focus neighborhoods and valuable connections between busy, vital travel corridors and destinations with above-average ridership, including:

- Metrorail
  - Pentagon City
- Neighborhood Centers
  - Douglas Park
  - Pentagon City
- Community Centers
  - Charles Drew

The two busiest stops on the route are S Hayes Street at 12<sup>th</sup> Street S, with 32 average weekday boardings in 2021, and 24<sup>th</sup> Road S at S Glebe Road, with 21 average weekday boardings. Over the past five years, Route 84 ridership peaked in September 2018 at 252 average weekday boardings, with service suspended from April 2020 to August 2020, and June 2021. Route 84 saw its lowest ridership during the pandemic crisis in



December 2020 and February 2021 at 23 average weekday boardings, dropping to 9% of its 2018 high, much lower when compared to other routes in the system. This illustrates how the pandemic-related shift to teleworking has had a significant impact on transit usage along certain routes.

During the fall 2022 public engagement, respondents did not cite any direct concerns regarding Route 84. Analysis of population density by block group and multi-family housing completed for the Current Conditions Analysis found a large concentration of multi-family housing along the length of Route 84, particularly in the Pentagon City neighborhood. Population is projected to grow over 30% in parts of Green Valley between 2020 and 2030, and up to 10% in parts of Douglas Park, which is a faster rate than most of Arlington. Analysis also found over 50 jobs per acre in the Pentagon City neighborhood, and an employment growth rate of over 30% from 2020 to 2030 in parts of Green Valley.

Douglas Park is primarily comprised of low income and minority defined census block groups and was identified as a focus area with a gap between the current level of transit service and the analysis of transit propensity measures and concentration of equity-focus populations. The Gaps and Needs Analysis includes several bivariate maps comparing transit trips and demographic characteristics. Douglas Park was identified on each map as having a lower number of transit trips provided per person on the transit propensity, equity-focus population measures than the County average.

### Service Recommendations

1. Provide additional connectivity by adding a stop at Shirlington Transit Center between the Douglas Park neighborhood and Pentagon City.

### Expected Outcomes

Route 84 will maintain its current routing through the Douglas Park neighborhood (changes to the routing should be considered during implementation in response to stakeholder feedback) then deviate slightly to stop at Shirlington Transit Center before operating express to Pentagon Transit Center. While this may add travel time for trips running the full length of the route between Douglas Park and Pentagon City itself, it will provide a new express service option between two major transit centers in the south and east of the County.

The proposed recommendations will increase the level of ART service provided to equity-focus areas and high-transit propensity neighborhoods. Route 84 operates in an area where 52% of the population within a quarter mile are minority individuals, and 17% of the population are considered low income. This is well above the County population of each classification of 39% and 14% respectively.

TABLE 55 | ROUTE 84 EXISTING PERFORMANCE METRICS

	Target (STN)	Weekday ART Rank	Weekday	Saturday	Sunday
Average Daily Ridership	-	12 <sup>th</sup>	42	-	-
Farebox Recovery	20%	12 <sup>th</sup>	3%	-	-
Passengers Per One Way Trip	-	13 <sup>th</sup>	1.8	-	-
Passengers Per Revenue Hour	15	12 <sup>th</sup>	3.0	-	-
Passengers Per Revenue Mile	-	13 <sup>th</sup>	0.2	-	-
On-Time Performance	95%	15 <sup>th</sup>	73.5%	-	-



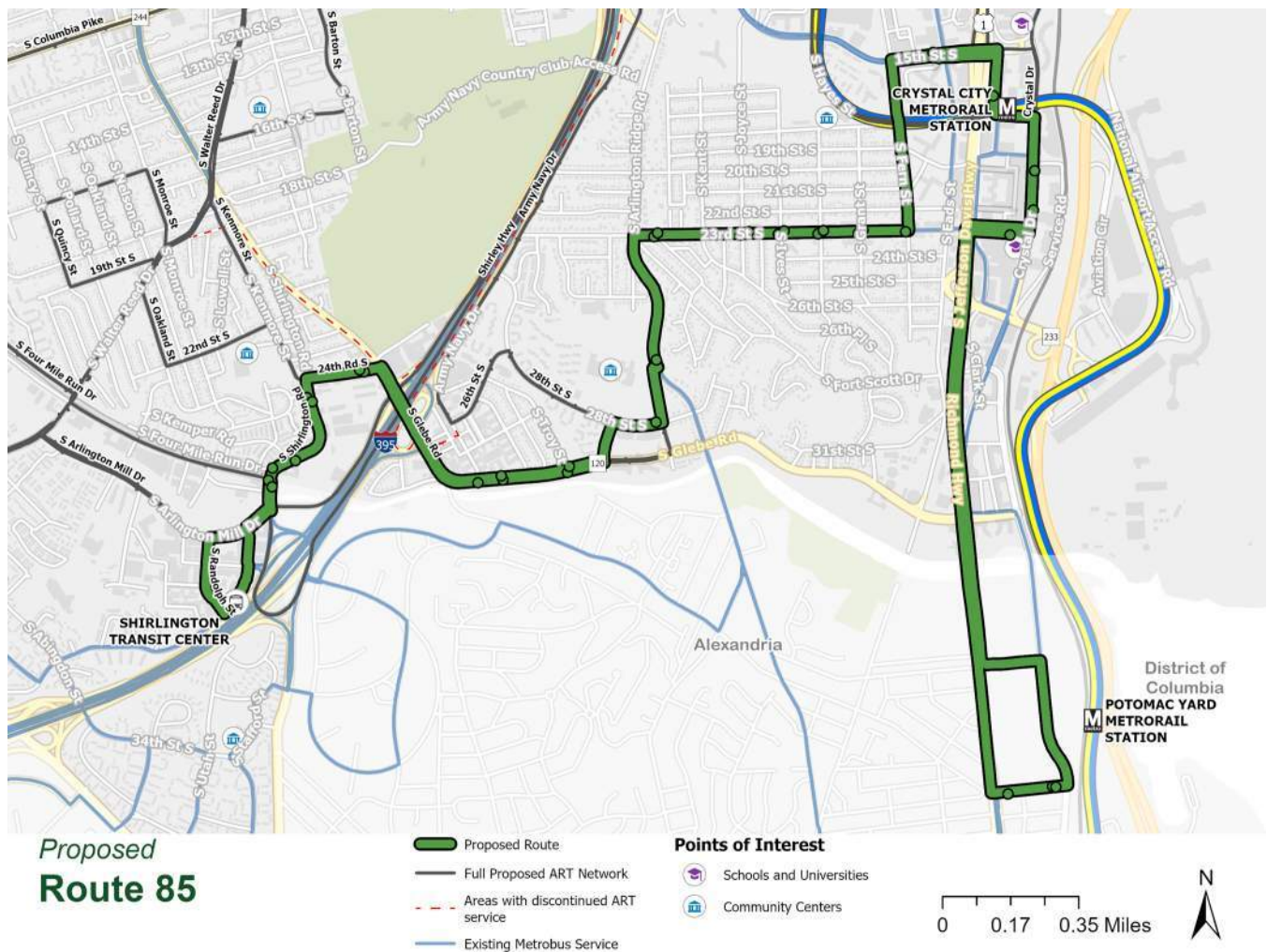
TABLE 56 | ROUTE 84 EXISTING AND PROPOSED OPERATING STATISTICS

Performance Evaluation Metrics			Current	Proposed	Difference	Target / Average
From			Douglas Park	Shirlington		
To			Pentagon			
Service Times	Weekday	Start Time	5:45 AM	5:45 AM	0:00	n/a
		End Time	7:15 PM	7:15 PM	0:00	n/a
	Saturday	Start Time	-	-	-	n/a
		End Time	-	-	-	n/a
	Sunday	Start Time	-	-	-	n/a
		End Time	-	-	-	n/a
Span (Hours / Minutes)	Weekday		13:30	13:30	0:00	>=18:00
	Saturday		-	-	-	
	Sunday		-	-	-	
Frequency (Minutes)	Weekday	Early	-	-	-	<=30
		AM Peak	20	20	0	
		Midday	-	-	-	
		PM Peak	20	20	0	
		Evening	-	-	-	
		Late	-	-	-	
	Saturday	Core *	-	-	-	
		Non-Core *	-	-	-	
	Sunday	Core *	-	-	-	
		Non-Core *	-	-	-	
Vehicle Revenue Hours	Weekday		16	13	-3	n/a
	Saturday		-	-	-	n/a
	Sunday		-	-	-	n/a
	Annual		3,953	3,366	-587	n/a
Equity Share	Minority		52%	50%	-2%	39%
	Low income		17%	17%	0%	14%
	Limited English Proficiency		4%	5%	+1%	5%
Peak Vehicles			3	2	-1	n/a
Annual Operating Cost			\$0.46 M	\$0.39 M	-\$0.07 M	n/a
Estimated Ridership Impact (FY21 base)			114	182	+68	n/a

\* Core hours vary by weekend day, but represent the busiest hours of the day, while non-core hours are those outside of dominant travel times.

## Route 85

FIGURE 21 | ROUTE 85 (PROPOSED)



### Background

Route 85 is a proposed new route in the ART system connecting Shirlington Transit Center and neighborhoods along 23<sup>rd</sup> Street S, S Arlington Road, S Glebe Road, and Shirlington Road to Metrorail stations and other destinations in Crystal City and Potomac Yard. It will also provide service to many equity-focus neighborhoods and valuable connections between busy, vital travel corridors and destinations with above-average ridership, including:

- Metrorail
  - Crystal City
  - Potomac Yard
- Neighborhood Centers
  - Crystal City
  - Shirlington
- Schools
  - DeVry University
  - Veritas Collegiate Academy (new)
  - Arlington Tech
  - Arlington Community High School
  - George Mason University
- Community Centers
  - Aurora Hills CC
  - Charles Drew CC
  - Gunston CC

### Service Recommendations

1. New route with new connection between Shirlington, Aurora Highlands, Crystal City and Potomac Yard.

The proposed route will operate as an STN route with weekday service operating between 6 AM and 7 PM and between 8 AM and 7 PM on weekends. Buses will operate every 30 minutes all day, during peak and midday and off-peak periods. The changes respond to access and service gaps identified in Long Branch Creek, Arlington Ridge, Aurora Highlands and Crystal City.

### Expected Outcomes

The proposed recommendations would increase ART's level of service provided to equity-focus areas and high-transit propensity neighborhoods. Route 85 will operate in an area where 47% of the population within a quarter mile are minority individuals, and 18% of the population are considered low income. This is well above the Countywide shares of each classification of 39% and 14% respectively. Based on the most recent ART Title VI plan, proposed Route 85 will likely be identified as a minority route, because of at least a third of the route's revenue mileage operating within a census block group whose minority population share exceeds the County minority population of 38.5%.

The proposed weekday and weekend service span is expected to perform well in ridership productivity metrics and support riders who depend on this route daily. The proposed Service Recommendations are expected to benefit the community with an increase in ART service. Because of the short portion of the route outside of Arlington borders making the connection to Potomac Yard, coordination would be required with the City of Alexandria to confirm the viability of operating this route in that jurisdiction.



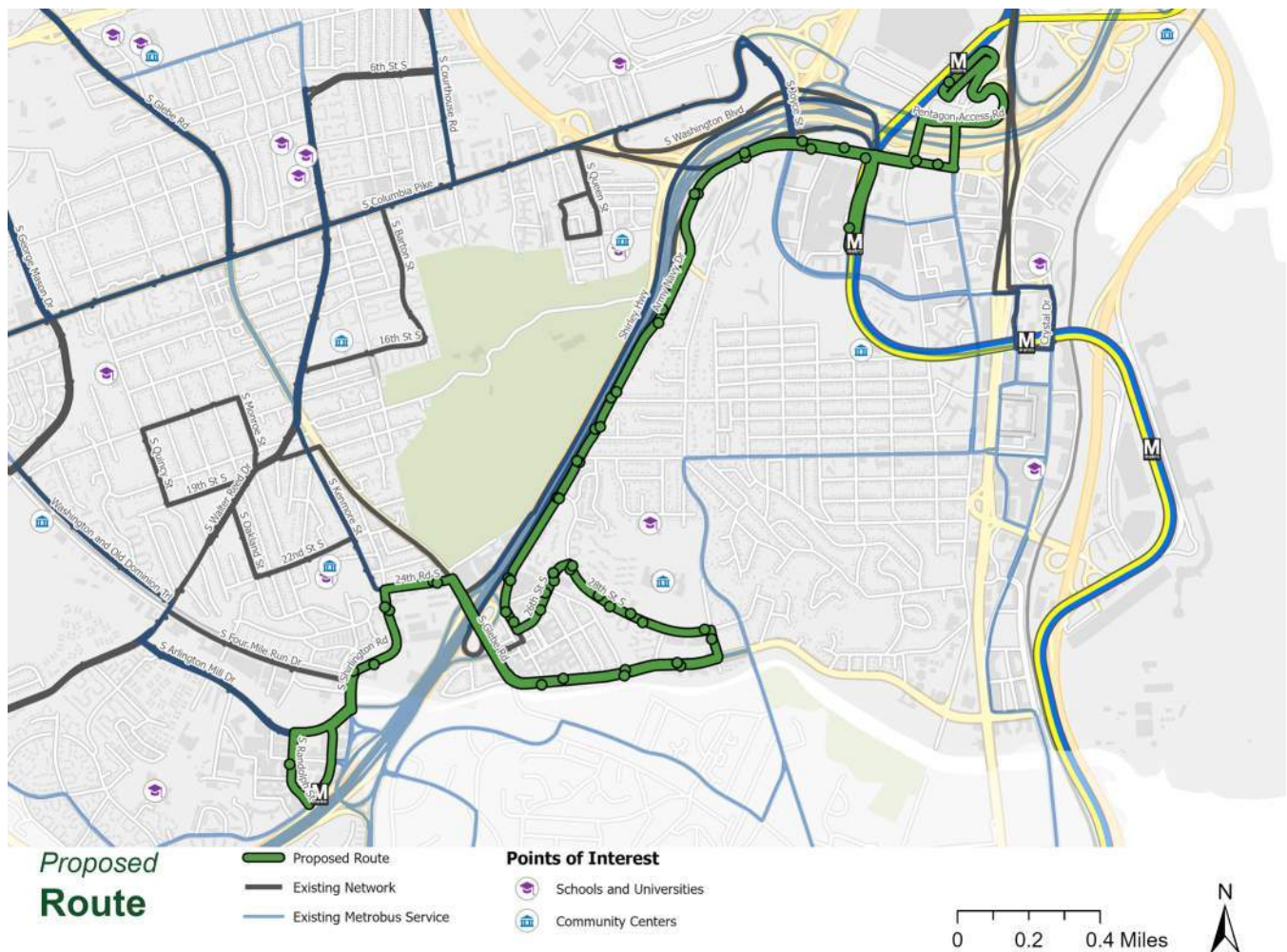
TABLE 57 | ROUTE 85 EXISTING AND PROPOSED OPERATING STATISTICS

Performance Evaluation Metrics			Current	Proposed	Difference	Target / Average
From			-	Shirlington		
To			-	Potomac Yard		
Service Times	Weekday	Start Time	-	6:00 AM	-	n/a
		End Time	-	7:00 PM	-	n/a
	Saturday	Start Time	-	8:00 AM	-	n/a
		End Time	-	7:00 PM	-	n/a
	Sunday	Start Time	-	8:00 AM	-	n/a
		End Time	-	7:00 PM	-	n/a
Span (Hours/Minutes)	Weekday		-	13:00	+13:00	>=18:00
	Saturday		-	11:00	+11:00	
	Sunday		-	11:00	+11:00	
Frequency (Minutes)	Weekday	Early	-	-	-	<=30
		AM Peak	-	30	+30	
		Midday	-	30	+30	
		PM Peak	-	30	+30	
		Evening	-	-	-	
		Late	-	-	-	
	Saturday	Core *	-	30	+30	
		Non-Core *	-	-	-	
	Sunday	Core *	-	30	+30	
		Non-Core *	-	-	-	
Vehicle Revenue Hours	Weekday		-	27	+27	n/a
	Saturday		-	23	+23	n/a
	Sunday		-	23	+23	n/a
	Annual		-	9,415	+9,415	n/a
Equity Share	Minority		-	39%	+39%	39%
	Low income		-	24%	+24%	14%
	Limited English Proficiency		-	3%	+3%	5%
Peak Vehicles			-	2	+2	n/a
Annual Operating Cost			-	\$1.10 M	+\$1.10 M	n/a
Estimated Ridership Impact (FY21 base)			-	394	+394	n/a

\* Core hours vary by weekend day, but represent the busiest hours of the day, while non-core hours are those outside of dominant travel times.

## Route 87

FIGURE 22 | ROUTE 87 (PROPOSED)



### Background

The existing Route 87 has the ninth highest ridership and is 11<sup>th</sup> most productive in the ART system. It currently operates as an STN route with weekday service operating between 5:50 AM and 11:35 PM. Buses operate every 19 to 21 minutes during peak and midday periods and 29 minutes or less during off-peak periods. Route 87 provides connections between Shirlington and neighborhoods along Shirley Highway and other destinations in Pentagon City. It also provides service to many equity-focus neighborhoods and valuable connections between busy, vital travel corridors and destinations with above-average ridership, including:

- Metrorail
  - Pentagon / Pentagon City
- Neighborhood Centers
  - Shirlington
  - Columbia Pike
- Community Centers
  - Gunston CC
  - Walter Reed CC

The two busiest stops on the route are Pentagon Metro, with 232 average weekday boardings in 2021, and Shirlington Transit Center, with 110 average weekday boardings. Over the past five years, Route 87 ridership peaked in October 2018 with 728 average weekday boardings. Lowest ridership came during the pandemic crisis in April 2020 at 140 average weekday boardings. While ridership dropped to 51% of its 2019 high, many



other routes experienced a much greater fall in usage. This illustrates how the pandemic-related shift to teleworking has had a significant impact on transit usage along certain routes.

Analysis of population density by block group and multi-family housing found concentration of multi-family housing along the length of Route 87, particularly in the Shirlington, Green Valley, and Long Branch Creek neighborhoods. It found population projected to grow over 30% in Green Valley between 2020 and 2030, which is a faster rate than most of Arlington. It also found 21 to 50 jobs per acre in the Shirlington neighborhood, and an employment growth rate of over 30% from 2020 to 2030 in the Green Valley community.

Arlington Ridge and Green Valley are primarily comprised of low income and minority defined census block groups and were identified as focus areas with gaps between the current level of transit service and the analysis of transit propensity measures and concentration of equity-focus populations. The Gaps and Needs Analysis include several bivariate maps comparing transit trips and demographic characteristics. Arlington Ridge and Green Valley were identified on each map as having a lower number of transit trips provided per person on the transit propensity, equity-focus population measures than the County average.

### Service Recommendations

1. Consolidate the A/P/X variants and operate a single route pattern (weekend service to Pentagon City).
2. Increase frequency by absorbing service hours from former Route 87 variants.
3. Segments eliminated: 28th Street S (Army Navy Drive to 26th Street S).

### Expected Outcomes

Route 87 will consolidate the service hours of the existing Route 87 A/P/X variants, which will result in increased service frequency throughout the day. The proposed increase in frequency is expected to fully offset any loss of service from the discontinuation of the 87 variant services. Increased weekday frequency is anticipated to improve ridership productivity metrics and support riders who depend on this route for daily activities.

Headways will improve from 19 minutes to 12 minutes in AM peak periods and from 21 minutes to 12 minutes during the PM peak period. It will also provide a slight increase of combined frequency from 27 minutes to 23 minutes during evening service along Shirley Highway. Vehicle Revenue Hours during the weekday will increase from 42 hours a day to 44 hours a day, and Annual Vehicle Revenue Hours will increase by 424, about a 3% increase. The removal of these variants will increase the number of existing vehicles operated during peak service from five to six.

The proposed recommendations will increase the level of ART service provided to equity-focus areas and high-transit propensity neighborhoods. Route 87 operates in an area where 52% of the population within a quarter mile are minority individuals, and 17% of the population are considered low income. This is well above the County population of each classification of 39% and 14% respectively. The most recent ART Title VI plan identifies Route 87 as a minority route because of at least a third of the route's revenue mileage operating within a census block group whose minority population share exceeds the County minority population of 38.5%.



TABLE 58 | ROUTE 87 EXISTING PERFORMANCE METRICS

	Target (STN)	Weekday ART Rank	Weekday	Saturday	Sunday
Average Daily Ridership	-	9 <sup>th</sup>	272	-	-
Farebox Recovery	20%	10 <sup>th</sup> (Tied)	5%	-	-
Passengers Per One Way Trip	-	10 <sup>th</sup>	4.8	-	-
Passengers Per Revenue Hour	15	10 <sup>th</sup> (Tied)	5.6	-	-
Passengers Per Revenue Mile	-	8 <sup>th</sup> (Tied)	0.6	-	-
On-Time Performance	95%	16 <sup>th</sup>	73.4%	-	-

TABLE 59 | ROUTE 87 EXISTING AND PROPOSED OPERATING STATISTICS

Performance Evaluation Metrics			Current	Proposed	Difference	Target / Average
From			Shirlington			
To			Pentagon			
Service Times	Weekday	Start Time	6:15 AM	6:00 AM	+0:15	n/a
		End Time	11:15 PM	12:00 AM	+0:45	n/a
	Saturday	Start Time	7:30 AM	7:30 AM	0:00	n/a
		End Time	11:30 PM	11:30 PM	0:00	n/a
	Sunday	Start Time	7:15 AM	7:15 AM	0:00	n/a
		End Time	6:45 PM	6:45 PM	0:00	n/a
Span (Hours/Minutes)	Weekday		17:00	18:00	+1:00	>=18:00
	Saturday		16:00	16:00	0:00	
	Sunday		11:30	11:30	0:00	
Frequency (Minutes)	Weekday	Early	-	-	-	<=30
		AM Peak	15	15	+3	
		Midday	30	30	0	
		PM Peak	20	15	+8	
		Evening	30	30	0	
		Late	-	30	+30	
	Saturday	Core *	30	30	0	
		Non-Core *	30	30	0	
	Sunday	Core *	30	30	0	
		Non-Core *	-	-	-	
Vehicle Revenue Hours	Weekday		42	44	+2	n/a
	Saturday		32	32	0	n/a
	Sunday		23	23	0	n/a
	Annual		13,817	14,251	+434	n/a
Equity Share	Minority		51%	51%	0%	39%
	Low income		21%	22%	+1%	14%
	Limited English Proficiency		5%	6%	+1%	5%
Peak Vehicles			5	6	+1	n/a
Annual Operating Cost			\$1.62 M	\$1.67 M	+\$0.05 M	n/a
Estimated Ridership Impact (FY21 base)			332	442	+110	n/a



## 3.2. Prioritization of Planned Service Improvements

The following table provides an overall prioritization and phasing of the service recommendations, as well as the anticipated additional operating and capital resources required to support them.

TABLE 60 | CAPITAL AND OPERATING COST PHASING OF SERVICE RECOMMENDATIONS (IN THOUSANDS OF DOLLARS)

Route	Short-term								Mid-term								Long-term									
	FY 23		FY 24		FY 25		FY 26		FY 27		FY 28		FY 29		FY 30		FY 31		FY 32		FY 33		FY 34		FY 35	
	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital
41	\$573	\$-	\$590	\$-	\$608	\$-	\$626	\$-	\$645	\$-	\$664	\$-	\$824	\$-	\$849	\$-	\$874	\$-	\$900	\$-	\$927	\$-	\$955	\$-	\$984	\$-
42	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$234	\$-	\$241	\$-	\$248	\$-	\$256	\$-	\$263	\$-	\$271	\$-	\$279	\$-	\$288	\$-
43	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$727	\$-	\$748	\$-	\$771	\$-	\$794	\$-	\$818	\$-	\$842	\$-	\$868	\$-	\$894	\$-
45	\$659	\$-	\$679	\$-	\$700	\$-	\$720	\$-	\$742	\$-	\$764	\$-	\$1,594	\$-	\$1,642	\$-	\$2,784	\$-	\$2,867	\$-	\$2,953	\$-	\$3,042	\$-	\$3,133	\$-
51	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$1,015	\$-	\$1,045	\$-	\$1,076	\$-	\$1,109	\$-	\$1,142	\$-	\$1,176	\$-	\$1,212	\$-	\$1,248	\$-	\$1,285	\$-
52	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$272	\$-	\$280	\$-	\$289	\$-	\$297	\$-	\$306	\$-	\$315	\$-	\$325	\$-	\$335	\$-	\$345	\$-
53	\$-	\$-	\$-	\$-	\$662	\$-	\$681	\$-	\$702	\$-	\$723	\$-	\$745	\$-	\$767	\$-	\$790	\$-	\$814	\$-	\$838	\$-	\$863	\$-	\$889	\$-
54	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$761	\$-	\$784	\$-	\$807	\$-	\$831	\$-	\$856	\$-	\$882	\$-	\$909	\$-	\$936	\$-
55	\$-	\$-	\$-	\$-	\$-	\$-	\$189	\$-	\$195	\$-	\$201	\$-	\$207	\$-	\$213	\$-	\$219	\$-	\$226	\$-	\$233	\$-	\$240	\$-	\$247	\$-
61	\$-	\$-	\$-	\$-	\$(475)	\$-	\$(489)	\$-	\$(504)	\$-	\$(519)	\$-	\$(534)	\$-	\$(550)	\$-	\$(567)	\$-	\$(584)	\$-	\$(601)	\$-	\$(619)	\$-	\$(638)	\$-
62	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$(443)	\$-	\$(457)	\$-	\$(470)	\$-	\$(484)	\$-	\$(499)	\$-	\$(514)	\$-	\$(529)	\$-	\$(545)	\$-	\$(561)	\$-
72	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$526	\$-	\$542	\$-	\$559	\$-	\$575	\$-	\$593	\$-	\$610	\$-	\$629	\$-	\$647	\$-



Route	Short-term								Mid-term								Long-term									
	FY 23		FY 24		FY 25		FY 26		FY 27		FY 28		FY 29		FY 30		FY 31		FY 32		FY 33		FY 34		FY 35	
	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital
74	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$1,097	\$-	\$1,130	\$-	\$1,163	\$-	\$1,198	\$-	\$1,234	\$-	\$1,271	\$-	\$1,309	\$-
75	\$-	\$-	\$-	\$-	\$437	\$-	\$450	\$-	\$463	\$-	\$477	\$-	\$492	\$-	\$934	\$-	\$962	\$-	\$991	\$-	\$1,020	\$-	\$1,051	\$-	\$1,082	\$-
77	\$-	\$-	\$-	\$-	\$137	\$-	\$141	\$-	\$145	\$-	\$149	\$-	\$154	\$-	\$683	\$-	\$703	\$-	\$725	\$-	\$746	\$-	\$769	\$-	\$792	\$-
84	\$-	\$-	\$-	\$-	\$-	\$-	\$(75)	\$-	\$(77)	\$-	\$(80)	\$-	\$(82)	\$-	\$(84)	\$-	\$(87)	\$-	\$(90)	\$-	\$(92)	\$-	\$(95)	\$-	\$(98)	\$-
85	\$-	\$-	\$-	\$-	\$896	\$-	\$923	\$-	\$950	\$-	\$979	\$-	\$1,008	\$-	\$1,038	\$-	\$1,395	\$-	\$1,437	\$-	\$1,480	\$-	\$1,525	\$-	\$1,571	\$-
87	\$-	\$-	\$-	\$-	\$-	\$-	\$55	\$-	\$57	\$-	\$59	\$-	\$61	\$-	\$62	\$-	\$64	\$-	\$66	\$-	\$68	\$-	\$70	\$-	\$72	\$-
General	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Total	\$1,232	\$-	\$1,269	\$-	\$2,963	\$-	\$3,032	\$-	\$3,967	\$-	\$6,334	\$-	\$8,567	\$-	\$9,776	\$-	\$11,488	\$-	\$11,833	\$-	\$12,188	\$-	\$12,553	\$-	\$12,930	\$-



### A high-level summary of the phasing by route by provided below:

1. Route 41's weekday service improvements have already been implemented in FY 23 as part of service improvements related to Columbia Pike and WMATA's 16M service. Weekend service improvements are scheduled for FY 29.
2. Route 42's full recommendation is scheduled for FY 28.
3. Route 43's full recommendation is scheduled for FY 28.
4. Route 45's weekday service improvements have already been implemented in FY 23 as part of service improvements related to Columbia Pike and WMATA's 16M service. Weekend service improvements are scheduled for FY 29. The proposed extension to Bailey's Crossroads is contingent upon additional demand for connections to the proposed VA 7 BRT line and would not be until FY 31 if implemented.
5. Route 51's full recommendation is scheduled for FY 27.
6. Route 52's full recommendation is scheduled for FY 27.
7. Route 53's full recommendation is scheduled for FY 25.
8. Route 55's weekend recommendation is scheduled for FY 26. Its weekday recommendation is contingent on the Langston Boulevard Area Study.
9. Route 54's full recommendation is scheduled for FY 28.
10. Route 61's full recommendation is scheduled for FY 25.
11. Route 62's full recommendation is scheduled for FY 27.
12. Route 72's full recommendation is scheduled for FY 28.
13. Route 74's full recommendation is scheduled for FY 29.
14. Route 75's weekday service improvements are scheduled for FY 25. Its weekend service improvements are scheduled for FY 30.
15. Route 77's weekend service improvements are scheduled for FY 25. Its weekday service improvements are scheduled for FY 30.
16. Route 84's full recommendation is scheduled for FY 26.
17. Route 85's initial alignment to Crystal City is scheduled for FY 25 (in response to WMATA's Better Bus Network Redesign), while the full alignment to Potomac Yard is scheduled for FY 31.
18. Route 87's full recommendation is scheduled for FY 26.
19. *For capital costs: peak vehicle estimates are in-progress due to the County's on-going ZEB Study, which may have an impact on the capital costs associated with each recommendation.*



The table below discusses any additional funding considerations required to implement the service recommendations.

TABLE 61 | ADDITIONAL FINANCIAL CONSIDERATIONS FOR IMPLEMENTATION OF SERVICE RECOMMENDATIONS

Route	Source of Additional Funds	Require facility improvements or capital projects	Inclusion in CLRP, STIP, and/or SYIP
41	I-66 Outside the Beltway Comprehensive Agreement	No facility improvements or capital projects are required to support this recommendation	
42	I-395 Commuter Choice	No facility improvements or capital projects are required to support this recommendation	
43	I-395 Commuter Choice	No facility improvements or capital projects are required to support this recommendation	
45	I-395 Commuter Choice	No facility improvements or capital projects are required to support this recommendation	
51	I-66 Outside the Beltway Comprehensive Agreement	No facility improvements or capital projects are required to support this recommendation	
52	I-66 Outside the Beltway Comprehensive Agreement	No facility improvements or capital projects are required to support this recommendation	
53	I-66 Outside the Beltway Comprehensive Agreement	No facility improvements or capital projects are required to support this recommendation	
54	I-66 Outside the Beltway Comprehensive Agreement	No facility improvements or capital projects are required to support this recommendation	
55		No facility improvements or capital projects are required to support this recommendation	
61	This service is being discontinued		
62	This service is being discontinued		
72	I-66 Outside the Beltway Comprehensive Agreement	No facility improvements or capital projects are required to support this recommendation	
74	I-395 Commuter Choice	No facility improvements or capital projects are required to support this recommendation	
75	I-66 Outside the Beltway Comprehensive Agreement	No facility improvements or capital projects are required to support this recommendation	





Route	Source of Additional Funds	Require facility improvements or capital projects	Inclusion in CLRP, STIP, and/or SYIP
77	I-66 Outside the Beltway Comprehensive Agreement	No facility improvements or capital projects are required to support this recommendation	
84		No facility improvements or capital projects are required to support this recommendation	
85	I-395 Commuter Choice	No facility improvements or capital projects are required to support this recommendation	
87		No facility improvements or capital projects are required to support this recommendation	

## 3.3. Service Development

The following table identifies the changes in level of service, in terms of revenue hours and revenue miles, by route and fiscal year. This table applies to fixed-route bus service, the only mode covered in the recommendations. Any recommendations that result in a decreased level of service are highlighted and elaborated below.

TABLE 62 | LEVEL OF SERVICE IMPACTS BY RECOMMENDATION AND FISCAL YEAR

Route	Short-term								Mid-term								Long-term									
	FY 23		FY 24		FY 25		FY 26		FY 27		FY 28		FY 29		FY 30		FY 31		FY 32		FY 33		FY 34		FY 35	
	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles
41	4,896	55,890	-	-	-	-	-	-	-	-	-	-	1,001	10,562	-	-	-	-	-	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-	-	-	-	1,726	15,609	-	-	-	-	-	-	-	-	-	-	-	-	-	
43	-	-	-	-	-	-	-	-	-	-	5,358	71,145	-	-	-	-	-	-	-	-	-	-	-	-	-	
45	5,636	63,865	-	-	-	-	-	-	-	-	-	-	5,775	61,095	-	-	7,371	83,978	-	-	-	-	-	-	-	
51	-	-	-	-	-	-	-	-	7,706	133,956	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
52	-	-	-	-	-	-	-	-	2,066	29,963	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
53	-	-	-	-	5,329	60,527	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
54	-	-	-	-	-	-	-	-	-	-	5,610	68,330	-	-	-	-	-	-	-	-	-	-	-	-	-	
55	-	-	-	-	-	-	1,480	16,049	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
61	-	-	-	-	(3,825)	(26,696)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
62	-	-	-	-	-	-	-	-	(3,366)	(37,796)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
72	-	-	-	-	-	-	-	-	-	-	3,882	40,848	-	-	-	-	-	-	-	-	-	-	-	-	-	
74	-	-	-	-	-	-	-	-	-	-	-	-	7,850	86,561	-	-	-	-	-	-	-	-	-	-	-	
75	-	-	-	-	3,519	41,030	-	-	-	-	-	-	-	-	2,970	38,119	-	-	-	-	-	-	-	-	-	

Route	Short-term								Mid-term								Long-term									
	FY 23		FY 24		FY 25		FY 26		FY 27		FY 28		FY 29		FY 30		FY 31		FY 32		FY 33		FY 34		FY 35	
	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles	Revenue Hours	Revenue Miles
77	-	-	-	-	1,100	13,163	-	-	-	-	-	-	-	-	3,647	40,685	-	-	-	-	-	-	-	-	-	-
84	-	-	-	-	-	-	(587)	(7,237)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
85	-	-	-	-	7,216	84,623	-	-	-	-	-	-	-	-	-	-	2,199	32,444	-	-	-	-	-	-	-	-
87	-	-	-	-	-	-	434	3,381	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	10,532	119,755	-	-	13,340	172,647	(153)	(3,856)	6,405	126,123	16,575	195,932	14,626	158,218	6,617	78,804	9,570	116,422	-	-	-	-	-	-	-	-

- Route 61 – this route is being discontinued, and its stops will be served by the recommended extensions of Route 51 and Route 53. Additionally, a proposal in the WMATA Better Bus Network Redesign may also serve this area.
- Route 62 – this route is being discontinued, and its stops will be served by the recommended extensions of Route 52 and Route 53
- Route 84 – this route is being rerouted to use Interstate 395, which yields time savings compared to the current alignment.
- Route 53 is also being routed which will result in a loss of fixed-route bus service along Williamsburg Boulevard in North Arlington – this area is proposed to be served by the county's Microtransit pilot program.

None of these recommendations were made in response to budgetary constraints, an FTA Title VI report, or an FTA Triennial Audit. The county has identified the following issues that could impact operations of the existing or planned transit system:

- The region's primary transit provider, WMATA, is facing a potential budget shortfall that may directly impact the service that it provides in Arlington County. At the same time, it is currently undertaking a full bus network redesign – while recommendations for this TSP have been developed with this redesign in mind, the project is still in progress.
- ART is conducting a ZEB transition study – the impacts of ZEB logistics, such as the fleet replacement ratio, unique facility needs, and other operational constraints may impact the readily available fleet size, which may impact the ability to fully implement the recommendations.

## Chapter 4

# Implementation Plan



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# 4.1 Asset Management

## 4.1.1. Transit Asset Management (TAM) Plan

Arlington Transit is a Tier II agency in Virginia and participates in the DRPT-sponsored group TAM plan, the latest of which is for Federal Fiscal Year 2022 through 2025.<sup>1</sup> The goal of the plan is to help participating Tier II transit agencies achieve and maintain their transit assets in a State of Good Repair (SGR). The group TAM plan includes an inventory of assets (vehicles, facilities, equipment), identifies useful life benchmarks, summarizes condition assessments, sets performance targets, and prioritizes investment. The TAM plan also documents the Commonwealth's policies for asset management as well as the funding practices to improve asset management outcomes.

## 4.1.2. Vehicle Fleet Policies

Arlington Transit's *Fleet Management and Maintenance Plan* maps out a systematic approach to the ongoing management, maintenance, and replacement of ART's fleet of transit vehicles. The goals of the Fleet Management and Maintenance Plan are to:

- Provide a systematic approach that accurately projects fleet growth based on future service demand;
- Inform long-term storage and maintenance facility's needs that accommodates planned service expansion;
- Manage preventive maintenance and repair activities that ensure and support safe and reliable service; and
- Minimize vehicle service failures (road calls) and ensure each vehicle is operating at peak efficiency.

The methodology guiding this plan is based on the most recent regional economic, land use, and population projections to develop forecasts for future trip origins, destinations, and travel choices. The market analysis is used to develop the service plans for each route and establish the corresponding number and type of vehicles needed to meet ridership demand while maintaining ART's maximum load standard. *The Fleet Management and Maintenance Plan* documents the approach to replacing and expanding the transit vehicle fleet needed to meet those service plans. The replacement of vehicles is governed by the useful life guidelines developed by the Federal Transit Administration (FTA).

ART uses the Transit Economic Requirements Model (TERM) to assess the condition of non-facility assets such as revenue fleet vehicles. Through this process, each asset is assigned a numerical value from five (representing an asset in excellent or near new condition) to one (representing an asset in poor condition that is past the end of its useful life and in need of prioritized replacement or repair). A vehicle asset receiving a score of 2 or less, corresponding to TERM's 'Marginal' condition is past the end of its useful life (ULB). Currently, 13 buses in service are in Marginal TERM condition and are Arlington Transit's State of Good Repair replacement priority. Details are outlined in Section 4.2.1 below. ART maintains a 20 percent spare ratio for its overall fleet. However, with a sizable number of older buses that are still in a State of Good Repair and beyond their useful life, and peak pull-out requirements, the current overall spare ratio is close to 30 percent, exceeding the required standard. The high spare ratio leaves room for scheduled preventive maintenance as well as unscheduled maintenance that may leave buses out of service for extended periods. For assumption purchases in this TSP, the number of vehicles of each type purchased in each year was multiplied by 1.2 and rounded up to account for spares.

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<sup>1</sup> <https://drpt.virginia.gov/media/5kaorxun/tam-plan-2022.pdf>

### Fixed Route Bus Fleet

The County anticipates moving the ART fleet to zero-emission buses (ZEBs) by 2040 to support the County's climate and environmental goals. The County is close to completing its ZEB feasibility study. The final draft is under review by the public commissions and County Board before being finalized. Following the study and per Board guidance, the County plans for the replacement of current Compressed Natural Gas (CNG) buses to ZEBs starting in FY 2026. The County conducted a ZEB demonstration by partnering with two bus manufacturers during summer and fall 2022. This demonstration allowed Arlington Transit to collect data and assess vehicle performance while operating across the transit system. The County has ordered 4 BEBs to pilot in FY25 and pilot two to four Hydrogen Fuel Cell Electric Buses (FCEB) in FY26. The County currently operates a fleet of CNG buses with related infrastructure. All CNGs purchased in FY24 will be fueled with Renewable Natural Gas (RNG). After FY28, the ART fleet will make a gradual switchover to ZEB. Transitioning fleets to ZEBs requires a fundamental change in a fleet operator's approach to the procurement of vehicles and the associated infrastructure to support them. Table 1 summarizes the existing fleet and provides details on future vehicle types, useful lifespans, and assumed costs.

TABLE 1 | EXISTING ART FLEET AND POLICIES

Year	Make	Length (Feet)	Number	Fuel Type	Assumed Useful Life	Vehicle Type for Future Purchases	Future Purchase Assumed Unit Cost (FY2023)
2010	NABI	31	12	CNG	12	CNG-35 foot	\$638,600
2011	NABI	31	3	CNG	12	CNG-35 foot	\$638,600
2014	NABI	40	8	CNG	12	BEB-40 foot	\$1,100,000
2015	NABI	40	8	CNG	12	BEB-40 foot	\$1,100,000
2018	New Flyer	40	13	CNG	12	BEB-40 foot	\$1,100,000
2019	New Flyer	35	14	CNG	12	TBD	TBD
2022	New Flyer	40	20	CNG	12	BEB-40 foot	\$1,100,000
n/a	n/a	n/a	n/a	n/a	12	FCEB-40 foot	\$1,250,000

### Paratransit Bus Fleet

The County contracts its STAR paratransit service through two taxicab companies and does not own that fleet. Thus, no capital investments are programmed for this mode.

### Support Vehicle Fleet

The County's contractor provides the non-revenue fleet vehicles including a shop vehicle. Thus, no capital investments are programmed for this mode.

## 4.1.3. Maintenance and Operations Facilities Policies

The County has several existing maintenance and operations facilities including:

- **Light Maintenance Facility** – Located at 3201 S Eads Street, the facility includes a light-duty maintenance bay, bus wash, and CNG fueling station. The facility provides storage space for 37 buses, CNG fueling, fare collection, wash services, inspection and light maintenance, and small parts and support spaces.
- **ART House Admin Building** – Located at 2900 S Eads Street, the facility is leased from another County bureau (Water Pollution Control). The facility has administrative and management offices for the County's operations and maintenance contractor, dispatch and other operating functions, a break room for bus operators, and a classroom for training.
- **Maintenance Building** – Located at 6100B Farrington Avenue, the leased facility includes an indoor maintenance garage with repair bays and lifts for work on six buses at a time, tire, and parts storage,



farebox repair, and administration and support areas.

- Temporary Bus Storage and Operations Lot – During construction of the ART Operations and Maintenance Facility, this County-owned facility located at 1429 N Quincy Street serves as a storage and operations lot for up to 29 buses.
- STAR Call Center Office – The County currently operates the Specialized Transportation for Arlington Residents (STAR) Call Center out of a leased, non-County office space located at 2301 Columbia Pike, Suite 120.

The County follows Federal Transit Administration (FTA) and Virginia Department of Rail and Public Transportation (DRPT) guidelines to provide condition ratings for maintenance and operations facilities to DRPT's TransAM database. Arlington County requires the maintenance Contract Service Provider to keep all its facilities and buses maintained in a clean, safe, and reliable condition. Vehicle appearance is maintained through regular interior and exterior cleanings. Safety and reliability are achieved through daily pre/post-trip inspections and scheduled preventative maintenance inspections. Preventive maintenance quality checks are conducted by the maintenance manager. ART facilitates independent inspections to confirm the contractor is following all inspection protocols. This information is compiled as part of the statewide group TAM plan.

### 4.1.4. Passenger Facilities and Amenities Policies

In addition to numerous Metrorail stations owned by the Washington Metropolitan Area Transit Authority (WMATA), the County owns several key existing passenger facilities and amenities including:

- Shirlington Bus Station – Located at 2975 S Quincy Street, this facility provides an enclosed public bus station and serves as the principal transfer point for Metrobus and ART bus services in South Arlington. The facility includes seven bus bays / bus stops, an indoor waiting area with restrooms, and a Commuter Store with personnel who provide information on transit options and sell fare media.
- Crystal City Potomac Yard Transitway – This is a 4.5-mile transitway between the Crystal City Metrorail Station in Arlington County and the Braddock Road Metrorail Station in the City of Alexandria along the busy Route 1 corridor. The WMATA Metroway route operates along the corridor. The transitway has nine stations that include real-time displays with bus arrival information, higher curbs for easier vehicle boarding, and canopies for weather protection.
- Columbia Pike Bus Stops and Shelters – Located along Columbia Pike, these premium bus stops include a real-time display, lighting, seating, wayfinding information, trash, and recycling receptacles, a distinctive shelter design, and pavement heating elements for winter weather.
- Ballston-MU Metro Station Bus Shelters – Located at 4230 Fairfax Drive, Ballston Station is a major transit facility in Arlington, served by the Metrorail Orange line and numerous WMATA Metrobus and ART routes. The recently completed Ballston Multimodal Improvements Project enhanced the passenger and pedestrian experience at this bus terminal. The project, completed in FY22, included new replacement bus shelters with more seating and better visibility than the original small bus shelters.
- Metroway Premium Bus Stops - Metroway is a premium transit service offering faster, more reliable, and more convenient transit trips along Route 1 between Crystal City and Braddock Rd Metrorail stations, via Potomac Yard. WMATA operates Metroway, and Arlington County owns and maintains the consolidated bus stops along the route.

The Arlington Transit Bureau is responsible for monitoring and maintaining bus stops and bus stop amenities. The *Arlington's Bus Stop Guidelines & Standards Manual*<sup>2</sup> outlines guidelines and standards Arlington Transit Bureau abides by in the planning and providing of bus stops within Arlington. The manual serves as the guiding document that Arlington Transit uses when evaluating and implementing the design, function, and placement of bus stops, including recommendations for determining when and where to use the three common bus stop typologies: near-side, far-side, and midblock bus stops. It outlines the set of design criteria and the minimum requirements to provide accessible, safe, and efficient bus stops, contains policies and s

<sup>2</sup> [https://www.arlingtontransit.com/sites/art/assets/File/2020-03-17-FINAL\\_Bus\\_Stop\\_Guidelines\\_and\\_Standards.pdf](https://www.arlingtontransit.com/sites/art/assets/File/2020-03-17-FINAL_Bus_Stop_Guidelines_and_Standards.pdf)



standards for bus stop placement, spacing, and necessary passenger amenities, as well as detailed policies on bus stop design physical elements and accessibility standards.

Maintenance is performed as often as necessary to create a positive impression for the public and includes:

- Cleaning of bus shelters and benches and/or lean bars to include but not limited to the removal of dirt, graffiti, posted materials, or stickers;
- Fixing real-time information signage;
- Removal of trash and recycling by SWB or other responsible entity per agreements as scheduled or dependent on the amount of trash that accumulates at the stop;
- Manual or chemical removal of weeds and pruning of obstructing foliage;
- Verifying shelter lighting levels and replacement of bad bulbs and ballasts;
- Cleaning a location to make a site safe and repairing items that pose a safety concern as soon as possible including broken glass panels, broken frames of shelters, damaged benches and/or lean bars, and snow and ice removal.

*Arlington's Bus Stop Guidelines & Standards Manual* also includes a chapter with policies to coordinate construction at/near bus stops to ensure buses and passengers can safely access the stop during periods of construction. The County follows FTA and DRPT guidelines to provide condition ratings for passenger facilities to DRPT's TransAM database. This information is compiled as part of the statewide group TAM plan.

### 4.1.5. Technology and ITS Policies

A variety of transit technologies are used throughout Arlington - at transit stations and bus stops, on buses, and through data-sharing via websites, mobile phone applications, and real-time displays. Arlington County's Transit Intelligent Transportation Systems (ITS) and Security Program are dedicated to the installation and maintenance of technology to improve transit operations and rider information systems and to identify and mitigate agency security and safety issues. Arlington is committed to implementing technologies that make transit trips faster, easier, and more reliable.

The County's ongoing initiatives focus on providing accurate and timely information to both operations staff and transit customers. This program builds upon and expands technologies already in place as well as introduces new technologies recommended in the Transit ITS master plan. Compared to other asset classes like vehicles and facilities, technology assets need more frequent replacement. ART aims to replace its ITS and technology assets when they are no longer supported by the vendor or when their software cannot be updated, they come to the end of their useful life, and/or the technology no longer cross-integrates.

Recently implemented ITS and security projects include:

- Real-time Delivery Preference Study<sup>3</sup> – focused on what Arlington transit riders expect in terms of real-time information delivery.
- Installation of a real-time multimodal information display at the Arlington Mill Community Center.
- Conversion of electronic displays from scheduled arrival time to real-time arrival information at the South Bell Street bus bays adjacent to the Crystal City Metrorail station.
- Addition of ADA-accessible speaker boxes at Crystal City and Rosslyn bus bays.
- Addition of two bus stops at Shirlington Bus Station with real-time information displays.
- Installation of security systems at the new ART bus facility on South Eads Street.
- Installation of onboard video cameras on ART buses to increase the safety of riders and bus operators.

The specifics regarding technology projects currently in planning or development are described in Technology and ITS in section 4.2.2.

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<sup>3</sup> [https://arlingtonva.s3.amazonaws.com/wp-content/uploads/sites/31/2019/04/DES-Transit-ITS-Real-time\\_Preference\\_Study\\_Final\\_Report\\_2018.pdf](https://arlingtonva.s3.amazonaws.com/wp-content/uploads/sites/31/2019/04/DES-Transit-ITS-Real-time_Preference_Study_Final_Report_2018.pdf)

## 4.2. Capital Implementation Plan

Capital projects are informed by the County's 10-year Capital Improvement Plan covering FY23 through FY32.<sup>4</sup>

### 4.2.1. Rolling Stock

#### Replacement Vehicles

ART has identified the following replacement schedule in the County's CIP:

- Twenty (20) 40' replacement CNG/RNG buses - FY 2023
- Thirty (30) 40-foot replacement buses FY 2024
- Eight (8) 40-foot replacement buses FY 2026
- Eight (8) 40-foot replacement buses FY 2027
- Thirteen (13) 40-foot replacement buses FY 2029
- Fourteen (14) 40-foot replacement buses FY 2031

For this TSP, based on the current ratio of BEB to CNG buses, owing to the range limitations of BEBs, the FY 2024 replacement of 15 CNG buses assumes the purchase of 30 BEBs to ensure no disruption to service. Bus purchases in later years have been programmed assuming a one-for-one bus replacement ratio, pending recommendations of ART's ZEB feasibility study. The study is considering three scenarios, without committing to selecting a single option: 2:1 BEB to CNG, 1.5:1 BEB to CNG, and 1:1 Hydrogen Fuel Cell Electric Buses (FCEBs) to CNG. Following completion of the study, fleet replacement costs for the CIP program will be updated and reflected in the annual update of this TSP. As part of the County's Zero Emissions Bus Study, ART is also working with manufacturers to pilot BEB and FCEBs.

Table 2 summarizes the replacement vehicle capital needs due to vehicles reaching the end of their useful life. As BEB technology and associated costs are still evolving, the schedule represents a rough estimate.

TABLE 2 | REPLACEMENT VEHICLE PURCHASES BY YEAR AND TYPE

Replace	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
CNG/RNG 40-foot	20	0	0	0	0	0	0	0	0	0	0	0
BEB 40-foot	0	30	0	8	8	0	13	0	14	0	0	0
<b>Total Vehicles</b>	<b>20</b>	<b>30</b>	<b>0</b>	<b>8</b>	<b>8</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Cost of Replacement (\$1,000s-YOE)</b>	<b>14,672</b>	<b>33,896</b>	<b>0</b>	<b>9,573</b>	<b>9,861</b>	<b>0</b>	<b>16,998</b>	<b>0</b>	<b>19,419</b>	<b>0</b>	<b>0</b>	<b>0</b>

<sup>4</sup> <https://www.arlingtonva.us/files/sharedassets/public/budget/documents/cip-webpage/1.-cip-final/adopted-cip-fiscal-years-2023-2032.pdf>



## Proposed Improvements and Expansion Vehicles

In addition to the fleet replacement buses, support for the 10-year service plan for ART and the service recommendations described in detail in *Chapter 3: Planned Improvements and Modifications* will require a net addition of 11 buses: seven in FY 2026 and four in FY 2028. Future bus purchases will be determined after the pilot of BEB and FCEB. BEB technology and associated costs are still evolving, the vehicle expansion schedule represents a rough estimate. Table 2 summarizes the service expansion vehicle capital needs.

TABLE 3 | EXPANSION VEHICLE PURCHASES BY YEAR AND TYPE

Expand	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
CNG/RNG 40-foot	0	0	0	0	0	0	0	0	0	0	0	0
BEB 40-foot	0	0	0	7	0	4	0	0	0	0	0	0
<b>Total Vehicles</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Cost of Expansion (\$1,000s-YOE)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8,246</b>	<b>0</b>	<b>5,078</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

## Vehicle Purchases

Table 2 summarizes the total vehicle capital needs through FY34. These purchases include replacement and expansion vehicles.

TABLE 4 | TOTAL VEHICLE PURCHASES BY YEAR AND TYPE

All Vehicles	FY23	FY24	FY25	FY26	FY27	F28	FY29	FY30	FY31	FY32	FY33	FY34
CNG/RNG 40-foot	20	0	0	0	0	0	0	0	0	0	0	0
BEB 40-foot	0	30	0	15	8	4	13	0	14	0	0	0
<b>Total Vehicles</b>	<b>20</b>	<b>30</b>	<b>0</b>	<b>15</b>	<b>8</b>	<b>4</b>	<b>13</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Cost (\$1,000s-YOE)</b>	<b>14,672</b>	<b>33,896</b>	<b>0</b>	<b>17,819</b>	<b>9,861</b>	<b>5,078</b>	<b>16,998</b>	<b>0</b>	<b>19,419</b>	<b>0</b>	<b>0</b>	<b>0</b>

## Vehicle Overhauls

The County does not currently have a vehicle overhaul program.

## 4.2.2. Additional Capital Needs

### Maintenance and Operations Facilities

#### ART Operations and Maintenance Facility

The County is in the process of constructing a new ART Operations and Maintenance Facility located at 2629-2633 S Shirlington Road. Work began in June 2022 and is expected to be substantially completed by fall 2024. The facility is to support the planned growth of the ART fleet up to 100 buses. The facility will perform regular preventive bus maintenance, repairs, and other unscheduled maintenance work. It also will include administration and operations functions and parking for buses and staff. The total cost of the project including the land purchase is \$91,090,000.

### ART O&M Facility Electrification Phase 2

The second project is the Phase 2 electrification of the new O&M facility to accommodate BEB/RBG buses. The total estimated cost for these improvements is \$20,000,000. Once the design is finalized, ART will proceed with setting up pilots for BEB/RNG use.

### Summary of Costs

Table 5 summarizes the projected capital costs of the two projects.

TABLE 5 | MAINTENANCE AND OPERATIONS FACILITIES CAPITAL NEEDS

(in \$1,000s)

Project	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
ART O&M Facility	30,401	33,258	26,421	1,010	0	0	0	0	0	0	0	0
ART O&M Facility Electrification Phase 2	0	0	0	12,000	8,000	0	0	0	0	0	0	0
<b>Total</b>	<b>30,401</b>	<b>33,258</b>	<b>26,421</b>	<b>13,010</b>	<b>8,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

## Passenger Facilities and Amenities

### Army Navy Drive Transit Center

This project involves the construction of a new WMATA multi-modal, multi-jurisdictional facility near the Pentagon. The County's role is limited to preliminary design and staff support during construction. The project will establish a central bus route connection and transfer hub in the busy Pentagon and Pentagon City travel markets and facilitate the safe movement of people transferring between different services. Arlington County's total estimated cost for the project is \$219,000.

### Ballston-MU Metrorail Station West Entrance

This project will add a new west entrance to the Ballston-MU Metrorail Station to be located at the intersection of N Fairfax Drive and N Vermont Street. The new entrance will include elevators, in compliance with the Americans with Disabilities Act, and stairs. The new entrance will improve access from the Glebe Road area and growing development in the western part of Ballston. The total estimated cost for the design and construction of the project is \$147,469,000.

### Bus Bay Expansion-East Falls Church Metrorail Station

This project will expand the bus bay capacity at the East Falls Church Metrorail station by adding three new bus bays. The project will also replace the existing shelters in the off-street bus loop, and improve bus operations, bus circulation, and pedestrian accessibility and safety. Design and engineering for this project began in FY 2021. The remaining total estimated cost for the project is \$7,717,000.

### Bus-Only HOV Lane on Langston Boulevard in Rosslyn

This project involves the design and construction of a peak period, peak direction High Occupancy Vehicle (HOV) and Bus-Only Lane on Langston Boulevard between N Veitch Street and N Lynn Street. The lane would operate eastbound during the morning peak period and westbound during the evening peak period only. The total estimated cost for the project is \$655,000.

### Bus Stop Accessibility Improvements

This project is an ongoing County initiative that includes annually programmed CIP funding to bring approximately 25 bus stops into ADA compliance each year. Improvements include bus pads, bus shelters, benches, and sidewalk access. The County currently has approximately 500 bus stops that do not comply with ADA standards. The total estimated cost for this ongoing program is \$7,517,000.



### Bus Stop and Shelter Program

This initiative includes annually programmed Capital Improvement Plan (CIP) funding to complete five to 10 shelter replacements, three new shelter installations, five new stand-alone bench installations, and three litter receptacle installations. The goal of the program is to improve the quality of the County's bus stops, maintain a state of good repair, and meet projected demand. The total estimated cost of this program is \$5,966,000.

### Court House Metrorail Station New Elevators

The Court House Metrorail Station has only one street elevator to the mezzanine that is small, slow, and heavily used. This project will provide for the design, engineering, and construction of two street-level elevators (that will replace the current elevator and add one) to the Court House Metrorail station mezzanine. The new elevators will increase access to the station mezzanine and accommodate emergency services as well as those traveling with luggage, bicycles, strollers, or wheelchairs. The total estimated cost of the project is \$29,062,000.

### Crystal City Metrorail Station East Entrance

This project will add a new entrance at the east end of the Metro station to provide easier access from the VRE Crystal City station, and Crystal Drive at 18<sup>th</sup> Street S. The new entrance will include elevators in compliance with the Americans with Disabilities Act and stairs. The project will expand the walkshed for the station and connect high-density commercial and residential development along Crystal Drive. The total estimated cost of the project is \$91,387,000.

### Crystal City–Potomac Yard Transitway Upkeep

This project will:

- Investigate the cause of glass breakage on Transitway shelters and implement a fix.
- Replace real-time information signs/flags at all existing Transitway stations.
- Install barrier blocks at the sidewalk joints at the Transitway stations to prevent weeds from growing in the joints.
- Install bird block netting for stations at S Glebe Road, 33<sup>rd</sup> Street, and 27<sup>th</sup> Street to prevent bird nesting.
- Investigate approaches for preventing cars from entering transit lanes.
- Replace/repair as needed loose brick pavers at the Transitway stations.

The total estimated cost of the project is \$1,729,000.

### East Falls Church Metrorail Station Second Entrance

This project involves the planning, design, and construction of a full second entrance to the East Falls Church Metrorail Station. The project will improve pedestrian access to the station. The total estimated cost for the planning stages of the project is \$800,000.

### Mobility Hub Pilot

This project is the design and implementation of a Mobility Hub Pilot in the Court House Plaza area. The pilot brings together various elements at one location including but not limited to bus stops, shared mobility device corrals, bike parking, Americans with Disabilities Act (ADA)-compliant pedestrian facilities, wayfinding/information hubs, and parklets. The goal of the pilot is to provide greater access to multimodal transportation and improve public infrastructure. The total estimated cost for the project is \$665,000, using 100 percent local funding.

### Pentagon City Metrorail Station Second Elevator

The project involves the construction of a second street to a mezzanine elevator to provide access to the Pentagon City Metrorail Station from the west side of S Hayes Street. The project will improve general access and compliance with the ADA by providing backup ADA access when the other elevator is out of service for repairs or maintenance. The final design for the project was completed in FY 2021 and a construction contract was awarded in February 2021. The total estimated cost for completing construction, opening the project, and project closeout is \$3,537,000.

### PrTN: Columbia Pike Transit Stations

This project includes the design and construction of 23 high-quality transit stations at 12 locations along Columbia Pike. Transit stations will include shelters with seating, real-time information, and near-level boarding. The project started in FY 2015. The remaining total estimated cost for the project is \$7,997,000.

### PrTN: Transitway Extension to Pentagon City

This project extends the Crystal City Potomac Yard transitway from Crystal City to Pentagon City. The project will provide dedicated transit lanes, five new transit stations, traffic signal modifications, and sidewalk/curb improvements. The project is ongoing. The remaining total cost of the project is \$25,336,000.

### PrTN: Transitway Extension (Potomac Ave-Alexandria)

This project provides for the design and construction of "Segment C" of the Crystal City Potomac Yard transitway. The segment runs along Potomac Avenue, from S Glebe Road in Arlington to Clifford Avenue in the City of Alexandria. The portion of this segment that falls within Arlington County is approximately 600 feet between the Arlington County Line at Four Mile Run and S Glebe Road. The project will consist of a dedicated transit-only southbound lane, drainage, signing, pavement marking, signal modification, and bike and pedestrian improvements along Potomac Avenue. The total cost of the project is \$7,496,000.

### Shirlington Bus Station Expansion

Demand for bus service is growing at Shirlington Bus Station. In addition to increased ART bus service to this urban village, the City of Alexandria also plans to implement bus rapid transit service from the West End in Alexandria to Shirlington and the Pentagon. Consequently, Arlington County intends to explore an expansion of the Shirlington Bus Station.

The potential expansion would involve the redevelopment of a lot adjacent to the Shirlington Bus Station. The County acquired the lot in 2006 and agreed to provide parking on the lot until April 2019. With the expiration of this agreement, the County is interested in re-purposing the space to house additional bus bays for Shirlington Station. This project entails a planning and engineering study, as well as the designing and construction of the bus bays. The design and construction will be dependent on the results of the redevelopment study. The total cost of this project is \$4,669,000.

### Summary of Costs

Projected capital costs for these passenger facilities and amenities projects are summarized in Table 6.

TABLE 6 | PASSENGER FACILITIES AND AMENITIES CAPITAL NEEDS (IN \$1,000S)

Project	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Army Navy Drive Transit Center	150	0	0	0	34	35	0	0	0	0	0	0
Ballston-MU Metrorail Station West Entrance	1,730	27,646	42,093	58,674	17,326	0	0	0	0	0	0	0
Bus Bay Expansion-East Falls Church Metro	2,959	4,758	0	0	0	0	0	0	0	0	0	0
Bus-Only HOV Lane on Langston Blvd Rosslyn	655	0	0	0	0	0	0	0	0	0	0	0



Project	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Bus Stop Accessibility Improvements	773	670	707	733	757	723	748	777	795	834	0	0
Bus Stop and Shelter Program	652	632	542	507	524	546	599	633	655	676	0	0
Court House Metro Station New Elevators	290	759	1,000	1,533	5,831	12,218	7,431	0	0	0	0	0
Crystal City Metro Station East Entrance	4,943	41,639	43,712	1,093	0	0	0	0	0	0	0	0
Crystal City – Potomac Yard Transitway Upkeep	750	979	0	0	0	0	0	0	0	0	0	0
East Falls Church Metro Station Second Entrance	0	0	0	0	0	0	0	0	400	400	0	0
Mobility Hub Pilot	150	515	0	0	0	0	0	0	0	0	0	0
Pentagon City Metro Station Second Elevator	3,537	0	0	0	0	0	0	0	0	0	0	0
PrTN: Columbia Pike Transit Stations	3,188	3,660	934	215	0	0	0	0	0	0	0	0
PrTN: Transitway Extension to Pentagon City	7,381	12,070	5,885	0	0	0	0	0	0	0	0	0
PrTN: Transitway Extension (Potomac Ave-Alexandria)	353	2,884	2,800	1,459	0	0	0	0	0	0	0	0
Shirlington Bus Station Expansion	105	0	0	0	0	232	388	3,944	0	0	0	0
<b>Total</b>	<b>27,616</b>	<b>96,212</b>	<b>97,673</b>	<b>64,214</b>	<b>24,472</b>	<b>13,754</b>	<b>9,166</b>	<b>5,354</b>	<b>1,850</b>	<b>1,910</b>	<b>0</b>	<b>0</b>



## Technology and ITS

### ART Farebox Upgrade

By FY 2024, the County will complete upgrading the light maintenance facility to be compatible with existing and new generation fareboxes. The County will also have purchased 20 rear door targets for the 20 replacement ART buses being procured. The total cost for the project is \$351,000.

### PrTN: Off-Vehicle Fare Collection

The off-vehicle fare collection project involves regional coordination for the feasibility, planning, development, and implementation of fare collection technology to increase bus boarding speed. A regional joint planning study determined that off-vehicle fare collection combined with all-door boarding offered the greatest operational benefits. The project will consider the installation of new fareboxes and rear door fare validation targets to facilitate rear door boarding. The County will work with WMATA and regional partners for technology, development, procurement, and installation. The total estimated project cost is \$3,608,000.

### PrTN: Transit ITS and Security Program

The County's transit ITS and security program includes funding over the next 10 years for various initiatives including:

- The consolidation of bus separate Computer-Aided Dispatch/Automatic Vehicle Location (CAD/AVL) and control computers reaching the end of life into a single system to improve efficiency.
- Procurement of a business intelligence solution to consolidate disparate data sources into a single dashboard for operational and planning purposes.
- Transit signal priority (TSP) implementation for better running times of buses in congested corridors, particularly on Columbia Pike and Langston Boulevard.
- Text-based system for real-time bus arrival information on mobile phones.
- Preplanning for end-of-life replacement of current technologies.
- Video recorded on buses allows for enhanced safety of customers as well as bus operators.

The total estimated cost for this program is \$5,128,000.

### Summary of Costs

Table 7 summarizes the projected capital costs for the three technology and ITS projects and programs.

TABLE 7 | TECHNOLOGY AND ITS CAPITAL NEEDS (IN \$1,000S)

Project	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
ART Farebox Upgrade	351	0	0	0	0	0	0	0	0	0	0	0
PrTN: Off-Vehicle Fare Collection	0	36	114	508	1,932	1,018	0	0	0	0	0	0
PrTN: Transit ITS and Security Program	1,538	1,241	774	726	171	179	183	188	63	65	0	0
<b>Total</b>	<b>1,889</b>	<b>1,277</b>	<b>888</b>	<b>1,234</b>	<b>2,103</b>	<b>1,197</b>	<b>183</b>	<b>188</b>	<b>63</b>	<b>65</b>	<b>0</b>	<b>0</b>

## Other

### Transit Strategic Plan Updates

DRPT requires Arlington County to update its FY 2017-2026 Transit Development Plan to a Transit Strategic Plan (TSP) and then provide subsequent updates every six years. This document is the FY 2024 TSP, funded in FY 2023, and the next update will occur in FY 2029, to prepare the FY 2030 TSP. The estimated total cost for the plan updates is \$2,290,000.

### Transit Strategic Plan New Initiatives

The CIP includes a placeholder for the next cycle of investment projects yet to be fully identified projects. These new initiatives will allow staff to be responsive to emerging technologies and changes in travel patterns post-Covid crisis. Details for these needed investments will be determined when the CIP is revisited in FY24, aligned with the Master Transportation Plan that will be updated in FY24-FY25, and included in the next annual TSP update. The total estimated cost of these new initiatives is \$45,000,000.

### Summary of Costs

The capital costs for these two projects are summarized in Table 8.

TABLE 8 | OTHER CAPITAL NEEDS (IN \$1,000S)

Project	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Transit Strategic Plan Updates	998	0	0	0	0	0	1,292	0	0	0	0	0
Transit Strategic Plan New Initiatives	0	0	0	0	5,000	5,000	5,000	10,000	10,000	10,000	0	0
<b>Total</b>	<b>998</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5,000</b>	<b>5,000</b>	<b>6,292</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>0</b>	<b>0</b>

# Chapter 5

# Financial Plan





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## 5.1. Operating and Maintenance Costs and Funding Sources

### 5.1.1. Federal Funding

The County does not receive federal operating assistance.

### 5.1.2. State Funding

The County receives MERIT operating assistance from the Virginia Department of Rail and Public Transportation (DRPT). DRPT follows a sizing and performance-based methodology for allocating operating assistance funds. The program funds no more than 30 percent of all operating expenses borne by a public transportation operator.

In consultation with DRPT, they recommended applying the percentage of funding that Arlington County is programmed to receive in FY23 per the Six-Year Improvement Program (SYIP) by the state-wide totals programmed for FY24 through FY28 to derive projections. In FY23, Arlington County is programmed to receive 3.8 percent of the statewide total. The 3.8 percent was applied to FY25 through FY28 statewide programmed totals to get the totals for Arlington County shown in Table 1. The average rate of change in the statewide totals between FY25 and FY28 (1%) was applied to get statewide total projections for MERIT operating assistance for FY29 through FY34. FY23 and FY24 were excluded due to the expected drop in overall statewide funds between FY23 and FY24. The stated 3.8 percent from FY23 was also applied to the FY29 through FY34 statewide totals to get projected Arlington County figures for those years.

TABLE 1 | STATE OPERATING ASSISTANCE PROJECTIONS (IN \$1,000S)

Project	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Total State Operating Assistance (Statewide)	163,769	133,266	117,200	117,935	118,940	120,155	121,157	122,167	123,185	124,212	125,248	126,292
Arlington County State Operating Assistance	6,286	4,802	4,499	4,527	4,565	4,612	4,650	4,689	4,728	4,768	4,807	4,848

The projected split of state operating assistance between ART service and STAR paratransit service is informed by the documented split of actual funding for each service between FY18 and FY22 as shown in





Table 2. The split of funding in FY20 is assumed to continue through FY34.

TABLE 2 | STATE OPERATING ASSISTANCE HISTORY (IN \$1,000S)

Project	FY18	FY19	FY20	FY21	FY22
Arlington County State Operating Assistance	4,522	4,421	4,842	5,484	6,152
% ART	79.1%	78.6%	80.5%	82.7%	84.6%
% STAR	20.9%	21.4%	19.5%	17.3%	15.4%

## 5.1.3. Farebox Revenue

The County receives revenue from ART riders in the form of fares. Riders of the STAR paratransit service can purchase coupons to use that service. Historical figures shown in Table 3 highlight a reduction in ART farebox revenue and STAR Coupon revenue starting in FY20 due to the COVID-19 pandemic. FY22 figures are still well below pre-COVID levels (FY18 or FY19).

TABLE 3 | ART FAREBOX AND STAR COUPONS REVENUE (IN \$1,000S)

Project	FY18	FY19	FY20	FY21	FY22
ART Farebox Revenue	3,577	3,315	2,846	704	1,919
STAR Coupons Revenue	254	243	225	93	104

Farebox revenue projections for this TSP assume anticipated ridership growth as ART and STAR continue to recover from the pandemic. Baseline projections for FY23 through FY32 assume a 3 percent growth rate per year from FY22.

## 5.1.4. Business Contributions

The County receives business contributions to support ART operations. Table 4 shows historical data from FY18 through FY22. The County indicated that business contributions will increase slightly above FY23 levels and are projected to be flat beyond FY29.

TABLE 4 | BUSINESS CONTRIBUTIONS (IN \$1,000S)

Project	FY18	FY19	FY20	FY21	FY22
ART Business Contributions	344	345	353	361	351

## 5.1.5. Local Funding

The County has two primary sources of local funding which are used for operations. These include the County General Fund and the Transportation Capital Fund (TCF) for Operations. The County General Fund provides operating funding for routes begun in or before FY 2015. TCF for Operations provides operating funding for routes that began service after FY 2015. ART is mandated to use TCF funding for any new services.

## 5.1.6. Operating and Maintenance Costs Summary

Historical operating and maintenance costs are shown in Table 5.

TABLE 5 | OPERATING AND MAINTENANCE COST HISTORY (IN \$1,000S)

Project	FY18	FY19	FY20	FY21	FY22
ART	13,704	13,890	17,911	20,279	22,173
STAR	2,828	2,812	2,379	1,748	2,470
<b>Total</b>	<b>16,532</b>	<b>16,701</b>	<b>20,290</b>	<b>22,027</b>	<b>24,642</b>

Baseline projected operating costs are shown in Table 6. The projections assume a growth rate of 3% per year from FY23 levels. The projected split of state operating assistance between ART service and STAR paratransit service is based on the split of funding in FY20 rather than FY23 (due to COVID funding) and is assumed to continue at those levels through FY34.

TABLE 6 | BASELINE OPERATING AND MAINTENANCE COST PROJECTIONS (IN \$1,000S)

Project	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
ART	23,250	24,539	25,275	26,033	26,814	27,619	28,447	29,301	30,180	31,085	32,018	32,978
STAR	2,396	3,709	3,820	3,935	4,053	4,175	4,300	4,429	4,562	4,699	4,840	4,985
<b>Total</b>	<b>25,647</b>	<b>28,248</b>	<b>29,095</b>	<b>29,968</b>	<b>30,867</b>	<b>31,793</b>	<b>32,747</b>	<b>33,730</b>	<b>34,742</b>	<b>35,784</b>	<b>36,857</b>	<b>37,963</b>

Table 7 shows the projected operating funding sources for baseline conditions through FY34.

TABLE 7 | BASELINE OPERATING AND MAINTENANCE REVENUE PROJECTIONS (IN \$1,000S)

Project	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
<b>ART:</b>												
Fares	2,128	2,192	2,258	2,325	2,395	2,467	2,541	2,617	2,696	2,777	2,860	2,946
Business Contributions	359	406	396	406	416	427	449	450	450	450	450	450
State Operating Assistance	5,319	3,856	3,807	3,831	3,863	3,903	3,935	3,968	4,001	4,035	4,068	4,102
TCF for Operating Costs	3,902	4,664	4,804	4,948	5,097	5,249	5,407	5,569	5,736	5,908	6,086	6,268
County General Fund	11,542	13,213	14,011	14,523	15,043	15,573	16,115	16,696	17,297	17,916	18,554	19,212
<b>ART Total</b>	<b>23,250</b>	<b>24,539</b>	<b>25,275</b>	<b>26,033</b>	<b>26,814</b>	<b>27,619</b>	<b>28,447</b>	<b>29,301</b>	<b>30,180</b>	<b>31,085</b>	<b>32,018</b>	<b>32,978</b>
<b>Paratransit:</b>												
Misc. Revenue (STAR Coupons)	153	158	162	167	172	177	183	188	194	200	206	212
State Operating Assistance	946	946	692	696	702	709	715	721	727	733	739	745
County General Fund	1,297	2,605	2,966	3,072	3,179	3,288	3,402	3,520	3,641	3,766	3,895	4,028
<b>Paratransit Total</b>	<b>2,396</b>	<b>3,709</b>	<b>3,820</b>	<b>3,935</b>	<b>4,053</b>	<b>4,175</b>	<b>4,300</b>	<b>4,429</b>	<b>4,562</b>	<b>4,699</b>	<b>4,840</b>	<b>4,985</b>
<b>Total</b>	<b>25,647</b>	<b>28,248</b>	<b>29,095</b>	<b>29,968</b>	<b>30,867</b>	<b>31,793</b>	<b>32,747</b>	<b>33,730</b>	<b>34,742</b>	<b>35,784</b>	<b>36,857</b>	<b>37,963</b>

The projected operating costs for both the baseline and service recommendations are shown in Table 6. The baseline projections assume a growth rate of 3% per year from FY23 levels but also add annual service expansion costs beginning in FY25 that vary by bus route. Details on the overall prioritization and phasing of the service recommendations, as well as the anticipated additional operating resources required to support them are provided in Chapter 3.2 of this TSP.

**TABLE 8 | BASELINE PLUS SERVICE RECOMMENDATIONS OPERATING AND MAINTENANCE COST PROJECTIONS (IN \$1,000S)**

Project	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
ART Baseline	23,250	24,539	25,275	26,033	26,814	27,619	28,447	29,301	30,180	31,085	32,018	32,978
ART Expansion	0	0	1,656	1,875	2,775	5,106	7,303	8,474	10,146	10,451	10,764	11,087
ART Subtotal	23,250	24,539	26,931	27,908	29,589	32,725	35,750	37,774	40,326	41,536	42,782	44,065
STAR	2,396	3,709	3,820	3,935	4,053	4,175	4,300	4,429	4,562	4,699	4,840	4,985
<b>Total</b>	<b>25,647</b>	<b>28,248</b>	<b>30,751</b>	<b>31,843</b>	<b>33,642</b>	<b>36,899</b>	<b>40,050</b>	<b>42,203</b>	<b>44,888</b>	<b>46,234</b>	<b>47,622</b>	<b>49,050</b>

Table 9 shows the projected operating funding sources for baseline plus service recommendations conditions through FY34. The largest projected impacts are on TCF and fare revenues beginning in FY25 when the proposed mid-term ART fixed-route service modifications will start to be implemented.

**TABLE 9 | BASELINE PLUS SERVICE RECOMMENDATIONS OPERATING AND MAINTENANCE REVENUE PROJECTIONS (IN \$1,000S)**

Project	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
<b>ART:</b>												
Fares Baseline	2,128	2,192	2,258	2,325	2,395	2,467	2,541	2,617	2,696	2,777	2,860	2,946
Fares Expansion	0	0	215	244	361	664	949	1,102	1,319	1,359	1,399	1,441
Fares Subtotal	2,128	2,192	2,473	2,569	2,756	3,131	3,490	3,719	4,015	4,135	4,259	4,387
Business Contributions	359	406	396	406	416	427	449	450	450	450	450	450
Grant Funding	0	0	905	932	197	1,529	3,019	1,913	1,635	1,461	0	0
State Operating Assistance	5,319	3,856	3,807	3,831	3,863	3,903	3,935	3,968	4,001	4,034	4,068	4,102
TCF for Baseline Operating Costs	3,902	4,664	4,804	4,948	5,097	5,249	5,407	5,569	5,736	5,908	6,086	6,268
TCF for Expansion Operating Costs	0	0	536	700	2,217	2,913	3,334	5,459	7,193	7,631	9,365	9,646
TCF for Operating Costs Subtotal	3,902	4,664	5,340	5,648	7,313	8,163	8,741	11,028	12,929	13,539	15,450	15,914
County General Fund	11,542	13,421	14,011	14,523	15,043	15,573	16,115	16,696	17,297	17,916	18,554	19,212
<b>ART Total</b>	<b>23,250</b>	<b>24,539</b>	<b>26,931</b>	<b>27,908</b>	<b>29,589</b>	<b>32,725</b>	<b>35,750</b>	<b>37,774</b>	<b>40,326</b>	<b>41,536</b>	<b>42,782</b>	<b>44,065</b>
<b>Paratransit:</b>												

## Operating and Maintenance Costs and Funding Sources

Project	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Misc. Revenue (STAR Coupons)	153	158	162	167	172	177	183	188	194	200	206	212
State Operating Assistance	946	946	692	696	702	709	715	721	727	733	739	745
County General Fund	1,297	2,605	2,966	3,072	3,179	3,288	3,402	3,520	3,641	3,766	3,895	4,028
<u>Paratransit Total</u>	<u>2,396</u>	<u>3,709</u>	<u>3,820</u>	<u>3,935</u>	<u>4,053</u>	<u>4,175</u>	<u>4,300</u>	<u>4,429</u>	<u>4,562</u>	<u>4,699</u>	<u>4,840</u>	<u>4,985</u>
Total	25,647	28,248	30,751	31,843	33,642	36,899	40,050	42,203	44,888	46,234	47,622	49,050



## 5.2. Capital Costs and Funding Sources

### 5.2.1. Vehicle Costs and Funding Sources

ART will require close to \$118 million in funding for 104 fleet vehicle replacements and expansions through FY34, per the County's CIP. Table 10 summarizes the anticipated costs associated with vehicle procurement and a breakdown of the anticipated funding sources and amounts. The greatest need for vehicle procurement is anticipated in FY24, FY26, FY29, and FY31.

TABLE 10 | TOTAL VEHICLE PURCHASES BY YEAR AND TYPE

	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Number of Replacement Vehicles	20	30	0	8	8	0	13	0	14	0	0	0
Number of Expansion Vehicles	0	0	0	7	0	4	0	0	0	0	0	0
<b>Total Vehicles</b>	<b>20</b>	<b>30</b>	<b>0</b>	<b>15</b>	<b>8</b>	<b>4</b>	<b>13</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>0</b>
Cost of Replacement Vehicles	14,672	33,896	0	9,573	9,861	0	16,998	0	19,419	0	0	0
Cost of Expansion Vehicles	0	0	0	8,246	0	5,078	0	0	0	0	0	0
<b>Total Vehicle Cost (\$1,000s - YOE)</b>	<b>14,672</b>	<b>33,896</b>	<b>0</b>	<b>17,819</b>	<b>9,861</b>	<b>5,078</b>	<b>16,998</b>	<b>0</b>	<b>19,419</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Funding Sources:</b>												
<u>Replacement Vehicles:</u>												
State Funding	0	23,008	0	6,509	6,705	0	11,558	0	13,205	0	0	0
Local TCF	1,012	5,414	0	1,532	1,578	0	2,720	0	3,107	0	0	0
Other Funding	0	5,414	0	1,532	1,578	0	2,720	0	3,107	0	0	0
Previous Funding	13,660	0	0	0	0	0	0	0	0	0	0	0
<u>Expansion Vehicles:</u>												

	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
State Funding	0	0	0	5,607	0	3,453	0	0	0	0	0	0
Local TCF	0	0	0	1,328	0	1,625	0	0	0	0	0	0
Previous Funding	0	0	0	1,311	0	0	0	0	0	0	0	0

## 5.2.2. Maintenance and Operations Facilities Costs and Funding Sources

Table 11 shows the funding sources for the maintenance and operations facilities projects per the County's CIP. Previously approved funds for the initial years of the ART Operations & Maintenance Facility project include NVTA regional funding as well as funding from DRPT. Funding for later years of the project as well as for the ART O&M Facility Electrification Phase 2 project assumes a 50% split between state funding and local TCF Commercial & Industrial Tax (C&I) funding.

TABLE 11 | MAINTENANCE AND OPERATIONS FACILITIES FUNDING SOURCES (IN \$1,000S)

Project	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
<b>New Funding</b>												
State Funding	0	0	13,210	6,505	4,000	0	0	0	0	0	0	0
TCF – Commercial & Industrial Tax (C&I)	0	254	13,211	6,505	4,000	0	0	0	0	0	0	0
<b>New Funding Subtotal</b>	<b>0</b>	<b>254</b>	<b>26,421</b>	<b>13,010</b>	<b>8,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Previously Approved Funding</b>												
TCF – Commercial & Industrial Tax (C&I)	0	2,951	0	0	0	0	0	0	0	0	0	0
TCF – NVTA Local	0	138	0	0	0	0	0	0	0	0	0	0
Regional Funding	13,990	21,215	0	0	0	0	0	0	0	0	0	0
Other Previously Approved Funds	16,411	8,700	0	0	0	0	0	0	0	0	0	0
<b>Previously Approved Funding Subtotal</b>	<b>30,401</b>	<b>33,004</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total</b>	<b>30,401</b>	<b>33,258</b>	<b>26,421</b>	<b>13,010</b>	<b>8,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

## 5.2.3. Passenger Facilities and Amenities Costs and Funding Sources

Table 12 shows the funding sources for the passenger facilities and amenities per the County's CIP. Funding for the 17 projects represented in this category represents a mix of sources including federal and state funding (DRPT, VDOT, SMART SCALE, and non-general fund money as part of the Amazon HQ2 infrastructure funding agreement), developer contributions, other funding, TCF Commercial & Industrial Tax (C&I), NVTA Local, and regional funding (NVTA, NVTC I-66

Commuter Choice Program, I-66 Outside-the-Beltway Concessionaire funds), tax increment financing, and issued but unspent bonds. The assumed percentage of funding by type varies by project.

TABLE 12 | PASSENGER FACILITIES AND AMENITIES FUNDING SOURCES (IN \$1,000S)

Project	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
<b>New Funding</b>												
Federal Funding	0	2,328	29,483	346	4,665	9,774	5,945	0	0	0	0	0
State Funding	1,436	2,132	9,542	931	2,037	3,423	2,596	2,931	1,186	1,227	0	0
Developer Contributions	0	0	0	0	6,865	0	0	0	0	0	0	0
Other Funding	150	0	0	0	34	35	0	0	0	0	0	0
TCF – Commercial & Industrial Tax (C&I)	2,631	4,600	1,808	21,874	10,666	320	410	2,197	232	241	0	0
TCF – NVTA Local	0	447	175	198	205	202	215	226	432	442	0	0
Regional Funding	0	9,849	37,438	37,213	0	0	0	0	0	0	0	0
Tax Increment Financing (TIF)	240	314	4,650	1,093	0	0	0	0	0	0	0	0
<b>New Funding Subtotal</b>	<b>4,457</b>	<b>19,670</b>	<b>83,096</b>	<b>61,655</b>	<b>24,472</b>	<b>13,754</b>	<b>9,166</b>	<b>5,354</b>	<b>1,850</b>	<b>1,910</b>	<b>0</b>	<b>0</b>
<b>Previously Approved Funding</b>												
Issued but Unspent Bonds	407	0	0	0	0	0	0	0	0	0	0	0
TCF – Commercial & Industrial Tax (C&I)	5,379	1,786	0	0	0	0	0	0	0	0	0	0
TCF – NVTA Local	147	444	209	0	0	0	0	0	0	0	0	0
Regional Funding	9,497	18,707	5,321	0	0	0	0	0	0	0	0	0
Tax Increment Financing (TIF)	0	0	677	0	0	0	0	0	0	0	0	0
Other Previously Approved Funds	9,007	55,605	8,370	2,559	0	0	0	0	0	0	0	0
<b>Previously Approved Funding Subtotal</b>	<b>24,437</b>	<b>76,542</b>	<b>14,577</b>	<b>2,559</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>TOTAL</b>	<b>28,894</b>	<b>96,212</b>	<b>97,673</b>	<b>64,214</b>	<b>24,472</b>	<b>13,754</b>	<b>9,166</b>	<b>5,354</b>	<b>1,850</b>	<b>1,910</b>	<b>0</b>	<b>0</b>

### 5.2.4. Technology and ITS Costs and Funding Sources

Table 13 shows the funding sources for the technology and ITS projects per the County's CIP. The Farebox Upgrade project has 22.5% local funding and 77.5% in TCF – NVTA Local funds. The Off Vehicle Fare Collection project is funded 100% by tax increment financing in the initial two years, then assumes 50% state funding and 50% TCF–Commercial & Industrial Tax (C&I) or tax increment financing or a combination of the two in subsequent years. Funding for the Transit ITS and Security program assumes 68% state funding, 16% TCF–Commercial & Industrial Tax (C&I) funding, and 16% TCF–NVTA Local funding.

TABLE 13 | TECHNOLOGY AND ITS FUNDING SOURCES (IN \$1,000S)

Project	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
<b>New Funding</b>												
State Funding	680	844	526	748	1,082	630	124	128	43	44	0	0
TCF – Commercial & Industrial Tax (C&I)	70	198	124	116	111	538	30	30	10	11	0	0
TCF – NVTA Local	71	199	124	116	27	29	29	30	10	10	0	0
<b>New Funding Subtotal</b>	<b>821</b>	<b>1,241</b>	<b>774</b>	<b>980</b>	<b>1,220</b>	<b>1,197</b>	<b>183</b>	<b>188</b>	<b>63</b>	<b>65</b>	<b>0</b>	<b>0</b>
<b>Previously Approved Funding</b>												
TCF – Commercial & Industrial Tax (C&I)	215	0	0	0	0	0	0	0	0	0	0	0
TCF – NVTA Local	425	0	0	0	0	0	0	0	0	0	0	0
Tax Increment Financing (TIF)	0	36	114	254	883	0	0	0	0	0	0	0
Other Previously Approved Funds	428	0	0	0	0	0	0	0	0	0	0	0
<b>Previously Approved Funding Subtotal</b>	<b>1,068</b>	<b>36</b>	<b>114</b>	<b>254</b>	<b>883</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>TOTAL</b>	<b>1,889</b>	<b>1,277</b>	<b>888</b>	<b>1,234</b>	<b>2,103</b>	<b>1,197</b>	<b>183</b>	<b>188</b>	<b>63</b>	<b>65</b>	<b>0</b>	<b>0</b>

### 5.2.5. Other Capital Costs and Funding Sources

Table 14 shows the funding sources for the other capital projects per the County's CIP. Funding sources for the TSP major updates assume a 50% split between state and NVTA Local funding. Funding sources for the TSP new initiatives assume 50% in state funding, 40% local (TCF Commercial & Industrial Tax (C&I)), and 10 percent regional (TCF - NVTA Local).

TABLE 14 | OTHER CAPITAL PROJECT FUNDING SOURCES (IN \$1,000S)

Project	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
<b>New Funding</b>												
State Funding	499	0	0	0	2,500	2,500	3,146	5,000	5,000	5,000	0	0
TCF – Commercial & Industrial Tax (C&I)	0	0	0	0	2,000	2,000	2,000	4,000	4,000	4,000	0	0
TCF – NVTA Local	16	0	0	0	500	500	1,146	1,000	1,000	1,000	0	0
<b>New Funding Subtotal</b>	<b>515</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5,000</b>	<b>5,000</b>	<b>6,292</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>0</b>	<b>0</b>
<b>Previously Approved Funding</b>												
TCF – NVTA Local	483	0	0	0	0	0	0	0	0	0	0	0
<b>Previously Approved Funding Subtotal</b>	<b>483</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>TOTAL</b>	<b>998</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5,000</b>	<b>5,000</b>	<b>6,292</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>0</b>	<b>0</b>



## 5.3. Approach to Achieving Anticipated Revenue

### 5.3.1. Potential Funding Sources

Since the required funds for operating and maintenance revenues and capital costs are anticipated to increase, both in the baseline scenario without service changes and in the scenario that includes the proposed service changes, the County identified the following existing and potential new sources of funding.

#### Local and Directly Generated Revenue

Arlington has several existing local funding sources that are used to finance transit services. These sources include:

- **County General Fund** – Provides operating funding for routes begun at or before FY 2015.
- **Transportation Capital Fund (TCF)** – Provides operating funding for routes that began service after FY 2015. ART is mandated to use TCF funding for any new services.
- **Farebox Revenues**

#### Private Funding Sources

In addition to local funding sources, there are a range of potential private funding sources including:

- **Advertising** – Revenue could be generated from sales of advertising including bus wraps, advertisements on the sides or backs of buses, advertisements onboard, and advertisements at bus shelters.
- **Transit Benefits Sales Pitch** – Develop a recurring program that visits major employers, elected officials, and other key entities to promote the benefits of transit and seek out partnership opportunities. By promoting the benefits of transit, Arlington could encourage additional ridership, especially to major employers, thereby improving farebox recovery.
- **Partnerships with Major Employers/Public Institutions** – Partnerships between Arlington and major employers such as corporate centers, universities, and hospitals to provide local service that caters to their needs while receiving financial support from these employers.
- **Partnerships with Transportation Network Companies (Uber/Lyft/Others)** – Arlington could partner with TNCs such as Uber, Lyft, and Via, to help supplement or replace existing services and/or provide first/last mile connections to users of County-funded transit services.
- **Private Financing** – Funding from philanthropic foundations or individuals.

#### Regional Funding Sources

The Northern Virginia Transportation Authority (NVTA) is the regional multi-modal transportation planning and funding entity for Northern Virginia. NVTA has two primary responsibilities: updating the region's long-range transportation plan called TransAction (updated every five years), and programming and investing in regional multimodal transportation projects through the Six-Year Program (updated every two years).

The Northern Virginia Transportation Commission (NVTC) is a regional forum for the discussion and analysis of transit issues that are critically important to the region. Founded in 1964, NVTC is charged with the funding and stewardship of WMATA and the Virginia Railway Express (VRE), which it co-owns. Because Northern

Virginia is also home to six bus systems, NVTC works across jurisdictional boundaries to coordinate transit service.

Potential regional funding sources include:

- **NVTA Funding (30% Local Funds) (Formula)** – Of the HB 2313 revenues received, 30% are distributed to member jurisdictions on a pro-rata basis (based on contributions to total revenue) for transportation projects and purposes authorized under § 33.2-2510 and selected by the Member Jurisdiction.
- **NVTA Funding (70% Regional Funds) (Competitive)** – 70% of the HB 2313 revenues are pledged to the payment of bonds and other debt instruments and will otherwise be available to fund regional transportation projects contained in the regional transportation plan per § 33.2-2500 and that has been rated per § 33.2-257.
- **NVTC I-66 Commuter Choice Toll Funding (Competitive)** – Invests a portion of I-66 toll revenues into transit and other transportation enhancements that benefit Inside-the-Beltway toll road users. Projects are selected through a competitive process that considers a project's ability to: move more people, support diverse travel choices, and enhance transportation safety and travel reliability.
- **NVTC I-395/95 Commuter Choice Toll Funding (Competitive)** – Invests a portion of the toll revenues from the 37-mile I-395/95 Express Lanes facility into transit and other transportation enhancements that benefit the corridor's toll road users. Projects are selected through a competitive process that considers a project's ability to: move more people, support diverse travel choices, and enhance transportation safety and travel reliability.

## State Funding Sources

Most potential state funding sources are documented in DRPT's Transit and Commuter Assistance Grant Application Manual for Fiscal Year 2023.<sup>1</sup> Potential funding sources include:

- **MERIT Grant Program-Operating Assistance** – Supports costs borne by eligible recipients for operating related public transportation expenses. DRPT follows a sizing- and performance-based methodology for allocating operating assistance funds.
- **MERIT Grant Program-Capital Assistance (Competitive)** – Supports costs borne by eligible recipients for public transportation capital projects. The program consists of three project types: State of Good Repair (SGR), Minor Enhancements (MIN), and Major Expansions (MAJ).
- **MERIT Grant Program-Demonstration Project Assistance (Competitive)** – Supports innovative investments in all functional areas of public transportation. The program consists of two project types: New Service (traditional transit services), and Technology and Innovation.
- **MERIT Grant Program-Technical Assistance (Competitive)** – Supports planning or technical assistance to help improve or initiate public transportation or TDM-related services.
- **MERIT Grant Program-Public Transportation Intern Program (Competitive)** – Supports internships for careers in public transportation.
- **Commuter Assistance Program-CAP Operating Assistance (Competitive)** – Supports the operation of existing commuter assistance programs.
- **Commuter Assistance Program-CAP Project Assistance (Competitive)** – Supports employer outreach/services, vanpool formation and assistance, travel mode options and mode choice behavior change marketing, and other commuter or employer assistance projects.
- **Transit Ridership Incentive Program (TRIP)-Zero Fare and Low Income (Competitive)** – Provides state funding to zero-fare/subsidized fare projects.
- **Transit Ridership Incentive Program (TRIP)-Regional Connectivity (Competitive)** – Provides state funding to regional connectivity projects.
- **SMART SCALE (Competitive)** – Supports projects that are evaluated based on key factors like how they improve safety, reduce congestion, increase accessibility, contribute to economic development, promote

<sup>1</sup> [https://drpt.virginia.gov/media/3611/fy-2023-drpt-transit-and-commuter-assistance-grant-application-manual\\_final.pdf](https://drpt.virginia.gov/media/3611/fy-2023-drpt-transit-and-commuter-assistance-grant-application-manual_final.pdf)



efficient land use, and affect the environment.

### Federal Funding Sources

The federal government has a range of programs to finance the construction, operation, and maintenance of public transportation systems. Potential Federal funding sources<sup>2</sup> include:

- **FTA Section 5303 and 5304-Metropolitan and Statewide Planning (Formula)** – Provides funding and procedural requirements for multimodal transportation planning in metropolitan areas and states. Planning needs to be cooperative, continuous, and comprehensive, resulting in long-range plans and short-range programs reflecting transportation investment priorities.
- **FTA Section 5307-Urbanized Area Formula Grants (Formula)** – Provides funding to public transit systems in Urbanized Areas (UZA) for public transportation capital, planning, job access, and reverse commute projects, as well as operating expenses in certain circumstances.
- **FTA Section 5309-Capital Investment Grants (CIG) (Competitive)** – Provides funding through a multi-year competitive process for transit capital investments, including heavy rail, commuter rail, light rail, streetcars, and bus rapid transit. Federal transit law requires transit agencies seeking CIG funding to complete a series of steps over several years to be eligible for funding.
- **FTA Section 5310-Enhanced Mobility of Seniors & Individuals with Disabilities (Formula)** – Aims to improve mobility for seniors and individuals with disabilities by removing barriers to transportation service and expanding transportation mobility options. Eligible subrecipients include private nonprofit organizations, states or local government authorities, or operators of public transportation.
- **FTA Section 5312-Public Transportation Innovation (Competitive)** – Provides funding to develop innovative products and services assisting transit agencies in better meeting the needs of their customers.
- **FTA Section 5337-State of Good Repair Grants (Formula)** – Provides capital assistance for maintenance, replacement, and rehabilitation projects of existing high-intensity fixed guideway and high-intensity motorbus systems to maintain a state of good repair. Additionally, SGR grants are eligible for developing and implementing Transit Asset Management plans.
- **FTA Section 5339(a)-Grants for Buses and Bus Facilities Formula Program (Formula)** – Provides funding to states and transit agencies through a statutory formula to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities. In addition to the formula allocation, this program includes two discretionary components: The Bus and Bus Facilities Discretionary Program and the Low or No Emissions Bus Discretionary Program.
- **FTA Section 5339(b)-Grants for Buses and Bus Facilities Program (Competitive)** – Provides funding through a competitive allocation process to states and transit agencies to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities. The competitive allocation provides funding for major improvements to bus transit systems that would not be achievable through formula allocations.
- **FTA Section 5339(c)-Low or No Emission Vehicle Program (Competitive)** – Provides funding through a competitive process to states and transit agencies to purchase or lease low- or no-emission transit buses and related equipment, or to lease, construct, or rehabilitate facilities to support low or no emission transit buses. The program provides funding to support the wider deployment of advanced propulsion technologies within the nation's transit fleet.
- **Rebuilding American Infrastructure with Sustainability and Equity (RAISE) (formerly TIGER and BUILD) Grants (Competitive)** – Funds investments in transportation infrastructure, including transit.

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<sup>2</sup> <https://www.transit.dot.gov/grants>

## Other Funding Sources

Other potential funding sources include:

- **Virginia Transit Association (VTA)-administered Temporary Assistance for Needy Families (TANF) Transit Zero-Fare for Working Families Grant (Competitive)** – TANF is a program designed to help needy families achieve self-sufficiency. The VTA-administered program offers grants to organizations that can provide public transportation to people who have a dependent child and are below 200% of the federal poverty level.
- **APS Student Free Fare Program (Other)** – Initially, a pilot administered to assist students who would benefit most from transportation assistance. This program was supported by American Rescue Plan Act (ARRA) funds to aid individuals negatively impacted by the COVID-19 pandemic. As of fall 2022, all trips on ART bus are free to students with an iRide SmarTrip card despite the ARRA funding no longer being available.

These potential funding sources, programs, and whether they may be applied for existing services or system expansion, or both, and how they may be applied are summarized in Table 15.



TABLE 15 | POTENTIAL FUNDING SOURCES AND PROGRAMS

Source	Funding Program	Formula/ Competitive	For Existing Services or Expansion	Capital	Operating	Project Specific
<b>Local</b>	County General Fund	n/a	Both		x	x
	Transportation Capital Fund (TCF)	n/a	Both	x	x	
	Farebox Revenues	n/a	Existing		x	
<b>Private</b>	Advertising	n/a	Existing		x	
	Transit Benefit Sales Pitch	n/a	Both	x	x	x
	Partnerships with Major Employers/Public Institutions	n/a	Expansion		x	x
	Partnerships with Transportation Network Companies (Uber/Lyft/Others)	n/a	Both		x	
	Private Financing	n/a	Both	x	x	x
<b>Regional</b>	NVTA Funding (30% Local Funds)	Formula	Existing	x	x	
	NVTA Funding (70% Regional Funds)	Competitive	Expansion	x		x
	NVTC I-66 Commuter Choice Toll Funding	Competitive	Expansion	x	x	x
	NVTC I-395/95 Commuter Choice Toll Funding	Competitive	Expansion	x	x	x
<b>State</b>	MERIT Grant Program - Operating Assistance	Other	Existing		x	
	MERIT Grant Program - Capital Assistance	Competitive	Both	x		
	MERIT Grant Program - Demonstration Project Assistance	Competitive	Expansion	x	x	x
	MERIT Grant Program - Technical Assistance	Competitive	Expansion		x	x
	MERIT Grant Program - Public Transportation Intern Program	Competitive	Existing			x
	Commuter Assistance Program - CAP Operating Assistance	Competitive	Existing		x	
	Commuter Assistance Program - CAP Project Assistance	Competitive	Expansion		x	
	Transit Ridership Incentive Program (TRIP) - Zero Fare and Low Income	Competitive	Both		x	
	Transit Ridership Incentive Program (TRIP) - Regional Connectivity	Competitive	Both	x	x	
	SMART SCALE	Competitive	Expansion	x		x





Source	Funding Program	Formula/ Competitive	For Existing Services or Expansion	Capital	Operating	Project Specific
<b>Federal</b>	FTA Section 5303 and 5304 - Metropolitan and Statewide Planning	Formula	Both	x	x	
	FTA Section 5307 - Urbanized Area Formula Grants	Formula	Existing	x	x	
	FTA Section 5309 - Capital Investment Grants (CIG)	Competitive	Expansion	x		x
	FTA Section 5310 - Enhanced Mobility of Seniors & Individuals with Disabilities	Formula	Expansion	x	x	
	FTA Section 5312 - Public Transportation Innovation	Competitive	Expansion			x
	FTA Section 5337 - State of Good Repair Grants	Formula	Existing	x	x	
	FTA Section 5339(a) - Grants for Buses and Bus Facilities Formula Program	Formula	Both	x	x	
	FTA Section 5339(b) - Grants for Buses and Bus Facilities Program	Competitive	Both	x	x	
	FTA Section 5339(c) - Low or No Emission Vehicle Program	Competitive	Both	x	x	
	Rebuilding American Infrastructure with Sustainability and Equity (RAISE) (formerly TIGER and BUILD) Grants	Competitive	Expansion	x		x
<b>Other</b>	Virginia Transit Association (VTA) administered Temporary Assistance for Needy Families (TANF) Transit Zero-Fare for Working Families Grant	Competitive	Existing		x	
	APS Student Free Fare Program – administered to assist students who would benefit most from transportation assistance.	Other	Existing		x	

# Appendix A

# Agency Profile and System Overview



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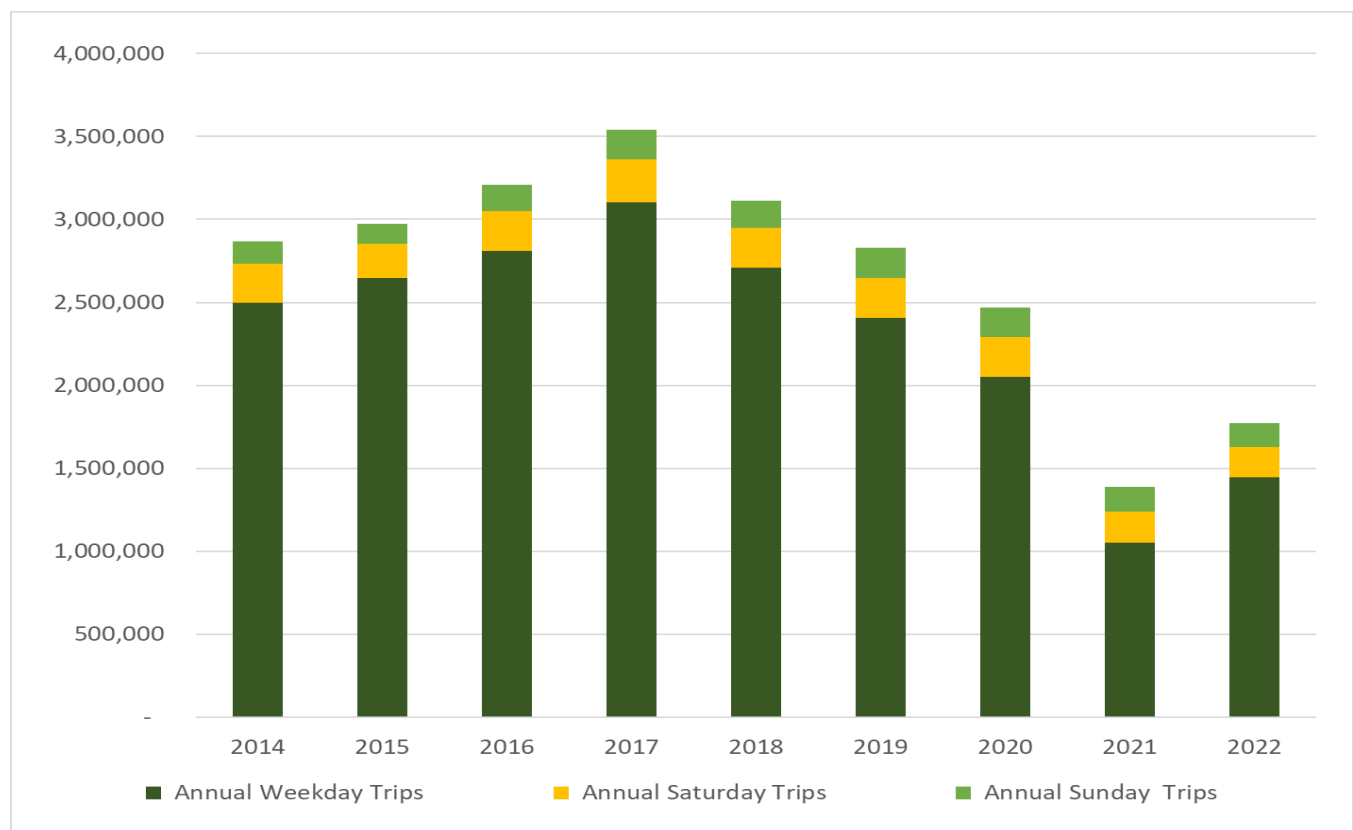
## A.1 History

The Arlington Transit (ART) fixed route bus system began providing service in November 1998 to address unmet commuting needs of Arlington residents. Initial routes were in Crystal City. Prior to ART, the Washington Metropolitan Area Transit Authority (WMATA), with its Metrobus lines, was the County's sole provider of local bus service. In FY 2008, ART received its first eight heavy-duty transit buses. Today, ART is comprised of 16 routes, serving over 1.8 million riders (FY 2022), with a fleet of 78 buses, all using compressed natural gas (CNG).

Shirlington Bus Station, which opened in 2008, is Arlington's only enclosed public bus station and is the principal transfer point for Metrobus and ART bus service in South Arlington. It also serves Alexandria DASH buses.

ART is a key transportation link between local neighborhoods and regional transit services (e.g., Metrorail and Metrobus).

FIGURE 1 | ARLINGTON TRANSIT ANNUAL RIDERSHIP (FISCAL YEARS 2014-2022)



## A.2 Governance

Arlington County is governed by a five-member County Board vested with legislative powers. Elected at-large, members serve 4-year terms. The Board's current Chair is Christian Dorsey and the Vice-Chair is Libby Garvey. The other members are Takis P. Karantonis, Matt de Ferranti, and Tannia Talento. The County Board sets policy, which is then administered by the County Manager, Mark Schwartz. Board Members also serve on regional advisory groups and commissions addressing transportation issues. Such organizations include the Metropolitan Washington Area Transit Authority (WMATA), Northern Virginia Transportation Commission (NVTC), Northern Virginia Transportation Authority (NVTA), and Metropolitan Washington Council of Governments (MWCOC). The County Transportation Commission (TC) reviews transportation-related issues involving Arlington streets, transit, pedestrian, taxicabs and bicycle modes and their relation to site plans, local area and sector plans. The TC also advises the County Board on the implementation of elements of the Master Transportation Plan. The TC, formed in 1972, generally meets on select Thursday nights ranging from once to twice monthly. Members are appointed by the County Manager to 4-year terms; the chairman is designated by the County Board in June each year. The Commission is comprised of seven to 13 members. Current members are:

- **Chris Slatt, Chairman** (term ends June 30, 2024)
- Bryan Coleman (term ends February 28, 2026)
- Justin Furhmann (term ends July 31, 2026)
- Sohail Husain (terms ends November 30, 2025)
- Sean Knowlan (term ends February 28, 2025)
- Jim Lantelme (term ends March 31, 2024)
- June Locker (term ends October 31, 2024)
- Donald Ludlow (term ends September 30, 2024)
- Ajdin Muratovic (terms ends December 31, 2023)
- Thomas Shannon (term ends April 30, 2025)
- Jane Terry (term ends January 31, 2025)
- Adam Theo (term ends February 28, 2026)
- Chris Yarie (term ends December 31, 2023)

The Transit Advisory Committee (TAC) advises the County Manager and other staff on issues related to transit in Arlington and involving ART, Specialized Transit for Arlington Residents (STAR), Metrobus, Metrorail, and MetroAccess. The panel also provides input on implementation of transit elements from the Master Transportation Plan. The Committee is comprised of up to 15 members, all of whom must live or work in the County, appointed by the Manager. The current members are:

- **John Carten (Chair)**
- James Davenport (Vice Chair)
- Harvey Berlin
- Erika Chiang
- Frank Krol
- Suzette Risacher
- Alexander Cumana
- Kate Garman
- Ronald Decker
- Herschel Kanter
- Laura MacNeil
- Alexa Mavroidis
- Andrew McAllister
- Patrick Thomson
- Mariela Garcia-Colberg
- David Sisson



The Transit Accessibility Subcommittee reviews accessibility issues in Arlington, including access to transit vehicles, stops and stations and the specialized transit services provided by Metrorail, Metrobus, ART, STAR and MetroAccess. Members are:

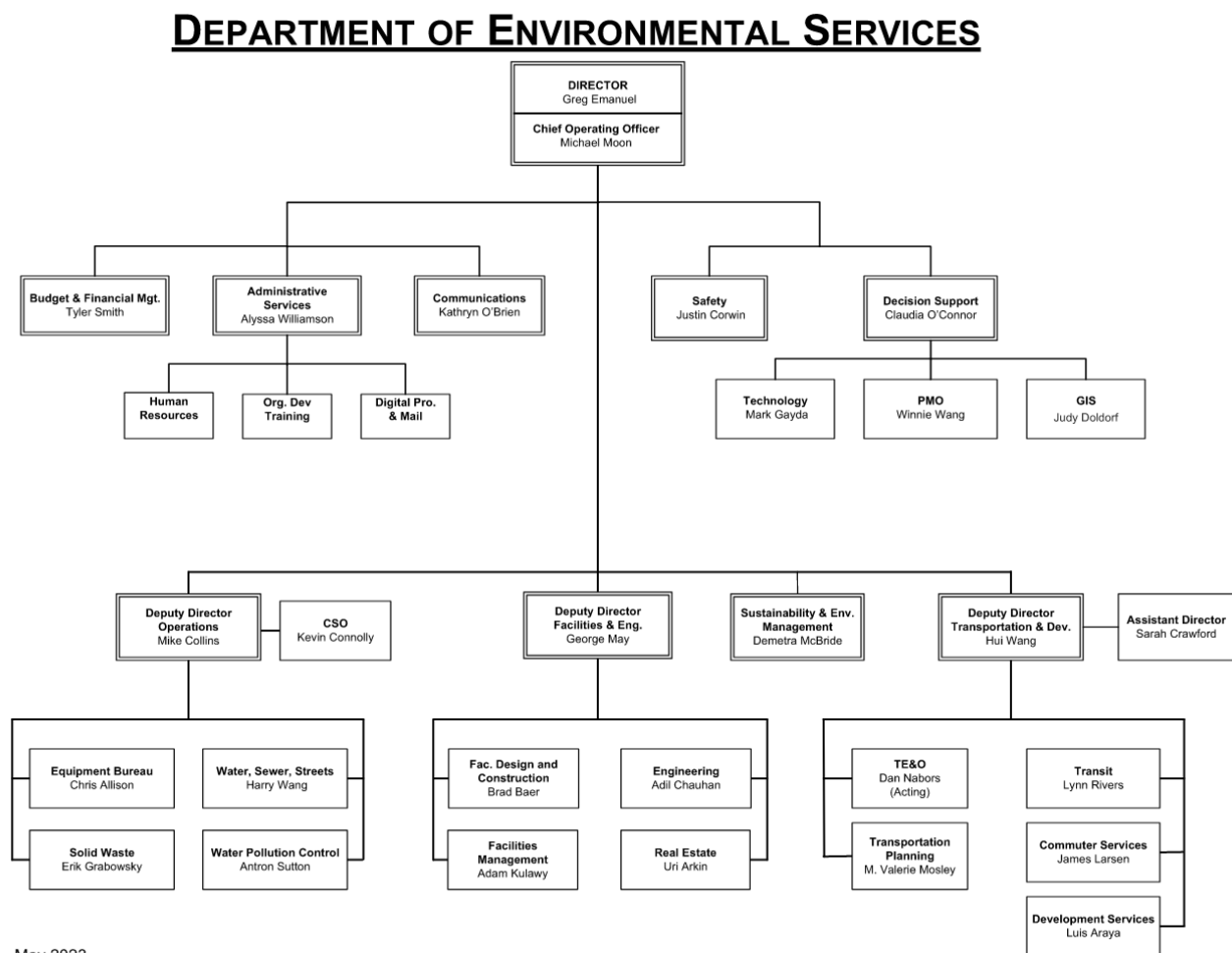
- **Alexis Mavroidis (Chair)**
- Herschel Kanter
- Laura MacNeil

The TAC usually meets every two months for 90 minutes via Microsoft Teams or by phone. The subcommittee usually meets every two months.

## A.3 Organizational Structure

Arlington County's Department of Environmental Services (DES) is responsible, through its Transit Bureau, for providing public transportation that encompasses a network of transit services and facilities. Arlington Transit (ART) is one element of the program that also includes Metrorail, Metrobus, MetroAccess, STAR, Commuter Services, and Virginia Railway Express.

FIGURE 2 | ORGANIZATION CHART FOR ARLINGTON COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES, TRANSIT BUREAU





Greg Emanuel is Director of the Arlington County Department of Environmental Services, and he establishes policy and directive guidance for the management of the department. T Hui Wang, Deputy Director of the Division of Transportation and Development Services (DOT) also holds the title of Director of Transportation. The Director of Transportation oversees five bureaus: Transportation Engineering & Operations, Transit, Development Services, Transportation Planning, and Commuter Services. The Director of Transportation has Transportation Program Support staff that deals with Operational Program Financial Management as well as Capital Program Financial Management and Compliance. Staff in the Transportation Program Support section include a Management & Budget Specialist, who supervises the Capital Budget Analysts. There is a Transportation Grants Manager plus a Contract Administrator, who supervises a Contract Specialist.

Lynn Rivers, Transportation Chief, has responsibility of day-to-day activities of the Transit Bureau. The bureau provides Fixed Route and Paratransit service in Arlington and a Capital Program responsible for design and construction of transit infrastructure. Staff leading the Transit Bureau are Pierre Holloman, Assistant Chief, Robin McElhenny, Capital Program Manager and Transit Services Manager Clinton Edwards.

The Transit Services Manager Clinton Edwards is responsible for local transit services including ART fixed route and STAR para-transit services, which are provided through public-private partnerships. The Transit Services and Operations team is responsible for leading the procurement process and overseeing the provision of contracted services, including service planning and evaluation; development of ART timetables; procurement of ART buses and support technology and equipment; and, in conjunction with the Commuter Services Bureau and other DOT staff, marketing of services and community engagement. Mr. Edwards' team oversees the work of several contractors and also deals with other County departments:

- Since December 2019, First Transit operates, maintains, supervises and dispatches ART buses. This contract is structured to separate variable costs from fixed costs to minimize risk to both the County and Contractor and enable the Contractor to provide high-quality service on a continuing basis. The current contract is set to expire in December 2024 with an option to extend. (First Transit was purchased by Transdev in late 2022. Contract references will still use First Transit.)
- ART Transit Technology capabilities are provided via contracts either directly through the County or through First Transit.
- ART marketing capabilities are enhanced with personal service and company contracts overseen by the Commuter Services Bureau for marketing and webmaster services.
- First Transit is responsible for the STAR Call Center, which oversees paratransit street operations as well as books and schedules STAR rides and provides summary statistics each month.
- Diamond Transportation operates 14 vehicles dedicated to STAR services and, through the same contract, another 13 vehicles dedicated to transporting Arlington County Department of Human Services' Intellectual and Developmental Disabilities Services (IDDS) Division clients to/from day support and employment programs.
- Red Top Cab provides taxi dispatch services for STAR, for IDDS clients, as well as the senior center programs operated by the Arlington County Department of Parks & Recreation.

### A.4 Services Provided and Areas Served

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

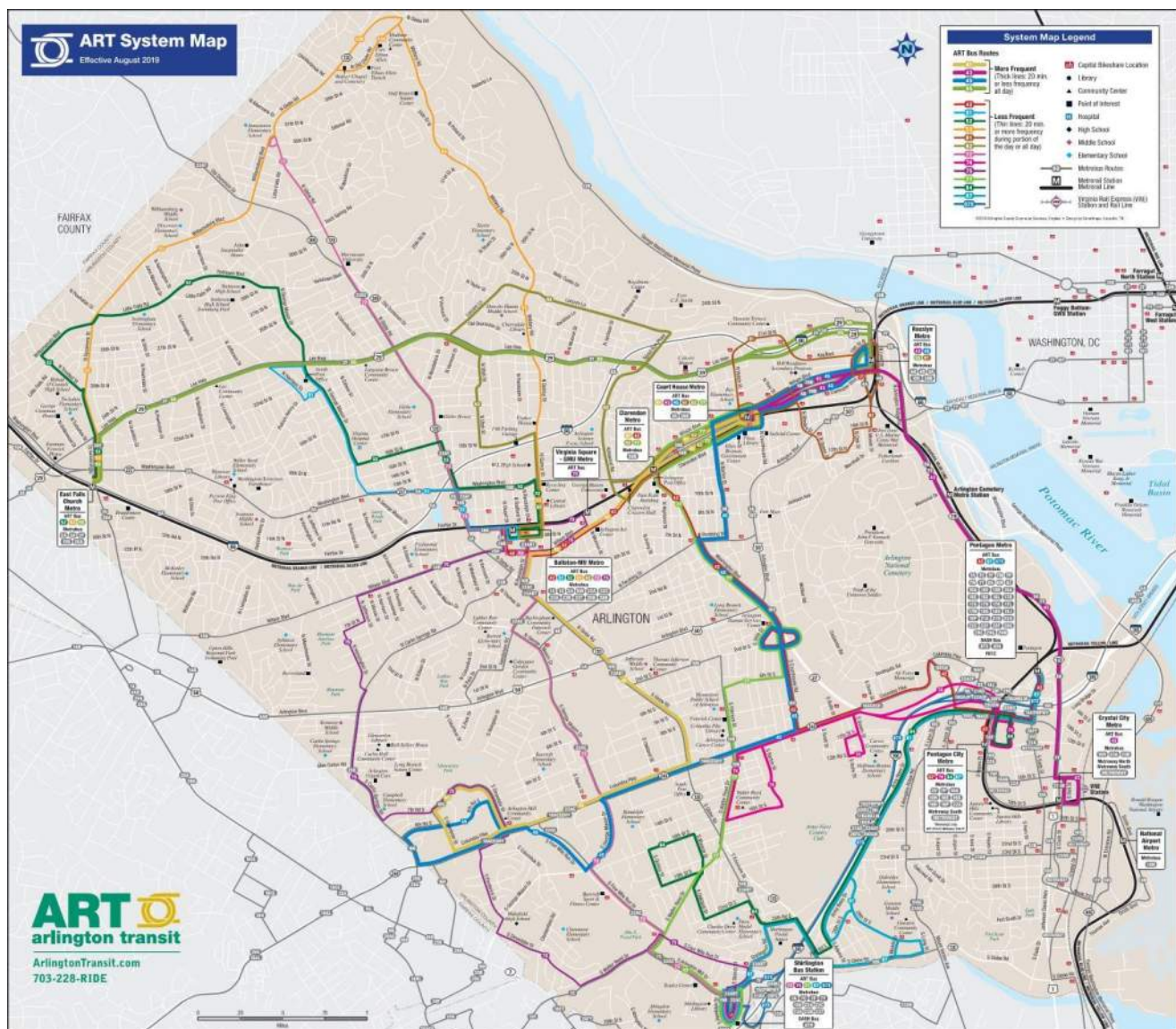
The integrated network of mobility services, designed as an alternative to driving, include Arlington Transit, Specialized Transit for Arlington Residents, Metrorail, Metrobus, MetroAccess, Commuter Services, Virginia Railway Express, Bicycling, Walking, Super Senior Taxi (SST) and Taxi. Below are brief descriptions of each service.

## Arlington Transit

ART is Arlington County's local bus service, which complements the line service provided by WMATA's Metrobus, offering fixed route transit with cross-County routes and neighborhood connections to Metrorail stations. ART provides service to numerous urban villages in Arlington, including Rosslyn, Ballston, Pentagon City, and Crystal City. ART also serves several high-level security agencies and facilities like the Pentagon, Transportation Security Administration (TSA), US Marshals Service, US State Department, Federal Deposit Insurance Corporation (FDIC), and Defense Advanced Research Projects Agency (DARPA).

ART currently (July 2023) operates 16 routes (Figure 3), five of which operate during weekday peak periods only; 11 operate all-day on weekdays; seven offer service on Saturdays; and six operate on Sunday. Weekday service operates between 5 AM and 1:45 AM; Saturday service is offered between 5:50 AM and 2 AM; and Sunday service operates between 6:20 AM and 12:50 AM. Weekday peak-period service operates with frequencies ranging between 10 and 30 minutes; weekday midday service headways range between 15 and 70 minutes; and weekend service operates within a range of between 20-to-65-minute frequencies. Chapter 1: Service and System Evaluation contains a detailed description of each ART fixed route including span of service hours and frequency of service by time period.

FIGURE 3 | ARLINGTON REGIONAL TRANSIT SYSTEM





## Specialized Transit for Arlington Residents

Specialized Transit for Arlington Residents (STAR) is a shared-ride paratransit service intended to provide comparable levels of transportation to that provided by ART, Metrobus and Metrorail. Service is provided to Arlington residents who have difficulty using public fixed route transit due to a disability. STAR was reconfigured from a separate service for people with disabilities to offer a higher level of service for residents certified for MetroAccess at a lower cost per trip.

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

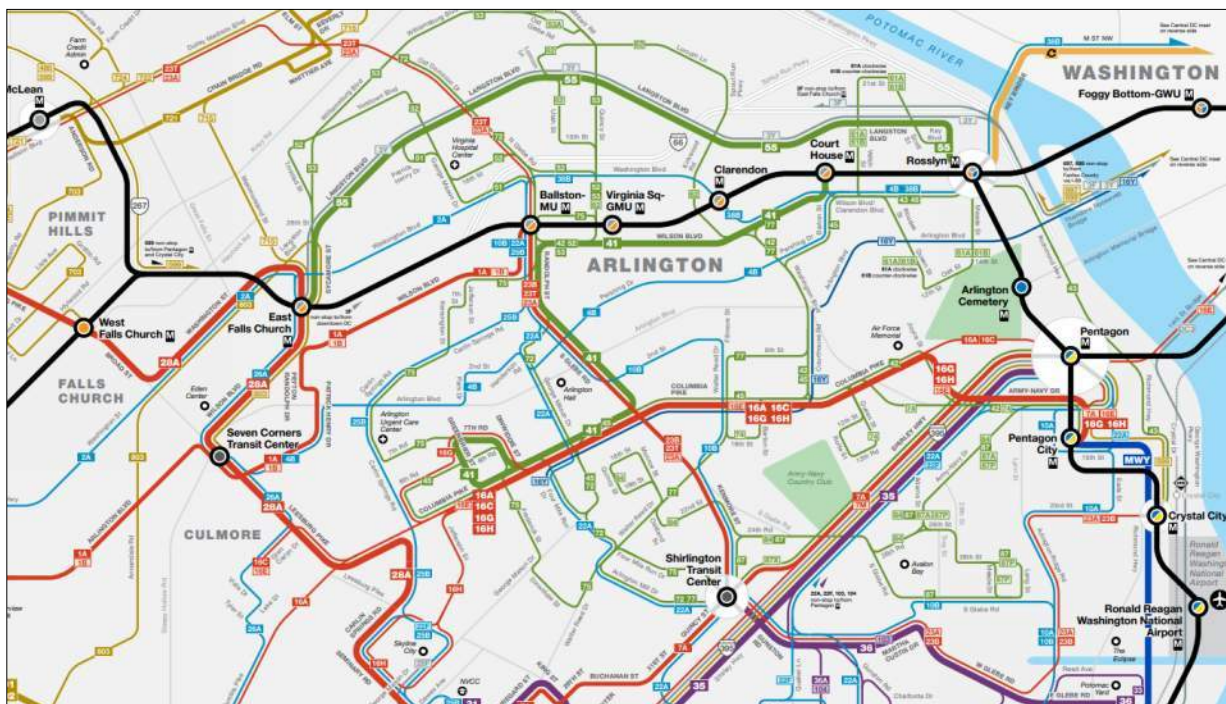
All trips are scheduled through the STAR Call Center, either by a phone call to the dispatcher or from STAR's website. Trips need to be booked one to seven days in advance. STAR allows same-day scheduling of medical trips, including medical return trips.

STAR carried 85,429 MetroAccess-certified passengers and 15,421 human service passengers in FY15.

## Metrobus

The Washington, DC area's regional bus service, operated by WMATA, has 26 bus lines operating 59 route patterns within Arlington County. Metrobus primarily operates line-haul fixed route (16 local fixed lines) and express route (eight express lines) service within and through Arlington County (Figure 4). Of the 26 lines operated in Arlington County, 12 operate on weekdays only, 11 routes operate Monday through Sunday, and one route operates Monday through Saturday. Weekday and Saturday service generally operates between 5 AM and 12/1 AM, and Sundays between 6 AM and 11 PM/12 AM. Weekday service frequencies range between 5 and 60 minutes, while weekend service operates at frequencies between 30 and 60 minutes. Metrobus began operating in Arlington County in 1973. In FY 2022, Metrobus routes in Arlington had a ridership of 2.94 million. Chapter 2: System Performance and Operations Analysis contains a detailed description of each Metrobus route including span of service hours and frequency of service by time period.

FIGURE 4 | METROBUS SYSTEM (NORTHERN VIRGINIA)



## Metrorail

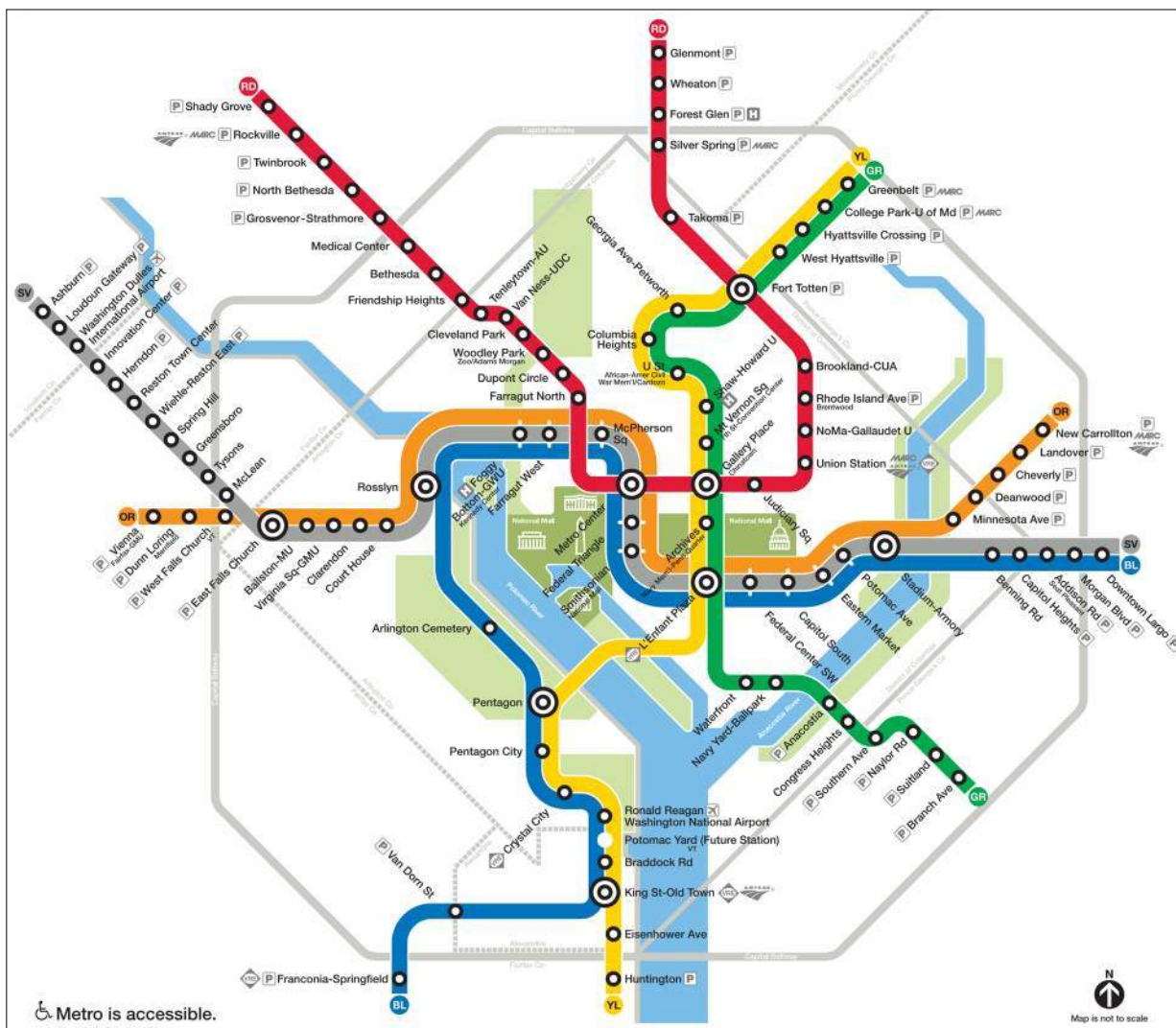
WMATA began Metrorail service in Arlington County in July 1977 with the opening of the Blue Line. Today, WMATA operates three heavy rail lines with 12 miles of rail and 11 stations in the County (Figure 5). Following are the lines and stations:

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

Metrorail trains operated Monday through Thursday from 5 AM until midnight, Friday from 5 AM until 1 AM the next day, Saturday from 7 AM until 1 AM the next day, and Sunday from 7 AM until midnight.

In FY 2022, Arlington County Metrorail Stations had ridership of 15.12 million, with the Pentagon Station being the busiest in the County, averaging almost 10,000 combined station entries and exits during weekdays.

FIGURE 5 | METRORAIL SYSTEM





## MetroAccess

Accompanying Metrorail, Metrobus, and local bus service, MetroAccess is a regional, shared-ride, door-to-door paratransit service for people whose disability prevents them from being able to use bus or rail. In order to use MetroAccess, riders must meet the criteria specified by the Americans with Disabilities Act (ADA) and who have been certified as eligible. Eligibility is based on a person's functional limitations, instead of whether they have a disability or because of their age. The service area includes the District of Columbia, Montgomery County, Prince George's County, Arlington County, Fairfax County, and the cities of Alexandria, Fairfax and Falls Church.

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

MetroAccess fares are two times the fastest comparable fixed-route fare, with a maximum fare of \$6.50. Passengers may travel through up to four additional zones beyond the weekday, peak period public transit service area by paying \$1 per zone in addition to the base fare. In Fiscal Year 2022, MetroAccess provided 8,198 trips for those Arlington County residents certified for ADA paratransit.

## Virginia Railway Express

VRE is a commuter rail service connecting the Northern Virginia suburbs to Alexandria, Arlington (Crystal City), and L'Enfant Plaza and Union Station in Washington, D.C. VRE is operated as a partnership of the Northern Virginia Transportation Commission (NVTCT) and Potomac Rappahannock Transportation Commission (PRTC) to provide commuter rail service on two lines along the Interstate 95 and Interstate 66 corridors from Fredericksburg and Manassas (Figure 6). VRE began service in June 1992. Located on South Crystal Drive, VRE's Crystal City station, about five miles south of Union Station, had a ridership of 287,500 in FY 2022. Trains run Monday through Friday, except on federal holidays.

The combined headway of both lines provides Crystal City with 16 northbound trains to Union Station between 6 AM and 9 AM, two southbound trains during the midday between 1 PM and 1:30 PM, and 14 southbound trains that arrive at the Crystal City station between 1 PM and 7 PM.

There is no station-area parking, but connections are possible to the Metrorail Crystal City Station (Yellow and Blue lines) and by Metrobus (Routes 10A, MW1, 23A, 23B) and ART (Route 43).

FIGURE 6 | VRE SYSTEM





### Arlington County Commuter Services

Arlington County Commuter Services (ACCS) is the Transportation Demand Management (TDM) agency of Arlington County. ACCS encourages people who live, work or commute through Arlington to use mass transit, car and vanpool, bicycle, walk, telecommute and use other alternatives to driving alone. The ACCS program provides information and services to customers via employer and residential outreach efforts, general travel option marketing, commuter information distribution, commuter stores, the internet, advertising, direct mail and other promotional events. ACCS also works with businesses, property and hotel managers who, in turn, work with their employees, tenants, and guests. Major program areas include Arlington Transportation Partners (ATP), Commuter Stores, marketing and promotions, and internet services. The Demand and System Management Element of the Arlington Master Transportation Plan (MTP) reinforces the general policy of integrating transportation and land use and focuses on the general policy of managing travel demand and transportation systems.

In FY 2022, ACCS reduced traffic by approximately 17,160 single-occupant vehicle (SOV) trips per workday, saving tens of thousands of gallons of gas and reducing hundreds of thousands of pounds of carbon dioxide.

Arlington County has a long-standing tradition of concentrating much of its development near public transit facilities and services. According to the 2009 Arlington County Master Transportation Plan (MTP), updated in December 2016:

*Approximately 96 percent of Arlington's residents and 97 percent of its jobs are located within a quarter mile of a local bus route and/or a half mile of a Metrorail station.... Over one-quarter of all Arlingtonians rely on Metrorail, Metrobus, and Arlington Transit (ART) service for daily commuting, primarily for access to worksites in Washington, DC. Many other area residents take transit to work at the nearly 200,000 jobs clustered around transit stops within Arlington's higher-density corridors.*

Several other public transportation agencies also provide service to Arlington's Metrorail stations, including Alexandria's DASH bus system, the District Department of Transportation (DDOT)'s DC Circulator bus service, the Fairfax Connector bus system, Georgetown University Transportation Shuttle, Loudoun County Transit, and OmniRide, a weekday express bus service operated by the Potomac and Rappahannock Transportation Commission (PRTC).

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

### Ridesharing / Car Pooling / Car Sharing

Commuter Connections is a network of Washington, DC area transportation organizations coordinated by the Metropolitan Washington Council of Governments (MWCOC). Commuter Connections will match commuters with a carpool, or they can use their online bulletin board. Commuter Connections also operates the Guaranteed Ride Home program, which provides commuters who regularly (twice a week) carpool, vanpool, bike, walk or take transit to work with a free and reliable ride home when unexpected emergencies arise. Car sharing is a form of car rental service where people check-out cars for short periods of time, usually by the hour. Car sharing services include Enterprise CarShare, Zipcar and Car2go. Vehicles for car sharing are available at several locations throughout the County.

### Bicycling

The County's emphasis on mixed-use development and Arlington's compact size produces many short trips for which bicycling is the most effective travel mode. The Arlington County Board first included trails in the County's Master Plan for Transportation in 1974. Currently there are 52 miles of County off-street trails, 51 miles of marked on-street bike lanes and sharrows, 73 miles of recommended on-street bicycle routes, and



more than 700 public bike parking racks. Both ART and Metrobus buses have bicycle racks that will accommodate two standard length bicycles. Bikes ride free with the passenger and are permitted on Metrorail during all hours, though bikes are not allowed on crowded railcars and bicyclists are encouraged to be considerate of other customers.

For short point-to-point trips, Capital Bikeshare, one of the largest and most successful public bikeshare systems in North America, has nearly 100 stations in Arlington County, with 1,110 docks and 598 bicycles available for use. Capital Bikeshare stations are concentrated in the Rosslyn-Ballston Corridor, Crystal City, and Pentagon City areas. Capital Bikeshare launched in Arlington in September 2010 and in FY 2022, the system had 586,131 miles ridden in Arlington County, with the average trip length being 1.79 miles and average trip duration of 16 minutes.

Future Arlington County infrastructure projects include protected bike lanes in Pentagon City, Rosslyn, Ballston, and Crystal City and upgrades to the County's multi-use trail network. The Bicycle Element of the Arlington Master Transportation Plan (MTP) is the guiding document for bicycle planning and includes policies and recommendations focused on creating a safer and more connected bicycling network across Arlington.

### Walking

Arlington County offers some of the best walking environments as an urban area in the country. Approximately 90% of residential streets in Arlington have sidewalks. Arlington's goal is to design sidewalks to be safe from conflicts with automobile traffic, and to provide easy access to mixed-use destinations. All new construction in Arlington is built to ADA standards. Additionally, the County has retimed traffic signals to improve pedestrian safety at intersections. The Pedestrian Element of the Arlington Master Transportation Plan (MTP) is the guiding document for pedestrian planning and includes policies and recommendations to develop a safer, more accessible, and more comfortable pedestrian environment across Arlington.

### Taxi

Arlington County works with multiple taxi providers to regulate fares and the size and age of the fleet to ensure quality alternative mobility services within the county. The operation of taxicab service within Arlington is regulated and controlled by Chapter 25.1 of the County Code.

### Transportation Network Companies

A Transportation Network Company (TNC) is a company that uses an online-enabled platform to connect passengers with drivers using their personal, non-commercial, vehicles. This transportation business platform is commonly referred to as "ride sourcing" (i.e., outsourcing of rides). Examples include Uber and Lyft. UberPool and LyftLine allow TNC riders to share their rides with another rider along their route traveling in the same direction, similar to carpooling. These services are all available in Arlington County. A TNC provides an alternative to owning a personal vehicle. TNCs in Arlington are not regulated by the County, but by the Virginia Department of Motor Vehicles.

### Transportation for Seniors

#### Super Senior Taxi

Super Senior Taxi (SST) is a subsidized transportation program for Arlington County residents aged 70 and over. Eligible residents are able to purchase a \$20 book of vouchers for half price, at \$10, to use for trips using Arlington Red Top Cab and Yellow Cab.

#### Senior Loops

Senior Loops provide weekly and monthly grocery shopping for residents of the Culpepper Garden, The Carlin, Claridge House, Hunters Park, and Woodland Hill apartment communities and select neighborhoods. This service is also available to all Arlington residents aged 55 and older who are able to get to these locations.

During the summer months, an additional Senior Loop provides transportation to participating Senior Farmers' Markets.

## Other Transportation Services

Door-Thru-Door Assisted Transportation is a grant-funded program for adult residents of Arlington County who need help in getting to and from health care appointments. This program provides the passenger with home care aides who help individuals prepare for the trip, get to and from the vehicle, accompany persons during the health care appointment, provide assistance in returning home, and share information with family caregivers and community service providers, when appropriate.

## Vehicle Fleet

As of August 2023, ART has a transit vehicle fleet size of 78 buses (Table 1): 16 heavy-duty 40' buses, 23 heavy-duty 35' buses, 15 heavy-duty 31' buses and 14 light-duty narrow-width 28' body-on-chassis buses. The three 2012 Designline CNG-Electric Hybrid buses are currently not operational. The total number of vehicles required for maximum service (i.e., peak period) is 46, leaving 19 spare buses or a spare ratio of 27%. All ART buses are fueled with compressed natural gas (CNG), but three of the vehicles are CNG-Electric hybrids. All ART buses are fully ADA accessible with wheelchair ramps and priority seating. In addition to buses, ART has six non-revenue vehicles that are used to support transit operations. The non-revenue vehicle fleet is composed of a 2006 Ford van, 2005 Chevy truck, and four Chevy HHRs of varying age from 2006 to 2011.

TABLE 1 | ARLINGTON TRANSIT VEHICLE FLEET (AS OF AUGUST 2023)

Year	Make	Length (Feet)	Number	Fuel Type
2010	NABI	31	12	CNG
2011	NABI	31	3	CNG
2014	NABI	40	8	CNG
2015	NABI	40	8	CNG
2018	New Flyer	40	13	CNG
2019	New Flyer	35	14	CNG
2022	New Flyer	40	20	CNG
n/a	n/a	n/a	n/a	n/a

## Stations/Transit Centers/Bus Stops

Arlington County has 1,004 bus stops, including both ART and Metrobus stops. Of these stops, 3071 have bus shelters and 368 have benches. Most shelters (244) also have benches. Presently there are 526 bus stops in the County with a full ADA compliant 5'x8' pedestrian pad. Arlington and WMATA have updated their bus stop signs to indicate the routes that serve a particular stop. 711 of the bus stops also include additional information, like schedules, in informational boxes mounted at the bus stop.

ART uses the following guidelines when determining bus stop amenities:

- **Shelters** - Ridership exceeding 40 passenger boardings per day.
- **Benches** - Benches are installed at all shelters and at stops where a shelter is not warranted but some level of amenity is justified. There are no formal criteria, but typically daily boardings of between 10 and 40 riders would be prioritized.
- **Trash Cans** - Trash cans are installed at all locations where a shelter is installed and at locations where litter is a frequent problem.
- **Customer Information** - Route map and schedule information are installed at all ART bus stops. WMATA's guidelines also call for the same, but this is not currently the case in Arlington.



ART's bus stop guidelines also include recommendations for stop spacing, location in relation to the intersections, and stop length. They also provide guidance on minimum elements for bus stops like landing area, pedestrian connections, signage, and safety and security.

ART completed an update to its bus stop database in 2013. The DES Transit Bureau will conduct a Bus Stop Inventory Project from fall 2023 to expected completion in spring 2024, with results used to target capital improvements for the more than 1,000 stops in the County. The County is working to maintain and upgrade bus stops to improve accessibility and meet ADA standards. These efforts include adding level waiting areas, connecting sidewalks, and providing areas inside shelters for wheelchairs. Additionally, the program will replace aging bus shelters and repair broken signage and information cases.

Arlington County owns, operates and maintains a bus transfer hub on S Quincy Street next to a southbound ramp for the Shirley Highway/I-395. Called the Shirlington Bus Station, the facility provides a climate-controlled indoor waiting area with customer seating and restrooms and a partially covered outdoor plaza. The station has seven bays with LED signs that provide real-time data for ART, Metrobus and DASH. Indoor LCD screens provide additional transit information. There is also a Commuter Store in the waiting room. The facility opened in 2008 and currently more than 2,000 commuters use the station each day.

Shirlington Bus Station is served by three ART bus routes, five Metrobus lines, and one Alexandria DASH bus route:

- ART 75 – Shirlington-Wakefield High School Carlin Springs Road-Ballston-Virginia Square
- ART 77 – Shirlington-Lyon Park-Court House
- ART 87 – Pentagon Metro-Army Navy Drive-Shirlington
- Metrobus 7ACEF – Lincolnia-North Fairlington
- Metrobus 10B – Hunting Towers-Ballston
- Metrobus 22A – Barcroft-South Fairlington
- Metrobus 23AC – McLean-Crystal City
- Metrobus 25A – Ballston-Bradlee-Pentagon
- Dash AT9 – Mark Center-Potomac Yard

### Track or Guideway

WMATA opened the first segment of dedicated bus guideway in Arlington County in 2016. The Crystal City Potomac Yard Transitway, also known as “Metroway”, is the region’s first Bus Rapid Transit (BRT)-type service utilizing a dedicated guideway. The Metroway service uses the transitway for portions of the route between the Braddock Road Metro Station and the Crystal City Metro Station. The service began operation in 2014 utilizing a dedicated busway on part of the route in the City of Alexandria. The transitway runs along South Glebe Road between Potomac Avenue and Crystal Drive, and along Crystal Drive from South Glebe Road to 26th Street. The Metroway service operates in peak period-only curbside bus lanes along Crystal Drive, 15th Street, and Clark Street between 26th and 15th Streets. The final alignment for the transitway extension to Pentagon City is yet to be determined. Currently, no ART service operates along the Metroway guideway.

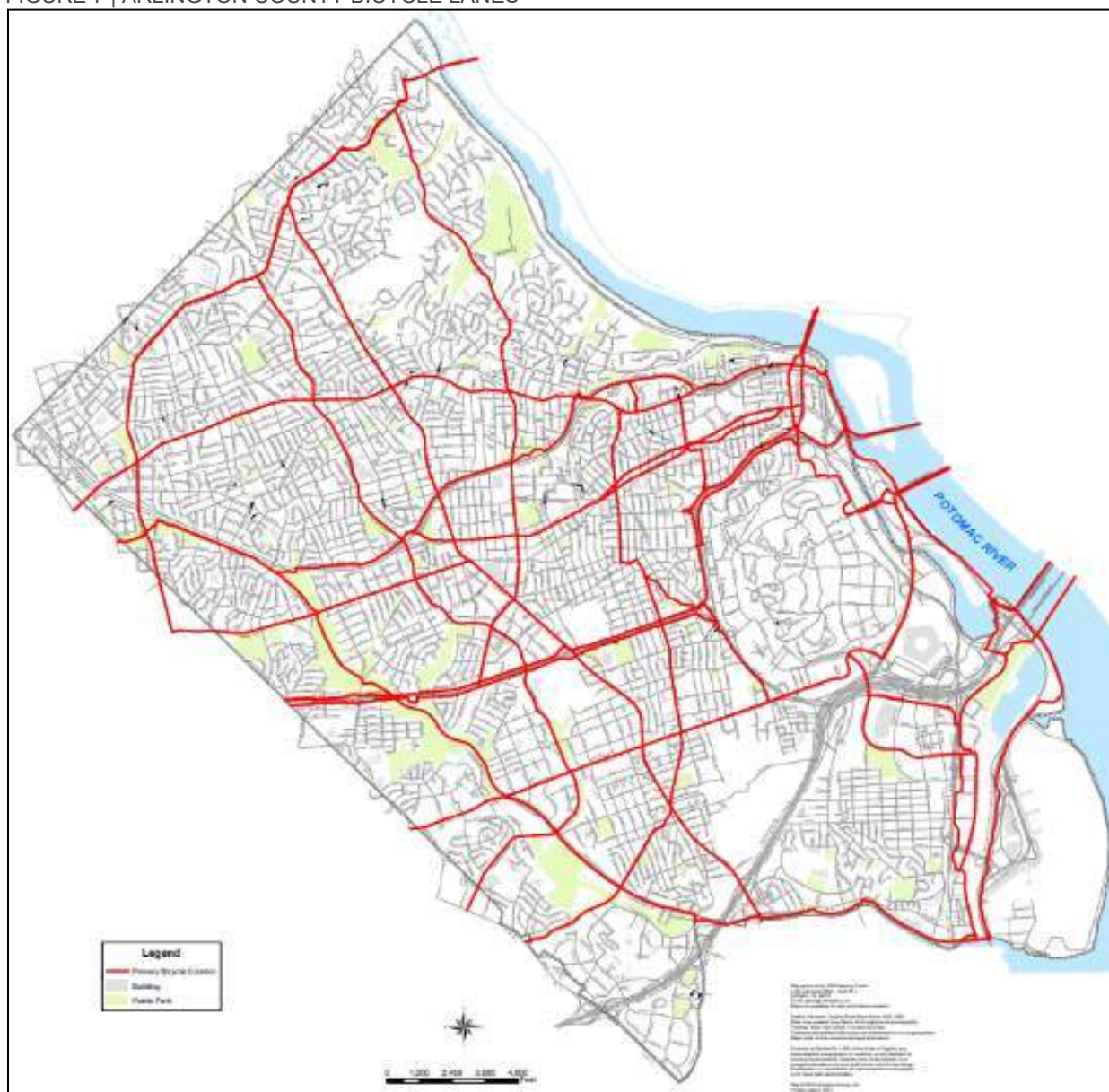
### Bicycle Facilities

Arlington County has 50 miles of shared-use off-street trails. These multi-use trails are usually 10 feet wide with a solid yellow line striped down the middle to separate users. Multi-use trails in the County include the Arlington Boulevard Trail, Bluemont Junction Trail, Custis Trail, Four Mile Run Trail, Mount Vernon Trail, and Washington & Old Dominion Trail. The Mt. Vernon Trail is the most popular trail in Arlington, with nearly 83,000 bicyclists recorded in June 2023.





FIGURE 7 | ARLINGTON COUNTY BICYCLE LANES



Bicycle lanes are striped areas on a roadway designated for preferential use by bicyclists over motor vehicles. Bicycle lanes are generally located between the curb and the right travel lane, or between the curbside parking lane and the right travel lane. In Arlington as of July 2023, there are 50 miles of striped bike lanes that can be found on several roadways throughout the County.

Sharrows, shared-lane markings on the roadway, are intended to help cyclists and motorists safely share the roadway. The lane markings show cyclists their delineated path. In the County, sharrows are used primarily on streets designated as part of Arlington's bicycle route network. They may also be used where there is a significant number of cyclists or to note a connection between common cycling routes. As of July 2023, there are 5.72 miles of sharrows in Arlington.

Protected bike lanes provide physical separation between people on bikes and motor vehicles. The separation can be provided in a variety of ways including plastic bollards or "flex posts", landscaping and large planters, curbs, and car parking. Arlington's first protected bike lanes were installed on S. Hayes Street and Eads Street in Pentagon City in 2014 and uses car parking as the separation from motor vehicles.

Arlington has a number of bicycle repair "Fixit" stands that include an air pump for tires and tools for basic repairs and adjustments. The stands, free to use, are located near the Ballston and Clarendon Metro Stations, with another proposed near the Pentagon City Metro Station. There is a similar bike maintenance Fixit stand located at the Crystal City Water Park on Crystal Drive, installed through a partnership between the Crystal City Business Improvement District and Phoenix Bikes.

## ADA Accommodations

All ART buses are fully ADA accessible with low floors, wheelchair lifts or ramps, and priority seating. A bus annunciator system provides both audible and digital display announcements of each upcoming stop.

To meet ADA requirements, several standards were established by the Master Transportation Plan for bus stops throughout Arlington County. Among those standards:

Boarding/alighting areas should provide a 40-foot-by-4-foot clear zone at each stop unobstructed by street furniture, landscaping, or signage, allowing ingress and egress from both the front and back doors for travelers of all abilities. Pedestrian paths of travel of at least 5 feet in width should be provided between bus stops and sidewalks to allow pedestrians of all abilities to pass in opposite directions.

The County subsidizes two paratransit systems (STAR and MetroAccess) to serve those who cannot use public transit due to a disability.

## Other Transportation Services

Door-Thru-Door Assisted Transportation is a grant-funded program for adult residents of Arlington County and the City of Alexandria who need help in getting to and from health care appointments. This program provides the passenger with home care aides who help individuals prepare for the trip, get to and from the vehicle, accompany persons during the health care appointment, provide assistance in returning home, and share information with family caregivers and community service providers, when appropriate.

## A.5 Fare Structures, payments, and purchasing

### ART Fare Structure

Passengers boarding ART buses are subject to the fares shown in Discounted fares are offered as follows:

Free ride for all children under 5

Virginia Hospital Center employees with hospital ID ride Free on ART 51 and ART 52 ONLY

Seniors and people with disabilities with a Senior SmarTrip card or proper ID are eligible for a discounted fare

People with disabilities with a MetroAccess Photo ID Card ride free

Arlington County elementary, middle and high school students receive a \$1 discounted fare when paying with cash and show a school ID.

Table 2. ART offers a range of fares for a variety of needs. Fares can be paid with a SmarTrip card, 7-Day Regional Bus Pass (loaded on a SmarTrip card), or cash. On June 25, 2017, Arlington Transit increased bus fares. The adult fare for ART rose \$0.25 and the discounted fare for seniors, students, and people with disabilities increased by \$0.15. The additional revenue generated has been used to help offset increases in ART's operating costs.

As of August 2022, Arlington Transit provides free bus trips for Arlington students with a registered Student iRide SmarTrip card. As of August 2023, students with an iRide card can also ride free on Metrobus. Students can receive an iRide card through their school's transportation coordinator or through Commuter Stores located at transit stations around Arlington. As of April 2023, students without an iRide card are required to pay \$1 after presenting a school ID. Rides on Metro Rail and other providers come at standard costs to students.

Discounted fares are offered as follows:

- Free ride for all children under 5
- Virginia Hospital Center employees with hospital ID ride Free on ART 51 and ART 52 ONLY
- Seniors and people with disabilities with a Senior SmarTrip card or proper ID are eligible for a discounted fare
- People with disabilities with a MetroAccess Photo ID Card ride free
- Arlington County elementary, middle and high school students receive a \$1 discounted fare when paying with cash and show a school ID.

TABLE 2 | EXISTING ART FARE STRUCTURE (AUGUST 2023)

Service			Fare
Adult Fare with a SmarTrip® card or cash			\$2.00
Senior Citizens (ages 65+) with a SmarTrip® card or cash			\$2.00
People w/Disabilities (w/WMATA ID or Medicare Card) with a SmarTrip® card or cash			\$1.00
K-12 Students (w/school ID ) with an iRide SmarTrip card or cash			Free
Transfer Type	Regular Fare	Senior/Disabled	K – 12 Students
ART to ART	Free	Free	Free
ART to/from Metrobus	Free	Free	Free
Metrorail to ART	\$1.50	\$0.50	\$0.50
ART to Metrorail	\$0.50 Discount	\$0.50 Discount	\$0.50 Discount

*Note: Transfers from Fairfax County, Loudoun County, DASH, OmniRide and DC Circulator may require an additional fare.*

*Note: Customer payment methods include cash (nickels, dimes, quarters, half-dollars, dollar coins and \$1, \$2, \$5, and \$10 bills) and the SmarTrip card.*

*Note: SmarTrip cards may be purchased at the Commuter Store, online at Commuter Direct.com, at Metrorail stations, on WMATA's website, and at select CVS pharmacies and Giant Food stores.*

## STAR Fare Structure

Riders using ART's complementary paratransit service pay fares that are structured on a zone basis as shown in Table 2. All trips must begin or end in Arlington. Fares can be paid with STAR coupons, which are sold at Commuter Stores. Coupons are worth \$4 or \$5.50 and sold in booklets of 10. On June 25, 2017, Arlington Transit increased bus fares on STAR by \$0.50.

TABLE 3 | STAR FARE STRUCTURE

Service	Fare
<b>Zone 1:</b> Trips inside Arlington County.	\$4.00

<b>Zone 2:</b> Trips to/from Washington, DC, Alexandria, Falls Church or Fairfax County inside the Beltway and Inova Fairfax Hospital/Woodburn Mental Health campus at 3300 Gallows Road.	\$5.50
<b>Zone 3:</b> Trips to/from Fairfax County outside the Beltway, Montgomery County or Prince George's County. All trips must begin or end in Arlington.(MetroAccess is also available to provide these rides for a lower fare.)	\$9.50

## Metrobus and Metrorail Fare Structure

On June 25, 2017, WMATA increased fares on Metrobus and Metrorail by 10 cents to 25 cents. The reason for the increase was to close a budget gap.

Metrobus fares vary by route type (i.e., local, express and airport express). Passengers boarding Metrobus are subject to the fares shown in Table 3.

Metrorail fares are calculated by the day and time a trip is taken and the distance traveled. Peak fares are charged the hours indicated in the current Rail Schedule. Off-peak fares apply at all other times. Passengers boarding Metrobus are subject to the fares shown in Table 4.

In addition, Metrorail and Metrobus offer a range of daily, weekly, and monthly unlimited passes. Pass options are shown in Table 5.

Customer payment methods include cash (exact change on buses except Route 79 MetroExtra, which does not accept cash payments) and cashless payment options such as using the [SmarTrip Mobile app with Google Pay or Apple Wallet](#) or SmarTrip cards.

Fares and passes can be purchased in the SmarTrip app and then added to Apple Wallet or can be added to SmarTrip cards online, at fare vending machines located in Metrorail stations, and at the Metro Center Sales Office, Commuter Stores, or certain retail outlets. Metro's transfer policies are as follows:

- Metrobus to Metrobus: Free, unlimited transfers within a 2-hour period
- Metrobus to Metrorail/Metrorail to Metrobus: \$0.50 discount within a 2-hour period
- Farragut Crossing: Free transfer between the Red Line and Orange, Silver and Blue Lines by exiting and entering through Farragut West and Farragut North

Metro's children's fare policy:

### Children

- Up to two children (age 4 and younger) can ride free with each fare-paying adult
- Children ages 5 and older pay regular fare
- Metrorail and Metrobus trips are free for DC students who attend public, private, charter, or parochial schools through the DC Kids Ride Free program

TABLE 4 | METROBUS FARE STRUCTURE

Service	Fare
<b>Regular Fares</b>	
With a SmarTrip® card or cash	\$2.00
Senior SmarTrip® card or cash (with Reduced Fare Photo ID Card) for seniors and people with disabilities	\$1.00
<b>Express Bus Fares</b>	
Express Bus Fare with a SmarTrip® card or cash	\$4.25
Senior SmarTrip® card or cash (with Reduced Fare Photo ID Card) for seniors and people with disabilities	\$2.10
<b>Airport Express Route Fare</b>	
Airport Express Route Fare with a SmarTrip® card or cash	\$7.50
Senior SmarTrip® card or cash (with Reduced Fare Photo ID Card) for seniors and people with disabilities	\$3.75





TABLE 5 | METRORAIL FARE STRUCTURE

Service	Fare
Peak Fare	\$2.25 - \$6.00
Off-Peak Fare*	\$2.00 - \$3.85
Weekend Metrorail one-way fare	\$2.00
Weekend Senior/Disabled Flat Fare	\$1.00
Late Night Flat Fare (Mon - Fri after 9:30pm)	\$2.00
Late Night Flat Fare Senior/Disabled Flat Fare (Mon - Fri after 9:30pm)	\$1.00

TABLE 6 | METROBUS/METRORAIL PASS STRUCTURE

Service	Fare
1-Day Pass	\$13.00
3-Day Pass	\$28.00
7-Day Pass	\$58.00
7-Day Short Trip	\$38.00
Monthly Pass	\$72.00 - \$216.00
Regional Bus Pass	
7-Day Pass	\$15.00

## A.6 Transit Asset Management – Existing Fleet and Facilities

### Vehicle Fleet

As of August 2023, ART has a transit vehicle fleet size of 78 buses (

Table 7): 49 heavy-duty 40' buses, 14 heavy-duty 35' buses and 15 heavy-duty 31' buses. The three 2012 Designline CNG-Electric Hybrid buses are currently not operational. The total number of vehicles required for maximum service (i.e., peak period) is 46, leaving 19 spare buses or a spare ratio of 27 percent. All ART buses are fueled with compressed natural gas (CNG), but three of the vehicles are CNG-Electric hybrids. All ART buses are fully ADA accessible with wheelchair ramps and priority seating. In addition to the buses, there are six non-revenue vehicles that are used to support transit operations. The non-revenue vehicle fleet is comprised of a 2006 Ford van, 2005 Chevy truck, and four Chevy HHRs of varying age from 2006 to 2011.

TABLE 7 | ARLINGTON TRANSIT VEHICLE FLEET (AS OF AUGUST 2023)

Year	Make	Length (Feet)	Number	Fuel Type
2010	NABI	31	12	CNG
2011	NABI	31	3	CNG
2014	NABI	40	8	CNG
2015	NABI	40	8	CNG
2018	New Flyer	40	13	CNG
2019	New Flyer	35	14	CNG
2022	New Flyer	40	20	CNG
n/a	n/a	n/a	n/a	n/a

## Existing Facilities

### Administrative

Arlington Transit leases space from another County department for the ART operations center, located at 2900 S Eads Street, near Crystal City. The center contains administrative and management offices, dispatch and other operating functions, a break room for bus drivers, and a classroom for training. The facility was built in 1948 and leased by ART in 2012.

### Maintenance/Fueling

Currently, washing and fueling services for ART buses are contracted from the WMATA Four Mile Run bus operations and maintenance facility on S Eads Street at S Glebe Road. ART buses are maintained at a site leased by the service contractor on Farrington Avenue in Fairfax County, inside the I-495 beltway near the Van Dorn interchange.

In 2017, an ART bus light maintenance facility opened in Crystal City at South Eads Street and 32nd Street South, adjacent to the WMATA Four Mile Run facility. The facility includes:

- Light-duty maintenance bay
- Bus wash bay
- Compressed natural gas fueling station
- Bus Parking

### Storage and Staging

A new operations and maintenance facility is being constructed 2669 Shirlington Road with expected completion in Summer of 2025. ART buses are temporarily parked at a temporary facility along N Quincy Street, that sits between 14<sup>th</sup> St N and I-66. Extensive maintenance of ART buses will continue to take place outside of the County at Farrington until the new facility is complete. The necessity for additional dedicated space for bus maintenance and parking is one of many County facilities needs highlighted by the Community Facilities Study, which is a planning effort that is examining requirements for additional school, fire station, vehicle storage sites and other facility needs in the county.

### Parking

Arlington Transit currently does not own or operate any park-and-ride facilities. The WMATA-owned park-and-ride facility at the East Falls Church Metrorail Station has 422 all-day parking spaces and 33 short-term metered spaces. Other privately-owned parking facilities are located throughout Arlington with access to transit.

### Stations/Transit Centers/Bus Stops

Arlington County has 1,120 bus stops, including both ART and Metrobus stops. Of these stops, 251 have bus shelters and 301 have benches. Most shelters, 244, also have benches. A total of 1,083 bus stops in Arlington have a 5'x8' pedestrian pad. Arlington and WMATA have updated their bus stop signs to indicate the routes that serve a particular stop. 711 of the bus stops also provide additional information like schedules in informational boxes mounted at the bus stop.

ART uses the following guidelines when determining bus stop amenities:

- **Shelters** - Ridership exceeding 40 passenger boardings per day.
- **Benches** - Benches are installed at all shelters and at stops where a shelter is not warranted but some level of amenity is justified. There are no formal criteria, but typically daily boardings between 10 and 40 riders would be prioritized.
- **Trash Cans** - Trash cans are installed at all locations where a shelter is installed, and at locations where litter is a frequent problem.
- **Customer Information** - Route map and schedule information are installed at all ART bus stops. WMATA's guidelines also call for the same, but this is not currently the case in Arlington.

ART's bus stop guidelines also include recommendations for stop spacing, location in relation to the intersections, and stop length. They also provide guidance on minimum elements for bus stops: landing area, pedestrian connections, signage, and safety and security.

ART completed an update to its bus stop database in 2013. This information is being used to target capital improvements for the more than 1,100 bus stops in the County. Currently, the County is working to maintain and upgrade bus stops as part of a capital project to improve accessibility and meet ADA standards. These efforts include adding level waiting areas, connecting sidewalks, and providing areas inside shelters for wheelchairs. Additionally, the program replaces aging bus shelters and repair broken signage and information cases.

Arlington County owns, operates and maintains a bus transfer hub on S Quincy Street next to a southbound ramp for the Shirley Highway/I-395. Called the Shirlington Bus Station, the facility provides a climate-controlled indoor waiting area with customer seating and restrooms and a partially covered outdoor plaza. The station has seven bays with LED signs that provide real-time data for ART, Metrobus, and DASH. Indoor LCD screens provide additional transit information. There is also a Commuter Store in the waiting room. The facility opened in 2008 and currently more than 2,000 commuters use the station each day.

Shirlington Bus Station is served by three ART Bus Routes, five Metrobus Lines, and one Alexandria DASH Bus Route:

- ART 75 – Shirlington-Wakefield High School Carlin Springs Road-Ballston-Virginia Square
- ART 77 – Shirlington-Lyon Park-Court House
- ART 87 – Pentagon Metro-Army Navy Drive-Shirlington
- Metrobus 7ACEF – Lincolnia-North Fairlington
- Metrobus 10B – Hunting Towers-Ballston
- Metrobus 22A – Barcroft-South Fairlington
- Metrobus 23AC – McLean-Crystal City
- Metrobus 25A – Ballston-Bradlee-Pentagon
- Dash AT9 – Mark Center-Potomac Yard



### Track or Guideway

Arlington County opened its first segment of dedicated guideway, the Crystal City Potomac Yard Transitway, in March 2016 for use by the new Metroway service. Metroway is the region's first BRT-type service utilizing a dedicated transitway for portions of the route from the Braddock Road Metro Station to the Crystal City Metro Station. The service began operation in August 2014 utilizing a dedicated busway on part of the route in the City of Alexandria. The transitway runs along South Glebe Road between Potomac Avenue and Crystal Drive, and along Crystal Drive from South Glebe Road to 26th Street. The Metroway service operates in peak period-only curbside bus lanes along Crystal Drive, 15th Street, and Clark Street between 26th and 15th Streets. The final alignment for the transitway extension to Pentagon City is yet to be determined. In spring 2016, Metroway service during midday hours and alternating trips during peak periods began serving Pentagon City using existing streets.

### Bicycle Facilities

Arlington County has 50 miles of shared-use off-street trails. These multi-use trails are usually 10 feet wide with a solid yellow line striped down the middle to separate users. Multi-use trails in the county include the Arlington Boulevard Trail, Bluemont Junction Trail, Custis Trail, Four Mile Run Trail, Mount Vernon Trail, and Washington & Old Dominion Trail. The Mt. Vernon Trail is the most popular trail in Arlington, with nearly 74,000 bicyclists recorded in June FY2014.

Bicycle lanes are striped areas on the roadway designated for the preferential use of bicyclists over motor vehicles. Bicycle lanes are generally located between the curb and the right travel lane, or between the curbside parking lane and the right travel lane. In Arlington as of July 2023, there are 50 miles of striped bike lanes that can be found on several roadways throughout the County.

Sharrows, shared-lane markings, are intended to help cyclists and motorists safely share the roadway. The lane markings show cyclists where to be in the road. In the County, sharrows are used primarily on streets designated as part of Arlington's bicycle route network. They may also be used where there is a significant number of cyclists or to note a connection between common cycling routes. As of July 2023, there are 3.42 miles of sharrows in the County.

Protected bike lanes provide physical separation between people on bikes and motor vehicles. The separation can be provided in a variety of ways including plastic bollards or "flex posts", landscaping and large planters, curbs, and car parking. Arlington's first protected bike lanes were installed on S. Hayes Street and Eads Street in Pentagon City in 2014 and uses car parking as the separation from motor vehicles.

Arlington has a number of bicycle repair "Fixit" stands that include an air pump for filling up tires and tools for basic repairs and adjustments. The stands are free to use and are located near the Ballston and Clarendon Metro Stations and another is proposed near the Pentagon City Metro Station. There is a similar bike maintenance Fixit stand located at the Crystal City Water Park on Crystal Drive, which was installed through a partnership between the Crystal City Business Improvement District and Phoenix Bikes.

### ADA Accommodations

All ART buses are fully ADA accessible with low floors, wheelchair lifts or ramps, and priority seating. A bus annunciator system provides both audible and digital display announcements of each upcoming stop. To meet ADA requirements, several standards were established by the Master Transportation Plan for bus stops throughout Arlington County.

Among those standards: 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 of at least 5 feet in width should be provided between bus stops and sidewalks to allow pedestrians of all abilities to pass in opposite directions.

The County subsidizes two paratransit systems (STAR and MetroAccess) to serve those who cannot use public transit due to a disability.





### A.7 Transit Security Program

First Transit, the operations and maintenance contractor of ART, follows a nationally recognized customer and safety program, which includes safe and defensive driving techniques, accident reporting, and emergency preparedness including table-top and live exercises. First Transit has a company-wide, global safety development campaign called "Driving Out Harm," which has proven to both drive and strengthen consistency in safety practices. First Transit has designed its Safety Program on 12 Global Standards of Excellence, including risk assessment, accident and incident investigation, safety audit and management check, and safety of vehicles.

According to the Arlington County 2011-2016 Transit Development Plan (TDP), on-board cameras were proposed to be installed on all buses during the subsequent two to six years. Currently, all buses are equipped with on-board video surveillance. Video surveillance will be an important component of the Safety and Security Plans established by the Transit Bureau for ART by the new regulations under the federal Moving Ahead for Progress in the 21st Century Act (MAP-21).

Shirlington Station is not currently staffed with security personnel. While cameras are located on the inside and outside of the building, staff have expressed concerns about the station's automatic opening, alarming, and closing system. Operating procedures have been changed to decrease the occurrence of false alarms.

### A.8 Intelligent Transportation Systems (ITS) Programs

ART has a robust Intelligent Transportation System (ITS) program, covering dispatching, scheduling, and public information.

#### **Computer Aided Dispatch (CAD) /Automatic Vehicle Location (AVL) || Clever Devices**

CAD/AVL systems track the locations of the fleet and assign buses to trips. This information can be used to produce real-time information through RT-GTFS. This program has the planned transit schedule and planned operations (runs and operator information) to function. This information all comes from HATUS. The information initially gets input in HATUS, then it gets converted to Clever's data format through CleverWorks. The static GTFS file also gets produced in this process. Once the schedule is input the system requires lots of hardware on each vehicle. The hardware included is a router, on-board computer, and an interactive display for operators. The on-board computer runs the equipment listed and other technology on the vehicles. The other technology includes the external Luminator display signs, the automatic audio announcements and internal LED signs.

#### **Automatic Passenger Counter (APC) || Urban Transportation Associates (UTA)**

Automatic Passenger Counter is an automated means of counting the boarding and alighting passengers. This can be accomplished by various technologies. Currently, UTA has installed inferred sensors on the front and rear door of the buses, which count the boardings and alightings. Multiple types of sensors are on board the vehicles. Some are single-point beams and others are overhead cameras. The information collected from the sensors are sent to an on-board computer. The information is stored there until the end of the night. A daily report of all bus information is sent to a server at an ART facility. Soon this information will be sent directly to UTA to be uploaded to a cloud-based server. After logging into the server/software, you can run reports to obtain desired information.

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

This project is still in the planning stage. Part of the upcoming planning will investigate the various vendors for hardware and software. One will be selected using the approved procurement method of Arlington County.



### **On-Board Bus Video (OBBV) || Transit Solutions, LLC (TSI)**

The On-Board Bus Video system is a surveillance camera system. There are multiple cameras on each vehicle, and they store their information on four terabyte solid state hard drives. The new data on the hard drives write over the old data. To preserve video, it must be exported off the buses. There are two methods for exporting: the simplest is to connect to the TSI unit remotely and export. The request can be made any time, but the video only exports when the bus connects to the server at an ART facility. If the remote request is unsuccessful, the physical hard drive can be removed from the bus for use at one of the viewing stations. The video can then be downloaded and moved anywhere.

### **Trip Planners**

All passenger-facing data is powered by GTFS and GTFS-RT. The current vendor for Computer Aided Dispatching and Automatic Vehicle Location is Clever Devices, which distributes to the public-facing applications. Arlington does not exclusively promote any public-facing applications. In the contract with Clever Devices, Arlington County gets access to the company's proprietary application Bus-Time. Additionally, Arlington's data get published to Google Maps, Apple Maps, The Transit App, and Moovit. There may be other applications that read and publish Arlington's data. Other than Clever Device's Bus-Time application, all other applications are free for Arlington County.

### **Schedule Builder/Manager || HATUS /Remix**

The Clever Device's CAD system requires a schedule to operate. The schedule is coordinated with run picks 3-4 times a year in HATUS. This is a very complex system with lots of options for creating a schedule that is as detailed as can be imagined. Some of the basic information included in a schedule are the bus stops, route shapes, and trip times.

The state of Virginia started a 1-year trial with Remix for all of its transit agencies. Arlington is participating in this trial and will explore the product during this time. Amongst other projects in the software, two big ones will be to conduct an analysis of Title VI within the County and projecting the recommended restructuring of the transit system from the Transit Strategic Plan. At the end of the year, Virginia may decide to continue procuring the software. If not, Arlington may look into a procurement.

### **Maintenance Software || Clever Devices**

In the procurement for Clever Devices, a fleet management and maintenance product was purchased, with the on-boarding of the software occurring in 2023.

### **Bus Headsigns || Luminator / Redmon / Clever Devices**

Each bus has a forward-facing, side-facing (on the passenger side) and rear-facing LED sign. The front- and side-facing LED signs show much information including the route number, route name and any information for public relations. The rear-facing LED sign only displays the route number. The signs are programmed using the Mobi Info Edit (MIE) software. Once programmed, they get uploaded three times a year with the transit schedule in HATUS to Clever Works.

A number of bus stops around Arlington have LED or LCD signs with real-time information. Some of the signs are owned and operated by WMATA and the rest by Arlington County. Redmon is a technology company that manages the hardware and software to operate these signs. They display all of the GTFS information at the stop, regardless of the agencies that operate routes at the stop.

Clever Devices produces the static and real-time data for Arlington. Currently some of the information for the real-time data is missing. Multiple solutions are being weighed to fill this gap. Developing an in-house application will be the first step to solve this need and full software solutions will be considered moving forward. The data is formatted in the universally accepted GTFS and GTFS-RT format and open for anyone to publish.



### **Information to Mobile Devices or Applications**

ART currently provides email and text alerts about service changes or disruptions for riders who sign up. These are also shared through Facebook, Twitter, and RSS feeds. The Arlington Transit website is mobile-device friendly, providing access to real-time predictions for routes, schedules, and alerts. ART's GTFS feed allows applications like Google Maps to identify routes that would be suitable to complete a trip by transit within the County. Google Maps is also linked to ART's real-time predictive software, allowing the user to identify where a stop is located. The County's website provides a list of applications, websites, and tools designed to work from a mobile device platform. They are designed to help users live a more car-free lifestyle by identifying transportation alternatives, providing route and schedule information, and trip planner services.

## **A.9 Data Collection and Ridership/Revenue Reporting Method**

ART has a robust Intelligent Transportation System (ITS) program, covering dispatching, scheduling, and public information.

### **Computer Aided Dispatch (CAD) /Automatic Vehicle Location (AVL) || Clever Devices**

CAD/AVL systems track the locations of the fleet and assign buses to trips. This information can be used to produce real-time information through RT-GTFS. This program has the planned transit schedule and planned operations (runs and operator information) to function. This information all comes from HATUS. The information initially placed in HATUS, then it gets converted to Clever's data format through CleverWorks. The static GTFS file is also produced in this process. The system requires lots of hardware on each vehicle. The hardware included is a router, on-board computer, and an interactive display for operators. The on-board computer runs the equipment listed and other technology on the vehicles including the external Luminator display signs, the automatic audio announcements, and internal LED signs.

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Automatic Passenger Counter is an automated means of counting boarding and alighting passengers. This can be accomplished by various technology. Currently, UTA has installed inferred sensors on the front and rear doors of the buses to count boardings and alightings. Multiple types of sensors are on board the vehicles. Some are single-point beams and others are overhead cameras. The information collected from the sensors are sent to an on-board computer. The information is stored there until the end of the night. A daily report of all bus information is sent to a server at an ART facility. This information then gets sent directly to UTA to be uploaded to a cloud-based server. After logging into the server/software, users can run reports to obtain desired information. There is also discussion about updating the old sensors on parts of the fleet to have uniform equipment throughout.

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

This project is still in the planning stage. Part of upcoming planning will investigate the various vendors for hardware and software. One will be selected using the approved procurement method of Arlington County.

### **On-Board Bus Video (OBBV) || Transit Solutions, LLC (TSI)**

The On-Board Bus Video System is a surveillance feature using multiple cameras on each vehicle. The cameras store their information on 4-terabyte solid state hard drives. The new data on the hard drives write over the old. To save video permanently, the video must be exported off the buses. There are 2 methods for exporting these videos. The simplest way is to connect to the TSI unit remotely and export the video. The request can be put in any time, but the video only exports when the bus connects to the server at an ART facility. If the remote request is unsuccessful, the physical hard drive can be removed from the bus. Then the hard drive can be view at one of the viewing stations. The video can then be downloaded and moved anywhere.

## Trip Planners

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The state of Virginia started a 1-year trial with Remix for all of its transit agencies. Arlington is participating in this trial and will explore the product during this time. Amongst other projects in the software, two big ones will be to conduct an analysis of Title XI within the County and projecting the recommended restructuring of the transit system from the Transit Strategic Plan. At the end of the year, Virginia may decide to continue procuring the software. If not, Arlington may look into a procurement.

## Maintenance Software || Clever Devices

In the procurement for Clever Devices, a fleet management and maintenance product was purchased. Since the on-boarding of the software in 2023, it is still underutilized.

# A.10 Coordination with Other Transportation Service Providers

Arlington Transit closely coordinates planning and provision of transit service with providers like WMATA Metrobus and Metrorail within the County and is in regular communication with other providers in adjacent jurisdictions. Arlington has been an active participant in the WMATA Better Bus Network Redesign process and many of the recommendations in this TSP have been developed in coordination with or in response to the findings and recommendations of that parallel planning effort. It is Arlington's intention to continue this pattern of coordination and to further ART's mission in the future to provide connecting and feeder service to and from Metrorail stations, giving convenient access to the regional transit system.

# A.11 Public Outreach / Engagement / Involvement

Arlington Transit provides outreach and information to the public for all services and how best to use them. Feedback from the public is also sought through daily interactions with customer service agents regarding issues riders experience on buses or at bus stops. Formal outreach events are also held to understand impacts of larger service changes.

The Arlington County Commuter Services Bureau (ACCS) and the Transit Bureau, both within the Department of Environmental Services, share responsibility for public outreach activities to promote transit use. Arlington Transportation Partners (ATP) is a program of ACCS to support businesses, residential communities and commercial properties to create transportation programs for the reduction of single occupancy vehicle trips in Arlington. ATP provides transit information to residents and visitors while offering help with transportation benefits to employers throughout Arlington County.

ACCS, in conjunction with the Transit Bureau, also prepares and provides printed and online Northern Virginia Transit schedules (ART, Metrobus, and other local bus routes), the STAR Rider Guide, and periodic newsletters of interest to riders. ACCS develops and maintains signage at each ART bus stop displaying the route and



schedules for that stop, including new LED bus information signs. ACCS contracts for maintenance of the ART/STAR websites as well as the software allowing staff to send ART Alerts to user e-mail and cell phone accounts with information of interest. ACCS staff takes a prime role in executing the Demand and System Management element of the Master Transportation Plan, which encourages developers to support transit through a variety of means.

The Commuter Store, Mobile Commuter Store, and CommuterDirect.com provide one-stop locations for the purchase of ART, Metro, VRE, MARC, Circulator, and DASH fares. ACCS operates four Commuter Stores in Arlington County, (Ballston, Crystal City, Rosslyn, and Shirlington) with two affiliate stores in Maryland (Odenton and Frederick). The Mobile Store serves additional Arlington and Washington, DC locations. Capital Bikeshare memberships can also be purchased at The Commuter Store outlets in Arlington, as well as the Mobile Commuter Store. CommuterDirect.com® allows for the purchase and delivery of transit tickets and passes online.

ART uses its website as a method of public outreach for service changes and disruptions. Passengers can be updated on service changes, disruptions and other advisories through news headlines and links on the homepage. Passengers can also subscribe to receive ART service alerts via email or text message. The website also provides regional transit news and service advisories that may affect Arlington residents. Periodically, ART publishes the ART Forum Newsletter to provide updates and information about Arlington Transit and other transit-related topics. The newsletter is distributed in printed form on board ART buses.

The Transit Bureau has a variety of outreach functions that are currently shared between the bureau, ACCS, and Arlington DOT. These include maintenance of an inventory of civic and neighborhood associations affected by each bus route; maintenance of an email list of observers on each ART route; oversight of the on-line customer comments system; and liaison duties with potential stakeholders in the success of transit in Arlington. The Transit Bureau has developed the public participation process for this TSP and conducts community meetings to assess the adequacy of routing and scheduling ideas and changes that would affect the community. Residents may also fill out a comment form to submit feedback on how bus service should be improved. There are also several advisory committees, which are open to the public, that allow the community to give feedback and improvement suggestions and to be made aware of issues affecting transportation in the County. The committees include the Bicycle Advisory Committee, Pedestrian Advisory Committee, Transit Advisory Committee, and Transportation Commission.



## A.12 Current Initiatives

Recently completed and ongoing transportation efforts that Arlington County is engaged in are summarized in **Table 8**.

TABLE 8 | CURRENT AND RECENT INITIATIVES

Initiative	Summary
<b>Transit Strategic Plan (TSP)</b>	The County is preparing this update of its 2016 Transit Development Plan per DRPT's new TSP requirements. DRPT requires each transit agency to complete a major TSP update every five years, with a minor update being developed annually on anything that has changed from the previous year.
<b>Vision Zero</b>	In July 2019, the Arlington County Board adopted a resolution committing to Vision Zero. The program now includes a 5-year Vision Zero Action Plan that was adopted in May 2021. Arlington is committed to fostering Vision Zero policies that emphasize the importance of safe access to transit (e.g., ensuring adequate crossing opportunities to every stop/station; bus stop placement and surrounding infrastructure; etc.) and prioritizes the importance of safe and accessible transit facilities <i>for everyone</i> .
<b>NVTC Free Fare White Paper</b>	The white paper provides Commissioners and Northern Virginia's bus system decision-makers with policy and technical considerations for zero-fare and reduced-fare transit service. It provides a high-level overview of the options and topics to consider when evaluating new potential fare programs that eliminate or reduce fares.
<b>Low Income Fare Pilot</b>	The County started a pilot program in February 2022 to provide no-fare assistance to 7,200 low-income Arlington residents. The pilot will distribute one-time SmarTrip cards preloaded with \$150 (the approximate value of 75 trips).
<b>Student Fare Pilot</b>	The County conducted a pilot program with Arlington Public Schools (APS) between February 2022 and June 2023 to determine if 2,400 identified middle and high school students who live beyond the reach of APS school buses can ride the ART bus to and from school safely and on time. The pilot provides preloaded iRide SmarTrip cards to students to ride the ART bus for free to get to and from school.
<b>2020 Arlington County Title VI Program Update</b>	The County prepared its update to the Title VI Program to ensure that the level and quality of ART's fixed route service and the demand response service STAR are provided in a nondiscriminatory manner and the opportunity for full and fair participation is offered to passengers and others in the community.
<b>2020 Comprehensive Operations Assessment (COA)</b>	In preparation for the FY2022 Transit Strategic Plan major update and in preparation of the major service changes expected on Columbia Pike in FY 2023, a COA was performed in review of ART operations in FY2020.
<b>Arlington County Zero Emission Bus (ZEB) Study</b>	The County anticipates moving the ART fleet to zero emission buses (ZEBs), currently expected to be Battery Electric Buses (BEBs), in keeping with Board guidance. However, final decisions are pending completion of a ZEB study at the end of 2023. The County conducted a BEB demonstration program during fall 2022 / winter 2023 whereby ART scheduled a temporary deployment of BEBs from participating bus manufacturers. This provided further input for the

Initiative	Summary
<b>Bus Stop Accessibility Improvements</b>	<p>fleet and charging infrastructure decisions. Fifteen BEBs are planned for purchase in 2025 after the opening of the County's new O&amp;M facility.</p> <p>The Bus Stop Accessibility Improvements program is an on-going program to address 554 of the County's bus stops previously identified as being non-compliant with the Americans with Disabilities Act (ADA). Since FY 2014, approximately 271 bus stops have been made ADA compliant.</p>
<b>Bus Stop and Shelter Program</b>	<p>This Program replaces existing bus shelters that are aging, installs new shelters where needed, and makes repairs and improvements.</p>
<b>Premium Transit Network (PrTN): Off Vehicle Fare Collection</b>	<p>This project involves regional coordination for the feasibility, planning, development, implementation, and procurement of off-vehicle fare collection technology to speed up bus boarding. WMATA and regional partner authorities are currently investigating several off-vehicle payment strategies; however, in the interim Arlington plans to pursue a "no cash loading" of SmarTrip by offering fare loading machines at strategic locations within the service area and/or installing rear door fare validators to facilitate rear door boardings.</p>
<b>PrTN: Transit ITS and Security Program</b>	<p>The Transit Intelligent Transportation System (ITS) and Security Program funds the use of technology to improve transit operations and rider information systems and identifies and mitigates agency security and safety issues. This program builds upon and expands technologies in place as well as introduces new technologies as recommended in the Transit ITS Master Plan. The program also provides funding for replacement of existing technology as it reaches its useful life.</p>
<b>Transit Signal Priority</b>	<p>As part of a countywide effort to implement various transit technologies throughout Arlington, the County is implementing Transit Signal Priority (TSP) for better running times of buses in congested corridors, particularly for ART routes 41 and 55.</p>

## Appendix B

# Existing ART Route Performance Sheets



# 41

## Columbia Pike/Ballston/Courthouse

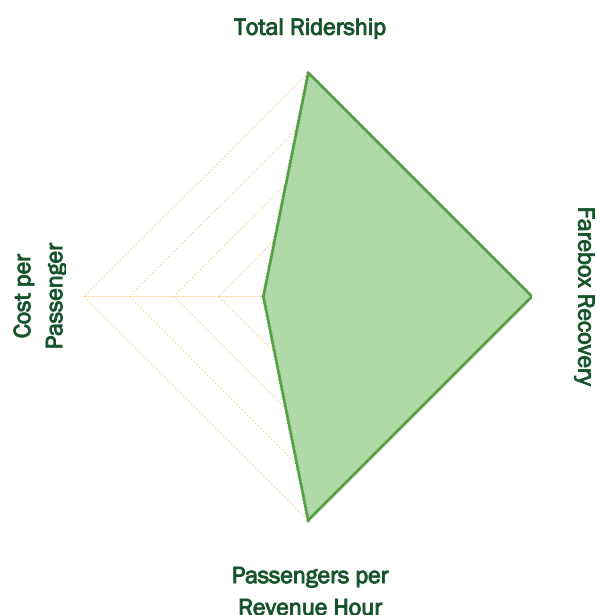
### PRIMARY

**MAJOR GENERATORS:** Ballston Quarter, Ballston Metro, Clarendon Metro, Columbia Pike, Courthouse Metro

**LAND USE:** Employment Centers, Mixed-Use, Retail, Transit Centers, Transit Corridor

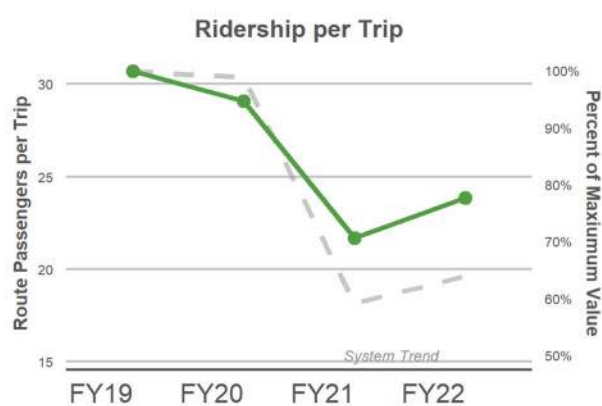
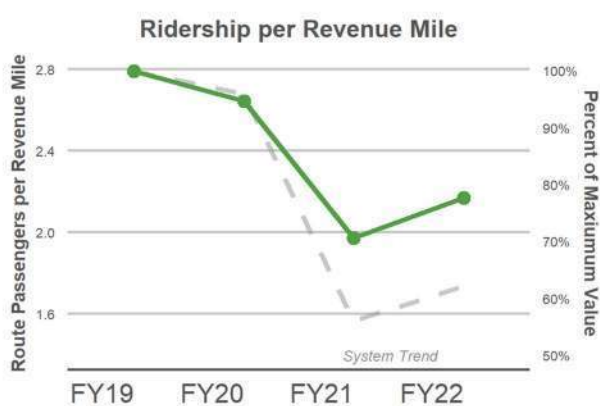
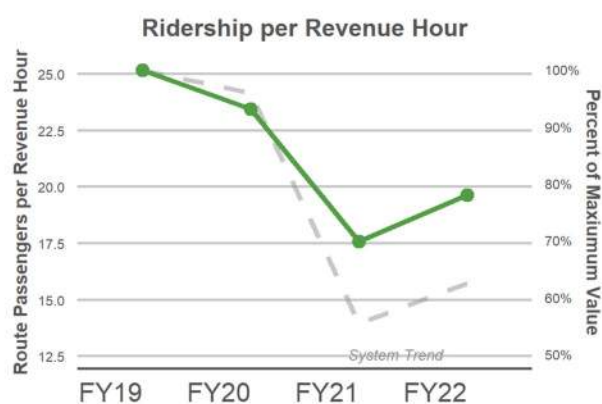
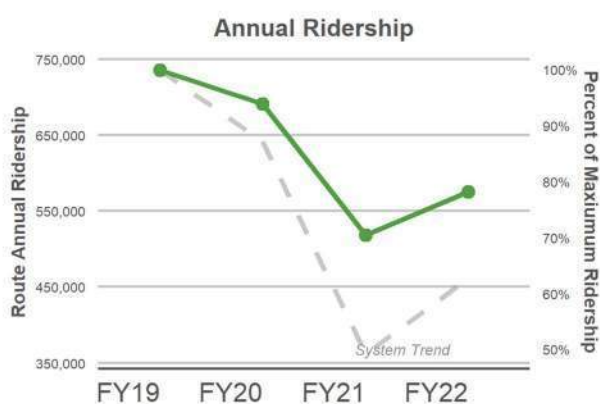


CHARACTERISTICS	WEEKDAY	SATURDAY	SUNDAY
SPAN OF SERVICE	5:25am-1:08am	6:05am-12:57am	6:50am-12:33am
PEAK FREQUENCY	15	15	15
BASE FREQUENCY	23	27	30
OPERATING STATISTICS	WEEKDAY	SATURDAY	SUNDAY
ONE-WAY TRIPS	67	63	63
REVENUE HOURS	82	84	71
REVENUE MILES	742	693	692
SERVICE PRODUCTIVITY	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY PASSENGERS	1,664	1,487	1,275
PASSENGERS/REVENUE HOUR	20.4	17.8	18.0
PASSENGERS/REVENUE MILE	2.2	2.1	1.8
PASSENGERS/ONE-WAY TRIP	24.7	23.6	20.3



FINANCIAL PERFORMANCE	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY REVENUE	\$1,924	\$1,719	\$1,475
REVENUE/PASSENGER	\$1.16	\$1.16	\$1.16
REVENUE/TRIP	\$28.55	\$27.30	\$23.46
AVERAGE DAILY COST	\$9,661	\$9,921	\$8,414
COST/PASSENGER	\$5.81	\$6.67	\$6.60
COST/REVENUE MILE	\$13.03	\$14.32	\$12.17
COST/TRIP	\$143.31	\$157.53	\$133.84
SUBSIDY/PASSENGER	\$4.65	\$5.52	\$5.44
FAREBOX RECOVERY RATIO	20%	17%	17%

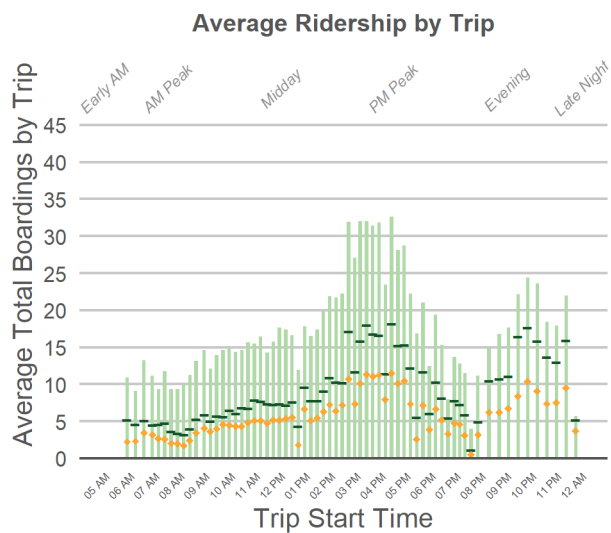
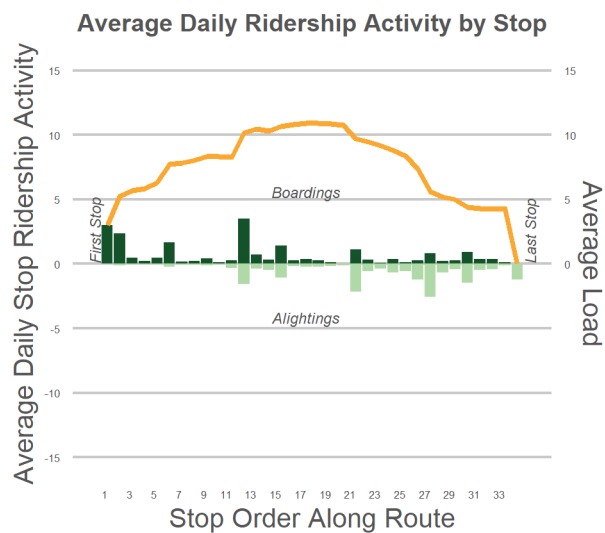
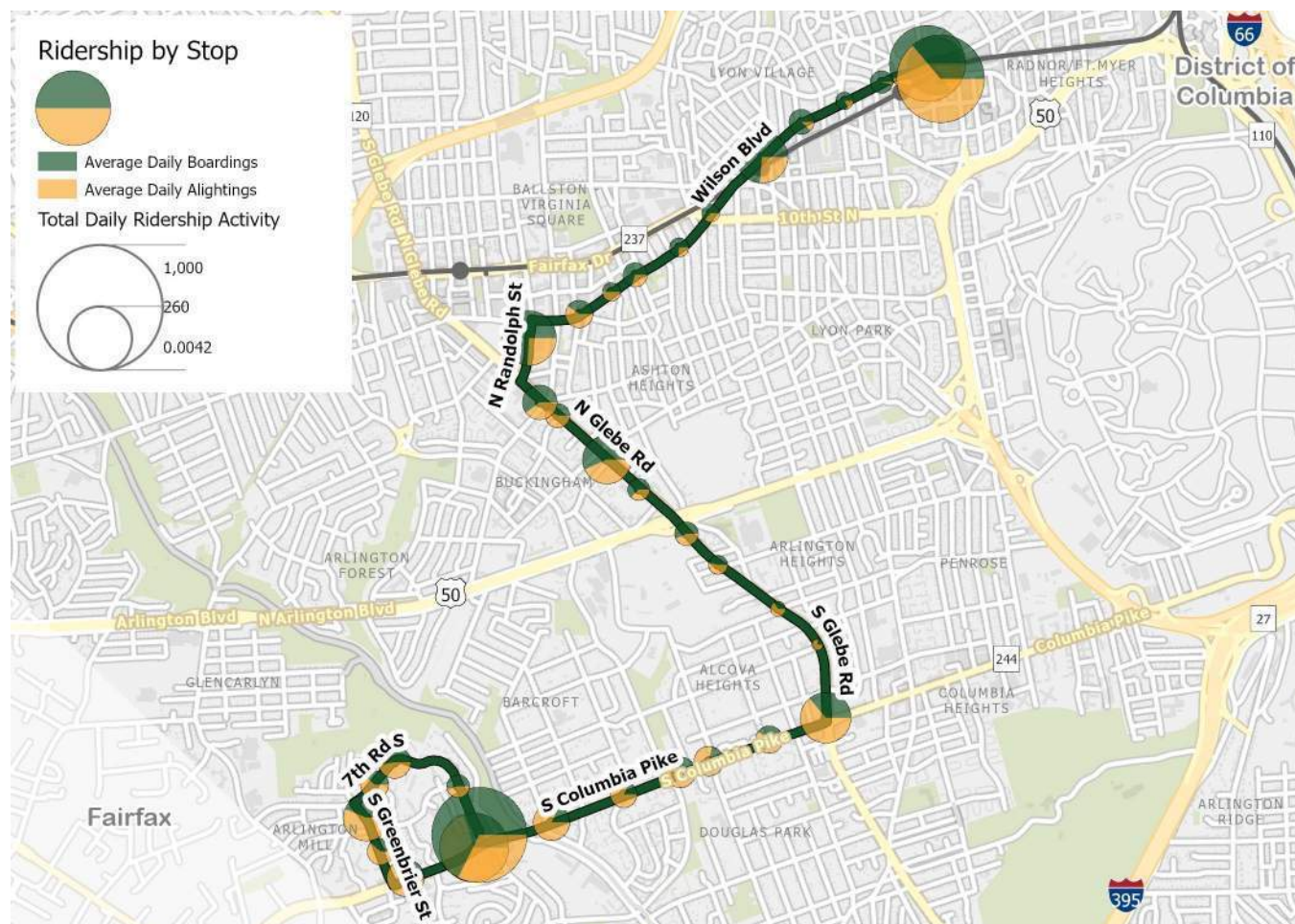
## Pandemic Impacts and Trends



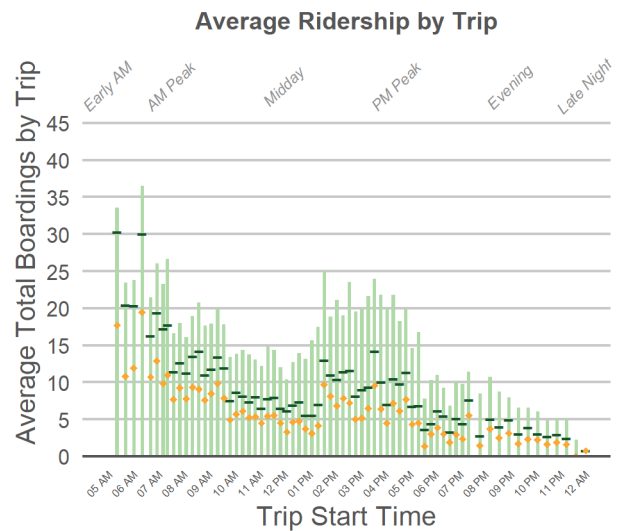
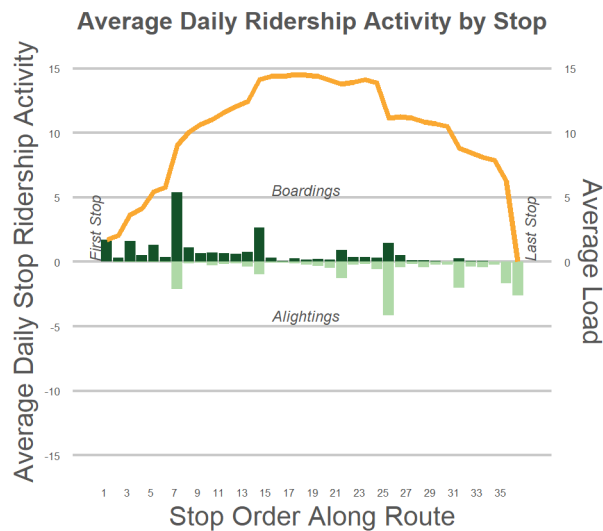
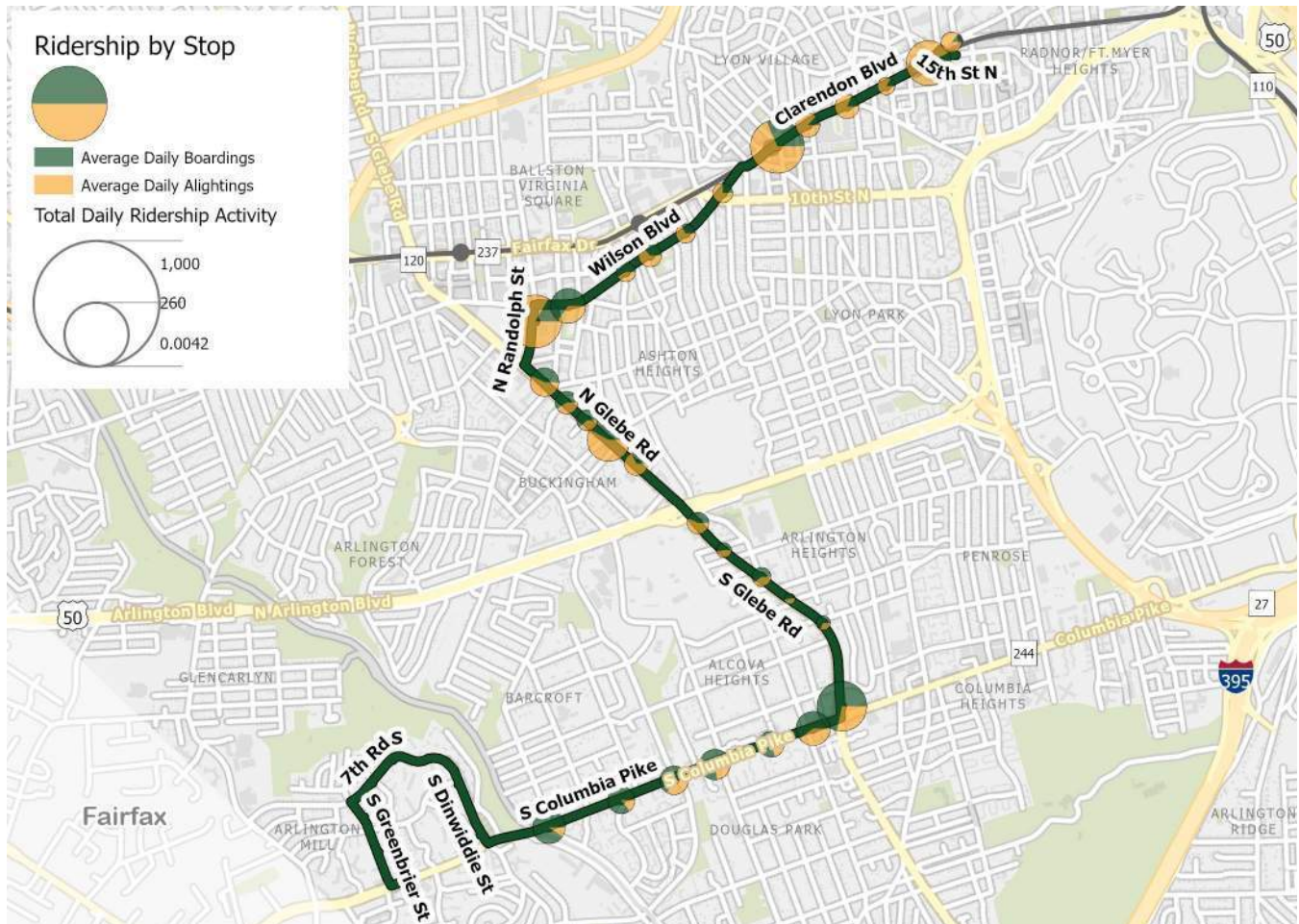
Note: "System Trend" line is percentages only, not actual metrics



## Ridership Analysis – Service to Arlington Mill



## Ridership Analysis – Service to Court House





# 42

## Ballston/Pentagon

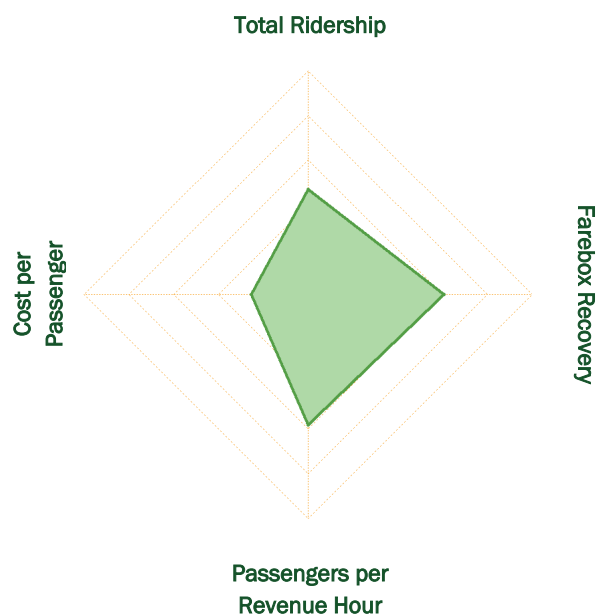
### SECONDARY

**MAJOR GENERATORS:** Ballston Quarter, Ballston Metro, Clarendon Metro, Courthouse Road, Pentagon Metro/Transit Center (Weekday), Pentagon City Metro (Weekend), Arlington County Department of Human Services, Sequoia Plaza, Virginia Square



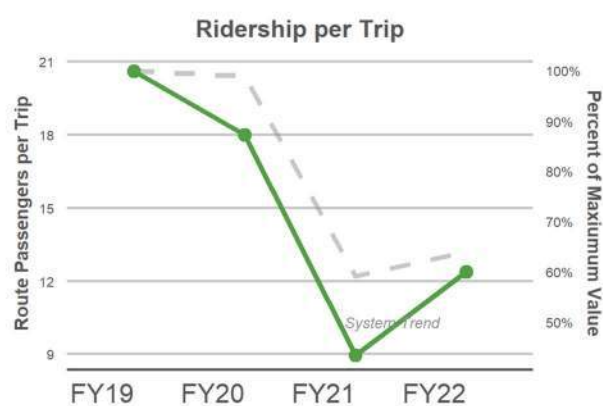
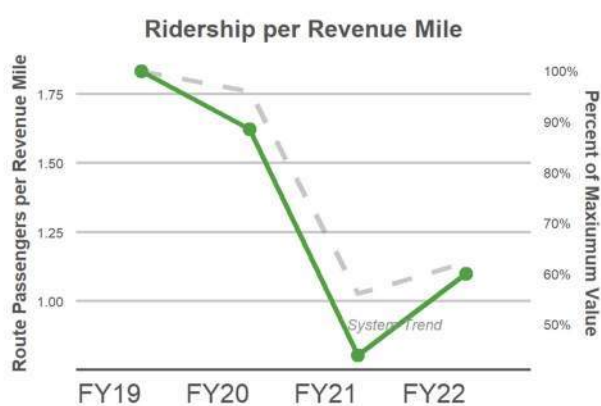
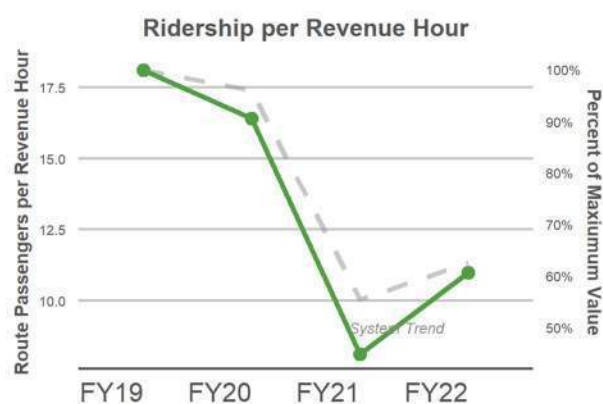
**LAND USE:** County Services, Employment Centers, Mixed-Use, Retail, Transit Centers

CHARACTERISTICS	WEEKDAY	SATURDAY	SUNDAY
SPAN OF SERVICE	6:00am-8:38pm	6:45am-8:09pm	7:00am-7:24pm
PEAK FREQUENCY	17	34	34
BASE FREQUENCY	34	34	34
OPERATING STATISTICS	WEEKDAY	SATURDAY	SUNDAY
ONE-WAY TRIPS	45	27	24
REVENUE HOURS	52	27	24
REVENUE MILES	510	289	254
SERVICE PRODUCTIVITY	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY PASSENGERS	574	295	244
PASSENGERS/REVENUE HOUR	11.1	10.7	10.2
PASSENGERS/REVENUE MILE	1.1	1.0	1.0
PASSENGERS/ONE-WAY TRIP	12.9	10.7	10.2



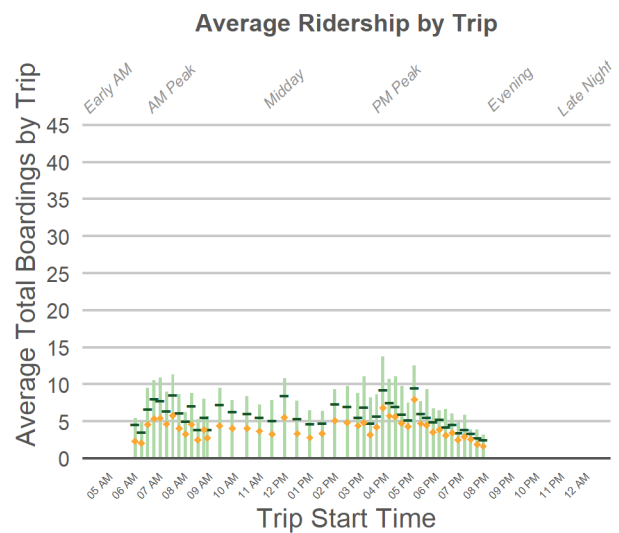
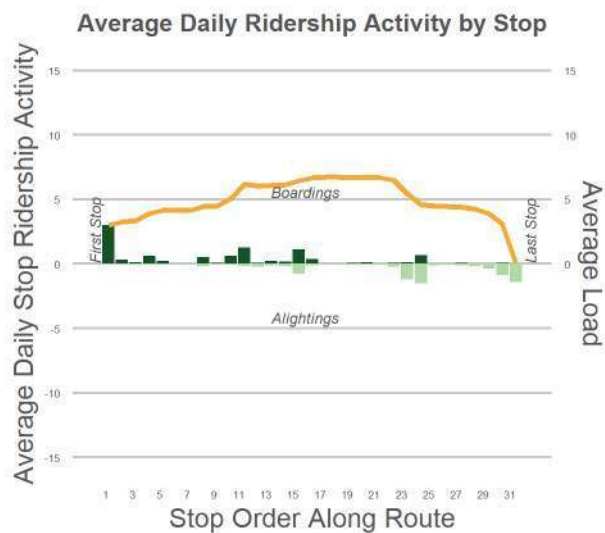
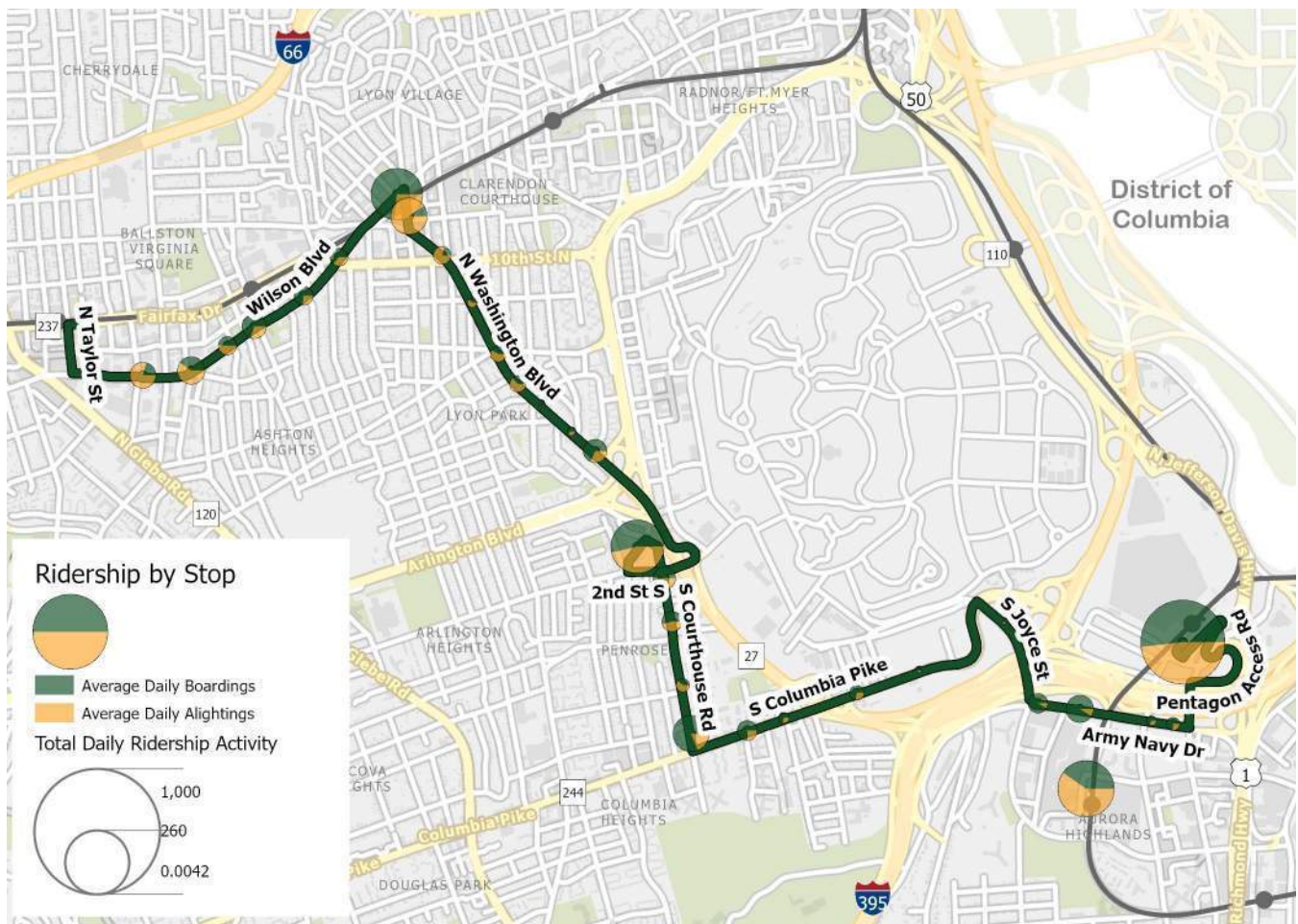
FINANCIAL PERFORMANCE	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY REVENUE	\$664	\$341	\$283
REVENUE/PASSENGER	\$1.16	\$1.16	\$1.16
REVENUE/TRIP	\$14.89	\$12.43	\$11.76
AVERAGE DAILY COST	\$6,124	\$3,250	\$2,848
COST/PASSENGER	\$10.67	\$11.02	\$11.65
COST/REVENUE MILE	\$12.01	\$11.23	\$11.23
COST/TRIP	\$137.39	\$118.44	\$118.44
SUBSIDY/PASSENGER	\$9.51	\$9.87	\$10.49
FAREBOX RECOVERY RATIO	11%	10%	10%

## Pandemic Impacts and Trends



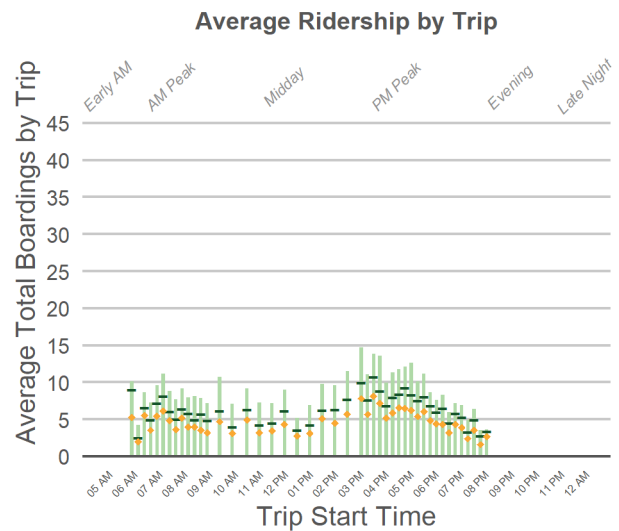
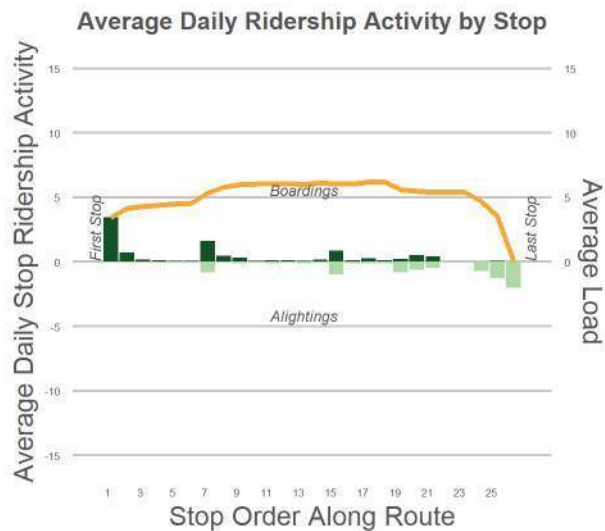
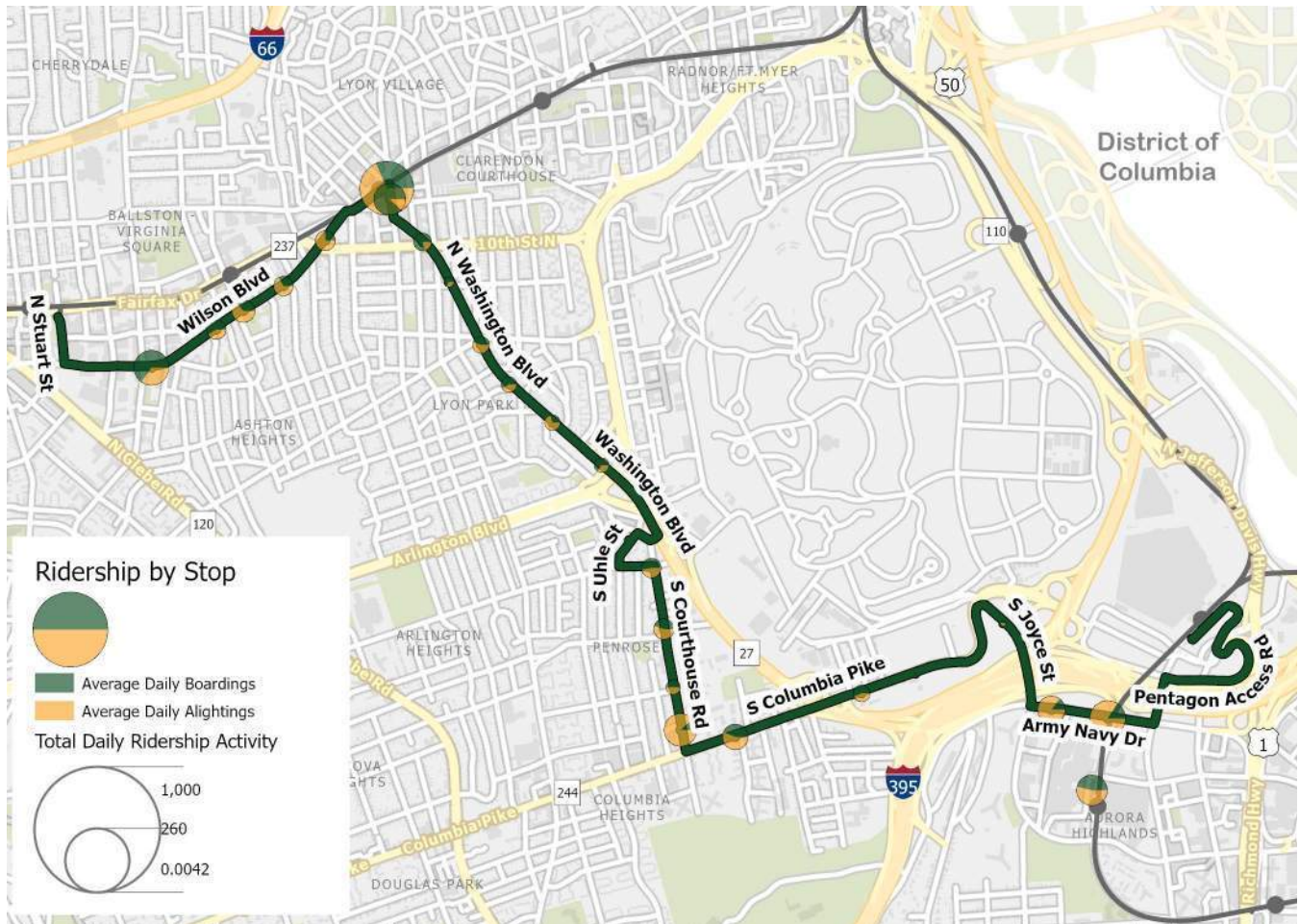
Note: "System Trend" line is percentages only, not actual metrics

## Ridership Analysis – Service to Ballston





## Ridership Analysis – Service to Pentagon, Pentagon City



# 43

## Crystal City/Rosslyn/Courthouse (M-Th)

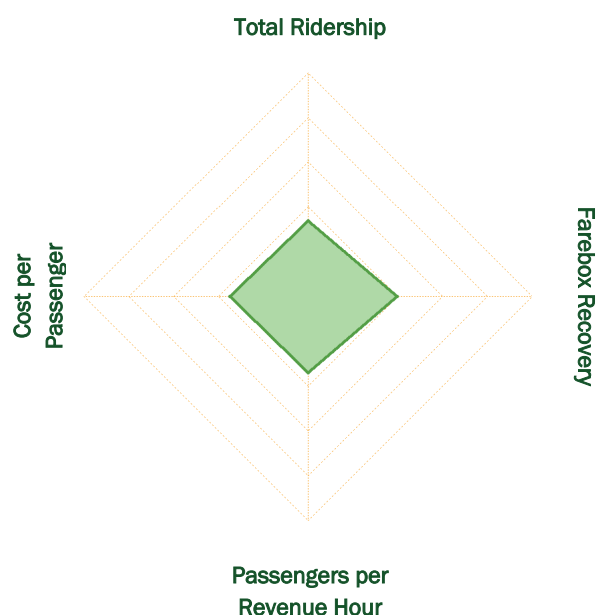
### SECONDARY

**MAJOR GENERATORS:** Courthouse Metro, Crystal City Metro, Crystal City VRE, Rosslyn Metro

**LAND USE:** Employment Centers, Mixed-Use, Retail, Transit Centers

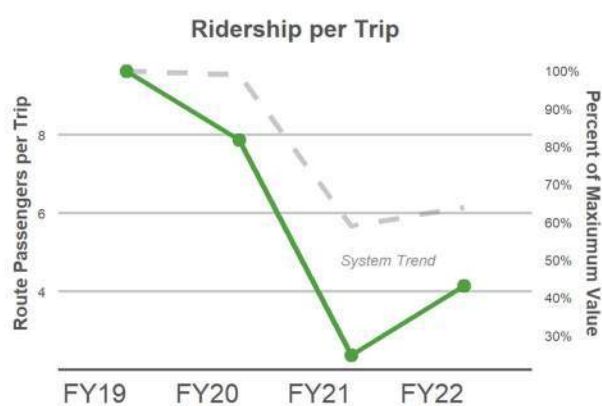
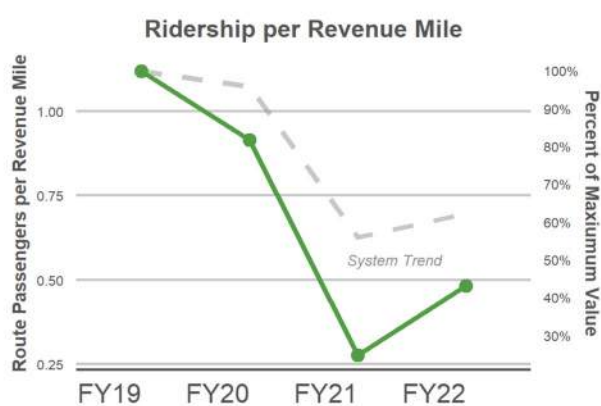
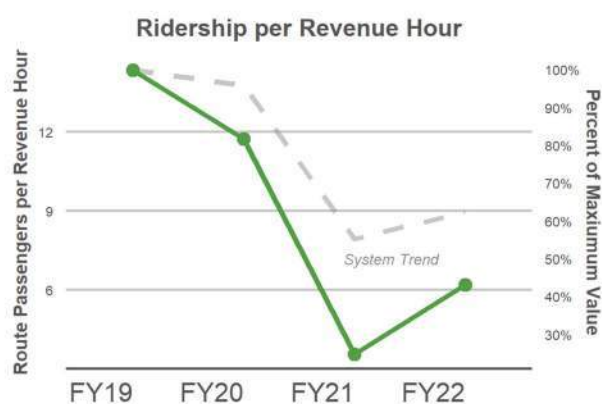
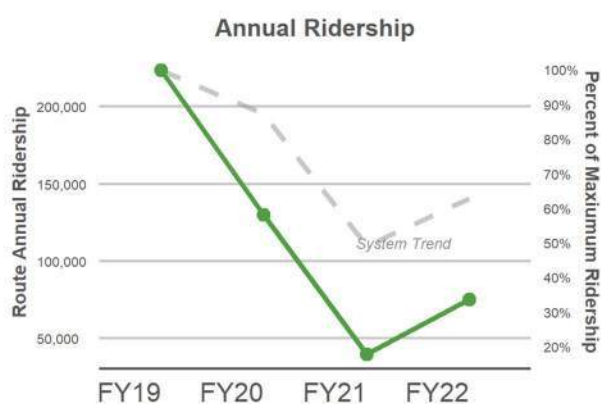


CHARACTERISTICS	WEEKDAY	SATURDAY	SUNDAY
SPAN OF SERVICE	6:02am-10:51pm		
PEAK FREQUENCY	9		
BASE FREQUENCY	15		
OPERATING STATISTICS	WEEKDAY	SATURDAY	SUNDAY
ONE-WAY TRIPS	72	0	0
REVENUE HOURS	48	0	0
REVENUE MILES	618	0	0
SERVICE PRODUCTIVITY	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY PASSENGERS	299	0	0
PASSENGERS/REVENUE HOUR	6.2	0.0	0.0
PASSENGERS/REVENUE MILE	0.5	0.0	0.0
PASSENGERS/ONE-WAY TRIP	4.2	0.0	0.0



FINANCIAL PERFORMANCE	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY REVENUE	\$345	\$0	\$0
REVENUE/PASSENGER	\$1.16	\$0.00	\$0.00
REVENUE/TRIP	\$4.80	\$0.00	\$0.00
AVERAGE DAILY COST	\$5,706	\$0	\$0
COST/PASSENGER	\$19.10	\$0.00	\$0.00
COST/REVENUE MILE	\$9.23	\$0.00	\$0.00
COST/TRIP	\$79.36	\$0.00	\$0.00
SUBSIDY/PASSENGER	\$17.95	\$0.00	\$0.00
FAREBOX RECOVERY RATIO	6%	0%	0%

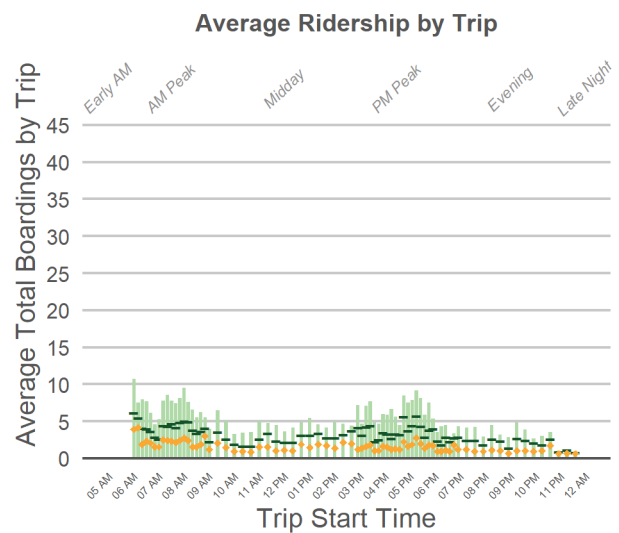
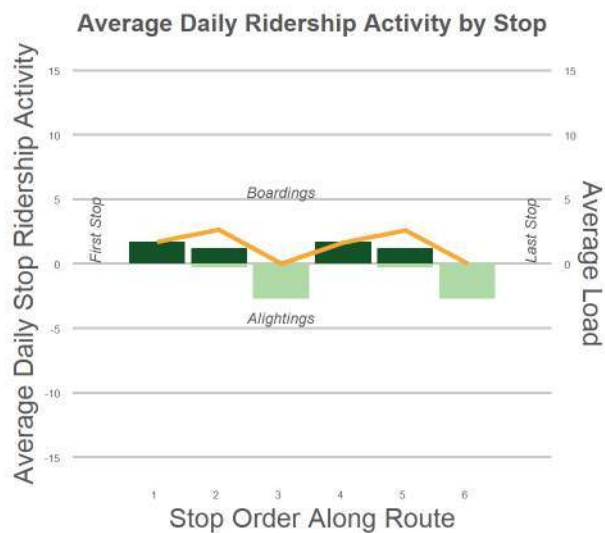
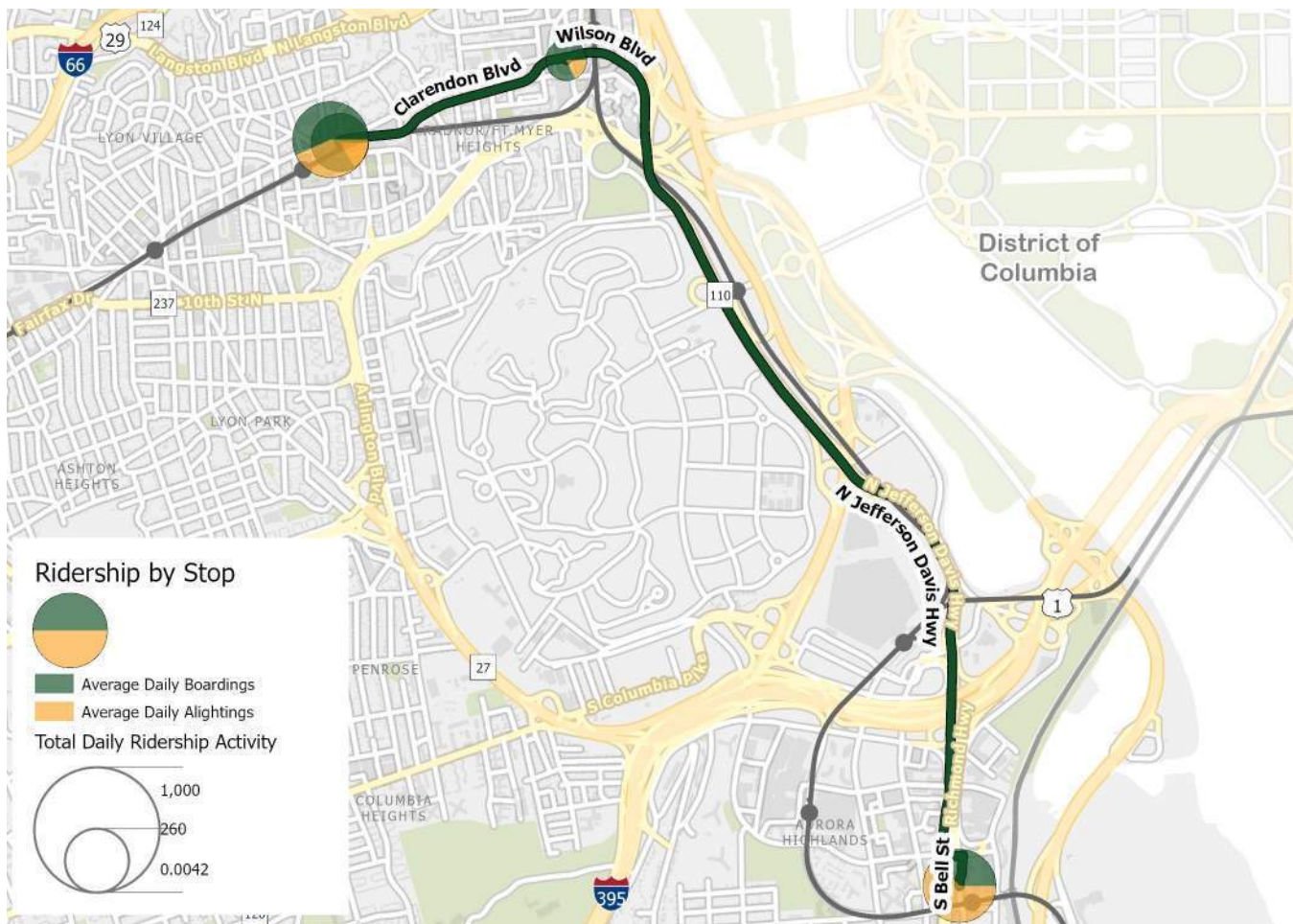
## Pandemic Impacts and Trends



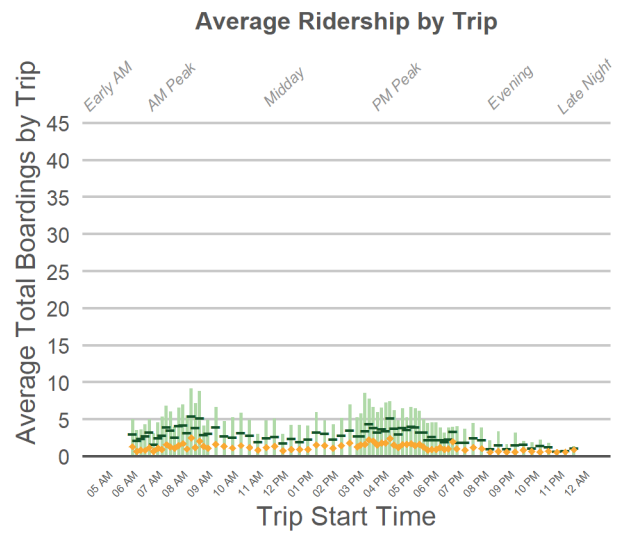
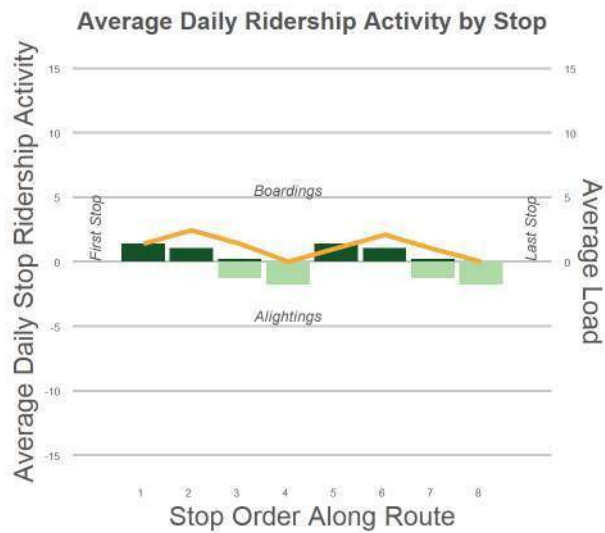
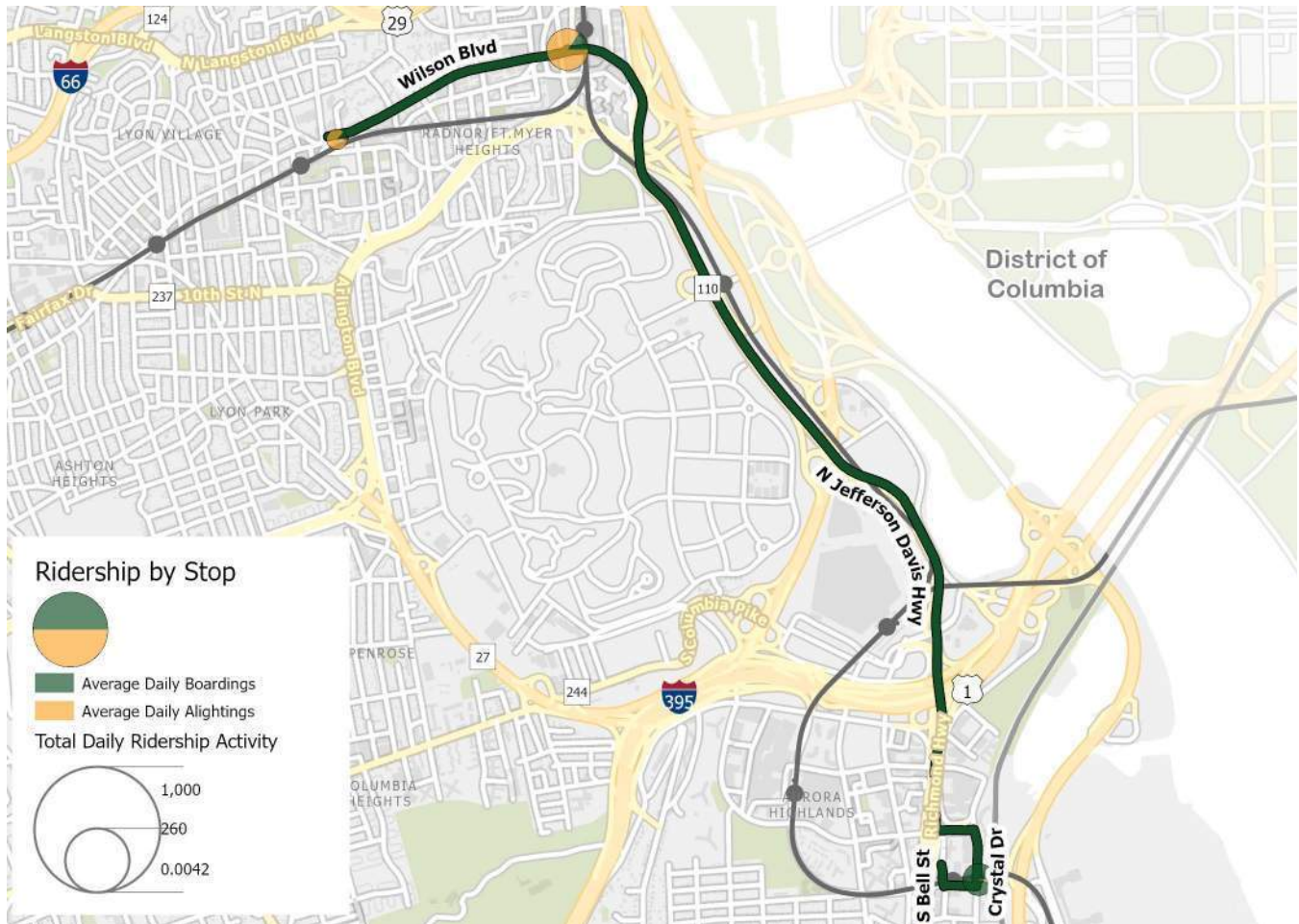
Note: "System Trend" line is percentages only, not actual metrics



## Ridership Analysis – Service to Crystal City



## Ridership Analysis – Service to Court House





# 45

## Columbia Pike/Rosslyn

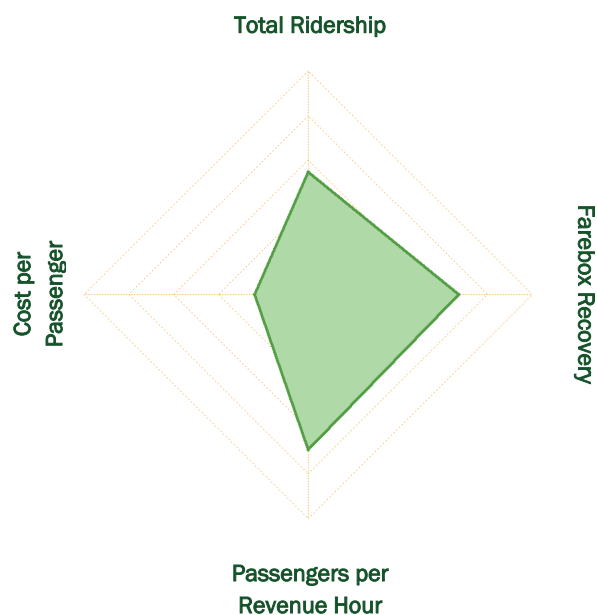
### SECONDARY

**MAJOR GENERATORS:** Arlington County Department of Human Services, Columbia Pike, Courthouse Metro, Rosslyn Metro, Sequoia Plaza



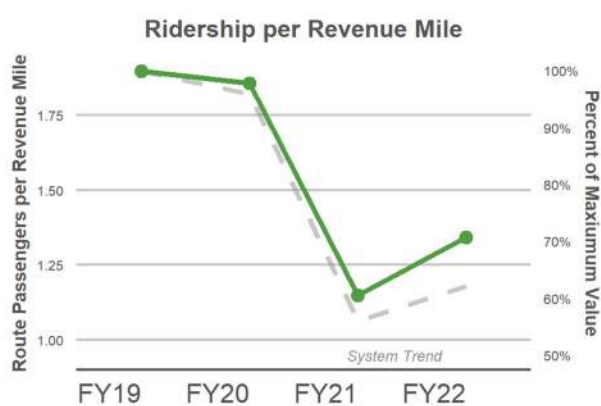
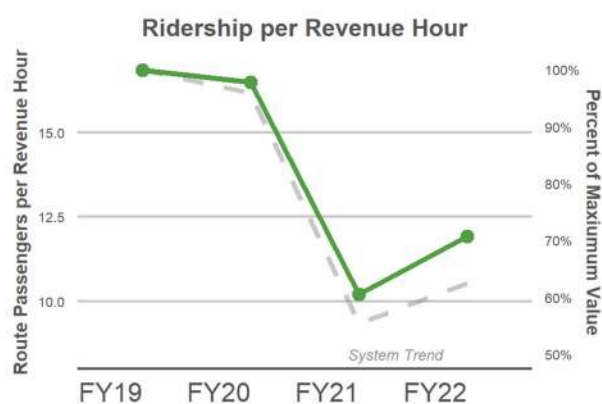
**LAND USE:** County Services, Employment Centers, Mixed-Use, Retail, Transit Centers, Transit Corridor

CHARACTERISTICS	WEEKDAY	SATURDAY	SUNDAY
SPAN OF SERVICE	5:38am-11:40pm	7:23am-12:21pm	6:50am-12:41am
PEAK FREQUENCY	25	30	30
BASE FREQUENCY	35	30	30
OPERATING STATISTICS	WEEKDAY	SATURDAY	SUNDAY
ONE-WAY TRIPS	39	31	31
REVENUE HOURS	58	47	47
REVENUE MILES	515	419	419
SERVICE PRODUCTIVITY	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY PASSENGERS	733	494	439
PASSENGERS/REVENUE HOUR	12.7	10.5	9.3
PASSENGERS/REVENUE MILE	1.4	1.2	1.0
PASSENGERS/ONE-WAY TRIP	19.0	15.7	14.0



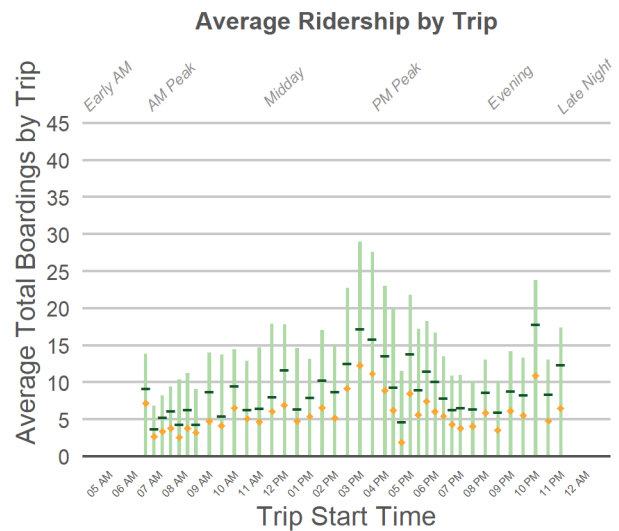
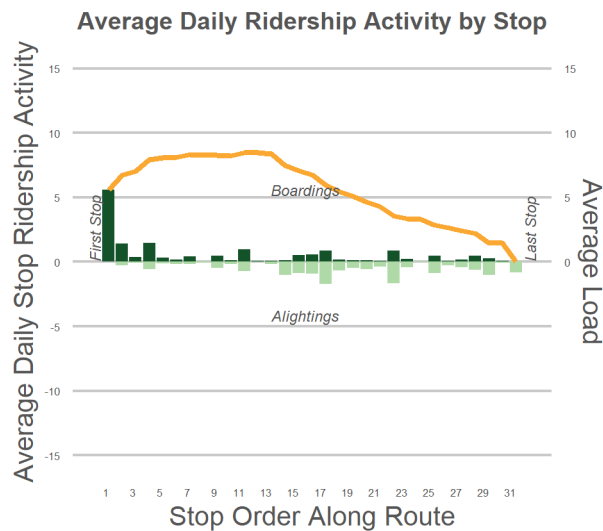
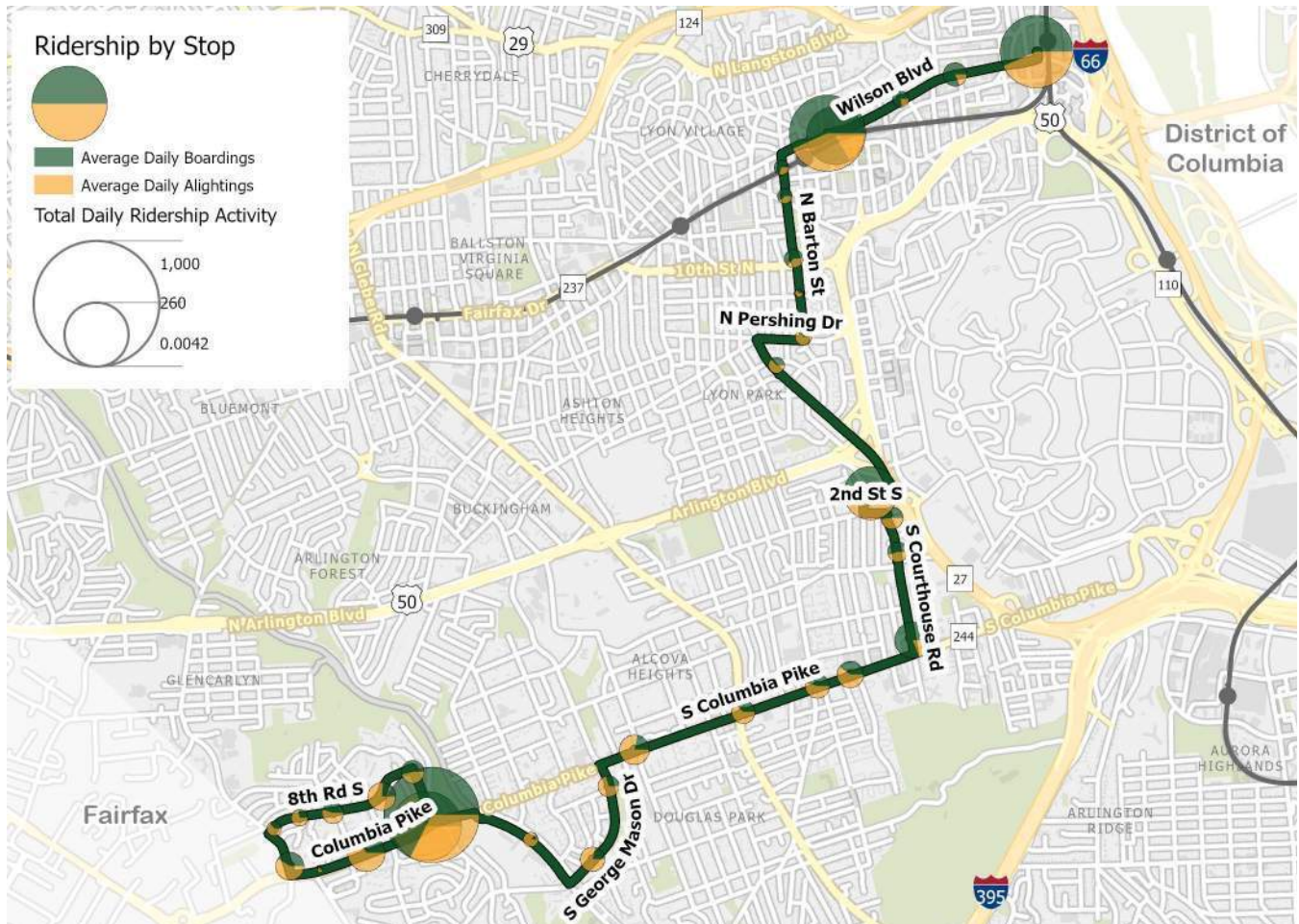
FINANCIAL PERFORMANCE	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY REVENUE	\$848	\$571	\$508
REVENUE/PASSENGER	\$1.16	\$1.16	\$1.16
REVENUE/TRIP	\$21.95	\$18.13	\$16.16
AVERAGE DAILY COST	\$6,866	\$5,595	\$5,586
COST/PASSENGER	\$9.36	\$11.33	\$12.72
COST/REVENUE MILE	\$13.34	\$13.34	\$13.34
COST/TRIP	\$177.66	\$177.66	\$177.66
SUBSIDY/PASSENGER	\$8.20	\$10.17	\$11.56
FAREBOX RECOVERY RATIO	12%	10%	10%

## Pandemic Impacts and Trends



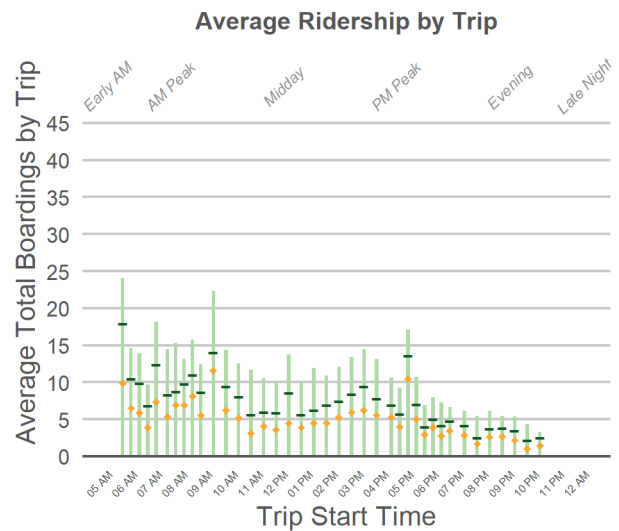
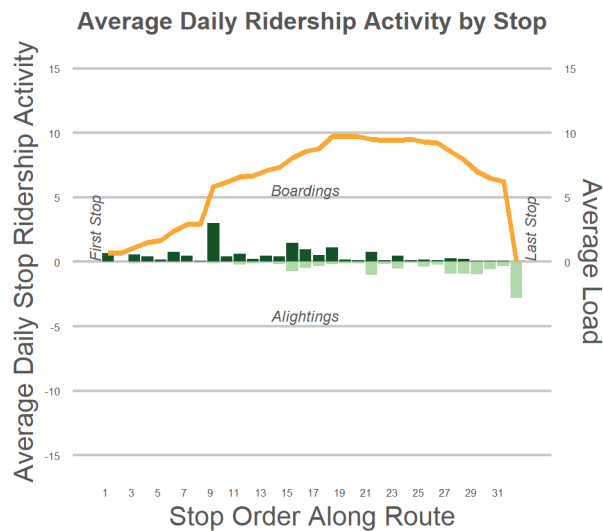
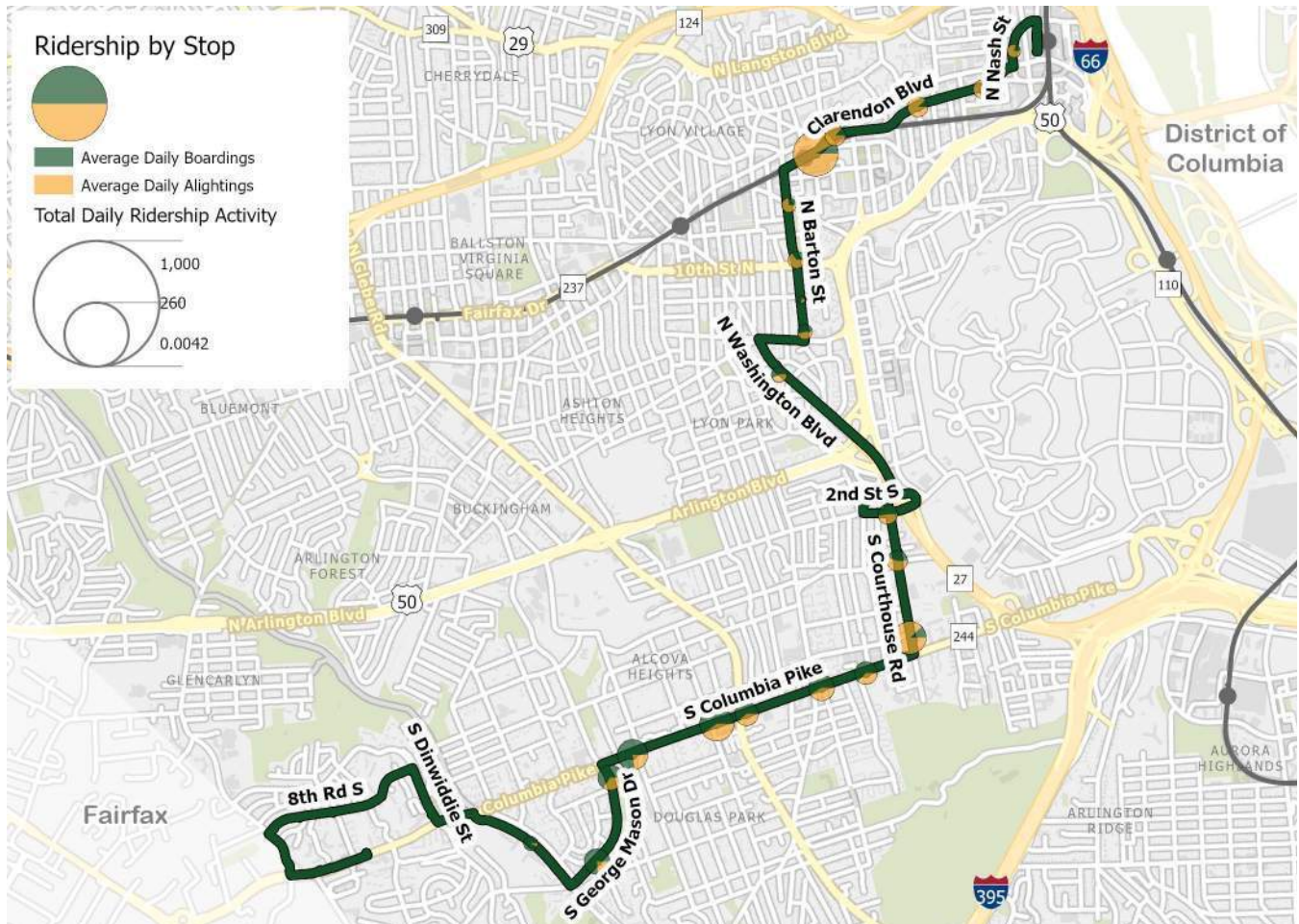
Note: "System Trend" line is percentages only, not actual metrics

## Ridership Analysis – Service to Arlington Mill





## Ridership Analysis – Service to Rosslyn



# 51

## Virginia Hospital Center/Ballston

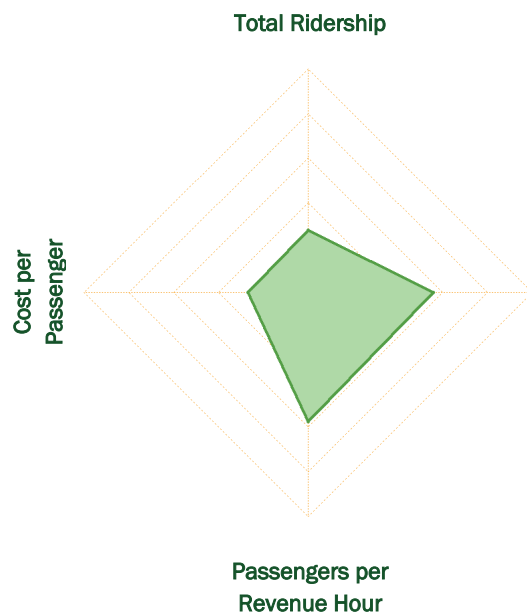
SECONDARY

MAJOR GENERATORS: Ballston Metro, Virginia Hospital Center

LAND USE: Medical, Mixed-Use, Transit Center



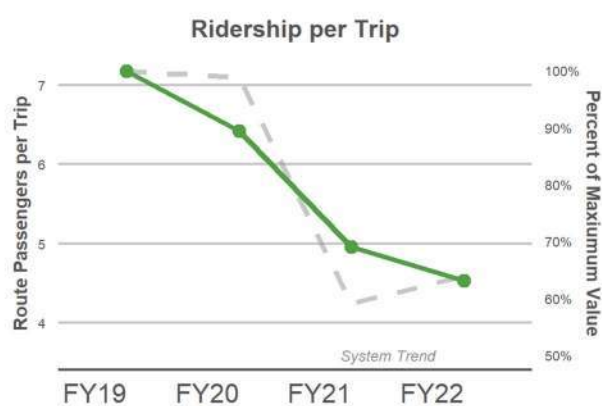
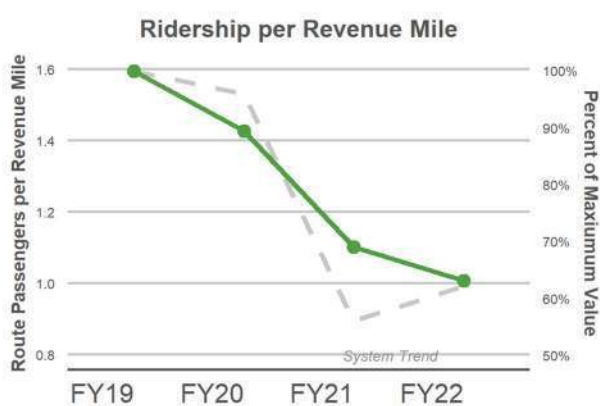
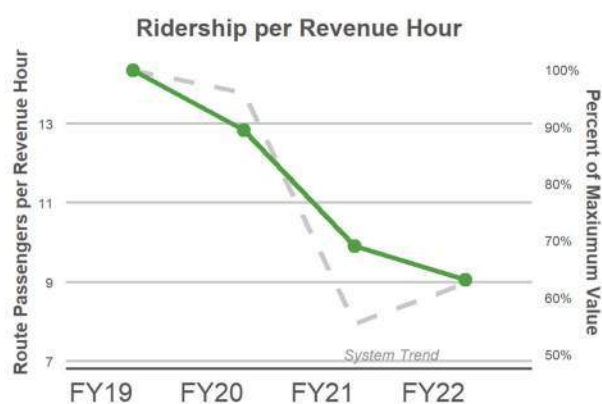
CHARACTERISTICS	WEEKDAY	SATURDAY	SUNDAY
SPAN OF SERVICE	6:05am-12:30am	6:05am-12:13am	6:45am-10:34pm
PEAK FREQUENCY	30	30	30
BASE FREQUENCY	30	30	30
OPERATING STATISTICS	WEEKDAY	SATURDAY	SUNDAY
ONE-WAY TRIPS	36	37	31
REVENUE HOURS	18	18	15
REVENUE MILES	161	165	139
SERVICE PRODUCTIVITY	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY PASSENGERS	179	141	91
PASSENGERS/REVENUE HOUR	10.0	7.7	5.9
PASSENGERS/REVENUE MILE	1.1	0.9	0.7
PASSENGERS/ONE-WAY TRIP	5.0	3.8	2.9





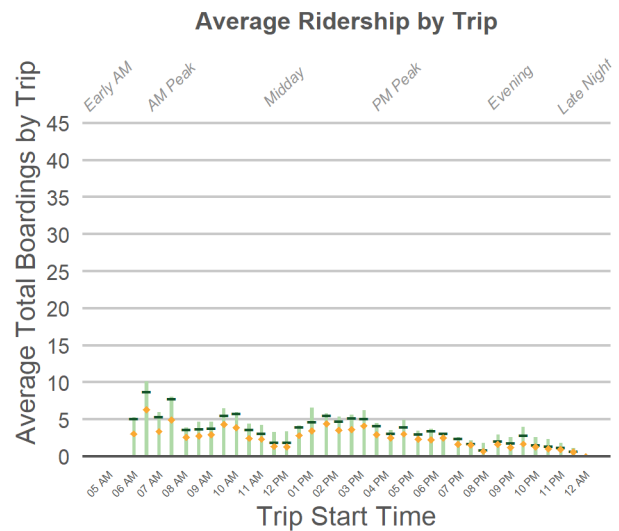
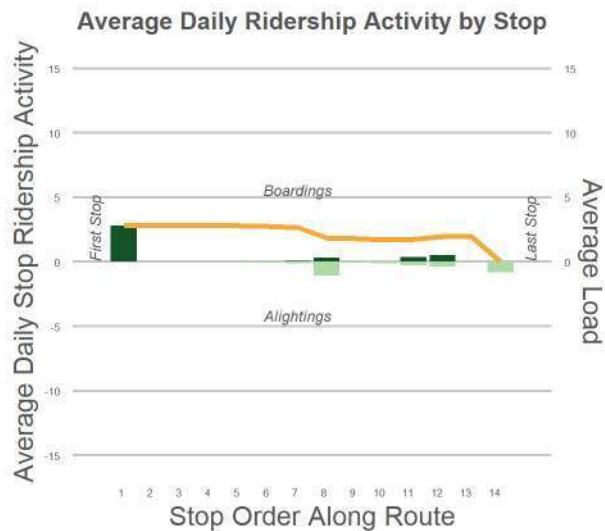
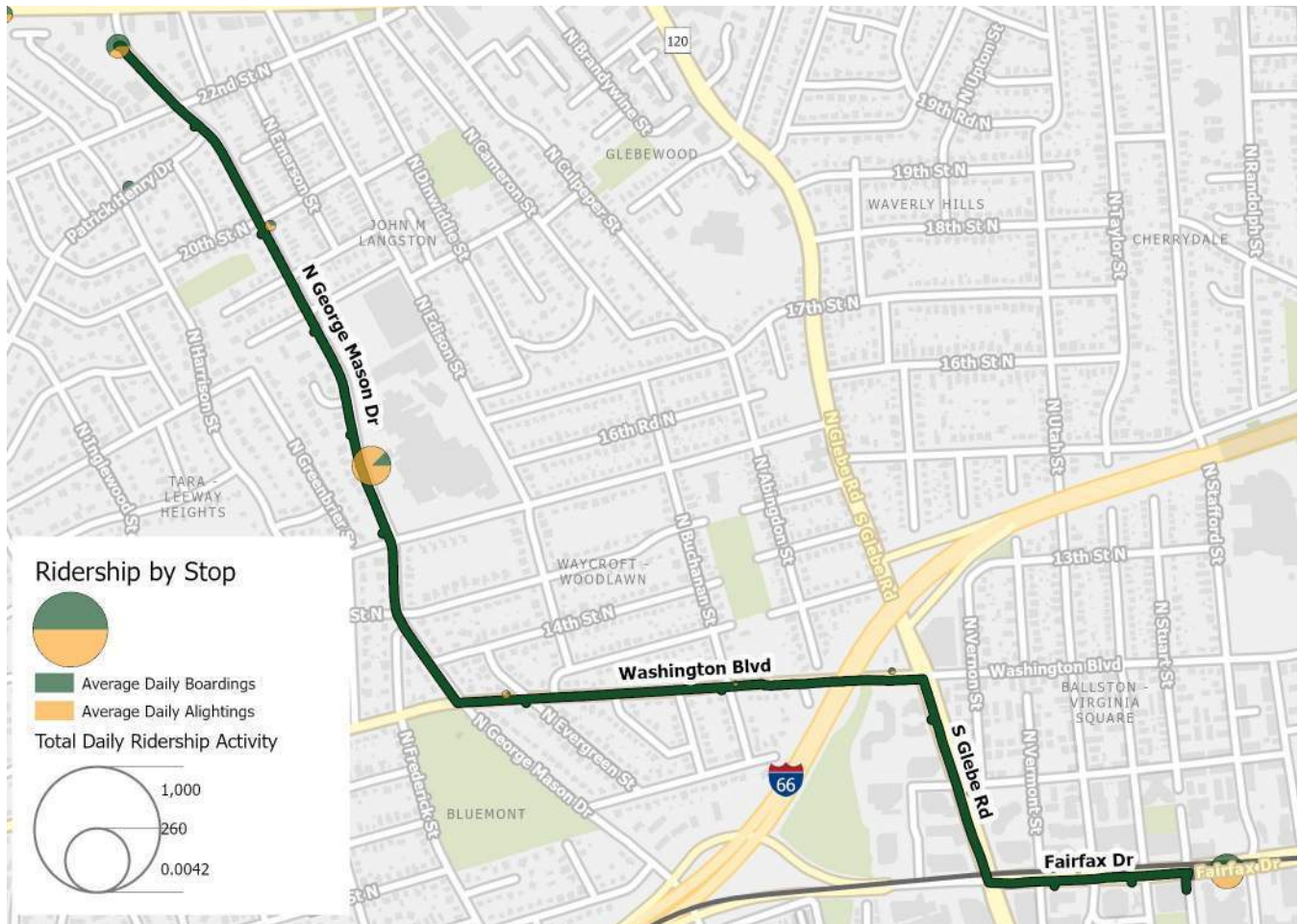
FINANCIAL PERFORMANCE	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY REVENUE	\$206	\$163	\$105
REVENUE/PASSENGER	\$1.16	\$1.16	\$1.16
REVENUE/TRIP	\$5.78	\$4.45	\$3.39
AVERAGE DAILY COST	\$2,114	\$2,166	\$1,833
COST/PASSENGER	\$11.84	\$15.40	\$20.22
COST/REVENUE MILE	\$13.16	\$13.16	\$13.16
COST/TRIP	\$59.22	\$59.22	\$59.22
SUBSIDY/PASSENGER	\$10.68	\$14.25	\$19.06
FAREBOX RECOVERY RATIO	10%	8%	8%

## Pandemic Impacts and Trends

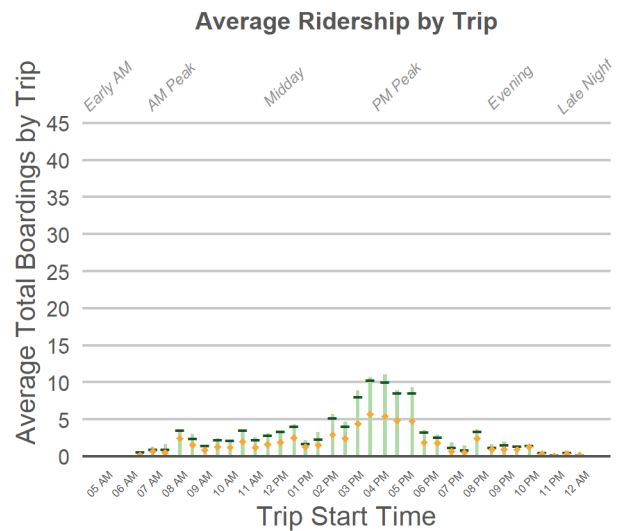
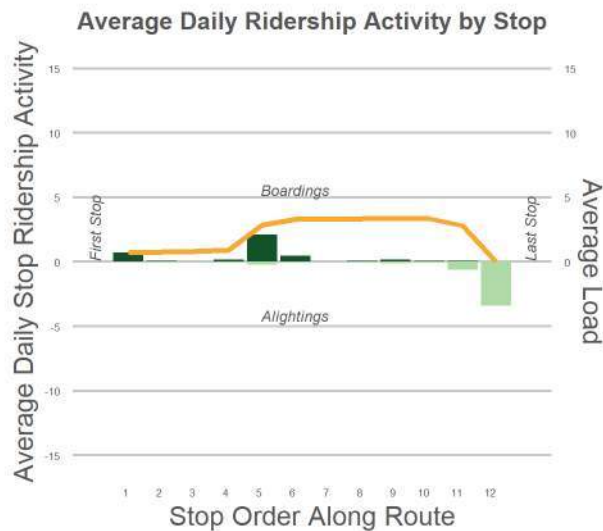
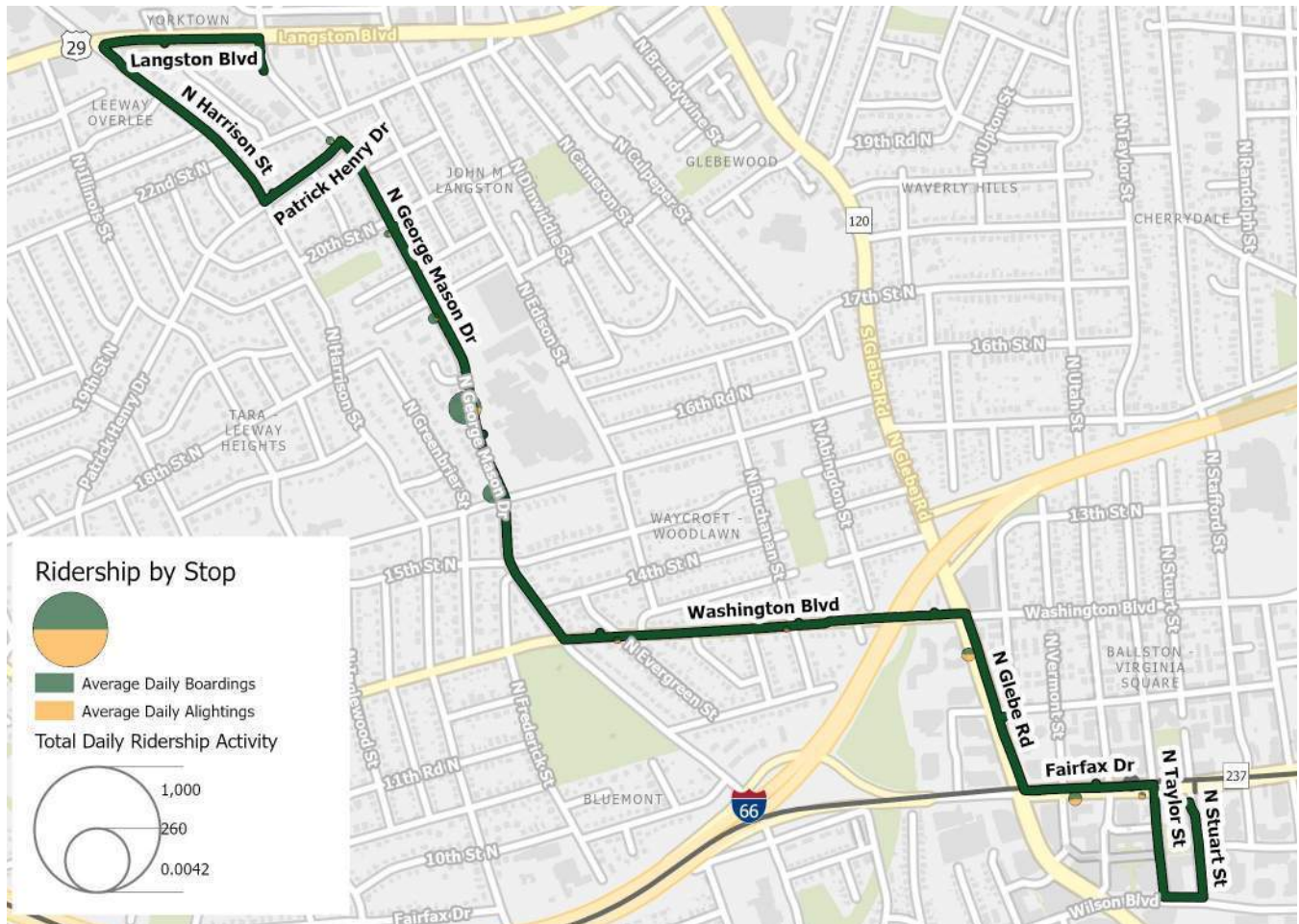


Note: "System Trend" line is percentages only, not actual metrics

## Ridership Analysis – Service to Ballston



## Ridership Analysis – Service to Lee Highway





# 52

## Virginia Hospital Center/Ballston/East Falls Church

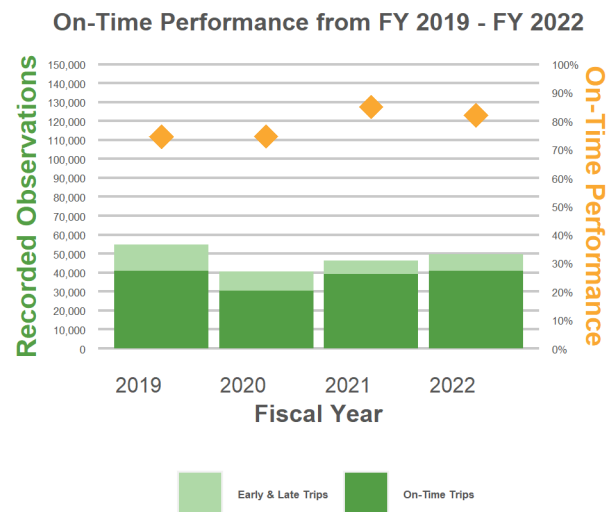
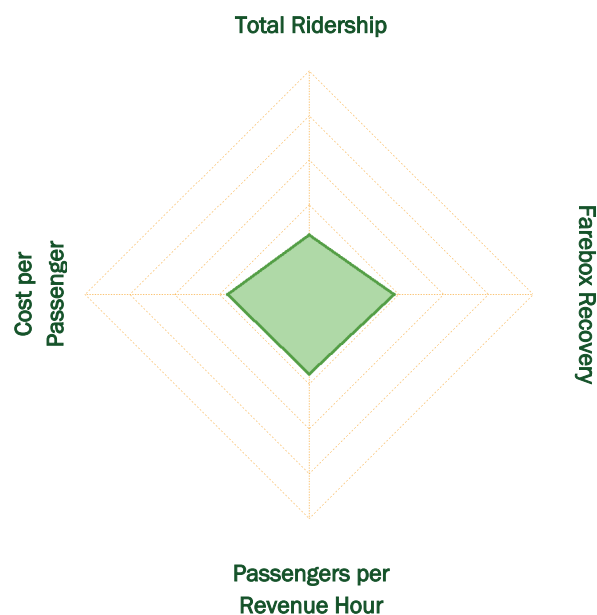
### SECONDARY

**MAJOR GENERATORS:** Ballston Metro, East Falls Church Metro, Virginia Hospital Center, Washington-Liberty High School, Yorktown High School

**LAND USE:** Educational, Medical, Mixed-Use, Transit Center

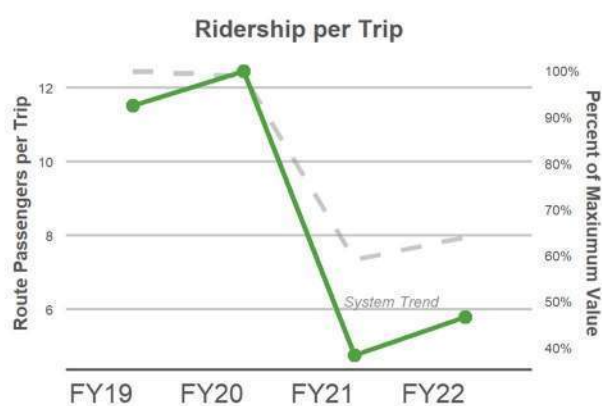
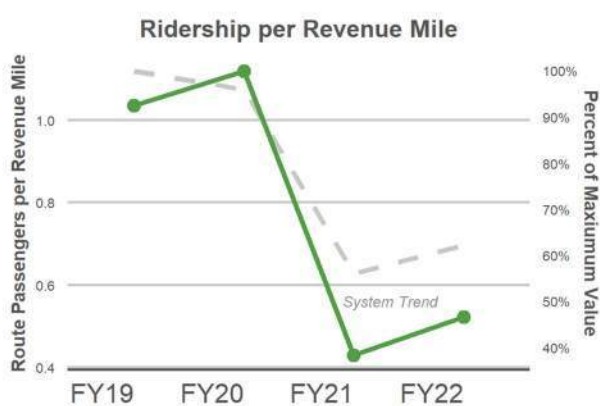
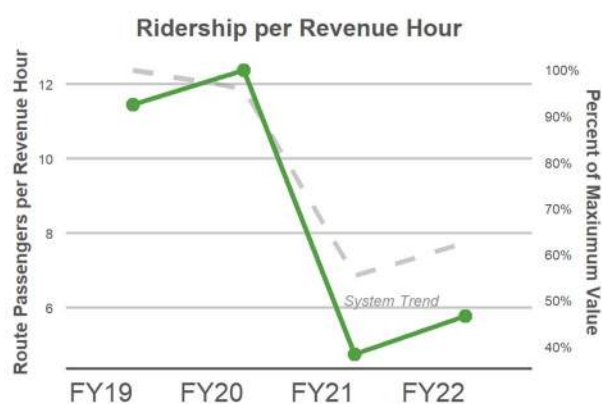
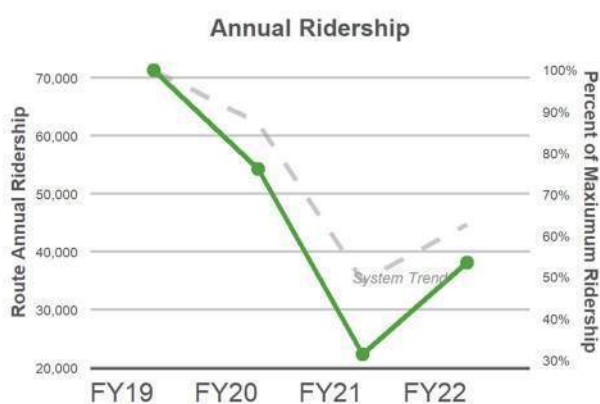


CHARACTERISTICS	WEEKDAY	SATURDAY	SUNDAY
SPAN OF SERVICE	5:51am-9:29pm		
PEAK FREQUENCY	25		
BASE FREQUENCY	35		
OPERATING STATISTICS	WEEKDAY	SATURDAY	SUNDAY
ONE-WAY TRIPS	26	0	0
REVENUE HOURS	26	0	0
REVENUE MILES	290	0	0
SERVICE PRODUCTIVITY	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY PASSENGERS	151	0	0
PASSENGERS/REVENUE HOUR	5.8	0.0	0.0
PASSENGERS/REVENUE MILE	0.5	0.0	0.0
PASSENGERS/ONE-WAY TRIP	5.8	0.0	0.0



FINANCIAL PERFORMANCE	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY REVENUE	\$175	\$0	\$0
REVENUE/PASSENGER	\$1.16	\$0.00	\$0.00
REVENUE/TRIP	\$6.71	\$0.00	\$0.00
AVERAGE DAILY COST	\$3,101	\$0	\$0
COST/PASSENGER	\$20.49	\$0.00	\$0.00
COST/REVENUE MILE	\$10.70	\$0.00	\$0.00
COST/TRIP	\$118.83	\$0.00	\$0.00
SUBSIDY/PASSENGER	\$19.34	\$0.00	\$0.00
FAREBOX RECOVERY RATIO	6%	0%	0%

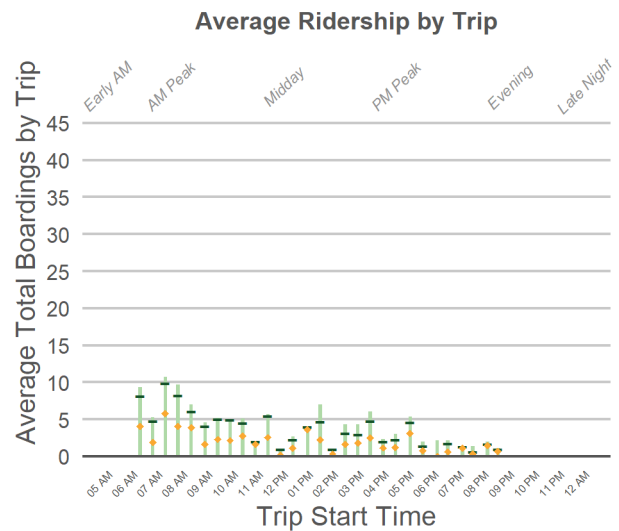
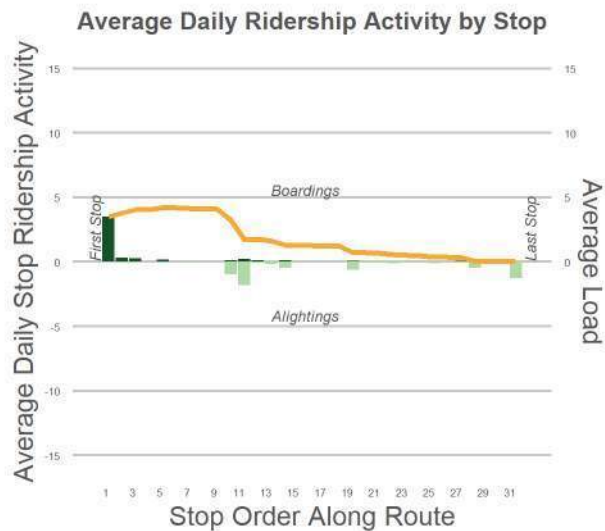
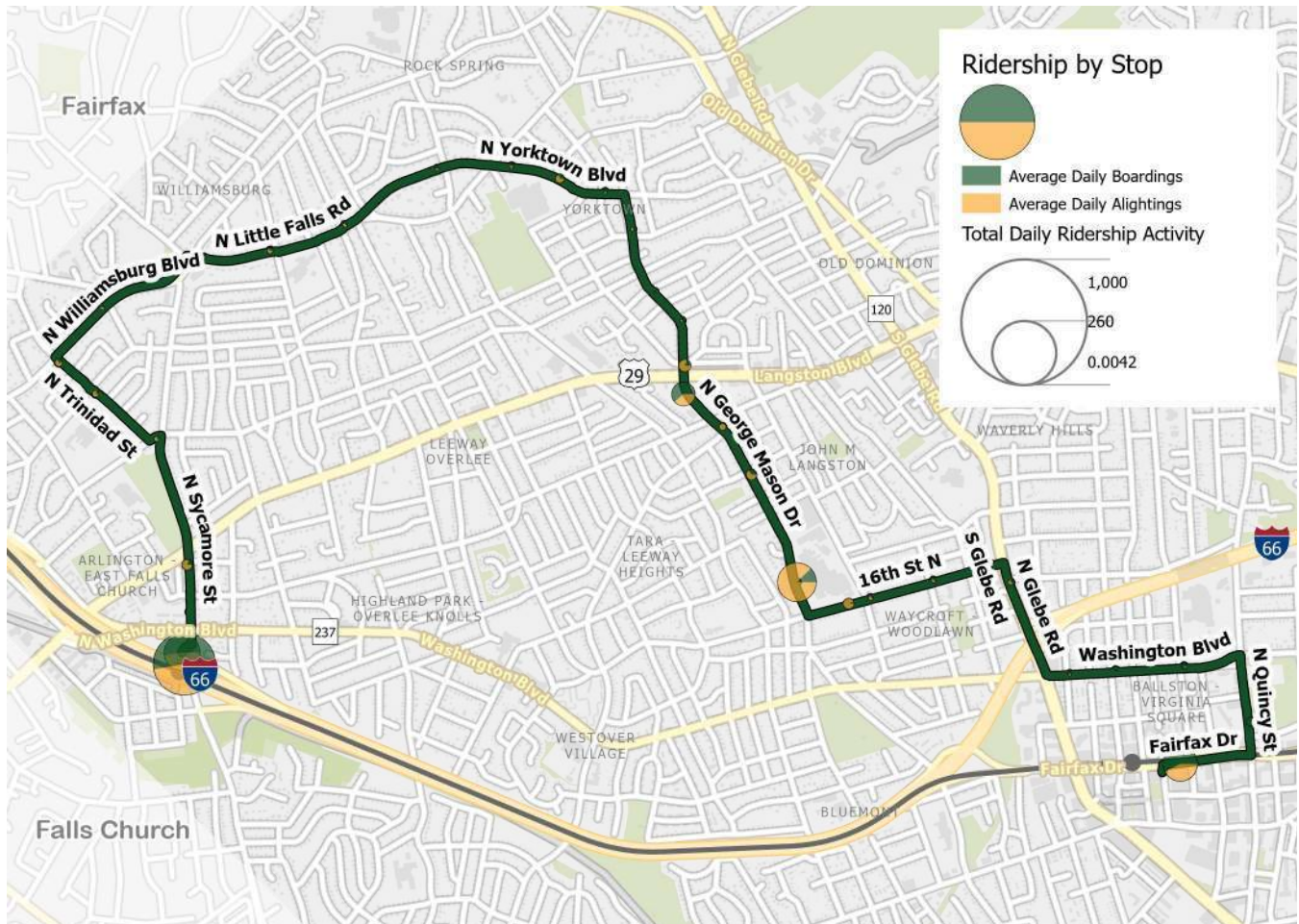
## Pandemic Impacts and Trends



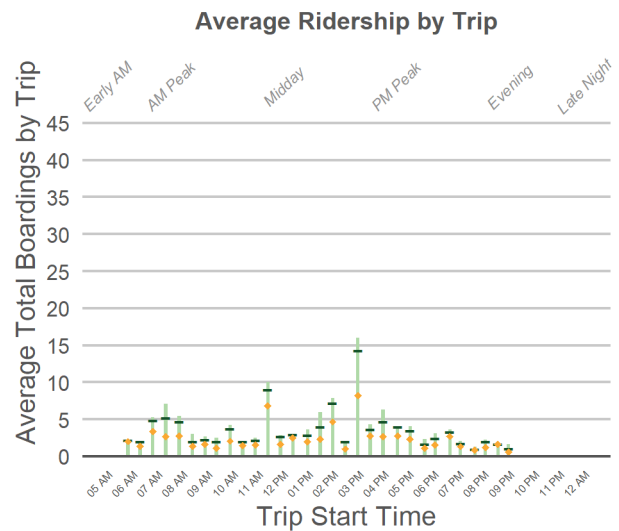
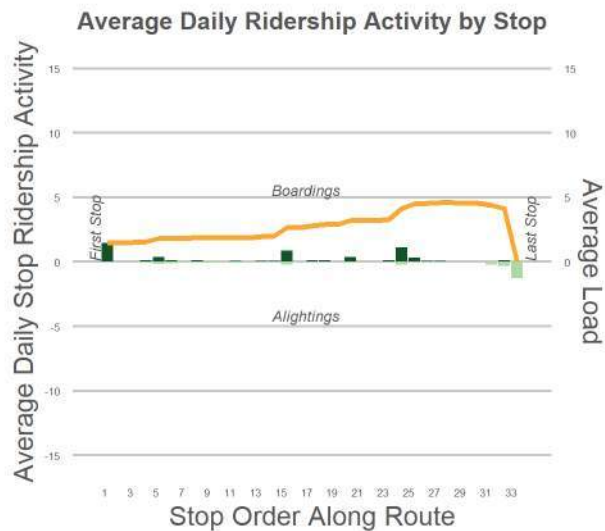
Note: "System Trend" line is percentages only, not actual metrics



## Ridership Analysis – Service to East Falls Church



## Ridership Analysis – Service to Ballston





# 53

## Glebe Road- Westover/Ballston/East Falls Church

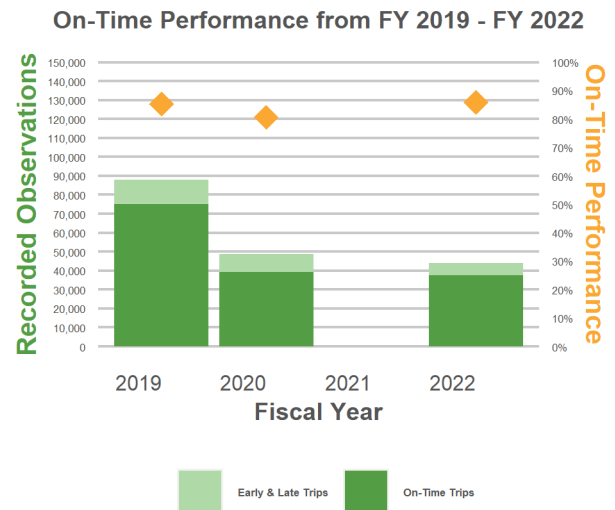
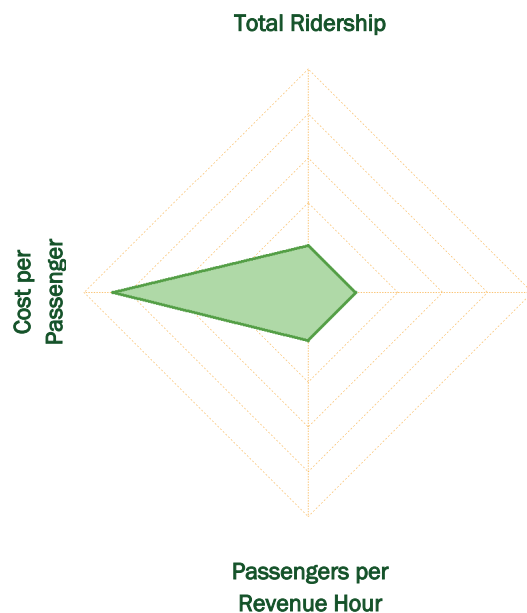
### SECONDARY

**MAJOR GENERATORS:** Ballston Metro, Ballston Quarter, East Falls Church Metro

**LAND USE:** Employment Centers, Mixed-Use, Transit Centers

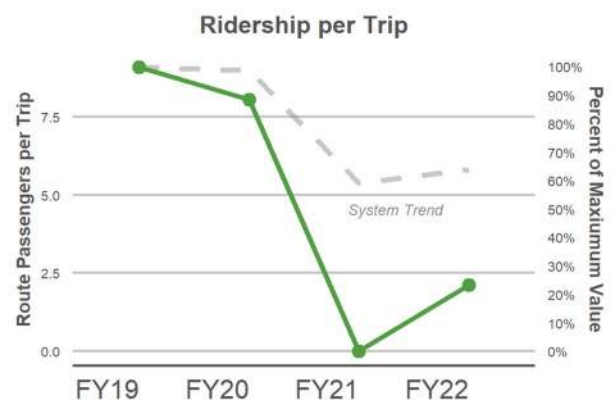
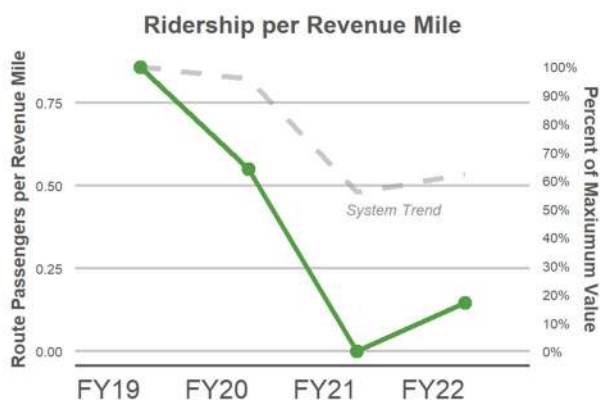
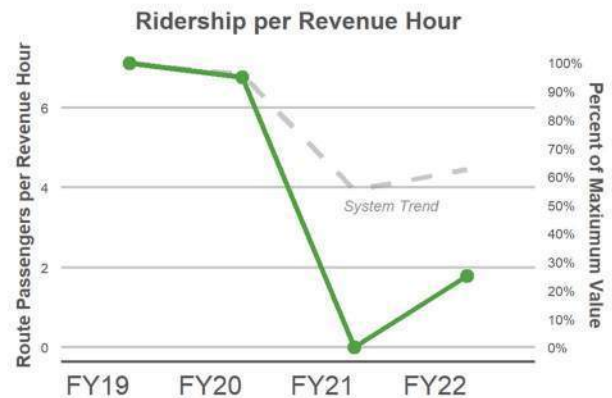


CHARACTERISTICS	WEEKDAY	SATURDAY	SUNDAY
SPAN OF SERVICE	6:00am-9:14am2:47pm-7:39pm		
PEAK FREQUENCY	30		
BASE FREQUENCY	70		
OPERATING STATISTICS	WEEKDAY	SATURDAY	SUNDAY
ONE-WAY TRIPS	16	0	0
REVENUE HOURS	19	0	0
REVENUE MILES	229	0	0
SERVICE PRODUCTIVITY	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY PASSENGERS	33	0	0
PASSENGERS/REVENUE HOUR	1.8	0.0	0.0
PASSENGERS/REVENUE MILE	0.1	0.0	0.0



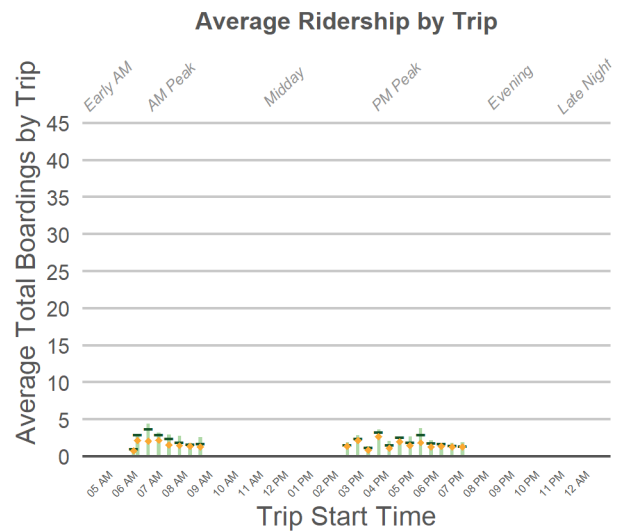
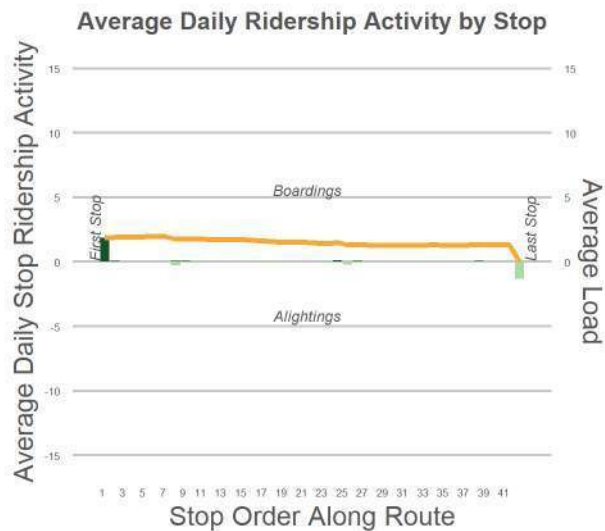
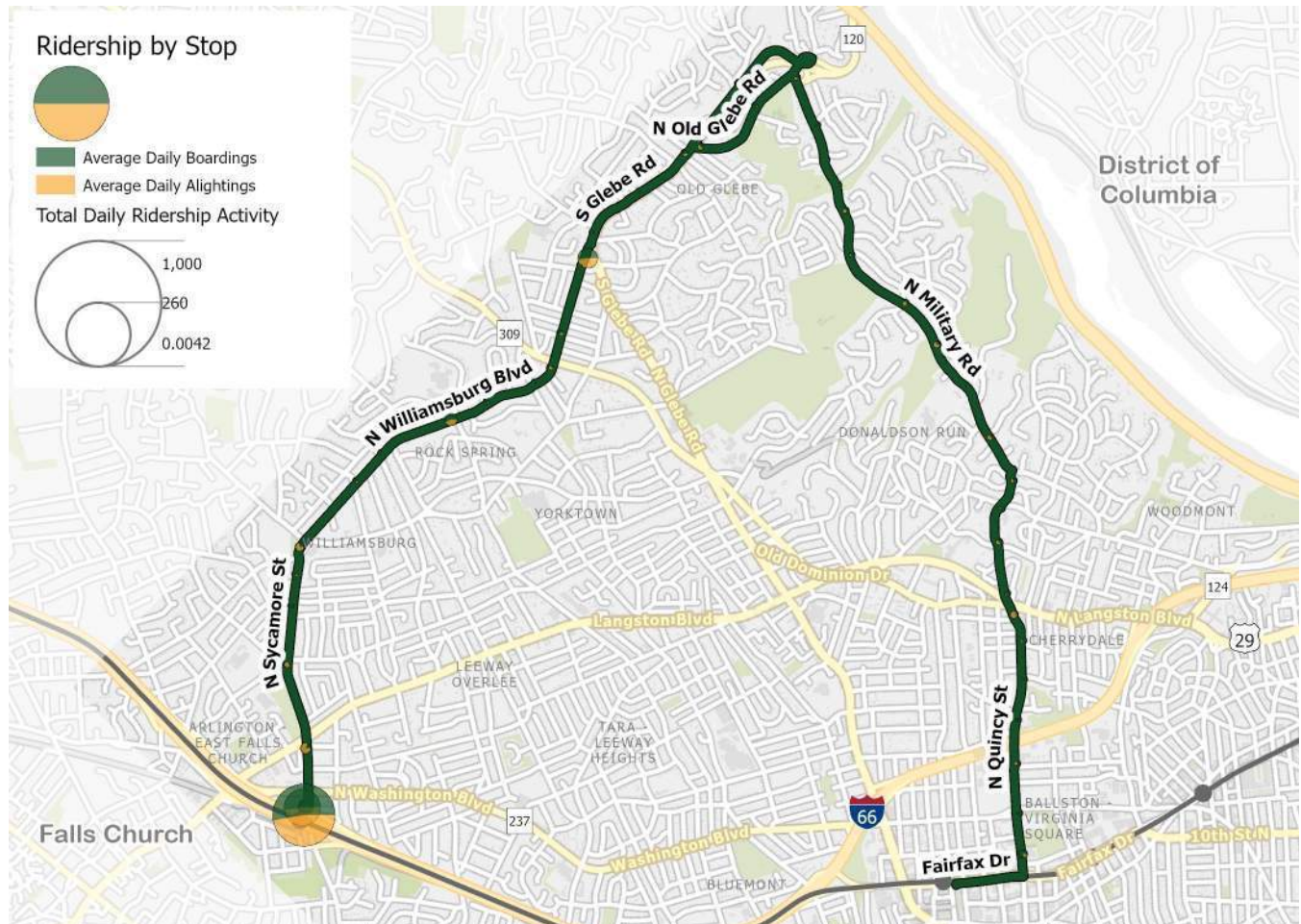
FINANCIAL PERFORMANCE	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY REVENUE	\$39	\$0	\$0
REVENUE/PASSENGER	\$1.16	\$0.00	\$0.00
REVENUE/TRIP	\$2.46	\$0.00	\$0.00
AVERAGE DAILY COST	\$2,202	\$0	\$0
COST/PASSENGER	\$66.03	\$0.00	\$0.00
COST/REVENUE MILE	\$9.63	\$0.00	\$0.00
COST/TRIP	\$140.66	\$0.00	\$0.00
SUBSIDY/PASSENGER	\$64.87	\$0.00	\$0.00
FAREBOX RECOVERY RATIO	2%	0%	0%

## Pandemic Impacts and Trends



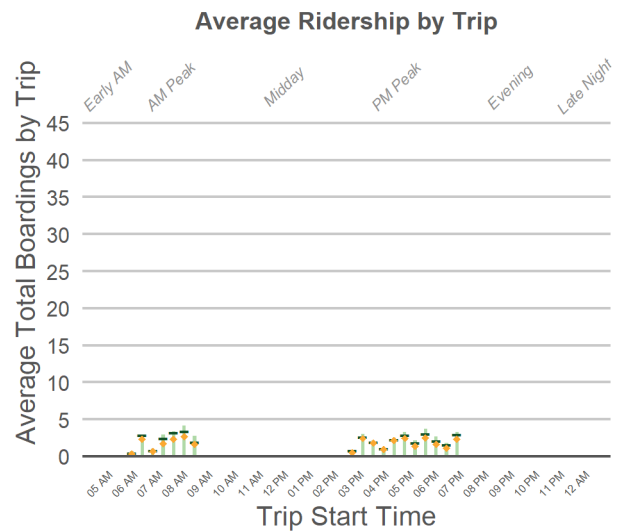
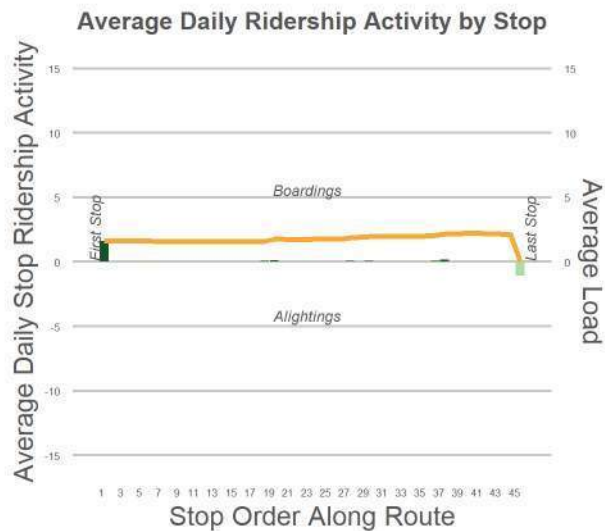
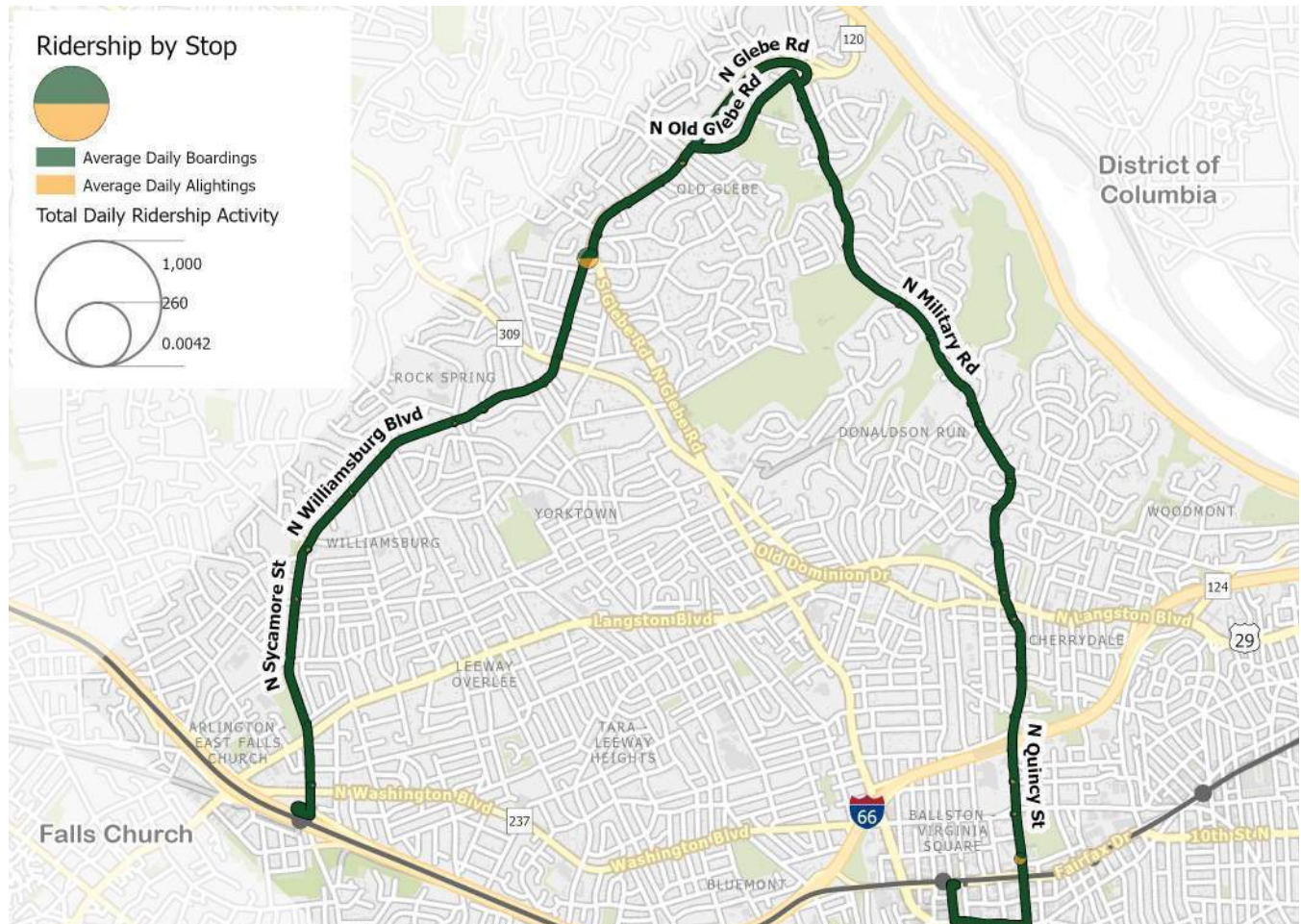
Note: "System Trend" line is percentages only, not actual metrics

## Ridership Analysis – Service to East Falls Church





## Ridership Analysis – Service to Ballston



# 55

## Lee Highway/E. Falls Church/Rosslyn

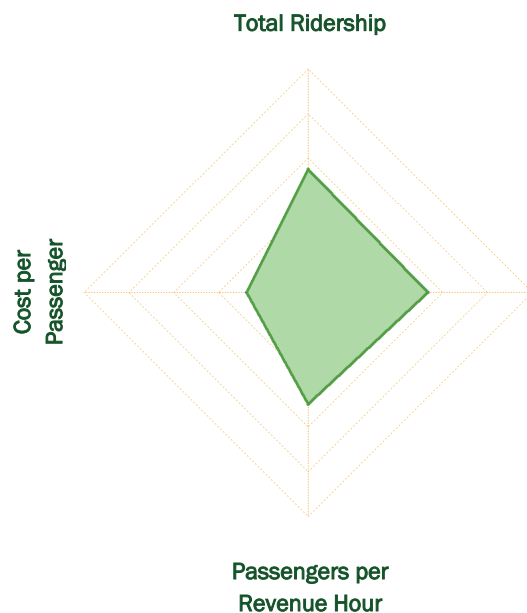
### PRIMARY

MAJOR GENERATORS: East Falls Church Metro, Rosslyn Metro



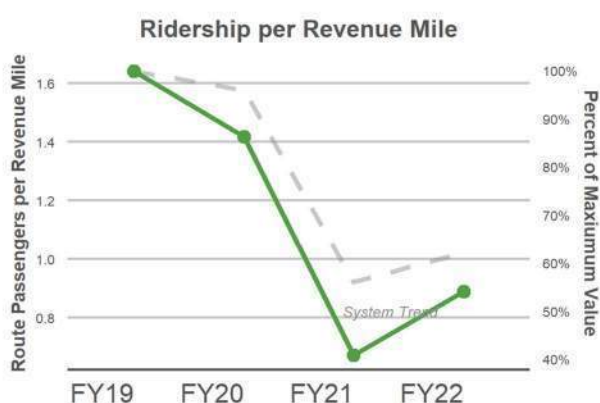
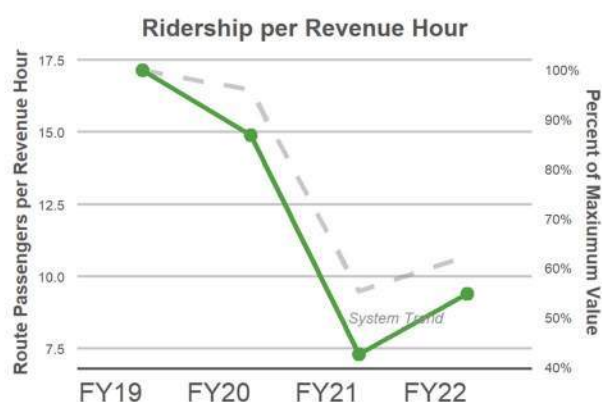
LAND USE: Employment Centers, Mixed Use, Transit Centers, Transit Corridor

CHARACTERISTICS	WEEKDAY	SATURDAY	SUNDAY
SPAN OF SERVICE	5:00am-1:39am	5:45am-1:15am	6:20am-12:17am
PEAK FREQUENCY	12	20	30
BASE FREQUENCY	60	30	30
OPERATING STATISTICS	WEEKDAY	SATURDAY	SUNDAY
ONE-WAY TRIPS	74	53	34
REVENUE HOURS	78	53	34
REVENUE MILES	821	582	379
SERVICE PRODUCTIVITY	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY PASSENGERS	740	488	318
PASSENGERS/REVENUE HOUR	9.5	9.2	9.2
PASSENGERS/REVENUE MILE	0.9	0.8	0.8
PASSENGERS/ONE-WAY TRIP	9.9	9.2	9.2



FINANCIAL PERFORMANCE	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY REVENUE	\$856	\$564	\$367
REVENUE/PASSENGER	\$1.16	\$1.16	\$1.16
REVENUE/TRIP	\$11.50	\$10.68	\$10.69
AVERAGE DAILY COST	\$9,274	\$6,253	\$4,068
COST/PASSENGER	\$12.53	\$12.82	\$12.81
COST/REVENUE MILE	\$11.29	\$10.74	\$10.74
COST/TRIP	\$124.56	\$118.44	\$118.44
SUBSIDY/PASSENGER	\$11.37	\$11.67	\$11.66
FAREBOX RECOVERY RATIO	9%	9%	9%

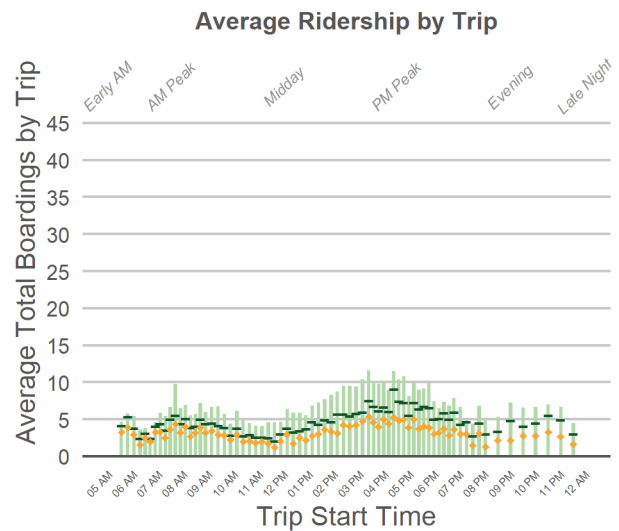
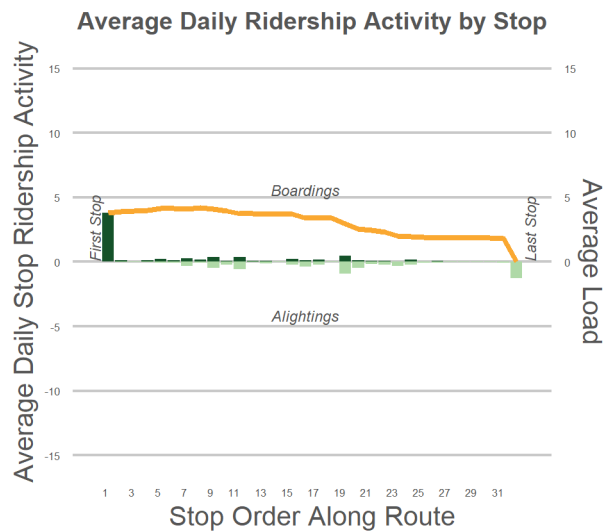
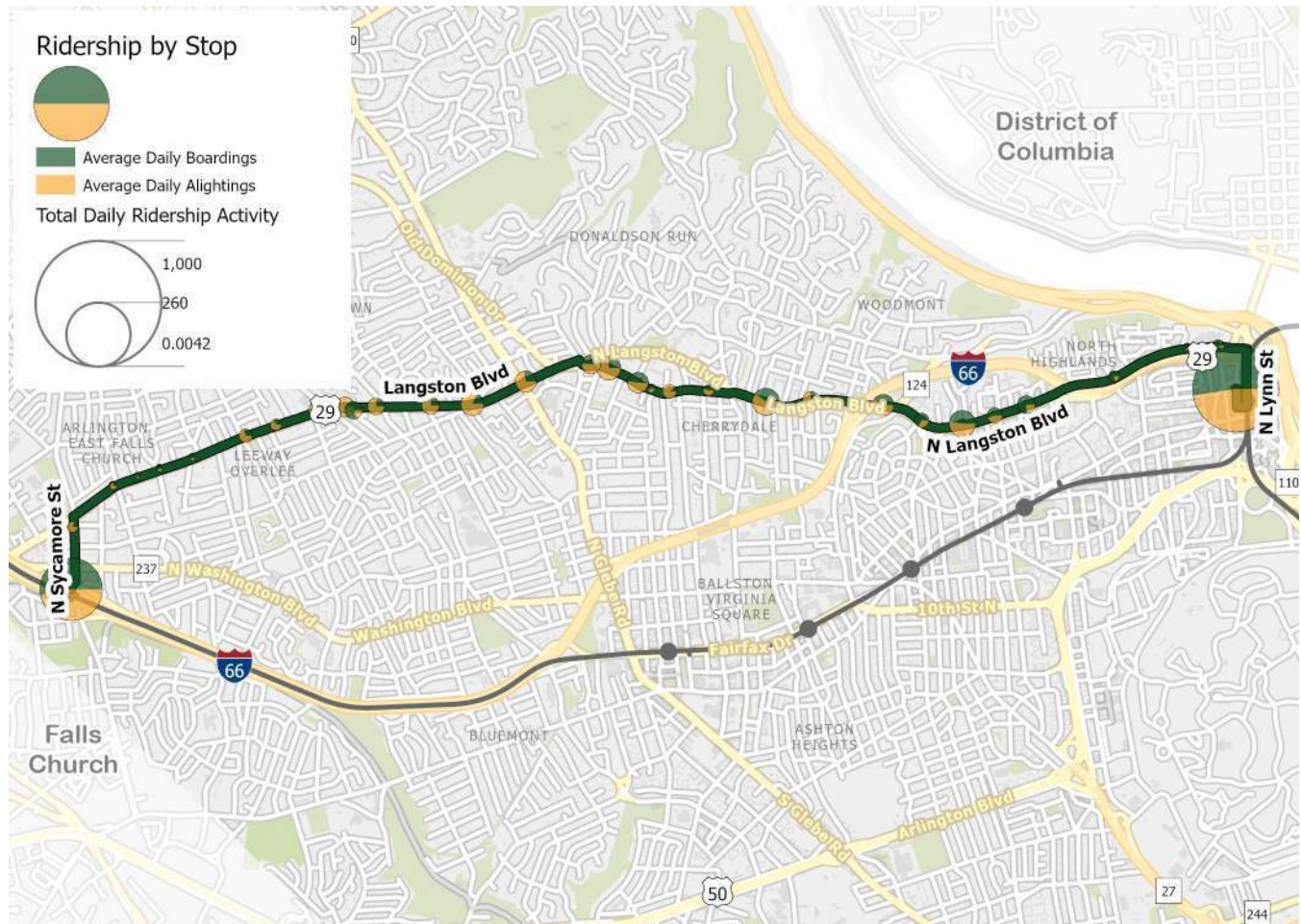
## Pandemic Impacts and Trends



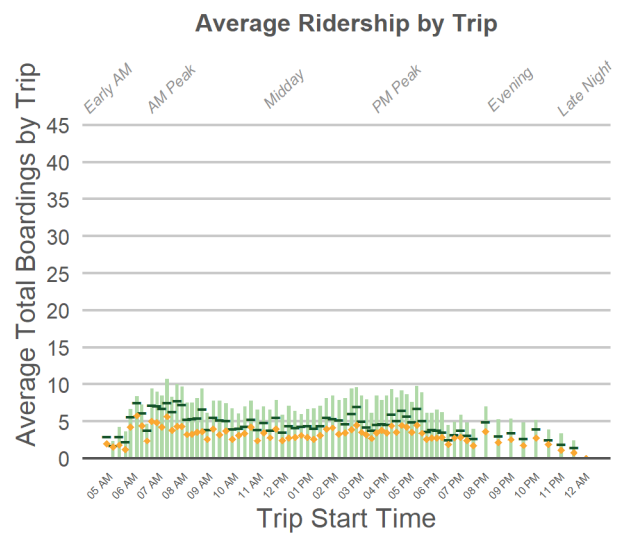
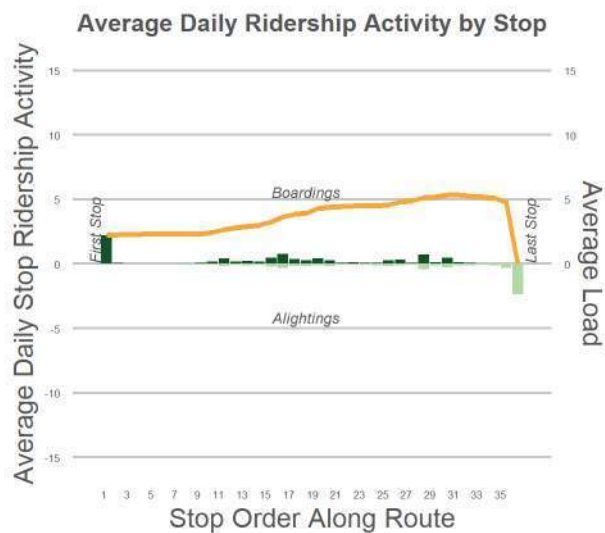
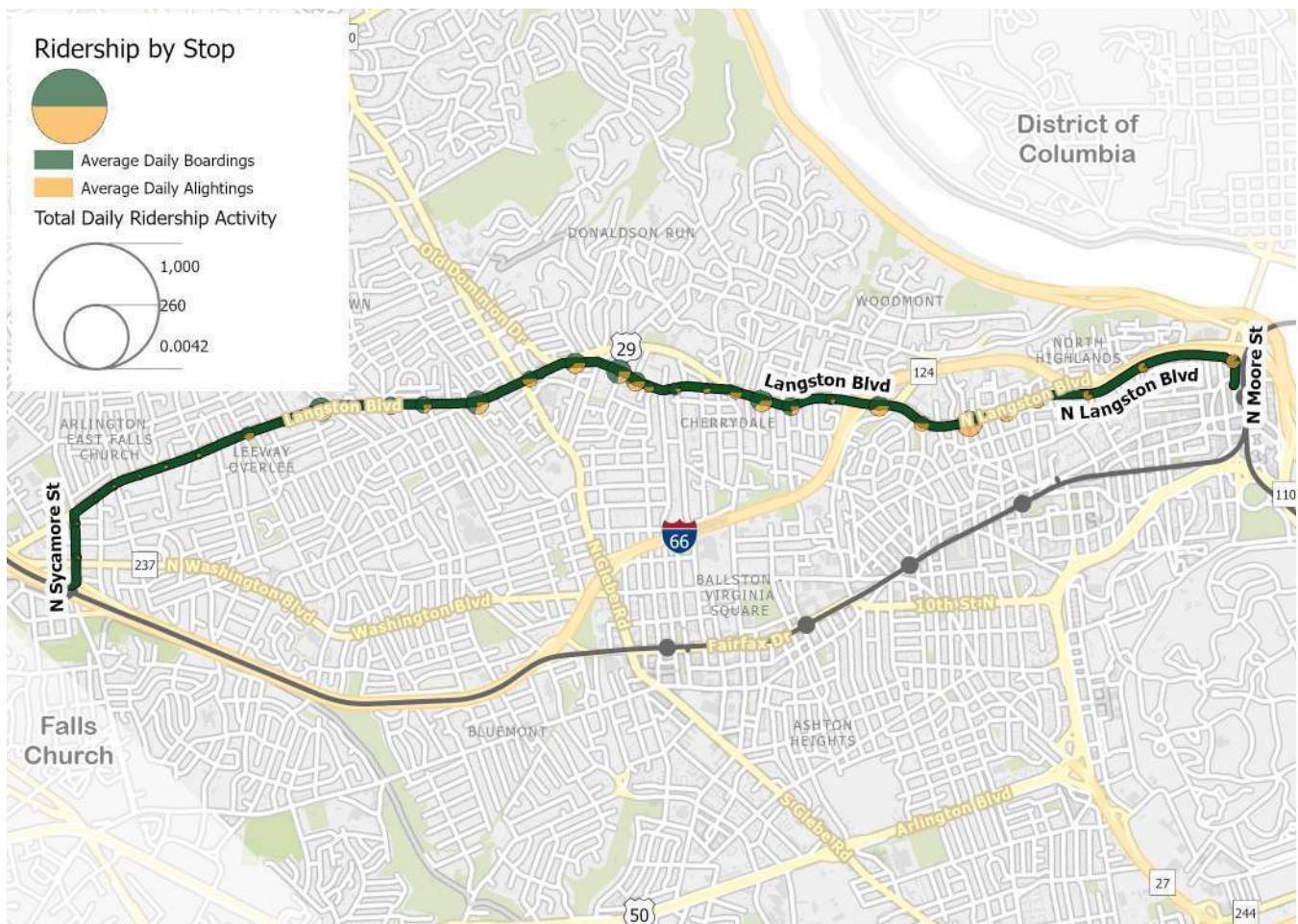
Note: "System Trend" line is percentages only, not actual metrics



## Ridership Analysis – Service to East Falls Church



## Ridership Analysis – Service to Rosslyn





# 61

## Courthouse/Rosslyn

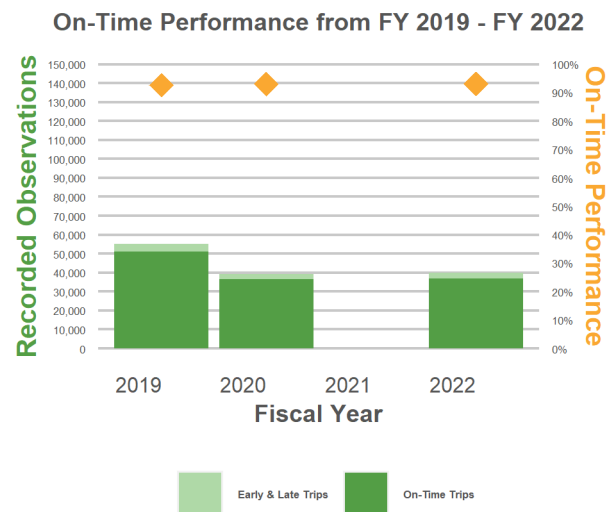
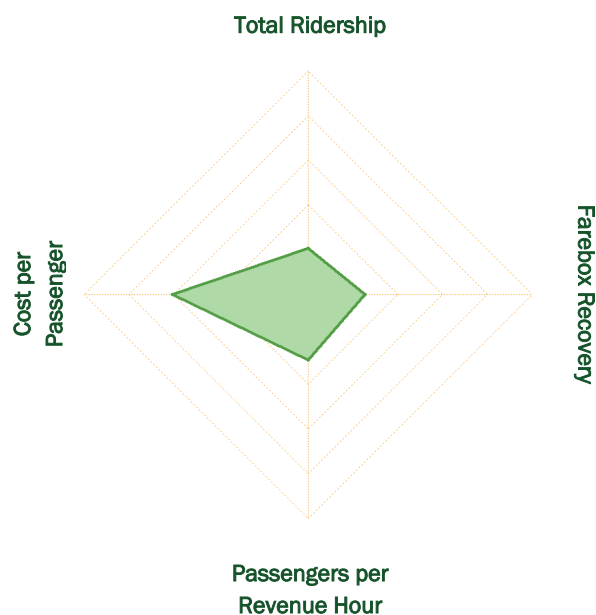
### SECONDARY

**MAJOR GENERATORS:** Courthouse Metro, Rosslyn Metro

**LAND USE:** Employment Centers, Mixed-Use, Transit Centers

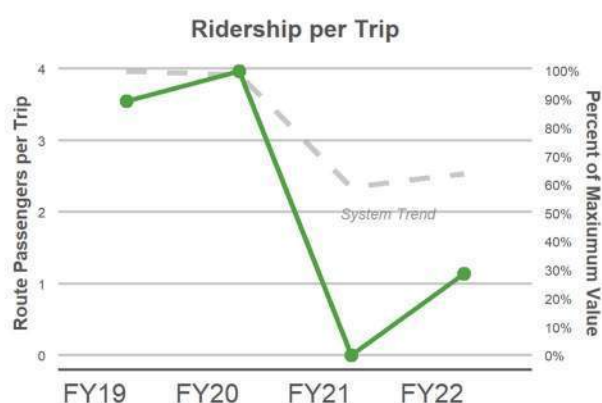
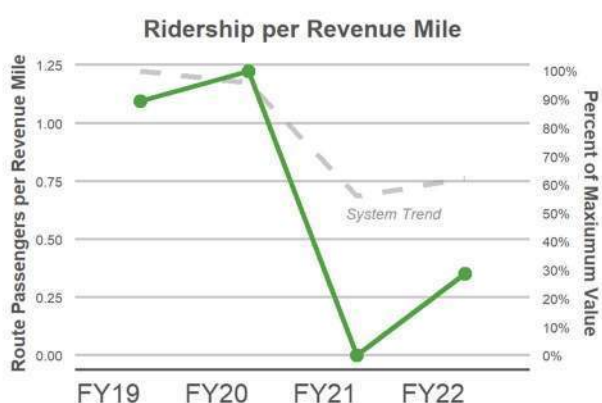
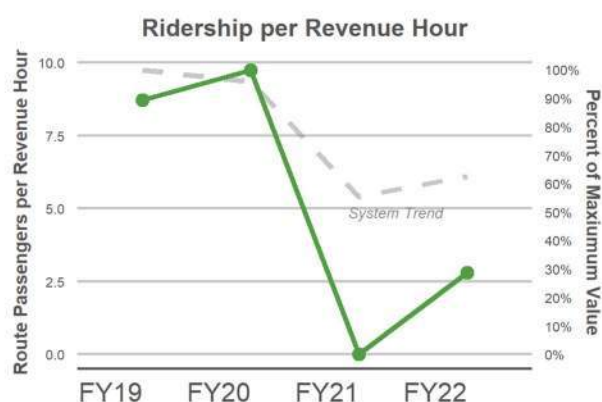


CHARACTERISTICS	WEEKDAY	SATURDAY	SUNDAY
SPAN OF SERVICE	6:15am-9:41am3:03pm-7:06pm		
PEAK FREQUENCY	25		
BASE FREQUENCY	25		
OPERATING STATISTICS	WEEKDAY	SATURDAY	SUNDAY
ONE-WAY TRIPS	26	0	0
REVENUE HOURS	11	0	0
REVENUE MILES	85	0	0
SERVICE PRODUCTIVITY	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY PASSENGERS	30	0	0
PASSENGERS/REVENUE HOUR	2.8	0.0	0.0
PASSENGERS/REVENUE MILE	0.4	0.0	0.0
PASSENGERS/ONE-WAY TRIP	1.1	0.0	0.0



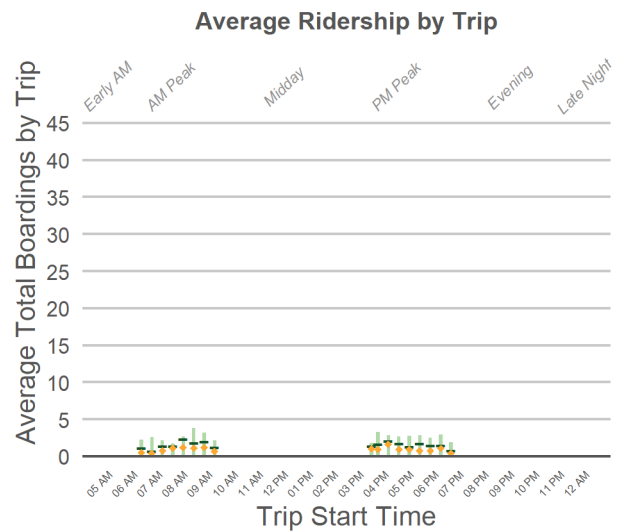
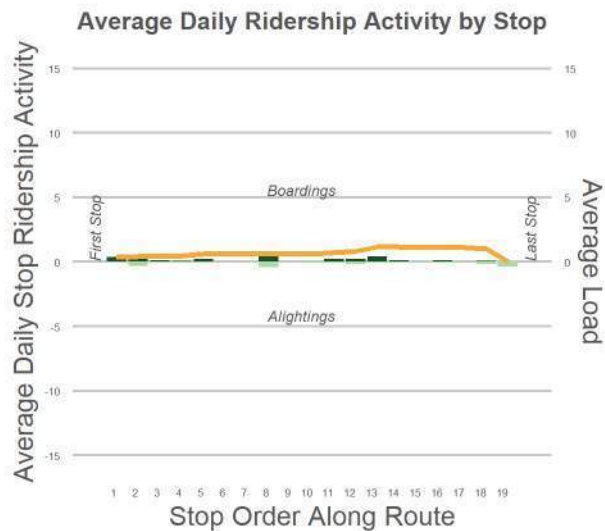
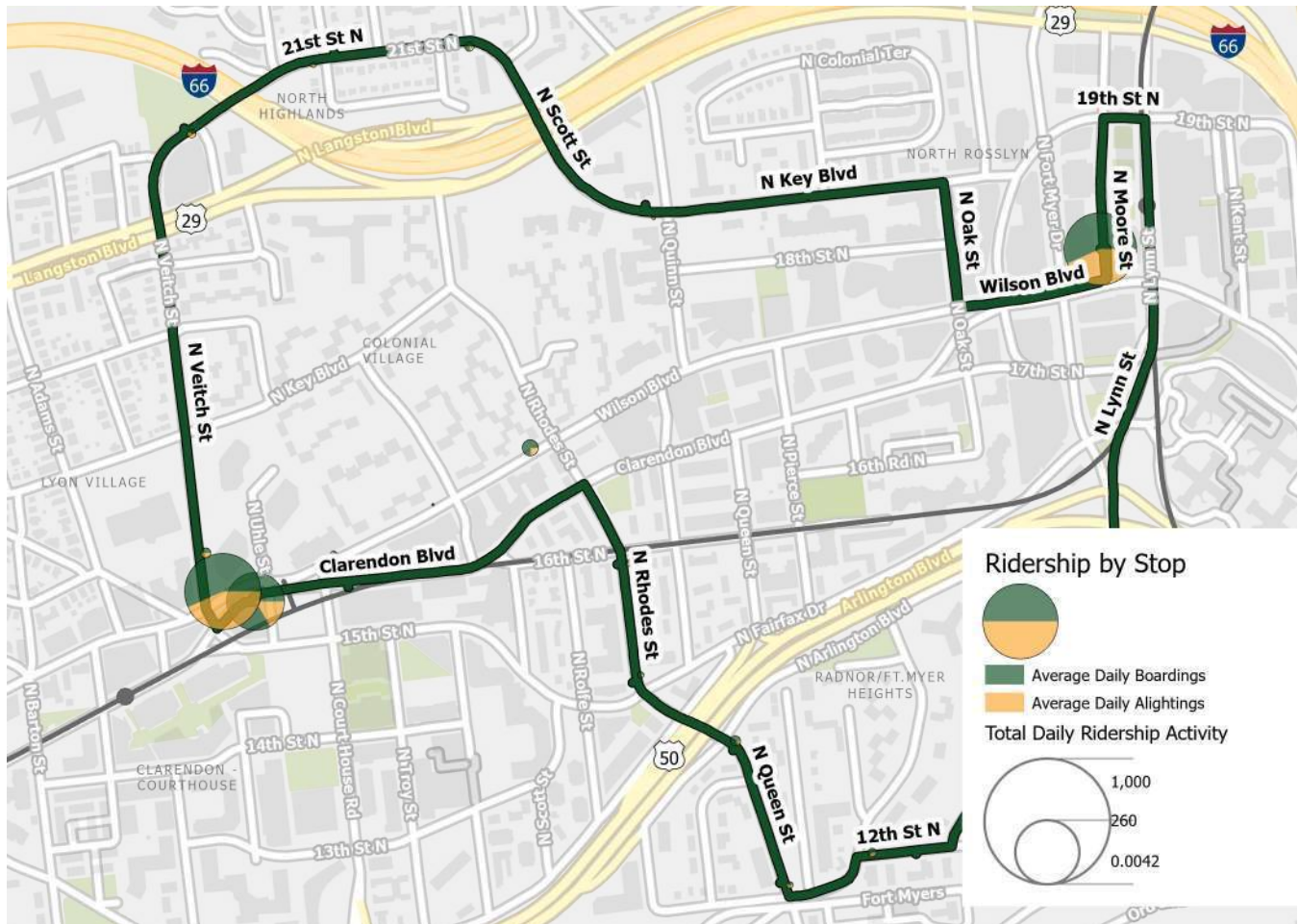
FINANCIAL PERFORMANCE	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY REVENUE	\$35	\$0	\$0
REVENUE/PASSENGER	\$1.16	\$0.00	\$0.00
REVENUE/TRIP	\$1.32	\$0.00	\$0.00
AVERAGE DAILY COST	\$1,261	\$0	\$0
COST/PASSENGER	\$42.23	\$0.00	\$0.00
COST/REVENUE MILE	\$14.88	\$0.00	\$0.00
COST/TRIP	\$48.21	\$0.00	\$0.00
SUBSIDY/PASSENGER	\$41.07	\$0.00	\$0.00
FAREBOX RECOVERY RATIO	3%	0%	0%

## Pandemic Impacts and Trends



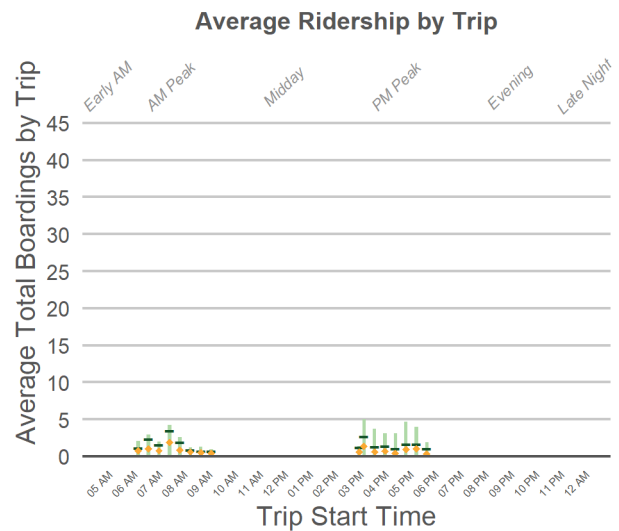
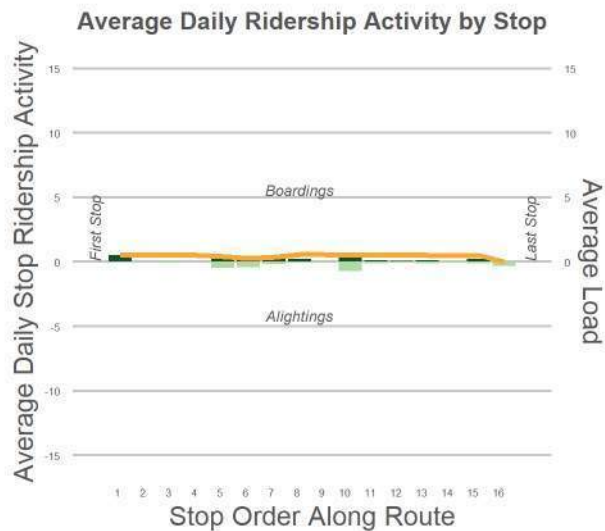
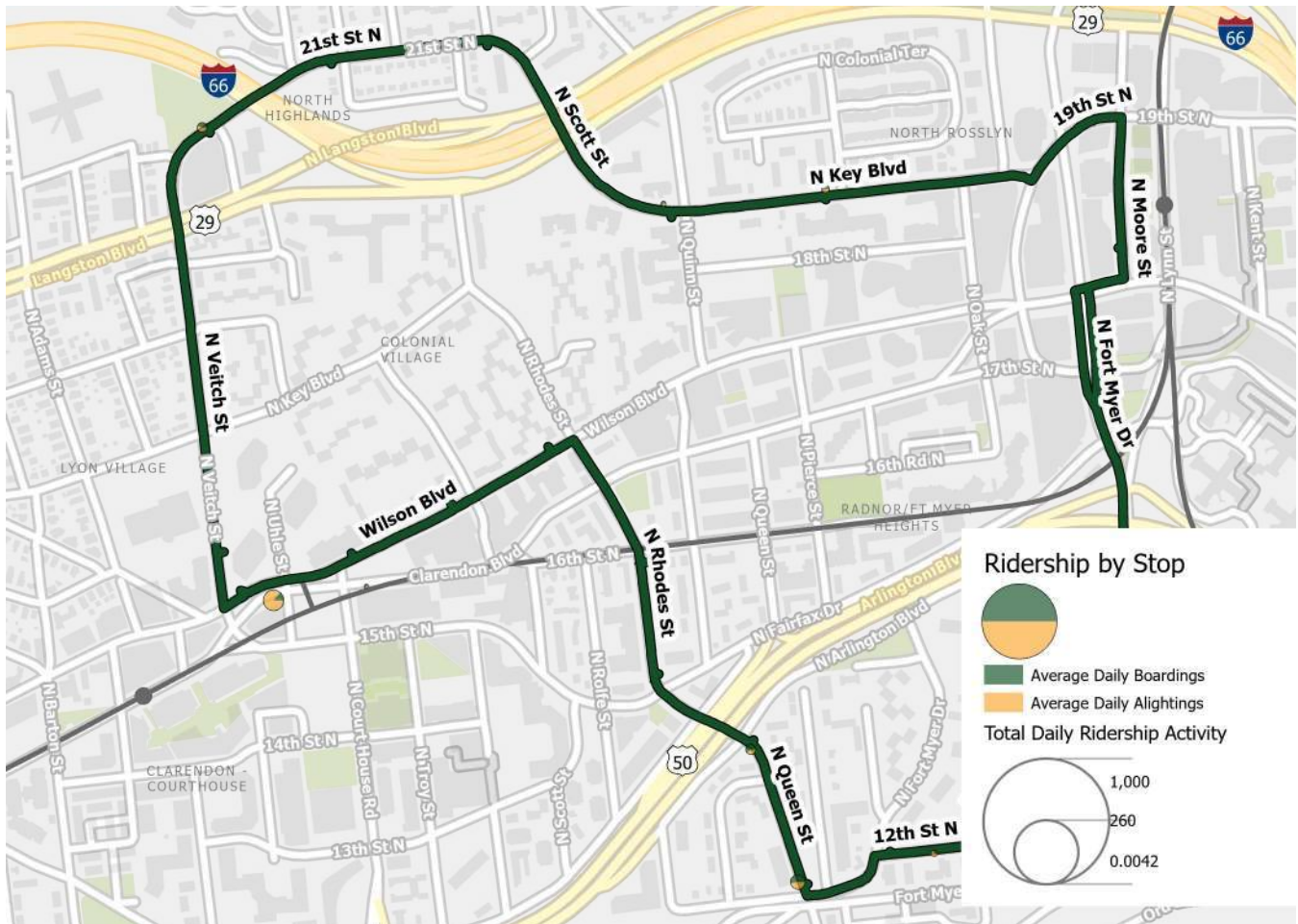
Note: "System Trend" line is percentages only, not actual metrics

## Ridership Analysis – Service to Court House





## Ridership Analysis – Service to Wilson at N Veitch



# 62

## Lorcom

## Lane/Courthouse/Ballston

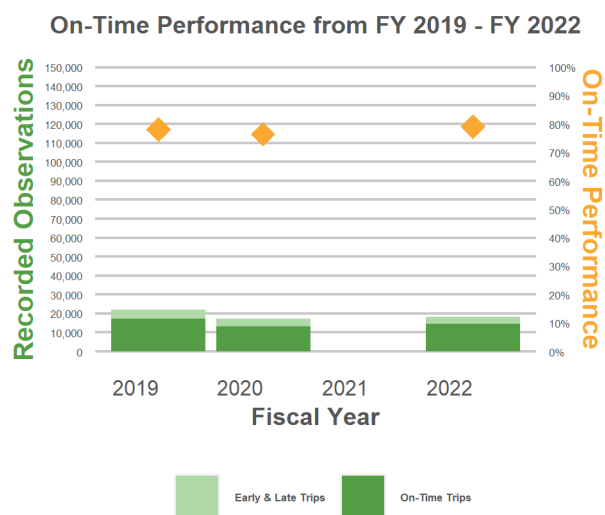
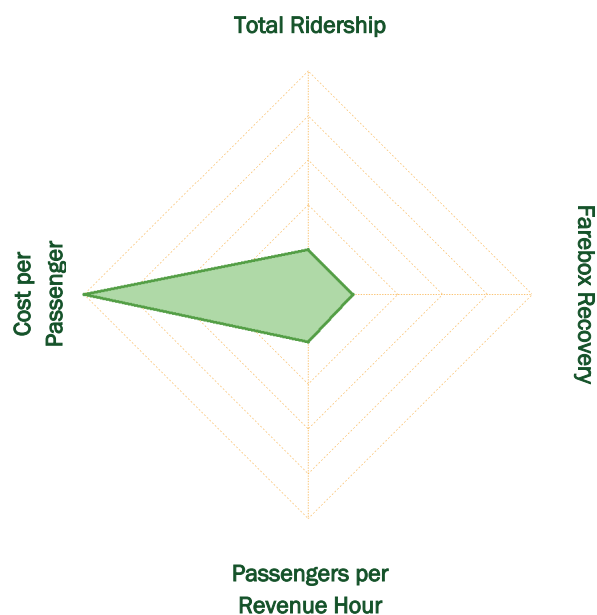
### SECONDARY

**MAJOR GENERATORS:** Ballston Metro, Ballston Quarter, Clarendon Metro, Courthouse Metro

**LAND USE:** Employment Centers, Mixed-Use, Retail, Transit Centers



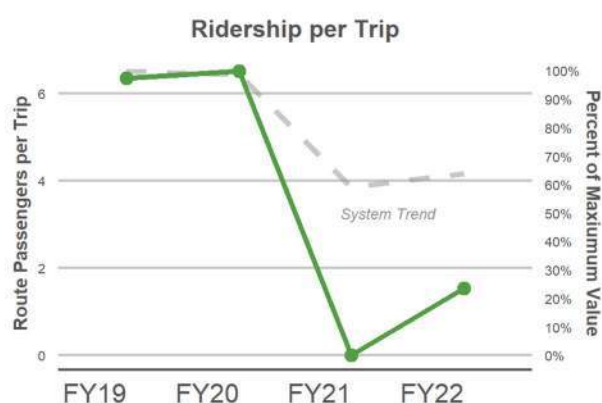
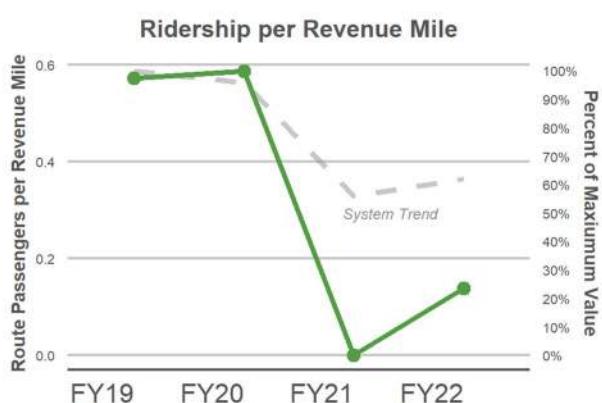
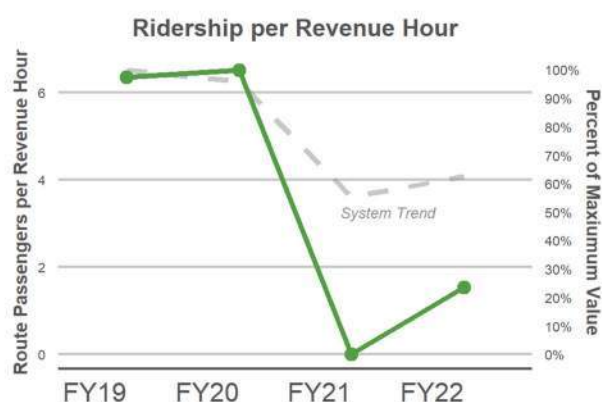
CHARACTERISTICS	WEEKDAY	SATURDAY	SUNDAY
SPAN OF SERVICE	6:22am-9:36am 3:10pm-7:35pm		
PEAK FREQUENCY	27		
BASE FREQUENCY	33		
OPERATING STATISTICS	WEEKDAY	SATURDAY	SUNDAY
ONE-WAY TRIPS	10	0	0
REVENUE HOURS	10	0	0
REVENUE MILES	115	0	0
SERVICE PRODUCTIVITY	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY PASSENGERS	16	0	0
PASSENGERS/REVENUE HOUR	1.5	0.0	0.0
PASSENGERS/REVENUE MILE	0.1	0.0	0.0
PASSENGERS/ONE-WAY TRIP	1.5	0.0	0.0





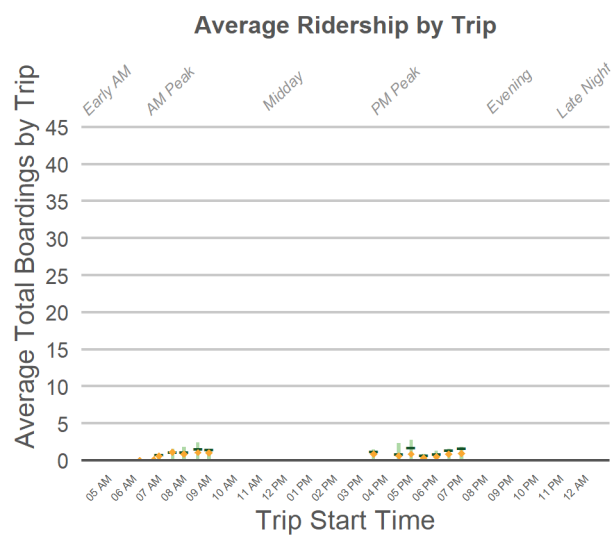
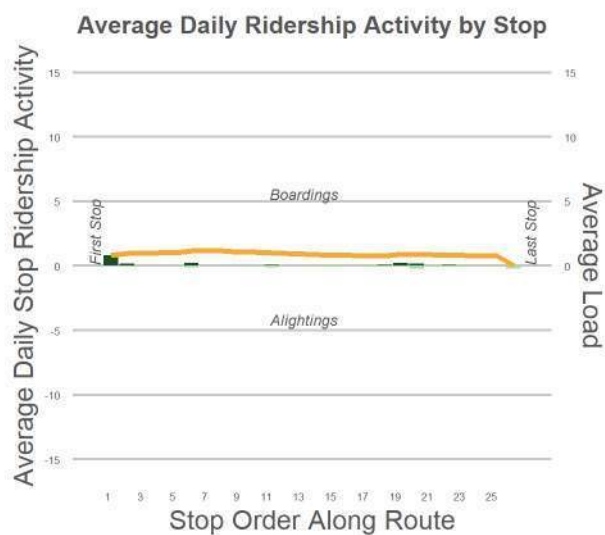
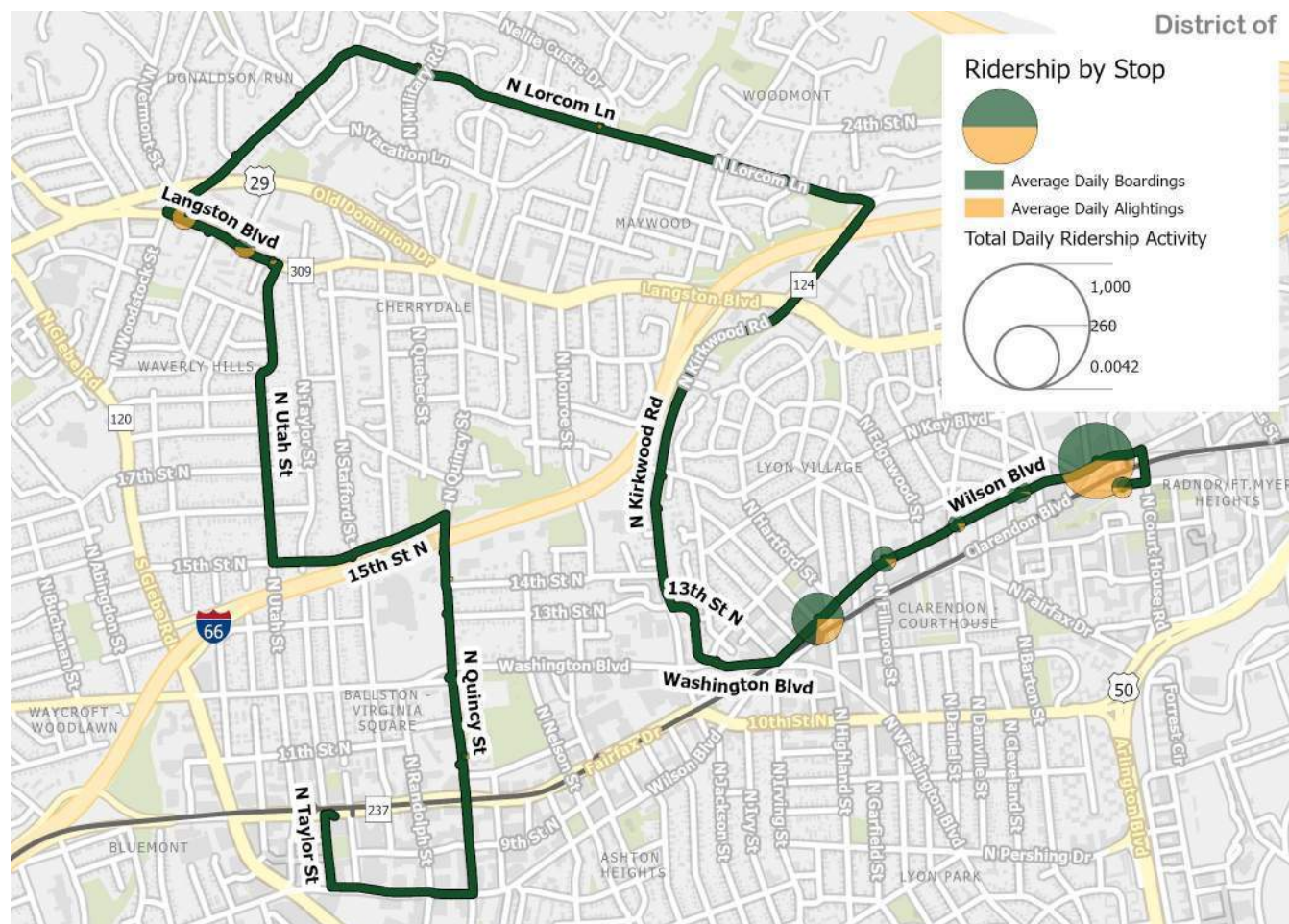
FINANCIAL PERFORMANCE	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY REVENUE	\$18	\$0	\$0
REVENUE/PASSENGER	\$1.16	\$0.00	\$0.00
REVENUE/TRIP	\$1.77	\$0.00	\$0.00
AVERAGE DAILY COST	\$1,234	\$0	\$0
COST/PASSENGER	\$77.48	\$0.00	\$0.00
COST/REVENUE MILE	\$10.69	\$0.00	\$0.00
COST/TRIP	\$118.44	\$0.00	\$0.00
SUBSIDY/PASSENGER	\$76.33	\$0.00	\$0.00
FAREBOX RECOVERY RATIO	1%	0%	0%

## Pandemic Impacts and Trends

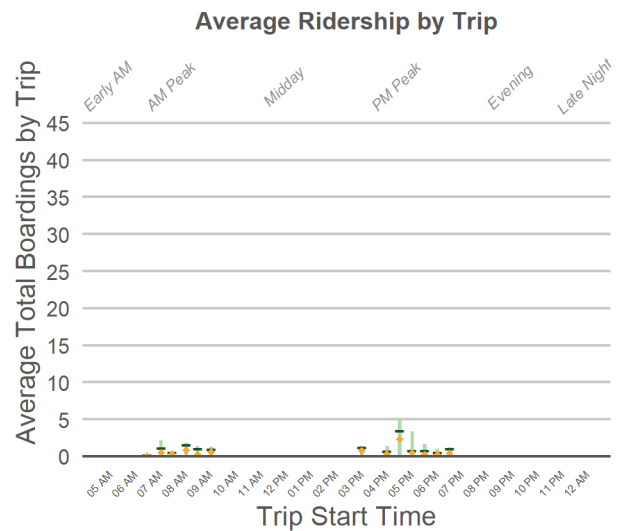
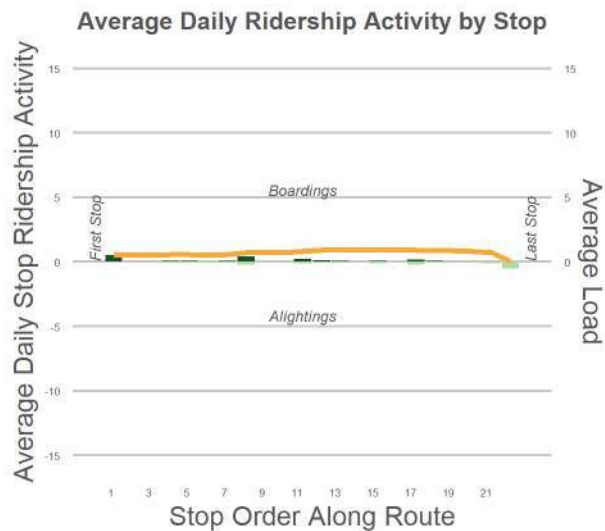
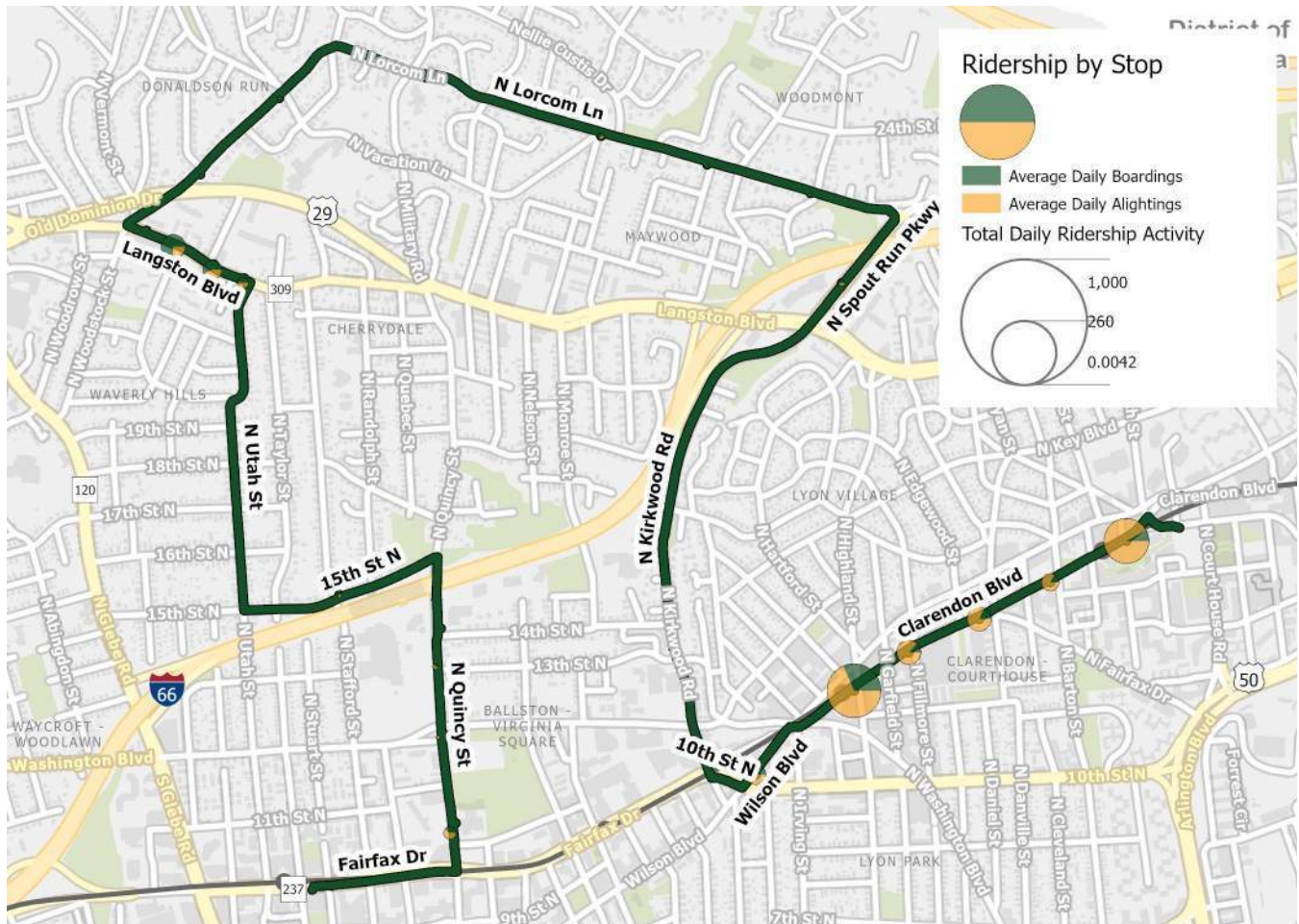


Note: "System Trend" line is percentages only, not actual metrics

## Ridership Analysis – Service to Ballston



## Ridership Analysis – Service to 15th at Uhle





# 72

## Rock Spring/Ballston/Shirlington

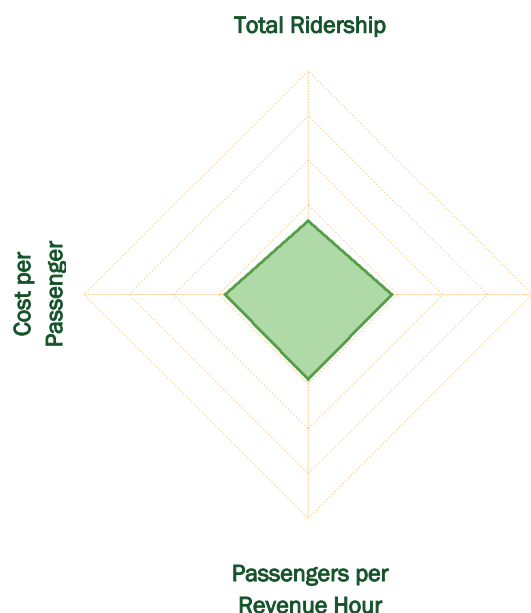
### SECONDARY

**MAJOR GENERATORS:** Ballston Quarter, Ballston Metro, Marymount University, Shirlington Transit Center

**LAND USE:** Employment Centers, Mixed-Use, Retail, Transit Centers

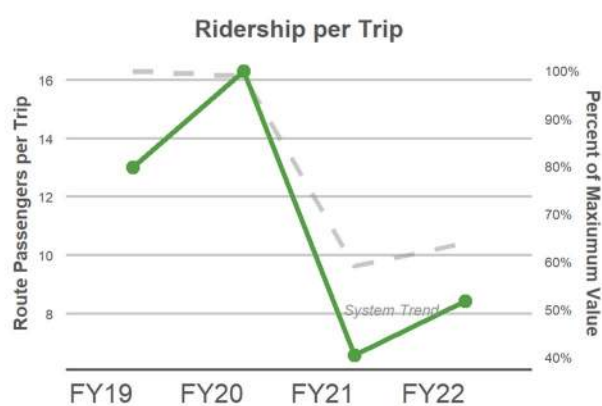
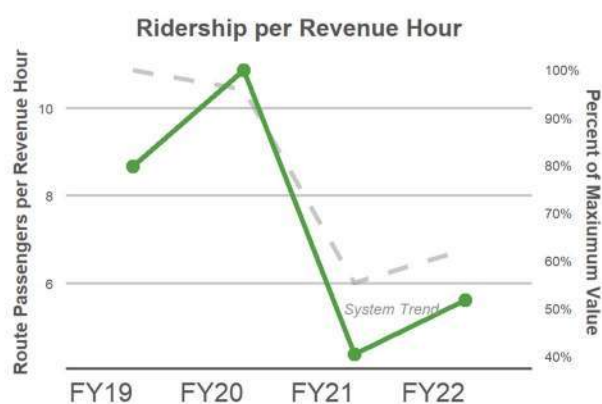
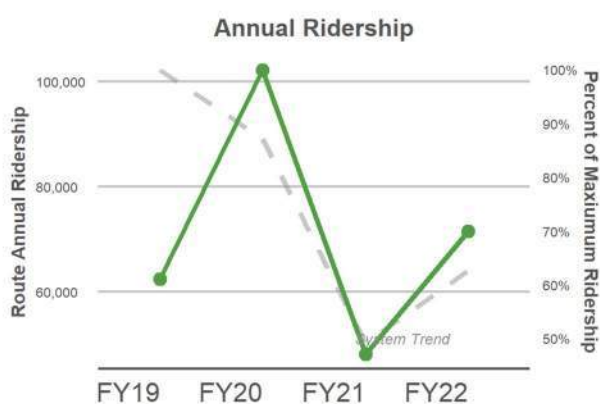


CHARACTERISTICS	WEEKDAY	SATURDAY	SUNDAY
SPAN OF SERVICE	6:24am-9:48pm		
PEAK FREQUENCY	30		
BASE FREQUENCY	30		
OPERATING STATISTICS	WEEKDAY	SATURDAY	SUNDAY
ONE-WAY TRIPS	34	0	0
REVENUE HOURS	50	0	0
REVENUE MILES	488	0	0
SERVICE PRODUCTIVITY	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY PASSENGERS	284	0	0
PASSENGERS/REVENUE HOUR	5.6	0.0	0.0
PASSENGERS/REVENUE MILE	0.6	0.0	0.0
PASSENGERS/ONE-WAY TRIP	8.4	0.0	0.0



FINANCIAL PERFORMANCE	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY REVENUE	\$328	\$0	\$0
REVENUE/PASSENGER	\$1.16	\$0.00	\$0.00
REVENUE/TRIP	\$9.76	\$0.00	\$0.00
AVERAGE DAILY COST	\$5,976	\$0	\$0
COST/PASSENGER	\$21.04	\$0.00	\$0.00
COST/REVENUE MILE	\$12.25	\$0.00	\$0.00
COST/TRIP	\$177.66	\$0.00	\$0.00
SUBSIDY/PASSENGER	\$19.89	\$0.00	\$0.00
FAREBOX RECOVERY RATIO	5%	0%	0%

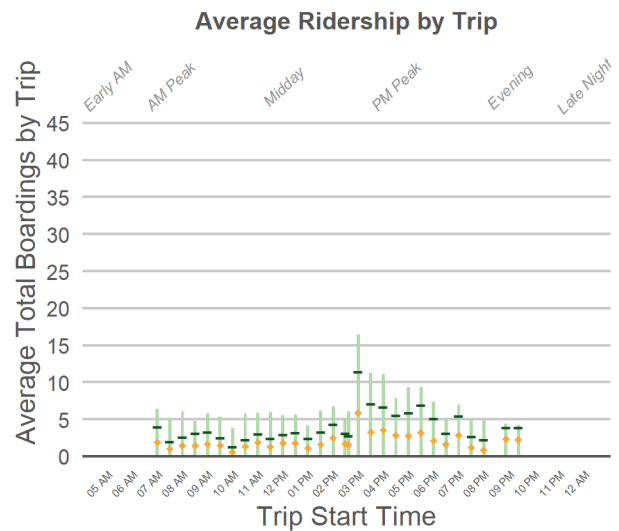
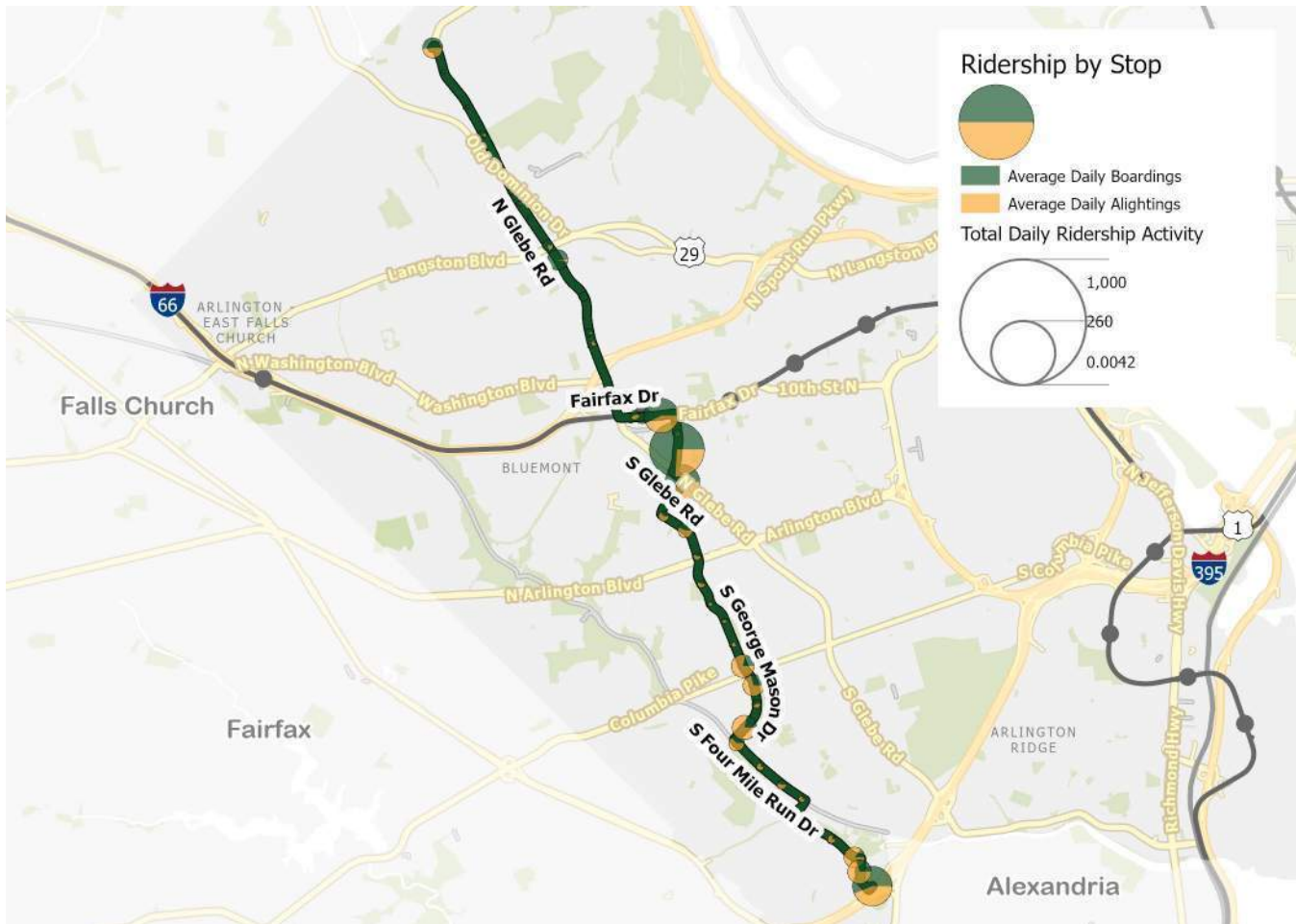
## Pandemic Impacts and Trends



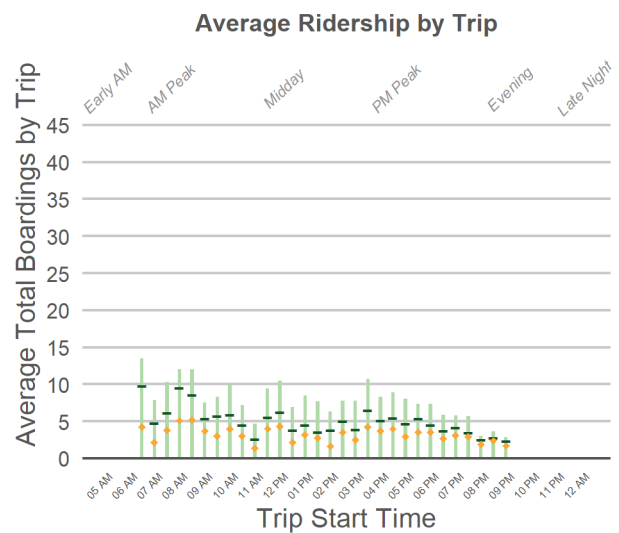
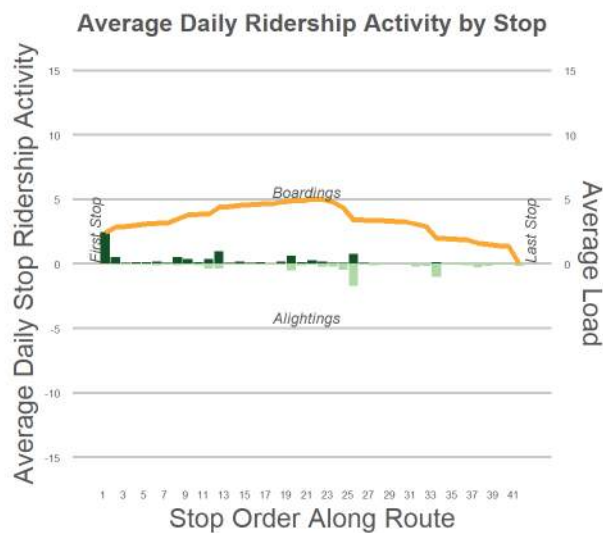
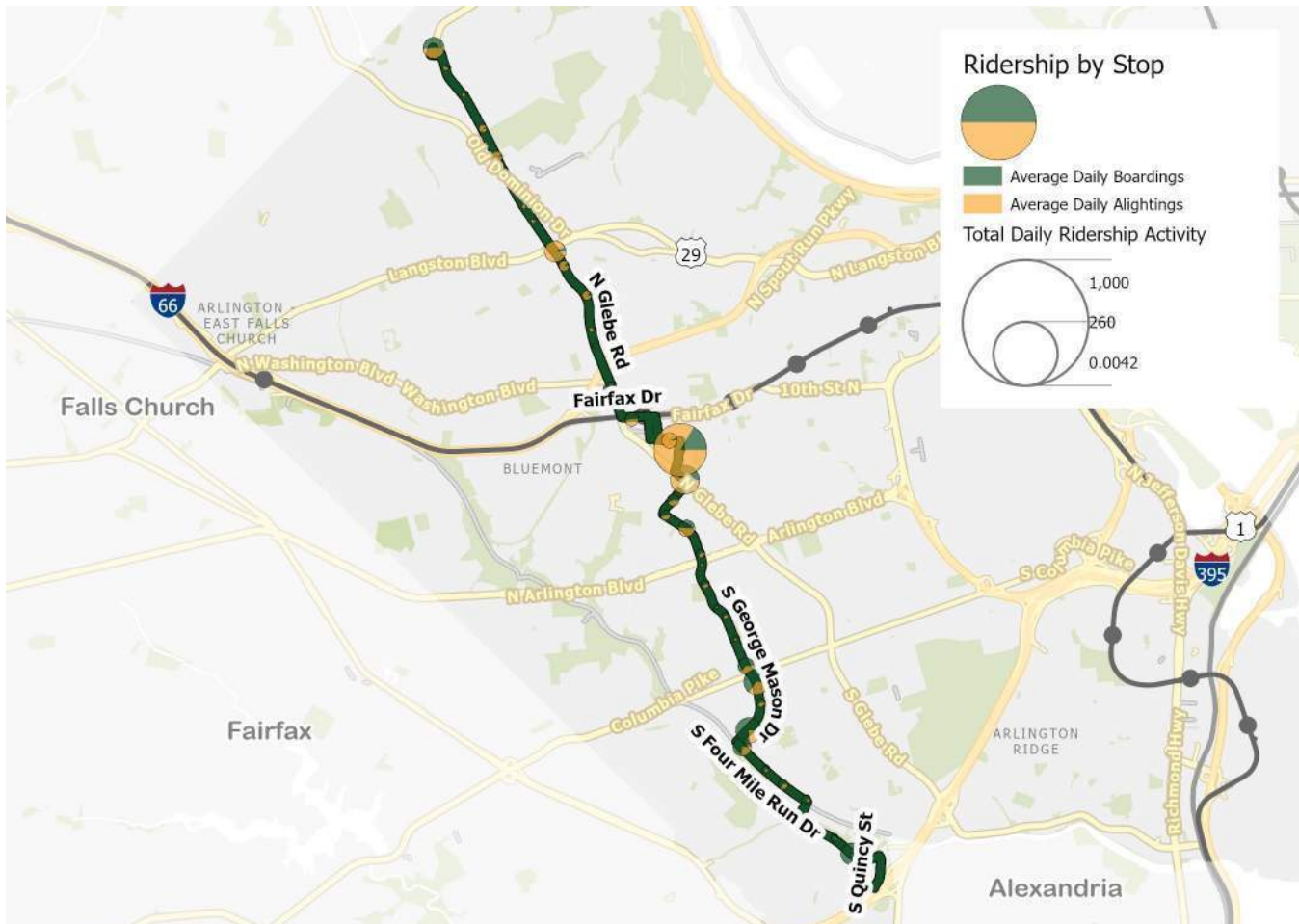
Note: "System Trend" line is percentages only, not actual metrics



## Ridership Analysis – Service to Shirlington



## Ridership Analysis – Service to Rock Spring, Ballston



# 74

## Arlington Village/Arlington View

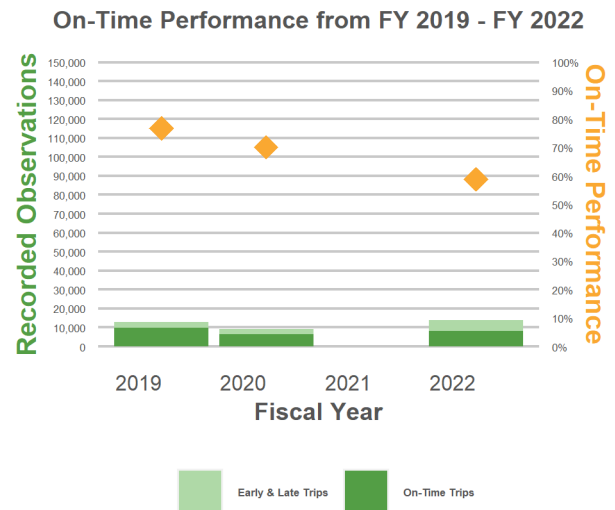
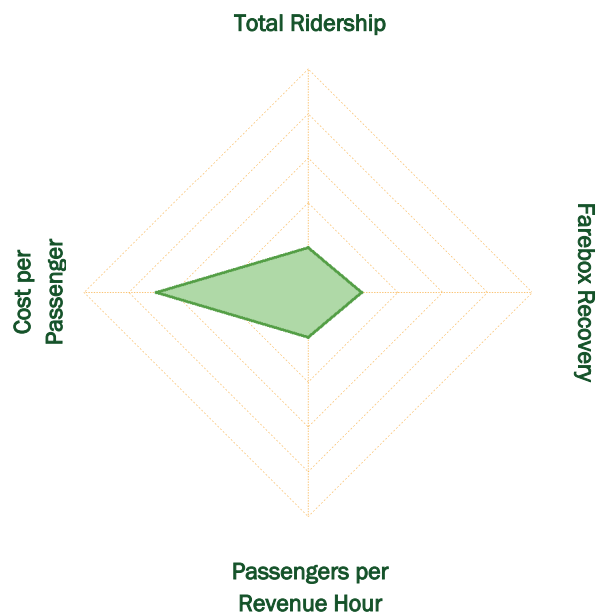
### SECONDARY

**MAJOR GENERATORS:** Arlington Village, Columbia Pike, Pentagon City Metro

**LAND USE:** Employment Centers, Mixed-Use, Retail, Transit Centers, Transit Corridor

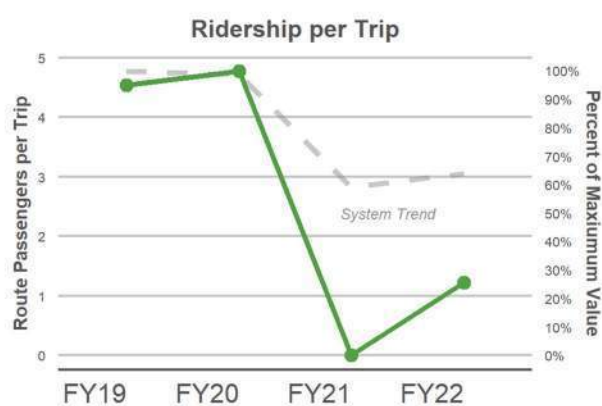
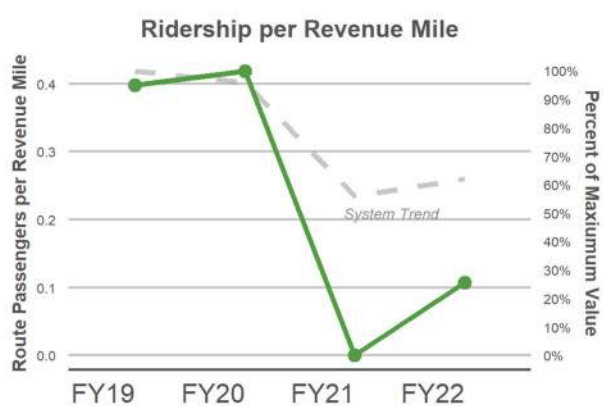
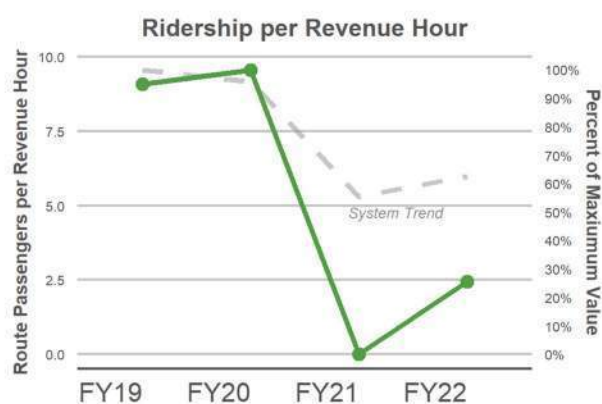
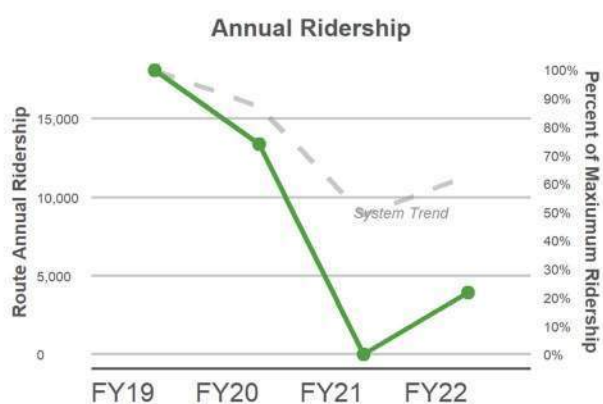


CHARACTERISTICS	WEEKDAY	SATURDAY	SUNDAY
SPAN OF SERVICE	5:53am-9:10am3:35pm-7:55pm		
PEAK FREQUENCY	30		
BASE FREQUENCY	45		
OPERATING STATISTICS	WEEKDAY	SATURDAY	SUNDAY
ONE-WAY TRIPS	13	0	0
REVENUE HOURS	6	0	0
REVENUE MILES	147	0	0
SERVICE PRODUCTIVITY	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY PASSENGERS	16	0	0
PASSENGERS/REVENUE HOUR	2.4	0.0	0.0
PASSENGERS/REVENUE MILE	0.1	0.0	0.0
PASSENGERS/ONE-WAY TRIP	1.2	0.0	0.0



FINANCIAL PERFORMANCE	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY REVENUE	\$18	\$0	\$0
REVENUE/PASSENGER	\$1.16	\$0.00	\$0.00
REVENUE/TRIP	\$1.41	\$0.00	\$0.00
AVERAGE DAILY COST	\$762	\$0	\$0
COST/PASSENGER	\$48.59	\$0.00	\$0.00
COST/REVENUE MILE	\$5.19	\$0.00	\$0.00
COST/TRIP	\$59.22	\$0.00	\$0.00
SUBSIDY/PASSENGER	\$47.44	\$0.00	\$0.00
FAREBOX RECOVERY RATIO	2%	0%	0%

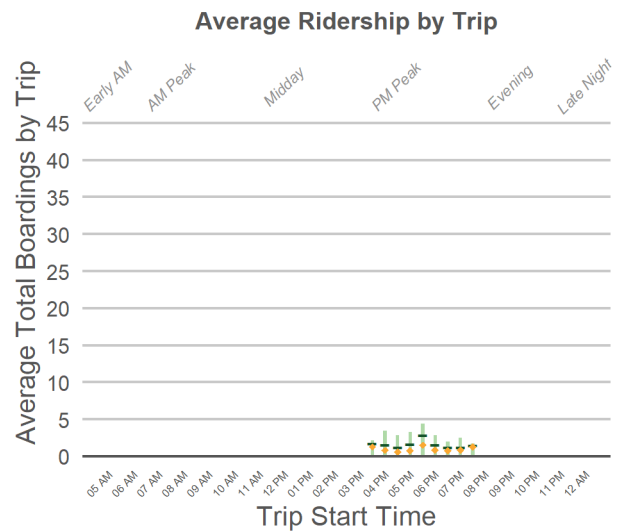
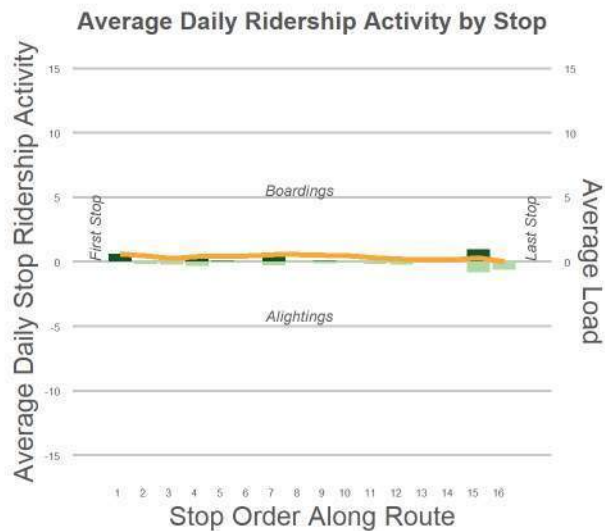
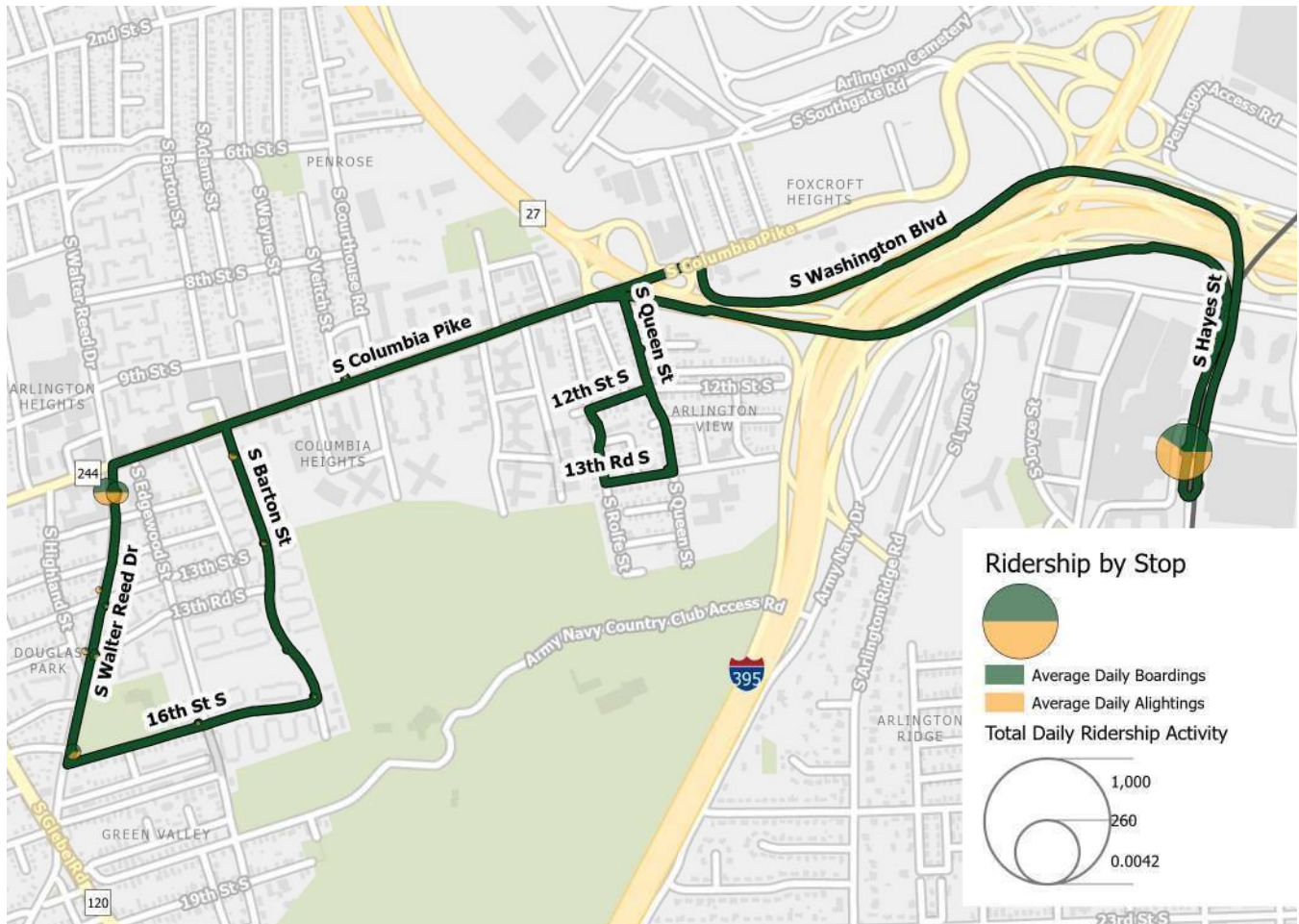
## Pandemic Impacts and Trends



Note: "System Trend" line is percentages only, not actual metrics

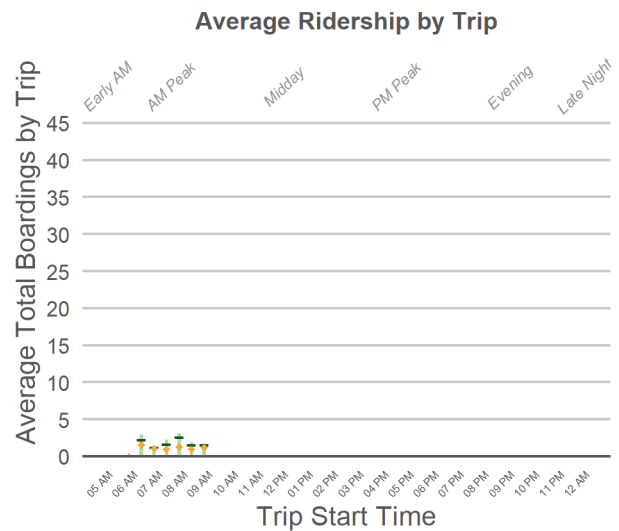
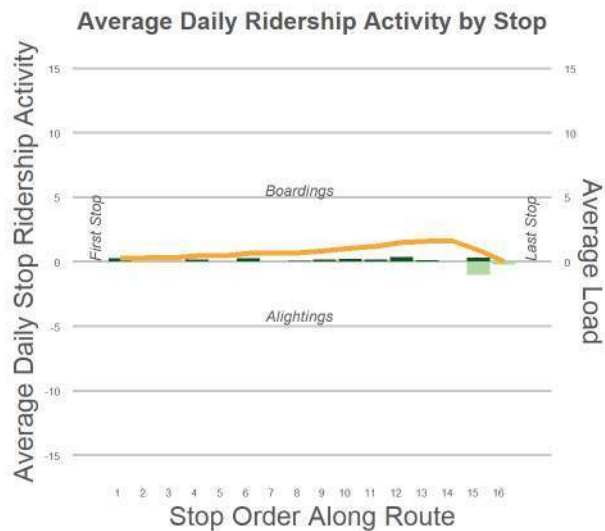
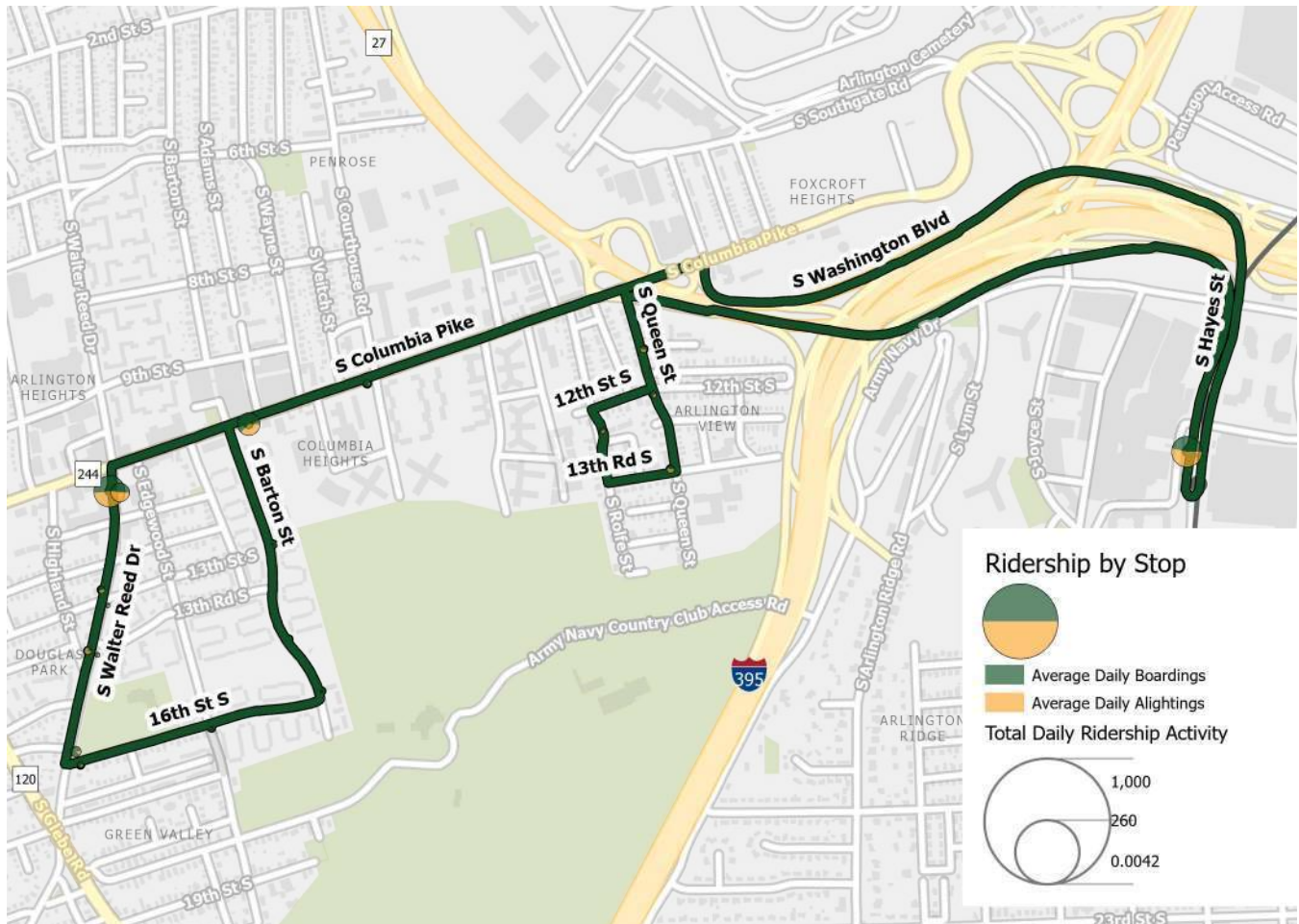


## Ridership Analysis – Service to Hayes at 12th, Walter Reed at Columbia





## Ridership Analysis – Service to Columbia Pike, Hayes at 12th



# 75

## Shirlington/Ballston/Virginia Square

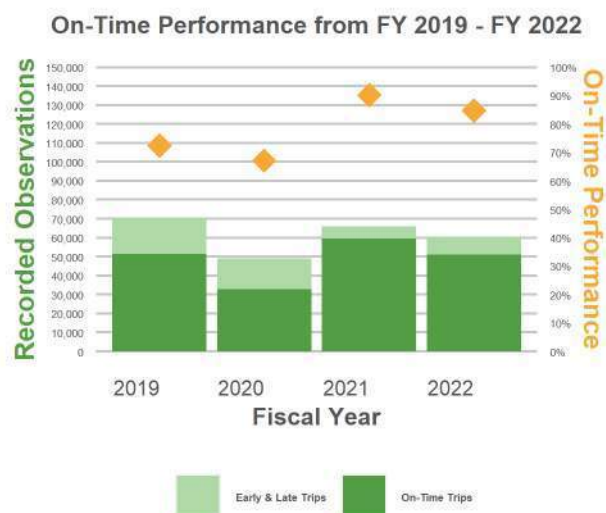
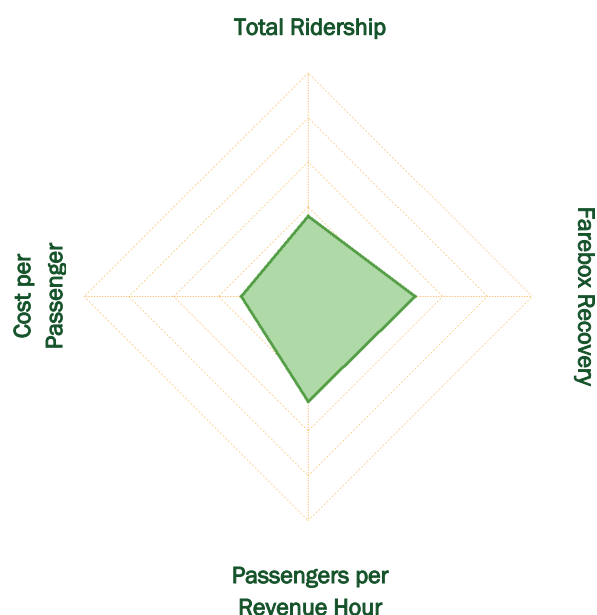
### SECONDARY

**MAJOR GENERATORS:** Ballston Metro, Columbia Pike, Northern Virginia Doctors Medical Center, Shirlington Transit Center, Virginia Square Metro, Wakefield High School

**LAND USE:** Educational, Medical, Mixed-Use, Transit Center

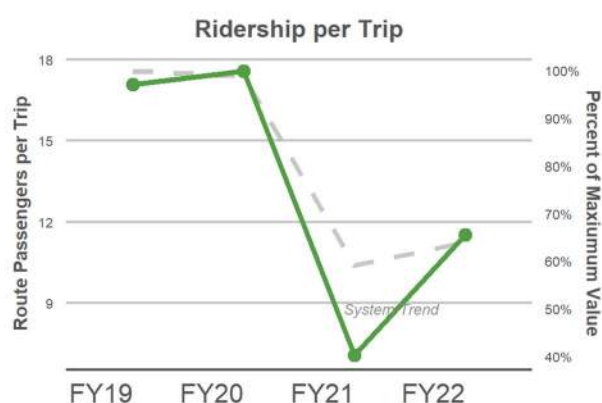
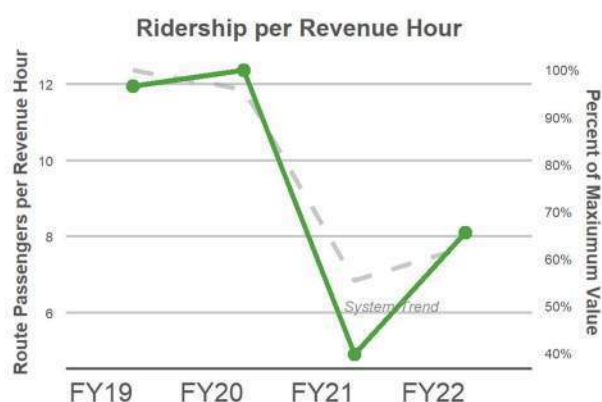
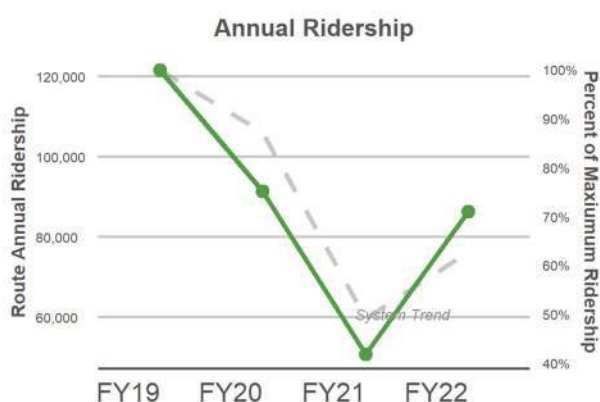


CHARACTERISTICS	WEEKDAY	SATURDAY	SUNDAY
SPAN OF SERVICE	5:30am-10:44pm		
PEAK FREQUENCY	30	30	
BASE FREQUENCY	30	30	
OPERATING STATISTICS	WEEKDAY	SATURDAY	SUNDAY
ONE-WAY TRIPS	30	0	0
REVENUE HOURS	42	0	0
REVENUE MILES	415	0	0
SERVICE PRODUCTIVITY	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY PASSENGERS	343	0	0
PASSENGERS/REVENUE HOUR	8.1	0.0	0.0
PASSENGERS/REVENUE MILE	0.8	0.0	0.0
PASSENGERS/ONE-WAY TRIP	11.5	0.0	0.0



FINANCIAL PERFORMANCE	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY REVENUE	\$396	\$0	\$0
REVENUE/PASSENGER	\$1.16	\$0.00	\$0.00
REVENUE/TRIP	\$13.32	\$0.00	\$0.00
AVERAGE DAILY COST	\$5,003	\$0	\$0
COST/PASSENGER	\$14.60	\$0.00	\$0.00
COST/REVENUE MILE	\$12.05	\$0.00	\$0.00
COST/TRIP	\$168.18	\$0.00	\$0.00
SUBSIDY/PASSENGER	\$13.45	\$0.00	\$0.00
FAREBOX RECOVERY RATIO	8%	0%	0%

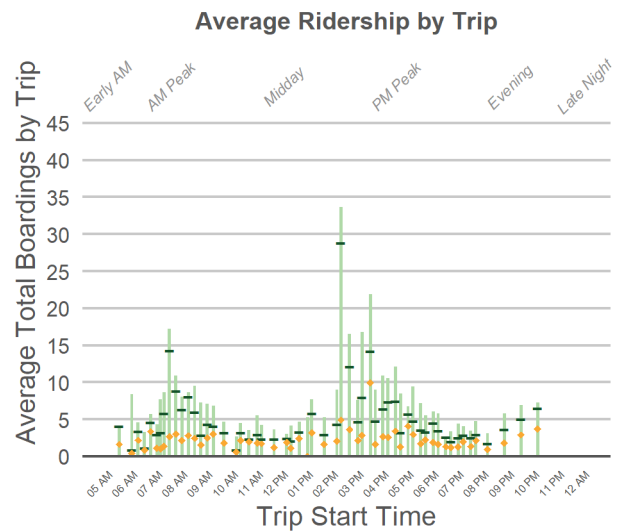
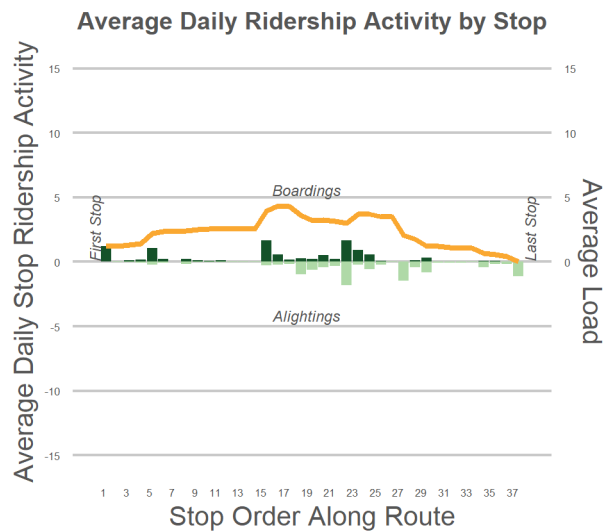
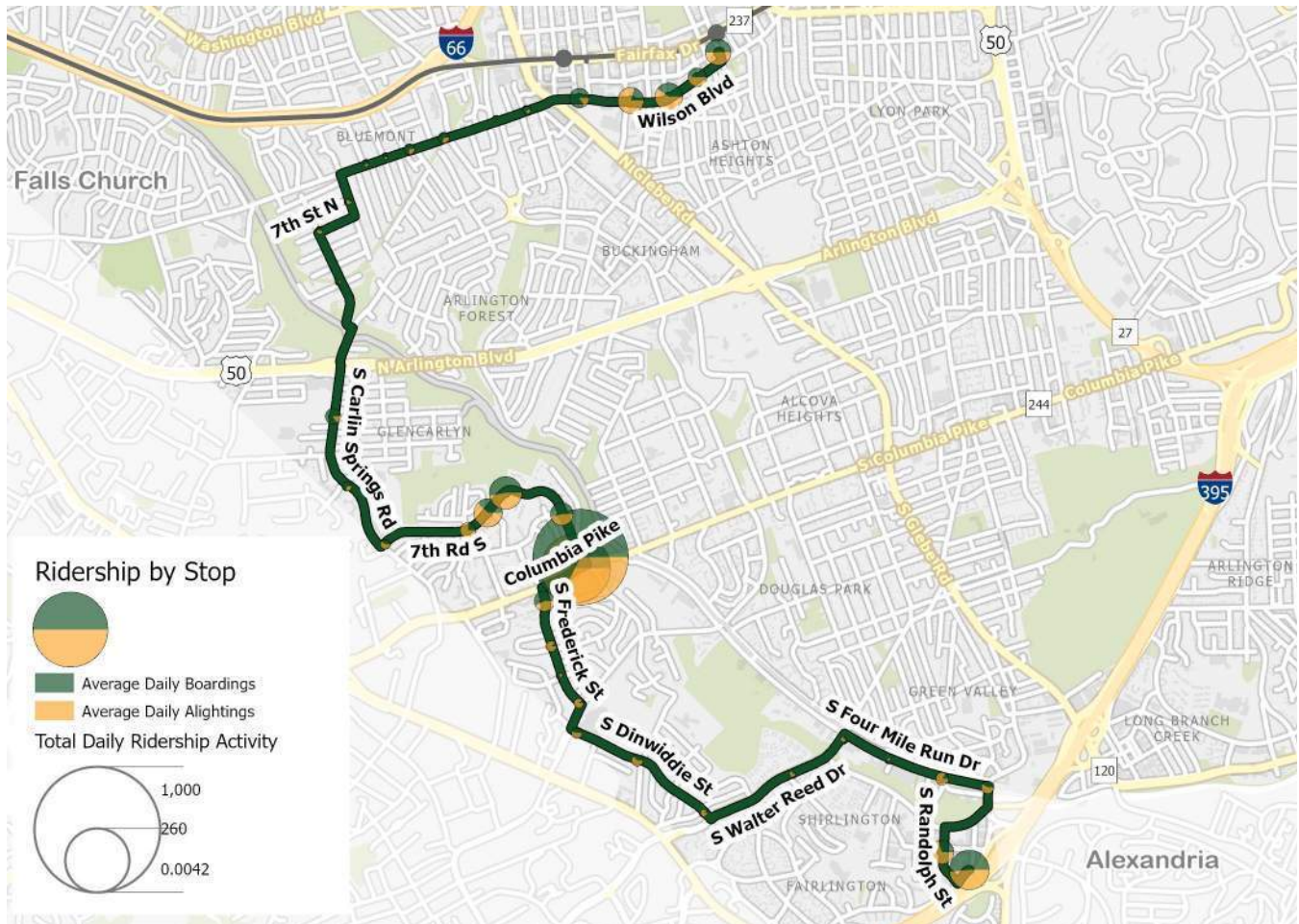
## Pandemic Impacts and Trends



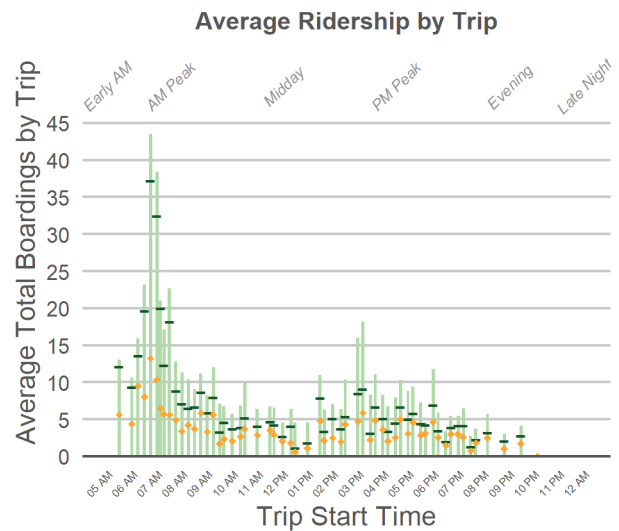
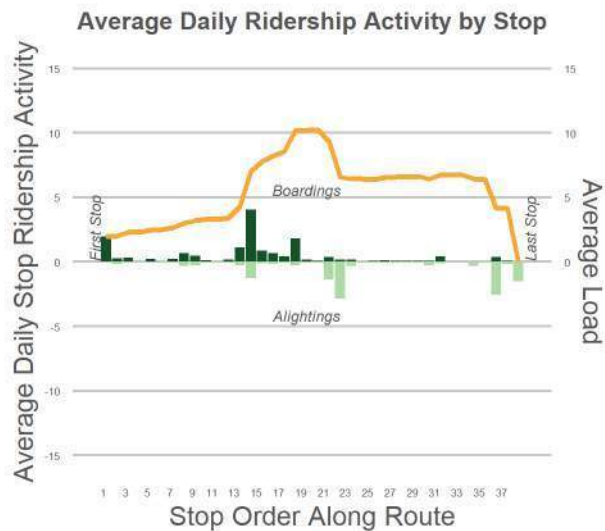
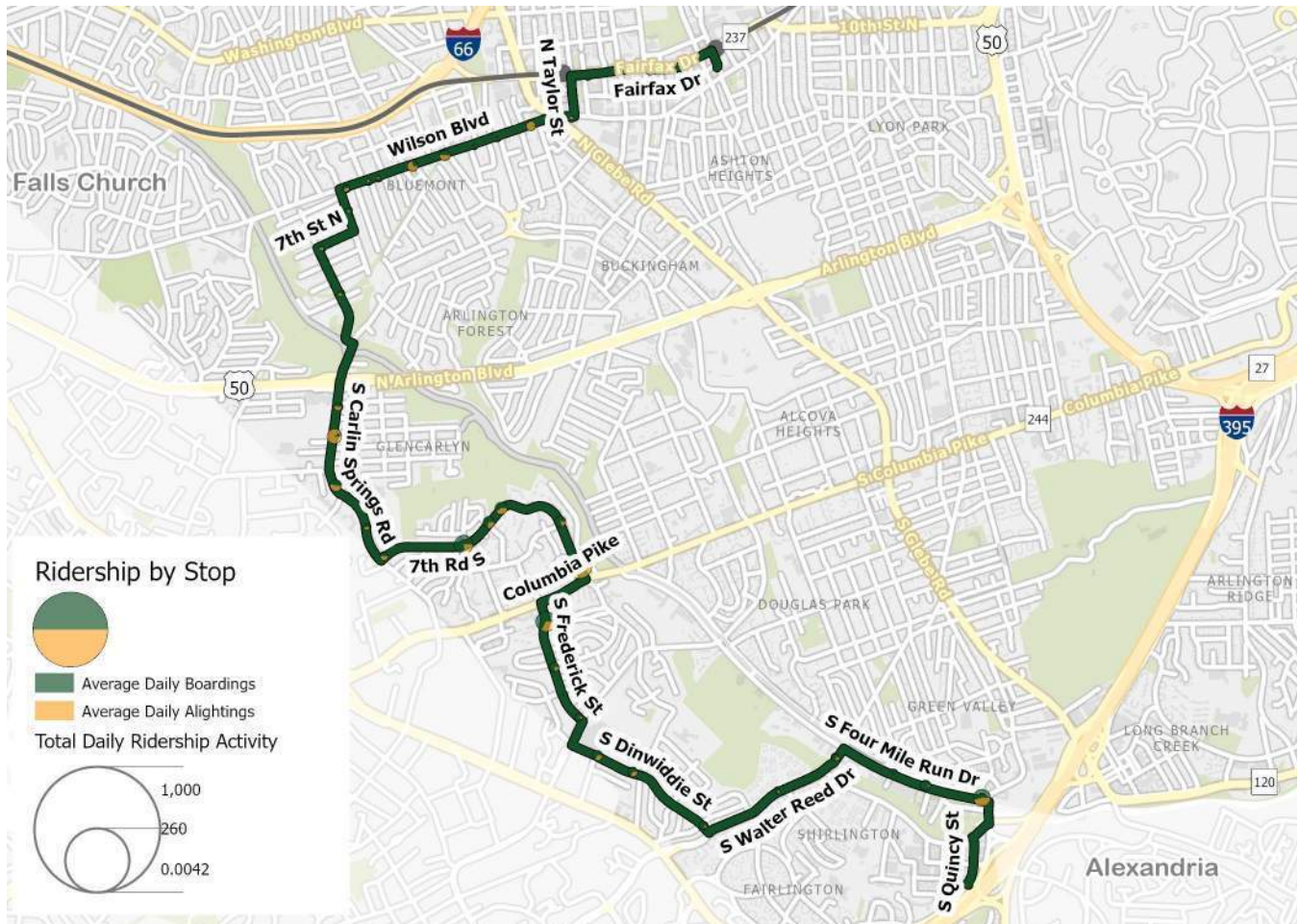
Note: "System Trend" line is percentages only, not actual metrics



## Ridership Analysis – Service to Shirlington



## Ridership Analysis – Service to Virginia Square





# 77

## Shirlington/Lyon Park/Courthouse

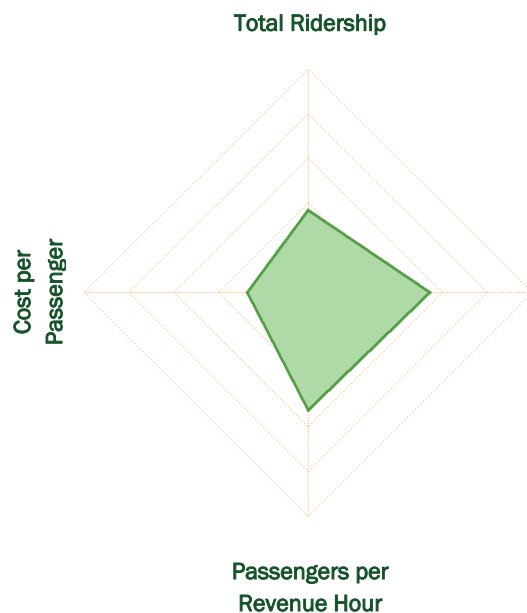
### SECONDARY

**MAJOR GENERATORS:** Arlington County Department of Human Services, Clarendon Metro, Columbia Pike, Courthouse Metro, Sequoia Plaza, Shirlington Transit Center

**LAND USE:** County Services, Employment Centers, Mixed-Use, Retail, Transit Centers

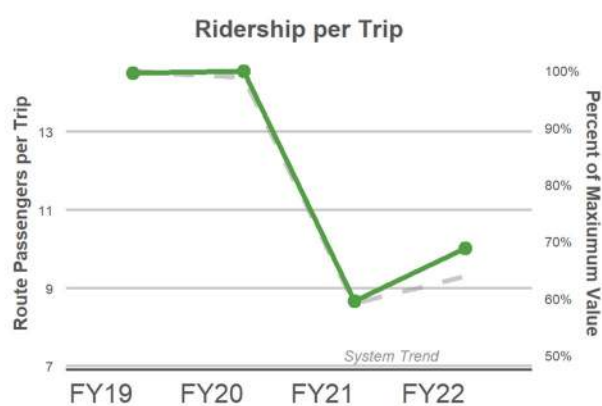
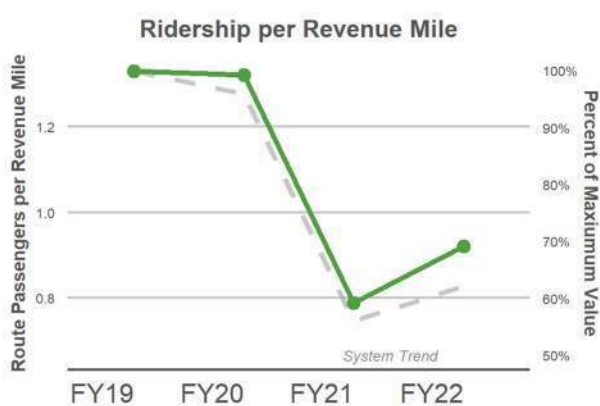
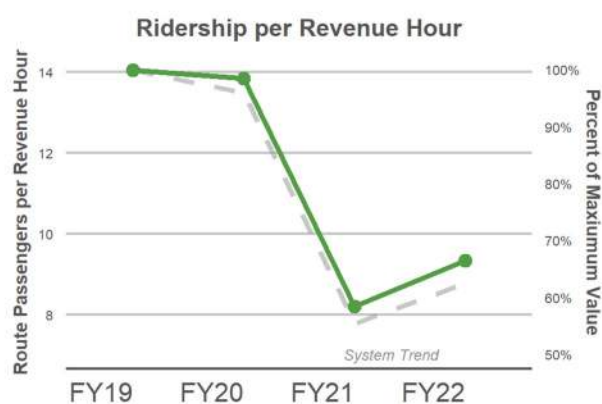
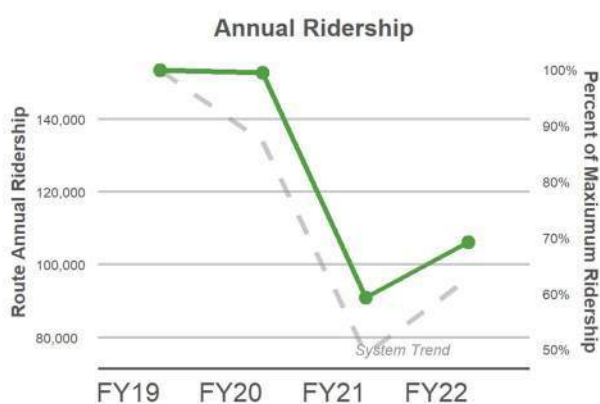


CHARACTERISTICS	WEEKDAY	SATURDAY	SUNDAY
SPAN OF SERVICE	6:00am-10:56pm	7:00am-11:56pm	
PEAK FREQUENCY	19		
BASE FREQUENCY	24		
OPERATING STATISTICS	WEEKDAY	SATURDAY	SUNDAY
ONE-WAY TRIPS	35	34	0
REVENUE HOURS	38	34	0
REVENUE MILES	376	379	0
SERVICE PRODUCTIVITY	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY PASSENGERS	365	259	0
PASSENGERS/REVENUE HOUR	9.7	7.7	0.0
PASSENGERS/REVENUE MILE	1.0	0.7	0.0
PASSENGERS/ONE-WAY TRIP	10.5	7.7	0.0



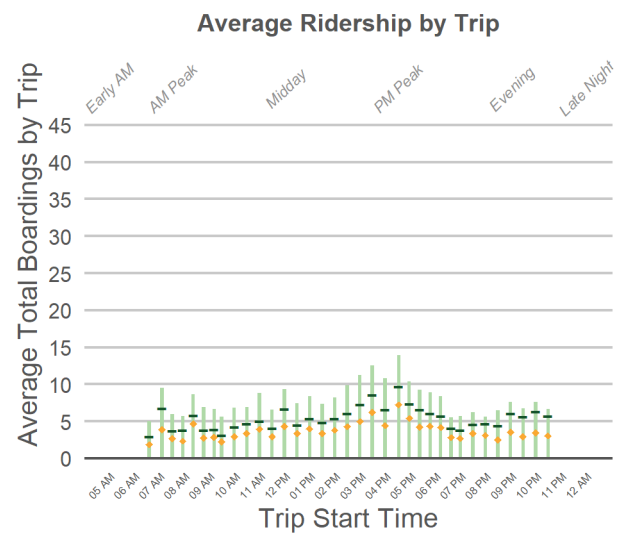
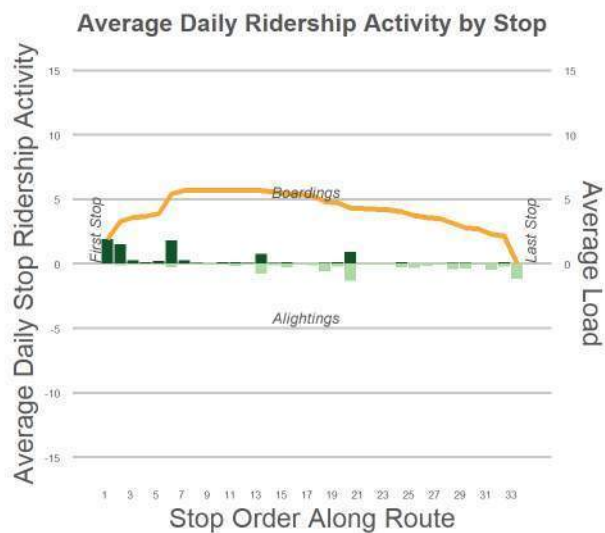
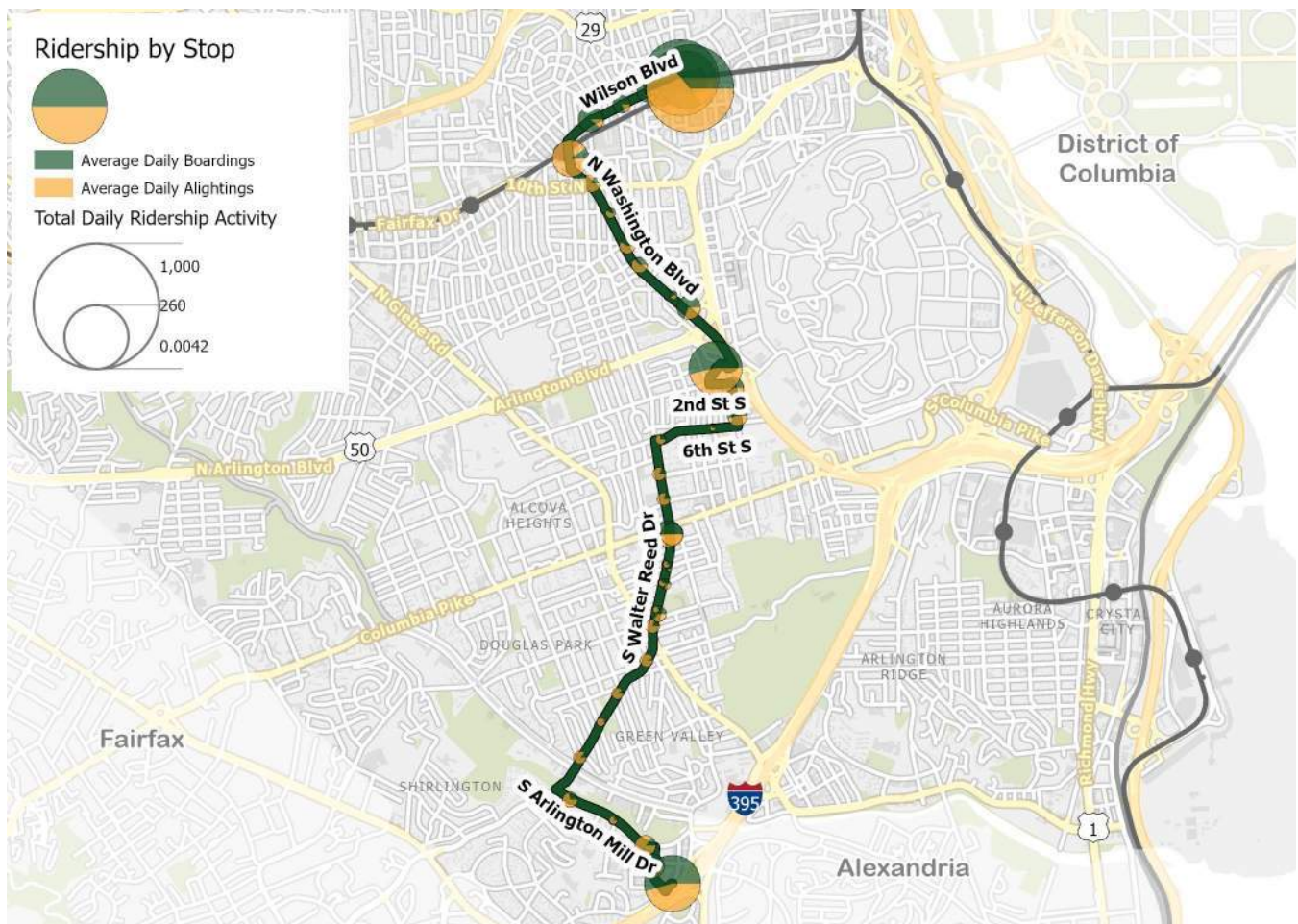
FINANCIAL PERFORMANCE	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY REVENUE	\$422	\$299	\$0
REVENUE/PASSENGER	\$1.16	\$1.16	\$0.00
REVENUE/TRIP	\$12.16	\$8.92	\$0.00
AVERAGE DAILY COST	\$4,481	\$3,973	\$0
COST/PASSENGER	\$12.27	\$15.36	\$0.00
COST/REVENUE MILE	\$11.93	\$10.48	\$0.00
COST/TRIP	\$129.10	\$118.44	\$0.00
SUBSIDY/PASSENGER	\$11.12	\$14.21	\$0.00
FAREBOX RECOVERY RATIO	9%	8%	8%

## Pandemic Impacts and Trends



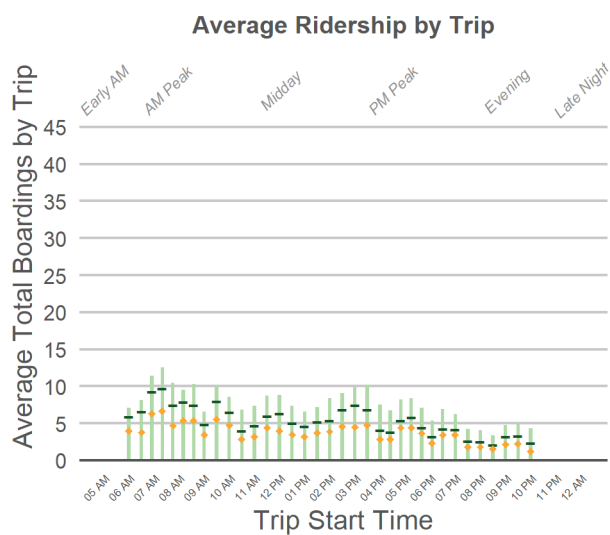
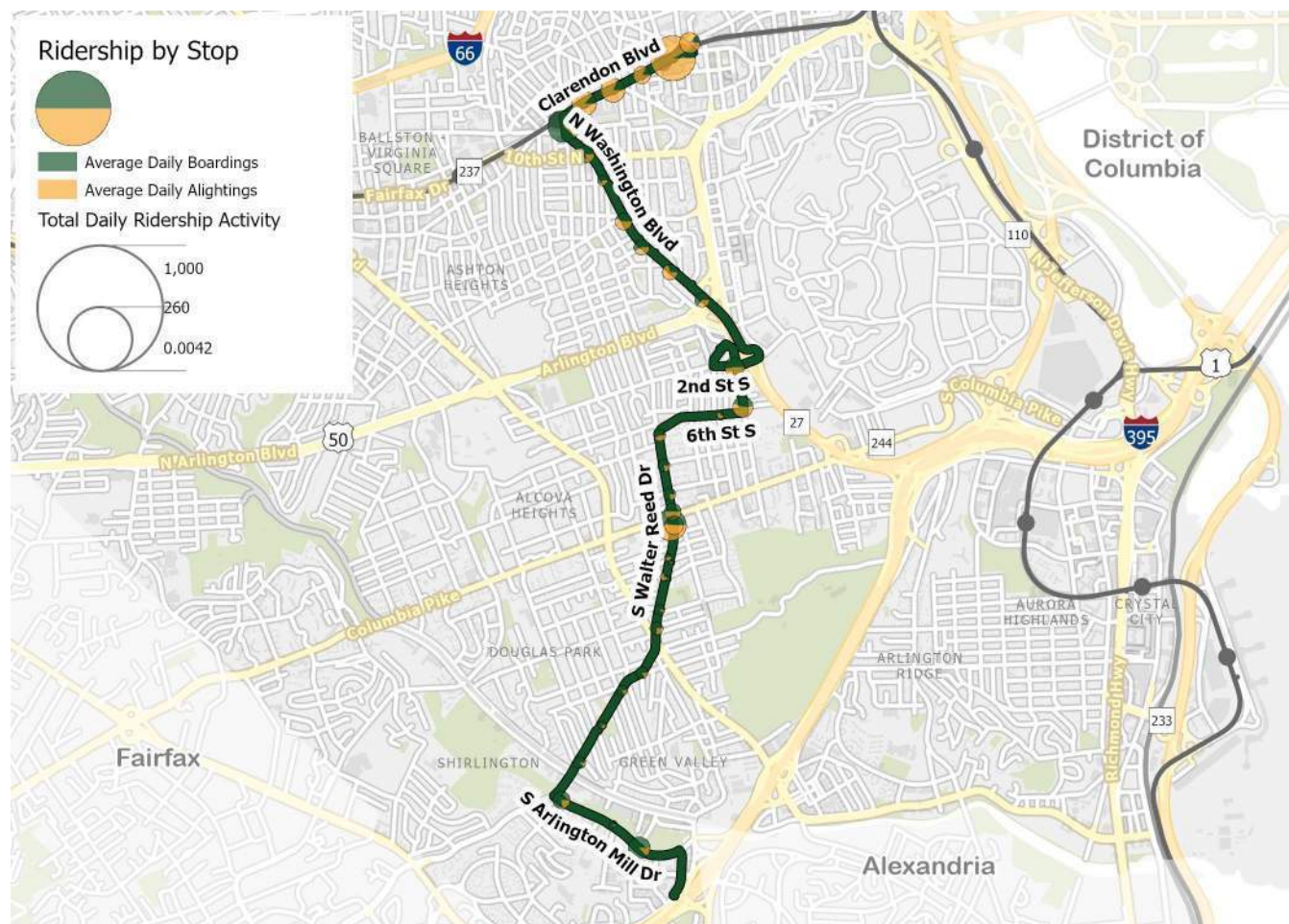
Note: "System Trend" line is percentages only, not actual metrics

## Ridership Analysis – Service to Shirlington





## Ridership Analysis – Service to Court House



# 84

## Douglas Park/Pentagon City

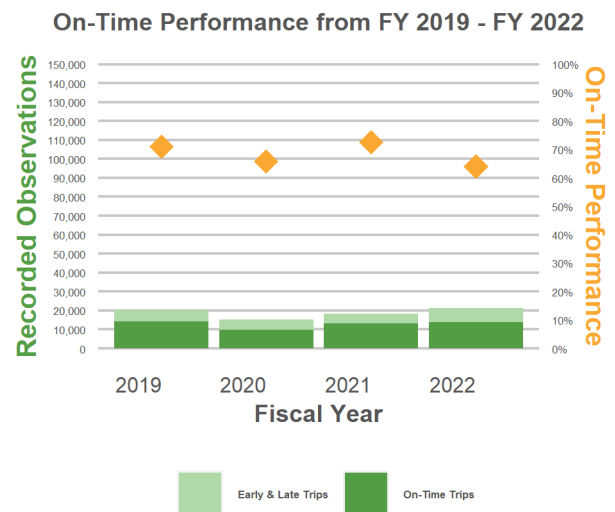
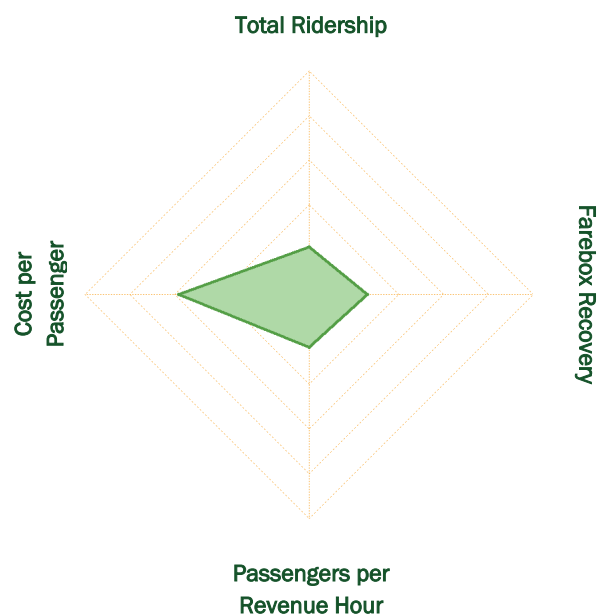
SECONDARY

MAJOR GENERATORS: Douglas Park, Pentagon City Metro

LAND USE: Employment Centers, Mixed-Use, Retail, Transit Center



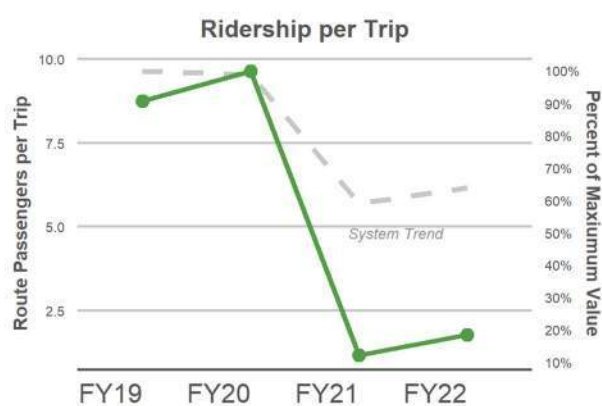
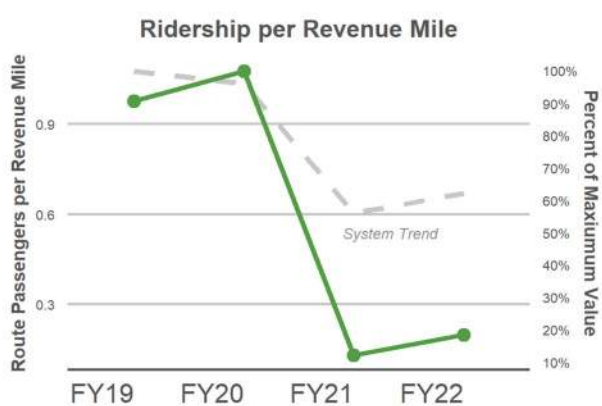
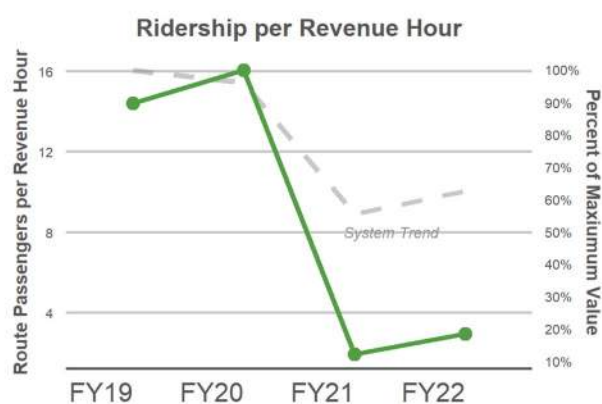
CHARACTERISTICS	WEEKDAY	SATURDAY	SUNDAY
SPAN OF SERVICE	5:50am-9:32am3:40pm-7:46pm		
PEAK FREQUENCY	20	30	30
BASE FREQUENCY	35	30	30
OPERATING STATISTICS	WEEKDAY	SATURDAY	SUNDAY
ONE-WAY TRIPS	24	0	0
REVENUE HOURS	14	0	0
REVENUE MILES	213	0	0
SERVICE PRODUCTIVITY	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY PASSENGERS	42	0	0
PASSENGERS/REVENUE HOUR	3.0	0.0	0.0
PASSENGERS/REVENUE MILE	0.2	0.0	0.0
PASSENGERS/ONE-WAY TRIP	1.8	0.0	0.0





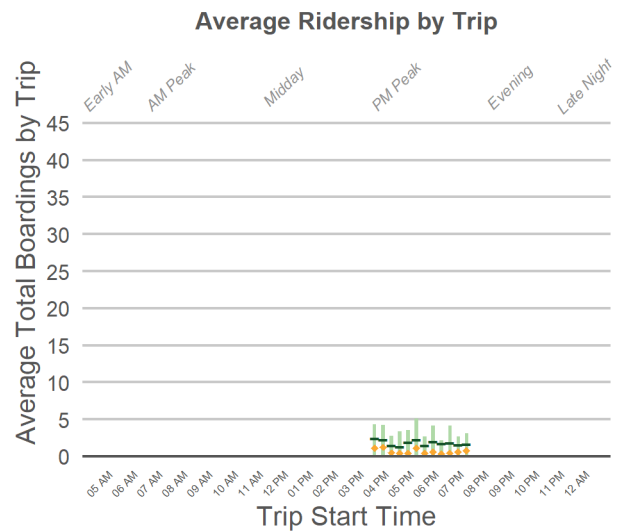
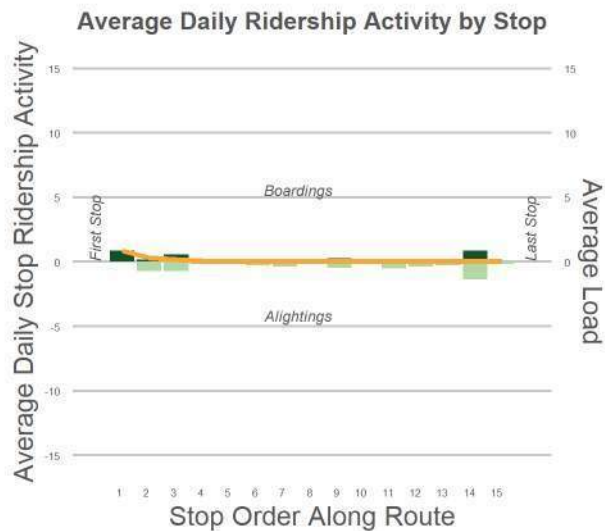
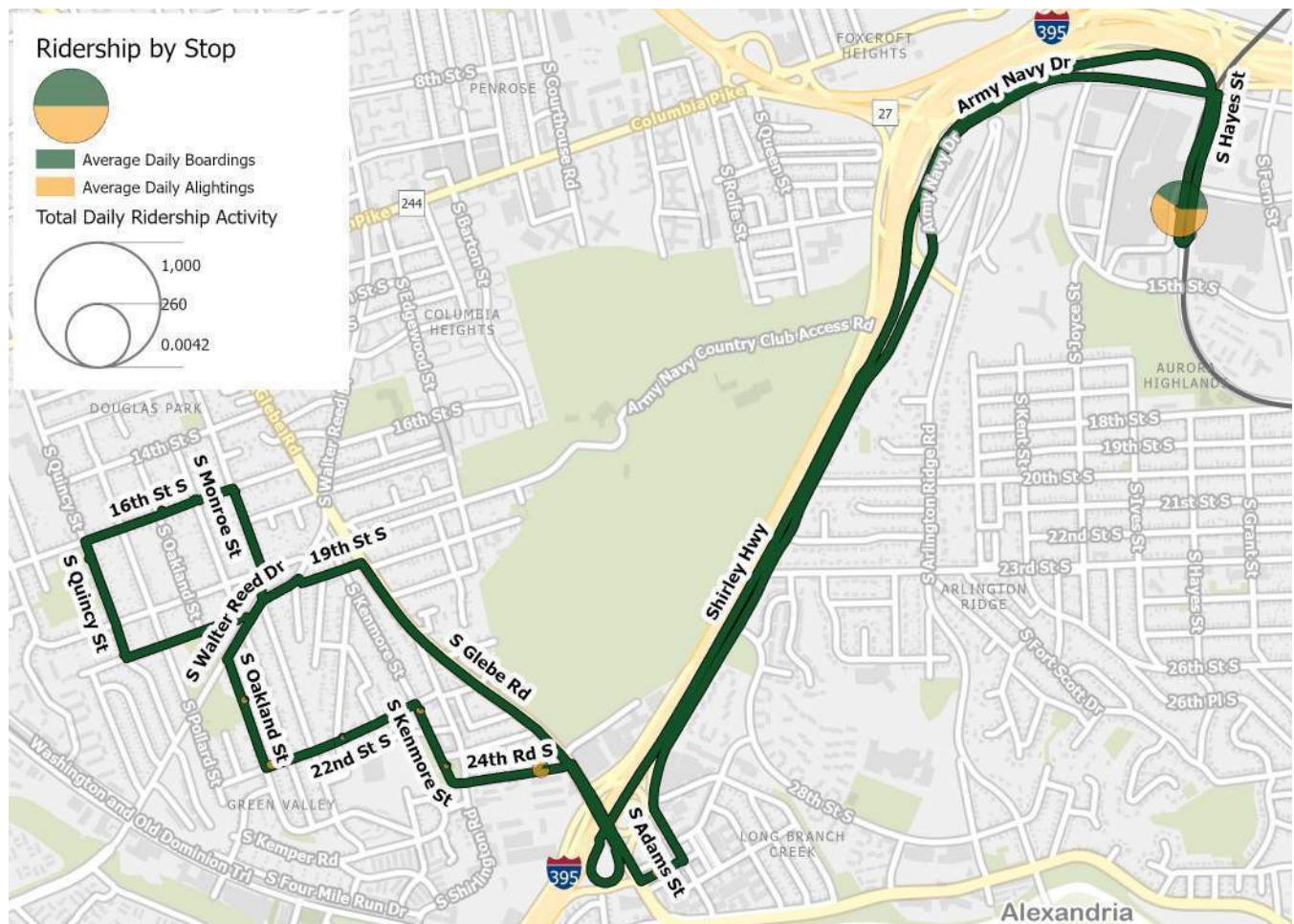
FINANCIAL PERFORMANCE	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY REVENUE	\$49	\$0	\$0
REVENUE/PASSENGER	\$1.16	\$0.00	\$0.00
REVENUE/TRIP	\$2.06	\$0.00	\$0.00
AVERAGE DAILY COST	\$1,692	\$0	\$0
COST/PASSENGER	\$39.96	\$0.00	\$0.00
COST/REVENUE MILE	\$7.94	\$0.00	\$0.00
COST/TRIP	\$71.06	\$0.00	\$0.00
SUBSIDY/PASSENGER	\$38.80	\$0.00	\$0.00
FAREBOX RECOVERY RATIO	3%	0%	0%

## Pandemic Impacts and Trends

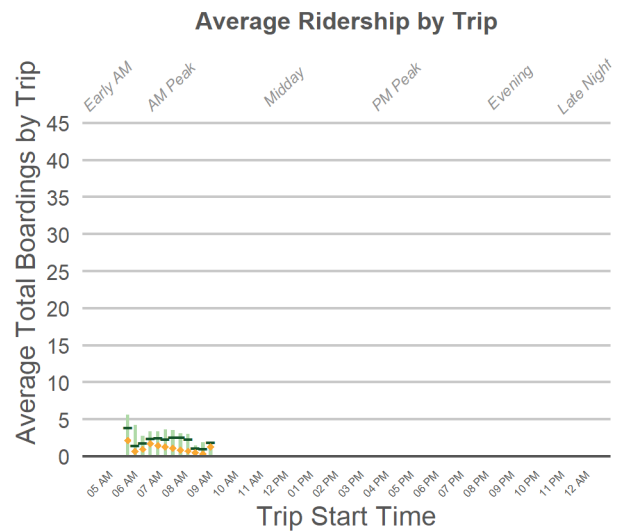
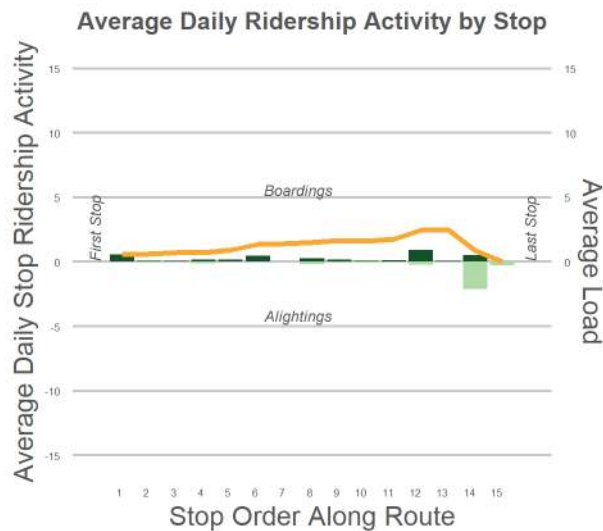
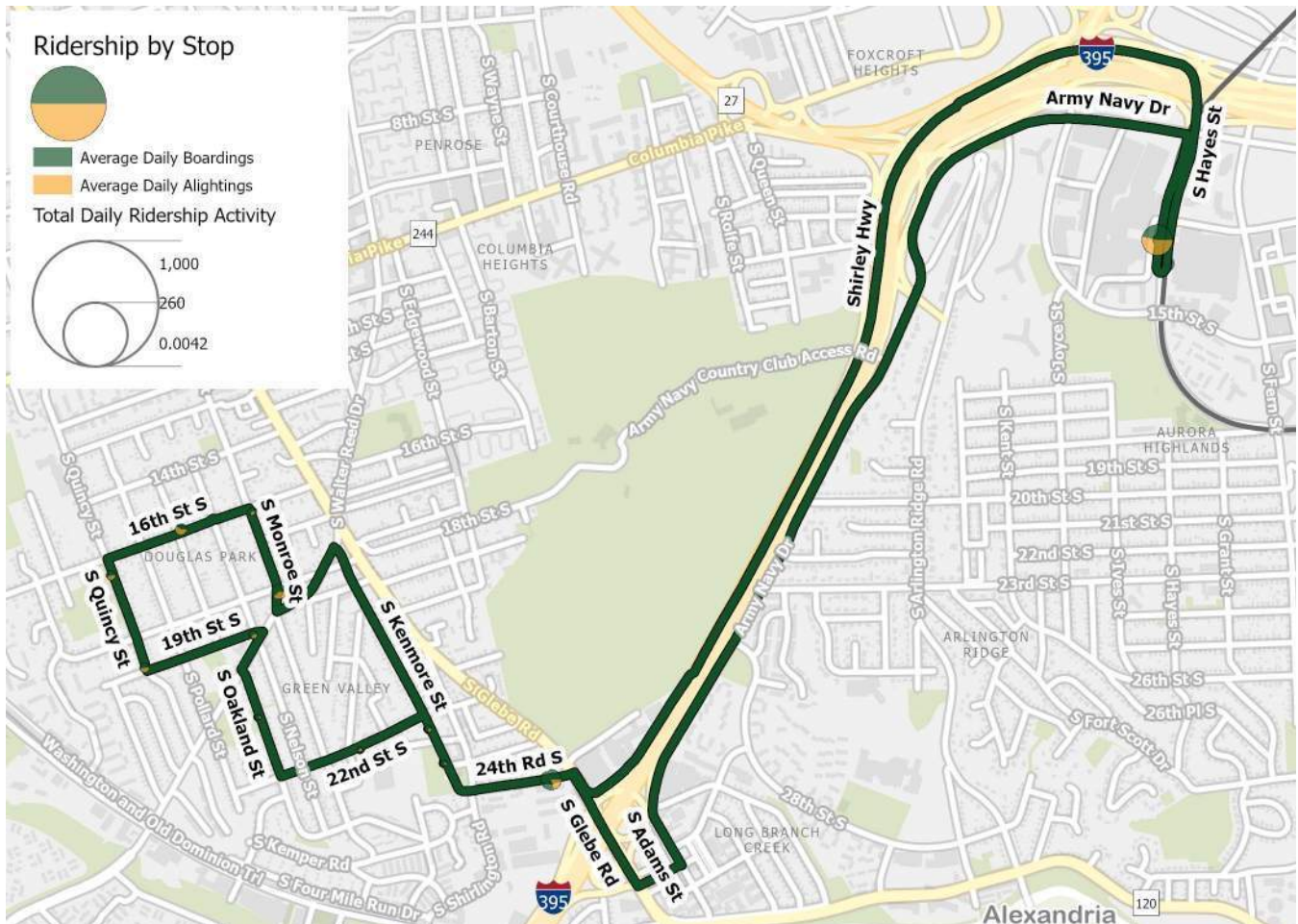


Note: "System Trend" line is percentages only, not actual metrics

## Ridership Analysis – Service to Douglas Park



## Ridership Analysis – Service to Pentagon City





# 87

## Shirlington/Pentagon (also 87A/P/X)

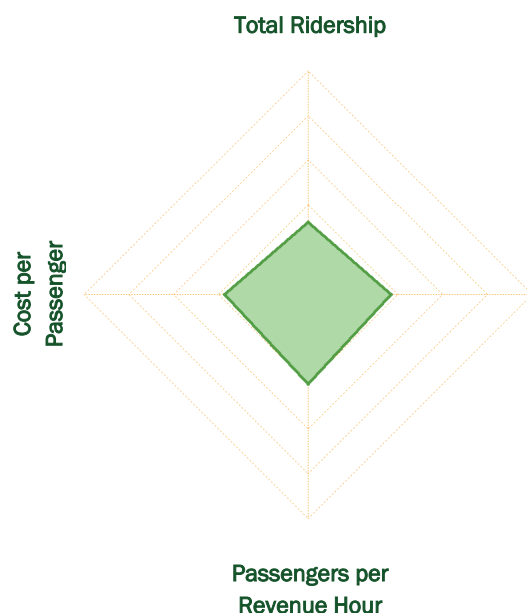
### SECONDARY

**MAJOR GENERATORS:** Pentagon City Metro, Pentagon Metro, Shirlington Transit Center

**LAND USE:** Employment Centers, Mixed-Use, Retail, Transit Center

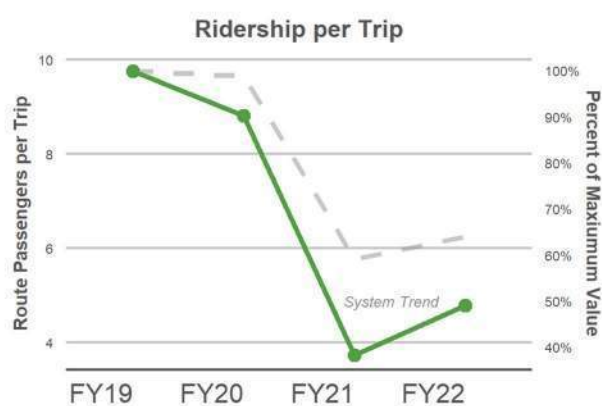
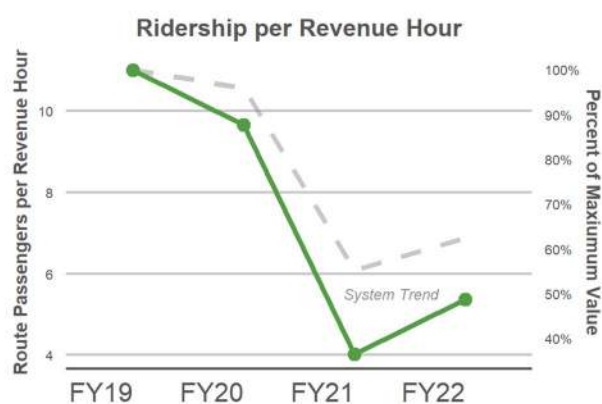
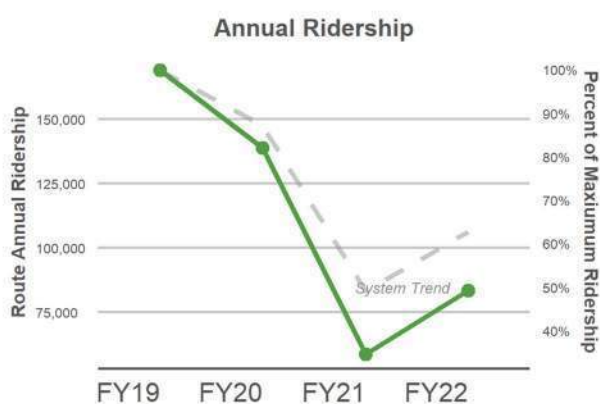


CHARACTERISTICS	WEEKDAY	SATURDAY	SUNDAY
SPAN OF SERVICE	5:50pm-10:32pm	7:00am-11:53pm	7:18am-7:11pm
PEAK FREQUENCY		30	30
BASE FREQUENCY		30	30
OPERATING STATISTICS	WEEKDAY	SATURDAY	SUNDAY
ONE-WAY TRIPS	56	33	24
REVENUE HOURS	49	33	24
REVENUE MILES	427	328	231
SERVICE PRODUCTIVITY	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY PASSENGERS	272	155	107
PASSENGERS/REVENUE HOUR	5.6	4.6	4.5
PASSENGERS/REVENUE MILE	0.6	0.5	0.5
PASSENGERS/ONE-WAY TRIP	4.8	4.6	4.5



FINANCIAL PERFORMANCE	WEEKDAY	SATURDAY	SUNDAY
AVERAGE DAILY REVENUE	\$315	\$179	\$124
REVENUE/PASSENGER	\$1.16	\$1.16	\$1.16
REVENUE/TRIP	\$5.59	\$5.36	\$5.24
AVERAGE DAILY COST	\$5,787	\$3,961	\$2,794
COST/PASSENGER	\$21.26	\$25.56	\$26.15
COST/REVENUE MILE	\$13.56	\$12.07	\$12.07
COST/TRIP	\$102.75	\$118.44	\$118.44
SUBSIDY/PASSENGER	\$20.10	\$24.41	\$24.99
FAREBOX RECOVERY RATIO	5%	5%	5%

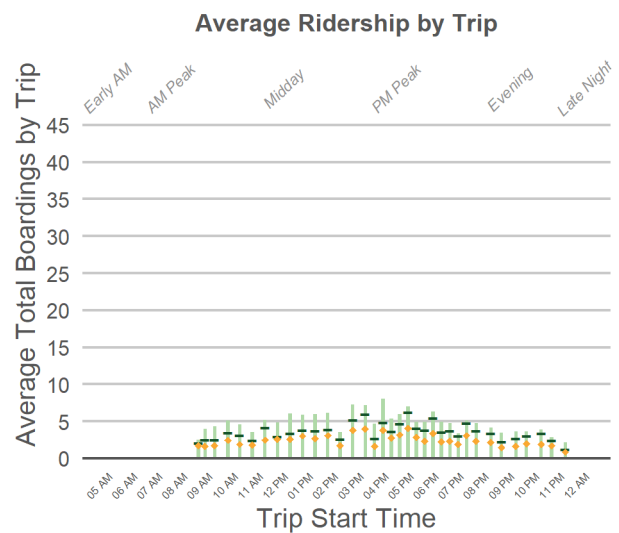
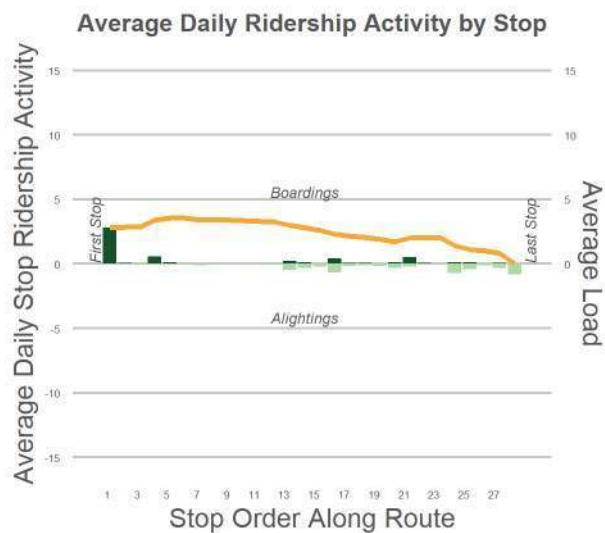
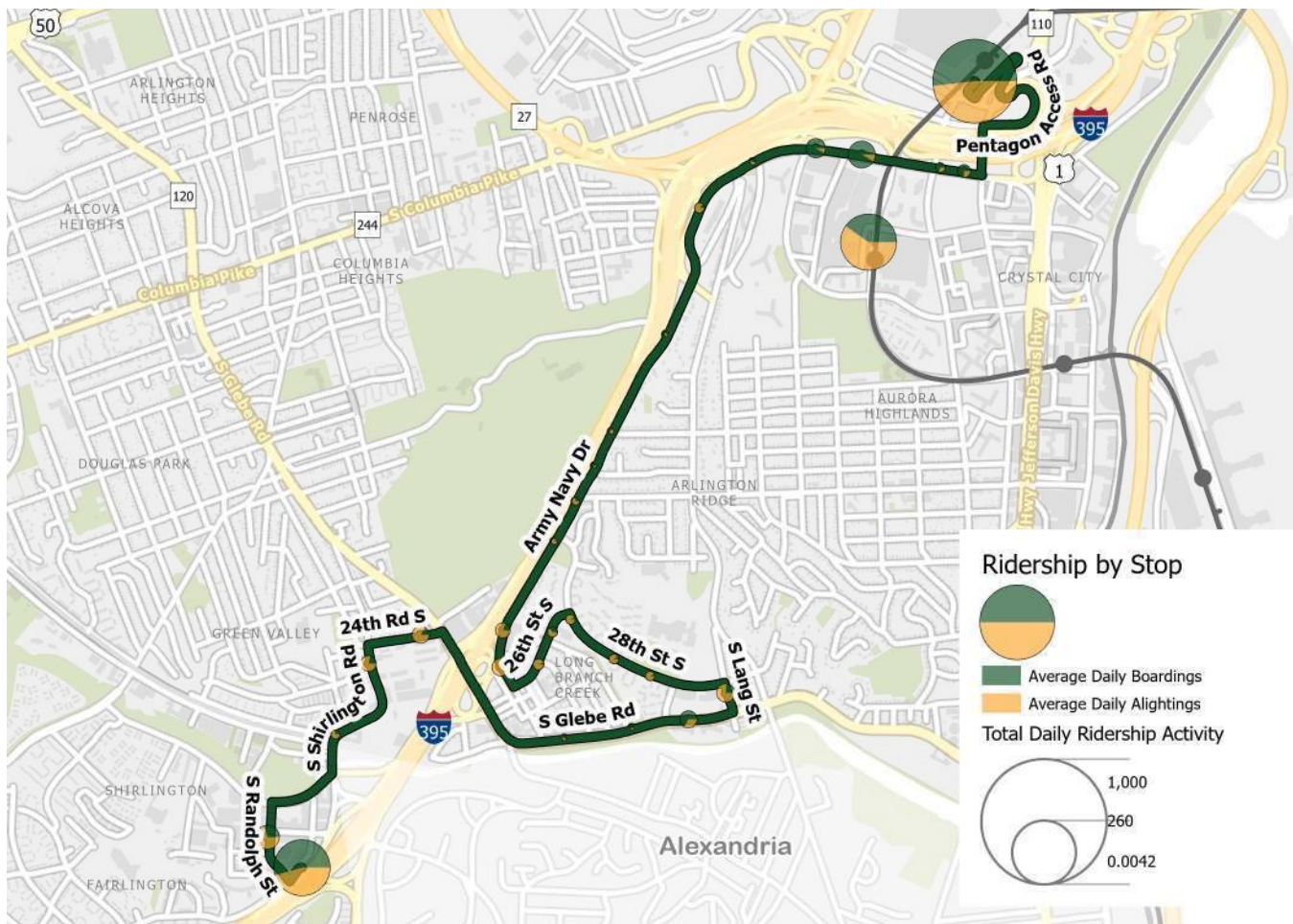
## Pandemic Impacts and Trends



Note: "System Trend" line is percentages only, not actual metrics



## Ridership Analysis – Service to Shirlington



## Ridership Analysis – Service to Pentagon, Pentagon City

