FY 2021 – FY 2026
ALEXANDRIA TRANSIT COMPANY (DASH)
TRANSIT DEVELOPMENT PLAN

ADOPTED BY ATC BOARD OF DIRECTORS ON MAY 27, 2020

ALEXANDRIA TRANSIT COMPANY
DASH

FY 2021 - FY 2026 ATC TRANSIT DEVELOPMENT PLAN
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1.0 / Executive Summary

This document represents the FY 2021 – FY 2026 Transit Development Plan (TDP) for the Alexandria Transit Company (ATC). The Alexandria Transit Company is responsible for the management, operation and maintenance of the DASH bus system in Alexandria, Virginia.

The Transit Development Plan (TDP) provides a comprehensive vision of future service development, fare adjustments, and capital investments based on recommendations from the General Manager, ATC Board of Directors and DASH staff. More specifically, it evaluates current DASH system performance, outlines projected service levels for the fiscally-constrained FY 2021 operating budget, and provides fiscally-unconstrained guidance on future service changes and capital improvements for the remaining five years of the six-year plan cycle (FY 2022 – FY 2026). The TDP is updated each year by DASH staff and is subject to annual review, amendment, and adoption by the ATC Board of Directors. The document also serves as a resource for the city staff as they consider future ATC requests for financial assistance.

The FY 2021 Transit Development Plan addresses the period beginning July 1, 2020 and ending June 30, 2026. The document has been prepared in accordance with board-adopted procedures and is divided into four main sections – System Overview (Section 3), System Performance (Section 4), Service & Fare Change Recommendations (Section 5), and Capital Budget (Section 6).

The key findings and recommendations of these four sections are summarized below:

1.1 / System Performance

- In FY 2019, DASH operated over 215,000 revenue hours of regular DASH service, which was a 1.5 percent decrease as compared to the amount of revenue hours operated in FY 2018.

- DASH recorded nearly 3.8 million boardings in FY 2019, a 2.8 percent decrease from FY 2018. Excluding the months during the Metrorail Platform Improvement Project (PIP), the total decrease was only 1.2 percent from FY 2018. For comparison purposes, Metrobus average daily ridership in Northern Virginia was down by 4.7 percent during the same period.

- The DASH Operating Ratio, which measures the portion of total annual operating costs that are covered by revenues was 36.8 percent in FY 2019, or 4.6 percent higher than FY 2018. This increase is due to revenue earned in providing contract service to WMATA during the Metrorail Platform Improvement Project.

- DASH On-Time Performance was 85.2 percent in FY 2019, which represent a 3.1 percent improvement from FY 2018, when 82.1 percent of service was provided on time.

1.2 / FY 2021 Service & Fare Change Recommendations

- The following DASH service changes are proposed for FY 2021:

    o **FY 2021 Service Levels.** For annual budgeting purposes, DASH projects that FY 2021 service levels for regular DASH routes and the King Street Trolley will be roughly 241,000 platform hours and 2,028,000 platform miles. These totals represent overall service decreases of 1.4 percent and 2.6 percent, respectively, from projected FY 2020 levels

exclusive of the Commuter Choice and Platform Improvement Project service enhancements. The total annual service provided for FY 2021, including the I-395 Commuter Choice improvements, is estimated to be 272,000 platform hours and 2,359,000 platform miles.

NOTE: Above estimates are for budgeting purposes and do not account for reduced service levels resulting from the COVID-19 pandemic. The actual FY 2021 total service levels could be significantly lower, depending on when DASH is able to return to regular weekday service levels.

- o **AT-4 Old Town Service Discontinuation.** DASH will remove the southernmost segment of the AT-4 routing so that the route ends at the Braddock Road Metro Station instead of continuing into Old Town (Effective Fall 2020)

- o **Season Trolley Re-Route.** The King Street Trolley will be re-routed as part of the King Street Place project, which will partially shut down the 100 block of King Street to vehicle traffic during certain days and times. The Trolley will continue to serve the Waterfront stop via a modified routing along North Lee Street, Cameron Street, and North Union Street.

- o **Holiday Service Plan Changes.** DASH will modify its holiday operating plan so that DASH runs Sunday service on Thanksgiving Day, Christmas Day, and New Year's Day instead of operating no regular service. This change is consistent with other regional operators and will benefit customers who still need to make bus trips on those days.

- The following DASH fare-related actions are planned for FY 2021:

  - o **Fare Changes.** No changes to the base fare or DASH Pass will be made in FY 2021.

  - o **WMATA Regional Pass Products.** If WMATA expands its regional pass offerings, DASH will begin allowing DASH passengers to use any WMATA pass product as valid fare payment, in accordance with recommendations from WMATA's Bus Transformation Project. Currently, DASH accepts the 7-Day Regional Bus Pass and participates in a regional revenue sharing agreement that distributes funds based on pass usage. This planned change would expand this agreement to include all current and future WMATA regional passes for both bus and rail.

  - o **DASH-Metrorail Transfer Discount.** Contingent upon final FY 2021 WMATA budget decisions, DASH is planning to increase the fare discount for passengers transferring from Metrorail to DASH from $0.50 to $1.00. This would be a reciprocation of a proposed transfer discount for DASH passengers who transfer to WMATA.

  - o **Free Student Rides.** DASH staff will continue the "Free Student Rides" program for Alexandria high school students for its fourth year. This program promotes transit awareness and ridership among young adults who can become future DASH users.

  - o **Fare-Free Days.** DASH staff will explore the possibility of operating fare-free service on selected days to promote public transit awareness and usage. Eligible days could

include but are not limited to holidays, election days, air quality alert days, or the introduction of major service changes such as the new ATV network.

- o **Mobile Ticketing Pilot.** The DASH Bus app was launched in Spring 2019 as a one-year pilot with options for contract extensions in subsequent years. DASH staff will be extending the pilot period through April 2021. This will allow DASH additional time to evaluate the app and to coordinate with regional partners on potential next steps.

- **I-395 Commuter Choice Program.** DASH will continue the service enhancements on the AT-1 Plus and the AT-9 as part of the inaugural I-395 Commuter Choice program through the end of FY 2021. The selected improvements are the first step towards the Alexandria Transit Vision Plan networks and a precursor to the future West End Transitway service. DASH will apply for additional service enhancements as identified through the Alexandria Transit Vision Plan for the FY 2022 – FY 2023 I-395 Commuter Choice project cycle.

1.3 / FY 2022 – FY 2026 Service & Fare Change Recommendations

- **Alexandria Transit Vision Plan:**

- o In FY 2022, DASH is planning to implement the new 2022 Alexandria Transit Vision (ATV) Plan network, which is the first major step towards the final 2030 ATV Plan. As shown in Section 5-3, the new 2022 network features a series of frequent, all-day routes running along key corridors that will provide a significant increase in access to useful transit for most Alexandria residents. The network was adopted by the ATC Board of Directors in December 2019 and will be included in the FY 2022 Transit Development Plan (TDP) and will be taken under consideration by City Council as part of the FY 2022 city budget approval process.

- o Between FY 2022 and FY 2030, DASH is planning to implement the 2030 ATV Plan Network. As shown in Section 5-3, these recommendations include route realignments in West Alexandria and major frequency and span improvements. Two corridors – Eisenhower Avenue and Duke Street – have been identified as the top priorities among the 2030 changes in the hopes that they can be implemented by FY 2024 – FY 2025.

- No additional fare changes for FY 2022 or beyond are being proposed at this time.

1.4 / ATC Capital Program Summary

- As of the start of FY 2021, the current DASH bus fleet includes 99 active buses, and five emergency contingency spares:

- o In FY 2020, DASH purchased and took delivery of 8 new New Flyer clean diesel buses to improve the agency's spare ratio and increase service reliability. The buses were delivered in December 2019 and began operating in revenue service in February 2020.

- o In FY 2021, DASH will be taking delivery of its first six battery electric buses through the VW Mitigation Trust program. These buses will replace the six remaining Orion diesel

buses. The installation of the charging equipment and the corresponding facility upgrades will be completed by Summer 2020 and are funded by NVTA.

- o In order to operate the AT-1 Plus and AT-9 service enhancements, DASH made the decision to keep six of the articulated buses that DASH used to operate the Blue Line Shuttle during the Summer 2019 WMATA Platform Improvement Project.

- o DASH has also kept five additional coaches – including two Gillig Phantoms and three MCI's – that were purchased as part of the Platform Improvement Project. These buses are intended to help supplement the DASH charter fleet, but may also be used as emergency contingency buses, if needed.

- **Fleet Replacement**. The City of Alexandria's FY 2021 – FY 2030 Capital Improvement Plan (CIP) includes substantial funding for DASH replacement buses that will allow DASH to maintain its State of Good Repair (SGR), however, due to a gap in bus purchases between 2007 and 2011, DASH is not slated to receive any CIP funding for replacement buses in FY 2021 or FY 2022. The total approved FY 2021 – FY 2030 CIP funding for replacement bus purchases – including a gradual transition to zero-emission fleet – is $80.2 million.

- **Zero-Emission Fleet Planning.** DASH recently worked with the Center for Transportation & the Environment (CTE) to complete a Zero-Emission Fleet Feasibility Study. In 2020, DASH will be conducting a Zero-Emission Fleet Implementation Plan to determine the path forward towards a zero-emission bus fleet.

- **DASH Facility & Fleet Expansion Project**. DASH is entering the solicitation phase for a major facility expansion project that will be funded by the state's Smart Scale program. The project will allow DASH to expand its facility onto the existing city impound lot that is located immediately west of the existing DASH garage. The expansion will include capacity for up to 45 additional buses and electric charging equipment and infrastructure in support of a future zero-emission bus fleet. It also includes six expansion buses by FY 2023.

- **Other Capital Improvement Projects**. Additional FY 2021 – FY 2030 CIP funds are allocated for hybrid powertrain replacement, electronic fare payment, farebox upgrades, and other DASH technology needs.

- **Additional COVID-Related Costs.** Additional capital and operating costs will be necessary in FY 2021 to purchase supplemental cleaning and safety equipment, and to implement additional COVID-related safety and cleaning protocols. Many of these costs will be eligible for federal reimbursement under the CARES Act.

2.0 / TDP Background

The Transit Development Plan is prepared each year to document and present the General Manager's recommendations relating to service, fares and the capital budget for the upcoming fiscal year. The plan also serves as a planning and budgetary road map for the following five years. To this end, the TDP provides an evaluation of the existing DASH bus service and a corresponding outline for future service development and capital investment. The plan aligns with the budgetary assumptions for the upcoming fiscal year (FY 2021) and will be used as a starting point for budget discussions in future fiscal years (FY 2022 – FY 2026).

2.1 / Purpose & Format

The Transit Development Plan (TDP) is designed to provide a comprehensive vision of future service development, fare adjustments, and capital investments based on recommendations from the General Manager, ATC Board of Directors and DASH staff. More specifically, it evaluates current DASH system performance, outlines projected service levels for the fiscally-constrained FY 2021 operating budget, and provides fiscally-unconstrained guidance on future service changes and capital improvements for the remaining five years of the six-year plan cycle (FY 2022 – FY 2026). The TDP is updated each year by DASH staff and is subject to annual review, amendment, and adoption by the ATC Board of Directors. The document also serves as a resource for the city staff as they consider future ATC requests for financial assistance

2.2 / Process & Timeline

The TDP approval process is designed to run in parallel with the City of Alexandria's annual budget timeline. As shown in Table 2-1, the basic TDP assumptions are developed by DASH management in the late fall and early winter. A preliminary draft of the TDP is typically submitted to the Board of Directors and released for public review in March. This release marks the beginning of a month-long public comment period that culminates with a formal public hearing at the April meeting of the ATC Board. The public comment period includes multiple community meetings, online engagement and the opportunity for comments to be submitted via phone, email, or in person at the Board of Directors meeting in April. DASH staff reviews all feedback and modifies the document as needed to incorporate feedback and align with the final city budget. The final ATC Transit Development Plan is then reviewed and adopted by the ATC Board of Directors in May so that the plan may be implemented for the subsequent fiscal year on July 1st.

Table 2 – 1 / Annual ATC Transit Development Plan (TDP) Timeline

Month	ATC/DASH Activity	City Activity
July	No Actions	No Actions
August	No Actions	No Actions
September	DASH Finance Department Develops and Distributes Budget Process to internal staff	No Actions
October	Draft ATC Budget Presented to Board	City Manager releases Priorities and Instructions Memorandum, Current Services Budget Submitted to City OMB
November	Board Acts to Approve or Amend Draft Budget, including Supplementals and Reductions	Supplementals and Reductions Submitted to City OMB
December	No Actions	No Actions
January	No Actions	City Manager Finalizes Proposed Budget and CIP
February	No Actions	City Manager Releases Proposed Budget and CIP to City Council
March	Draft TDP and Budget Presented to Board and released for month-long public comment period	City Budget Hearings
April	Board holds Public Hearings for Draft TDP and Budget	City Budget Hearings ongoing
May	Board Adopts TDP and Budget	City Council Adopts Budget and CIP
June	No Actions	No Actions

2.3 / Alexandria Transit Vision Plan

The Alexandria Transit Vision (ATV) Plan is an ambitious bus network redesign study by DASH and the City of Alexandria that takes a community-driven approach to re-designing the city's transit network from scratch. The ultimate goal of the ATV – as determined through community outreach – is to create a more useful bus network that encourages more people to go more places at more times using transit. Similar transit network redesigns have been successfully implemented in Houston, Seattle, San Jose and Richmond.

After three rounds of public engagement and nearly two years of discussion, the final 2022 and 2030 Alexandria Transit Vision Plan networks were adopted by the DASH Board of Directors in December 2019. The networks were designed based on the policy guidance that DASH should dedicate 85 percent of its annual revenue hours to ridership maximization, and 15 percent to coverage-oriented service. The resulting 2030 ATV recommendations would create a network of frequent, all-day bus routes across the City of Alexandria that will provide significant improvements in mobility options for most Alexandria residents and encourage additional transit usage, which benefits the City as a whole. Additional information, maps and tables for the 2022 and 2030 ATV networks are provided in Section 5-3 of this plan and on the ATV website (www.dashbus.com/transitvision).

The 2022 ATV Network is planned for implementation in July 2021 and will therefore be included in the DASH subsidy request in the City of Alexandria's FY 2022 budget cycle. Through this process, city staff and City Council will have the ultimate discretion on the amount of funding that will be made available for the implementation of the 2022 ATV Network. Consequently, the service, fare, and capital improvement recommendations for FY 2021 include very few changes, but the FY 2022 – FY 2027 recommendations are guided almost exclusively by the final network recommendations in the Alexandria Transit Vision (ATV) Plan. The one service change that is proposed for FY 2021 – the elimination of AT-4 service between the Braddock Road Metro and City Hall – is consistent with the future ATV Plan network.

One of the major discussion items during the DASH Board of Directors' consideration of the Final ATV Network was the decision to continue local AT-2 bus service along Seminary Road and Janneys Lane between Howard Street and King Street. While the Board ultimate decided that the local bus service should be continued, it recommended that the ridership along that segment should be monitored on an annual basis to ensure that the ridership was sufficient to warrant the continuation of the service. As a result, the ridership on this segment will be provided in Section 4 of each annual TDP until FY 2025 to determine if the benchmark of a 20% increase in average weekday boardings is being met.

Lastly, one of the biggest themes of the ATV Plan was the idea of increasing freedom of mobility, which in turn, increases access to opportunities ranging from jobs to education, from health care to childcare, and from social activities to civic involvement. To this end, future DASH Transit Development Plans will include performance measures that calculate the number of city residents who have access to useful, frequent, all-day transit, and the number of people and jobs that are within a 30-minute transit trip of key destinations around the city.

3.0 / System Summary

DASH operates traditional fixed-route bus service on eleven regular bus routes, and the King Street Trolley. The primary DASH service area covers approximately 15 square miles and generally aligns with the jurisdictional boundaries of the City of Alexandria. A map of the DASH bus system is included as Figure 3-1. An inset map depicting bus service in Old Town Alexandria is shown as Figure 3-2.

3.1 / Service Area

The majority of DASH service operates within the City of Alexandria, however, two routes – the AT-3 and AT-4 – also provide service along Interstate 395 between Alexandria and the Pentagon during weekday peak hours. As shown in Figures 3-1 and 3-2, the DASH bus system design follows a modified hub-and-spoke network design model with Old Town as the "hub", and the major east-west arterials (King Street, Seminary Road, Duke Street, and Eisenhower Avenue) serving as the "spokes". Several "crosstown routes" also provide connections between outlying areas and major trip generators on the West End and northern Alexandria. All but one of the twelve DASH routes connect to at least one of the four Metrorail Stations within the City of Alexandria.

Based on a geospatial analysis of the DASH network, approximately 146,000 Alexandria residents (96% of all residents) are within short walking distance (¼ mile) of a DASH or WMATA bus stop. Roughly 82,000 jobs (91% of all jobs) in or around Alexandria are within short walking distance of a DASH or WMATA bus stop.

3.2 / Routes

The DASH bus system consists of 11 regular bus routes and the King Street Trolley. The basic characteristics of each route are summarized in Table 3-1. All twelve bus routes operate on weekdays, however, only eight routes run on Saturdays and Sundays. On most routes, weekday service runs from roughly 6:00 AM to 10:00 PM, Saturday service from 7:00 AM to 10:00 PM, and Sunday service from 8:00 AM to 8:00 PM. Weekday peak service for most routes runs every 15-30 minutes. Weekday off-peak service typically runs every 30-60 minutes during mid-days and evenings. Of the eight Saturday routes, five run every 30 minutes or less, while on Sundays, six of the eight routes only run once every hour.

DASH also operates the iconic King Street Trolley, a free tourist-oriented service running between the King Street Metro and the Old Town Waterfront. The trolleys run every 10-15 minutes, 365 days per year. Daily service starts at 10:30 AM and typically ends at 10:30 PM, with extended late-night service on Thursdays, Fridays, and Saturdays.

Additional information on the destinations, service levels and operating characteristics for specific DASH routes is provided in Table 3-1.

Figure 3 – 1 / DASH System Map

Figure 3 – 1 / DASH System Map

Figure 3 -2 / Old Town Alexandria Inset Map
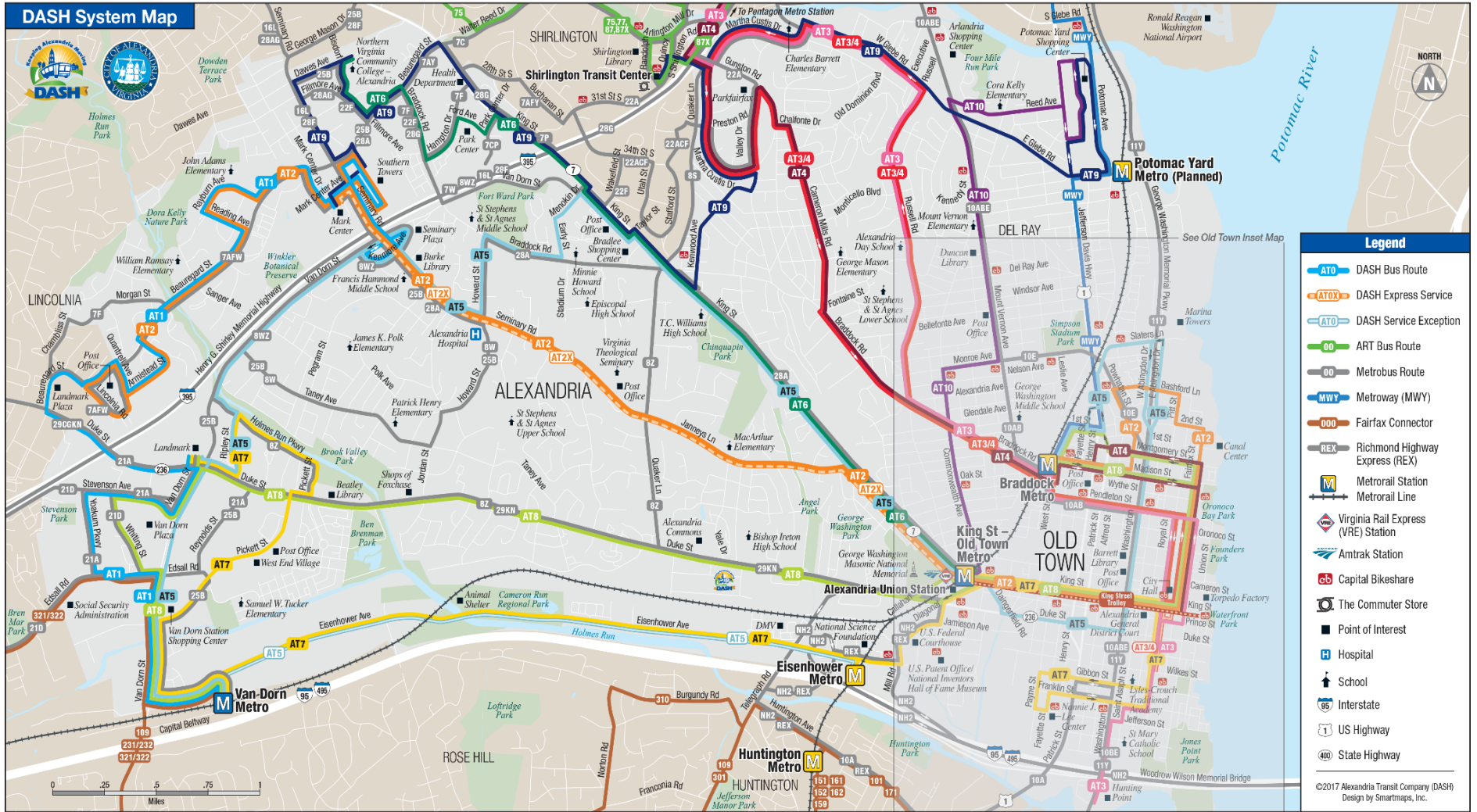
Table 3-1 / DASH Service Characteristics by Route

Route	Route Description	Span/Frequency								Peak Vehicle Req's (Approx)			Avg. Daily Boardings (November 2019)			Daily Rev. Hours (November 2019)		
		Weekday				Saturday		Sunday										
		Span	Peak	Off-Peak	Night	Span	Freq.	Span	Freq.	Wky	Sat	Sun	Wky	Sat	Sun	Wky	Sat	Sun
AT1	Seminary Plaza to Van Dorn Metro via Beauregard & Duke	6am - 11pm	10	20	60	7am - 11pm	30	8am - 11pm	30	14	5	4	2,049	1,056	786	148.8	75.8	63.9
AT2 (2X)	Lincolnia to Braddock Road Metro via Seminary, King Street Metro & Old Town (2X - Mark Center Express)	6am - 10pm (6 - 9am & 3 - 6pm)	20/30 (10/20)	30	60	8am - 11pm	60	8am - 8pm	60	12	3	2.5	1,341	420	345	90.0	34.2	28.8
AT3	Hunting Point to Pentagon Metro via Old Town, Braddock, Russell, Glebe and I-395	6 - 9am & 4 - 8pm	20	-	-	-	-	-	-	5	-	-	592	-	-	37.8	-	-
AT4	City Hall to Pentagon Metro via Old Town, Braddock Road Metro, Cameron Mills, and I-395	6 - 9am & 4 - 7:30pm	20	-	-	-	-	-	-	5	-	-	501	-	-	38.8	-	-
AT3/4	City Hall to Parkfairfax Loop via Old Town, Braddock Road Metro, Braddock, Glebe & Russell	10:30am - 3pm & 8:30 - 10:30pm	-	60	60	9am - 8pm	60	9am - 6pm	60	0	1	1	38	56	57	11.9	11.9	10.9
AT5	Van Dorn Metro to Braddock Road Metro via Landmark Mall, Van Dorn, King & Old Town	6am - 10:30pm	20/30	30	60	7:30am - 10:30pm	30	8am - 8pm	60	7	6	2.5	1,354	797	349	90.8	93.3	36.3
AT6	King Street Metro to NVCC via King	6am - 10pm	15	30	30	-	-	-	-	5	-	-	692	-	-	55.6	-	-
AT7	Landmark Mall to Lee Center via Van Dorn Metro, Eisenhower Metro, King Street Metro & Old Town	6am - 10pm	30	60	60	-	-	-	-	5	-	-	606	-	-	58.3	-	-
AT8	Braddock Road Metro to Van Dorn Metro via Old Town, King Street Metro, Duke & Landmark	5:30 am - 12 am	10/20	30	60	7am - 11:30pm	30	7am - 11pm	20/40	10	4	3	2,371	1,116	873	119.7	76.8	65.9
AT9	Potomac Yard to Mark Center via Glebe, Shirlington, King & NVCC	7am - 11pm	20	30	60	7:30am - 11pm	30	7:30am - 10:30pm	30	4	4	4	789	357	273	78.1	63.0	63.0
AT10	Potomac Yard to King Street Metro via Mt. Vernon, Del Ray & Commonwealth	7am - 10pm	30	30	60	7am - 10pm	30	9am - 7pm	60	2	2	1	389	272	132	29.9	29.9	10.8
KST	King Street Trolley	10:30am - 10:30pm (12am Th, Fri & Sat)	10-15	10-15	10-15	10am - 12am	10-15	10am - 10:15pm	10-15	4/5	4/5	4/5	1,418	2,328	1,559	44.1	53.3	56.3

3.3 / Other Transit Providers

The DASH bus network in Alexandria provides a local complement to the regional transit network. Regional operators that provide service to/from Alexandria include:

- **Metrorail (WMATA).** Metrorail operates heavy rail service to 91 stations throughout the Washington, DC region, carrying over 620,000 passengers per weekday. The City of Alexandria is served by the Blue and Yellow lines at four different Metrorail Stations – Braddock Road, King Street, Eisenhower Avenue, and Van Dorn. DASH also provides service to the Pentagon Metro Station during weekday peak periods. The new Potomac Yard Metrorail Station – an in-fill station in northern Alexandria on Potomac Avenue – is slated to open in 2022.

- **Metrobus (WMATA).** In addition to Metrorail, WMATA also operates a regional bus network that carries about 350,000 passengers per weekday. Metrobus runs 28 routes that provide service within the City of Alexandria. This includes the "Metroway" rapid bus service between Pentagon City and Braddock Road Metro, and the Richmond Highway Express (REX), which provides frequent, limited-stop service from Mount Vernon to Old Town via Route 1.

- **Amtrak/Virginia Railway Express.** Intercity and commuter rail services such as Amtrak and VRE stop at Alexandria Union Station, before crossing the Potomac River into Washington, DC.

- **Private Shuttles.** Several dozen private shuttles operate within the City of Alexandria to provide connections to Metrorail Stations. Examples include the Carlyle/PTO Shuttle, and the Van Dorn Exchange shuttle, which connects the Van Dorn Exchange apartment complex with the Van Dorn Metro.

- **Accessible Service.** Accessible paratransit options are provided through the City of Alexandria's DOT program and the WMATA MetroAccess service.

3.4 / Passenger Facilities

DASH buses provide service to five Metrorail Stations, five non-Metrorail transit centers (Landmark Mall, Mark Center, Southern Towers, NVCC-Alexandria and Potomac Yard), and over 700 local bus stops. Roughly 22 percent of these stops are shared by Metrobus or another provider. City staff estimates that roughly 90 DASH bus stops have shelters, while another 200 have amenities such as benches and/or trash cans. Approximately 100 stops (14 percent) have route schedules mounted on the bus stop poles. The distribution of stop amenities is based primarily upon daily ridership, with shelters, benches and trash cans generally installed at any stop with over 40 daily boardings.

In 2018, DASH began installing real-time bus arrival information kiosks and tablets at various high-ridership locations throughout the city. Major kiosks have been installed at City Hall, Southern Towers, NVCC-Alexandria and NSF with additional screens planned for the King Street Metro and Mark Center Transit Center. An additional kiosk is planned for the new King Street Metro bus loop, while real-time tablet displays are currently being installed along the AT-1 Plus and AT-9 routes with I-395 Commuter Choice funds. With this increase, over 50 stop locations will have real-time signage.

All DASH bus stops that have been installed or updated since 2006 are compliant with ADA design standards for individuals using wheelchair or other mobility devices. DASH also coordinates closely with city staff during the site plan review process to ensure any proposed developments include adequate considerations for existing and future bus stops.

3.5 / Bus Fleet

For the start of FY 2021, the DASH will be comprised of a core bus fleet of 99 active buses for use in daily revenue service. The current peak service requirement in 81 vehicles, which translates to a current spare ratio of approximately 22 percent. As part of the Summer 2019 Metrorail Shutdown, DASH purchased over 40 used buses from other transit agencies. Though most of these buses have since been retired, five of the buses have been retained as a contingency fleet that can also be used for charter service. The remaining 2002 Orions will be replaced by the six electric buses that are scheduled to arrive by late 2020. A summary of the active and contingency bus fleets are shown in Table 3-2.

Table 3-2 / FY 2021 DASH Bus Fleet Summary

ACTIVE BUS FLEET

Vehicle ID's	Year	Make	Type	Length	# of Vehicles
77, 78, 85, 86, 89, 90	2002	Orion	Diesel	35'	6
200-206	2011	Gillig	Hybrid	35'	7
300-302	2011	Gillig	Hybrid	40'	3
400-404	2011	Gillig (Trolley)	Hybrid	29'	5
207-211	2012	Gillig	Hybrid	35'	5
303-307	2012	Gillig	Hybrid	40'	5
212-216	2014	Gillig	Hybrid	35'	5
308-309	2014	Gillig	Hybrid	40'	2
217-229	2015	Gillig	Hybrid	35'	13
405	2015	Gillig (Trolley)	Hybrid	35'	1
230-233	2017	Gillig	Hybrid	35'	4
310-311	2017	Gillig	Hybrid	40'	2
501-514	2018	Gillig	Clean Diesel	35'	14
515-527	2019	New Flyer	Clean Diesel	35'	13
528-530	2019	New Flyer	Clean Diesel	35'	3
601-603, 612-614	2002	Neoplan	Diesel	60'	6
515-527	2019	New Flyer	Clean Diesel	40'	5
TOTAL ACTIVE FLEET					99

CONTINGENCY BUS FLEET

Vehicle ID's	Year	Make	Type	Length	# of Vehicles
101-102	2005	Gillig (PRTC)	Diesel	40'	2
103-105	2002	MCI	Diesel	35'	3
TOTAL CONTINGENCY FLEET					5
TOTAL FLEET SIZE (ACTIVE + CONTINGENCY)					104

In order to maintain State of Good Repair, DASH is required to replace each bus once it reaches the end of its 12-year useful life cycle. A more detailed discussion of bus fleet replacement, expansion plans and the "DASH Capital Budget Program" is included in Chapter 6.

3.6 / Fares

The current DASH base fare is $2.00 for a single trip with a four-hour DASH-to-DASH transfer window. DASH allows free transfers from most other bus providers with SmarTrip, and provides a $0.50 discount for transfers to and from Metrorail. Disabled persons with valid Alexandria DOT or MetroAccess cards may board DASH buses for free. Two routes – the King Street Trolley and the Mark Center Express (AT-2X) – do not require fares as the operating costs are covered by dedicated external subsidies. For frequent riders, DASH also offers the monthly DASH Pass, which costs $45.00 and entitles the cardholder to unlimited rides on DASH buses during the specified month.

DASH continues to accept SmarTrip cards for rapid, automated fare payment. Roughly 80 percent of DASH boardings are made using SmarTrip cards. Riders who use a Senior SmarTrip card to ride DASH during off-peak hours receive a $1.00 discount to their fare. DASH is working closely with WMATA as they continue to upgrade their fare technologies in the hopes of further increasing passenger convenience and overall operational efficiency.

In 2019, DASH launched the DASH Bus app, a mobile ticketing pilot program which allows customers to purchase their DASH fare products on smartphones using debit cards, credit cards and selected e-wallet platforms. During the pilot period, passengers have been required to show the validation screen on their phone to the operator, but the long-term goal is to implement electronic fare validation where small readers attached to the farebox can validate mobile fare payments. DASH has extended the pilot period to April 2021 to further evaluate the program and determine what the next steps will be.

In FY 2018, DASH started a pilot program to allow T.C. Williams High School students to ride for free using their student identification cards.   The program is designed to introduce students to DASH and improve their perceptions of public transit to promote future transit usage. Since its inception, the "Free Student Rides" program has been expanded to include four additional schools – Bishop Ireton High School, Episcopal High School, St. Stephens & St. Agnes School and Fusion Academy. DASH was also able to introduce Smartrip-enabled Student ID cards at each of the schools in 2018, and in 2019, two of the schools were migrate to the new DASH bus mobile payment app.

Additional free fares on DASH buses are available to disabled passengers through the WMATA MetroAccess and City of Alexandria's DOT Paratransit program.

3.7 / Funding

DASH service is operated by the Alexandria Transit Company (ATC), which is an independent public service corporation that is owned by the City of Alexandria. The City provides extensive input and guidance via the Transportation Planning Division of the city's Department of Transportation & Environmental Services. City staff play an integral role in supporting the DASH annual budget request and managing a wide variety of state and regional grant programs.

The majority of annual DASH operating funds comes from an operating subsidy that is allocated each year from the City of Alexandria's General Fund. The City also provides funding for operations through

the Transportation Improvement Program (TIP) and for capital investments through the biennial Capital Improvement Program (CIP) process.

Additional external sources of DASH funding include the Virginia Department of Rail and Public Transit (DRPT), the Northern Virginia Transportation Authority (NVTA), and the Northern Virginia Transportation Commission (NVTC) I-395 Commuter Choice Program.

DASH also relies upon subsides to operate specific services such as the free King Street Trolley for the City of Alexandria, and the Mark Center Express for the Department of Defense. Additional revenue is also generated by bus charters for both public and private events.

Passenger fare revenues typically cover between 20 and 25 percent of the annual DASH operating costs and are used to reduce the DASH operating subsidy from the city.

For FY 2021, DASH will be receiving over $6 million in federal recovery funding from the CARES Act. These funds are designed to maintain public transit service and jobs through the COVID-19 pandemic and will be used to offset anticipated revenue losses and subsidy decreases. This funding is being provided from WMATA to the City of Alexandria as a subsidy credit for the first quarter of FY 2021.

4.0 / System Performance

The following section uses FY 2019 data to review DASH service performance at both the system and route levels. The overall performance of a bus system is typically measured in terms of service provided (revenue hours), service consumed (ridership), cost efficiency (boardings per revenue hour, operating ratio), and service reliability (on-time performance, missed trips, road calls and customer feedback). Additional metrics such as access and mobility that were highlighted during the ATV Plan are also important in determining how well the transit network is meeting the needs of the community.

4.1 / Service Provided

In FY 2019, DASH operated approximately 215,000 hours of revenue bus service. This represents a 1.5 percent decrease as compared to FY 2018 service levels. A graph showing the historic trend in DASH annual revenue hours for the last ten years is shown in Figure 4-1.

**Figure 4-1 / DASH Annual Revenue Hours (FY 2009 - FY 2019)**
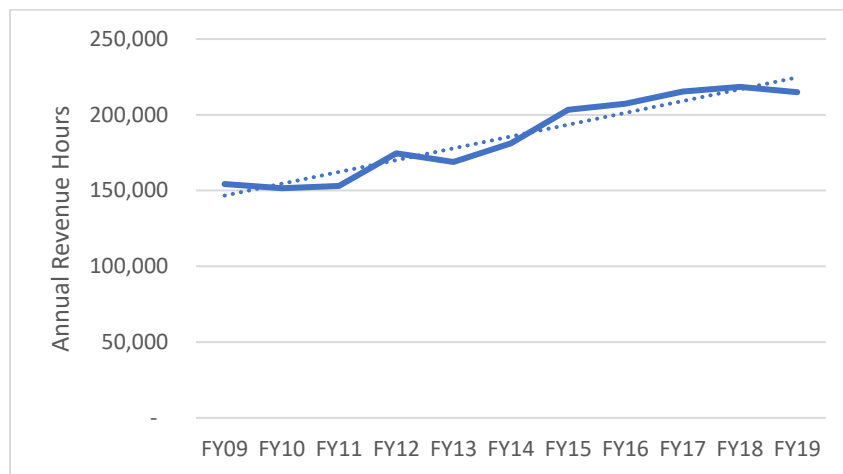
4.2 / System Ridership

As shown in Figure 4-2, annual ridership has fluctuated dramatically over the last decade. After a steep decline between FY 2009 and FY 2011, ridership numbers increased dramatically in FY 2012 and FY 2013. In the last three years, however, ridership has again shown a distinct downward trend. In FY 2019, DASH recorded just under 3.8 million passenger boardings, which was down roughly 2.8 percent from FY 2017, and down 12 percent from FY 2015.

The ridership decrease in FY 2019 can be largely attributed to decreasing ridership on the free King Street Trolley. Annual ridership for all regular DASH routes, excluding the Trolley, was virtually identical to FY 2018 and down by only one percent from FY 2017. Ridership decreases resulting from the WMATA Platform Improvement Project (PIP) =in May and June 2019 also negatively impacted the FY 2019 totals.

In terms of daily boardings in FY 2019, DASH drew an average of 12,800 boardings on weekdays, just over 6,500 boardings on Saturdays, and approximately 4,500 boardings on Sundays. This translates to an approximately 2.4 percent decrease in weekday boardings from FY 2018. Average Saturday and Sunday boardings were also down by 7.1 percent and 5.2 percent, respectively.

Figure 4 -2 / DASH Annual Ridership (FY 2009 - FY 2019)
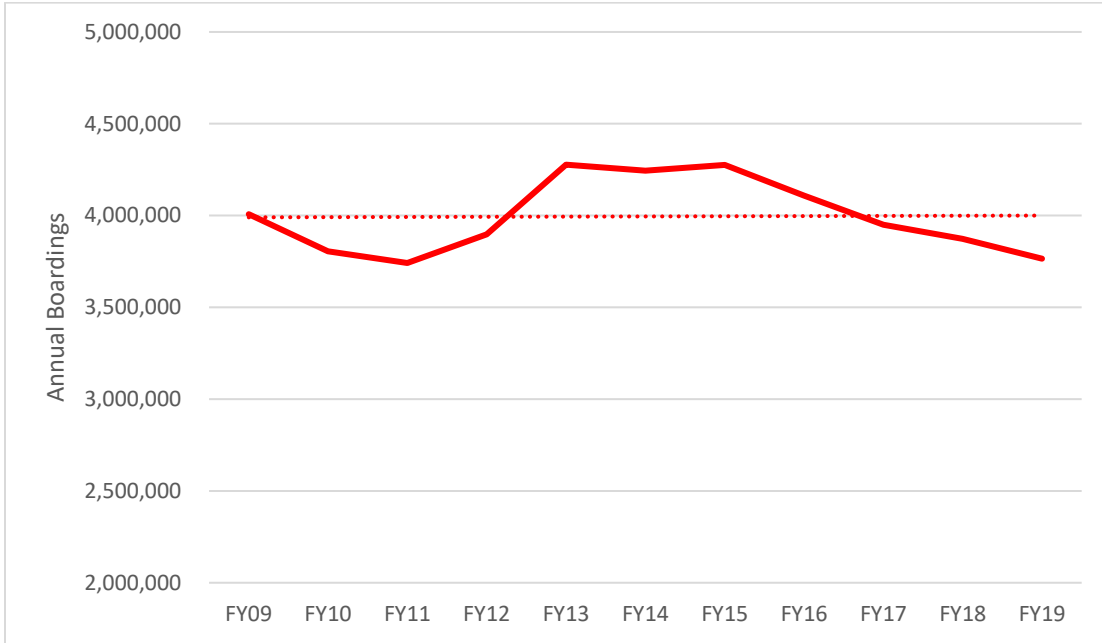
The recent DASH ridership decreases are part of a larger trend affecting agencies throughout the Washington, DC region, and across the country. A combination of low fuel prices and the growth of ridesharing services like Uber and Lyft have led to reduced transit ridership across the country. Within the Washington, DC area, Metrorail ridership was flat for FY 2019, however, Metrobus service in Northern Virginia saw a 4.7 percent decrease in average weekday boardings. Similar decreases were reported by ART (-5.3%) and PRTC/Omniride (-2.1%). Other agencies such as Fairfax Connector, Fairfax CUE, and Loudoun County Transit reported flat ridership for FY 2019 as compared to FY 2018.

Figure 4 -3 / Average Weekday Boardings for Northern Virginia Transit Agencies (FY 2019 vs. FY 2018)
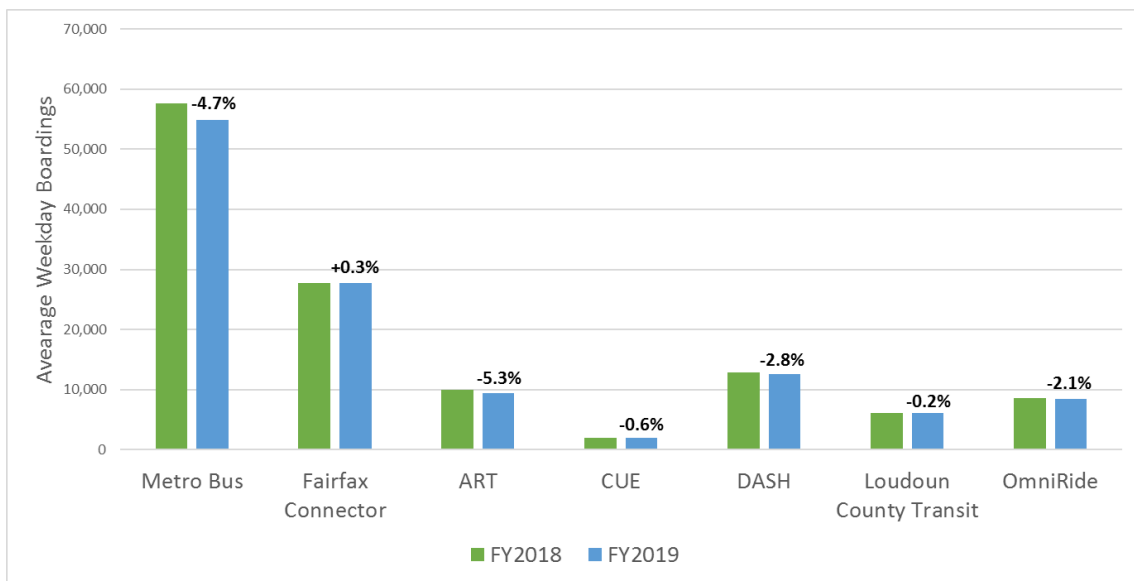
Ridership Promotion Programs. In an effort to attract additional ridership, DASH has initiated programs like the "Free Student Rides" program for high school students, the introduction of free rides for MetroAccess and DOT paratransit program participants, and reduced fares for senior riders who use their Senior SmarTrip cards during off-peak periods.

The DASH "Free Student Rides" program has been particularly successful in its first two full years in encourage transit awareness and usage among Alexandria high school students. In FY 2018, the first year the program was offered, DASH recorded approximately 1,000 student boardings on a typical weekday. In FY 2019, the program ridership grew to 1,200 average weekday boardings, due in part to the expansion of the program to Bishop Ireton, St. Stephens & St. Agnes, and Episcopal high schools.

In FY 2018, DASH also launched a program to allow free rides for DOT and MetroAccess paratransit cardholders. Although the program includes both DOT and MetroAccess participants, the vast majority of program participants – more than 99 percent – are DOT paratransit users. In FY 2019, DASH recorded approximately 2,900 DOT/MetroAccess boardings per month, which was up by 42 percent from FY 2018.
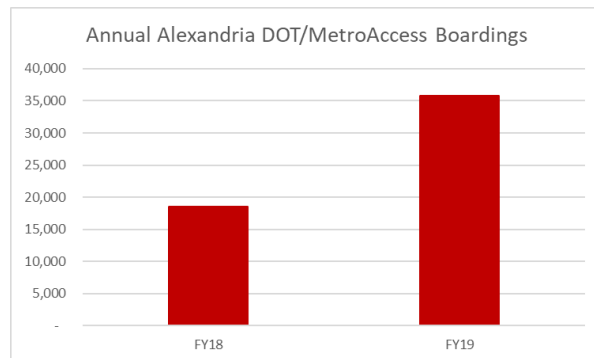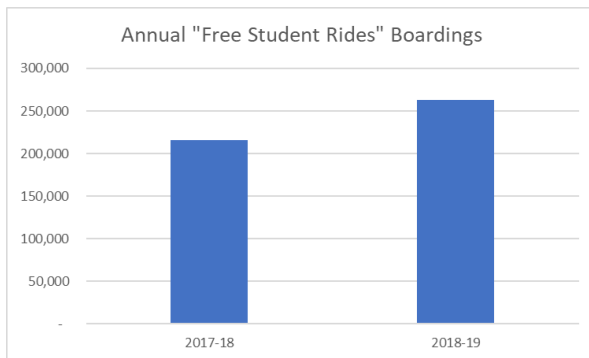

Lastly, at the start of FY 2019, DASH introduced a discounted fare of $1.00 for Senior/Disabled SmarTrip cardholders during off-peak periods. During the program's first 12 months, Senior/Disabled SmarTrip ridership increased by 6 percent as compared to the previous year, including a 9 percent increase in off-peak boardings. The biggest increase (19 percent) occurred during weekday evenings after 6pm.

4.3 / Ridership by Route

At the route level, Figure 4-4 shows that while many DASH routes have declined in weekday ridership over the last three years, several have modest gains in FY 2019. The AT-5, AT-6 and AT-7 each increased by 2 - 5 percent as compared to FY 2018. Weekday ridership on the AT-9 showed the biggest increase (13 percent), which does not the more recent ridership increases on that route resulting from the I-395 Commuter Choice improvements. The largest weekday declines in FY 2019 were on the AT-2X (-19%), AT-10 (-15%), and the King Street Trolley (-12%). As noted previously, the decreasing Trolley ridership was the largest factor in the overall FY 2019 ridership decline and is attributed in part to decreasing tourism activity in Old Town.

Weekend ridership has decreased on most DASH routes since FY 2017. As shown on Figure 4-5, average Saturday boardings on the AT-1 and AT-9 have increased by 2 and and 10 percent, respectively since FY 2018.   The AT-5, AT-8 and AT-10 have experienced decreases of 3 - 9 percent in FY 2019. King Street Trolley ridership on Saturdays was down by 12 percent from the previous year.

Figure 4-4 / Average WEEKDAY Ridership by Route (FY17-FY19)
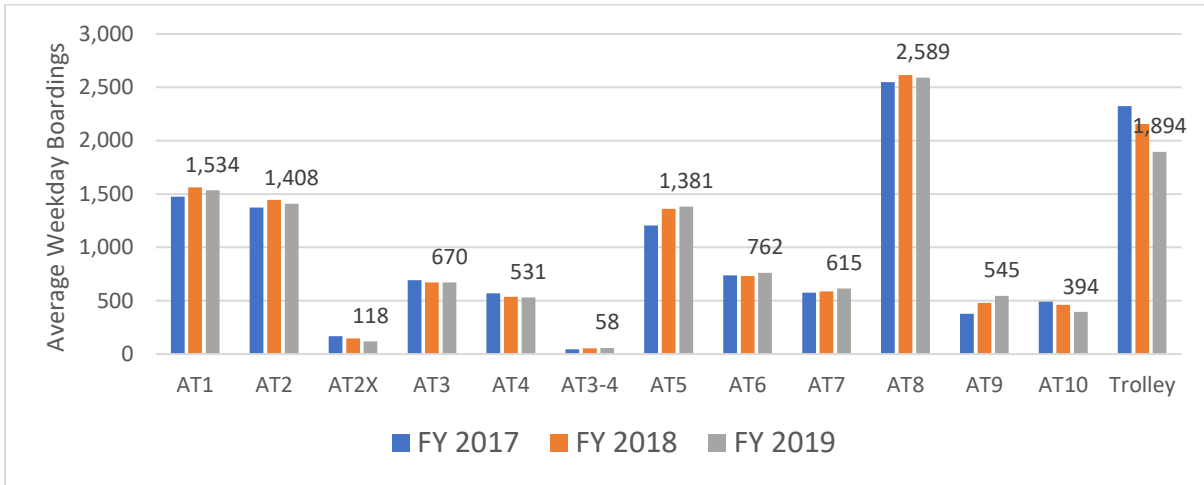
Figure 4-5 / Average SATURDAY Ridership by Route (FY17-FY19)
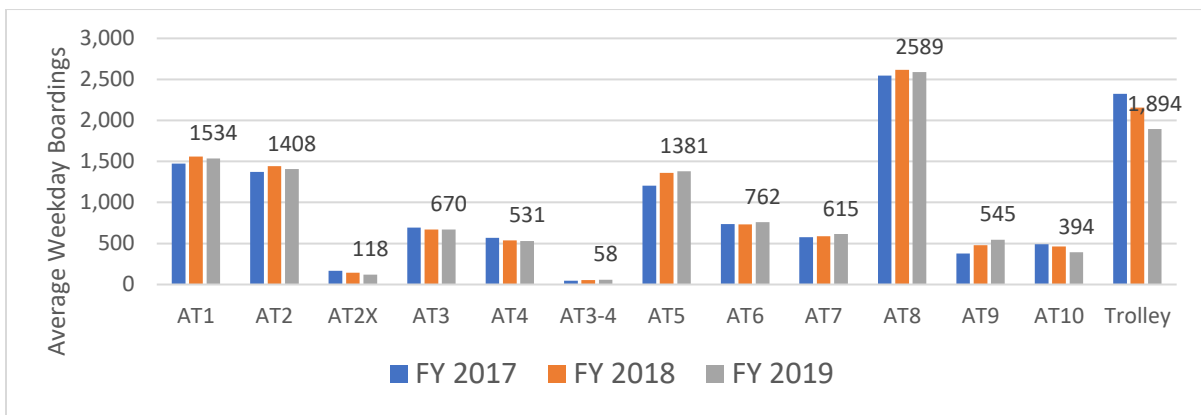
Figure 4-6 / Average SUNDAY Ridership by Route (FY17-FY19)

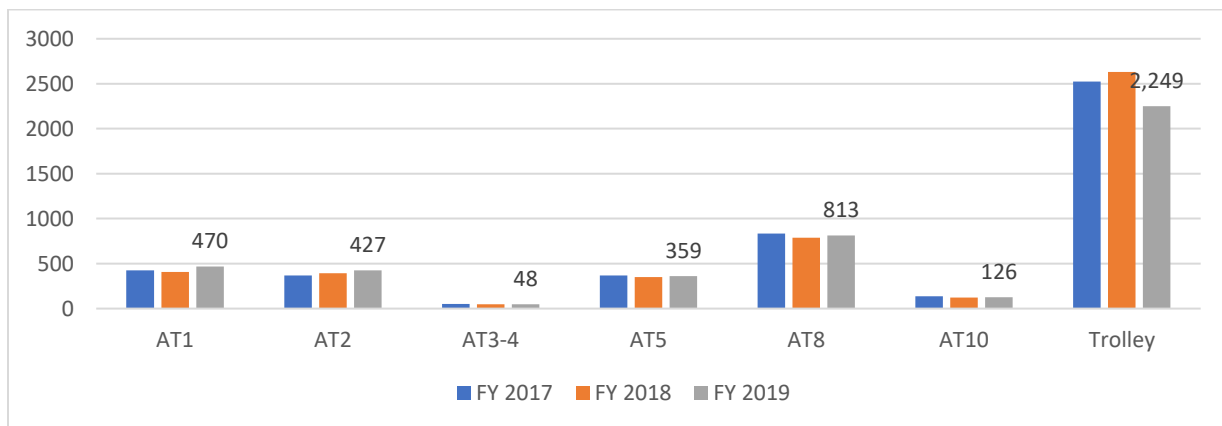On Sundays, overall ridership on regular DASH routes is down by roughly five percent due to decreasing ridership on the King Street Trolley. As shown on Figure 4-6, Sunday ridership on all regular DASH routes has gone up from FY 2018 to FY 2019. The AT-1 and AT-2 have demonstrated the largest growth with increase of 15 percent and 8 percent, respectively. Average Sunday boardings on the King Street Trolley ridership were down by almost 15 percent in FY 2019.

Several external factors may have influenced the ridership numbers provided above. First, WMATA's Platform Improvement Project (PIP) led to a sharp ridership decrease in May and June 2019. Second, an extended shutdown of the Federal Government that began in mid-December 2018 and lasted to late January 2019 also led to significantly lower ridership during that period.

Seminary Road & Janneys Lane Ridership

One of the key decisions made by the ATC Board of Directors as part of their decision to adopt the Alexandria Transit Vision Plan was to maintain local bus service on Seminary Road and Janneys Lane between Howard Street and King Street. As a condition to this decision, the Board recommended that the average weekday ridership on this corridor should be monitored on an annual basis over the subsequent five years to ensure that the service was being sufficiently utilized to warrant its continued operation. To this end, the Board identified a target increase of 20 percent for average weekday boardings along this segment. The AT-2 recorded approximately 100 weekday boardings in FY 2019, so the ridership target of 120 average weekday boardings along the segment will be monitored in each of the next four Transit Development Plan documents.

4.4 / Cost Efficiency

Total ridership data alone only tells part of the story. In order to determine the cost efficiency of the system, ridership numbers must be compared to revenue hours to determine how efficiently the system and its routes are operating. This metric is typically expressed in boardings per revenue hour. In FY 2019, the DASH bus system drew 22.3 boardings per revenue hour. This was a slight decrease from the 23.4 boardings per revenue hours that were recorded in FY 2018.

Figure 4-7 / Average Boardings per Revenue Hour by Route and Day (FY 2019)
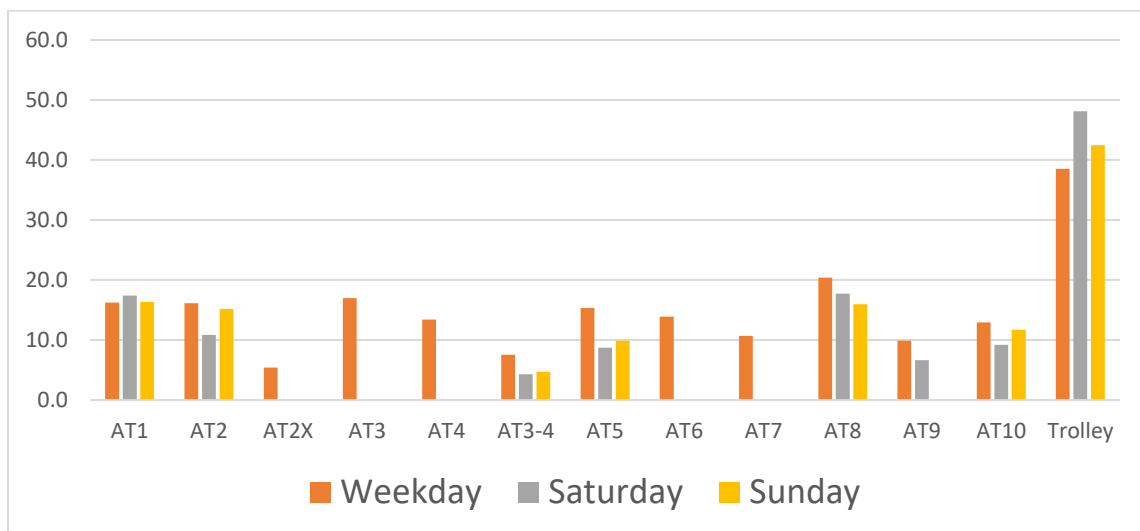
Route-by-route boardings per revenue hour for weekdays, Saturdays and Sundays in FY 2019 are shown in Figure 4-7. Routes with the highest weekday productivity include the King Street Trolley and the AT-8. The least productive weekday routes are the AT2X and the AT3-4, which both draw eight boardings per hour or fewer. On weekends, the AT-1, AT-8 and King Street Trolley maintain an average productivity at or above 15 boardings per revenue hour. The AT-3/4 is the least productive route on weekends with less than five boardings per revenue hour.

4.5 / Operating Ratio

One other common measure of cost efficiency in transit planning is the Operating Ratio, which measures the percent of total operating costs that are covered by revenues, including passenger fares. Presumably, an efficient, well-designed transit system will generate higher ridership and greater fare revenues per unit cost of operating expense than a less efficient system. Based on FY 2014 and FY 2016 NTD data, the normal range for operating ratios is 15 to 25 percent. For FY 2019, DASH recorded an operating ratio of 36.8 percent, which represented an increase from 32.2 percent in FY 2018. The annual DASH operating ratios for the last five years are shown in Figure 4-8.

Figure 4-8 / Annual DASH Operating Ratio (FY15 - FY19)
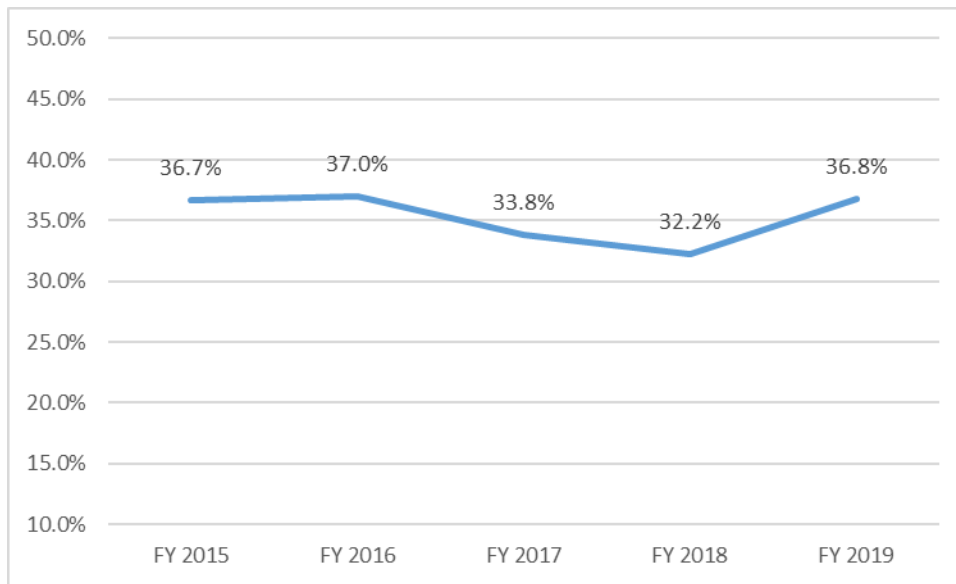
4.6 / Service Reliability

DASH is working to identify and address service reliability deficiencies that may have a negative impact on ridership and customer satisfaction. Service reliability can be measured by on-time performance, missed trip percentage, average miles per road call and customer feedback. It is important to note that service reliability is invariably tied to service frequency since the consequences of a missed trip are far less significant if the next bus is only 10 or 15 minutes away instead of 60 minutes away.

The most common indicator for service reliability is on-time performance (OTP), which measures the percentage of trips that are arriving at each timepoint within five minutes of their scheduled arrival time. In FY 2019, approximately 85.2 percent of all DASH trips arrived on time. This a 3 percent increase from FY 2018, and it is roughly equal to the industry OTP standard of 85 percent.

A chart showing FY 2019 weekday on-time performance by route is included as Figure 4-9. The most reliable routes in the system are the AT-1 (88%), AT-6 (87%), AT-10 (87%) and the King Street Trolley (91%). The least reliable routes are the AT-3 (79%), AT-4 (81%), AT-7 (81%) and AT-8 (80%).

The most challenging time of day for on-time performance is the weekday afternoon peak period. Overall on-time performance during the PM peak is roughly 78 percent, compared to 85 percent for the rest of the day. Although all routes are less reliable during the afternoon peak hour, the AT-3, AT-5, AT-7, and AT-8 are all below 75 percent due to volatile traffic conditions on Interstate 395, the Telegraph/I-495 interchange, and Old Town South.

Service reliability is also often impacted by the performance of the DASH maintenance department, which is responsible for ensuring that buses are maintained in good operating shape to minimize the chances for breakdowns and missed trips. In FY 2019, DASH averaged over 15,100 miles per road call, which was an improvement from 14,700 miles per road call in FY 2018 and well above the industry average (11,500 miles per road call). The FY 2019 total missed trip percentage was 0.047 percent, which was a significant increase from the 0.028 percent of trips that were missed in FY 2018.

Figure 4-9 / Weekday On-Time Performance by Route and Time Period (FY 2019)
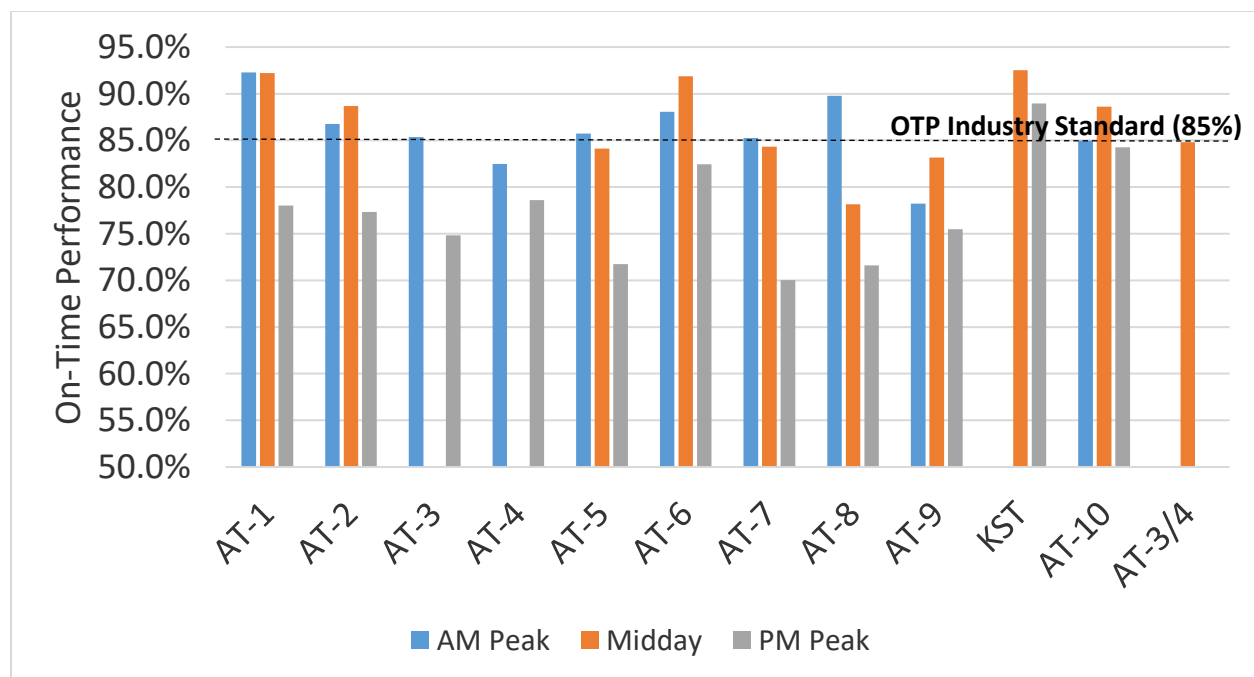
Another, more indirect measure of service reliability is customer feedback. The DASH Customer Service Department is responsible for documenting and categorizing all calls and e-mails that are received from passengers. In FY 2019, DASH received 26 valid complaints relating to schedule adherence. This represented a significant decrease from the 40 similar complaints that were registered in FY 2018. In total, 172 valid customer complaints were received in FY 2019 as compared to 224 valid complaints in FY 2018.

4.7 / Access & Mobility

As discussed extensively in the Alexandria Transit Vision Plan, two of the most important performance measures for a bus system are transit access and mobility. These metrics can measure how well a transit system serves the community, and the extent to which transit provides access to opportunities (e.g. jobs, housing, schools, shopping centers, day cares, civic centers, etc).
In order for transit to be effective, it must be accessible to large numbers of residents, jobs and activity centers. It must also be useful and convenient. Figure 4-10 provides a summary of access to the current DASH bus network for all residents, non-white residents, residents in poverty, and jobs in Alexandria. Access is measured by the percentage of each group that are within a quarter-mile walking distance of transit service at 12pm on a weekday, or the baseline off-peak service.

As shown below, the current DASH bus network does an exceptional job of providing access to basic transit for each of the groups identified below, however, the access to frequent all-day transit among these groups is relatively low. This is a common theme that was identified during the Alexandria Transit Vision Plan process. With the new ATV Network Plan, the percentages of each group with access to frequent, all-day transit will increase dramatically.

Figure 4-10 – Access to Transit & High-Frequent Transit
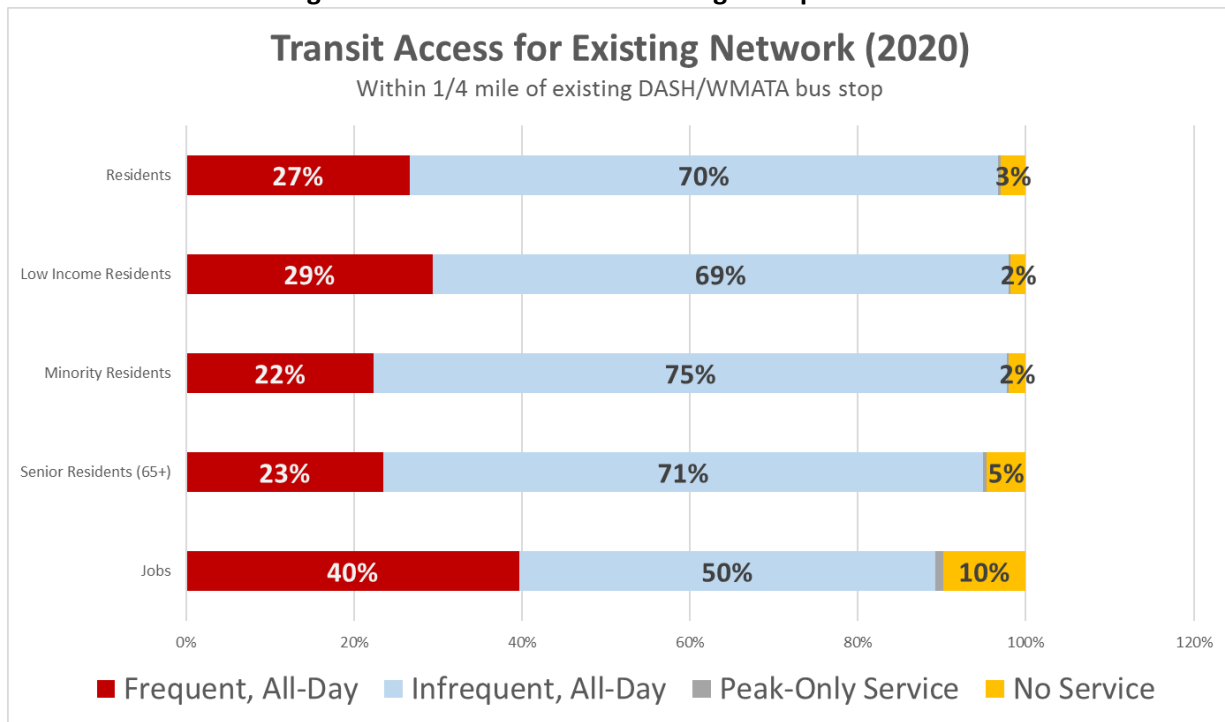
The second metric, mobility, can be derived from the isochrone maps that are included as Figures 4-11, 4-12 and 4-13. Each map assumes that a transit user – represented as a stick figure – is at a selected location at a certain day and time. The colored isochrone shapes represent the area that can be reached from that specified location on the specified day and time using transit or walking based on an average trip times of five minutes (white), 10 minutes (blue), 20 minutes (teal), and 30 minutes (red). The trip time calculation accounts for both travel time, and average waiting time based on route frequencies. The larger the isochrone shape, the more access to locations with different types of "opportunities" described above.

As an example, Figure 4-11 shows the mobility of a transit user in Old Town at the intersection of King Street and Washington Street on weekdays during the midday (12:00 PM) and the afternoon peak (5:00 PM). Since the service levels and frequencies are increased during the peak period, passengers as this location can travel further within the 30-minute window during the peak period, and the size of the isochrone shapes on the right side are larger. In other words, passenger starting in Old Town could travel to Foxchase Shopping Center on Duke Street within 30 minutes during peak periods, but it would take 45 minutes or longer during the middle of the day. The graphs also can be used in reverse to show the areas from which one can get to the location (i.e. Old Town) within 30 minutes using transit.

Figure 4-11 / Mobility Comparison to/from Old Town Alexandria

Weekday – 12 PM

Weekday – 5 PM
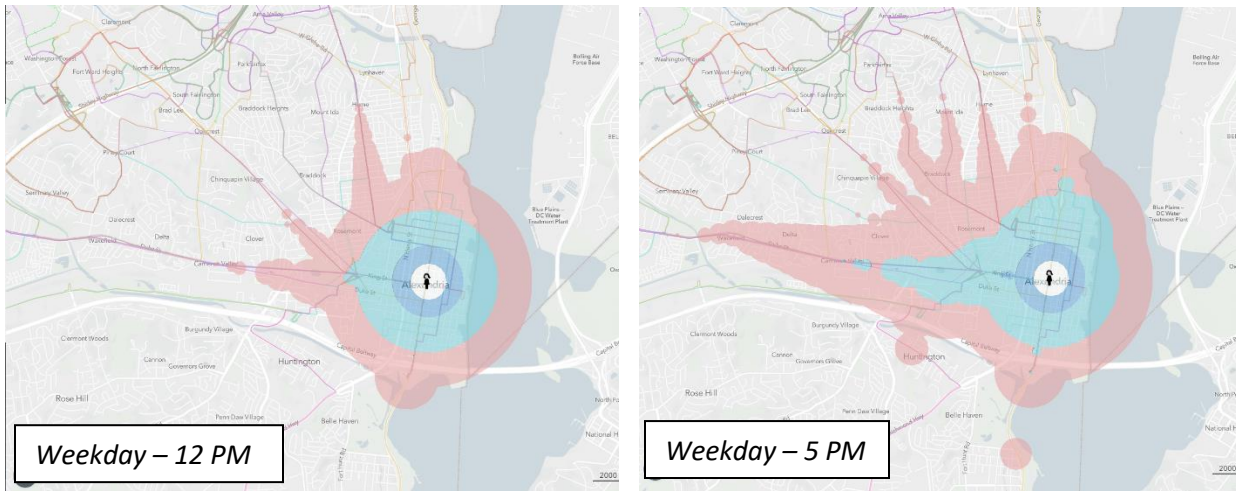
Figure 4-12 / Mobility Comparison to/from Southern Towers

Weekday – 8 AM

Saturday – 12 PM
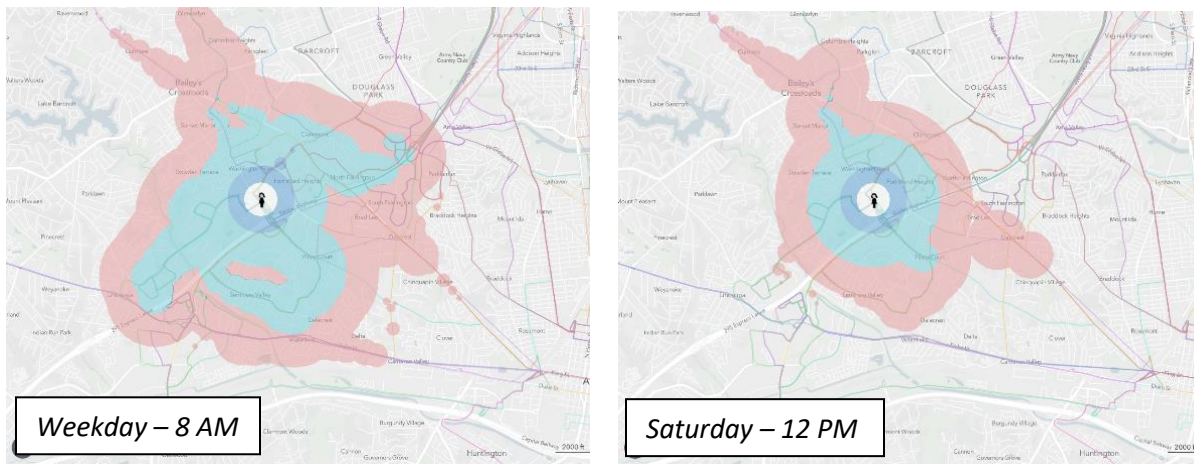
While the size of the isochrone shapes illustrate how far a passenger can travel within 30 minutes using transit, the number of opportunities (population, jobs, etc) within the shapes are even more important. This measure more accurate reflects the actual access to opportunities that transit is providing to the community. For example, Figure 4-12 shows the same isochrone maps for a different location – Southern Towers apartments. The first map shows the areas that can be reached within 30 minutes using transit at 8:00 AM on a weekday. As shown in Table 4-1, the total area covered by the isochrones

includes over 110,000 residents and almost 27,000 jobs. In other words, there are 27,000 jobs that can be reached from Southern Towers within 30 minutes using transit on a weekday morning at 8:00 AM.

With the introduction of frequency and span improvements from the new Alexandria Transit Vision Plan network, these access and mobility performance measurements are expected to improve dramatically.

Figure 4-13 / Mobility Comparison to/from Arlandria

Weekday – 5 PM

Sunday – 12 PM
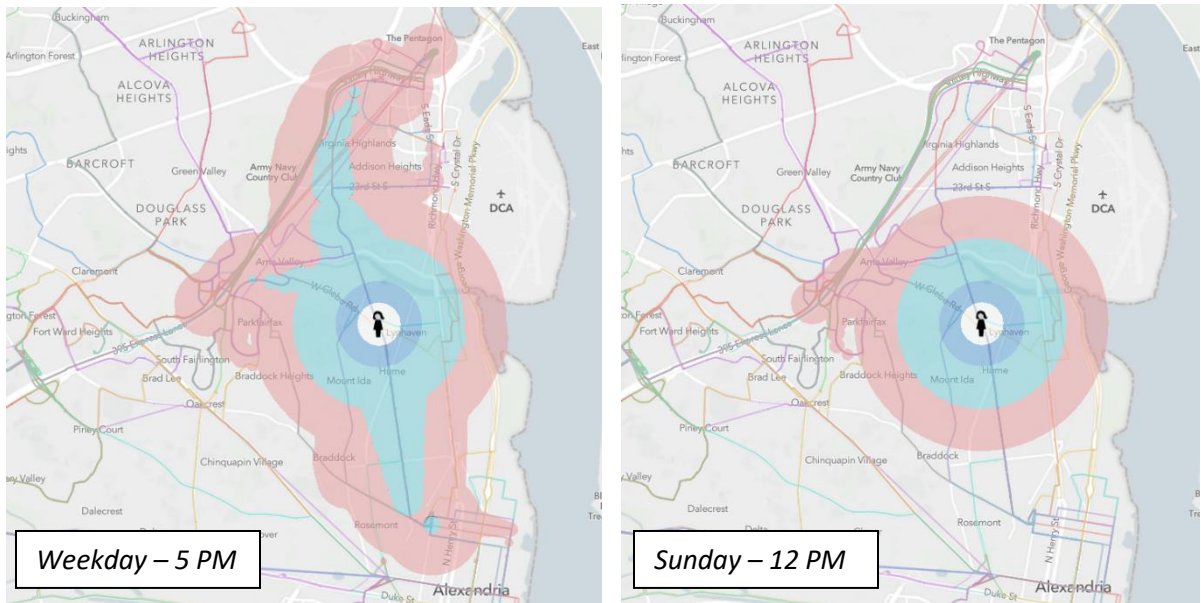
Table 4 -1 / Existing Transit Access within 30 Minutes Using Transit

Location	Residents within 30 min.		Jobs within 30 min.	
	Peak	Off-Peak	Peak	Off-Peak
Old Town	49,037	32,260	51,222	40,112
Southern Towers	110,488	65,450	40,012	26,556
Arlandria	71,218	38,200	40,394	12,650

4.9 / System Performance Summary

For FY 2019, DASH has experienced a slight decrease in overall ridership that was due in large part to declining ridership on the King Street Trolley. Weekend ridership – in particular – has been negatively affected by these ridership losses on the Trolley.

In terms of another key metric, service reliability, DASH performs well but tends to experience significantly reduced on-time performance during the weekday afternoon commute period, particularly on routes such as the AT-3, AT-5, AT-7 and AT-8 that must navigate through the heavy traffic from I-395 and I-495 in and around Old Town Alexandria.

5.0 / Service & Fare Recommendations

The following section provides a series of recommendations for future service improvements and fare adjustments. These recommendations are based on staff analyses and guidance from the General Manager and ATC Board of Directors. The recommendations are organized chronologically, beginning with the service and fare assumptions from the FY 2021 ATC budget request. Service and fare recommendations for the rest of the six-year plan cycle (FY 2022 – FY 2026) are also included and are largely shaped by the Alexandria Transit Vision Plan.

5.1 / Service Recommendations (FY 2021)

As part of the FY 2021 budget development process, DASH is planning the following fiscally-constrained service level assumptions:

- **FY 2021 Service Levels.** For annual budgeting purposes, DASH projects that FY 2021 service levels for regular DASH routes and the King Street Trolley will be roughly 241,000 platform hours and 2,028,000 platform miles. These totals represent overall service decreases of 1.4 percent and 2.6 percent, respectively, from projected FY 2020 levels exclusive of the Commuter Choice and Platform Improvement Project service enhancements. The total annual service provided for FY 2021, including the I-395 Commuter Choice improvements, is estimated to be 272,000 platform hours and 2,359,000 platform miles.

    NOTE: Above estimates are for budgeting purposes and do not account for reduced service levels resulting from the COVID-19 pandemic. The actual FY 2021 total service levels could be significantly lower, depending on when DASH is able to return to regular weekday service levels.

- **AT-4 Route Segment Discontinued in Old Town.** DASH is planning to eliminate the segment of the AT-4 route between the Braddock Road Metrorail and City Hall. The route alignment from Braddock Road Metro to the Pentagon via Parkfairfax will <u>not</u> be changed so the majority of AT-4 riders will not be affected. This change is consistent with the planned 2022 ATV Network, which modifies both the AT-3 and the AT-4 so that they terminate at Braddock Road Metro instead of continuing into Old Town. With both the existing DASH network and the planned 2022 ATV network, passengers will be able to transfer to other routes at Braddock Road Metro to complete their trip.

    This change will have the biggest negative impact on an estimated 15 daily riders who currently ride the AT-4 between Central Alexandria and Old Town through the Braddock Road Metro. Most riders in the area are going to or from the Metrorail station, but these "through" riders will now need to transfer at Braddock Road Metro to the AT-8 to complete their trips.   Both the AT-4 and the AT-8 operate every 20 minutes during peak periods, which should allow staff to modify the schedules to create relatively easy transfers that will only add 5-10 minutes to their total trip time. There are 50 additional riders who use the AT-4 in Old Town, but the AT-8 operates along the same route alignment so they will be able to use that route instead.

    This route change is proposed to be implemented by October 2020 and is designed to limit the DASH subsidy increase as part of the City of Alexandria's budget process.

Figure 5-1 / Proposed AT-4 Route Change
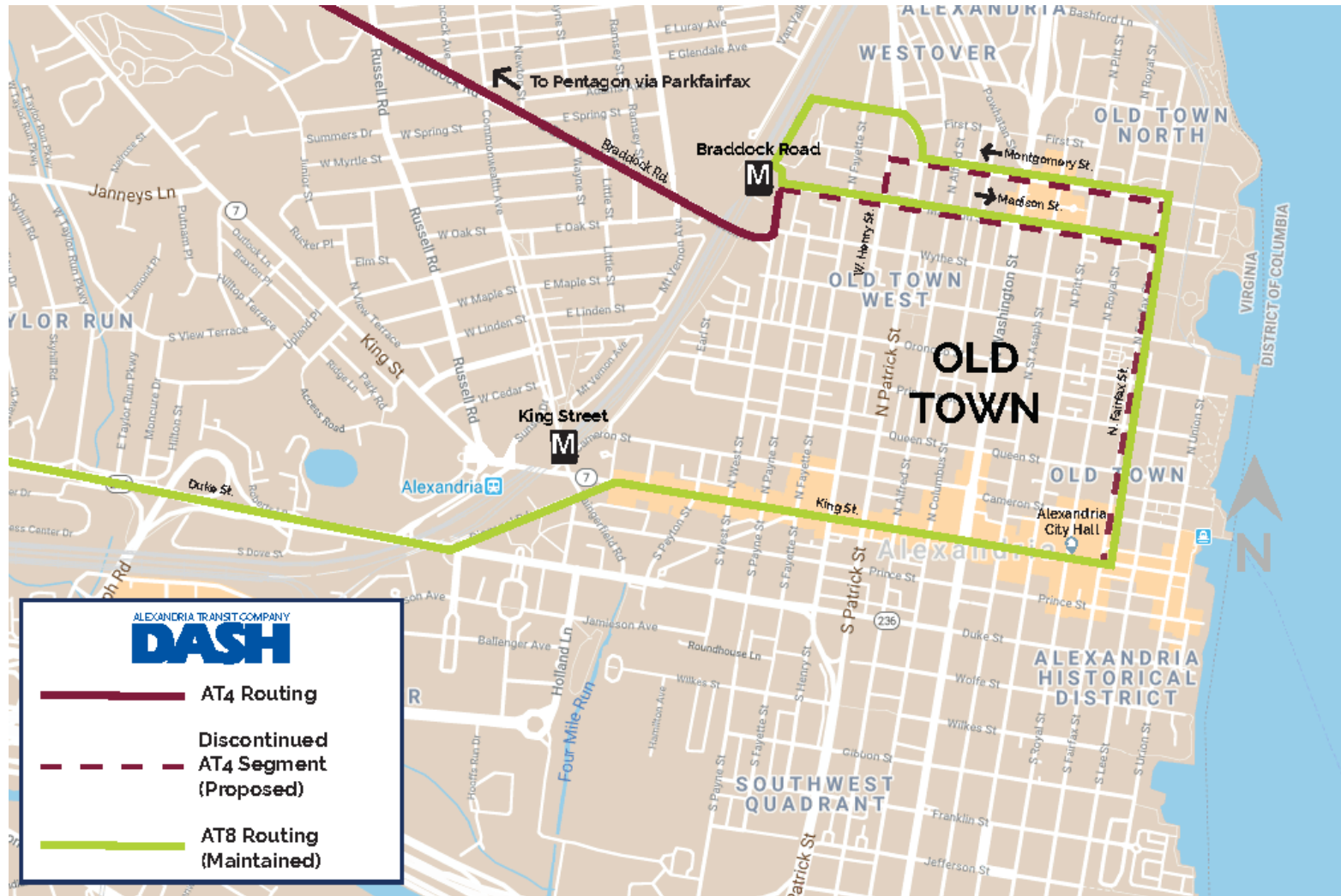
- **King Street Trolley Seasonal Route Modification.** The King Street Trolley will be re-routed on weekends during the summer as part of the King Street Place project, which will partially shut down the 100 block of King Street to vehicle traffic. The Trolley will continue to serve the Waterfront stop via a modified routing along North Lee Street, Cameron Street, and North Union Street. No stops will be missed and the re-route will not impact service cost.

- **Holiday Service Plan Changes.** DASH proposes to modify its holiday operating plan so that DASH runs Sunday service on Thanksgiving Day, Christmas Day, and New Year's Day instead of operating no regular service. This change is consistent with other regional operators and will benefit DASH customers who still need to make bus trips on those days.

- **I-395 Commuter Choice Program.** DASH will continue the service enhancements on the AT-1 Plus and the AT-9 as part of the inaugural I-395 Commuter Choice program through the end of FY 2021. The selected improvements are the first step towards the Alexandria Transit Vision Plan networks and a precursor to the future West End Transitway service. DASH will apply for additional service enhancements as identified through the Alexandria Transit Vision Plan for the FY 2022 – FY 2023 I-395 Commuter Choice project cycle.

- **King Street Metro Access Improvements.** The planned renovation and expansion of the existing King Street Metro transit center began in November 2018 and is expected to be completed by Spring 2020. When completed, the new transit center will include three additional bus bays, improved bus circulation, enhanced pedestrian safety, and improved passenger amenities.

5.2 / Fare Recommendations (FY 2021)

As part of the FY 2021 budget development process, the following fare recommendations are proposed:

- **Fare Changes.** No changes to the base fare or DASH Pass are planned for FY 2021. The base fare will remain at $2.00 and the DASH Pass will remain at $45.00.

- **WMATA Regional Pass Products.** If WMATA expands its regional pass offerings, DASH will begin allowing DASH passengers to use any WMATA pass product as valid fare payment, in accordance with recommendations from WMATA's Bus Transformation Project. Currently, DASH accepts the 7-Day Regional Bus Pass and participates in a regional revenue sharing agreement that distributes funds based on pass usage. This planned change would expand this agreement to include all current and future WMATA regional passes for both bus and rail.

- **DASH-Metrorail Transfer Discount.** Contingent upon final FY 2021 WMATA budget decisions, DASH is planning to increase the fare discount for passengers transferring from Metrorail to DASH from $0.50 to $1.00. This would be a reciprocation of a proposed transfer discount for DASH passengers who transfer to WMATA.

- **Free Student Rides.** DASH staff will continue the "Free Student Rides" program for Alexandria high school students for its fourth year. This program promotes transit awareness and ridership among young adults who can become future DASH users.

- **Fare-Free Days.** DASH staff will explore the possibility of operating fare-free service on selected days to promote public transit awareness and usage. Eligible days could include but are not limited to holidays, election days, air quality alert days, or days in which a major service changes such as the new ATV network is first being implemented.

- **Mobile Ticketing Pilot.** The DASH Bus app was launched in Spring 2019 as a one-year pilot with options for contract extensions in subsequent years. DASH staff will be evaluating the pilot in the spring to determine if it should be continued and what the next phase will be. Ultimately, DASH envisions a mobile ticketing solution that is can be used across multiple regional providers, includes real-time bus arrival and trip planning information, and features electronic validation with onboard readers.

- **Convert DOT Paratransit Cards to SmarTrip Cards.** DASH is working with the City of Alexandria to transition DOT cards from the current paper version to a SmarTrip-enabled chip card. Through this effort, DOT cardholders will be able to tap their cards on the farebox of DASH buses which will increase operational efficiency, customer convenience, and data collection, while reducing the occurrence of fraud. Since DOT cards are valid for three years, the transition from paper cards to SmarTrip cards is expected to take several years to complete.

5.3 / Service & Fare Recommendations (FY 2022 – FY 2026)

The service and fare recommendations for FY 2022 – FY 2026 will be driven almost exclusively by the Alexandria Transit Vision Plan, which was adopted by the DASH Board of Directors in December 2019. As a result, the majority of this section is devoted to a summary of the planned ATV networks.

Alexandria Transit Vision Plan.

Based on the recommendations of the Alexandria Transit Vision (ATV) Plan, DASH will implement the first phase of the plan – the Final 2022 ATV Network – at the start of FY 2022. The full vision, which is reflected by the 2030 ATV Network, will be implemented between FY 2023 and FY 2030 based on funding availability. Additional information on the Alexandria Transit Vision Plan project, process, outcomes, and final report can be found at the project website: www.dashbus.com/transitvision.

2022 Alexandria Transit Vision Plan

The 2022 ATV Network establishes the structure of the new more ridership-oriented bus network while providing frequent, all-day bus service across major portions of the City of Alexandria. Figures 5-2 and 5-3 show the new network during peak and midday time periods, respectively, while Figure 5-4 shows the service frequencies and hours of operations for all DASH and WMATA routes.

It should be noted that DASH and WMATA staff are still coordinating to determine which routes will be operated by which provider, and the route names with the "N" prefix are likely subject to change as part of a systemwide rebranding effort that will coincide with the introduction of the new network.

The 2022 ATV Network assumes the equivalent of an 8 percent increase in service hours for DASH and continued funding from the I-395 Commuter Choice program for additional service in western and northern Alexandria. The 2022 network would be highlighted by a network of high-frequency bus routes

operating every 15 minutes or better, all-day seven days per week across most of the city. Specific highlights of the 2022 ATV Network include:

- **Old Town Circulator.** The new "OTC" service in Old Town operates every 5-8 minutes between the King Street Metro and Braddock Road Metro via King Street, North Fairfax Street and the Montgomery/Madison Street corridor. This extremely high-frequency service is created by consolidating Old Town service along one primary route and combining three new east-west routes that connect Old Town to the West End via Eisenhower Avenue ("N1"), Duke Street ("N3") and King Street ("N4"). Passengers traveling from the West End into Old Town would not need to transfer at King Street Metro to continue into Old Town. The OTC would effectively replace segments of existing Old Town routes such as the AT-2, AT-5, AT-7 and AT-8.

- **West End.** Major service improvements in the West End provide simple, frequent, all-day connections between the Van Dorn Metro, Landmark Mall, Mark Center, Shirlington and the Pentagon. The new "N7" route replaces portions of existing DASH and WMATA routes (AT-1, AT-2, 7A, 7F). The new "N27" route replaces the existing Metrobus 7W route, and provides additional peak service between the West End and the Pentagon.

- **King Street.** Existing DASH AT-5 and AT-6 service along King Street will be consolidated as the new "N4" route which operates every 10-15 minutes all day, seven days per week. The new route will provide a frequent connection from Old Town to NVCC-Alexandria, and passengers traveling from the Beauregard Street corridor to Old Town will be able to transfer from the "N7" to the "N4" – both of which run every 15 minutes or better, all-day, seven days a week – to complete their trip.

- **Potomac Yard.** The new Potomac Yard Metrorail Station is scheduled to open in 2022 and the new ATV network provides frequent, all-day connections from Shirlington and Arlandria with the new "N10"/"N11" route pair, from Del Ray with the new"N5" and from Old Town with the new "N6". If the opening of the Potomac Yard Metro is delayed, the "N6" would be implemented as shown, but would connect to the Braddock Road Metro until rail service begins to the Potomac Yard Metro.

- **Pentagon.** Existing AT-3 and AT-4 commuter service to the Pentagon from Parkfairfax and North Ridge will be maintained, as shown by the "N23" and "N24" routes on Figure 5-2. Additional all-day service from the West End to the Pentagon would be provided by the new "N7" route.

- **Seminary Hill.**   Existing local service from Mark Center to King Street Metro via Seminary Road and Janneys Lane will be maintained on weekdays as shown by the new "N12" route in the Final 2022 ATV recommendations, however, weekend service between Howard Street and King Street will be discontinued.

- **King Street Trolley.** In the 2022 ATV Network, the King Street Trolley features an extension from the King Street Metro to the Eisenhower Metro via Carlyle and Eisenhower East. This extension will provide an important connection between Old Town and the most densely-developed part of the city. Additional Trolley scenarios were identified in the ATV Final Report which could better integrate the Trolley into the rest of the Old Town bus network, however, they would likely need to include changes to fare policy and input from City Council.

Figure 5-2 / 2022 Alexandria Transit Vision Network – Peak Service
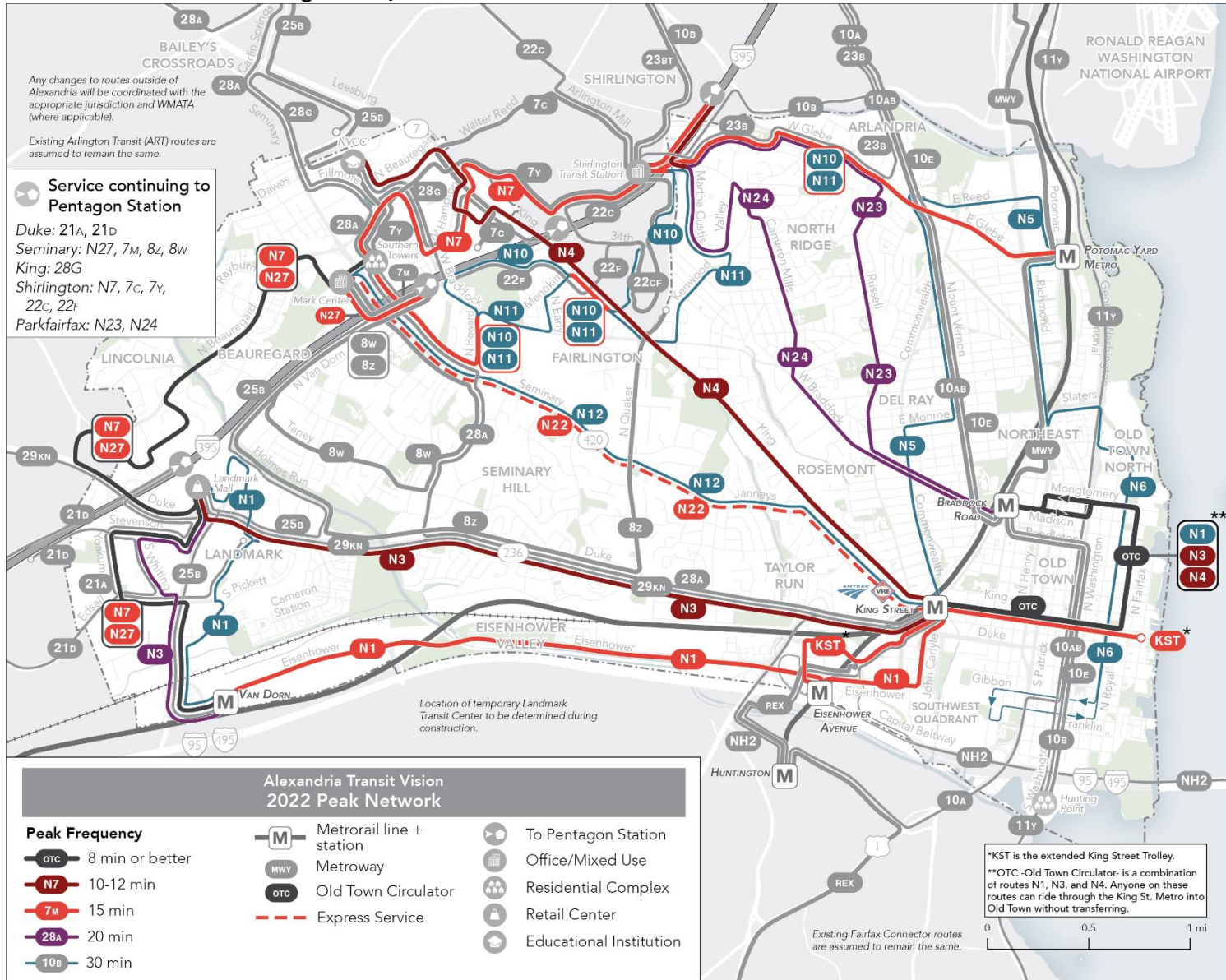
Figure 5-3 / 2022 Alexandria Transit Vision Network – Off-Peak Service

Any changes to routes outside of Alexandria will be coordinated with the appropriate jurisdiction and WMATA (where applicable).

Existing Arlington Transit (ART) routes are assumed to remain the same.

Location of temporary Landmark Transit Center to be determined during construction.

Alexandria Transit Vision 2022 Midday Network

Midday Frequency
- OTC — 8 min or better
- N7 — 10-12 min
- N4 — 15 min
- 28A — 20 min
- N5 — 30 min

- M — Metrorail line + station
- 10B — WMATA Route
- MWY — Metroway
- OTC — Old Town Circulator

Note: This map only shows routing that operate all-day. For peak-only routes, see 2022 Peak Network map.

- To Pentagon Station
- Office/Mixed Use
- Residential Complex
- Retail Center
- Educational Institution

*KST is the extended King Street Trolley.

**OTC -Old Town Circulator- is a combination of routes N1, N3, and N4. Anyone on these routes can ride through the King St. Metro into Old Town without transferring.

Existing Fairfax Connector routes are assumed to remain the same.

0   0.5   1 mi

Figure 5-4 / 2022 Alexandria Transit Vision Network – Frequency Table

Alexandria 2022 Network Route Frequencies
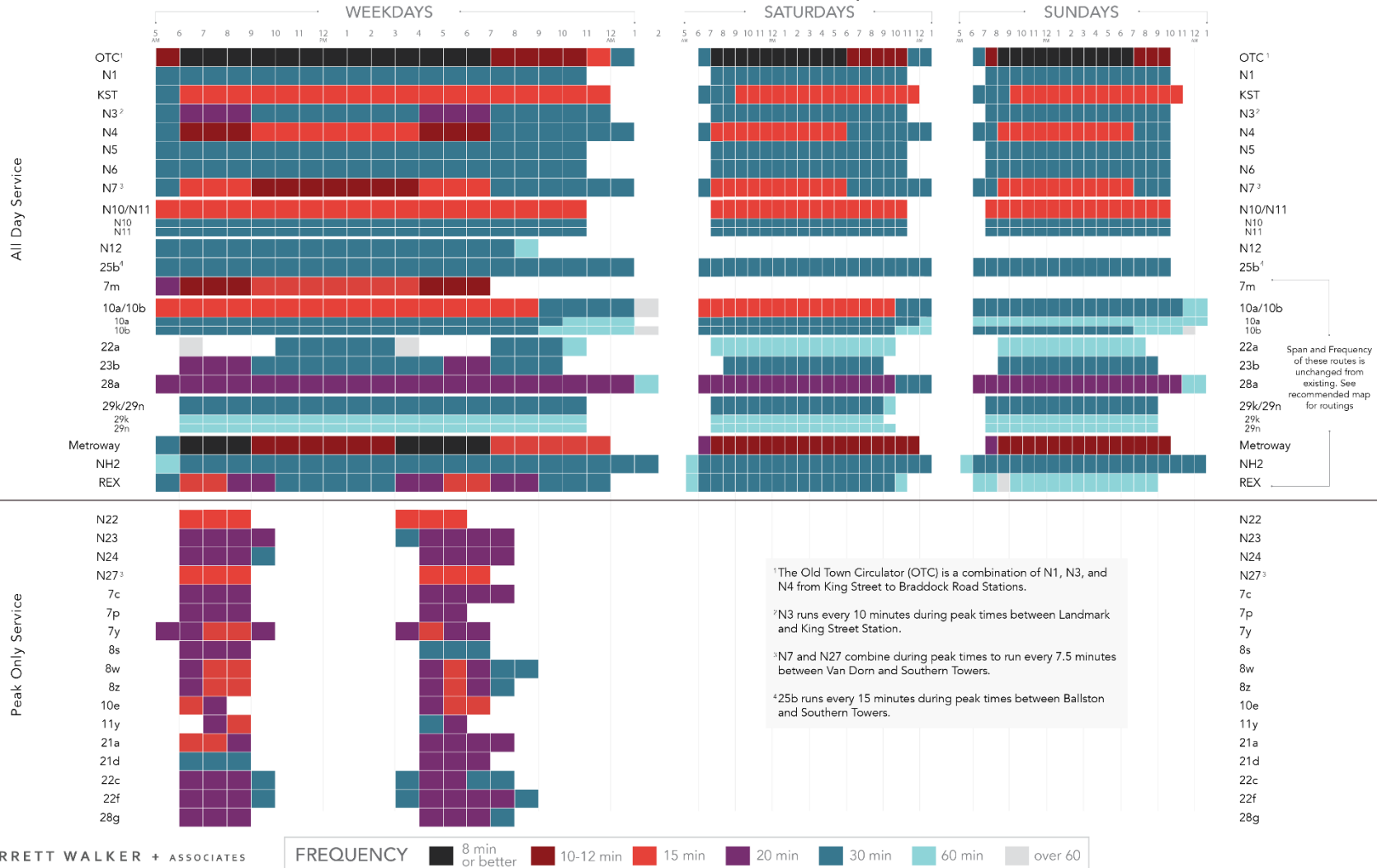
The Old Town Circulator (OTC) is a combination of N1, N3, and N4 from King Street to Braddock Road Stations. [1]

N3 runs every 10 minutes during peak times between Landmark and King Street Station. [2]

N7 and N27 combine during peak times to run every 7.5 minutes between Van Dorn and Southern Towers. [3]

25b runs every 15 minutes during peak times between Ballston and Southern Towers. [4]

JARRETT WALKER + ASSOCIATES

FREQUENCY: 8 min or better | 10-12 min | 15 min | 20 min | 30 min | 60 min | over 60

The 2022 ATV Plan will provide the following benefits for DASH customers and the city as a whole:

- Establishment of a citywide network of high-frequency bus routes running every 15 minutes or better, all day, seven days per week in West End, Arlandria, Potomac Yard and Old Town.
- Access to frequent, all-day transit for nearly 100,000 city residents (vs. 40,000 today).
- 73% of low-income residents will have access to frequent, all-day transit (vs. 29% today).
- 70% of minority residents will have access to frequent, all-day transit (vs. 22% today).
- 62% of seniors will have access to frequent, all-day transit (vs. 23% today).
- Maintains bus service coverage to the extent that 99.5 percent of existing DASH and WMATA boardings will still be within 1/8 mile of a bus stop under the 2022 ATV Network.
- Significant expansion of evening and weekend service, including a 50% increase in weekend service that will benefit non-traditional commuters and off-peak transit users.

For additional details on the 2022 and 2030 ATV networks, please visit www.dashbus.com/transitvision.

2030 Alexandria Transit Vision Plan

The 2030 ATV Network represents the ultimate vision for the new ridership-oriented bus network while providing frequent, all-day bus service across most of the city. Many of the routes in the 2030 network are similar to the routes from the 2022 network, but with additional frequency improvements. Figures 5-5 and 5-6 show the new 2030 network during peak and midday time periods, respectively, while Figure 5-7 shows the service frequencies and hours of operations for all DASH and WMATA routes.

The 2030 ATV Network assumes the equivalent of a 20 percent increase in service hours for both DASH and WMATA. The final 2030 network would be highlighted by an extensive network of high-frequency bus routes operating every 15 minutes or better, all-day seven days per week that would allow transit users to move easily across the city at all times.

The 2030 ATV Network was designed to be implemented by 2030, however, some of the improvements could be introduced during the latter part of the FY 2022 – FY 2026 period covered by this TDP if funding is available. One major component of the 2030 ATV Network that may be implemented earlier than 2030 is the West End Transitway. The capital improvements for the West End Transitway could be completed as early as 2025, in which case, the new "N9" West End Transitway route could be implemented at time, as well as the the corresponding changes to the "N8", "N10" and "N11" routes.

The 2030 ATV Plan will provide the following major benefits:

- Expansion of the citywide network of frequent, all-day bus service, seven days per week.
- Access to frequent, all-day transit for nearly 120,000 city residents (vs. 40,000 today).
- 91% of low-income residents will have access to frequent, all-day transit (vs. 29% today).
- 89% of minority residents will have access to frequent, all-day transit (vs. 22% today).
- 78% of seniors will have access to frequent, all-day transit (vs. 23% today).
- Maintains bus service coverage to the extent that 99.5 percent of existing DASH and WMATA boardings will still be within 1/8 mile of a bus stop under the 2022 ATV Network.
- Significant expansion of evening and weekend service, including a 50% increase in weekend service that will benefit non-traditional commuters and off-peak transit users.

Figure 5-5 / 2030 Alexandria Transit Vision Network – Peak Service

Service continuing to Pentagon Station

Duke: 21A, 21D
Seminary: N27, 7M, 8Z, 8W
King: 28G
Shirlington: N9, 7Y, 22C, 22F
Parkfairfax: N23, N24

Any changes to routes outside of Alexandria will be coordinated with the appropriate jurisdiction and WMATA (where applicable).

Existing Arlington Transit (ART) routes are assumed to remain the same.

Alexandria Transit Vision
2030 Peak Network

Peak Frequency

OTC	8 min or better
N7	10-12 min
7M	15 min
28A	20 min
10B	30 min

M	Metrorail line + station
MWY	Metroway
OTC	Old Town Circulator
---	Express Service

- To Pentagon Station
- Office/Mixed Use
- Residential Complex
- Retail Center
- Educational Institution

*KST is the extended King Street Trolley.

**OTC -Old Town Circulator- is a combination of routes N3 and N4. Anyone on these routes can ride through the King St. Metro into Old Town without transferring.

Existing Fairfax Connector routes are assumed to remain the same.
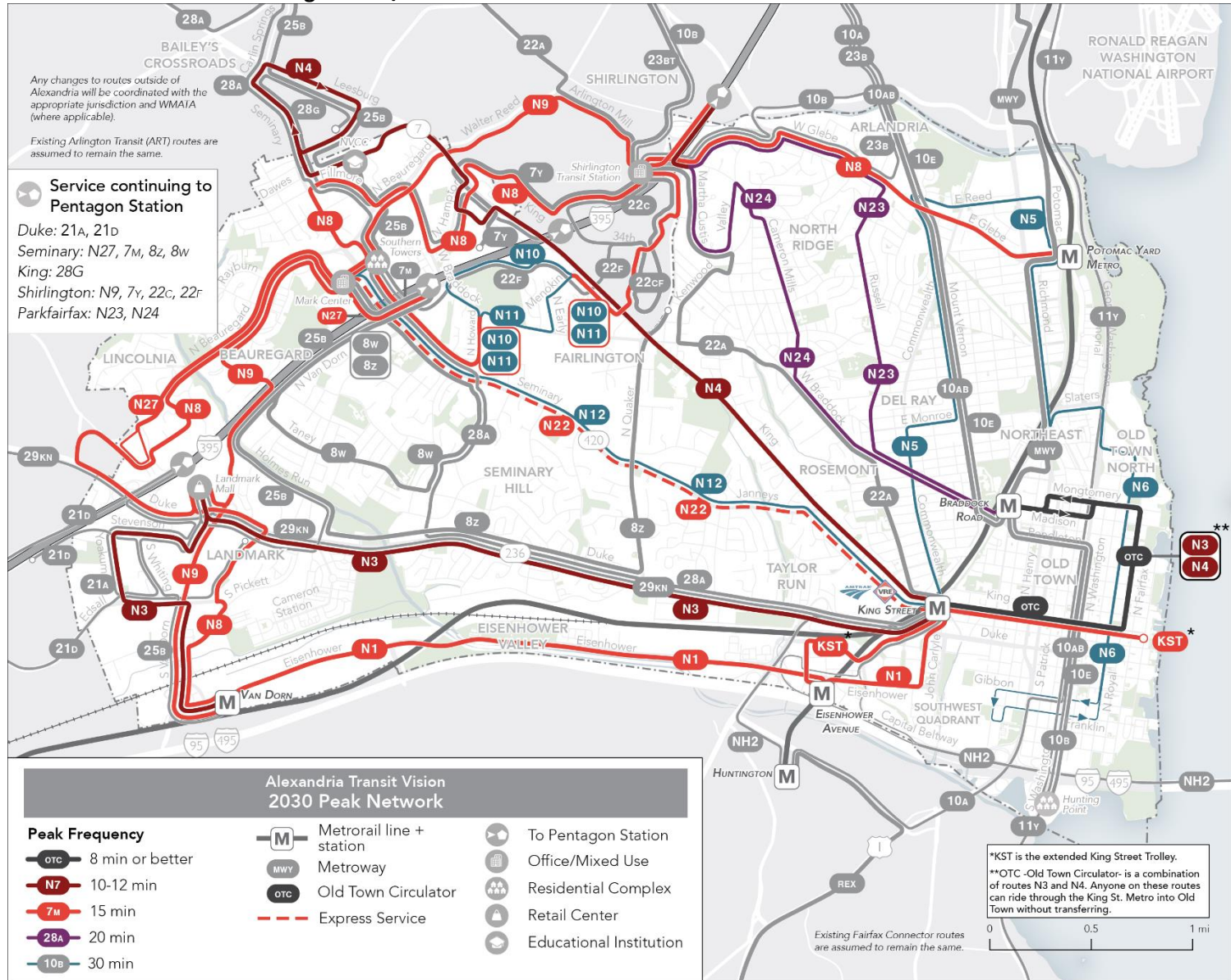
0   0.5   1 mi

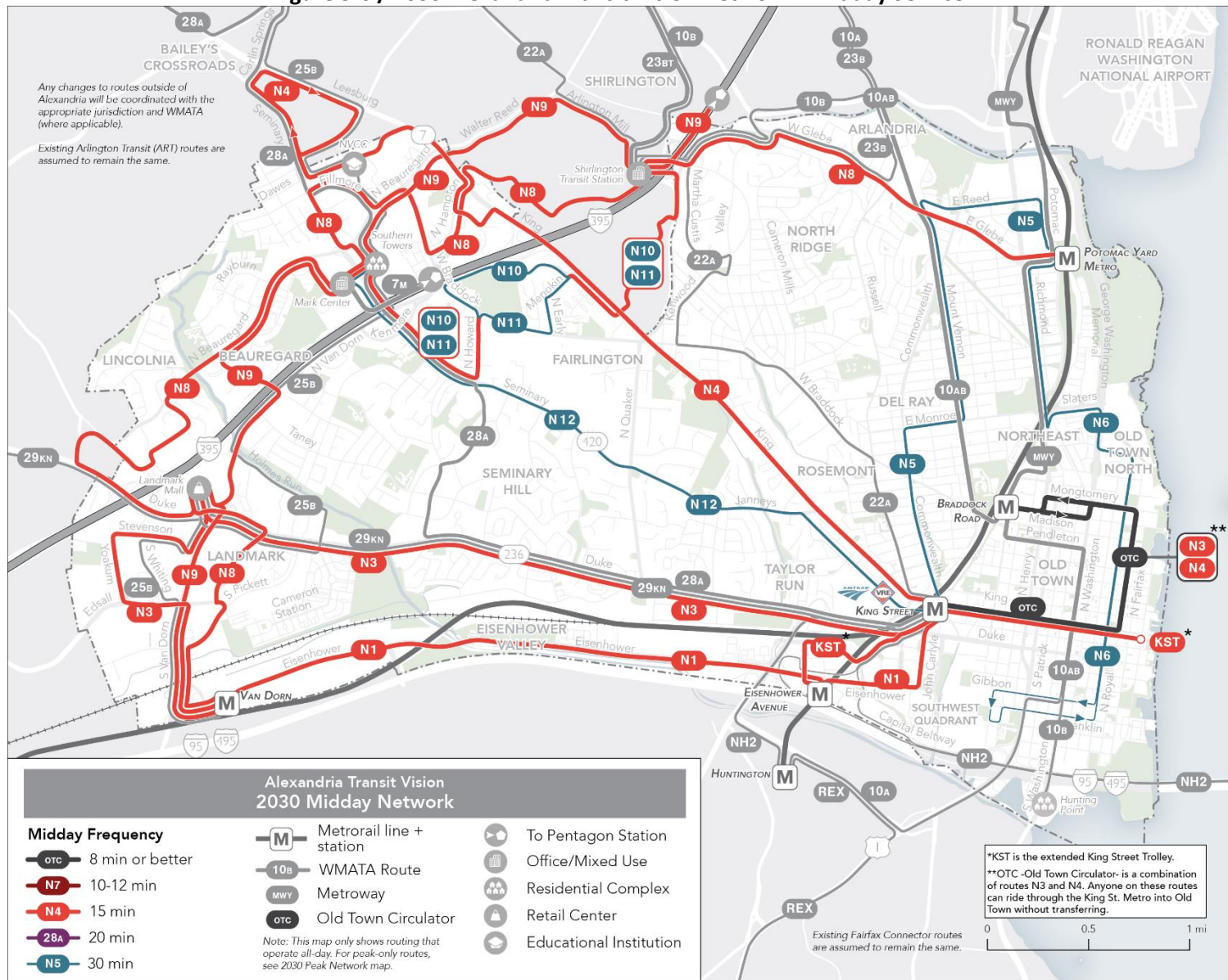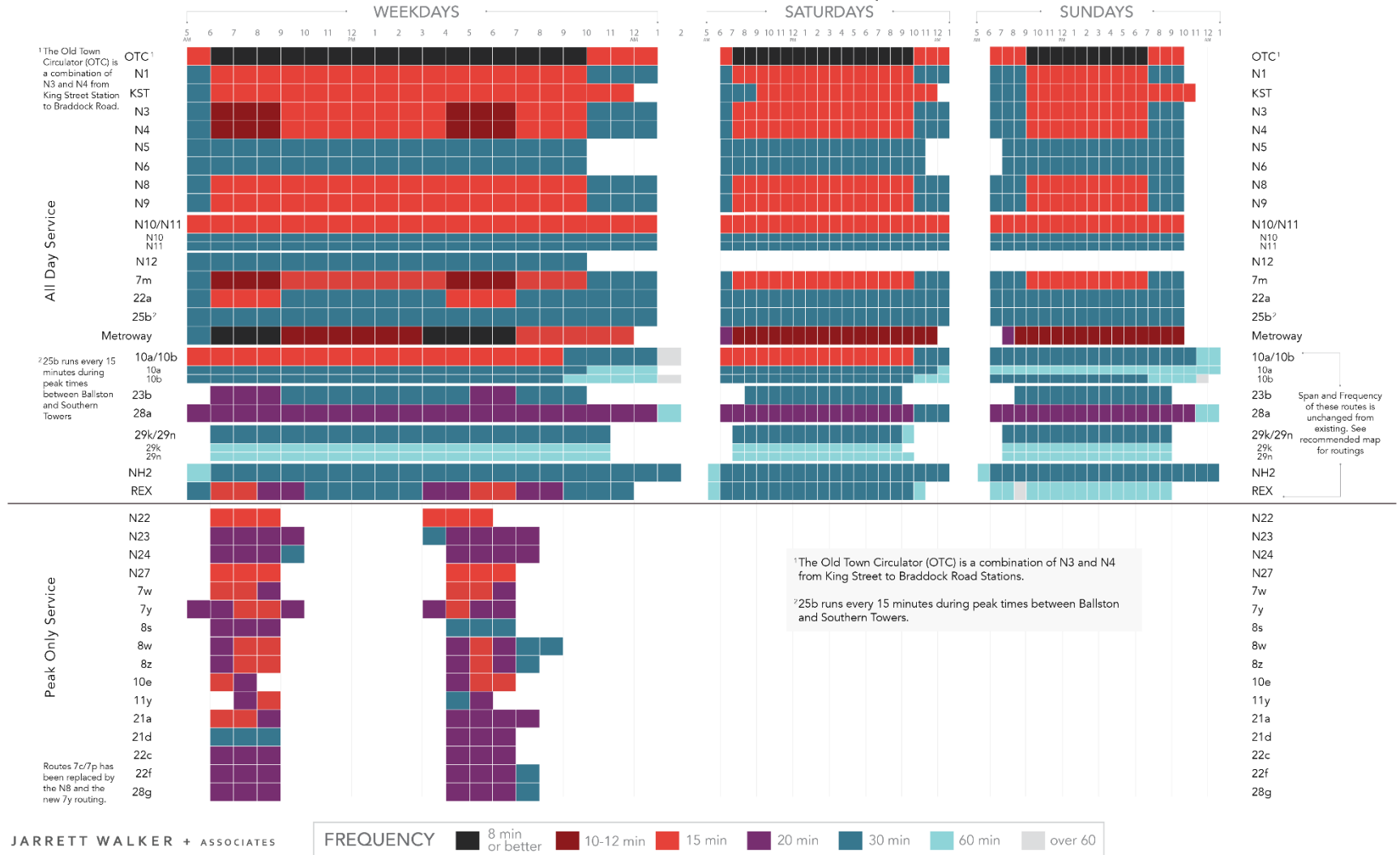**Figure 5-6 / 2030 Alexandria Transit Vision Network – Midday Service**

Figure 5-7 / 2030 Alexandria Transit Vision Network – Frequency Table

Alexandria 2030 Network Route Frequencies

Though this plan does not provide specific recommendations about the phasing of the 2030 ATV network improvements, there are two main improvements from the final network that staff has identified for early implementation, depending on funding availability:

1. **Eisenhower Avenue ("N1") peak service improvements.** The 2030 ATV network includes 15-minute frequency between the Van Dorn Metro and the King Street Metro during weekday peak periods. This improvement was initially included in the 2022 ATV Plan, but it was reduced to 30-minute service due to budget constraints. The Eisenhower Avenue corridor includes some of the densest portions of the city and several additional large developments will be added in the next few years. Staff recommends that this improvement to peak frequency on the "N1" route should be implemented as quickly as possible, and no later than FY 2024.

2. **Duke Street ("N3") off-peak service improvements.** Duke Street is one of the most productive transit corridors in the City of Alexandria, and for that reason, it has been identified by the city as a future BRT corridor. Although the current AT-8 route (and the future "N3") routes provide 10-minute peak service along the corridor, the service during off-peak periods only runs every 30 minutes. Under the 2030 ATV network, off-peak service along the Duke Street corridor will be improved to every 15 minutes. Due to the strong transit demand along this corridor, staff recommends that the improvement of "N3" off-peak service from every 30 minutes to every 15 minutes should be another early service improvement from the 2030 ATV Plan.

The following additional service- and fare-related actions are planned for FY 2022 – FY 2026:

- **Potomac Yard Metro Station**. WMATA is planning to construct a new in-fill Metrorail Station at Potomac Yard, between the existing Braddock Road and National Airport Metro Stations. The station will be constructed just west of the intersection of Potomac Avenue and East Glebe Road, with an adjacent bus transit center for DASH, WMATA and Metroway buses. Based on the expected opening date of early 2022, DASH plans to identify any corresponding service changes in this area during the Alexandria Transit Vision Plan process.

- **West End Transitway.** The City of Alexandria is planning to build the West End Transitway, a high-capacity BRT service that would operate along the I-395 corridor between Alexandria and the Pentagon. The original route began at the Van Dorn Metro with stops at Landmark, Mark Center, Southern Towers and Shirlington Transit Center before reaching the Pentagon. Although a specific transit provider has not been identified for this service, DASH is expected to be considered due to its other nearby services and cost efficiency. Operating funds for this service have not yet been identified, but the I-395 Commuter Choice program and other state and regional funding sources will be actively pursued.

- **Free Transfers to/from Metrorail.** DASH is working with WMATA and City staff on a potential fare policy change to allow free transfers to/from Metrorail in the near future. Metrorail passengers transferring to a DASH bus would ride DASH for free, while DASH passengers transferring to Metrorail would receive a discount equal to the amount of their DASH fare ($2.00). Under current DASH policy, the transfer discount to/from Metrorail is only $0.50, while transfers to Metrobus are free. Note that WMATA has proposed free transfers between Metrorail and Metrobus as part of its FY 2021 budget, but the policy does not yet apply to DASH.

- **Future Fare Changes.** No future changes to base fare or DASH Pass are anticipated at this time.

6.0 / DASH Capital Budget Program

This section outlines the capital improvements that are planned to support the long-term viability and growth of the DASH bus system. The primary source of capital funding for DASH is the City of Alexandria's Capital Improvement Program (CIP), however, ATC capital improvements are also funded by other state and regional sources, such as the Virginia Department of Rail and Public Transit (VDRPT) and the Northern Virginia Transportation Authority (NVTA).

6.1 / FY 2021 – FY 2030 Capital Improvement Plan (CIP)

DASH relies upon capital funding from the City of Alexandria and regional funds from NVTA to pay for replacement buses, facility improvements, technology systems and a wide range of other capital projects. The City of Alexandria's Capital Improvement Program covers a ten-year period and operates on a two-year cycle. Based on the proposed FY 2021 – FY 2030 CIP, the city has allocated a total of $107.7 million for five different ATC capital projects. These projects include bus replacements, powertrain and battery pack replacements, facility and fleet expansion, and investments in new technology for fare collection and scheduling software.

Based on recent guidance from DASH management and City staff, DASH made several modifications to its capital funding requests for FY 2021. Table 6-1 depicts a summary of the approved FY 2021 CIP project funding requests and the major changes.

6.2 / Fleet Replacement Plan

As shown in Table 6-2, DASH has purchased 13 replacement buses in the last 12 months. With the planned purchase of six additional replacement buses in FY 2020 through the VW Mitigation Trust program described below, DASH will be able to retire the last of its old diesel buses, which are now operating beyond their useful 12-year life cycle.

A detailed summary of the current Fleet Replacement Plan is included in Table 6-2. This table shows the proposed replacement schedule for each of the nine active sub-fleets of buses, based on a useful life cycle of 12 years. In order to maintain a State of Good Repair and ensure that service is provided in a safe and reliable manner, DASH must replace all buses that are more than 12 years old. Any buses that are replaced within the yellow portion of the table are buses that are being kept in service beyond their useful life, which represents a failure to maintain State of Good Repair.

As part of the recent switch from hybrid to clean diesel vehicles, the ATC Board of Directors and city leadership have expressed a strong desire to transition the fleet towards electric or zero-emission buses over the next 5-10 years. To this end, DASH has been awarded state funding to purchase six electric buses, which will replace the last six of the older diesel buses. The funding for this purchase came through the state's VW Mitigation Trust program and covered the cost differential between clean diesel and electric buses as well as charging equipment. A gradual transition to electric buses is outlined in the fleet replacement plan shown in Table 6-2. Additional information on DASH Zero-Emission Bus fleet planning is in included in Section 6.5.

Table 6-1 / FY 2021 – FY 2030 Capital Improvement Plan (CIP) Summary

Item	Project Description	FY 2021 Requests			FY 2021-2030 Request Totals		
		Previous	Updated	Net Change	Previous	Updated	Net Change
1	**Bus Fleet Replacement.** DASH is responsible for the planning, procurement, purchase, testing, acceptance and maintenance of its active bus fleet. This program provides funding for the purchase of replacement transit buses that enable DASH to operate fixed-route bus service throughout the City of Alexandria. DASH will be working with City staff and other stakeholders to coordinate the procurement, purchase and delivery of the replacement buses that are funded by this project.	$2,800,000	$0	($2,800,000)	$20,904,000	$80,177,200	$59,273,200
2	**DASH Hybrid Battery & Powertrain Replacement.** This project funds repair or replacement of any or all components of the hybrid powertrain including battery packs, the dual-power inverter module (DPIM), transmission, or diesel engine. Experience suggests that proactive replacement of battery packs which are showing no defects is unnecessary (DASH has yet to experience a battery failure in eight years of hybrid operation). Repair or replacement will be made on an as-needed basis to conserve resources for actual failures.	$350,000	$0	($350,000)	$4,950,000	$2,390,800	($2,559,200)
3	**DASH Fleet & Facility Expansion.** The current DASH Facility has reached its maximum bus capacity and cannot accomodate future fleet expansion. DASH has secured funding from multiple state and regional sources for a staged implementation of expanded bus storage capacity, which will be integrated with facility and utility upgrades to support a zero-emission subfleet. The City's temporary parking arrangement for its overflow impound lot, currently housed on the adjacent DASH bus expansion land, will ultimately need to be relocated. This project also includes the purchase of 14 new buses, which are intended to be used to enhance service in high development areas such as Potomac Yard and the Van Dorn Corridor. At least eight of the new buses will be zero-emission buses.	$15,639,161	$3,504,000	($12,135,161)	$23,067,161	$23,134,000	$66,839
4	**DASH Electronic Fare Payment.** This project will provide for purchase of new farebox hardware and the implementation of new electronic fare payment technologies for the DASH bus fleet that will allow DASH to enhance the usefulness of its mobile ticketing app. This will include required upgrades to the hardware which supports the SmarTrip card-based payment system, designed and managed by WMATA and its vendors. It will also include electronic validation hardware for the DASH Bus mobile fare payment app or a future regional mobile app (including a potential WMATA app) or transition to a regionwide mobile ticketing platform.	$750,000	$750,000	$0	$1,200,000	$750,000	($450,000)
5	**DASH Technology.** This project funds future technology initiatives (FY23-FY24) that allow DASH to incorporate new innovations into their day-to-day operations to improve ridership, cost efficiency and customer satisfaction. Such technologies include scheduling software upgrades, onboard equipment (real-time infotainment screens, WiFi, phone charging ports, etc), facility security technology upgrades, service planning analysis software tools, enhanced onboard video monitoring systems, advanced bus maintenance diagnostic systems, or other elements to improve operations and customer experience.	$0	$0	$0	$855,745	$855,745	$0
	TOTALS	$19,539,161	$4,254,000	($15,285,161)	$50,976,906	$107,307,745	$56,330,839

6.3 / Fleet Expansion

In order to maintain appropriate urban service levels for the City of Alexandria, increase service frequency on productive existing routes, add new service in developing areas, and achieve an industry-standard spare ratio, DASH must periodically increase its active bus fleet size. The current fleet size is 99 vehicles. With a peak pull-out requirement of 81 buses, DASH has recently been able to increase its spare ratio to 22 percent, which is just above the industry standard of 20 percent.

DASH is planning the following fleet expansions over the next few years:

- **FY 2018-2023 NVTA Six Year Plan Funding.** In 2018, DASH was awarded $11.9 million to be used for facility upgrades and for the purchase of eight zero-emission buses. These eight expansion buses are expected to be delivered by FY 2022.

- **FY 2021 Smart Scale Funding.** DASH secured roughly $11.1 million in state DRPT funding through the Smart Scale program. Most of the funding for this project will be used towards the facility expansion project described in Section 6.6, but the funds will also cover the purchase of six clean diesel expansion buses to be used towards improved DASH bus service in major development corridors throughout the city. Though these buses were initially scoped as hybrid buses, DASH has since received approval from DRPT to purchase clean diesel buses instead due to ongoing reliability issues with hybrid-electric buses. These six expansion buses are scheduled for FY 2023 delivery.

- **FY 2023 Smart Scale Funding**. DASH was also able to secure $12 million in additional Smart Scale funding for the purchase of 12 additional zero-emission expansion buses. These buses are scheduled for purchase in FY 2024 and delivery by FY 2025

Based on these planned expansions, DASH will be increasing its active fleet size from 99 buses to roughly 120 buses over the next five years. The corresponding facility expansion that is needed to accommodate the growing DASH bus fleet is summarized in Section 6.6.

6.4 / Hybrid Battery Pack & Powertrain Replacements

Nearly two-thirds of the DASH active bus fleet is comprised of hybrid-propulsion buses. DASH has identified a need for hybrid powertrain replacements and engine rebuilds. As shown in Table 6-1, DASH is requesting nearly $2.4 million in CIP funds for hybrid powertrain repair and replacement. For FY 2020, DASH was awarded $900,000 to complete necessary repair and replacements and that funding will be enough to cover the necessary work for FY 2021 as well. Therefore, no additional CIP funds have been requested for this project in FY 2021.

Table 6-2 / Fleet Replacement Schedule.

| Funding Year | Type | Quantity | FY21 | FY22 | FY23 | FY24 | FY25 | FY26 | FY27 | FY28 | FY29 | FY30 |
Delivery Year			FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31
2002 Neoplan Artics (PIP)	*Diesel*	*14*	6									
2011 Gilligs	Hybrid	10			10							
2011 Gilligs (Trolley)	Hybrid	5			5							
2012 Gilligs	Hybrid	10				10						
2014 Gilligs	Hybrid	7						7				
2015 Gilligs	Hybrid	13							13			
2015 Gillig (Trolley)	Hybrid	1							1			
2017 Gilligs	Hybrid	6									6	
2018 Gilligs	Clean Diesel	14										14
2019 New Flyers (13)	Clean Diesel	13										
2019 New Flyers (8)	Clean Diesel	8										
2020 Electric Buses (VW)	Electric	6										
Total Retirements			6	0	15	10	0	7	14	0	6	14
Replacement Buses (Clean Diesel)			0	0	10	5	0	0	0	0	0	0
Replacement Buses (Electric)			0	0	5	5	0	7	14	0	6	14
Total Replacement Buses			**0**	**0**	**15**	**10**	**0**	**7**	**14**	**0**	**6**	**14**
Expansion Buses (Clean			0	6	0	0	0	0	0	0	0	0
Expansion Buses (Electric)			8	0	0	12	0	0	0	0	0	0
Total Expansion Buses			**8**	**6**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**0**

Note: Dashed line indicates the point at which each subfleet will reach the end of its useful life cycle (12 years). Buses must be replaced before the end of their useful life cycle in order to maintain State of Good Repair (SGR) status. Numbers in yellow cells are representative of buses that will be kept beyond the end of their useful life cycle.

6.5 / Electric Bus Program

In the last two years, DASH has taken great strides towards transitioning to electric buses as a sustainable, long-term solution for its fleet replacement needs. This effort is well-aligned with the City's 2008 Transportation Plan and Eco-City Alexandria, which both seek to improve quality of life and sustainable transportation options. Electrification efforts to date have included the following:

- DASH management has held a continued dialogue with city staff, city advisory boards, local utility companies, electric bus manufacturers, and partner transit agencies that have either already purchased electric buses or are considering doing so.

- Members of the DASH executive leadership team have toured the New Flyer electric bus manufacturing facility in Aniston, Alabama and attended the Zero Emission Bus Conference in September 2018 in Los Angeles, California to learn more about how the buses are built and how the technology works;

- DASH staff have arranged for multiple electric bus demonstrations with leading electric bus manufacturers, whereby DASH is loaned an electric bus for a limited period of time so that it can be tested in revenue service and displayed at public events for community feedback;

- Based on these demonstrations, DASH has been able to collect and analyze a wealth of telemetric bus performance data to help determine how effectively electric buses could be used to meet current operational needs;

- **DASH was awarded funding for six electric buses through the state's Volkswagen Mitigation Trust program. The funds will cover the cost differential of purchasing six electric buses and charging equipment. These six buses are scheduled for delivery by late 2020 and will allow DASH to evaluate the performance of electric buses in daily revenue service. Facility upgrades to support the first six electric buses will be completed by Summer 2020 and are funded by the NVTA 70% grant.**

- **DASH has modified its most recent Capital Improvement Program (CIP) funding requests to the City of Alexandria to include funding for electric replacement buses as early as FY 2023. The request assumes that the electric bus purchases would increase each year until FY 2026, at which point all DASH replacement buses would be electric buses;**

- **DASH has been awarded multiple regional and state grant funding opportunities through VDOT (SmartScale) and NVTA (70% Funds) that will help cover the cost of facility expansions, upgrades, infrastructure improvements, and additional electric buses, bus chargers, and maintenance equipment over the next 3-5 years;**

- **DASH recently worked with the Center for Transportation and the Environment (CTE) to complete a Zero-Emission Bus Feasibility Review that determined that DASH and the City of Alexandria were well-suited for electric bus technology; and**

- **In 2020, DASH will be working with another consultant to prepare a Zero-Emission Fleet Implementation Plan to set a course for electrification over the next 5-10 years.**

6.6 / DASH Facility Expansion

As part of the $11 million DRPT SmartScale project mentioned above, DASH has secured funding to expand its existing garage facility to increase vehicle capacity from roughly 90 buses to 135 buses to meet anticipated service demand in the coming decades. The existing William B. Hurd Transit Facility was opened in 2009 but has since reached its maximum bus capacity.

In preparation for future expansion, the City of Alexandria secured the rights to the parcel of land immediately west of the existing DASH facility. This parcel, which is currently occupied by a temporary impound lot, will be regraded and integrated into the existing facility. Though the design of the facility expansion has not been determined, it will likely house the future electric bus fleet and charging infrastructure. Construction is scheduled to begin as early as FY 2022, and the new expanded facility would likely open by FY 2024.

6.7 / Technology Improvements

In recent years, DASH has placed an emphasis on leveraging new technologies to improve the customer experience, enhance safety, and help DASH to run more efficiently. Recent projects have included Transit Signal Prioritization (TSP), Smartyard, Real-Time info displays, Mobileye Pedestrian Detection Systems, TMS Daily Operations, Disruption Management, and MobileCAD.

- **Automated Passenger Counters.** DASH was awarded $200,000 in FY 2019 to retrofit its current fleet with more accurate optical APC equipment and is preparing to publish a solicitation for the work. With these installations, nearly 100% of the DASH fleet will be equipped with optical APC's and much more detailed ridership data will be available for service planning decision-making and NTD reporting. The project is scheduled for completion by late 2020.

- **Scheduling Software.** DASH has identified a major need for new, upgraded scheduling software. The current system that we are using is designed for smaller agencies with less complexity to their route networks and labor rules. With the launch of the new Alexandria Transit Vision (ATV) Network in 2021 and the more complex labor rules from the new Collective Bargaining Agreement, DASH needs a more advanced software solution that is easier to use and more reliable. Although CIP funding for scheduling software is included in FY 2023, DASH and City staff have worked together to identify capital funding that will be available in 2020 to address this immediate need.

- **Real-Time Information Enhancements**. DASH continues its work to provide comprehensive, accurate real-time bus information to all customers. Some of these efforts include:

  - DASH recently introduced a real-time GTFS feed that provides more accurate information about real-time bus locations for third-party platforms. Real-time GTFS is quickly replacing proprietary APIs (like DASH's old real-time feed) as the preferred source of data for programmers.

  - DASH is in the process of making real-time information available to customers via text message (SMS) and telephone (IVR). Customers will be able to provide their Stop ID number and receive real-time updates about when the next buses will arrive.

- o DASH is working on an upgraded version of its BusTracker, which will be available on the DASH website by mid-2020. The new version will be more user-friendly, mobile-compatible, and include better route and stop information. DASH is currently conducting focus groups with riders to better understand how the existing Bus Tracker could be improved.

  - o DASH real-time information has been integrated into WMATA's BusETA platform, and Google Transit so that passengers will be able to plan trips and view real-time information for DASH in Google maps.

  - o DASH has also submitted an FY 2021 grant to DRPT for an "Enhanced Real-Time Predictions" project that will improve the accuracy of real-time arrival predictions by incorporating traffic sensor data, and preceding bus trips on the same route pattern. This will be particularly beneficial during major service disruptions when real-time arrival estimates become far less accurate.

  - o DASH is also wrapping up a validation of its real-time systems. Stating August 2019, staff have collected almost 500 samples of real-time accuracy by going to bus stops and recording what real-time arrivals predicted versus when the bus actually showed up to the stop. Staff recorded predictions from both BusTime (the legacy DASH Tracker) and the new bus Tracker, as well as from the Transit App and digital signage at stops.

  - o Together, DASH and Metro installed close to 30 digital bus arrival signs across Alexandria in 2019. These include both solar-powered signs and large, LCD kiosks at the Mark Center. DASH is expanding the real-time sign program in 2020, with 25 more signs slated for installation in the first half of 2020. In addition, DASH is placing a double-sided LCD kiosk at King Street Metro once the bus loop reopens.

- **TransTrack.** TransTrack is a tool that DASH uses across many different departments to measure system performance, track customer feedback, and maintain important organizational data. In 2020, DASH is expanding its usage of TransTrack so that it is better integrated with the Operations Department, and to monitor several key performance indicators (KPI's). This will be completed by Spring 2020 via several product upgrades.

- **Fleetio.** DASH Maintenance staff are implementing a new fleet maintenance software program that will streamline current maintenance work orders, parts inventory, and fleet condition monitoring processes.

- **Fareboxes.** DASH is working with WMATA and other regional partners on several efforts to modernize regional bus farebox equipment. In 2020, this includes the purchase of 20 new driver control units (DCU) tablets, which allow bus operators to record passenger boardings with a new touch-screen interface. DASH is also participating in other longer-term projects to modernize the current farebox and move towards mobile ticketing and other off-board payment solutions.

- **Multidoor Boarding Study.** DASH has applied for a FY 2021 DRPT Technical Assistance grant for a Multidoor Boarding Study that would explore the feasibility of multidoor boarding on selected DASH routes. Multidoor boarding and/or off-board fare payment can greatly reduce dwell times

and overall travel times in busy transit corridors. DASH anticipates that the study will examine both mobile and onboard technologies that can support this objective.

- **Website Improvements.** DASH is currently working with a local software developer to create two new products for customers using the DASH website - an interactive system map and HTML schedules. The interactive map allows customers to view DASH's system map imposed on a Google Maps base layer. Customers can zoom in and out, turn routes on and off, center to their location, and click individual stops to get both scheduled and real-time information. The HTML schedules simply put DASH's existing schedules into a mobile-compatible format. Both improvements are geared toward new customers who are trying to learn about transit near them.

- **IVN-5 Migration:** DASH is beginning its migration to the next generation of the Clever Devices Intelligent Vehicle Network (IVN) CAD/AVL system. No buses will be retrofitted, but starting with the summer 2020 bus order, all DASH buses will come equipped with the new IVN-5 computer instead of the current IVN-4, which Clever expects to stop supporting over the next 5-10 years. Making this change now allows DASH to switch to IVN-5 units gradually as buses are replaced and avoids purchasing functionally obsolete technology.

6.8 / Other Capital Outlay Items

The FY 2020 ATC proposed operating budget also includes capital outlay funding for regular equipment replacement. This funding will be used for the replacement and repair of items such as computers, network equipment, building security and surveillance systems, maintenance equipment, and support vehicles.

Additional capital expenses relating to extra COVID-19 safety precautions will also be needed for FY 2021 and beyond, however, some eligible expenses may be covered by federal funding from the CARES Act.

7.0 / Public Outreach

In support of the FY 2021 Transit Development Plan, DASH staff conducted an extensive public outreach campaign to raise community awareness about the plan and to solicit feedback. While the original outreach plan included a significant amount of in-person meetings and pop-up events, the COVID-19 public health emergency forced the cancellation of these activities. Staff also made the decision to extend the public outreach period by one month to provide additional time for virtual outreach and feedback.

A summary of the TDP outreach performed over the last three months is included below:

- Virtual Community Meetings via Zoom/Facebook Live (April 30)
  - 23 livestream viewers
  - 8 comments/questions
  - 212 total views
- Virtual Public Hearing via Zoom/Facebook Live (May 6)
  - 52 livestream viewers
  - 2 written comments
  - 1 oral comment
  - 150 total views
- Flyers Posted at AT-4 Bus Stops on section of route proposed for discontinuation
- Onboard posters/flyers (English/Spanish)
- Onboard announcements.
- Website Information (News/Events)
- Multiple e-mail blasts to DASH E-mail List
- Social Media Engagement
- Zebra Press Online/Print Ads
- Information Distributed to Ops Supervisors + Drivers

DASH's TDP-related social media posts received a total of 65 engagements, 21 comments, 16 shares and 173 clicks. These posts include the livestreams of a community meeting and virtual board meeting, which have been viewed 212 and 150 times to date, respectively.

7.1 / Feedback Summary

Based on the outreach activities summarized above, DASH received a total of 14 public comments and questions regarding the FY 2021 Transit Development Plan, including those that were submitted or made during the virtual outreach events. A list of all comments that were received is included as Table 7-1.

As shown in Table 7-1, the public comments addressed a wide range of topics. Four of the commenters provided specific input on the proposed AT-4 service change. One commenter was in favor of the proposed change, one opposed it, and two were relatively neutral. One letter was also submitted to the ATC Board of Directors on behalf of the North Old Town Civic Association (NOTICe) identifying concerns from several of their residents about the AT-4 reduction. Though the letter ultimately classified the service cut as "unfortunate, but necessary" in light of subsidy reduction, it did underscore the importance of frequent transit in Old Town North and expressed optimism for the planned

implementation of the Old Town Circulator as part of the 2022 Alexandria Transit Vision Network. A full copy of the NOTICe letter is included in the Board Packet distributed to the ATC Board of Directors in advance of their May 27, 2020 meeting.

7.2 / TDP Changes

Based on the feedback received through the outreach process, DASH is not proposing any changes to the proposed service or fare changes included in this document. Although several residents did express concerns about the proposal to discontinue the AT-4 route segment in Old Town, staff is not planning to amend its original proposal. This decision has been made based upon the annual cost reduction which allows DASH to meet the city's subsidy reduction target, the availability of alternate routes such as the AT-8 for current AT-4 passengers affected by the change, and consistency with planned 2022 Alexandria Transit Vision network

Lastly, although the impact to the DASH subsidy and passenger revenues is expected to be dramatic, the availability of federal funding from the CARES Act has allowed DASH to avoid any significant budget cuts or additional service reductions. The most notable change is that the WMATA Board of Directors' decided to delay by at least six months the planned introduction of additional regional fare products, and the $0.50 increase in DASH-Metrorail transfer discount. DASH is still planning to accept these new fare products and to reciprocate the transfer discount when they are approved by the WMATA Board of Directors, potentially as early as January 2021. This timeline may align with the reinstatement of fares on DASH buses and could provide extra incentive for riders who are considering a post-pandemic return to public transit.

Table 7-1 / TDP Feedback Tracker

Date	Format	Name	Comment/Question	Response
3/7/2020	E-mail	Bob Gronenberg	It will, no doubt, shock some of my friends at DASH, but I am FULLY SUPPORTIVE of these changes. In fact, I recall, during an event at the Ramsay school a couple of years ago, suggesting the truncation of AT4 at Braddock Road Metro. And in so doing, it will likely end the "teaser" about moving the bus stop out of the bus loop and back onto desolate Braddock Road once again. And as for the holiday service, I"m not sure how many riders will turn up on those days, but it would be consistent with Metrobus, so no objection. Regards, Bob Gronenberg	Bob, Thanks as always for the feedback. You're correct that this would settle the Braddock Road Metro stop location question as far as the AT-4 is concerned. Have a good week. Martin
3/7/2020	E-mail	Daniel Reifsnyder	Dear DASH: It would be really convenient to have a DASH bus that went from Braddock Road Metro all the way up Braddock Road to Quaker Lane (and vice versa) instead of turning off at Cameron Mills. Is there any chance this might happen in the future? Daniel A. Reifsnyder	Mr. Reifsnyder, Thanks for this feedback on future bus service on Braddock Road. As part of our Alexandria Transit Vision Plan that was adopted by the DASH Board of Directors in December, we included a recommendation to be implemented by 2030 for a major change to the Metrobus 22A route that would extend it from Shirlington down to King Street Metro via Braddock Road. The 2030 ATV map can be seen here – www.dashbus.com/transitvision. This may address your comment, though please be aware that this change would ultimately be up to WMATA and is therefore not guaranteed. The main challenge with Braddock Road – and why it is not served today – is the combination of a lack of density, lack of major activity centers, and the fact that it runs parallel to a major regional arterial (King Street), which provides access to the biggest transit hub in the city (King Street Metro) and major trip generators like TC Williams, Bradlee Shopping Center and West Alexandria. These factors make Braddock Road a less attractive corridor for transit service as the ridership would be relatively low. Hope that's helpful.

Table 7-1 / TDP Feedback Tracker (Continued)

Date	Format	Name	Comment/Question	Response
4/23/2020	Email	Agnes Artemel	Martin, I got an email about a virtual community meeting to discuss cancellation of AT-4 service on Montgomery and Madison Streets. It would be helpful to have information about why this segment merits being discontinued, and how this affects the frequency of service to Old Town North. Does the AT-8 fully replace the AT-4 with identical headways? Agnès Artemel agnes.artemel@artemelassociates.com	Good morning Agnes, Thank you for your email. I hope all is well with you during this difficult time. I've copied the relevant sections from the draft FY21 Transit Development Plan below in blue, which provide additional details about the AT4 segment in Old Town and why we are proposing that it should be discontinued. One additional detail that is not included below is that although the AT-4 and AT-8 both run along Montgomery/Madison every 20 minutes during weekday peaks, it is not possible to coordinate the schedules, so the buses are often running one right after the other. Since ridership is not too heavy along that segment and the buses are not running very full, the extra buses are not adding very much value for the extra cost that we incur to operate them. Due to the relatively low AT4 ridership along this segment (50 boardings per day), and the route's redundancy with the AT-8, staff recommended that this service change could be implemented to reduce the city's FY21 subsidy to DASH, as requested by the City. Let me know if you have any feedback or additional questions so that we can make sure to document it for consideration by the ATC Board. Thanks again
4/23/2020	Email	Ashley Labadie	Hi, there – I hope you both are doing well considering the COVID climate. I am officially "back" from maternity leave now. I just saw the email from DASH about the virtual meeting next Wednesday regarding the AT-4 route termination from Braddock Metro to City Hall. I plan to attend. In my review of the plan for this area, I noticed that the N-12 route on Seminary/Janneys does not show Saturday or Sunday service if I'm reading page 33 of the report correctly. Was that what the board approved? I thought that existing service (which includes weekend service now) would be continued but monitored. If not, will that service be terminated on weekends in 2022 or sooner, and when will the community process for that segment's weekend termination begin? Thanks, Ashley	Hi Ashley, Regarding the "N12", the staff recommendation in the Board memo was to retain local weekday-only bus service on the Seminary Road/Janney Lane corridor between Howard Street and King Street. This recommendation was based on the fact that the AT-2 draws extremely low weekend ridership along this stretch (20 boardings on Saturdays, and about five boardings on Sundays). The staff recommendation is included on page 28 of the December 2019 ATC Board Packet (Link Provided). The board approved this recommendation with ridership monitoring, as you noted, and also determined that AT7 service on Eisenhower Avenue should be reduced to offset the cost. This is reflected in the final ATV plan in the inset text on page 25 and the weekend service maps on pages 44 and 45 (Link provided). The implementation of the ATV is planned for the start of FY22 (late summer 2021), so we will be conducting outreach about one year from now as part of the FY22 Transit Development Plan. Obviously, the uncertainty surrounding the city's budget for FY21 and beyond could affect the roll out of the new network, but that is the plan as it stands right now. Let me know if you have any other questions. If not, I'll look forward to seeing you virtually next week at the community meeting.

Table 7-1 / TDP Feedback Tracker (Continued)

Date	Format	Name	Comment/Question	Response
29-Apr	Comment	Sheldon	Do you have any data on the number of passengers who pay cash, who would have to pay two fares where they only pay 1 currently?	Response provided during meeting.
29-Apr	Comment	A. Artemel	what are the average daily boardings on AT8	Response provided during meeting.
29-Apr	Comment	A. Artemel	how much would the change to AT-4 service save?	Response provided during meeting.
29-Apr	Comment	A. Artemel	In Old Town North we are trying to encourage transit use. Cutting service is not a good way to encourage people.	Response provided during meeting.
29-Apr	Comment	A. Artemel	Will AT-8 reliably come every 20 minutes?	Response provided during meeting.
29-Apr	Comment	Sheldon	How does the WMATA weekly pass currently work with DASH buses?	Response provided during meeting.
29-Apr	Comment	A. Artemel	You mention DASH board adoption of budget, but is there also a City Budget process that relates to this?	Response provided during meeting.
29-Apr	Comment	B. Groenburg	The AT4 change is long overdue. And with the cost savings, the AT3-4 Loop can be preserved into perpetuity, even after the ATV kicks in :-) Why is DASH operating some articulated buses now? Are there enough passengers to require the extra capacity and maintain distancing? I doubt the articulated buses are very fuel efficient.	Response provided during meeting.
29-Apr	Comment	Donna Browning	I am more concerned with you taking part of the AT4route away. That will be difficult to get places without it. Exactly. You're not looking at facebook. Lots of impact. Why are you having this meeting when you have made your mind up.	Response provided during meeting.
6-May	Comment	Jim Durham	Strong supporter of ATV; wants to know how the ATV implementation can be accelerated; asked if there are ways that the improvements that benefit protected communities could be implemented earlier than FY22 in view of the major impact of COVID on those groups.	Response provided during meeeting and via follow-up emails shared with ATC Board.