Alexandria Transit Company
Board of Directors Meeting

February 14, 2024 @ 5:30pm
Meeting Held at DASH Facility, 3000 Business Center Drive, Alexandria, VA 22314 and Held Electronically - Livestream on ZOOM and Facebook Live

ITEM	DESCRIPTION	PAGE #	PRESENTER
#1	**Call to Order, Welcome, and Public Comment**	**N/A**	Mr. Kaplan
#2	**Consideration of Approval Meeting Minutes** a) ATC Board of Directors Meeting – January 10, 2024	**2-4**	All
#3	**Board Member Announcements, Reports & Business Items** a) Chair's Report b) T&ES Report c) Board Member Recruitment Update d) Others	**5-6**	Mr. Kaplan Ms. Orr Recruitment Committee All
#4	**General Manager's Reports** a) Ridership Update b) Fleet Strategy Memorandum	**7-8**	Mr. Baker Mr. Mui
#5	**Financial Reports** a) Financial Report b) Balance Sheet c) Summary Income Statement d) Budget vs. Actual e) Budget Forecast	**9-13**	Mr. Ryder
#6	**Planning Reports** a) Alexandria Transit Strategic Plan (ATSP) Memorandum b) DASH Bus Stops Update Near Ladrey Redevelopment	**14-16**	Mr. Barna
#7	**Next Meeting Date & Adjournment** The next regular meeting of the Alexandria Transit Company Board of Directors is scheduled for Wednesday, March 13, 2024	**17**	All

***Note to the Board: Please remember to RSVP to the 40th Anniversary Event.**

ATC Board Agenda Detail

Item #: **2a**
Item Title: Meeting Minutes—January 10, 2024
Contact: Beth Reveles, Secretary to the Board
Board Action: Consideration of Approval

Alexandria Transit Company (ATC)
BOARD OF DIRECTORS MEETING MINUTES
January 10, 2024

A meeting of the Board of Directors of the Alexandria Transit Company was held at 5:30 pm on Wednesday, January 10, 2024, at City Hall Council Workroom and was also available electronically. A recording of the meeting was made and is available upon request.

Board members present: David Kaplan, Matt Harris, Hillary Orr, Murat Omay, Arthur Wicks

Board members participating electronically: Steve Klejst, Kendel Taylor

Board members absent: Jesse O'Connell, Ajashu Thomas

Staff members present: Josh Baker, Raymond Mui, Beth Reveles, Edward Ryder, Stephanie Salzone, Kato Carter, Joseph Quansah, Brent Reutter, Martin Barna, Ryan Visci

Other attendees: Bob Gronenberg

Agenda Item #1 – Call to Order, Welcome and Public Comment

Chair David Kaplan welcomed everyone and called the meeting to order at 5:32 pm. A quorum was reached when Murat Omay arrived at 5:59 pm.

Chair Kaplan closed public comment as there were no speakers.

Agenda Item #2 – Consideration of Approval of Meeting Minutes

#2a – ATC Board of Directors Meeting – December 13, 2023

The Chair called for a motion to approve the December minutes and asked if there were any corrections, revisions, or amendments. A motion was made by Matt Harris to approve the minutes and was seconded by Hillary Orr. There was no further discussion, and the motion carried. Murat Omay abstained.

Agenda Item #3 – Board Member Announcements, Reports & Business Items

#3a – Chair's Report (Amendment to Article I of By-Laws, / Stockholders' Meeting Scheduled for March 12, 2024)

Chair Kaplan called for a motion for the Board to amend Article I of the Board's by-laws as presented in the Board packet. The motion was moved by Matt Harris. Arthur Wicks seconded the motion. There was no further discussion, and the motion carried.

Chair Kaplan explained that the amendment would need to be formally approved by the Stockholders and announced that the Stockholders' meeting was scheduled for March 12, 2024.

The Chair commended DASH staff for posting signs at the bus stops alerting riders of street closures and the rerouting of buses due to parades, etc.

#3b – T&ES Report

Transportation Deputy Director Hillary Orr provided a review of her written report which was shared with the Board in advance of the meeting.

Board Recruitment Committee Update:

Matt Harris stated that the committee received 21 applicants of which he felt five or six of the candidates were exceptional, including those on the Dash Advisory Committee (DAC). Chair Kaplan explained that he had a phone conversation with Mr. Harris and they decided on six candidates to be interviewed. Hillary Orr volunteered to interview the final candidates with Mr. Harris. Ms. Orr agreed to a phone call with the DAC Chair, Ross Simons, to discuss the DAC candidates.

#3c – Strategic Plan Report

General Manager Josh Baker, Chief of Development and Infrastructure Raymond Mui, and Chief Operating Officer Stephanie Salzone reviewed the Strategic Plan which was provided to the Board in advance of the meeting. Mr. Baker stated that he would be seeking approval from the Board for the final plan at the February meeting.

#3d – Others

The Chair asked if there were any other announcements from the Board. Hearing none, he moved on to the General Manager's report.

Agenda Item #4 – General Manager's Report

#4a – Ridership Update

The ridership update was shared with the Board in advance of the meeting.

Agenda Item #5 – Financial Reports

#5a – Financial Report

#5b – Balance Sheet

#5c – Summary Income Statement

#5d – Budget vs. Actual

#5e – Budget Forecast

Mr. Baker briefly reviewed the financial reports which were shared with the Board in advance of the meeting.

Agenda Item #6 – Planning Reports

#6a –FY25 ATC DRPT TRIP Grant Memorandum

Director for Planning and Marketing Martin Barna provided the memorandum which was shared with the Board in advance of the meeting.

#6b –Resolution #24-05 in Support of Proposed Application for TRIP Funding

Chair Kaplan called for a motion to approve adoption of the resolution to support the application for TRIP funding. Murat Omay moved to approve the resolution, which was seconded by Matt Harris. There was no further discussion, and the motion carried.

Agenda Item #8–Next Meeting Date & Adjournment

A final motion to adjourn the meeting was made by Matt Harris and seconded by Arthur Wicks. A vote was called, and the motion was approved unanimously.

The next regular meeting of the Alexandria Transit Company Board of Directors is scheduled for February 14, 2024, at 5:30 pm at the DASH Facility.

Minutes respectfully submitted by:
Beth Reveles
Secretary to the Board
Alexandria Transit Company

ATC Board Agenda Detail
Item #: **3b**
Item Title: T&ES Report
Contact: Hillary Orr, Deputy Director, Transportation
Board Action: FYI

King-Bradlee Project
On Thursday, February 15, from 5-7 p.m. City Staff will hold an Open House to share initial design concepts for the King Street-Bradlee Safety and Mobility Enhancements Project at the Fairlington Presbyterian Church, 3846 King Street. Initial concepts focus on changes to the Access Road, while preserving the existing design of King Street. City Staff have collaborated with DASH staff on initial concepts and will be seeking opportunities to preserve or improve transit operations in the corridor.

This project seeks to improve access and mobility for all users in the Study Area and it was identified in the Alexandria Mobility Plan as a priority location to install enhanced bicycle facilities and additional sidewalks to close gaps in the City's current network.

WMATA Budget
Staff will share an update during the meeting.

Capital Bikeshare Highest Ridership Year
The Capital Bikeshare system hit record ridership numbers systemwide and in the City of Alexandria in 2023. The Capital Bikeshare system rebounded from the decline in ridership seen during the COVID-19 pandemic. The number of trips taken by bikeshare has grown steadily since 2021, and 2023 was the highest ridership year for Capital Bikeshare in Alexandria to date. In 2023, 109,487 Capital Bikeshare trips started and/or ended in the City. Additionally, Capital Bikeshare had the highest average number of trips taken per day in 2023 with an average of 300 trips per day.

Capital Bikeshare ridership in the City can be viewed through the Capital Bikeshare Trip Data Dashboard. The "Started At" slider may be adjusted to track data within a preferred timeframe.
This matches the City's success with DASH ridership as well, which saw its highest ridership year in history in FY23. The City is seeing real results from its investments in multimodal transportation.

AlexWest
On Monday, March 4, City staff will hold a virtual public meeting to discuss all the recommendations of the AlexWest Small Area Plan, including transportation and street layout recommendations.

For background, in Fiscal Year 2023, City Council prioritized this planning process to update the long-term vision for the 1992 Alexandria West Small Area Plan and integrate the 2012 Beauregard Small Area Plan. Creating an updated community vision allows us to proactively plan for change and prepare for challenges and opportunities in the years to come.

An updated Plan will:
- Enable the 10- to 30- year-old land use plans to be updated comprehensively to address current community needs and incorporate current City policies and best practices;
- Address the issue of housing vulnerability and affordability by leveraging housing resources, policies, and funding opportunities to meet this challenge; and
- Develop an approach to guide and shape future development and make expectations clear for the community, City and developers.

In November 2023, staff held a public meeting to discuss transportation elements of the plan.

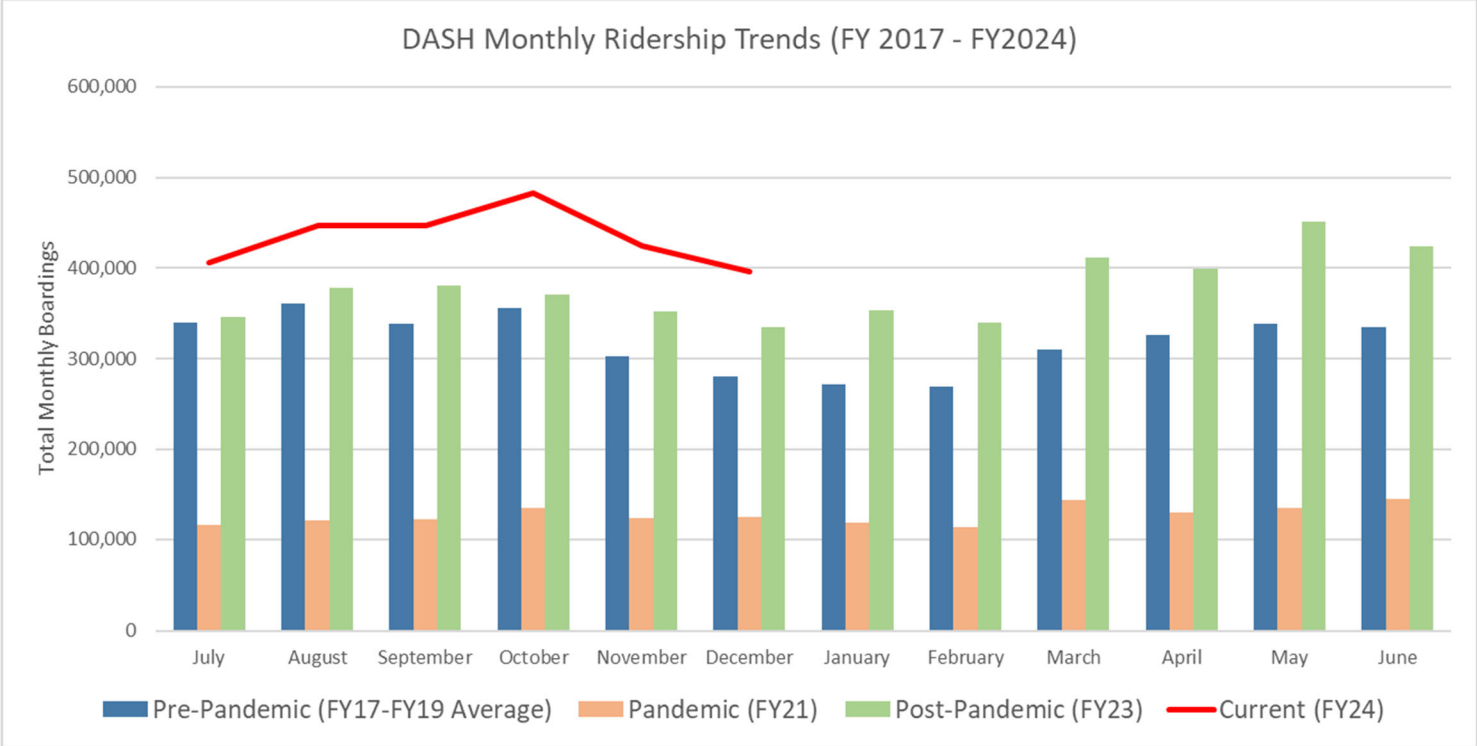
ATC Board Agenda Detail

Item #: **3c**
Item Title: Board Member Recruitment Update
Contact: Recruitment Committee
Board Action: Consideration of Approval

The Board Recruitment Committee will present a slate of directors for consideration, the Board will be asked to take action to approve the slate to be recommended to the Stockholders at the meeting scheduled for March 12th, 2024.

ATC Board Agenda Detail

Item #: **4a**
Item Title: Ridership Update
Contact: Josh Baker, General Manager
Board Action: FYI



ATC Board Agenda Detail
Item #: **4b**
Item Title: Fleet Strategy Memorandum
Contact: Raymond Mui, Chief Infrastructure & Development Officer
Board Action: FYI

MEMORANDUM

DATE: February 5, 2024

TO: Members of the Alexandria Transit Company Board of Directors

FROM: Raymond Mui, Chief Infrastructure & Development Officer

SUBJECT: Bus Fleet Strategy

This memo serves as an overview of strategy of DASH's approach towards adoption of a future 100% zero emissions fleet. DASH has been operating a total of 14 battery electric buses for upwards of five years now, a leading implementor in the region and along the east coast, with a goal to convert to a full fleet of zero emissions buses by the year 2037.

As of January 2024, the manufacturer of seven of DASH's battery electric buses, Proterra, has entered bankruptcy and is currently in the process of being divested and sold to various parties. The bankruptcy status in itself does not directly result in Proterra buses going out of service or being inoperable, nor do we have any reason to believe at this point that support of these buses will fall short of the 12-year lifespan of the vehicles. However, the bankruptcy status has had an impact to the level of service and support Proterra is able to provide to us, prolonging the length of time a bus is out of service before being repaired and returned to service.

Unfortunately, the realities of bus manufacturers going out of business, restructuring, or entering the market are typical of the public transit industry, particularly in North America. This results in a bus supplier market that is both narrow and unpredictable. It is important to note that these challenges are not new or unique to electric buses but have dated back to the beginning of DASH and affect all chapters of the DASH fleet. In past recent months, we've seen the surprise exit of bus manufacturers Novabus and ENC exit the US Transit bus market, while others are trying to enter the market. Due to this, DASH and its Leadership Team are committed to being proactive in mitigating the effects of the market, to include the possibility of manufacturers going out of business. Some of the measures that are practiced include:

- Diversifying our fleet to avoid homogeneity.
- Ensuring that all electric bus orders have adopted industry technology standards, such as SAE J1772 and J3105.
- Ensuring that all buses and chargers maximize interoperability.
- Procuring with robust specification requirements to ensure maximized commonality of sub-components and systems.
- Investment in workforce development of DASH technicians to minimize dependency on OEM support.
- Building data infrastructure (charge management) that funnel data to third party clearinghouses that is more directly managed by DASH.

In addition, DASH Leadership is continually active in the advocacy of this issue to the industry. DASH staff speak regularly at conferences and forums to advance the issue of bus supplier market, technology development, standardization, etc. These concerns and issues are also raised and collaborated upon locally within the Northern Virginia Transportation Commission (NVTC) Zero Emissions Bus Working Group and National Capital Region Bus Leaders Committee's ZEB Sub-Committee, where DASH serves as leading members.

As the conditions of the industry and technology are far from ideal, DASH Leadership is committed to prioritizing strategies that mitigate risk, builds resiliency, and maximizes stability while pursuing our zero emissions goal.

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ATC Board Agenda Detail

Item #: **5a**
Item Title: Financial Report
Contact: Edward Ryder, Director of Finance & Administration
Board Action: FYI/Discussion

Financial Results Through the Month Ending November 30, 2023

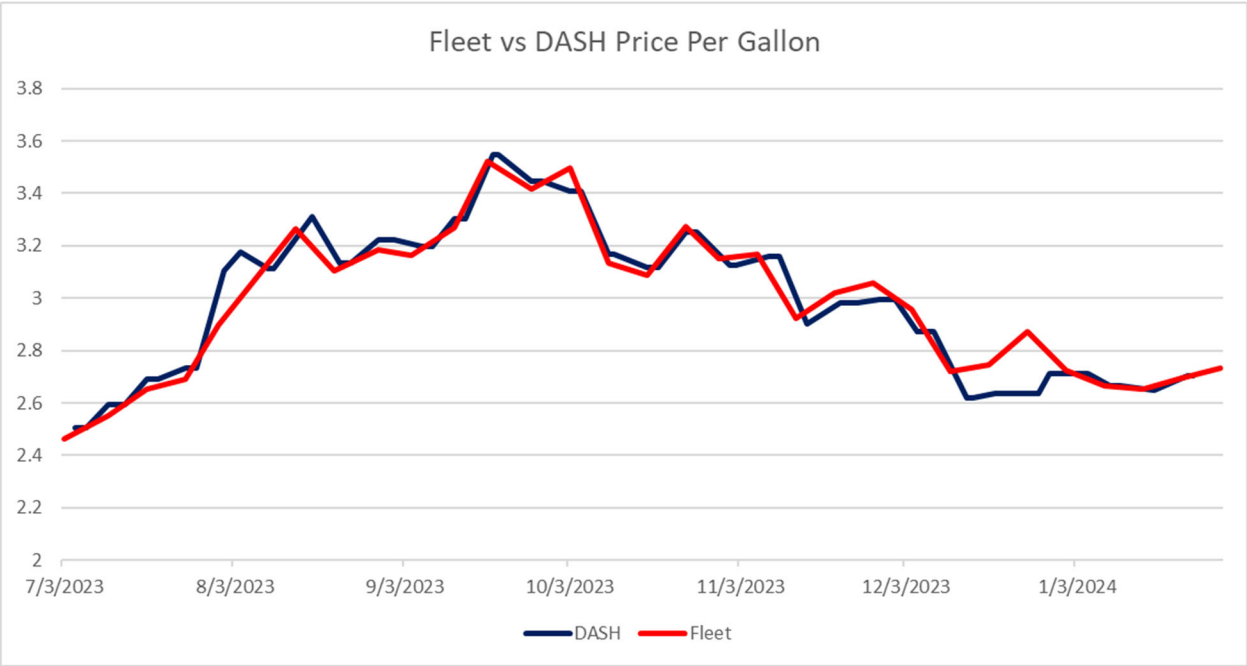
Through November 2023, ATC experienced a year-to-date deficit of ($450,444) and is now projecting a year-end deficit of ($18,263). This year-end figure includes the funds requested on the Fall Supplemental Appropriations Ordinance (SAO) to cover funding needs associated with the CBA negotiations. The Fall SAO was appropriated in December 2023 and funds will be applied by the end of February.

Significant budget items through December:

- Operations overtime is still a major issue for our budget. However, recent structural changes recommended by staff and approved by the General Manager are starting to show a positive effect.
    - Operations overtime costs were down 18% in December compared to November.

- ATC continues to take all measures available to control all discretionary spending, including the General Manager's freeze on all non-essential and discretionary spending.

- Staff continue to research options to address unpredictability in diesel fuel pricing. An initial review of the City of Alexandria's Fleet fueling program shows that the price per gallon of diesel paid by Fleet is in generally line with ATC's pricing. The next steps in this research involve shopping for additional vendors and exploring options to secure fuel for future months at fixed rates.
    - A comparison of the price paid by DASH compared to the price the City pays for fuel is provided below.



ATC Board Agenda Detail

Item #: **5b**
Item Title: Balance Sheet
Contact: Edward Ryder, Director of Finance & Administration
Board Action: FYI/Discussion

ALEXANDRIA TRANSIT COMPANY
Balance Sheet as of December 31, 2023

ASSETS		
Cash - City of Alexandria Pooled	$	(3,274,687)
Cash - Payroll Account		16,583
Due from Other Governments		-
Receivables		305,515
Prepaid Expenditures		311,574
Parts and Supplies Inventory		1,050,814
Capital Assets		67,446,679
Less: Accumulated Depreciation		(35,789,449)
TOTAL ASSETS	**$**	**30,067,029**
LIABILITIES		
Accounts Payable	$	286,757
Payroll Liabilities		27,001
Accrued Vacation		-
Deferred Revenue (CARES Act)		113,458
Total Liabilities	**$**	**427,216**
NET POSITION		
Net Investment in Capital Assets	$	31,657,230
Unrestricted		(2,017,417)
Total Net Position	**$**	**29,639,813**
TOTAL LIABILITIES AND NET POSITION	**$**	**30,067,029**

This statement is unaudited and prepared for the sole use of management and the Board of Directors of ATC.

ATC Board Agenda Detail

Item #: **5c**
Item Title: Summary Income Statement
Contact: Edward Ryder, Director of Finance & Administration
Board Action: FYI/Discussion

ALEXANDRIA TRANSIT COMPANY
Summary Income Statement for the Month Ended December 31, 2023

	Actual	Budget	Variance	FY2024 Projected	FY2024 Annual Budget	Variance
REVENUES:						
Passenger Revenue	-	-	-	-	-	-
Charter Revenue	37,352	-	37,352	37,352	-	37,352
Advertising Revenue	51,278	62,500	(11,222)	89,484	250,000	(160,516)
Miscellaneous Revenue	32,782	25,000	7,782	62,782	60,000	2,782
Total Operating Revenue	**121,411**	**87,500**	**33,911**	**189,618**	**310,000**	**(120,382)**
Virginia TRIP Program	-	-	-	1,782,577	1,782,577	
City Contribution - King Street Trolley	564,198	470,167	94,031	1,128,400	1,128,400	-
City Contribution - Regular Subsidy	14,240,484	11,867,071	2,373,413	28,480,971	28,480,971	-
Fall SAO for CBA	-	-	-	639,223	639,223	-
Total Revenue	**14,926,093**	**12,424,738**	**2,501,355**	**32,220,789**	**32,341,171**	**(120,382)**
EXPENDITURES:						
Operations	8,684,023	7,241,333	(1,442,690)	18,699,796	18,611,500	(88,296)
Maintenance	3,755,048	2,970,335	(784,714)	7,360,518	7,169,519	(190,999)
Administration	2,980,826	2,560,298	(420,529)	6,140,454	6,360,652	220,198
Capital Outlay	38,327	36,500	(1,827)	38,327	199,500	161,173
Total Expenditures	**15,458,225**	**12,808,466**	**(2,649,759)**	**32,239,095**	**32,341,171**	**102,076**
Net Surplus (Deficit)	**(532,132)**	**(383,728)**	**(148,404)**	**(18,306)**	**-**	**(18,306)**

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ATC Board Agenda Detail

Item #: 5d

Item Title: Budget vs. Actual

Contact: Edward Ryder, Director of Finance & Administration

Board Action: FYI/Discussion

ALEXANDRIA TRANSIT COMPANY

Summary Income Statement for the Month Ended December 31, 2023

Budget vs Actual

Description	Dec Actuals	Dec Forecast	Variance	YTD Actuals	YTD Forecast	Variance	FY 24 Projected	FY 24 Budget	Variance
REVENUE									
Passenger Revenue	-	-	-	-	-	-	-	-	-
Other Charter Revenue	8,776	-	8,776	37,352	-	37,352	37,352	-	37,352
Advertising Revenue	26,880	62,500	(35,620)	51,278	62,500	(11,222)	89,484	250,000	(160,516)
Miscellaneous Revenue	11,185	5,000	6,185	32,782	25,000	7,782	62,782	60,000	2,782
TOTAL OPERATING REVENUE	**46,841**	**67,500**	**(20,659)**	**121,411**	**87,500**	**33,911**	**189,618**	**310,000**	**(120,382)**
Virginia TRIP Program	-	-	-	-	-	-	1,782,577	1,782,577	-
City Contribution - Regular Subsidy	2,373,414	2,373,414	(0)	14,240,484	11,867,071	2,373,413	28,480,971	28,480,971	-
City Contribution - King Street Trolley	94,033	94,033	(0)	564,198	470,167	94,031	1,128,400	1,128,400	-
Fall SAO for CBA	-	-	-	-	-	-	639,223	639,223	-
TOTAL REVENUE	**2,514,288**	**2,534,948**	**(20,659)**	**14,926,093**	**12,424,738**	**2,501,355**	**32,220,789**	**32,341,171**	**(120,382)**
OPERATING EXPENDITURES									
OPERATIONS									
Wages - O	860,493	976,472	115,979	5,482,013	4,882,362	(599,651)	12,341,779	12,718,600	376,821
Overtime - O	136,102	100,796	(35,306)	989,488	503,978	(485,511)	1,799,488	1,304,500	(494,988)
Fringe Benefits - O	361,829	191,083	(170,746)	1,176,300	955,417	(220,883)	2,322,800	2,293,000	(29,800)
Payroll Taxes - O	77,114	83,471	6,357	493,032	417,356	(75,676)	1,070,805	1,078,600	7,795
Retirement Contributions - O	78,994	83,861	4,867	501,501	419,304	(82,197)	1,085,136	1,086,800	1,664
Total Operations Personnel	**1,514,531**	**1,435,683**	**(78,848)**	**8,642,335**	**7,178,417**	**(1,463,918)**	**18,620,008**	**18,481,500**	**(138,508)**
Operating Materials and Supplies	3,071	3,750	679	7,901	18,750	10,849	30,401	45,000	14,599
Operator Training	1,734	3,333	1,599	14,554	16,667	2,113	30,154	40,000	9,846
Training and Travel - O	894	2,500	1,606	19,233	27,500	8,267	19,233	45,000	25,767
TOTAL OPERATIONS EXPENDITURES	**1,520,230**	**1,445,267**	**(74,964)**	**8,684,023**	**7,241,333**	**(1,442,690)**	**18,699,796**	**18,611,500**	**(88,296)**
MAINTENANCE									
Wages - M	185,528	204,408	18,880	1,087,869	1,022,042	(65,827)	2,511,117	2,649,699	138,582
Overtime - M	9,071	10,112	1,040	62,590	50,558	(12,032)	133,021	131,100	(1,921)
Fringe Benefits - M	28,960	33,915	4,955	176,817	169,575	(7,242)	380,307	406,980	26,673
Payroll Taxes - M	14,645	16,091	1,446	86,571	80,456	(6,115)	198,724	208,700	9,976
Retirement Contributions - M	15,003	16,837	1,835	87,742	84,186	(3,556)	205,019	218,300	13,281
Total Maintenance Personnel	**253,208**	**281,363**	**28,156**	**1,501,589**	**1,406,817**	**(94,771)**	**3,428,187**	**3,614,779**	**186,592**
							-		
Fuel & Lubricants	166,189	131,733	(34,456)	1,128,961	893,733	(235,228)	2,044,011	1,952,400	(91,611)
Repair Parts & Supplies	170,153	74,383	(95,769)	690,764	371,917	(318,847)	1,137,064	892,600	(244,464)
Maintenance Services	(56,074)	28,795	84,869	197,380	143,975	(53,405)	352,150	345,540	(6,610)
Building Maintenance	26,534	26,541	7	230,352	145,559	(84,793)	393,103	344,200	(48,903)
Training and Travel - M	5	1,667	1,662	6,003	8,333	2,330	6,003	20,000	13,997
TOTAL MAINTENANCE EXPENDITURES	**560,015**	**544,483**	**(15,532)**	**3,755,048**	**2,970,335**	**(784,714)**	**7,360,518**	**7,169,519**	**(190,999)**
ADMINISTRATION									
Wages - A	218,389	205,991	(12,397)	1,281,041	1,029,955	(251,086)	2,698,155	2,661,300	(36,855)
Fringe Benefits - A	31,225	29,163	(2,062)	174,007	145,814	(28,192)	348,984	349,954	970
Payroll Taxes - A	15,094	15,723	629	95,199	78,615	(16,584)	204,460	203,600	(860)
Retirement Contributions - A	17,978	16,465	(1,513)	102,996	82,324	(20,672)	217,407	213,200	(4,207)
Total Administrative Personnel	**282,685**	**267,342**	**(15,344)**	**1,653,243**	**1,336,708**	**(316,534)**	**3,469,006**	**3,428,054**	**(40,952)**
Insurance	70,682	82,567	11,885	439,230	412,833	(26,397)	878,460	990,800	112,340
Professional Services	86,221	92,242	6,020	479,377	461,208	(18,169)	1,032,827	1,106,900	74,073
Utilities	57,231	28,775	(28,456)	171,714	143,874	(27,840)	331,584	345,298	13,714
Telecommunications	9,342	10,167	825	45,586	50,833	5,247	106,586	122,000	15,414
Printing & Advertising	(3,439)	6,375	9,814	28,276	31,875	3,599	66,526	76,500	9,974
Training, Travel, Events	1,772	3,111	1,339	42,160	31,222	(10,937)	42,160	53,000	10,840
Office Equipment and Supplies	3,290	10,533	7,243	58,012	52,667	(5,346)	112,645	126,400	13,755
Employee Recognition	1,869	-	(1,869)	23,344	14,700	(8,644)	23,344	14,700	(8,644)
Dues and Subscriptions	1,507	1,917	409	6,609	9,583	2,975	18,109	23,000	4,891
Grant Local Match	-	-	-	33,276	14,793	(18,483)	59,207	74,000	14,793
TOTAL ADMIN EXPENDITURES	**511,160**	**503,028**	**(8,132)**	**2,980,826**	**2,560,298**	**(420,529)**	**6,140,454**	**6,360,652**	**220,198**
CAPITAL OUTLAYS (non-CIP)									
Computer and Office Equipment	-	-	-	690	-	(690)	690	-	(690)
Maintenance Equipment	-	-	-	-	-	-	-	63,000	63,000
Other Equipment Investments	-	-	-	37,637	36,500	(1,137)	37,637	136,500	98,863
TOTAL CAPITAL OUTLAYS (non-CIP)	**-**	**-**	**-**	**38,327**	**36,500**	**(1,827)**	**38,327**	**199,500**	**161,173**
TOTAL OPERATING EXPENDITURES	**2,591,405**	**2,492,777**	**(98,628)**	**15,458,225**	**12,808,466**	**(2,649,759)**	**32,239,095**	**32,341,171**	**102,076**
NET SURPLUS (DEFICIT)	**(77,116)**	**42,171**	**(119,287)**	**(532,132)**	**(383,728)**	**(148,404)**	**(18,306)**	**-**	**(18,306)**

ATC Board Agenda Detail

Item #: 5e
Item Title: Budget Forecast
Contact: Edward Ryder, Director of Finance & Administration
Board Action: FYI/Discussion

Summary Income Statement for the Month Ended December 31, 2023
With Application of I-395 Reimbursements

Description	Jul	Aug	Sep*	Oct	Nov	Dec	Jan	Feb	Mar*	Apr	May	Jun*	FY 24 Projected	FY 24 Budget	Variance
REVENUE															
Passenger Revenue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Charter Revenue	374	-	18,107	2,701	7,393	8,776	-	-	-	-	-	-	37,352	-	37,352
Advertising Revenue	1,727	19,218	1,727	-	1,727	26,880	1,727	15,650	1,727	1,727	15,650	1,727	89,484	250,000	(160,516)
Miscellaneous Revenue	5,485	5,253	2,407	-	8,452	11,185	5,000	5,000	5,000	5,000	5,000	5,000	62,782	60,000	2,782
TOTAL OPERATING REVENUE	**7,586**	**24,471**	**22,241**	**2,701**	**17,572**	**46,841**	**6,727**	**20,650**	**6,727**	**6,727**	**20,650**	**6,727**	**189,618**	**310,000**	**(120,382)**
													-		
Virginia TRIP Program	-	-	-	-	-	-	297,096	297,096	297,096	297,096	297,096	297,096	1,782,577	1,782,577	-
City Contribution - Regular Subsidy	2,373,414	2,373,414	2,373,414	2,373,414	2,373,414	2,373,414	2,373,414	2,373,414	2,373,414	2,373,414	2,373,414	2,373,416	28,480,971	28,480,971	-
City Contribution - King Street Trolley	94,033	94,033	94,033	94,033	94,033	94,033	94,033	94,033	94,033	94,033	94,033	94,035	1,128,400	1,128,400	-
Fall SAO for CBA	-		-	-	-	-	639,223	-	-	-	-	-	639,223	639,223	-
TOTAL REVENUE	**2,475,033**	**2,491,918**	**2,489,688**	**2,470,148**	**2,485,019**	**2,514,288**	**3,410,493**	**2,785,194**	**2,771,270**	**2,771,270**	**2,785,194**	**2,771,274**	**32,220,789**	**32,341,171**	**(120,382)**
OPERATING EXPENDITURES															
OPERATIONS															
Wages - O	468,212	975,416	1,365,080	947,821	864,990	860,493	976,472	976,472	1,440,938	976,472	976,472	1,512,938	12,341,779	12,718,600	376,821
Overtime - O	80,286	179,950	256,782	170,068	166,302	136,102	120,000	120,000	165,000	120,000	120,000	165,000	1,799,488	1,304,500	(494,988)
Fringe Benefits - O	183,862	175,040	132,937	164,440	158,192	361,829	191,083	191,083	191,083	191,083	191,083	191,083	2,322,800	2,293,000	(29,800)
Payroll Taxes - O	41,648	87,513	122,952	85,041	78,764	77,114	83,471	83,471	121,944	83,471	83,471	121,944	1,070,805	1,078,600	7,795
Retirement Contributions - O	42,017	91,853	125,146	85,441	78,051	78,994	83,861	83,861	124,096	83,861	83,861	124,096	1,085,136	1,086,800	1,664
Total Operations Personnel	**816,025**	**1,509,772**	**2,002,898**	**1,452,812**	**1,346,298**	**1,514,531**	**1,454,888**	**1,454,888**	**2,043,061**	**1,454,888**	**1,454,888**	**2,115,061**	**18,620,008**	**18,481,500**	**(138,508)**
Operating Materials and Supplies	230	437	1,006	3,830	(673)	3,071	3,750	3,750	3,750	3,750	3,750	3,750	30,401	45,000	14,599
Operator Training	2,303	3,814	2,814	1,586	2,302	1,734	2,600	2,600	2,600	2,600	2,600	2,600	30,154	40,000	9,846
Training and Travel - O	2,547	5,101	5,773	3,679	1,239	894	-	-	-	-	-	-	19,233	45,000	25,767
TOTAL OPERATIONS EXPENDITURES	**821,105**	**1,519,124**	**2,012,491**	**1,461,906**	**1,349,167**	**1,520,230**	**1,461,238**	**1,461,238**	**2,049,411**	**1,461,238**	**1,461,238**	**2,121,411**	**18,699,796**	**18,611,500**	**(88,296)**
MAINTENANCE															
Wages - M	97,294	168,088	272,362	188,875	175,721	185,528	204,408	204,408	302,807	204,408	204,408	302,807	2,511,117	2,649,699	138,582
Overtime - M	4,380	13,584	14,285	8,802	12,467	9,071	10,112	10,112	14,992	10,112	10,112	14,992	133,021	131,100	(1,921)
Fringe Benefits - M	32,096	28,730	29,751	28,322	28,958	28,960	33,915	33,915	33,915	33,915	33,915	33,915	380,307	406,980	26,673
Payroll Taxes - M	7,655	13,669	21,566	14,881	14,155	14,645	16,091	16,091	23,894	16,091	16,091	23,894	198,724	208,700	9,976
Retirement Contributions - M	8,134	14,235	21,279	14,588	14,503	15,003	16,837	16,837	24,964	16,837	16,837	24,964	205,019	218,300	13,281
Total Maintenance Personnel	**149,559**	**238,306**	**359,243**	**255,468**	**245,804**	**253,208**	**281,363**	**281,363**	**400,572**	**281,363**	**281,363**	**400,572**	**3,428,187**	**3,614,779**	**186,592**
													-		
Fuel & Lubricants	175,247	217,029	217,444	177,696	175,356	166,189	152,508	152,508	152,508	152,508	152,508	152,508	2,044,011	1,952,400	(91,611)
Repair Parts & Supplies	75,635	130,256	141,357	152,535	20,828	170,153	74,383	74,383	74,383	74,383	74,383	74,383	1,137,064	892,600	(244,464)
Maintenance Services	16,868	56,826	48,500	45,349	85,910	(56,074)	25,795	25,795	25,795	25,795	25,795	25,795	352,150	345,540	(6,610)
Building Maintenance	19,942	40,628	42,025	55,514	45,709	26,534	27,125	27,125	27,125	27,125	27,125	27,125	393,103	344,200	(48,903)
Training and Travel - M	1,035	984	567	1,577	1,835	5	-	-	-	-	-	-	6,003	20,000	13,997
TOTAL MAINTENANCE EXPENDITURES	**438,286**	**684,029**	**809,136**	**688,140**	**575,443**	**560,015**	**561,175**	**561,175**	**680,384**	**561,175**	**561,175**	**680,384**	**7,360,518**	**7,169,519**	**(190,999)**
ADMINISTRATION															
Wages - A	110,922	192,446	333,484	196,761	229,040	218,389	202,445	202,445	303,667	202,445	202,445	303,667	2,698,155	2,661,300	(36,855)
Fringe Benefits - A	26,536	28,499	29,832	29,718	28,197	31,225	29,163	29,163	29,163	29,163	29,163	29,163	348,984	349,954	970
Payroll Taxes - A	8,332	14,473	25,120	14,928	17,252	15,094	15,723	15,723	23,185	15,723	15,723	23,185	204,460	203,600	(860)
Retirement Contributions - A	9,375	17,127	24,862	16,372	17,282	17,978	16,465	16,465	24,276	16,465	16,465	24,276	217,407	213,200	(4,207)
Total Administrative Personnel	**155,164**	**252,544**	**413,298**	**257,779**	**291,771**	**282,685**	**263,795**	**263,795**	**380,291**	**263,795**	**263,795**	**380,291**	**3,469,006**	**3,428,054**	**(40,952)**
Insurance	72,441	77,372	77,372	70,682	70,682	70,682	73,205	73,205	73,205	73,205	73,205	73,205	878,460	990,800	112,340
Professional Services	56,087	75,782	107,054	74,078	80,155	86,221	92,242	92,242	92,242	92,242	92,242	92,242	1,032,827	1,106,900	74,073
Utilities	25,636	24,983	29,316	31,033	3,515	57,231	26,645	26,645	26,645	26,645	26,645	26,645	331,584	345,298	13,714
Telecommunications	6,400	8,681	4,822	9,843	6,498	9,342	10,167	10,167	10,167	10,167	10,167	10,167	106,586	122,000	15,414
Printing & Advertising	1,813	8,376	1,572	19,110	844	(3,439)	6,375	6,375	6,375	6,375	6,375	6,375	66,526	76,500	9,974
Training, Travel, Events	8,019	9,346	9,753	10,874	2,396	1,772	-	-	-	-	-	-	42,160	53,000	10,840
Office Equipment and Supplies	8,103	6,010	30,338	2,787	7,485	3,290	9,105	9,105	9,105	9,105	9,105	9,105	112,645	126,400	13,755
Employee Recognition	-	11,718	4,039	5,589	129	1,869	-	-	-	-	-	-	23,344	14,700	(8,644)
Dues and Subscriptions	1,423	630	3,698	6,676	(7,327)	1,507	1,917	1,917	1,917	1,917	1,917	1,917	18,109	23,000	4,891
Grant Local Match	-	29,621	-	3,655	-	-	-	-	14,793	-	-	11,138	59,207	74,000	14,793
TOTAL ADMIN EXPENDITURES	**335,087**	**505,064**	**681,263**	**492,106**	**456,147**	**511,160**	**483,451**	**483,451**	**614,739**	**483,451**	**483,451**	**611,084**	**6,140,454**	**6,360,652**	**220,198**
CAPITAL OUTLAYS (non-CIP)															
Computer and Office Equipment	-	-	673	17	-	-	-	-	-	-	-	-	690	-	(690)
Maintenance Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	63,000	63,000
Other Equipment Investments	-	-	-	37,637	-	-	-	-	-	-	-	-	37,637	136,500	98,863
TOTAL CAPITAL OUTLAYS (non-CIP)	**-**	**-**	**673**	**37,654**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**38,327**	**199,500**	**161,173**
TOTAL OPERATING EXPENDITURES	**1,594,479**	**2,708,217**	**3,503,562**	**2,679,806**	**2,380,756**	**2,591,405**	**2,505,864**	**2,505,864**	**3,344,534**	**2,505,864**	**2,505,864**	**3,412,879**	**32,239,095**	**32,341,171**	**102,076**
NET SURPLUS (DEFICIT)	**880,554**	**(216,299)**	**(1,013,874)**	**(209,658)**	**104,262**	**(77,116)**	**904,629**	**279,330**	**(573,264)**	**265,406**	**279,330**	**(641,606)**	**(18,306)**	**-**	**(18,306)**

ATC Board Agenda Detail

Item #: **6a**
Item Title: Alexandria Transit Strategic Plan (ATSP) Memorandum
Contact: Martin Barna, Director of Planning & Marketing
Board Action: FYI/Discussion

MEMORANDUM

DATE: February 9, 2024
TO: ATC Board of Directors
FROM: Josh Baker, CEO/General Manager
Martin Barna, Director of Planning & Marketing
SUBJECT: Presentation of Draft FY 2025—FY 2034 Alexandria Transit Strategic Plan (ATSP)

SUMMARY

Staff is presenting a draft of the FY 2025 – FY 2034 Alexandria Transit Strategic Plan (ATSP) for review, questions, and feedback. The full draft plan is included as an attachment to the board packet; however, no board action is required at this time. Staff will conduct a public hearing at the next ATC Board of Directors meeting on March 13, 2024, as part of a comprehensive public outreach campaign. The revised, final Alexandria Transit Strategic Plan (ATSP) is scheduled to be brought back to the ATC Board of Directors on April 10, 2024, for consideration of adoption.

BACKGROUND

The Alexandria Transit Strategic Plan (ATSP) addresses a new requirement from the Virginia Department of Rail and Public Transportation (DRPT) for large and mid-size transit agencies such as DASH to receive state funding. Similar to the previous Transit Development Plan (TDP) that it replaces, the ATSP outlines service, capital and finance plans on a short- and long-term horizon.

This inaugural ATSP will cover FY 2025 – FY 2034 with major updates every five years. Annual updates for years 2-5 will be provided as an addendum to ATSP document based on guidelines provided by DRPT. Each year, the ATSP will be subject to review by the ATC Board of Directors and an extensive public outreach campaign. The final ATSP must be adopted by the ATC Board of Directors in concurrence with the final budget for the ensuing fiscal year.

DISCUSSION

Major highlights, changes or items of interest included in the attached FY 2025 – FY 2034 Alexandria Transit Strategic Plan (ATSP) include:

- The DASH Vision, Mission & ATC Board Strategic Plan to provide the basis for the Strategic Vision (Section 1.2).
- Service Design Standards and Performance Standards are outlined in Section 1.3, based largely on the Title VI Service Standards that were adopted by the ATC Board in January 2022. New or updated standards include:
    - The headway standard for local routes during off-peaks was increased from hourly to every 30 minutes.
    - The service accessibility standard was increased from 50% to 70% for the percentage of city residents who live near frequent, all-day bus service.
    - New systemwide standards for ridership, efficiency, safety, reliability, and accessibility are proposed.

- The customer intercept survey that was conducted on DASH buses in October and November 2023 is summarized in Section 2.6, with the full survey report included as Appendix C.

- Potential service improvements for FY 2025 – FY 2034 are summarized in Section 3.1. Proposed "unfunded" ATV improvements for FY 2025 include:

    - **Line 32** – DASH is proposing to improve midday, evening, and weekend headways from every 60 minutes to every 30 minutes.
    - **Line 34** - DASH is proposing to improve Sunday headways from every 60 minutes to every 30 minutes.
    - **Line 31** – DASH is proposing to improve midday, evening, and weekend headways between King Street Metro and Braddock Road from every 30 minutes to every 15 minutes by extending all Line 31 short trips that currently operate between NVCC-Alexandria and the King Street Metro.

- Additional improvements in FY 2026 and FY 2027 are proposed for Line 30, 32, 102, 103, 104 and the King Street Trolley. Details on these improvements are provided in Sections 3.1 and 3.2.

- The WMATA Better Bus Network project is also still under development and will be finalized in Spring 2024 with the first phase of implementation scheduled for the start of FY 2026. Next year's ATSP for FY 2026 – FY 2035 will be updated to include any service changes that are included in the final recommendations for the Better Bus Network.

- Few service changes are proposed for FY 2027 and beyond because they will be largely informed by the West End Transitway Operating Plan that is currently under development by DASH, City, and WMATA staff. The ATSP will be updated next year to include the recommendations from this plan.

- A summary of the DASH projects that are included in the draft version of the City of Alexandria's FY 2025 – FY 2034 Capital Improvement Program (CIP) are summarized in Chapter 4.

- Financial plans for DASH operating and capital costs are summarized in Chapter 5.

The full version of the draft FY 2025 – FY 2034 Alexandria Transit Strategic Plan (ATSP) is provided as an attachment to this board packet. It is also posted on the DASH website at www.dashbus.com/atsp.

ATC Board Agenda Detail

Item #: **6b**
Item Title: DASH Bus Stops Update Near Ladrey Redevelopment
Contact: Martin Barna, Director of Planning & Marketing
Board Action: FYI/Discussion

Last month, Alexandria City Council approved a redevelopment project on the Ladrey site that includes the construction of a multistory residential building on North Fairfax Street, south of Wythe Street. Both of the senior housing facilities – Ladrey Senior Hi-Rise Apartments and the Annie B. Rose House – would be maintained as part of the new development.

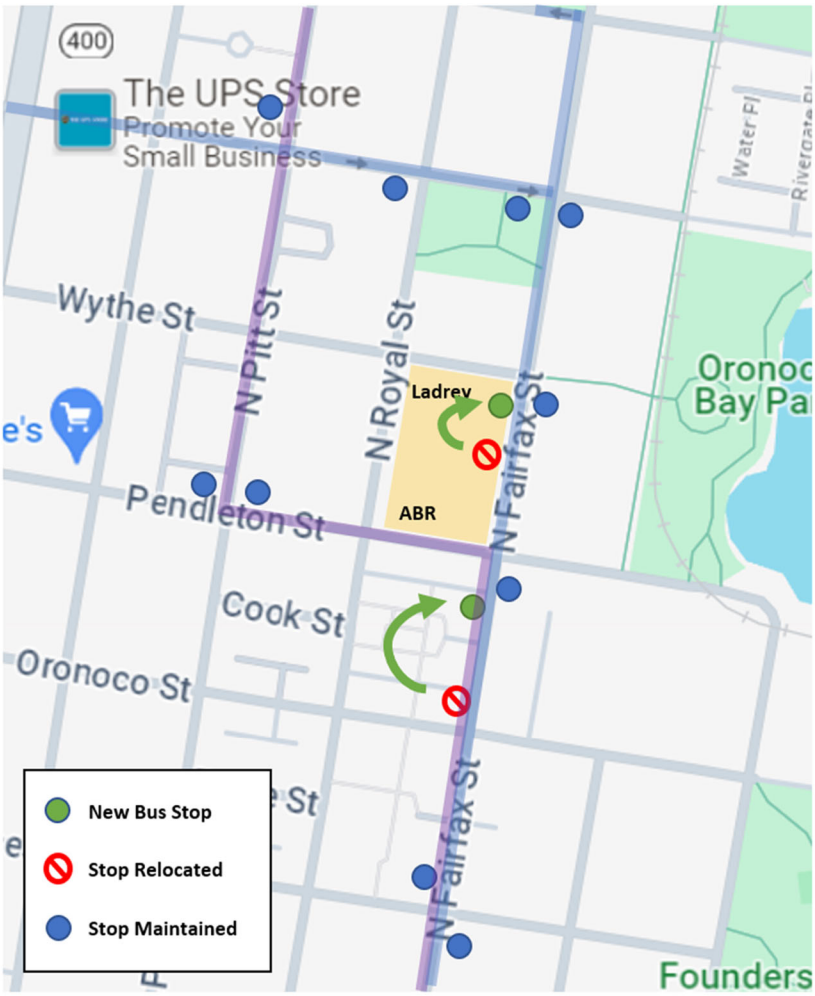
As part of this project, the DASH bus stop on SB N. Fairfax Street will be relocated 150 feet to the north at Wythe Street and reconstructed as an enhanced bus stop with a new shelter, large concrete boarding area, and other amenities. The new stop location would be closer to the entrance to the Ladrey Apartments but raised major concerns with residents of the Annie B. Rose House on Pendleton Street because they would be required to walk 150 feet further to the new stop location.

Based on the concerns raised by Annie B. Rose residents and echoed by several council members, DASH staff modified the proposal to include an additional stop relocation of the existing bus stop at SB Fairfax & Oronoco, as shown in the diagram below. This stop would be moved up by a half-block to SB N. Fairfax Street & Pendleton Street for better bus stop access to Annie B. Rose residents.

The new stop at Fairfax & Pendleton would actually be about 90 feet closer to the Annie B. Rose House than the existing midblock bus stop that they use today. It also provides Annie B. Rose residents with a new, nearby stop that serves three lines (Lines 30, 31 and 34) in one location as opposed to just two lines (30, 31) that are available at the current stop. The developer has also agreed to cover the costs of the new bus stop, including the installation of a 25-foot concrete pad and two benches – one for the new southbound stop and one for the northbound stop that currently has no seating options.

The main downside to this change is that existing riders at SB Fairfax/Oronoco (~15 average boardings per weekday) may have a slightly longer walk, but with the nearby existing stop at Princess Street, the impact should be relatively minimal and could actually provide a shorter walk from some residents north of Oronoco Street.

Proposed Bus Stop Changes on North Fairfax Street



ATC Board Agenda Detail

Item #: **7**

Item Title: Next Meeting Date & Adjournment

Board Action: Consideration of Approval

The next regular meeting of the Alexandria Transit Company Board of Directors is scheduled for Wednesday, March 13, 2024, at 5:30pm

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Consider Adjournment

Attachment

DRAFT FY 2025—FY 2034 Alexandria Transit Strategic Plan (ATSP)

FY 2025 – FY 2034 ALEXANDRIA TRANSIT STRATEGIC PLAN (ATSP)

PRESENTED TO ATC BOARD OF DIRECTORS ON FEBRUARY 14, 2024

ALEXANDRIA TRANSIT COMPANY
DASH

CITY OF ALEXANDRIA VIRGINIA

DRPT
VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION

Table of Contents

List of Figures

List of Tables

Appendices List

ATSP Overview

The Alexandria Transit Strategic Plan (ATSP) addresses a new requirement from the Virginia Department of Rail and Public Transportation (DRPT) for large and mid-size transit agencies like DASH to receive state funding. Similar to the previous Transit Development Plan (TDP) that it replaces, the ATSP outlines service, capital and finance plans on a short- and long-term horizon.

This ATSP covers a ten-year period with major updates every five years. Annual updates for Years 2-5 will be provided as an addendum to ATSP document based on guidelines provided by DRPT. Each year, the ATSP will be subject to review by the ATC Board of Directors and public outreach. The final ATSP must be adopted by the ATC Board in concurrence with the final budget for the ensuing fiscal year.

The Alexandria Transit Strategic Plan (ATSP) will include the following chapters:

1. **Overview & Strategic Vision.** This section describes services provided, areas served, current/recent initiatives as well as the Strategic Vision, goals, objectives and service standards. Agency goals are derived from the Alexandria Transit Company Board of Directors Strategic Plan, as well as the Alexandria Transit Vision Plan and the Alexandria Mobility Plan.

2. **System Performance & Operations Analysis.** This section outlines current performance data, passenger survey data, and demographics. A system performance evaluation is included based on performance standards identified in first chapter.

3. **Planned Improvements & Modifications.** This chapter outlines the planned improvements or modifications to existing service that DASH is planning for the next ten years. A discussion of capital projects that are necessary to support existing/planned service is also included.

4. **Implementation Plan.** This section describes the steps required for DASH to maintain current services and implement the improvements and modifications identified in the previous chapter. This includes a summary of the Transit Asset Management (TAM) Plan, and the Capital Improvement Program (CIP) with particular focus on fleet replacement/expansion plans that will maintain State of Good Repair (SGR).

5. **Financial Plan.** The last chapter identifies projected service and capital costs as well as financial resources that are available to sustain current services and implement future improvements or expansions. A summary of the proposed budget for the following year is also included.

Additional appendices are included to provide details about agency history, governance, organizational structure, services provided, fares, asset inventory, security programs, ITS programs, performance data collection methods, regional coordination efforts, and current initiatives.

The draft ATSP is presented to the ATC Board of Directors in February, coinciding with the start of the outreach period. In March, a public hearing is held at the ATC Board of Directors meeting to collect feedback, and staff presents a revised, final version of the ATSP Plan to the ATC Board in April for final adoption. The plan must also be endorsed by the Metropolitan Washington Council of Governments (MWCOG) as the designated Metropolitan Planning Organization (MPO) for the Washington, DC region.

Chapter 1

System Overview & Strategic Vision

ALEXANDRIA TRANSIT COMPANY
DASH

Chapter 1.0 / System Overview and Strategic Vision

The first chapter of the Alexandria Transit Strategic Plan (ATSP) provides an overview of the public transportation options provided within the City of Alexandria. This includes fixed-route bus service provided by the Alexandria Transit Company (DASH), and paratransit service provided by the City of Alexandria (DOT). This chapter also outlines the City's strategic vision for transportation as defined by the Alexandria Transit Vision Plan (ATV), Alexandria Mobility Plan (AMP) and the ATC Board of Directors Strategic Plan (BSP).

The overview of DASH includes an introduction to the services provided by DASH and areas served, along with current and recent initiatives. More detailed information on the agency can be found in Appendix A. The strategic vision section discusses goals and objectives for transit service in the City as a whole and for DASH, as well as how they will work to advance the strategic vision for Alexandria.

1.1 / System Overview

The system overview describes the DASH service area, the transit services provided within the service area, as well as several recent programs and initiatives.

1.1.1 / Services Provided and Areas Served

The Alexandria Transit Company (DASH) currently operates traditional fixed-route bus service on ten regular bus routes, and the King Street Trolley. The primary 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 1-1. An inset map depicting bus service in Old Town Alexandria is shown as Figure 1-2. The majority of DASH service operates within the City of Alexandria, however, three routes – Lines 35, 103, and 104 – also provide service along Interstate 395 between Alexandria and the Pentagon.

In addition to its regular bus services, DASH also operates the iconic King Street Trolley, a free tourist-oriented service running between the King Street Metro and City Hall/Market Square via King Street in Old Town. The trolleys typically run every 15 minutes from 11:00 AM to 11:00 PM, 365 days per year.

The City of Alexandria's Department of Transportation and Environmental Services (T&ES) manages the City's *DOT* ADA paratransit service. The City uses a contractor, National Express Transit/Diamond Transportation, to provide the transportation service with VIA Mobility dispatching software to maintain client information and manage reservations. The DOT ADA paratransit service is available within the cities of Alexandria, Fairfax and Falls Church, counties of Arlington and Fairfax, along with the District of Columbia. DOT paratransit service is available during the same time periods as DASH fixed-route transit on weekdays from 5:00 AM – 1:00 AM, Saturdays from 6:00 AM – 1:00 AM, and Sundays from 7:00 AM – 1:00 AM. DOT operates approximately 17 paratransit vehicles during maximum service and recording approximately 33,635 passenger trips in FY 2023. Additional paratransit service for regional trips is available with WMATA's MetroAccess service.

Figure 1-1 / DASH System Map

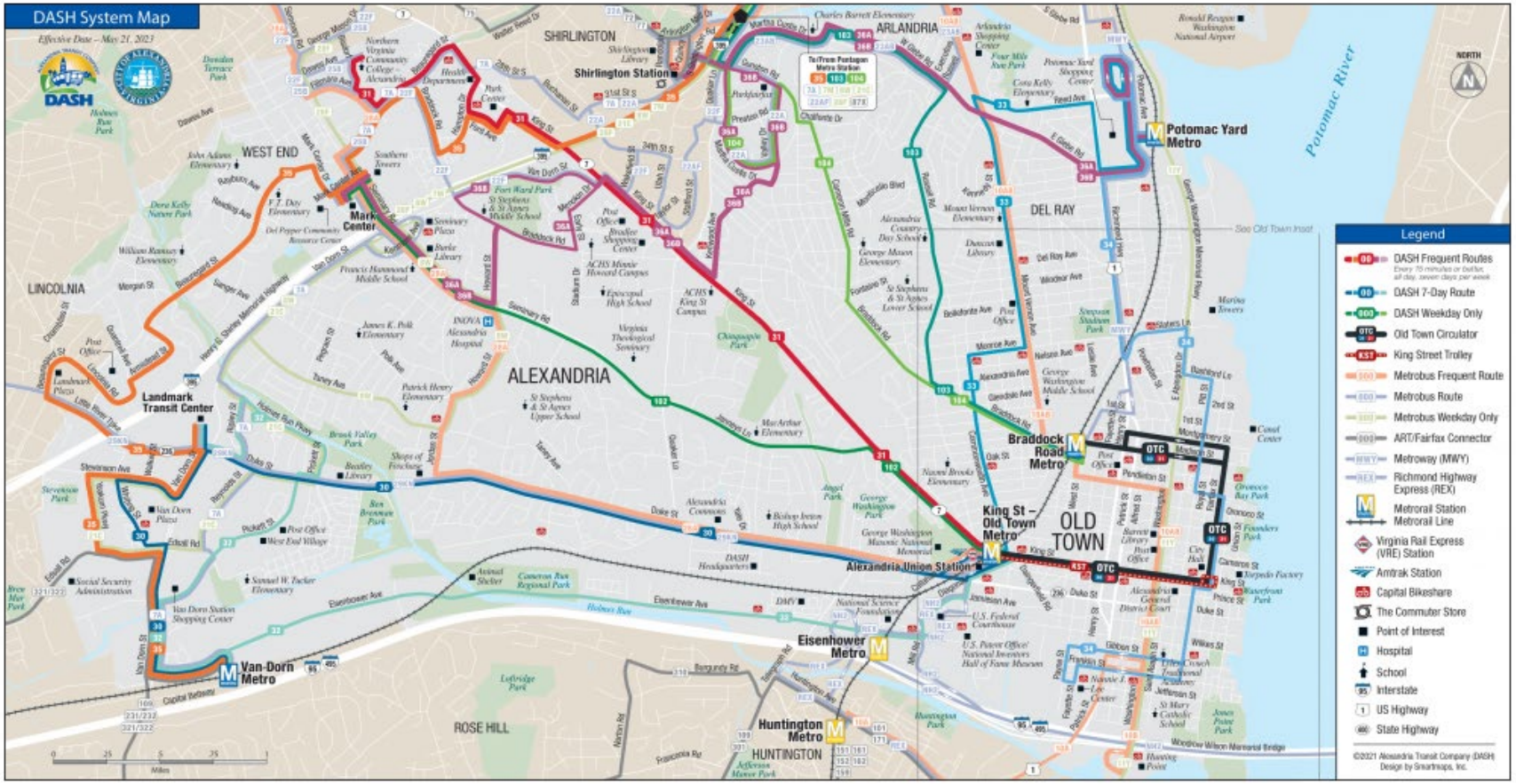


Figure 1-2 / DASH System Map (Old Town)

1.1.2 / Current & Recent Initiatives

DASH and the City of Alexandria are currently undertaking a wide variety of different initiatives for improving transit service within the Alexandria community. This section summarizes some of the current projects and programs.

Alexandria Transit Vision Plan / New DASH Network

The fare-free "New DASH Network" launched on September 5, 2021. This re-designed bus system was the first implementation phase of the Alexandria Transit Vision (ATV) Plan, a years-long planning and engagement effort, notable for being the first major bus network design Alexandria has seen since the launch of the Alexandria Transit Company nearly four decades ago in 1984. The ATV Plan included a 2022 Vision Plan Network and a 2030 Vision Plan Network.

Immediate changes brought by the adoption of the New DASH Network in 2021 included new bus line numbers, new bus lines, and new service frequencies, with most routes now running 15 minutes or better, all day, seven days a week. Notably, this network provides frequent, all-day transit service to 73% of low-income residents in Alexandria, as compared to 29% in the old network. The network also expanded off-peak service during middays, evenings and weekends.

Free Fares Program

The DASH Free Fares Program was started in 2021 with the launch of the New DASH Network. The City's fare-free program is funded in part by a $7.1 million grant award from the Virginia Department of Rail and Public Transportation (DRPT) Transit Ridership Incentive Program (TRIP). The intent of the program is to reduce barriers to transit usage, promote equitable access to transit, and increase public awareness of the New DASH Network. Additional information on the DASH Free Fares program can be found at www.dashbus.com/free.

Zero Emissions Fleet

DASH has established itself as an industry leader in the adoption of zero-emission bus technology over the last five years. In 2019, DASH become one of the first transit agencies in the Commonwealth of Virginia to operate 100% electric buses in revenue service. By 2021, the agency's fleet of battery electric buses had grown to 14, making it the largest fleet of 100% electric buses in the Washington DC region. The ATC Board of Directors has adopted a policy goal of converting the entire DASH fixed-route bus fleet to 100% zero emissions technology by the year 2037.

DASH has also secured regional and federal funding to purchase additional 100% electric buses in the coming years. Funding from the Federal Transit Administration (FTA)'s Low/No Emission Buses Program allowing DASH to purchase 13 battery-electric buses to replace diesel and hybrid buses that are reaching the end of their useful life. DASH has also been awarded funding through Northern Virginia Transportation Commission (NVTC)'s I-395 Commuter Choice program for two articulated electric buses to be used for increased capacity on Line 35. Finally, DASH was awarded a Smart Scale award for the purchase of 12 new zero-emission buses.

Facility Expansion & Improvements

Through the FTA's Low No Program, DASH is receiving funding to support the installation of charging infrastructure as part of DASH's bus maintenance and storage facility. FTA funding will also allow the facility to be upgraded with additional electrical capacity. Also, Virginia's Smart Scale program is funding the expansion of the DASH bus maintenance and storage facility that will allow for added capacity of up to 38 additional buses. Additional funding from the Northern Virginia Transportation Association (NVTA) is also being used towards facility upgrades that will be necessary to support the DASH electric bus fleet.

Other DASH/City Transit Initiatives

Additional DASH/City projects and programs related to public transit are included below.

Table -1 / Additional Transit Initiatives in the City of Alexandria

#	Project	Description
1	**West End Transitway**	**City is working on implementing infrastructure upgrades at key intersections along the corridor, installing BRT shelters, and creating an operations plan. Service on the West End Transitway BRT is expected to begin in FY 2027.**
2	**Duke Street in Motion**	**City is working to implement transit improvements along the Duke Street corridor to support BRT, enhanced multimodal facilities and improved bus stop amenities.**
3	**Metroway Improvements**	**City is working to extend dedicated Metroway facilities to the Arlington County line. This project is especially crucial considering the proposed Stadium and Entertainment District at Potomac Yard.**
4	**King Street Bus Improvement Project**	**City & DASH staff are evaluating bus stops and priority treatments along King Street in Old Town to improve bus speeds, reliability and overall customer experience. Plan recommendations will include stop consolidations, accessibility improvements, amenity upgrades and other operational adjustments.**
5	**King/Bradlee Corridor Project**	**This project will construct multimodal, streetscape, safety, stormwater and drainage improvements on King Street from Quaker Lane to Menokin Drive. This project is intended to enhance mobility, access, safety and comfort for pedestrians, cyclists, users of public transportation and drivers in and around the Bradlee and Fairlington areas of King Street. The project will also improve existing stormwater management facilities and mitigate ongoing drainage in existing medians. This area was identified for safety enhancements in the Alexandria Mobility Plan.**
6	**Landmark Transit Center**	**This project will design and construct a new Transit Center at the redeveloped Landmark Mall site. The transit center will include six new bus bays, additional transit amenities, and**

#	Project	Description
		create a multimodal hub for people using the site. The project was included in the West End development plan, and both the West End and Duke Street transitways, along with other DASH and WMATA routes, would utilize this transit center.
7	Mark Center Transit Center	City & DASH staff are working with property owners to expand existing transit center as part of redevelopment of adjacent parcel.
8	Southern Towers Transit Center	City & DASH staff are working with property owners to create new transit center as part of potential redevelopment project.
9	Citywide Bus Stop Improvements	City & DASH staff are working to identify and prioritize bus stop improvements across the city based on a recent bus stop inventory project.
10	DASH Technology	This ongoing CIP project has funded recent DASH scheduling software upgrades and automated passenger counters (APC) retrofit project. Funding in future years is designated for business analytics tools, CAD/AVL upgrades, passenger information systems, and other tools that can improve DASH operations and overall customer experience.
11	Automated Wheelchair Securement Pilot	DASH is in the process of installing automated wheelchair securement systems on five buses as part of an FY 2024 DRPT Demonstration Project grant.
12	Electric Bus Charge Management Pilot	DASH is deploying an Electric Bus Charge Management System as part of an FY 2024 DRPT Demonstration Project grant.
13	Onboard Passenger Information Screen Pilot	DASH is applying for an FY 2025 DRPT Demonstration Project grant to install onboard information screens on up to 10 buses. The screens will provide passengers with route information, upcoming bus stops, transfer information, service alerts, and other trip-related information.
14	Thru Vision Blind Spot Camera Project	DASH is applying for an FY 2025 DRPT Demonstration Project grant to install Thru Vision Blind Spot video cameras on several buses to test the system and improve pedestrian safety.

1.2 / Strategic Vision

The Strategic Vision for public transportation in the City of Alexandria has been outlined in recent years by the ATC Board of Directors through its adoption of the DASH vision and mission statement, the new ATC Board Strategic Plan and the Alexandria Transit Vision (ATV) Plan. The City of Alexandria has also shaped this vision with its Alexandria Mobility Plan (AMP) that was adopted by Alexandria City Council in 2021 with an emphasis on providing "safe, seamless and connected mobility options to foster a thriving Alexandria for all." The guiding principles "accessible, connected, convenient, equitable, safe and sustainable."

DASH Vision & Mission Statement

The Alexandria Transit Company (DASH) vision was adopted by the ATC Board of Directors in 2019 and reads as follows:

> *The Alexandria Transit Company (DASH) envisions a community with equal access to convenient and sustainable transportation that improves the overall quality of life throughout the City of Alexandria.*

The agency's mission statement reads:

> *The Alexandria Transit Company (DASH) delivers a safe, trusted, customer-focused experience by providing exemplary bus service to the diverse Alexandria community."*

Both the Vision and Mission Statement are posted on the DASH website and throughout the DASH Facility as reminders for what DASH is working to deliver and achieve for the Alexandria community.

ATC Board Strategic Plan

Over the last year, the DASH Board of Directors has worked to develop the ATC Board Strategic Plan to help define the agency's main strategic goals and inform future board decision-making. These goals and objectives are summarized in Table 1-2.

1.2.1 / Goals and Objectives

The City of Alexandria and the Alexandria Transit Company have both identified similar goals and objectives for the city's transit network. The City's goals and objectives are identified in the Alexandria Mobility Plan (AMP) and are summarized in this section. The ATC Board of Directors has identified specific goals and objectives for DASH which are outlined below. Additional priorities that were identified in the Alexandria Transit Vision (ATV) Plan process are also included at the end of the section.

ATC Board Strategic Plan (BSP) Goals & Objectives

The ATC Board of Directors developed the following set of goals and objectives as part of its new ATC Board Strategic Plan (BSP). These goals and objectives have been specifically identified to promote the DASH Vision and Mission Statement and are summarized in Table 1-2. Additional details on the ATC Board Strategic Plan (BSP) and the goals and objectives listed below are available on the DASH website.

Table -2 / ATC Board Strategic Plan (BSP) Goals & Objectives

Our Vision:

A community with equal access to convenient and sustainable transportation that improves overall quality of life throughout the City of Alexandria

Our Mission:

We deliver a safe, trusted, customer-focused experience by providing exemplary bus service to the diverse Alexandria community.

Goal 1: *System Excellence* **Provide a robust transportation system that meets our customers' needs**	**Outcome measure:** → Percentage of population within ¼-mile radius of bus stop with frequent, all-day service (Target: increase to 80%, baseline 70%)
Goal 2: *Customer Experience* **Deliver a top-notch customer experience so that people choose to ride**	**Outcome measure:** → Customer Service Index (CSI) monthly (Target: 95 or above; baseline 80) → On-time performance, monthly (Target: 85%; baseline 80%)
Goal 3: *Environmental Stewardship* **Minimize the community's carbon footprint on the environment**	**Outcome measure:** → Tons of CO2 emissions reduced (last 12 months) (Target: increase by ~23% to 16,000; baseline 13,000)
Goal 4: *Workplace Excellence* **Foster an environment that champions inclusion, work-life balance, innovation, and professional growth and satisfaction**	**Outcome measure:** → Retention rate (Target: TBD; baseline under study)
Goal 5: Fiscal Responsibility and Efficiency **Deliver high-quality, cost-efficient services that offer maximum value to the community**	**Outcome measures:** → Series from the Annual Budget, including o $0 fares (Policy) o Cost per rider (Target TBD) o Cost per ton of pollution eliminated (Target TBD) → Federal formula funds allocated based on DASH performance metrics (Target: sustain or grow over time, baseline under study)

Alexandria Mobility Plan (AMP) Goals & Objectives

The Alexandria Mobility Plan (AMP) that was approved by Alexandria City Council as an update to the City's Transportation Master Plan included a set of goals and objectives for the City of Alexandria's transit network. The two primary AMP goals for transit are summarized in Table 1-3, and the full AMP document can be viewed at https://www.alexandriava.gov/MobilityPlan.

Table -3 / Alexandria Mobility Plan (AMP) Goals & Objectives.

AMP Goal 1: Make transit greener and more useful.

Objective	Description
1.1	Implement a citywide transit network with frequent, all-day service.
1.2	Build out the city's priority transitway corridors and identify improvements on congested, high ridership corridors to reduce travel times and improve reliability.
1.3	Transition the City's bus fleet to fully electric, zero-emission vehicles.
1.4	Improve the rider experience from trip planning, to accessing the stop, riding the bus, and arriving at the destination.

AMP Goal 2: Make transit easier to use.

Objective	Description
2.1	Evaluate DASH's fare free service and continue to explore low-income WMATA fares
2.2	Support a better connected regional transit network
2.3	Modernize the paratransit program for the city's aging population by developing more customer-friendly service, identifying opportunities to improve cost effectiveness, and exploring partnerships.

Alexandria Transit Vision (ATV) Plan

In December 2019, the ATC Board of Directors adopted the Alexandria Transit Vision (ATV) Plan, a comprehensive bus network redesign project that envisions a series of short- and long-term route and service changes the city's bus network for 2022 and 2030. The plan was intended to redesign the network to better reflect community priorities and provide more useful bus service in places where more people could use it.

With the approval of the ATV Plan, the ATC Board of Directors not only endorsed a series of route changes; it also established clear policy guidance that ridership (or frequency) should be emphasized over geographic coverage to the extent possible in all future service planning decisions. The consensus of staff and stakeholders on this important tradeoff and a number of others is summarized below:

- **Frequency vs coverage –** DASH prioritizes frequency (or ridership) over coverage to the extent possible and seeks to provide more useful, frequent service in the places where more people can use it. Since most benefits of transit for both riders and the larger community are derived directly from the number of people who are riding the service, this focus on increasing ridership allows DASH to better meet the needs of more of its riders while helping to promote overall city goals for equity and sustainability.

- **Walking vs waiting –** Based on feedback from the community, stakeholders and the ATC Board of Directors during ATV outreach, DASH prioritizes shorter wait times over shorter walking distances. This means that more resources are allocated to provide frequent, all-day service in key corridors as opposed to less frequent service that deviates into lower-density residential areas. This approach will require some residents to walk further, but the service that they are walking to will be more frequent and will promote ridership-oriented goals.

- **Boardings vs distance travelled –** DASH prioritizes *boardings*. Due to Alexandria's dense, compact development footprint, distance travelled is not a viable tool to measure service success. Besides a few routes which travel outside of jurisdictional boundaries to provide service to the Pentagon, the majority of DASH's service is designed for local trips. Thus, more quantifiable metrics such as boardings is a more appropriate measure of DASH's success.

- **Peak Hour vs. All- Day Service –** With the ongoing implementation of the ATV Plan, DASH is prioritizing all-day and off-peak/weekend service over more traditional commuter transit needs. This approach aligns with shifting ridership demands resulting from increased teleworking following the COVID-19 pandemic.

- **Serving specific population groups –** DASH and the City of Alexandria place a strong emphasis on providing equitable access to transit for communities with higher percentages of low income, minority, and residents with limited mobility (e.g. seniors, disabled).

The strategic vision from the BSP and the AMP, as well as the tradeoffs outlined above were influential in the development and ongoing implementation of the ATV Plan and future City/DASH priorities.

1.2.2 / Service Design Standards

DASH has most recently updated its Service Design Standards in 2022 as part of its Title VI program development. These standards are outlined in the "DASH Title VI Service Standards & Policies" document that was adopted by the ATC Board of Directors in March 2022.

These standards provide a framework for DASH service design decisions based on route types and Title VI classifications. This framework relies primarily on the following metrics and is intended to identify routes that may be performing below the standards for their respective route types.

- Vehicle Passenger Load;
- Vehicle Headways (Service Frequency);
- On-Time Performance; and
- Service Availability

Route Categories

In order to develop appropriate service standards for the different types of routes, each DASH bus line is classified as belonging to one of the four categories listed below. These classifications are used to identify service standards which are specific to and appropriate for each route category.

- **Frequent.** Frequent routes are defined as the routes that operate every 15 minutes or better, all-day, seven days per week. The 15-minute service standard on these routes is maintained from at least 6am to 7pm on weekdays and from 7am to 6pm on weekends. The routes will typically operate earlier in the morning and later in the evening, but with less frequent service.

- **Local.** All other routes that operate seven days per week but do not meet the "frequent" standard are classified as "local routes. These routes typically operate from at least 7am to 10pm on weekdays and 8am to 9pm on weekends.

- **Commuter.** Any bus routes that are primarily intended for passengers who commute during the weekday peak hours are classified as "Commuter" routes. These routes typically do not operate on Saturdays or Sundays.

- **Trolley.** The King Street Trolley is classified with its own route category due to its distinct purpose and unique operating characteristics.

Table 1-4 provides information on route categories for the DASH system and for each bus route.

Table -4 / DASH Route Classifications by Route

Route	Name	Route Category
30	Van Dorn Metro - Braddock Road Metro via Duke Street	Local
31	NVCC-Braddock Road Metro via King Street	Frequent
32	Landmark Mall - King Street Metro via Eisenhower Avenue	Local
33	Potomac Yard - King Street Metro via Del Ray	Local
34	Braddock Road Metro - Lee Center via City Hall	Local
35	Van Dorn Metro - Pentagon via West End	Frequent
36A/B	Mark Center - Potomac Yard via Shirlington	Frequent
102	Mark Center - King Street Metro via Seminary Road	Commuter
103	Braddock Road Metro - Pentagon via Parkfairfax	Commuter
104	Braddock Road Metro - Pentagon via Parkfairfax	Commuter
KST	King Street Trolley	Trolley

Systemwide Service Standards

The following sections outline the four primary service indicators that will be used to monitor ATC/DASH bus lines. Each standard is set based on the route categories listed above.

The data samples used to compare route performance to these standards should be collected over a representative time period to ensure that they provide an accurate snapshot of each route. To ensure consistency, ATC/DASH typically uses data from March, April, September or October, which represent the busiest months of the year in terms of ridership. These months also serve as good comparison points because schools are in session and few major holidays are observed. Data collection time periods may also fluctuate based on data availability. Weekday peak periods are generally defined as 6:00 – 9:00 AM and 3:00 – 6:00 PM.

Vehicle Loads

The FTA Title VI Circular describes vehicle loads as follows:

> *Vehicle load can be expressed as the ratio of passengers to the total number of seats on a vehicle. For example, on a 40-seat bus, a vehicle load of 1. 3 means all seats are filled and there are approximately 12 standees. A vehicle load standard is generally expressed in terms of peak and off-peak times. Transit providers that operate multiple modes of transit must describe the specific vehicle load standards for peak and off-peak times for each mode of fixed route transit service (i.e., bus, express bus, bus rapid transit, light rail, heavy rail, commuter rail, passenger ferry, etc., as applicable), as the standard may differ by mode.*

ATC/DASH service planners monitor load factor data on all routes to prevent overcrowding and determine when additional capacity is needed. The load factor for each route is calculated based on the average maximum load of each trip on a route during the peak, off-peak, and weekend periods.

Table 1-5 outlines the vehicle load factor standards, which are based upon historical data, industry practices, and staff analyses. If a route exceeds its respective peak load factor standard, ATC/DASH staff will review the service to determine if additional capacity should be provided. Commuter routes are subject to a reduced load factor standard to ensure passenger safety on routes that operate on highways. The King Street Trolley includes a higher load factor standard due to the lower number of seats on Trolley vehicles, and the shorter average trip lengths.

Table -5 / DASH Peak Load Factor Standards

Route Category	Average Peak Load Factor		
	Weekday (Peak)	Weekday (Off-Peak)	Weekend
Frequent	1.2	1.0	1.0
Local	1.2	1.0	1.0
Commuter	1.0	1.0	-
Trolley*	1.5	1.5	1.5

**Trolley does not operate during AM peak periods or on weekends before 11:00 AM.*

Vehicle Headways

The FTA Circular describes headways as follows:

> *Vehicle headway is the amount of time between two vehicles traveling in the same direction on a given line or combination of lines. A shorter headway corresponds to more frequent service. Vehicle headways are measured in minutes (e.g., every 15 minutes); service frequency is measured in vehicles per hour (e.g., 4 buses per hour). Headways and frequency of service are general indications of the level of service provided along a route. Vehicle headway is one component of the amount of travel time expended by a passenger to reach his/her destination.*

As outlined in the 2022/2030 Alexandria Transit Vision Plan, ATC/DASH emphasizes frequent service with short headways of 15 minutes or less as the most important determinant of how useful a bus service will be for the average customer.

ATC/DASH calculates headways as the average length of time between the scheduled arrival times of subsequent vehicles on a specific route. Table 1-6 outlines the vehicle headway standards by route category and time of day. These standards were originally developed as part of the Title VI Program development in 2022, but have been revised below as follows:

(1) Vehicle headway standards for local routes during off-peak and weekends have been increased from 60 to 30 minutes to ensure more useful service on core network;
(2) Vehicle headway standard for commuter routes during off-peak periods has been changed from 60 minutes to "N/A" to reflect the fact that most DASH commuter routes only operate during weekday peak periods.

Table -6 / Vehicle Headway Standards

Route Category	Minimum Headway Standard (minutes)		
	Weekday (Peak)	Weekday (Off-Peak)	Weekend
Frequent	15	15	15
Local	30	30	30
Commuter	30	n/a	-
Trolley*	15	15	15

**Trolley does not operate during AM peak periods or on weekends before 11:00 AM.*

On-Time Performance

The FTA Title VI Circular describes on-time performance as follows:

> *On-time performance is a measure of runs completed as scheduled. This criterion first must define what is considered to be "on time. " For example, a transit provider may consider it acceptable if a vehicle completes a scheduled run between zero and five minutes late in comparison to the established schedule. On-time performance can be measured against route origins and destinations only, or against origins and destinations as well as specified time points along the route. Some transit providers set an on-time performance standard that prohibits vehicles from running early (i.e., ahead of schedule) while others allow vehicles to run early within a specified window of time (e.g., up to five minutes ahead of schedule). An acceptable level of performance must be defined (expressed as a percentage).*

ATC/DASH regularly monitors on-time performance to increase service reliability and determine if running time changes are needed. Running times on each route are reviewed on a monthly basis and adjusted as warranted by changing traffic conditions or other operating factors.

ATC/DASH has previously established an on-time performance goal of 85 percent for all routes based on industry-wide standards shown in Table 1-7. A trip is considered to be "on time" when the bus arrives to timepoint no more than one minutes before or five minutes after the scheduled arrival time.

Table -7 / On-Time Performance Standards

Route Category	On-Time Performance (OTP)		
	Weekday (Peak)	Weekday (Off-Peak)	Weekend
Frequent	85%	85%	85%
Local	85%	85%	85%
Commuter	85%	85%	-
Trolley*	85%	85%	85%

**Trolley does not operate during AM peak periods or on weekends before 11:00 AM.*

Service Availability

The FTA Title VI Circular describes service availability as follows:

> *Service availability is a general measure of the distribution of routes within a transit provider's service area. For example, a transit provider might set a service standard to distribute routes such that a specified percentage of all residents in the service area are within a one-quarter mile walk of bus service or a one-half mile walk of rail service.*

The DASH approach to service availability is shaped largely by the Alexandria Transit Vision Plan. One of the key statistics that was used during the development of the Alexandria Transit Vision

Plan was the percentages of city residents who live within ¼ mile of a bus stop with "frequent" bus service, and the percentage within ¼ mile of a bus stop with any bus service. This metric was also calculated for percentages of minority residents, low-income residents, senior residents and jobs. These percentages help to measure the availability of bus service to residents, and the availability of useful, frequent, all-day service. These metrics will be calculated for each of these population groups as part of the regular service monitoring process.

The Alexandria Transit Vision Plan, which was adopted by the ATC Board of Directors in 2019, called for a bus network that increases total ridership by providing more useful, frequent bus service in high-ridership transit areas as opposed to providing more infrequent service across a wider geographic area. This approach guided the development of the 2022/2030 Alexandria Transit Vision Plan and the resulting New DASH Network, which provides frequent, all-day bus service in key corridors across the City of Alexandria. This focus on increasing the amount of useful, frequent service in areas where lots of people can use it has proven to be particularly effective at increasing ridership as well as fulfilling the transit needs of the City of Alexandria's minority and low-income populations.

With the recent ATC Board Strategic Plan, the minimum standard for residents within ¼ mile of Frequent, All-Day bus service has been increased from 50 percent to 70 percent, as shown in Table 1-8 below.

Table -8 / Service Availability Standards

Service Availability	City Residents
Within 1/4 Mile of a Frequent Route	70%
Within 1/4 Mile of Any Route	90%

1.2.3 / Performance Standards

The following performance standards are intended to set a minimum baseline for operation of the DASH network and for individual bus routes (see Table 1-9). They focus on ridership, cost-efficiency, safety, reliability and accessibility.

Most of the standards were developed as part of the Board Strategic Plan (BSP) and ATSP development processes. Standards have been determined based on a combination of ATV Plan service design goals, transit industry standards, and recent system performance data.

Service that does not meet these standards should be further evaluated to determine if adjustments are needed. These systemwide performance standards may be subject to change in future years as more data becomes available.

Table -9 / Systemwide Performance Standards (PROPOSED)

Category	Description	Standard (Systemwide)
Ridership	Boardings Per Revenue Hour	12 boardings per rev. hour
	Boardings Per Revenue Mile	1 boarding per revenue mile
Cost Efficiency	Cost Per Revenue Mile	$12 Per Mile*
	Cost Per Rider	$8 Per Rider*
Safety	Preventable Events Per 100K miles	5 preventables per 100K miles
Reliability	On-Time Performance	85%
	Missed Trip %	0.02%
Accessibility	% Residents Near FREQUENT Service	70%
	% Jobs Near FREQUENT Service	70%
	% Residents Near ANY Service	90%
	% Jobs Near ANY Service	90%

**Cost efficiency standards are subject to annual COI adjustments of 3%.*

Additional daily ridership performance standards for the four different route categories are outlined below in Table 1-10. These standards are based on average ridership performance levels for each category. The standards may be subject to change in future years as more data becomes available.

Table -10 / Route Ridership Performance Standards (PROPOSED)

Route Category	Boardings Per Revenue Hour			Boardings Per Revenue Mile		
	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Frequent	15.0	10.0	8.0	1.5	1.5	1.5
Local	10.0	8.0	6.0	1.0	1.0	1.0
Commuter	10.0	-	-	1.0	-	-
Trolley	20.0	20.0	20.0	5.0	5.0	5.0

Chapter 2

System Performance & Operations Analysis

ALEXANDRIA TRANSIT COMPANY
DASH

Chapter 2.0 / System Performance and Operations Analysis

This section provides an overview of transit ridership, service levels and productivity within the DASH service area. It summarizes current performance metrics in comparison to the standards included in the previous section as well as historic trends where data is available.

2.1 / System and Service Data

The Alexandria Transit Company (DASH) operates traditional fixed-route bus service on ten regular bus routes, and the King Street Trolley. The primary 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 and an inset map depicting bus service in Old Town Alexandria was included in Section 1. The majority of DASH service operates within the City of Alexandria, however, three routes – Lines 35, 103, and 104 – also provide service along Interstate 395 between Alexandria and the Pentagon.

The DASH bus system serves some of the busiest corridors in the City and has been designed to complement the WMATA Metrobus routes that operate within the City. The city's overall bus network 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" like DASH Line 35 and 36 A/B and Metrobus 7A providing connections between outlying areas and major trip generators on the West End and northern Alexandria.

DASH provides local bus service within the City of Alexandria, but also connects passengers to the Metrorail system, which has five stations within the City of Alexandria (Braddock Road, King Street-Old Town, Eisenhower Avenue, Potomac Yard-VT and Van Dorn Street) and to four non-Metrorail transit centers (Landmark/West Alexandria, Mark Center, Southern Towers, NVCC-Alexandria). WMATA also operates 18 bus routes and two Metrorail lines that operate within the City of Alexandria and provide connections to destinations throughout the Washington, DC metropolitan region.

The City of Alexandria's Department of Transportation and Environmental Services (T&ES) manages the City's *DOT* ADA paratransit service. WMATA's MetroAccess program also provides paratransit service within the City of Alexandria.

2.1.1 / Overall Transit Network Summary

The following section provides a detailed summary of rail, bus and paratransit services operated within the City of Alexandria. These include DASH bus routes, as well as WMATA's Metrorail and Metrobus services. Table 2-1 provides basic information on the City of Alexandria from the 2020 U.S. Census.

Table 2-1 / City of Alexandria Population Summary (FY 2023)

Service Area - City of Alexandria (2020)	
Service Area Population	159,461
Service Area Population Density (Population per Square Mile)	10,093
Service Area Square Miles	15.8

2.1.2 / Alexandria Transit Company (DASH)

Table 2-2 provides a summary of the DASH system based on FY 2023 NTD performance data and 2020 U.S. Census. Data for the City of Alexandria.

Table 2-2 / Existing DASH Service Summary (FY 2023)

DASH Service Summary	FY 2023
Annual Ridership	4,540,860
Total Routes (including King Street Trolley)	11
Total Fleet Size	101 buses
Number of Vehicles in Peak Service	75 buses
Operating Costs	$34.1 million
Revenue Hours	288,880
Revenue Miles	2,645,830
Days of Week in Operation	7
Average Headways	15-30 minutes
Directional Route Mileage	110.3

DASH operates 11 routes within the City of Alexandria, including the King Street Trolley. The basic characteristics of each DASH route are summarized in Table 2-3. Additional information about the service and demographic profiles for each DASH route is provided in Appendix B.

All eleven routes operate on weekdays and eight routes run on Saturdays and Sundays. Lines in the core DASH network are notated as part of the 30-series (Lines 30, 31, 32, 33, 34, 35 and 36A/B) and operate seven days per week, while 100-series routes (Lines 102, 103 and 104) are designed for commuters and only operate during weekdays or weekday peak periods. Routes are further classified as “Frequent”, “Local”, “Commuter” or “Trolley” as outlined in Chapter 1.

On most core DASH routes (Lines 30 - 36), weekday service runs from at least 6:00 AM to 11:00 PM, and weekend service runs from at least 7:00 AM to 10:00 PM. Weekday peak service runs every 10-30 minutes for all routes, while off-peak service typically runs every 30-60 minutes during mid-days and evenings. Of the eight routes that run on Saturdays and Sundays, four run every 15 minutes or better. On Saturdays, only one of the eight routes runs only every 60 minutes, but on Sundays, three of the eight routes only run once every hour.

Table 2-3 / DASH Route Summary

Route	Route Description	Span/Frequency							
		Weekday				Saturday		Sunday	
		Span	Peak	Off-Peak	Night	Span	Freq.	Span	Freq.
30	**Van Dorn Metro to Braddock Road Metro** via Landmark Mall, Van Dorn, King & Old Town	5:00am - 12:00am	10/20	30	30	6:00am - 11:30pm	30	6:00a - 11:30p	30
31	**NVCC to Braddock Road Metro** via Bradlee Shopping Center, King Street Metro & Old Town	5:00am - 12:30am	10	15	30	6:00am - 12:00am	15/30	6:00am - 12:00am	15/30
32	**Landmark Mall to King Street Metro** via Pickett Street, Van Dorn Metro & Eisenhower Metro	5:00am - 10:00pm	30	60	60	7:00am - 10:00pm	60	7:00am - 10:00pm	60
33	**King Street Metro to Potomac Yard** via Commonwealth, Monroe, Mt. Vernon, & Reed	6:00am - 10:00pm	30	30	60	7:00am - 10:00pm	30	7:00am - 10:00pm	30
34	**Lee Center to Braddock Street Metro** via City Hall	5:00am - 10:00pm	30	30	30	6:30am - 10:11pm	30	7:00a - 10:00p	60
35	**Van Dorn Metro to Pentagon Metro** via Landmark Mall, Mark Center, and I-395	4:00am - 1:00am	10	10	30	6:00am - 12:30am	15	6:00a - 11:30p	15
36A/B	**Mark Center Station to Potamac Yard** via Southern Towers, Bradlee Shopping Center, & Glebe	6:00a - 11:00p	15	15	30	7:00a - 10:30p	15	6:58a - 10:32p	15
102	**Mark Center Station to King Street Metro** via Seminary & King	5:00a-8:00p	30	60	-	-	-	-	-
103	**Braddock Road Metro to Pentagon Metro** via Russel, Glebe, & Parkfairfax	6:00a - 8:00p	30	-	-	-	-	-	-
104	**Braddock Road Metro to Pentagon Metro** via Cameron Mills Drive and Parkfairfax	6:15a - 8:15p	30	-	-	-	-	-	-
KST	**King Street Trolley**	11:00am - 11:00pm	15	15	15	11:00am - 11:00pm	15	11:00am - 11:00pm	15

In FY 2023, DASH recorded over 4.5 million annual boardings. As shown in Figure 2-1, this was the highest ridership total for a single year in DASH's 39-year history, eclipsing the previous record of 4.3 million boardings in FY 2015. This milestone is also notable in that it represents a full recovery from the COVID-19 pandemic that led to annual ridership totals of 1.5 million and 3.1 million in FY 2021 and FY 2022, respectively.

Figure 2-3 shows monthly ridership totals by day type for the last three years. This graph highlights the sharp decrease and recovery of weekday ridership levels across the DASH system and the relative stability of weekend usage. Additional ridership graphs and maps are provided in this section (see Figures 2-4, 2-5, and 2-6), along with the Systemwide Performance and Service Design standards (see Tables 2-4 and 2-5).

Figure 2-1 / Annual DASH Ridership (FY84-FY23)

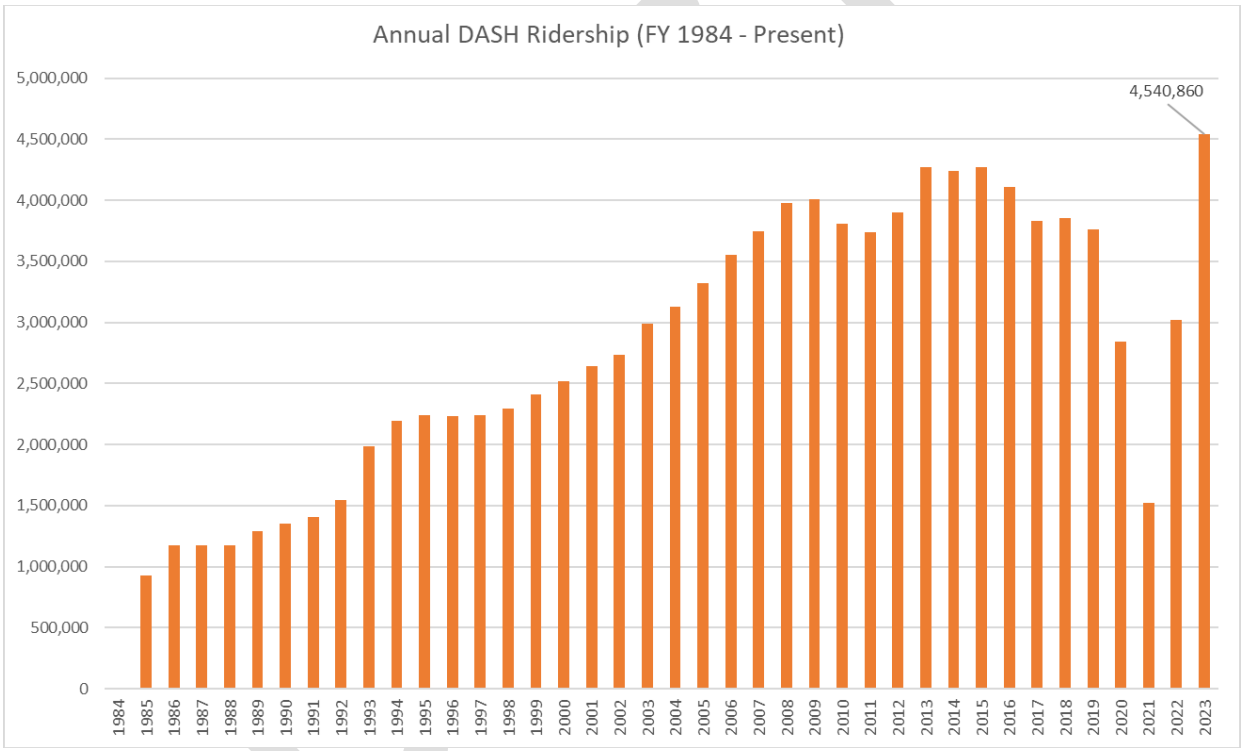


Figure 2-2 / Monthly DASH Ridership (FY17 – FY23)

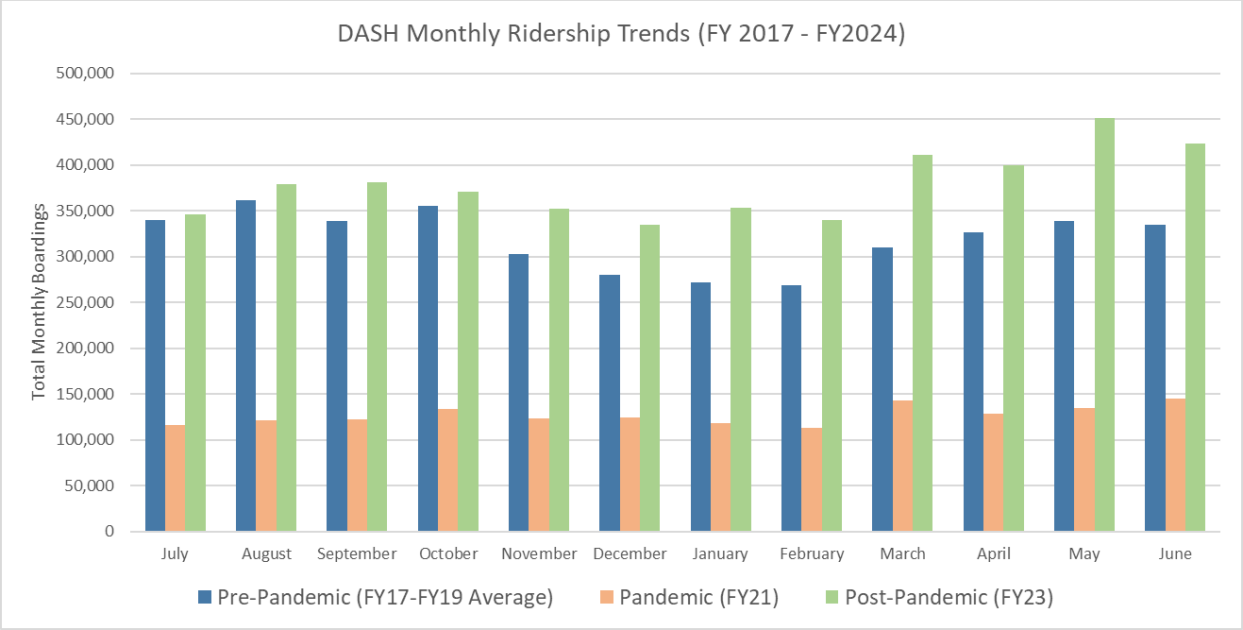


Figure 2-3 / DASH Average Daily Ridership by Day Type (FY2021 – FY2023)

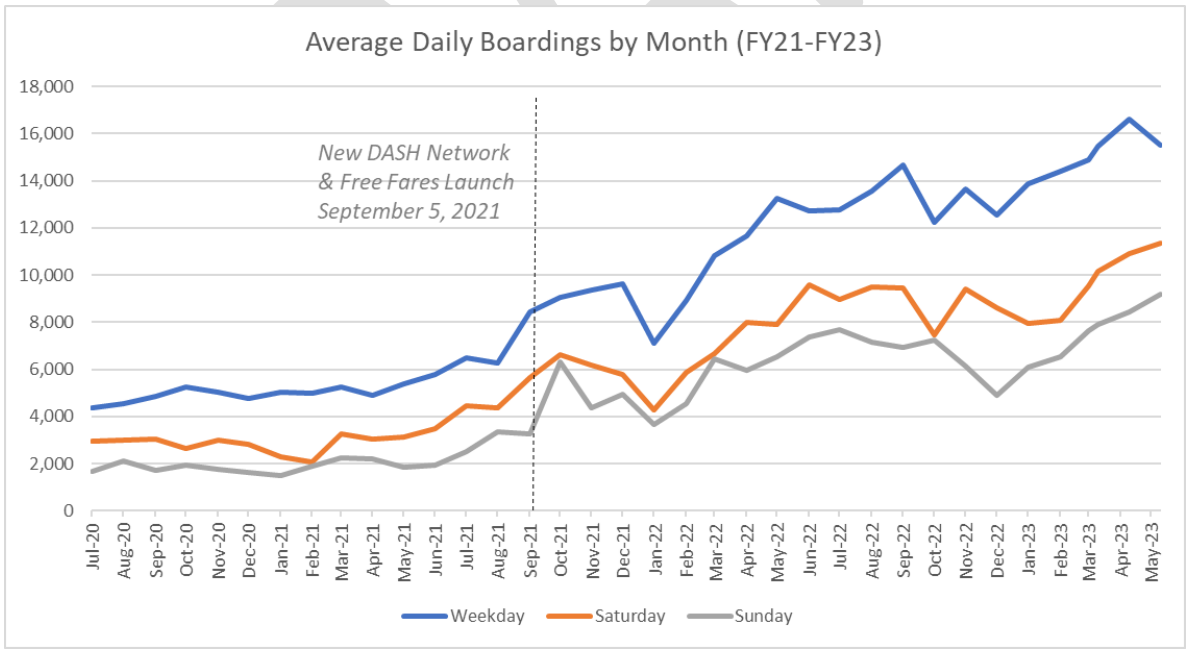


Figure 2-4 / DASH Average Weekday Ridership by Stop (September 2022)

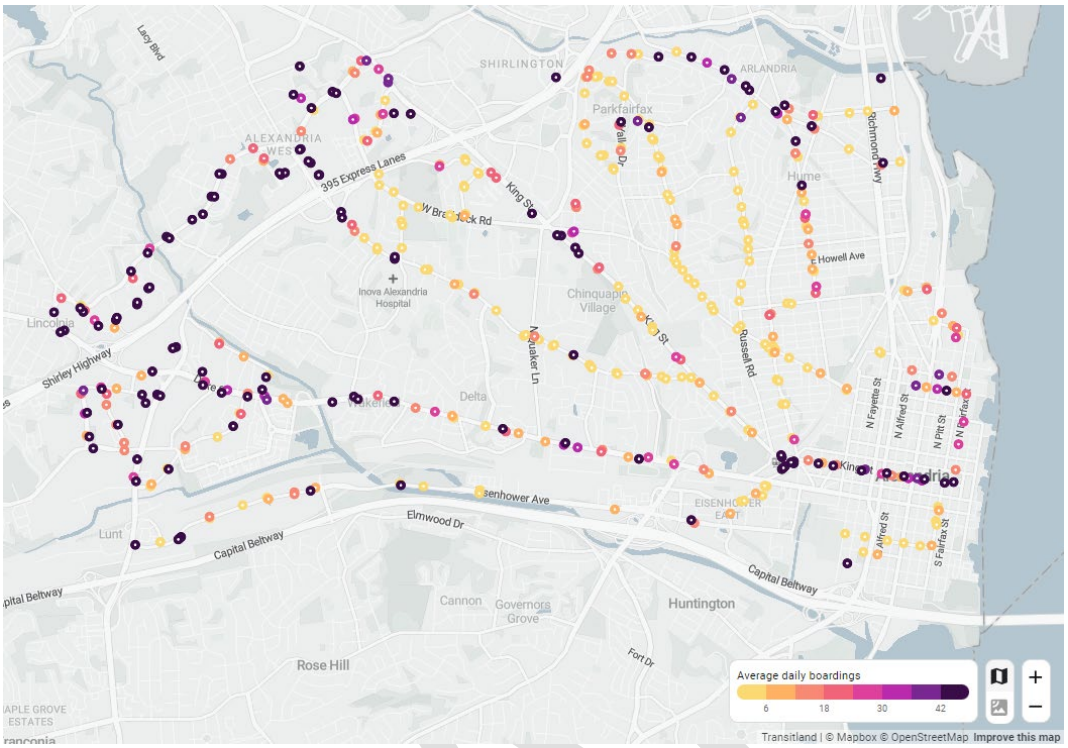


Figure 2-5 / DASH Average Saturday Ridership by Stop (September 2022)

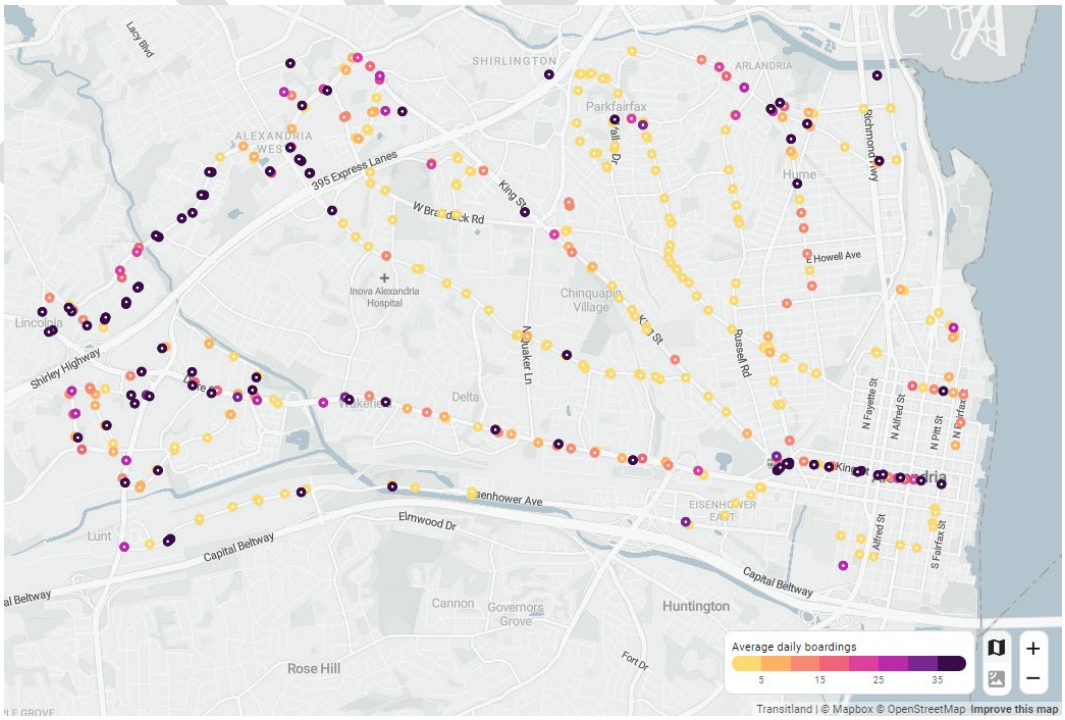


Figure 2-6 / DASH Average Sunday Ridership by Stop (September 2022)

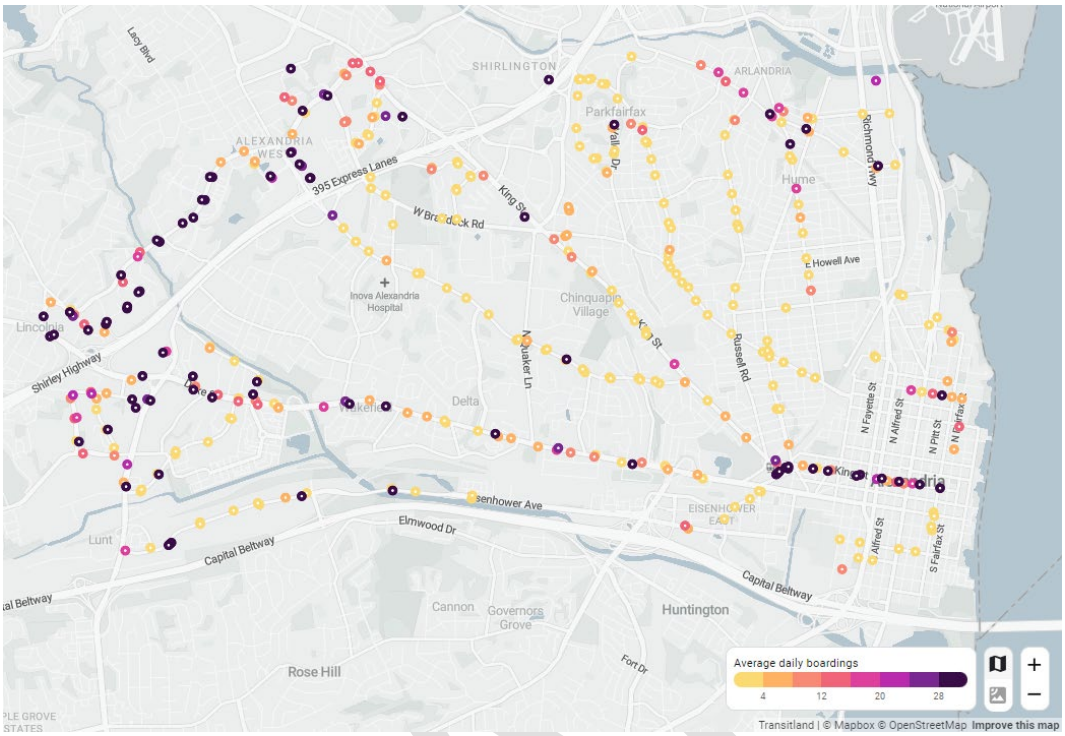


Table 2-4 / Systemwide Performance Standards (PROPOSED)

Category	Description	Standard (Systemwide)
Ridership	Boardings Per Revenue Hour	12 boardings per revenue hour
	Boardings Per Revenue Mile	1 boarding per revenue mile
Cost Efficiency	Cost Per Revenue Mile	$12 Per Mile*
	Cost Per Rider	$8 Per Rider*
Safety	Preventable Events Per 100K miles	5 preventable events/100K miles
Reliability	On-Time Performance	85%
	Missed Trip %	0.02%
Accessibility	% Residents Near FREQUENT Service	70%
	% Jobs Near FREQUENT Service	70%
	% Residents Near ANY Service	90%
	% Jobs Near ANY Service	90%

**Cost efficiency standards are subject to annual COI adjustments of 3%.*

Table 2-5 / Service Design Standards (PROPOSED)

Route Category	Minimum Headway Standard (minutes)		
	Weekday (Peak)	Weekday (Off-Peak)	Weekend
Frequent	15	15	15
Local	30	30	30
Commuter	30	n/a	-
Trolley*	15	15	15

Route Category	Average Peak Load Factor		
	Weekday (Peak)	Weekday (Off-Peak)	Weekend
Frequent	1.2	1.0	1.0
Local	1.2	1.0	1.0
Commuter	1.0	1.0	-
Trolley*	1.5	1.5	1.5

Route Category	On-Time Performance (OTP)		
	Weekday (Peak)	Weekday (Off-Peak)	Weekend
Frequent	85%	85%	85%
Local	85%	85%	85%
Commuter	85%	85%	-
Trolley*	85%	85%	85%

Service Availability	City Residents
Within 1/4 Mile of a Frequent Route	70%
Within 1/4 Mile of Any Route	90%

2.1.3 / Washington Metropolitan Area Transit Authority (WMATA)

Washington Metropolitan Area Transit Authority (WMATA) serves as the regional transit operator for the Washington, DC metropolitan region and operates two (2) Metrorail lines and 18 Metrobus routes within the City of Alexandria. The City of Alexandria is served by five (5) Metrorail stations, including the Potomac Yard-VT Metrorail Station that opened in May 2023.

A summary of all WMATA bus and rail service operated within the City of Alexandria is included as Table 2-6 and a map is included as Figure 2-7.

Figure 2-7 / Metrobus System Map for the City of Alexandria

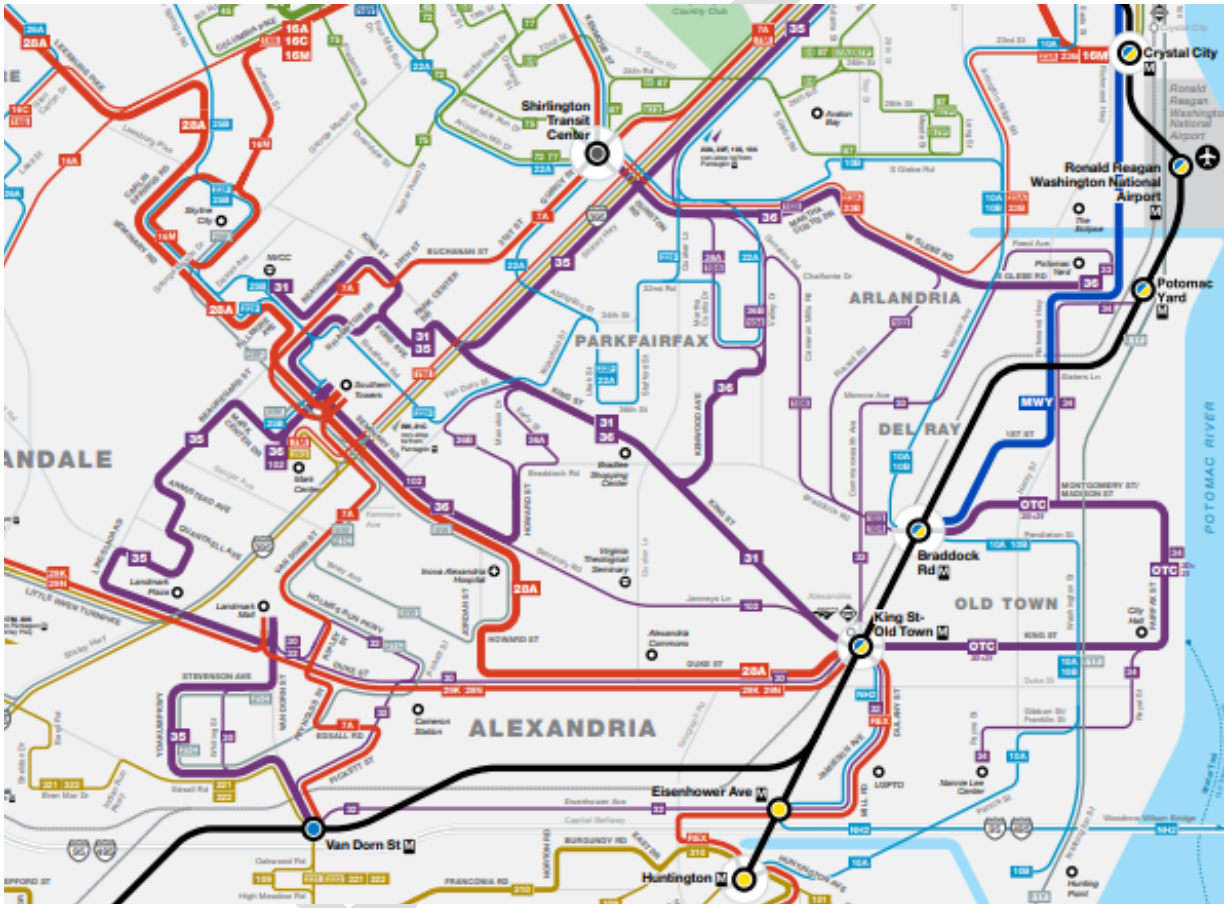


Table 2-6 / WMATA Services in the City of Alexandria

Route	Weekday							Saturday			Sunday		
	Span	Headway						Span	Headway		Span	Headway	
		Early	AM Peak	Midday	PM Peak	Evening	Late		Core	Non-Core		Core	Non-Core
Metrobus													
7A	4:41 AM – 1:52 AM	30	24	20	24	20	30	5:20 AM – 1:46 AM	20	60	5:20 AM – 1:46 AM	20	60
7M	6 AM – 6:55 PM	10	10	15	10	15	-	-	-	-	-	-	-
8W	6:06 AM – 8:59 AM 4 PM – 7:30 PM	24	24	-	24	-	-	-	-	-	-	-	-
10A	4:25 AM – 2:33 AM	30	30	30	30	30	30	5:36 AM – 2:04 AM	30	30	5:25 AM – 2:06 AM	60	60
10B	4:45 AM – 12:33 AM	30	30	30	30	30	30	5:50 AM – 12:36 AM	30	60	5:45 AM – 10:38 PM	30	60
11Y	5:49 AM – 9:27 AM 4:00 PM - 7:39 PM	24	24	-	24	30	-	-	-	-	-	-	-
21C	5:30 AM – 9:10 AM 4 PM - 7:29 PM	30	20	-	22	26	-	-	-	-	-	-	-
22F	6 AM – 9:33 AM 4:02 PM – 7:53 PM	30	30	-	30	30	-	-	-	-	-	-	-
23A, 23B	5:26 AM – 1:47 AM	25	25	30	25	30	45	6:06 AM -1:50 AM	40	60	6:06 AM – 1:50 AM	40	60

25B	5:40 AM – 11 PM	15	15	30	15	20	45	6:10 AM – 9:09 PM	30	60	8:10 AM – 8:40 PM	60	60
28A	4:18 AM – 3:06 AM	20	12	12	12	12	30	5:30 AM – 2:51 AM	12	30	6:05 AM – 2:47 AM	12	30
28F	3:55 AM – 7:12 AM 6:39 PM – 8:56 PM	30	-	-	-	30	-	-	-	-	-	-	-
29K, 29N	6:11 AM – 11:30 PM	25	20	20	20	20	30	6:53 AM – 10:30 PM	20	30	6:54 AM – 10:30 PM	20	30
NH2	6:05 AM – 11:55 PM	30	30	30	30	30	30	6:05 AM – 11:55 PM	30	30	6:05 AM – 11:55 PM	30	30
REX	5:02 AM – 11:39 PM	15	15	20	15	20	30	5 AM – 11:46 PM	30	30	5 AM – 11:47 PM	20	30
Bus Rapid Transit													
MW1	5:30 AM – 10:24 PM	20	12	12	12	12	20	6:30 AM – 10:51 PM	20	20	7:30 AM – 10:24 PM	20	30
Metrorail													
BLUE	5 AM – 12 AM	12	10	12	10	12	15	7 AM – 1 AM	12	15	7 AM – 12 AM	12	15
YELLOW	5 AM – 12 AM	8	6	8	6	8	8	7 AM – 1 AM	8	8	7 AM – 12 AM	8	8

Among WMATA Metrobus routes that operate in Alexandria, those with the highest weekday boardings include the 28A (connecting King Street Metro with Tysons Corner), REX (connecting King Street Metro with Richmond Highway in Fairfax County), 29K/N routes (connecting King Street Metro with George Mason University), 7A (serving Van Dorn Street Metro and the Pentagon), Metroway (WMATA's BRT line from Braddock Road Metro to Pentagon City Metro), and 10B (serving residents from Hunting Point to Arlandria).

Table 2-7 / Average Daily Metrobus Boardings (FY 2023)

Route	Weekday	Saturday	Sunday
	FY 2023	FY 2023	FY 2023
7A	1,876	1,163	915
7M	596	-	-
8W	124	-	-
10A	1,432	1,167	597
10B	1,456	2,128	1,824
11Y	214*	-	-
21C	240	-	-
22F	138	-	-
23A	149	216	174
23B	1,071	576	494
25B	889	439	196
28A	5,835	4,974	4,063
28F	16	-	-
29K, 29N	1,936	1,611	1,313
NH2	685	592	550
REX	2,011	1,552	1,204
MW1	1,532	833	706

**11Y resumed service in June 2023, thus providing only one month of ridership data for FY 2023.*
Source: WMATA BUS RIDERSHIP VIEWER

Among Alexandria's five Metrorail stations, daily average entries are highest at King St-Old Town and Braddock Road. Every station records its highest ridership during the week except for Potomac Yard-VT, which sees higher ridership on Saturdays (see Table 2-8).

Table 2-8 / Average Daily Metrorail Station Entries (FY 2023)

Station	Weekday Entries	Saturday Entries	Sunday Entries
	FY 2023	FY 2023	FY 2023
Braddock Road	1,336	887	677
Eisenhower Avenue	662	512	367
King St – Old Town	2,564	2,262	1,794
Potomac Yard - VT	854	934	793
Van Dorn Street	897	608	421

Source: WMATA RAIL RIDERSHIP DATA VIEWER

2.1.4 / Amtrak/Virginia Railway Express (VRE)

Amtrak and VRE operate regional passenger rail service serving Union Station in the City of Alexandria. A map of the VRE rail system is included as Figure 2-8.

Figure 2-8 / Virginia Railway Express (VRE) System Map

2.1.5 / Fairfax Connector

In addition to WMATA, the Fairfax Connector also provides limited bus service in West Alexandria with routes connecting to the Van Dorn Metro and Mark Center Transit Center. A summary table for all Fairfax Connector routes that operate within the City of Alexandria is included as Table 2-9.

Table 2-9 / Fairfax Connector Services in the City of Alexandria

Route	Weekday							Saturday			Sunday		
	Span	Headway						Span	Headway		Span	Headway	
		Early	AM Peak	Midday	PM Peak	Evening	Late		Core	Non-Core		Core	Non-Core
Fairfax Connector													
109	4:59 AM – 11:13 PM	50	30	60	30	40	-	6:30 AM – 10:52 PM	60	60	6:30 AM – 7:52 PM	60	60
231	4:50 AM – 10:08 AM 3:01 PM – 10:14 PM	30	30	-	30	30	-	-	-	-	-	-	-
232	4:50 AM – 10:08 AM 3:01 PM – 10:14 PM	30	30	-	30	30	-	-	-	-	-	-	-
321	4:02 AM – 1:10 AM	60	30	30	30	30	60	5:04 AM – 12:13 AM	30	60	5:03 AM – 12:08 AM	60	60
322	4:02 AM – 1:10 AM	60	30	30	30	30	60	5:04 AM – 12:13 AM	30	60	5:03 AM – 12:08 AM	60	60
393	5:13 AM – 10:08 AM 3:35 PM – 7:59 PM	50	40	-	40	50	-	-	-	-	-	-	

2.1.6 / DOT Paratransit

The City of Alexandria provides DOT Paratransit service that includes complementary paratransit services for eligible riders who are not able to use DASH fixed-route service, as required by the Americans with Disabilities (ADA) Act of 1990.

Alexandria DOT paratransit service is available for free to all eligible riders within the City of Alexandria. Trips that extend outside of the City of Alexandria require a fare of $4 to $6 per trip.

Table 2-10 provides an overview of DOT Paratransit operating statistics for FY 2023.

Table 2-10 / Existing DOT Paratransit Summary (FY 2023)

Alexandria DOT Paratransit Service Summary	FY 2023
Annual Trips	39,245
Total Fleet Size	20 vehicles
Number of Vehicles in Peak Service	17 vehicles
Operating Costs	$2.0 million
Revenue Hours	20,911
Revenue Miles	249,850

2.1.7 / Onboard Survey

In 2023, DASH hired a contractor to conduct a comprehensive customer intercept survey to provide information on customer demographics, travel patterns, and overall satisfaction with DASH services. This origin and destination (O-D) study was conducted on all DASH bus lines and the King Street Trolley. Interviewers administered intercept surveys via tablet computers, asking riders questions specific to their current trip, as well as questions regarding DASH services overall and additional sociodemographic questions. In total, 2,983 surveys were completed during October and November 2023.

Notable survey results are summarized below. A full report on the survey is provided as Appendix C.

- Around three-fourths of customers were persons of color or non-white (74%) with the largest proportion of customers identifying as African American or Black (38%).
- When asked their gender identity, customers systemwide were roughly evenly split between male (51%) and female (48%), with an additional 1% stating they were nonbinary.
- Customers, on average, were 37 years of age with children and teenagers under the age of 18 representing 8 percent of riders and seniors (65 years or older) accounting for 5 percent of all riders.
- The median household income reported by DASH customers is $38,800. Around two-thirds of all DASH customers (64%) were below 100% of the poverty level, as compared to 18 percent of all city residents.

- DASH riders represent a broad range of educational attainment levels, with 36 percent possessing a bachelor's degree or higher, compared to the citywide average of 56 percent.
- 62 percent of customers who started riding DASH in the last two years reported that free fares had an impact on their decision to start riding DASH.
- 53 percent of customers who were riding DASH prior to free fares reported that they are riding DASH more often now that the system is free to ride.
- 95 percent of riders indicated that they are satisfied with DASH, including 79 percent who said that they were "very satisfied".

Additional information on survey findings and methodology are included in the report in Appendix C.

2.2 / Evaluation of Transit Market Demand and Underserved Areas

To better understand the demand for transit, especially as it relates to underserved areas, this section provides an array of demographic maps that provide insights into the different communities across the City of Alexandria. Some additional information on land use, employment, and population was gathered in the TSP planning process to help inform this document. The findings from these processes were used to identify potential opportunities for expanding service to underserved areas, which are discussed in the following sections. Additional demographic information obtained from the customer survey is available in Appendices B and C.

2.2.1 / Land-Use, Employment, Population, and Demographics

Land-Use

The DASH service area is centered around the City of Alexandria's jurisdictional boundaries, roughly 16 miles in total (see Figure 2-9). Much of the development in Alexandria consists of urban, high-density development at its eastern and western edges, with a small area of primarily low-to-medium density residential development in the center.

Alexandria has convenient access to several transportation modes, such as: Metrorail (with five stations within the city) and interstate highways I-395, and I-95/495, which both bisect the city. Commercial uses are located throughout Alexandria, with the downtown core located along King Street in the Old Town neighborhood, and other commercial corridors along routes such as Duke Street, U.S. Route 1, Eisenhower Avenue, Van Dorn Street, Mt. Vernon Avenue, and others.

Employment

Employment density (jobs per traffic analysis zone (TAZ) in the DASH service area) is shown in Figure 2-10. The DASH service area primarily consists of a jobs clustered around major thoroughfares and transitways. The areas in DASH's service area with higher employment densities include to the east and south-east portions of the city (Old Town and Carlyle neighborhoods), with another heavy concentration along I-395 in the western part of the city.

Population

Population density (people per square mile) in the DASH service area is shown in Figure 2-11. Citywide, Alexandria is noticeably a dense jurisdiction, with nearly 160,000 residents within only 16 square miles. Areas of higher population density appear in the west, north, east, and south-east portions of Alexandria. Generally, Central Alexandria is less dense, and this follows the trend of the urban and suburban built environment. The frequent bus network that was implemented for the Alexandria Transit Vision Plan offers robust service which serves the population dense areas of the city well.

Low-Income Population, Minority Population, and Elderly Population

Based on feedback from the community and City/ATC leadership, transit service was closely analyzed in terms of how it might impact communities of concern, including low-income residents, minorities, and seniors. Figure 2-12 details the minority population density (by census block group (CBG)), Figure 2-14 details the low-income population density (by CBG), and Figure 2-13 details the elderly population density (by CBG).

A table showing service access for these groups is provided as part of the evaluation of service accessibility standards in Section 2.3 of this document.

Limited-English Proficiency Population

The density of limited-English proficiency populations is shown in Figure 2-15. The results indicated that a sizeable amount of people fall into these categories of limited-English proficiency. These populations are dispersed throughout Alexandria, but with larger concentrations along I-395 in the west and in the Arlandria-Chirilagua neighborhood to the north.

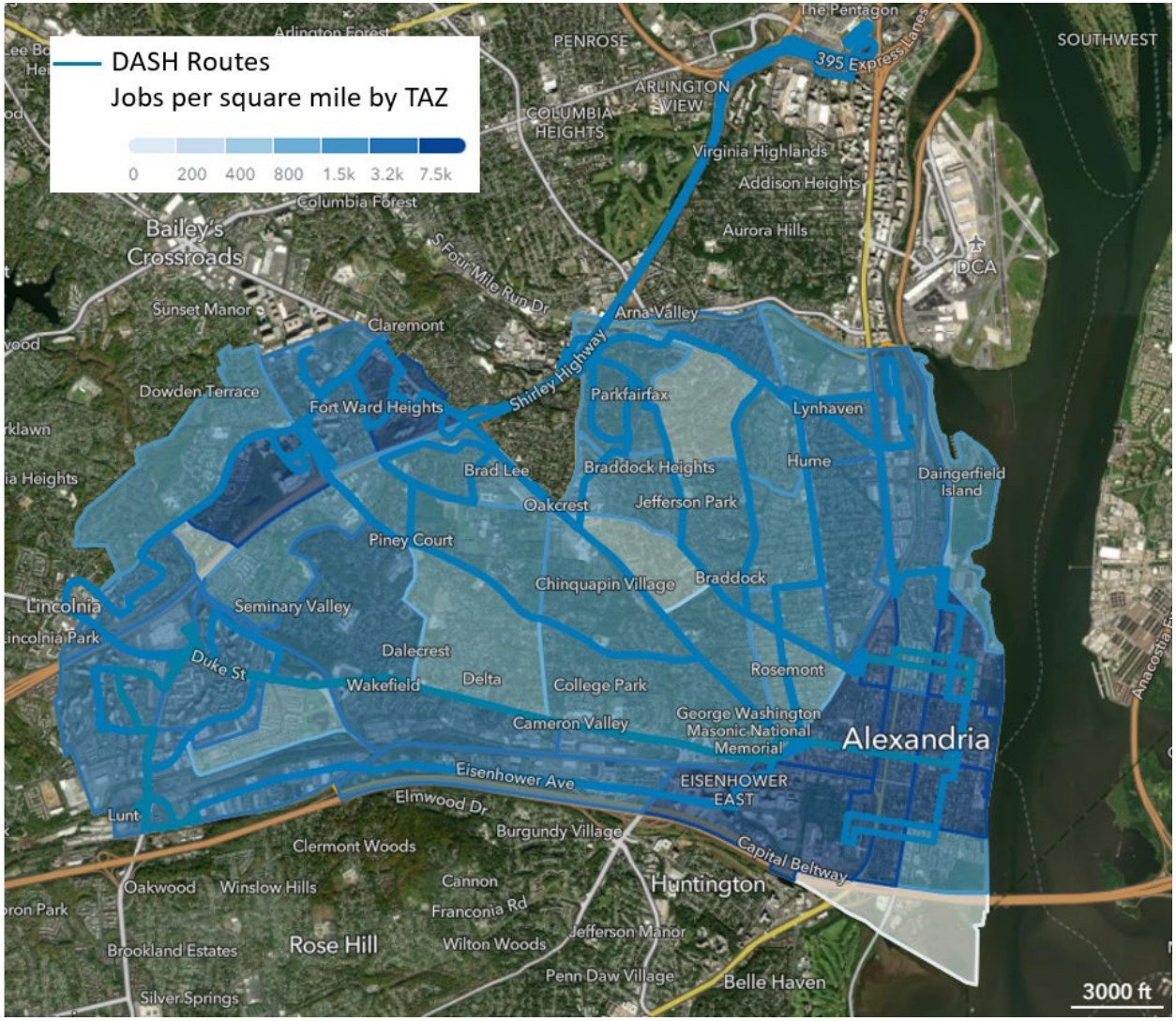
Population with Disability

The density of populations living with a disability is shown in Figure 2-16. Areas in Alexandria with higher densities of populations with disability exist in the West End neighborhood and in the North Old Town neighborhood. Existing DASH service serves these communities well, though DOT paratransit also covers these neighborhoods.

Figure 2-9 / City of Alexandria Overview Map with DASH Routes

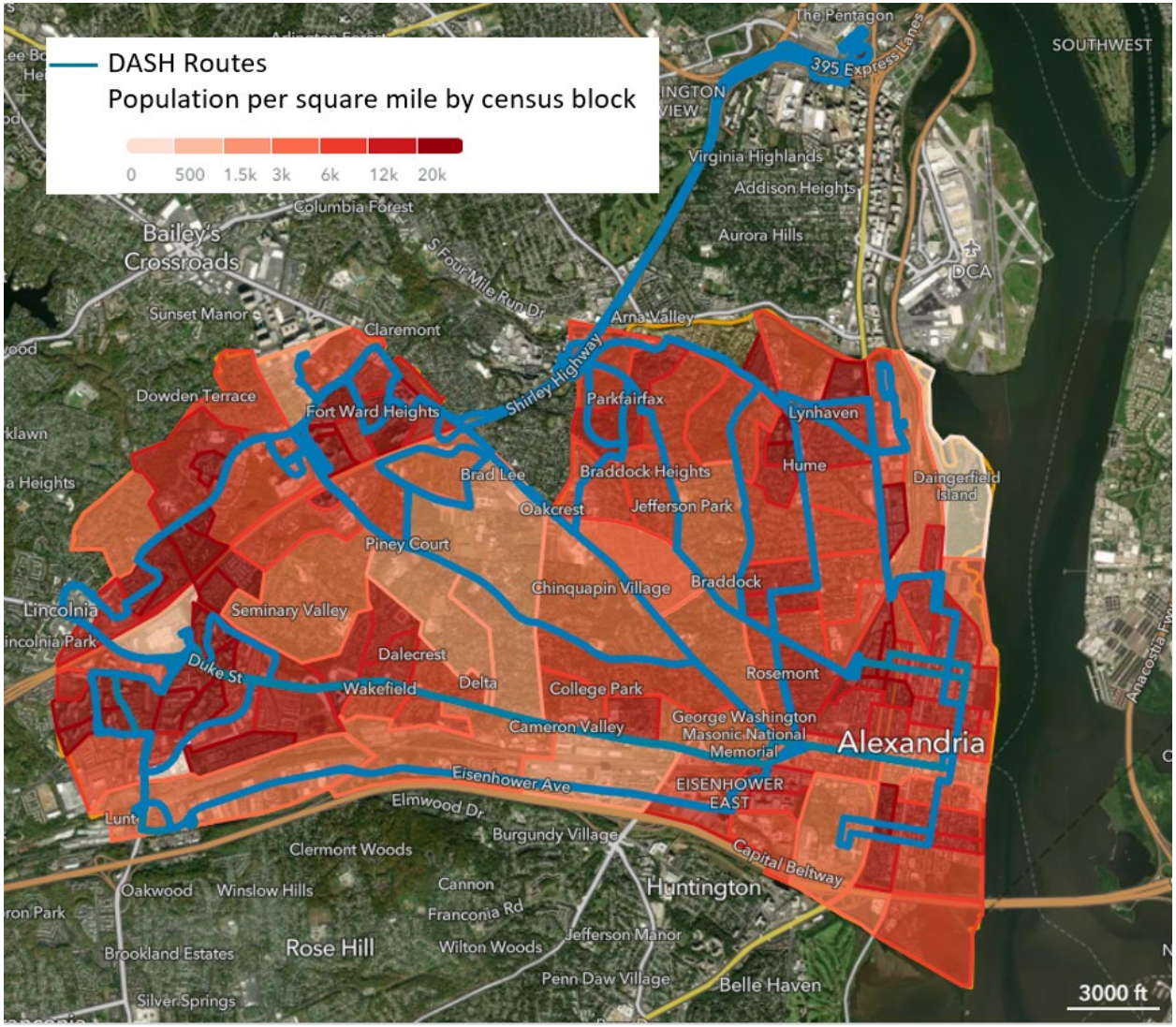
Source: GTFS data and Remix

Figure 2-10 / Employment Density



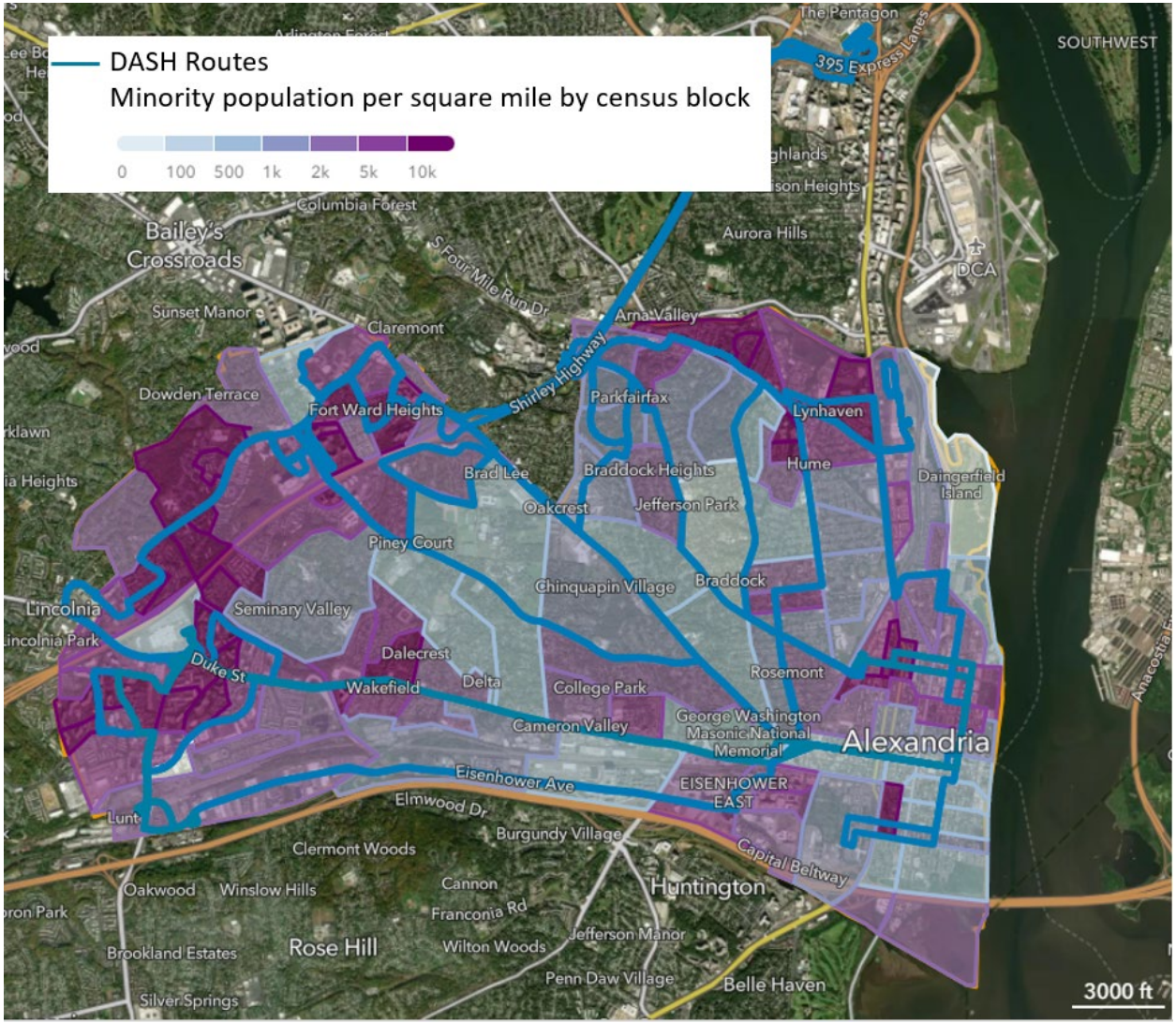
Source: ACS 2016, by TAZ.

Figure 2-11 / Population Density



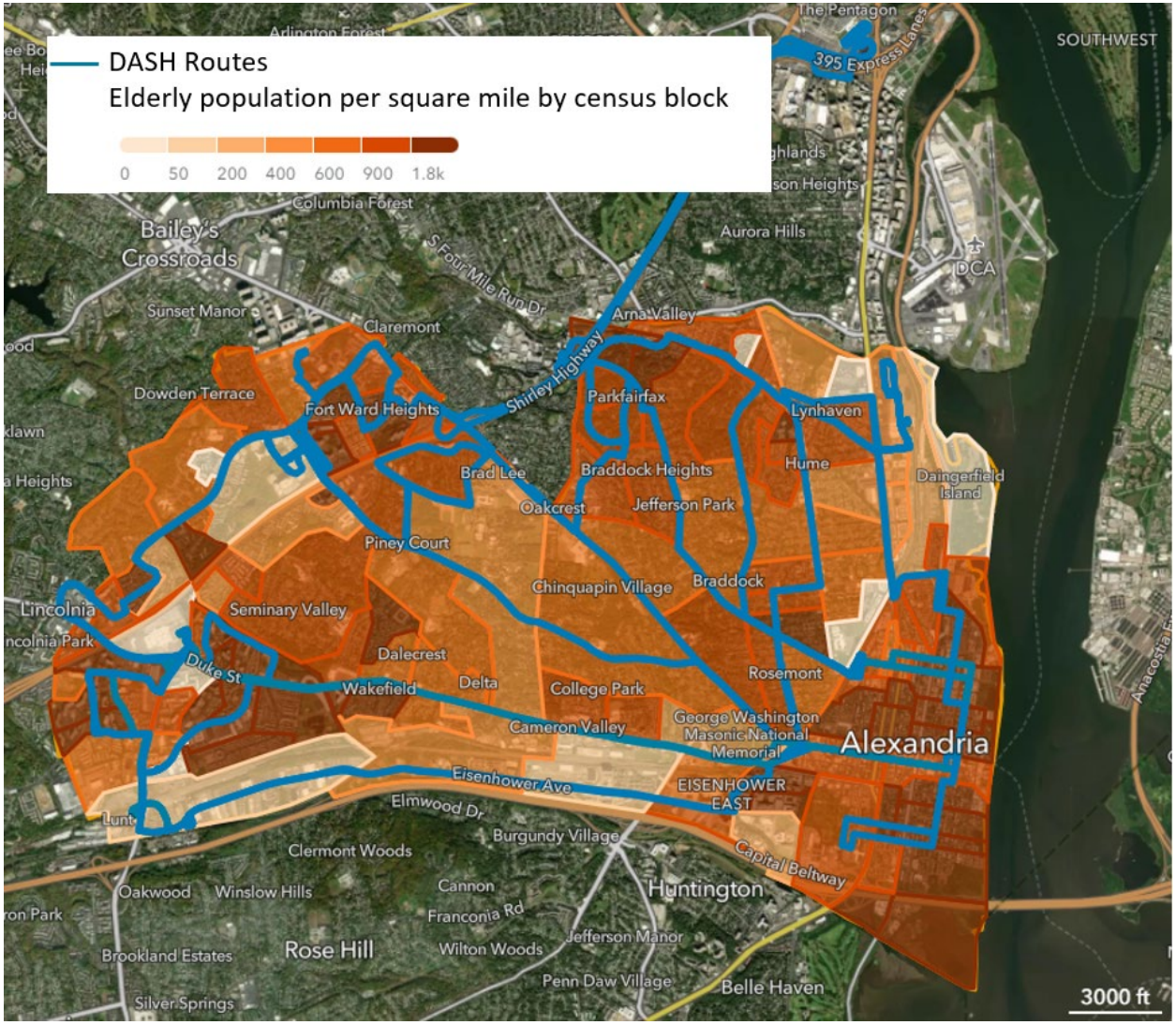
Source: ACS 5-Year, 2017-2021, by CBG

Figure 2-12 / Minority Population Density



Source: ACS 5-Year, 2017-2021, by CBG

Figure 2-13 / Elderly Population Density

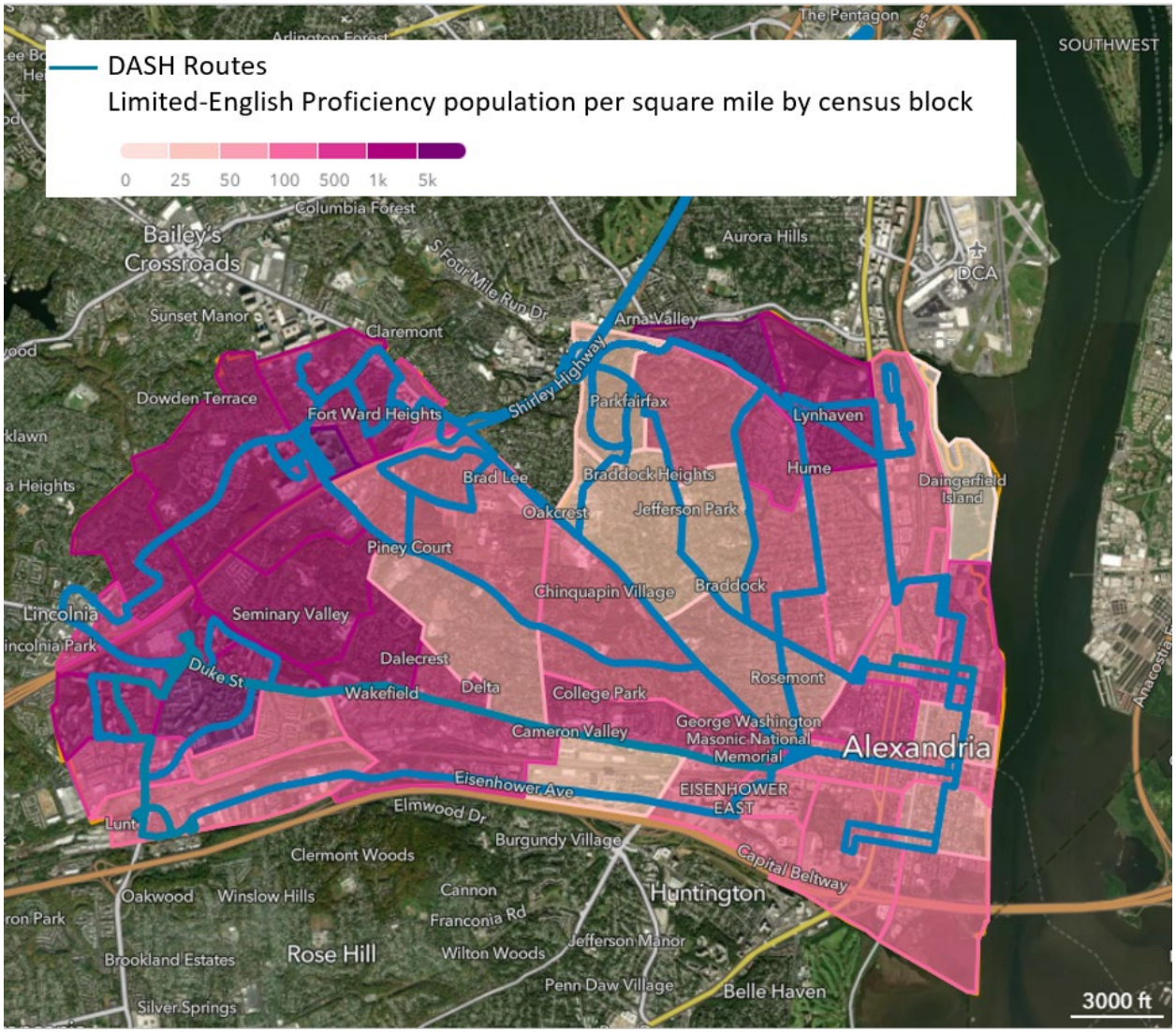


Source: ACS 5-Year, 2017-2021, by CBG

Figure 2-14 / Low Income Density

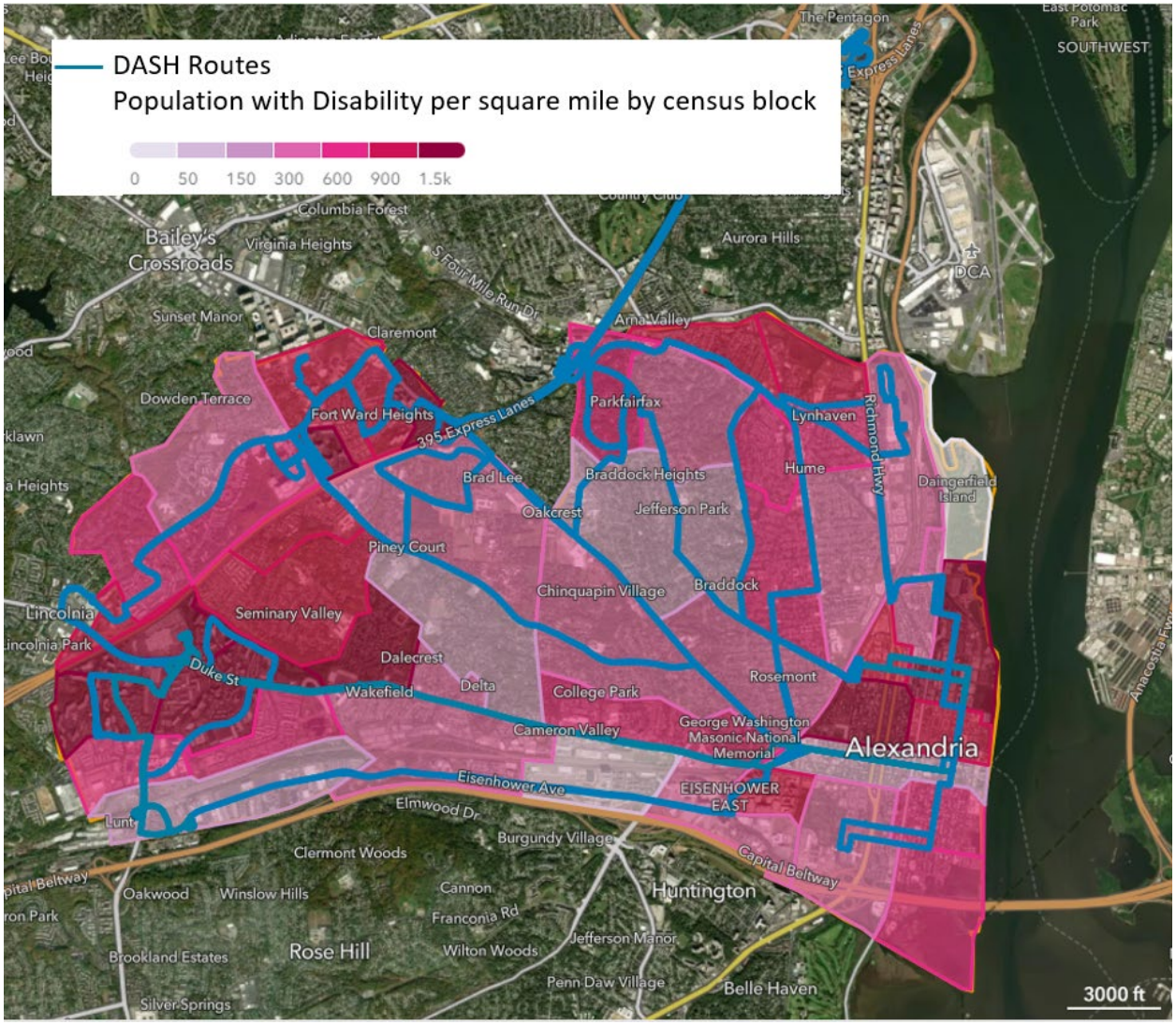
Source: ACS 5-Year, 2017-2021, by CBG

Figure 2-15 / Limited-English Proficiency Population Density



Source: ACS 5-Year, 2017-2021, by CBG

Figure 2-16 / Population with Disability Density



Source: ACS 5-Year, 2017-2021, by CBG

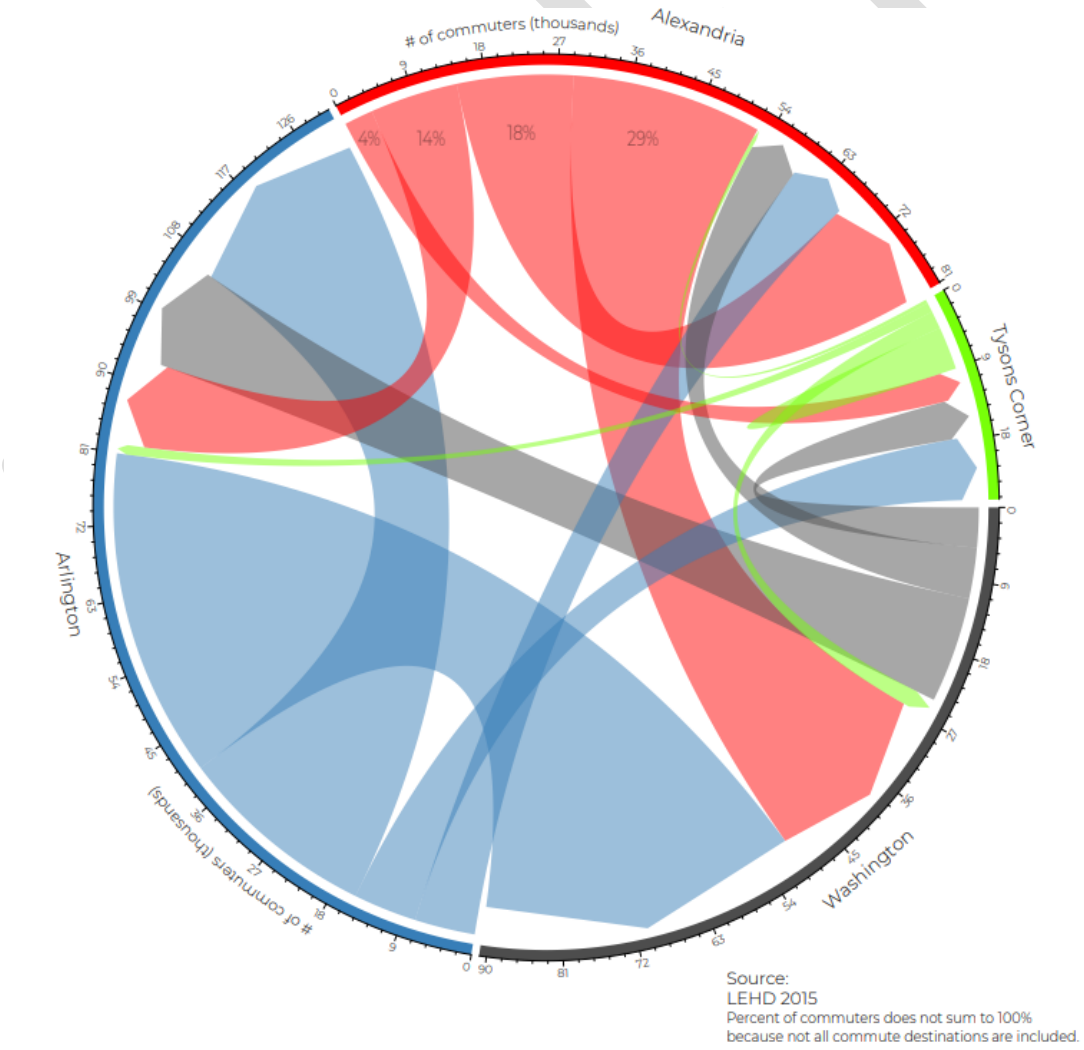
Origin-Destination Data

Origin-Destination data provides key insights for transit planners to better understand the travel demands for different connections. As part of the Alexandria Transit Vision Plan, the project team was able to prepare Origin-Destination maps for the City of Alexandria. Some of the maps and figures are provided below.

As shown in these graphics, a significant amount of people travel between Arlington County and the City of Alexandria, highlighting the imporance of providing service that connects Alexandria to areas like Columbia Pike and the Rosslyn-Ballston Corridor.

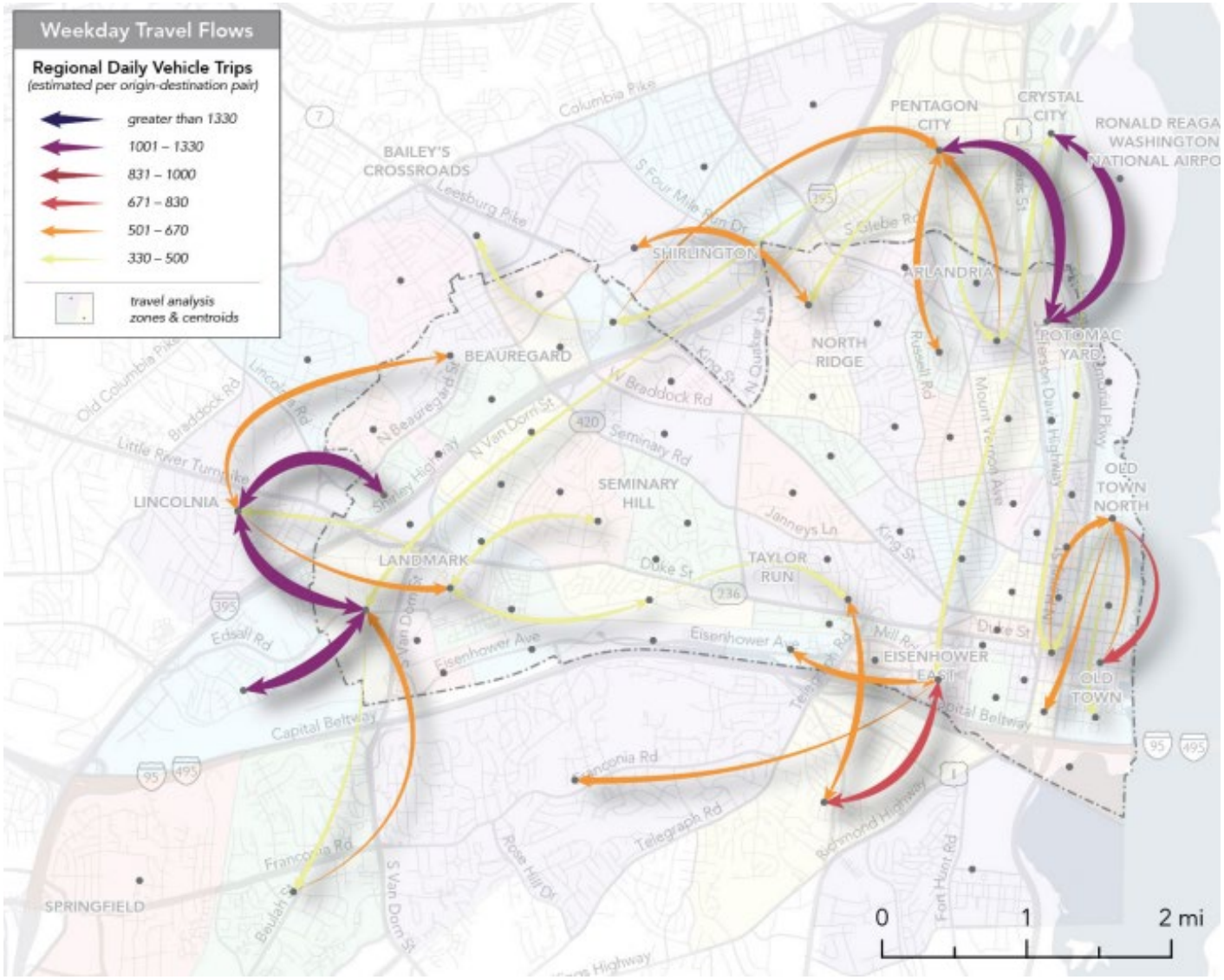
Further analysis presented in the following maps and graphics supports the conclusion that improvements to connections should be provided between Potomac Yard and Old Town, and Potomac Yard and Arlington County.

Figure 2-17 / Commuting Patterns from Origin-Destination Data



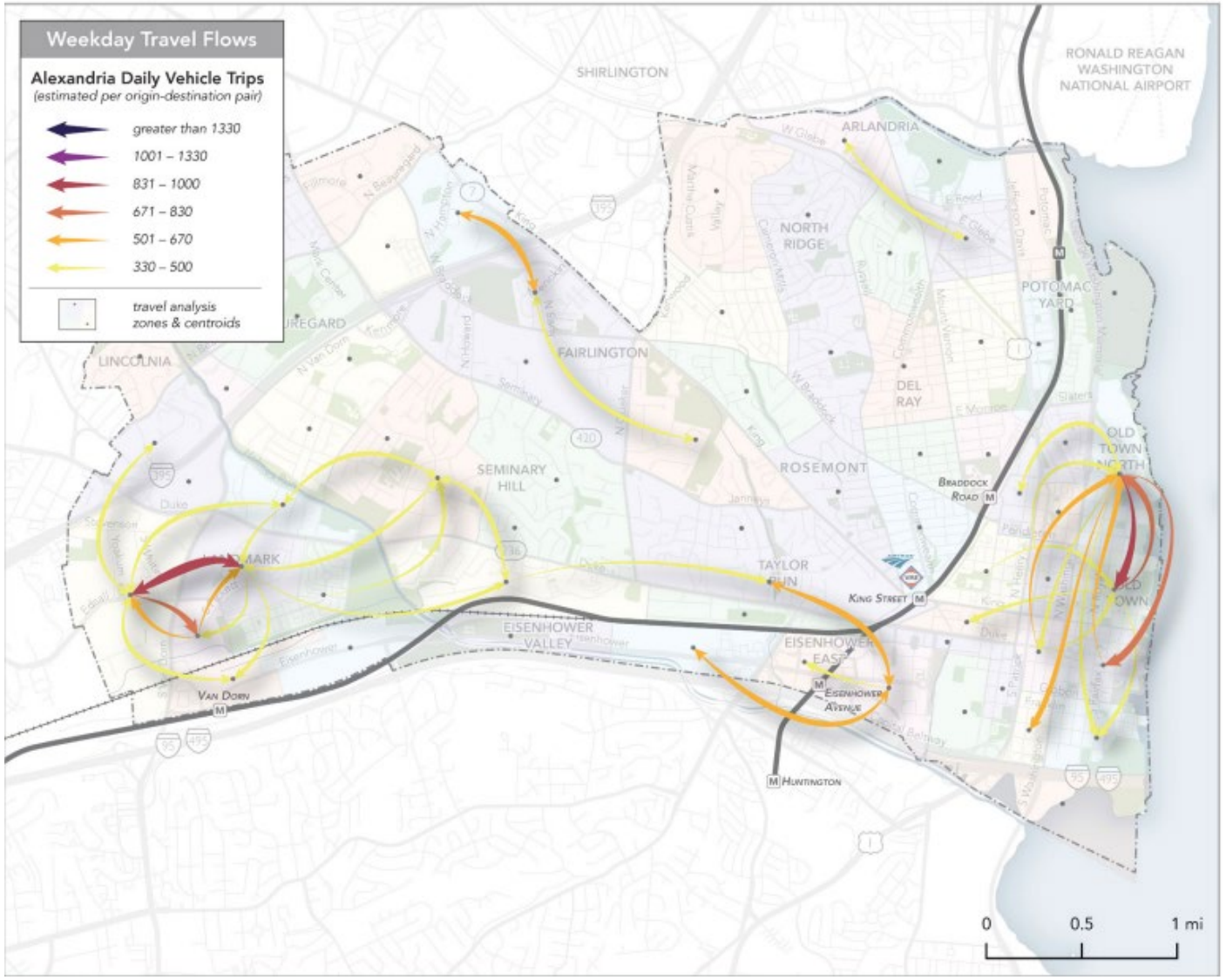
Source: Alexandria Transit Vision Choices Report

Figure 2-18 / Weekday Origin-Destination Trips (Internal & External Trips)



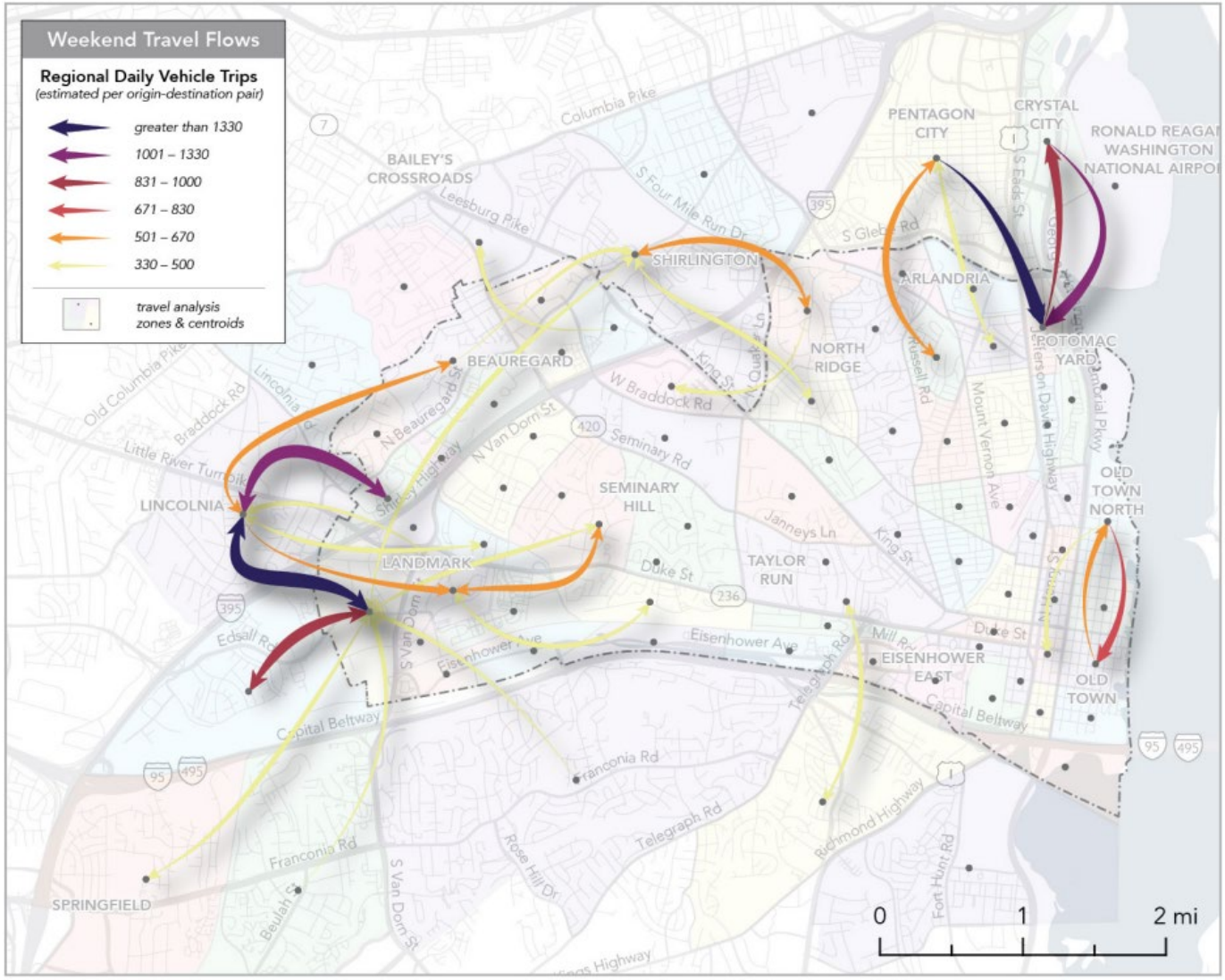
Source: Alexandria Transit Vision Choices Report

Figure 2-19 / Weekday Origin-Destination Trips (Internal Trips Only)



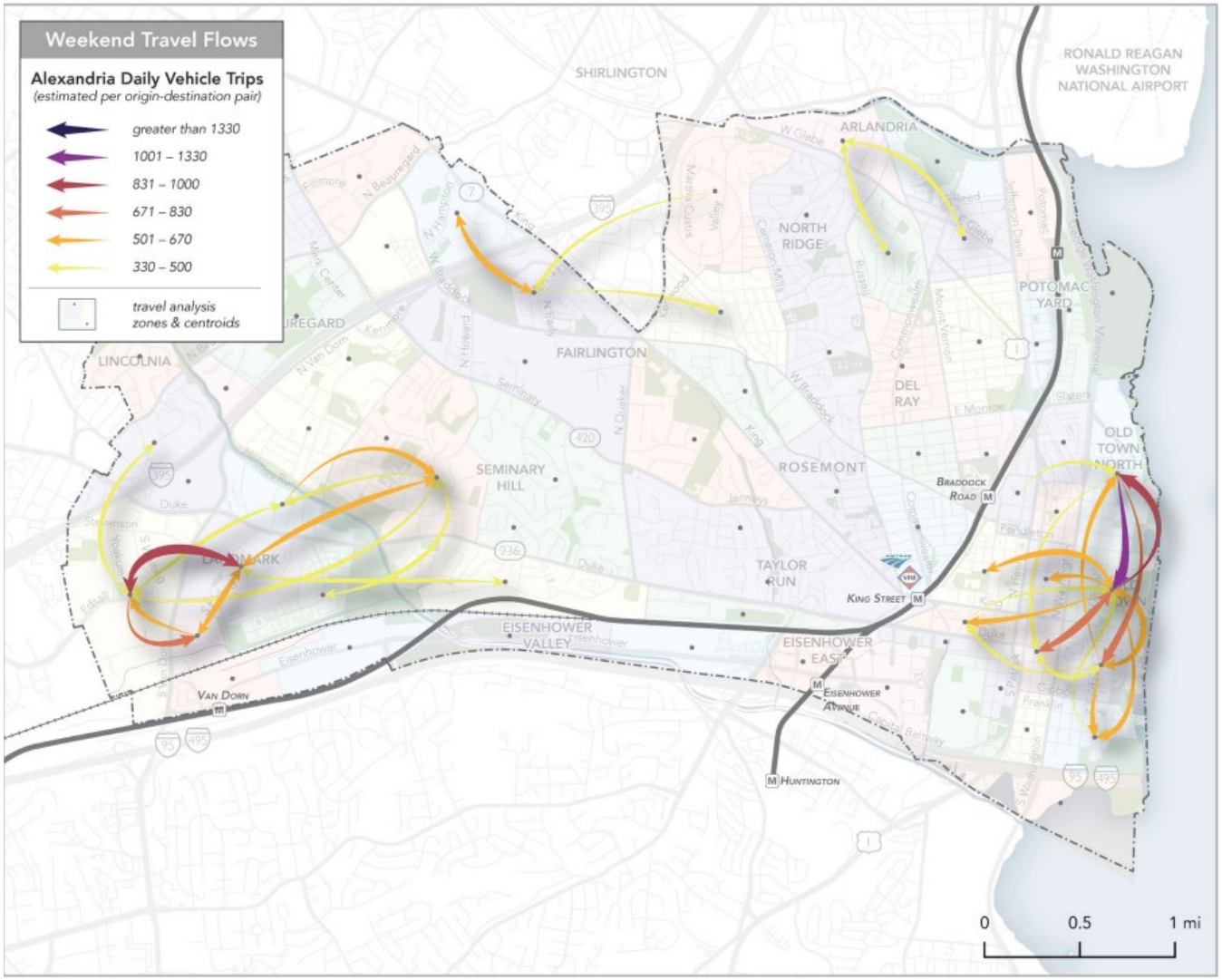
Source: Alexandria Transit Vision Choices Report

Figure 2-20 / Weekend Origin-Destination Trips (Internal & External Trips)



Source: Alexandria Transit Vision Choices Report

Figure 2-21 / Weekend Origin-Destination Trips (Internal Trips Only)



Source: Alexandria Transit Vision Choices Report

Projected 10-Year Growth

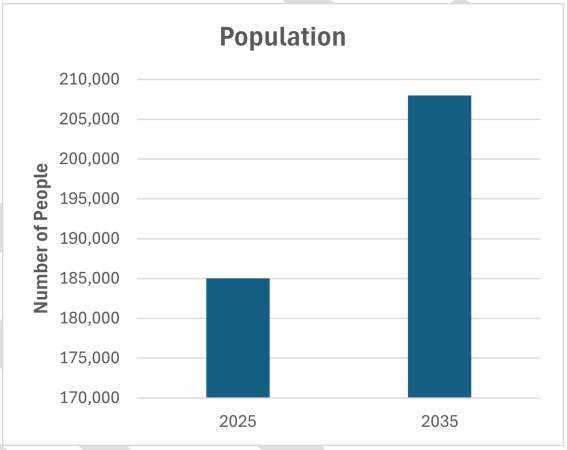
Metropolitan Washington Council of Governments (COG) population and employment projections were used to project trends over the next ten years to understand the future needs of the community and plan for appropriate levels of service. COG data was available in 5-year increments, so 2025 was used as the base year, and 2035 as the 10-year benchmark.

Figure 2-22 shows population projections, and Figure 2-23 details employment projections.

Highlights from this analysis include:

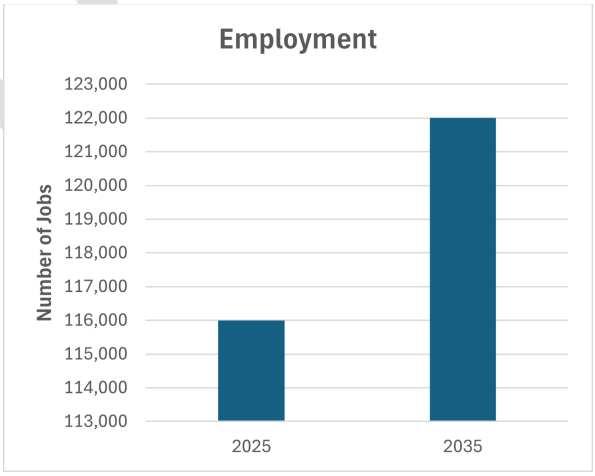
- The City of Alexandria will continue to experience steady population growth.
- Overall, the City is expected to grow from roughly 185,000 residents to over 205,000 residents
- The City of Alexandria will continue to be a major job hub for the region.
- Overall, the City is expected to add a little under 6,000 jobs from 2025 to 2035.

Figure 2-22 / Projected 10-Year Population Growth



Source: Metropolitan Washington Council of Governments Population Forecasts by Transportation Analysis Zone

Figure 2-23 / Projected 10-Year Employment Growth



Source: Metropolitan Washington Council of Governments Population Forecasts by Transportation Analysis Zone

2.2.2 / Transit Demand and Underserved Area Opportunities for Improvement

With the ongoing implementation of the Alexandria Transit Vision Plan, the City has been able to identify areas and corridors within City of Alexandria and surrounding areas that are underserved. Some of these areas have been addressed with the route changes from the New DASH Network, however, the following areas have been identified as underserved by the existing bus network based on current and future travel demand analysis from the ATV Plan and these previous sections of this document:

- **Old Town - Columbia Pike.** Transit riders traveling between Old Town Alexandria and the dense Columbia Pike corridor in Arlington would be forced to make two transfers with the current bus network. Given the amount of residential and commercial density in both locations, there is a clear opportunity for a more convenient bus connection to serve the unmet demand.

- **Old Town – Ballston/Rosslyn.** Similar to Old Town and Columbia Pike, the transit connections between Old Town and the Ballston-Rosslyn corridor in Arlington County are inadequate with the current bus network in light of the amount of residential and commercial activities in both of those areas.

- **West Alexandria – Arlington.** Data suggests that additional connections between West Alexandria and Arlington would be warranted based on travel demand and demographics.

- **Potomac Yard – National Landing.** The origin-destination maps for external trips identify a missing link between Potomac Yard and South Alexandria or National Landing. This connection is partially served by Metroway between Crystal City and Potomac Yard, but additional bus routes could provide better connections to other parts of the area. *(Note – Arlington has proposed Route 85 in their recently adopted TSP that would address this need).*

- **Old Town – Fort Hunt/Mount Vernon.** The connections between Old Town and Eastern Fairfax County is not currently well served by existing bus routes. The Metrobus 11Y provides a peak direction service, and the Richmond Highway Express (REX) connects to King Street, but there is no useful, all-day bus connection from Old Town to Fort Hunt or Mount Vernon

- **Eisenhower Avenue (Carlyle/PTO).** The demographic maps for population and employment density, as well as the origin-destination maps, suggest that existing bus service along Eisenhower Avenue near Old Town may be inadequate for current and future travel demand.

- **Old Town – Old Town North.** The origin-destination maps show high demand for north-south travel within Old Town. While Lines 30 and 31 meet this demand in central Old Town, additional north-south service such as Line 34 may be needed for better connections between Old Town, Old Town North and Potomac Yard. This need is evident for both the weekday and weekend maps.

2.3 Performance Evaluation

This section assesses the existing performance of DASH's system based on the metrics and standards that were outlined in Chapter 1. DASH service was evaluated at both the system and route level where possible.

Opportunities for improvement are identified at the end of the subsection based on the results performance evaluation.

2.3.1 Performance Evaluation

The performance of DASH service was evaluated in terms of ridership, cost efficiency, safety, and system accessibility metrics. The results of this evaluation are discussed in the following sections.

More detailed route performance profiles are included in Appendix B.

Ridership

As noted in the first chapter, DASH and the City of Alexandria have made a policy decision in recent years that ridership is the most important metric by which the performance of the city's transit network should be assessed. Ridership also provides insight into the degree to which the DASH system is relevant and useful to the Alexandria community and the environmental, economic and traffic mitigation benefits that are being generated for the community at large by DASH usage.

Figure 2-24 provides a summary of monthly systemwide ridership in recent years. DASH ridership decreased to less than a third of typical ridership levels during the first six months of the COVID-19 pandemic in 2020 and drew well below 50% of typical ridership levels for all of FY 2021. In FY 2022, however, the introduction of the fare-free New DASH Network marked the beginning of a sharp upturn in monthly ridership levels that continued through FY 2022 and FY 2023. DASH became the first agency in the region to eclipse pre-pandemic ridership levels in April 2022 and set a new agency record for annual ridership with over 4.5 million boardings in FY 2023.

Figure 2-24 / DASH Systemwide Ridership by Month (FY17 – FY23)

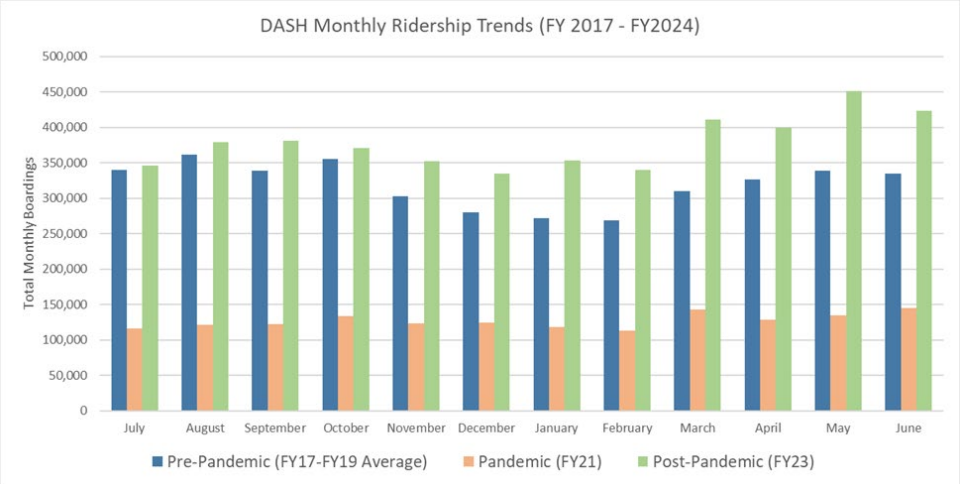


Figure 2-25 / DASH Post-COVID Systemwide Ridership & Service Levels by Month (FY21 – FY23)

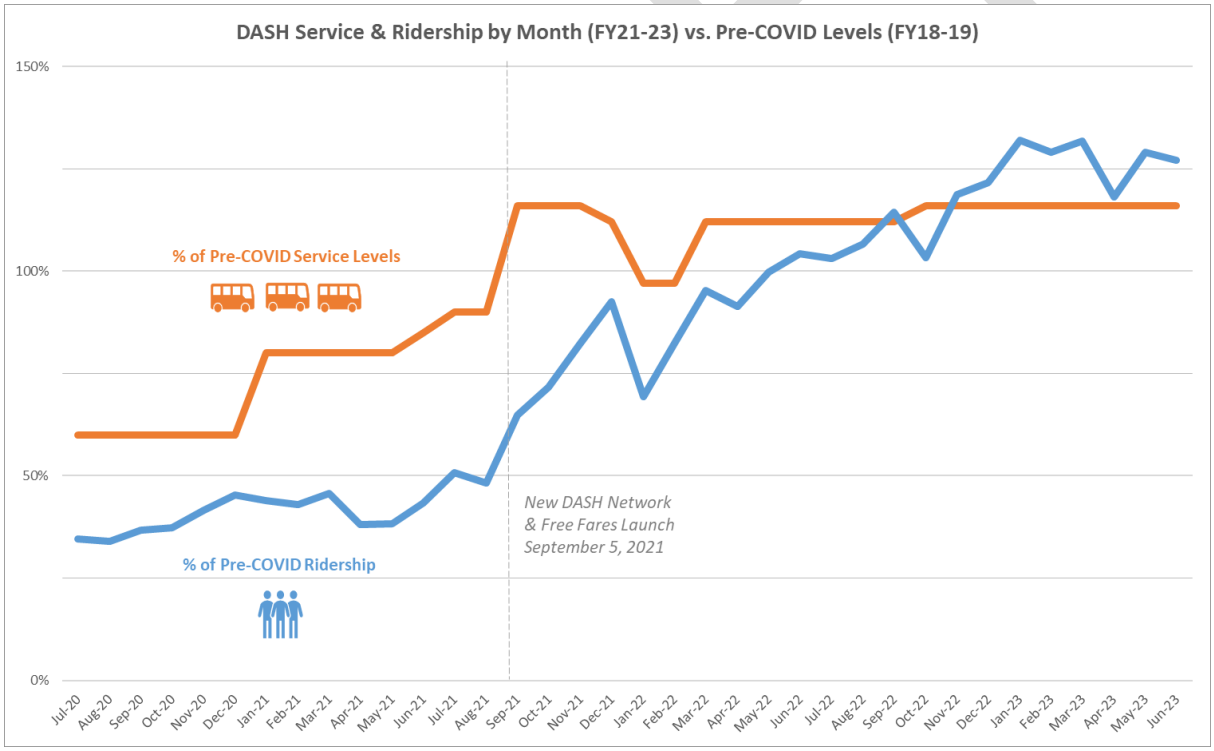
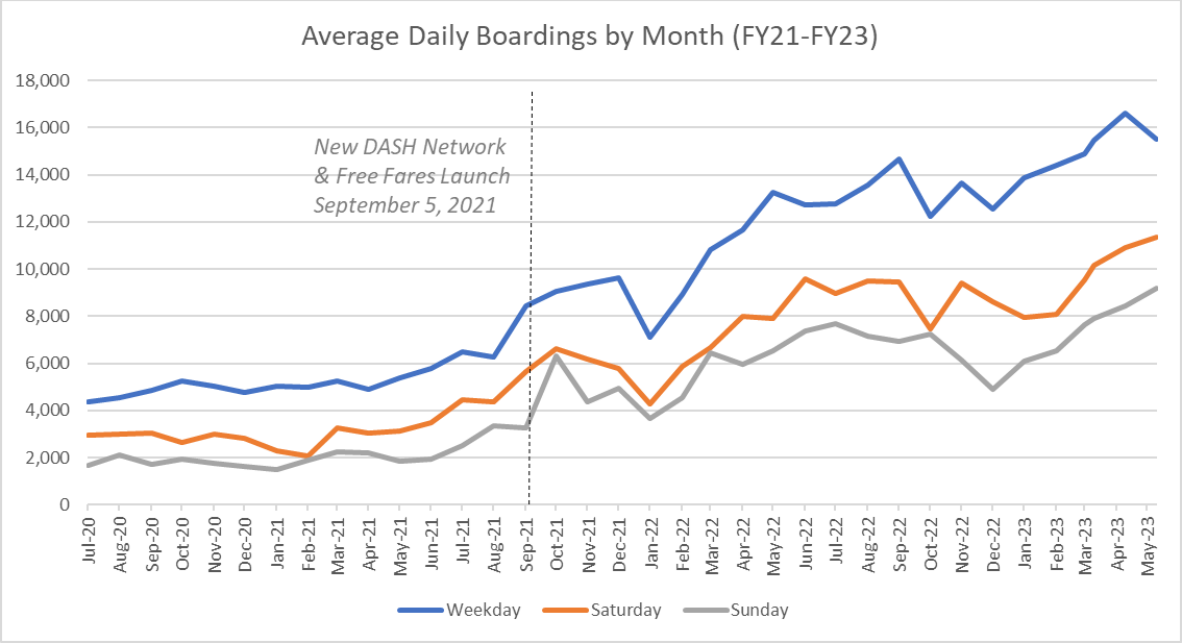


Figure 2-26 / DASH Average Daily Ridership by Day Type (FY2021 – FY2023)



Average daily boardings by route for weekdays, Saturdays, and Sundays in FY 2022 are shown in 2-27, 2-28, and 2-29, respectively. Routes with the highest weekday ridership are Lines 30, 31, 35 and 36A/B. The least productive weekday routes are Lines 34 and 104 which each drew less than five boardings per revenue hour. On weekends, Lines 30, 31, 35 and 36A/B maintain the highest ridership levels while Line 34 is the lowest.

Figure 2-27 / DASH Weekday Ridership by Route (FY 2022 vs. FY 2023)

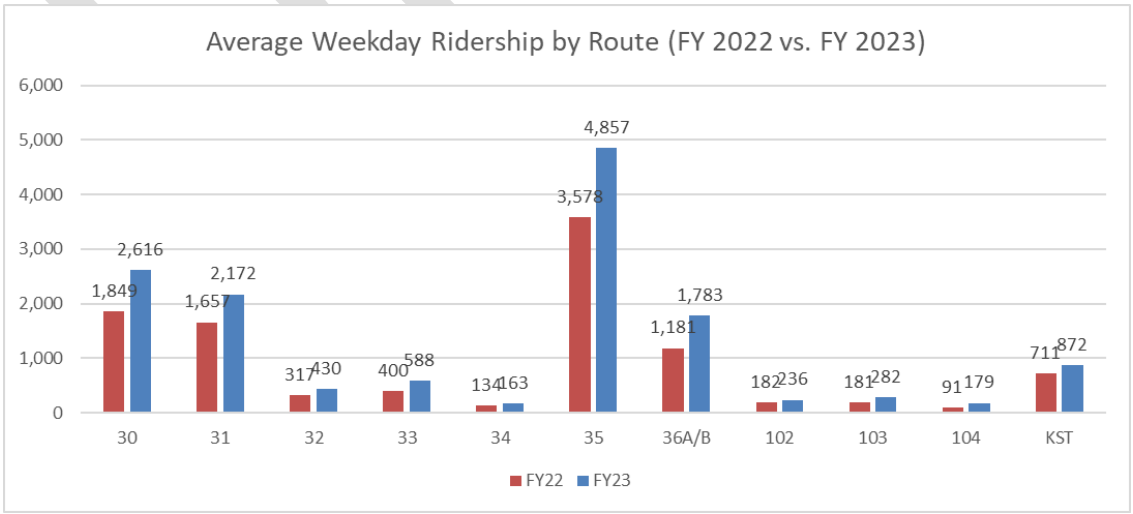


Figure 2-28 / DASH Saturday Ridership by Route (FY 2022 vs. FY 2023)

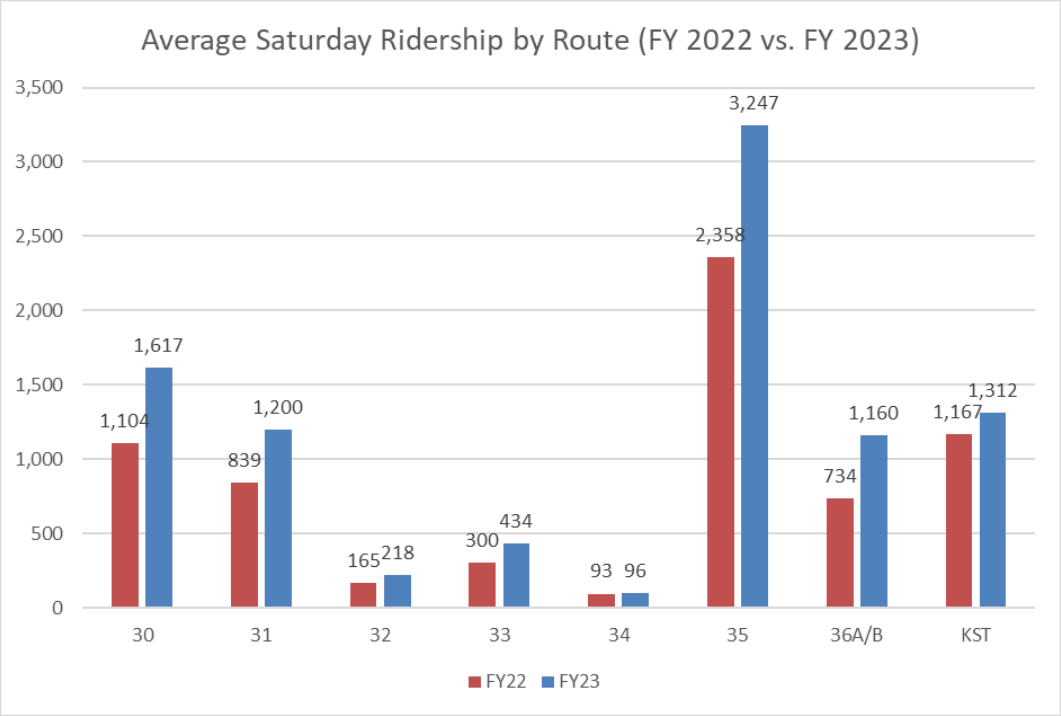
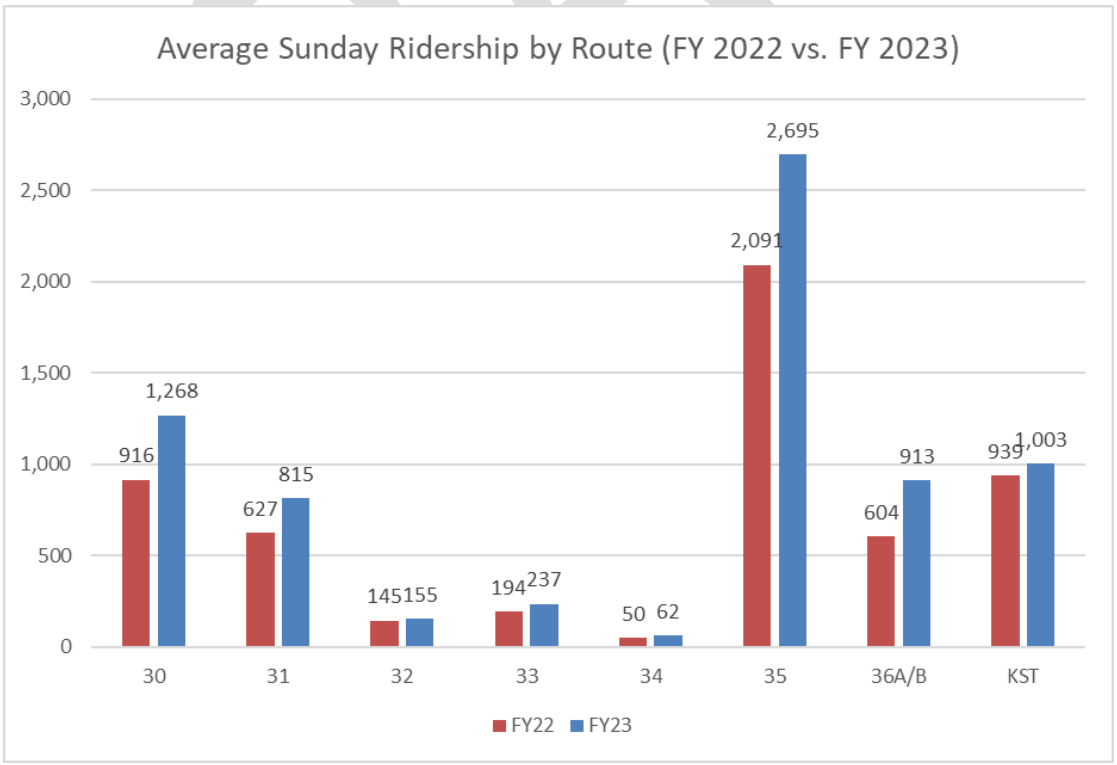


Figure 2-29 / DASH Sunday Ridership by Route (FY 2022 vs. FY 2023)



Cost Efficiency

Cost efficiency is typically used to measure service productivity or usage in comparison to costs and is therefore a direct byproduct of ridership.

In order to determine the cost efficiency of the system, ridership numbers must be compared to revenue hours or operating costs to determine how efficiently the system and its routes are operating. For DASH, this metric is typically expressed in boardings per revenue hour and cost per rider.

In FY 2023, the DASH bus system drew approximately 15.7 boardings per revenue hour. This was an increase of over 47% from the 10.7 boardings per revenue hours that were recorded in FY 2022. For weekdays, DASH drew 15.9 boardings per revenue hour, which exceeds the systemwide standard of 12 boardings per revenue hour. On weekends, DASH drew 16.5 and 13.5 boardings per revenue hour on Saturdays and Sundays, respectively, which also exceed the minimum standards of 10.0. DASH also exceeded its minimum standards for boardings per revenue mile in FY 2023 with 1.8 on weekdays and Saturdays and 1.4 on Sundays. A comprehensive summary of ridership efficiency by route and route category is provided in Table 2-11 and Table 2-12.

In FY 2023, the DASH bus system drew approximately 15.7 boardings per revenue hour. This was an increase of over 47% from the 10.7 boardings per revenue hours that were recorded in FY 2022. For weekdays, DASH drew 15.9 boardings per revenue hour, which exceeds the systemwide standard of 12 boardings per revenue hour. On weekends, DASH drew 16.5 and 13.5 boardings per revenue hour on Saturdays and Sundays, respectively, which also exceed the minimum standards of 10.0. DASH also exceeded its minimum standards for boardings per revenue mile in FY 2023 with 1.8 on weekdays and Saturdays and 1.4 on Sundays. A comprehensive summary of ridership efficiency by route and route category is provided in Table 2-11 and Table 2-12.

In terms of cost per rider, DASH was $7.51 per rider in FY 2023, which was 25 percent less expensive than the $9.99 per rider in FY 2022. The $7.51 per rider in FY 2023 is better than the minimum standard of $8.00 per rider. A comprehensive summary of cost efficiency by route and route category is provided in 2-13 and 2-14.

As shown in Table 2-11, Lines 30, 33, 35 and the King Street Trolley all recorded more than 15 boardings per revenue hour and represent some of the more productive DASH services. Routes operating below their respective ridership productivity include Lines 34, 36A/B, 102 and 104 on weekdays. On Saturdays, Lines 31, 32, 34 and 36A/B are below standards. For Sundays, Lines 31, 32, 34 and 36A/B are operating below expected levels of productivity.

Table 2-11 / Annual Ridership Productivity by Route (FY 2023)

Routes	30	31	32	33	34	35	36	102	103	104	Trolley	Total
WEEKDAY												
Passenger Boardings	660,241	590,024	108,600	148,153	41,259	1,225,397	449,647	59,191	70,955	45,013	220,686	**3,619,166**
Revenue Miles	335,225	338,344	109,896	64,110	74,117	599,825	313,122	69,718	67,330	59,499	35,546	**2,066,733**
Revenue Hours	36,053	41,724	10,658	8,283	9,343	63,366	32,243	6,832	5,125	4,622	9,122	**227,370**
Boardings Per Revenue Mile	2.0	1.7	1.0	2.3	0.6	2.0	1.4	0.8	1.1	0.8	6.2	1.8
BPRM Standard	*1.0*	*1.5*	*1.0*	*1.0*	*1.0*	*1.5*	*1.5*	*1.0*	*1.0*	*1.0*	*5.0*	***1.5***
Boardings Per Revenue Hour	18.3	14.1	10.2	17.9	4.4	19.3	13.9	8.7	13.8	9.7	24.2	**15.9**
BPRH Standard	*10.0*	*15.0*	*10.0*	*10.0*	*10.0*	*15.0*	*15.0*	*10.0*	*10.0*	*10.0*	*20.0*	***12.0***
SATURDAY												
Passenger Boardings	86,759	64,425	11,662	23,275	5,097	174,342	58,654	0	0	0	76,517	**500,731**
Revenue Miles	38,146	50,666	13,764	12,838	13,563	85,387	62,380	0	0	0	7,817	**284,561**
Revenue Hours	3,929	5,081	1,360	1,716	1,668	8,440	6,281	0	0	0	1,955	**30,429**
Boardings Per Revenue Mile	2.3	1.3	0.8	1.8	0.4	2.0	0.9	-	-	-	9.8	1.8
BPRM Standard	*1.0*	*1.5*	*1.0*	*1.0*	*1.0*	*1.5*	*1.5*	-	-	-	*5.0*	***1.0***
Boardings Per Revenue Hour	22.1	12.7	8.6	13.6	3.1	20.7	9.3	-	-	-	39.1	**16.5**
BPRH Standard	*8.0*	*10.0*	*8.0*	*8.0*	*8.0*	*10.0*	*10.0*	-	-	-	*20.0*	***10.0***
SUNDAY												
Passenger Boardings	74,387	50,953	9,124	13,917	3,647	158,427	51,999	0	0	0	58,509	**420,963**
Revenue Miles	41,882	52,210	15,013	7,749	7,938	93,189	68,063	0	0	0	8,492	**294,536**
Revenue Hours	4,355	5,120	1,500	1,029	949	9,211	6,839	0	0	0	2,136	**31,139**
Boardings Per Revenue Mile	1.8	1.0	0.6	1.8	0.5	1.7	0.8	-	-	-	6.9	1.4
BPRM Standard	*1.0*	*1.5*	*1.0*	*1.0*	*1.0*	*1.5*	*1.5*	-	-	-	*5.0*	***1.0***
Boardings Per Revenue Hour	17.1	10.0	6.1	13.5	3.8	17.2	7.6	-	-	-	27.4	**13.5**
BPRH Standard	*6.0*	*8.0*	*6.0*	*6.0*	*6.0*	*8.0*	*8.0*	-	-	-	*20.0*	***10.0***
TOTALS												
Passenger Boardings	821,387	705,402	129,386	185,345	50,003	1,558,166	560,300	59,191	70,955	45,013	355,712	**4,540,860**
Revenue Miles	415,254	441,221	138,673	84,696	95,617	778,400	443,565	69,718	67,330	59,499	51,856	**2,645,830**
Revenue Hours	44,337	51,924	13,518	11,028	11,959	81,018	45,363	6,832	5,125	4,622	13,213	**288,938**
Boardings Per Revenue Mile	2.0	1.6	0.9	2.2	0.5	2.0	1.3	0.8	1.1	0.8	6.9	**1.7**
Boardings Per Revenue Hour	18.5	13.6	9.6	16.8	4.2	19.2	12.4	8.7	13.8	9.7	26.9	**15.7**
BPRH Standard												

Note: Highlighted cells represent routes and days that are below performance standards.

Table 2-12 / Annual Ridership Performance by Route Category (FY 2023)

Route Categories	Frequent	Local	Commuter	Trolley	Total
WEEKDAY					
Passenger Boardings	2,265,068	958,253	175,159	220,686	**3,619,166**
Revenue Miles	1,251,291	583,349	196,547	35,546	**2,066,733**
Revenue Hours	137,333	64,336	16,579	9,122	**227,370**
Boardings Per Revenue Mile	1.8	1.6	0.9	6.2	**1.8**
BPRM Standard	*1.5*	*1.0*	*1.0*	*5.0*	***1.5***
Boardings Per Revenue Hour	16.5	14.9	10.6	24.2	**15.9**
BPRH Standard	*15.0*	*10.0*	*10.0*	*20.0*	***12.0***
SATURDAY					
Passenger Boardings	297,421	126,793	0	76,517	**500,731**
Revenue Miles	198,433	78,311	0	7,817	**284,561**
Revenue Hours	19,802	8,672	0	1,955	**30,429**
Boardings Per Revenue Mile	1.5	1.6	-	9.8	**1.8**
BPRM Standard	*1.5*	*1.0*	-	*5.0*	***1.0***
Boardings Per Revenue Hour	15.0	14.6	-	39.1	**16.5**
BPRH Standard	*10.0*	*8.0*	-	*20.0*	***10.0***
SUNDAY					
Passenger Boardings	261,379	101,075	0	58,509	**420,963**
Revenue Miles	213,463	72,581	0	8,492	**294,536**
Revenue Hours	21,170	7,833	0	2,136	**31,139**
Boardings Per Revenue Mile	1.2	1.4	-	6.9	**1.4**
BPRM Standard	*1.5*	*1.0*	-	*5.0*	***1.0***
Boardings Per Revenue Hour	12.3	12.9	-	27.4	**13.5**
BPRH Standard	*8.0*	*6.0*	-	*20.0*	***10.0***
TOTALS					
Passenger Boardings	2,823,868	1,186,121	175,159	355,712	**4,540,860**
Revenue Miles	1,663,186	734,241	196,547	51,856	**2,645,830**
Revenue Hours	178,305	80,842	16,579	13,213	**288,938**
Boardings Per Revenue Mile	1.7	1.6	0.9	6.9	**1.7**
Boardings Per Revenue Hour	15.8	14.7	10.6	26.9	**15.7**
BPRH Standard					

Note: Highlighted cells represent routes and days that are below performance standards.

Table 2-13 / Annual Cost Efficiency by Route (FY 2023)

Routes	30	31	32	33	34	35	36	102	103	104	Trolley	Total
WEEKDAY												
Passenger Boardings	660,241	590,024	108,600	148,153	41,259	1,225,397	449,647	59,191	70,955	45,013	220,686	**3,619,166**
Revenue Miles	335,225	338,344	109,896	64,110	74,117	599,825	313,122	69,718	67,330	59,499	35,546	**2,066,733**
Operating Cost	$4,254,227	$4,923,379	$1,257,593	$ 977,435	$1,102,432	$7,477,169	$3,804,694	$ 806,183	$ 604,758	$ 545,349	$1,076,443	**$ 26,829,662**
Cost Per Mile	$ 12.69	$ 14.55	$ 11.44	$ 15.25	$ 14.87	$ 12.47	$ 12.15	$ 11.56	$ 8.98	$ 9.17	$ 30.28	**$ 12.98**
Cost Per Rider	$ 6.44	$ 8.34	$ 11.58	$ 6.60	$ 26.72	$ 6.10	$ 8.46	$ 13.62	$ 8.52	$ 12.12	$ 4.88	**$ 7.41**
SATURDAY												
Passenger Boardings	86,759	64,425	11,662	23,275	5,097	174,342	58,654	0	0	0	76,517	**500,731**
Revenue Miles	38,146	50,666	13,764	12,838	13,563	85,387	62,380	0	0	0	7,817	**284,561**
Operating Cost	$ 463,582	$ 599,519	$ 160,530	$ 202,429	$ 196,766	$ 995,965	$ 741,162	$ -	$ -	$ -	$ 230,666	**$ 3,590,618**
Cost Per Mile	$ 12.15	$ 11.83	$ 11.66	$ 15.77	$ 14.51	$ 11.66	$ 11.88	$ -	$ -	$ -	$ 29.51	**$ 12.62**
Cost Per Rider	$ 5.34	$ 9.31	$ 13.77	$ 8.70	$ 38.60	$ 5.71	$ 12.64	$ -	$ -	$ -	$ 3.01	**$ 7.17**
SUNDAY												
Passenger Boardings	74,387	50,953	9,124	13,917	3,647	158,427	51,999	0	0	0	58,509	**420,963**
Revenue Miles	41,882	52,210	15,013	7,749	7,938	93,189	68,063	0	0	0	8,492	**294,536**
Operating Cost	$ 513,937	$ 604,101	$ 177,006	$ 121,441	$ 111,958	$1,086,938	$ 807,008	$ -	$ -	$ -	$ 252,024	**$ 3,674,414**
Cost Per Mile	$ 12.27	$ 11.57	$ 11.79	$ 15.67	$ 14.10	$ 11.66	$ 11.86	$ -	$ -	$ -	$ 29.68	**$ 12.48**
Cost Per Rider	$ 6.91	$ 11.86	$ 19.40	$ 8.73	$ 30.70	$ 6.86	$ 15.52	$ -	$ -	$ -	$ 4.31	**$ 8.73**
TOTALS												
Passenger Boardings	821,387	705,402	129,386	185,345	50,003	1,558,166	560,300	59,191	70,955	45,013	355,712	**4,540,860**
Revenue Miles	415,254	441,221	138,673	84,696	95,617	778,400	443,565	69,718	67,330	59,499	51,856	**2,645,830**
Operating Cost	$5,231,746	$6,126,999	$1,595,129	$1,301,305	$1,411,156	$9,560,072	$5,352,864	$ 806,183	$ 604,758	$ 545,349	$1,559,134	**$ 34,094,695**
Cost Per Mile	$ 12.60	$ 13.89	$ 11.50	$ 15.36	$ 14.76	$ 12.28	$ 12.07	$ -	$ -	$ -	$ 30.07	**$ 12.89**
Cost Per Rider	$ 6.37	$ 8.69	$ 12.33	$ 7.02	$ 28.22	$ 6.14	$ 9.55	$ -	$ -	$ -	$ 4.38	**$ 7.51**

Table 2-14 / Annual Cost Efficiency by Route Category (FY 2023)

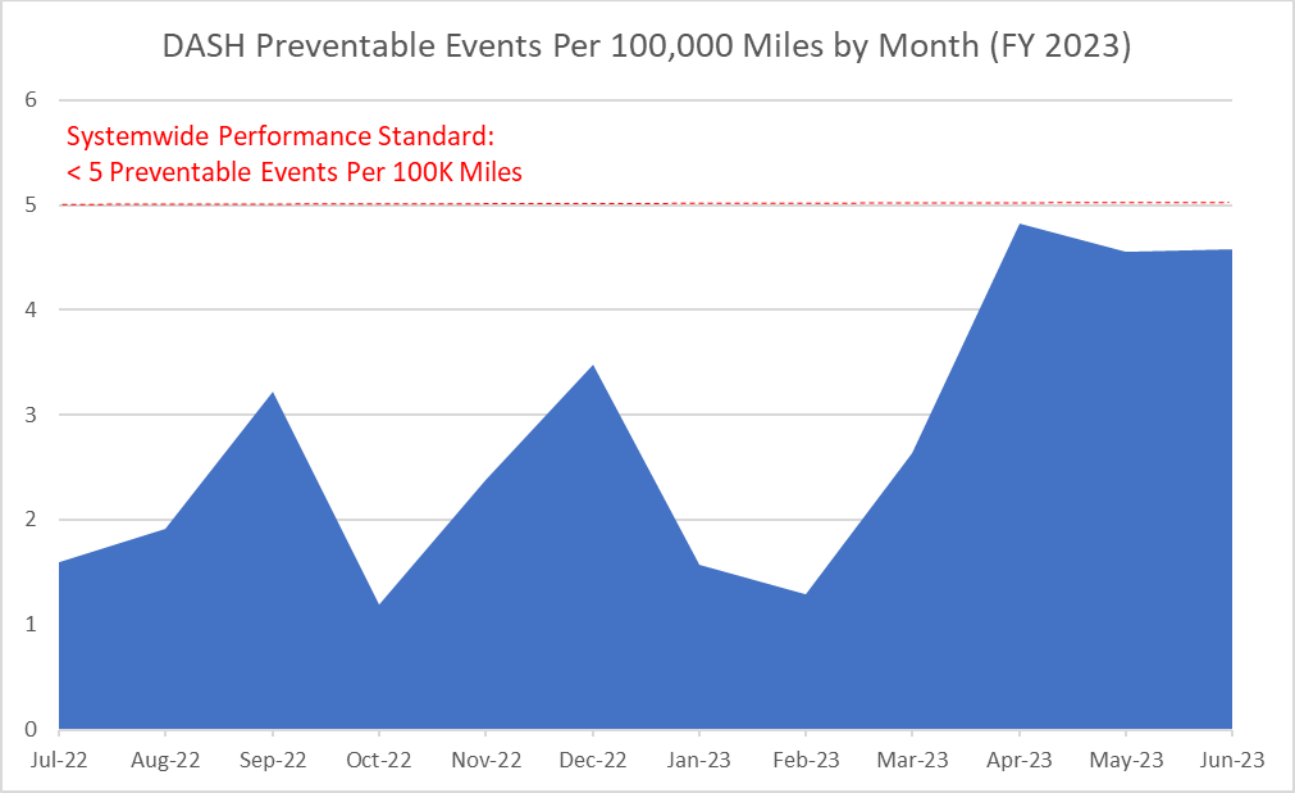
Route Categories	Frequent	Local	Commuter	Trolley	Total
WEEKDAY					
Passenger Boardings	2,265,068	958,253	175,159	220,686	**3,619,166**
Revenue Miles	1,251,291	583,349	196,547	35,546	**2,066,733**
Operating Cost	$ 16,205,242	$ 7,591,687	$ 1,956,290	$ 1,076,443	**$ 26,829,662**
Cost Per Mile	$ 12.95	$ 13.01	$ 9.95	$ 30.28	**$ 12.98**
Cost Per Rider	$ 7.15	$ 7.92	$ 11.17	$ 4.88	**$ 7.41**
SATURDAY					
Passenger Boardings	297,421	126,793	0	76,517	**500,731**
Revenue Miles	198,433	78,311	0	7,817	**284,561**
Operating Cost	$ 2,336,645	$ 1,023,307	$ -	$ 230,666	**$ 3,590,618**
Cost Per Mile	$ 11.78	$ 13.07	$ -	$ 29.51	**$ 12.62**
Cost Per Rider	$ 7.86	$ 8.07	$ -	$ 3.01	**$ 7.17**
SUNDAY					
Passenger Boardings	261,379	101,075	0	58,509	**420,963**
Revenue Miles	213,463	72,581	0	8,492	**294,536**
Operating Cost	$ 2,498,047	$ 924,342	$ -	$ 252,024	**$ 3,674,414**
Cost Per Mile	$ 11.70	$ 12.74	$ -	$ 29.68	**$ 12.48**
Cost Per Rider	$ 9.56	$ 9.15	$ -	$ 4.31	**$ 8.73**
TOTALS					
Passenger Boardings	2,823,868	1,186,121	175,159	355,712	**4,540,860**
Revenue Miles	1,663,186	734,241	196,547	51,856	**2,645,830**
Operating Cost	$ 21,039,935	$ 9,539,336	$ 1,956,290	$ 1,559,134	**$ 34,094,695**
Cost Per Mile	$ 12.65	$ 12.99	$ 9.95	$ 30.07	**$ 12.89**
Cost Per Rider	$ 7.45	$ 8.04	$ 11.17	$ 4.38	**$ 7.51**

Safety

Safety is the top priority in public transit and DASH prides itself on an exceptional safety record. In FY 2023, DASH recorded 2.8 preventable events for 100,000 miles travelled, which was below the systemwide performance standard of 5 preventable events for 100,000 platform miles. It did represent an increase from the 1.8 preventable events per 100,000 miles that were recorded in FY 2022. Figure 2-30 shows data on preventable events for each month in FY 2023.

Additional safety and security data for DASH and the City of Alexandria is available through monthly and annual reporting to the National Transit Database (https://www.transit.dot.gov/ntd).

Figure 2-30 / DASH Preventable Events Per 100,000 Miles by Month (FY 2023)



System Accessibility

System accessibility is a key metric for ensuring that DASH services – especially frequent, all-day routes - are being distributed to places where more people can use it. Table 2-15 summarizes the residents and jobs who are located within ¼ mile of various levels of DASH service.

Table 2-15 / DASH Accessibility for Residents and Jobs

	% within 1/4 mile of FREQUENT, ALL DAY bus service	% within 1/4 mile of ANY bus service
All Residents	73%	95%
Low Income	81%	96%
Minority	78%	96%
Seniors (65 years+)	69%	94%
Jobs	73%	95%

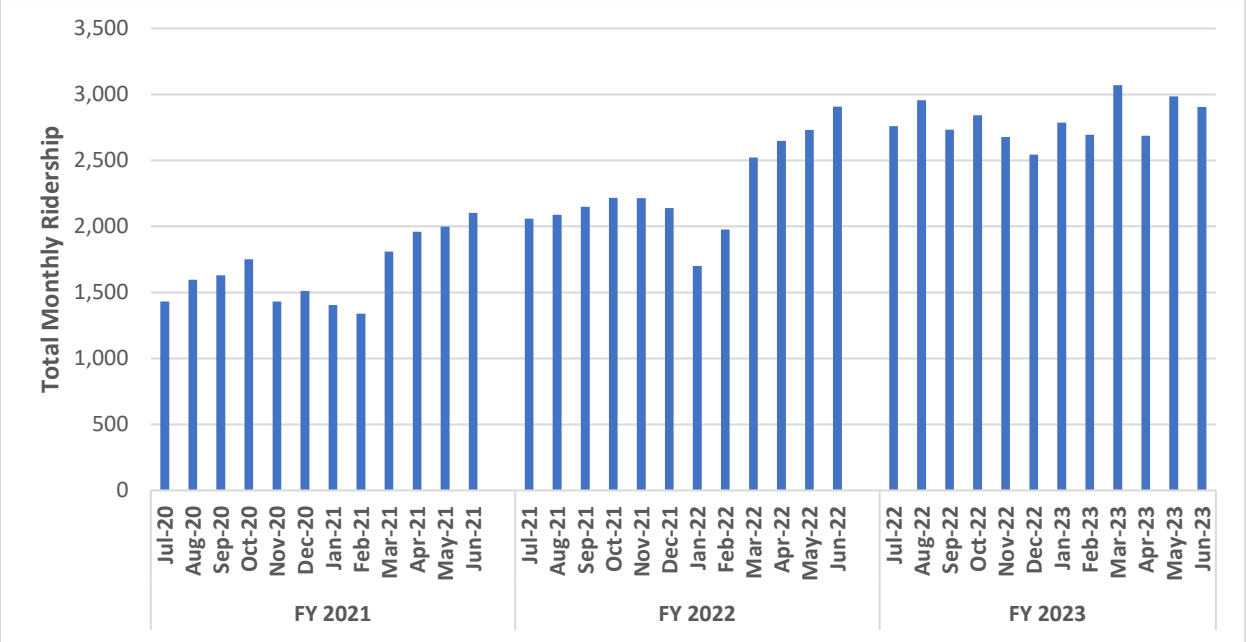
Source: DASH 2023 service-level data; 2020 U.S. Census.

Bus Fleet

DASH vehicle fleet policies and the latest Fleet Replacement Plan are provided in Chapter 4.

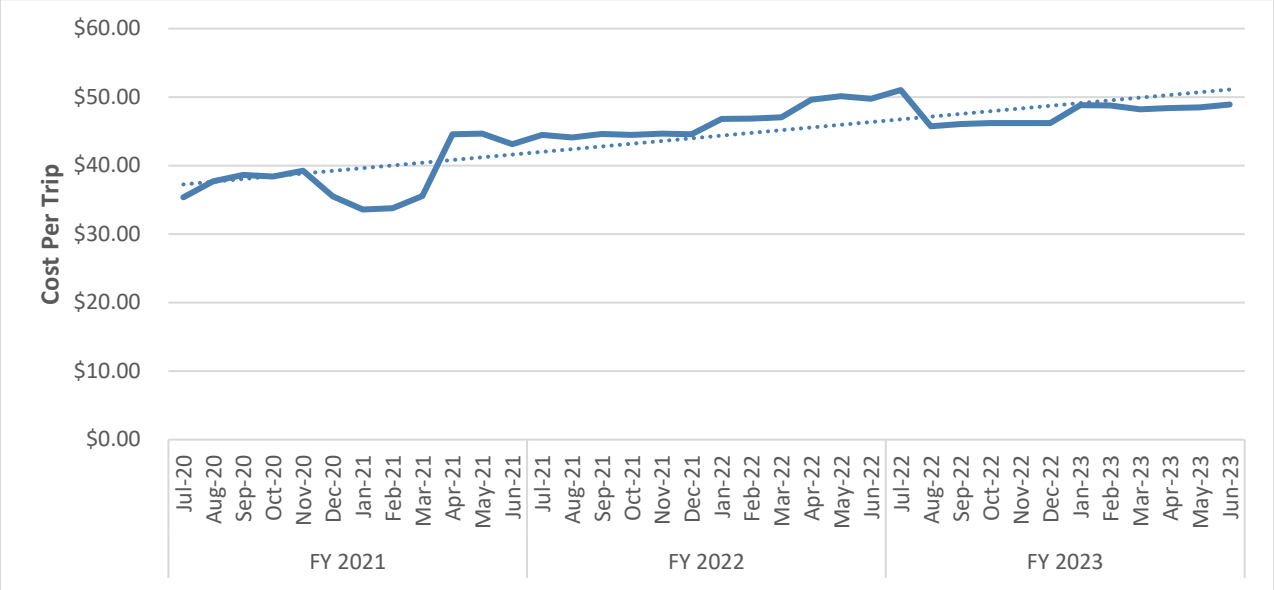
Alexandria's DOT paratransit service served 33,635 trips in FY 2023, which represents an increase over the 27,350 trips served in FY 2022. Note that the 33,635 trips served in FY 2023 in the graph differs from NTD reported data that shows 39,245 total trips in FY 2023, as the NTD data also includes 'no show' trips. As shown in Figure 2-31**,** ridership has grown steadily year over year during the recent three-year period.

Figure 2-31 / Alexandria DOT Paratransit Ridership by Month (Last Three Fiscal Years)



Another indicator of DOT's performance, cost per trip, shows a general increasing trend over the last three fiscal years as well in Figure 2-31. Overall, per trip costs increased from under $40/trip to over $50/trip during the three-year period. This increasing trend can help be explained by the fact that a previous taxicab company partner left the DOT program during this time.

Figure 2-32 / Alexandria DOT Paratransit Cost Per Trip by Month (Last Three Fiscal Years)



2.3.2 Performance-Based Opportunities for Improvement

Based on the performance evaluations outlined in the previous subsections, the DASH bus network is performing extremely well in terms of overall ridership, cost efficiency. Safety and accessibility. All current DASH system-wide standards in these categories are being met or exceeded.
At the route-level, there are several DASH routes that are not currently meeting the minimum standard for boardings per revenue hour:

- **Line 31 (NVCC Alexandria – Braddock Road Metro).** This route is currently falling slightly below minimum ridership productivity standards for boardings per mile on weekends. Additional weekend service improvements are included in Chapter 3 that could improve ridership productivity on this route.

- **Line 32 (Landmark Transit Center – King Street Metro).** This route is not currently falling slightly below minimum ridership productivity standards on weekends. Additional weekend improvements are included in Chapter 3 that would bring the service headways up to the standard and improve ridership productivity on this route.

- **Line 34 (Potomac Yard – Lee Center).** This route is currently falling below ridership productivity standards for weekdays, Saturdays and Sundays. Several recent route alignment changes and the new connection to the Potomac Yard-VT Metrorail station are expected to increase ridership over the next few years, and DASH is seeking to increase Sunday service on this route to run every 30 minutes.

- **Line 36 (Mark Center – Potomac Yard)**. This route is current falling below ridership standards during weekdays, Saturdays and Sundays, but the opening of the Potomac Yard-VT Metrorail

Station and continued development at Potomac Yard are expected to result in significant ridership increases for this route.

- **Line 102 (Mark Center – King Street Metro).** This route is currently not meeting ridership standards during weekday peak periods.

- **Line 104 (Braddock Road Metro – Pentagon Metro).** This route is currently not meeting ridership standards during weekday peak periods. Additional weekday service improvements are included in Chapter 3 that could improve ridership productivity on this route.

2.4 Operating and Network Efficiency Evaluation

This section evaluates the operating efficiency of the DASH network using available data. Operating and network efficiency were primarily evaluated based on the standards for headways, passenger loads, on-time performance and missed trips that were identified in Chapter 1.

Frequency & Span

Service frequency is the most important factor in service usefulness with routes that operate every 15 minutes or better providing the highest level of convenience and generally higher ridership levels (see Table 2-16. DASH service frequencies, or headways, vary by the type of route, with DASH carrying frequent, local, commuter, and trolley service, as outlined in Chapters 1 & 2.

Operating hours, or span, is another important service characteristic that determines the usefulness of transit service. DASH has not identified specific design standards.

Table 2-16 / Frequency Evaluation

Route Category	Route	Weekday			Saturday		Saturday	
		Span	Headways (Peak)	Headways (Off-Peak)	Span	Headways	Span	Headways
Frequent	31	5:00am - 12:30am	10	15	6:00am - 12:00am	15/30	6:00am - 12:00am	15/30
Frequent	35	4:00am - 1:00am	10	10	6:00am - 12:30am	15	6:00a - 11:30p	15
Frequent	36A/B	6:00a - 11:00p	15	15	7:00a - 10:30p	15	7:00a - 10:30p	15
Headway Standard		-	*15*	*15*	-	*15*	-	*15*
Local	30	5:00am - 12:00am	10/20	30	6:00am - 11:30pm	30	6:00a - 11:30p	30
Local	32	5:00am - 10:00pm	30	60	7:00am - 10:00pm	60	7:00am - 10:00pm	60
Local	33	6:00am - 10:00pm	30	30	7:00am - 10:00pm	30	7:00am - 10:00pm	30
Local	34	5:00am - 10:00pm	30	30	6:30am - 10:00pm	30	7:00a - 10:00p	60
Headway Standard		-	*30*	*30*	-	*30*	-	*30*
Commuter	102	5:00a-8:00p	30	60	-	-	-	-
Commuter	103	6:00a - 8:00p	30	-	-	-	-	-
Commuter	104	6:15a - 8:15p	30	-	-	-	-	-
Headway Standard		-	*30*	-	-	-	-	-
Trolley	KST	11:00am - 11:00pm	15	15	11:00am - 11:00pm	15	11:00am - 11:00pm	15
Headway Standard		-	*15*	*15*	-	*15*	-	*15*

Note: Highlighted cells represent routes and days that are below performance standards.

Passenger Loads

Passenger load data can be used to further determine if existing service levels are commensurate with ridership demand or if additional trips are needed. Passenger load data also helps to inform short-term decisions made by the Dispatch controllers for vehicle deployment based on passenger capacities as well as long-term decision on future vehicle procurements.

The DASH ITS Team is still working validate the automated passenger counter (APC) equipment that tracks ridership and passenger load data on each bus, but has not yet received NTD certification. Accordingly, this data is not currently available but will be included with the FY 2026 update.

Reliability

Reliability is one of the most important metrics by which riders measure a transit service. If the service is not reliable, then riders may feel compelled to turn to other modes, like driving or ride-hailing. 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. DASH typically uses on-time performance and missed trips as metrics by which its service reliability may be evaluated.

The most common indicator for service reliability is on-time performance (OTP), which measures the percentage of times that buses are arriving at timepoints no more than one minute early and no more than five minutes late. The DASH standard for on-time performance is 85 percent, based on previous data and industry standards.

In FY 2023, approximately 84 percent of all DASH weekday trips arrived on time, which was down by two percent from FY 2022. On weekends, DASH trips arrived on time 83 percent of the time on Saturdays and 87 percent of the time on Sundays. These values were also down slightly from FY 2022. A summary of on-time performance by route, day and time period is included as Table 2-17. All routes and time periods that fall below the 85 percent standard are highlighted.

Missed trips are another metric by which DASH measures its reliability. Missed trips typically occur due to operator staffing shortages, equipment failures, or traffic congestion. In FY 2023, DASH missed just over 200 trips out of nearly 338,000 total revenue trips that were completed. This represents a missed trip percentage of 0.06 percent, which is an increase from the 0.04 percent in FY 2022 and well above the standard of 0.02 percent. The increase is due in large part to operator staffing shortages, which have been addressed in the last six months, and vehicle reliability.

Table 2-17 / DASH On-Time Performance by Route, Day and Time Period

Route	Weekday			Saturday	Sunday
	AM Peak	Midday	PM Peak		
30	91.6%	73.0%	73.7%	75.4%	85.8%
31	87.4%	83.3%	80.7%	75.3%	80.9%
32	94.6%	93.5%	90.8%	93.5%	95.3%
33	89.1%	89.3%	81.5%	89.3%	90.6%
34	91.7%	91.2%	89.3%	86.4%	90.8%
35	86.0%	87.4%	84.2%	85.1%	90.7%
36A/B	82.0%	86.6%	70.6%	84.6%	87.9%
102	89.6%	89.2%	85.4%	-	-
103	82.5%	86.5%	88.0%	-	-
104	78.3%	87.8%	87.6%	-	-
Trolley	-	84.7%	83.5%	84.8%	86.5%
System	**87.5%**	**85.8%**	**81.5%**	**83.0%**	**87.4%**

Note: Highlighted cells represent routes and days that are below performance standards.

Speed

Fixed-route speed data for DASH routes is not currently available. DASH is working with several vendors to deploy a business analytics platform that will collect and analyze speed and reliability data.

2.4.2 Efficiency Based Opportunities for Improvement

The results of the efficiency analysis indicate that there are several potential opportunities to improve the DASH network.

In terms of headways, additional off-peak and weekend improvements are needed on Lines 32 and 34 to meet the minimum headways standard of 30 minutes for local routes. Line 32 only operates every 60 minutes during middays, evenings and weekends. Line 34 runs every 30 minutes on weekdays and Saturdays but only runs hourly on Sundays. Both of these improvements are included as top priorities for service improvements in FY 2025.

For service reliability, there are several routes that are operating below the 85 percent standard for on-time performance. Based on this metric, Lines 30 and 31 is the least reliable routes, especially during weekday afternoons and weekends. This is likely due to traffic congestion in Old Town and on Duke Street near Telegraph Road. Line 36A/B is also particularly low during the afternoon peak period.

Lastly, the missed trip percentage in FY 2023 did not meet the agency standard of 0.02 percent. DASH Planning, Operations and Maintenance staff have identified this as an area of concern and is working to identify causes to address in FY 2025. Staff has identified a recent operator staffing shortage as a contributing factor, however, DASH has since returned to near full operator staffing levels.

2.5 Analysis of Opportunities to Collaborate with Other Transit Providers

2.5.1 Collaboration Analysis

The DASH bus network in Alexandria is designed to supplement the regional transit network for local travel within the city as well as to provide connections to regional transit hubs and other transit providers.

Regional operators that provide service to/from Alexandria include:

Metrorail (WMATA)

Metrorail operates heavy rail service to 91 stations throughout the Washington, DC region, and typically carries over 180 million passengers per year. 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. These four stations typically draw about 40 million passenger boardings per year. DASH also provides service to the Pentagon Metro Station in Arlington County. The newest Potomac Yard Metrorail Station – an in-fill station in northern Alexandria on Potomac Avenue – opened in 2023.

Metrobus (WMATA)

In addition to Metrorail, WMATA also operates a regional bus network that typically carries over 130 million passengers per year. Metrobus runs 18 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. Annual Metrobus ridership in Alexandria is typically around 17 million boardings per year.

Amtrak / Virginia Railway Express (VRE)

Intercity and commuter rail services such as Amtrak and VRE stop at Alexandria Union Station, before crossing the Potomac River into Washington, DC. VRE typically carries up to 5 million passengers per year.

Fairfax Connector

Fairfax County operates a regional bus system of 93 lines that provides service across the Northern Virginia Region. Fairfax Connector connects residents in Fairfax County with the City of Alexandria at the Van Dorn Metrorail Station and Mark Center Transit Center.

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 Services

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

2.5.2 Collaboration Based Opportunities for Improvement

Due to the overlapping nature of regional transit services in Alexandria, close coordination will need to continue. Some of the specific topics that merit discussion will include:

- Determining how service within Alexandria will be divided between WMATA and DASH.
- Allocation of bus bays and other infrastructure at transfer centers.
- Potential for DASH-operated service outside of Alexandria borders.
- Other planned changes to WMATA or Arlington routes that may affect service in Alexandria.
- Coordination with the recently completed Better Bus Network which provides a strategy and recommendations to create a better bus system throughout the region.

Chapter 3

Planned Improvements & Modifications

ALEXANDRIA TRANSIT COMPANY
DASH

Chapter 3.0 / Planned Improvements and Modifications

The following section provides recommendations for future DASH service changes and fare adjustments over the next 10 years. These recommendations are based on the Alexandria Transit Vision Plan, staff analyses, and guidance from the General Manager and ATC Board of Directors. The performance evaluations from Chapter 2 have also informed many of these recommendations.

Section 3.1 provides a list of all of the service improvements that have been identified for the next decade, while Section 3.2 outlines the prioritization and timelines by which they might be implemented. It should be noted that specific operating funding sources for the improvements outlined below have not yet been identified, so they are all classified as "unfunded" at this time. DASH will be working with the City's Office of Management & Budget and City Council to advocate for the service improvements outlined below to be included in the city's annual budget each year.

3.1 / Planned Service Improvements (FY 2025 – FY 2034)

A summary of the proposed service improvements by route is included below in Table 3-1. Each of these "unfunded" improvements are summarized in greater detail in the pages that follow.

A route-by-route summary of the proposed service improvements and modifications are provided below. Cost information provided below is shown in FY 2025 dollars, but none of the improvements listed below have a secured funding source.

Table 3-1 / DASH Service Improvements by Route (FY 2025 – FY 2034)

Line	Proposed Service Change	Relevant Policy, Goal or Standard
30	Increase off-peak and weekend headways from 30 minutes to 15 minutes for the entire route (Van Dorn Metro to Braddock Road Metro via Duke Street and Old Town) to meet headway standard for "Frequent" routes; Increase weekday peak headways from 30 minutes to 10 minutes for western route segment (Landmark Transit Center - Van Dorn Metro).	ATV, Headway Standard
31	Increase off-peak and weekend headways on the Old Town segment (King St. Metro - Braddock Rd. Metro) from 30 minutes to 15 minutes; Extend route to Baileys Crossroads for better connections to Columbia Pike corridor.	ATV, Ridership Standard, Headway Standard, Underserved Area
32	Increase off-peak and weekend headways from every 60 minutes to every 30 minutes for the entire route (Landmark Transit Center - King St. Metro via Eisenhower Ave.); subsequently improve weekday and weekend headways from 30 minutes to 15 minutes between Van Dorn Metro and King Street Metro to meet headway standard for "Frequent" routes and realign to John Carlyle Street.	ATV, Ridership Standard, Headway Standard, Underserved Area
33	No additional improvements planned.	-
34	Increase Sunday headways from every 60 minutes to every 30 minutes for the entire route (Potomac Yard - Lee Center via Old Town)	ATV, Ridership Standard, Headway Standard, Underserved Area
35	No additional improvements planned; Route and/or service levels likely to be modified as part of West End Transitway Operating Plan development.	-
36A	No additional improvements planned; Route and/or service levels likely to be modified as part of West End Transitway Operating Plan development.	-
36B	No additional improvements planned; Route and/or service levels likely to be modified as part of West End Transitway Operating Plan development.	-
102	Increase weekday midday headways from every 60 minutes to every 30 minutes.	ATV
103	Increase weekday peak headways from every 30 minutes to every 20 minutes for the entire route (Braddock Road Metro - Pentagon Metro via Parkfairfax).	ATV
104	Increase weekday peak headways from every 30 minutes to every 20 minutes for the entire route (Braddock Road Metro - Pentagon Metro via Parkfairfax).	ATV, Ridership Standard
King Street Trolley	Extend routing from King Street Metro to Eisenhower Metro and move service starting time up from 11:00 AM to 6:00 AM on weekdays and weekends.	ATV, Underserved Area

Line 30 / Van Dorn Metro – Braddock Road Metro via Eisenhower Avenue

DASH is proposing two improvements for Line 30: (1) to increase headways during weekday middays, evenings and weekends from every 30 minutes to every 15 minutes; and (2) to increase weekday peak headways between Landmark Transit Center and Van Dorn Metro from every 20 minutes to every 10 minutes.

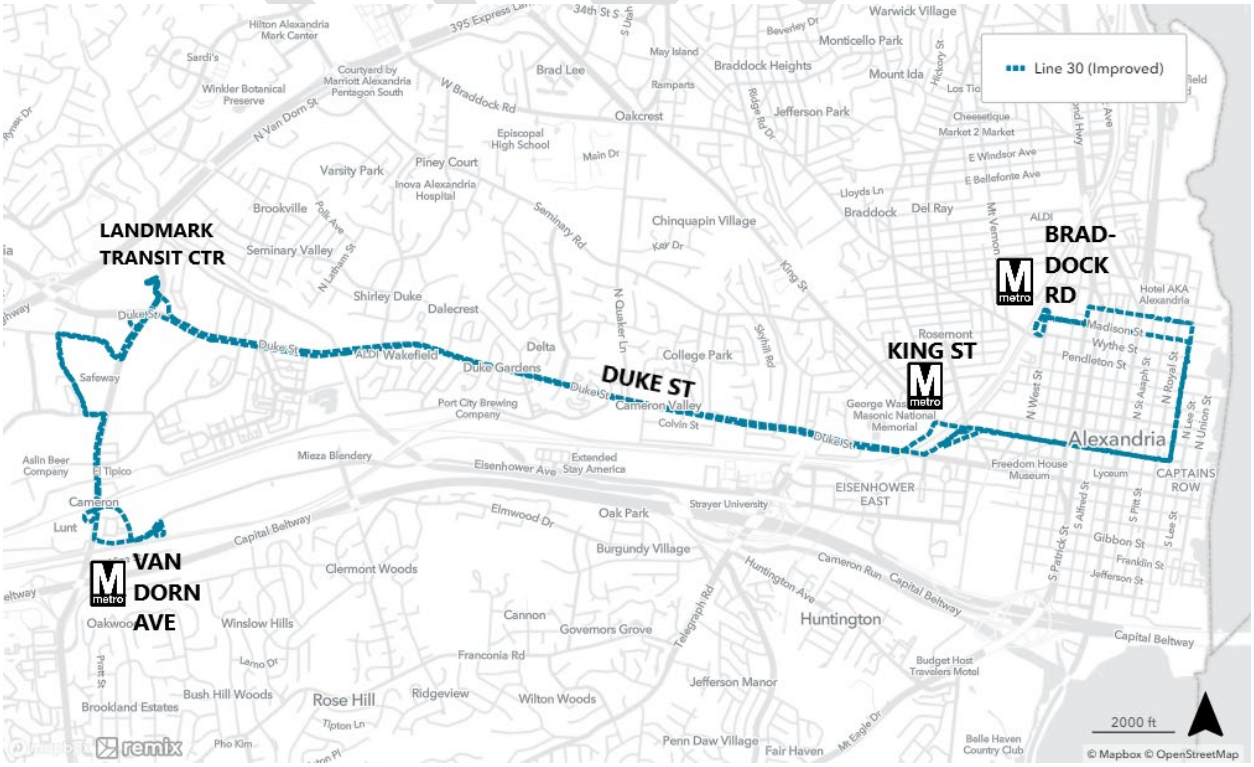
Net Annual Plat. Hours	Net Annual Cost	Net Annual Ridership	Net Peak Vehicles
+18,000	+$2,520,000	+239,000	+2

Plans, Opportunities, Needs or Standards Addressed by Above Change:
ATV Plan, Access to Frequent Service, Headway Standard

Line 30 is an east-west route that provides an important connection from West Alexandria to Old Town Alexandria via the Duke Street corridor. It is classified as a local route with 30-minute headways during off-peaks and weekends. It operates between Van Dorn Metro and Braddock Road Metro via South Van Dorn Street, Landmark Transit Center, Duke Street, King Street Metro and Old Town.

DASH is proposing to improve service frequency on Line 30 during off-peaks and weekends from every 30 minutes to every 15 minutes. This improvement would bring Line 30 headways up to the 15-minute standard of a "frequent" route classification and would serve to further build up ridership demand in the future Duke Street Bus Rapid Transit (BRT) corridor.

Figure 3-1 / Proposed Line 30 Improvements (UNFUNDED)



Line 31 / NVCC Alexandria – Braddock Road Metro via King Street

DASH is proposing two improvements to Line 31: (1) to increase headways between King Street Metro and Braddock Road Metro during weekday middays, evenings and weekends from every 30 minutes to every 15 minutes; and (2) to extend the route from NVCC-Alexandria to Skyline Towers.

Net Annual Plat. Hours	Net Annual Cost	Net Annual Ridership	Net Peak Vehicles
+28,000	+$3,920,000	+205,000	+3

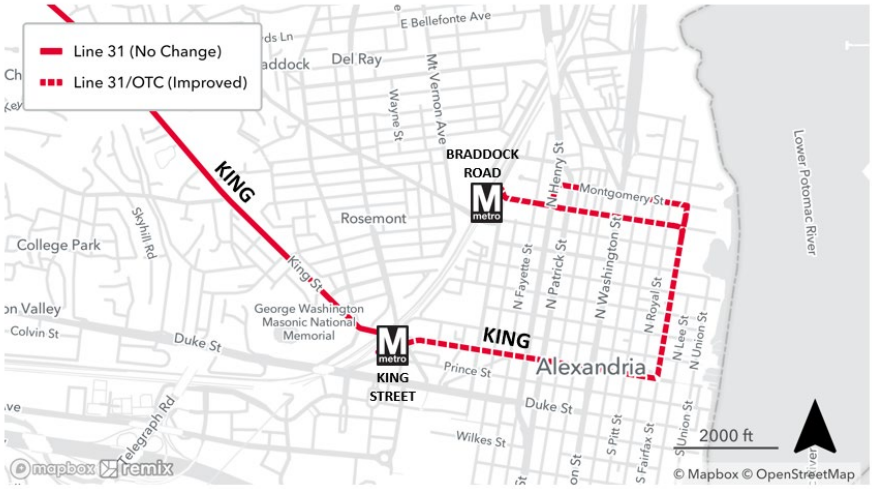
Plans, Opportunities, Needs or Standards Addressed by Above Change:
ATV Plan, Ridership Standard, Headway Standard, Underserved Area

Line 31 runs east-west from NVCC-Alexandria to Braddock Road Metro via King Street and Old Town, as shown in Figure 3-2. This route is another critical east-west connection between West Alexandria, Central Alexandria and Old Town.

DASH proposes to improve extend all off-peak Line 31 trips from King Street Metro to Braddock Road Metro via City Hall to enhance the Old Town Circulator (OTC) service and provide better connectivity and more one-seat rides from West Alexandria into Old Town. Currently, Line 30 runs every 15 minutes during middays and weekends from NVCC to King Street Metro, but only every 30 minutes from the King Street Metro to Braddock Road Metro in Old Town. The proposed improvements would extend all off-peak Line 31 trips to Braddock Road Metro to provide trips every 10-15 minutes along the entire route for all trips, seven days per week.

In addition to the service improvements outlined above, DASH is also proposing to extend Line 31 from its current terminus at NVCC – Alexandria to Baileys Crossroads via Seminary Road, as recommended in the 2030 ATV Plan. This extension would provide better connectivity between Old Town Alexandria and Columbia Pike via Metrobus 16-series routes. This was a connection that was identified as underserved in Chapter 2.

Figure 3-2 / Proposed Line 31 Improvements (UNFUNDED)



Line 32 / Landmark Transit Center – King Street Metro via Eisenhower Avenue

DASH is proposing two improvements to Line 32: (1) to increase headways during weekday middays, evenings and weekends from every 60 minutes to every 30 minutes; and (2) to subsequently increase weekday and weekend headways from 30 minutes to every 15 minutes and shift the route alignment from Mill Road to John Carlyle Street.

Net Annual Plat. Hours	Net Annual Cost	Net Annual Ridership	Net Peak Vehicles
+13,000	+$1,820,000	+89,000	+2

Plans, Opportunities, Needs or Standards Addressed by Above Change:
ATV Plan, Ridership Standard, Headway Standard, Underserved Area

Line 32 runs east-west from Landmark Mall to King Street Metro via Eisenhower Avenue, as shown in Figure 3-3. The current service runs every 30 minutes during weekday peaks, but only once per hour during weekday middays, evenings, and weekends.

DASH proposes to add more trips on Line 32 so that it runs every 30 minutes, all-day, seven days per week. These improvements will provide more useful, consistent DASH service for communities along North Ripley Street, Holmes Run Parkway, South Pickett Street, and many of the new developments in the Eisenhower Valley and near the Eisenhower Metrorail Station. The improvement to off-peak and weekend service described above would also bring Line 32 up to the minimum 30-minute headway standard for local routes, which is currently does not meet.

In addition to the off-peak service enhancements outlined above, DASH is also proposing to improve weekday peak frequency on Line 32 from every 30 minutes to every 15 minutes between Van Dorn Metro and King Street Metro. This improvement will help to add more service to Eisenhower Avenue near Old Town, which has seen extensive development over the last decade to become a major epicenter for jobs and residents. By increasing Line 32 weekday peak service to 15 minutes, the City would be investing in the continued growth and development of this corridor, as envisioned by the 2030 ATV Plan.

Figure 3-3 / Proposed Line 32 Improvements (UNFUNDED)

Line 33 / Potomac Yard-VT Metro – King Street Metro via Mount Vernon Avenue

No additional improvements are planned for Line 33 at this time. Line 33 was the subject of service improvements in October 2023 in which Sunday service headways were improved from every 60 minutes to every 30 minutes.

Line 34 / Potomac Yard-VT Metro – Lee Center via City Hall

DASH is proposing to increase Line 34 headways on Sundays from every 60 minutes to every 30 minutes and to realign the route from Bashford Avenue through a new redevelopment in Old Town North.

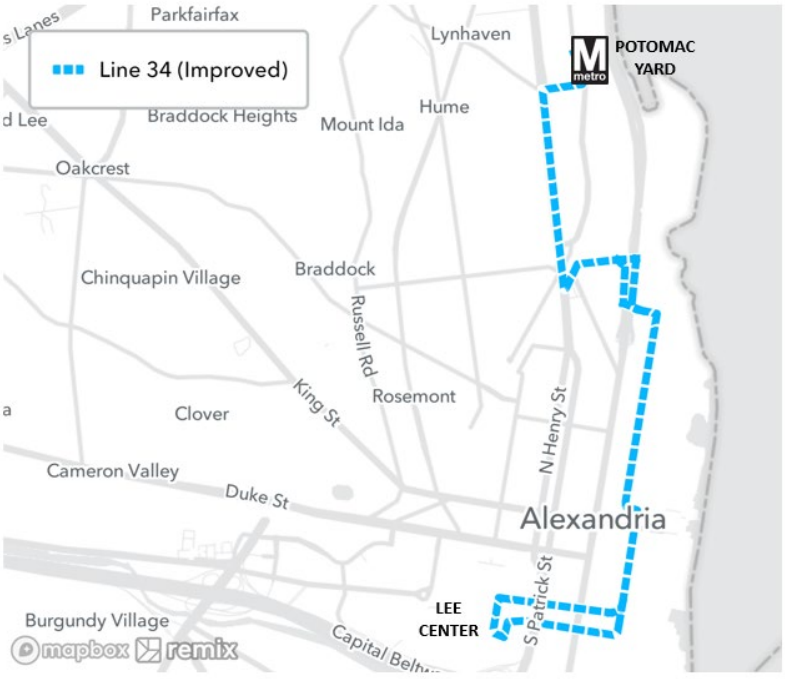
Net Annual Plat. Hours	Net Annual Cost	Net Annual Ridership	Net Peak Vehicles
+2,000	+$280,000	+12,000	+0

Plans, Opportunities, Needs or Standards Addressed by Above Change:
ATV Plan, Ridership Standard, Headway Standard, Underserved Area

Line 34 is a local DASH route that runs north-south between Old Town Alexandria and Potomac Yard, connecting Lee Center, City Hall/Markey Square, Old Town North and the Potomac Yard-VT Metro Station. It operates every 30 minutes on weekdays and Saturdays and every 60 minutes on Sundays. The route was recently realigned from North Fairfax Street to North Pitt Street and from the Braddock Road Metro to the new Potomac Yard-VT Metro station via the dedicated bus lanes on Richmond Highway.

DASH is proposing to improve Sunday service frequency from every 60 minutes to every 30 minutes to provide more useful service between Old Town and the new Potomac Yard-VT Metro station. The current Sunday service runs once per hour, which falls short of the weekday headway standards for a local DASH route and is insufficient for a bus route that connects to a new Metrorail station. This north-south connection in Old Town and Potomac Yard has also been identified as an underserved area, and Line 34 falls short of the ridership standard for local routes on both weekdays and weekends.

Figure 3-4 / Proposed Line 34 Improvements (UNFUNDED)



Line 35 / Van Dorn Metro – Pentagon via Beauregard Street.

No specific improvements have been identified for Line 35 at this time; however, Line 35 will likely be modified in concert with the implementation of the West End Transitway. Specific changes to route alignments and service levels will be identified through the ongoing development of the West End Transitway Operating Plan.

Line 36AB / Mark Center – Potomac Yard-VT Metro via Shirlington

No specific improvements have been identified for Line 36A/B at this time; however, Line 36A/B may be modified in concert with the implementation of the West End Transitway. Specific changes to route alignments and service levels will be identified through the ongoing development of the West End Transitway Operating Plan.

Line 102 / Mark Center – King Street Metro via Seminary Road

DASH is proposing to increase Line 102 headways on weekday middays from every 60 minutes to every 30 minutes.

Net Annual Plat. Hours	Net Annual Cost	Net Annual Ridership	Net Peak Vehicles
+2,000	+$280,000	+12,000	+0

Plans, Opportunities, Needs or Standards Addressed by Above Change:
ATV Plan

Line 102 is an east-west route that provides service along Seminary Road and Janneys Lane in Central Alexandria. It runs every 30 minutes during weekday peaks and every 60 minutes during middays from the Mark Center to the King Street Metro. Line 102 is the only "commuter" route that runs during weekday middays.

DASH is proposing to increase weekday midday headways to run once every 30 minutes instead of once per hour. This change would provide a benefit to customers traveling between King Street Metro and Mark Center, including patrons of the Alexandria Hospital and Virginia Theological Seminary. This service level increase was identified by the 2022 ATV Plan but was not implemented due to fiscal constraints.

Figure 3-5 / Proposed Line 102 Improvements

Line 103 / Braddock Road Metro – Pentagon via Parkfairfax

DASH is proposing to increase Line 103 headways during weekday peak hours from every 30 minutes to every 20 minutes.

Net Annual Plat. Hours	Net Annual Cost	Net Annual Ridership	Net Peak Vehicles
+4,000	+$560,000	+34,000	+2

Plans, Opportunities, Needs or Standards Addressed by Above Change:
ATV Plan

As a commuter route, Line 103 provides weekday peak service between the Braddock Road Metro and the Pentagon via Parkfairfax. The route runs once every 30 minutes during the weekday morning and afternoon peak hours but does not operate during middays, evenings or weekends. The route primarily serves residents who live in Parkfairfax, Arlandria and along Russell Road who are commuting to the Pentagon.

DASH is proposing to improve weekday peak headways on Line 103 from every 30 minutes to every 20 minutes, which would restore pre-COVID service levels on this route. This improvement was identified in the 2022 Alexandria Transit Vision Plan but was not implemented due to fiscal constraints and the slow post-pandemic recovery of weekday peak ridership levels due to increased teleworking.

Figure 3-6 / Proposed Line 103 Improvements

Line 104 / Braddock Road Metro – Pentagon via Parkfairfax

DASH is proposing to increase Line 104 headways during weekday peak hours from every 30 minutes to every 20 minutes.

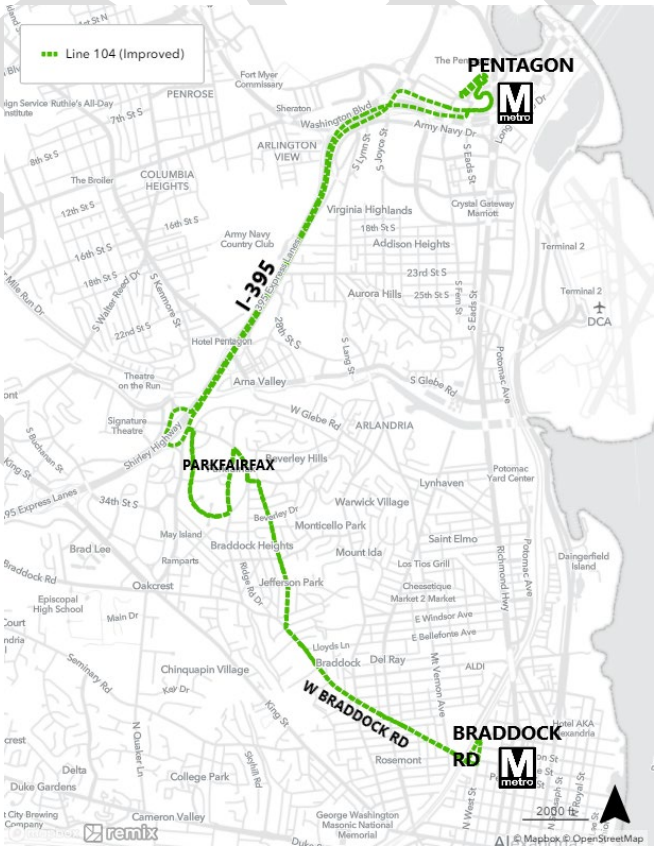
Net Annual Plat. Hours	Net Annual Cost	Net Annual Ridership	Net Peak Vehicles
+4,000	+$560,000	+24,000	+2

Plans, Opportunities, Needs or Standards Addressed by Above Change:
ATV Plan

Line 104 provides weekday peak service between the Braddock Road Metro and the Pentagon via Parkfairfax. The route runs once every 30 minutes during the weekday morning and afternoon peak hours but does not operate during middays, evenings or weekends. The route primarily serves residents who live in Parkfairfax, and on Cameron Mills Road who are commuting to the Pentagon.

DASH is proposing to improve weekday peak headways on Line 104 from every 30 minutes to every 20 minutes, which would restore pre-COVID service levels on this route. This improvement was identified in the 2022 Alexandria Transit Vision Plan but was not implemented due to fiscal constraints and the slow post-pandemic recovery of weekday peak ridership levels due to increased teleworking.

Figure 3-7 / Proposed Line 104 Improvements



King Street Trolley / King Street Metro – Market Square/City Hall via King Street

DASH is proposing to extend King Street Trolley routing from King Street Metro to Eisenhower Metro via Mill Road, and to move service start time up from 11:00 AM to 6:00 AM on weekdays and weekends.

Net Annual Plat. Hours	Net Annual Cost	Net Annual Ridership	Net Peak Vehicles
+14,000	+$1,960,000	+170,000	+3

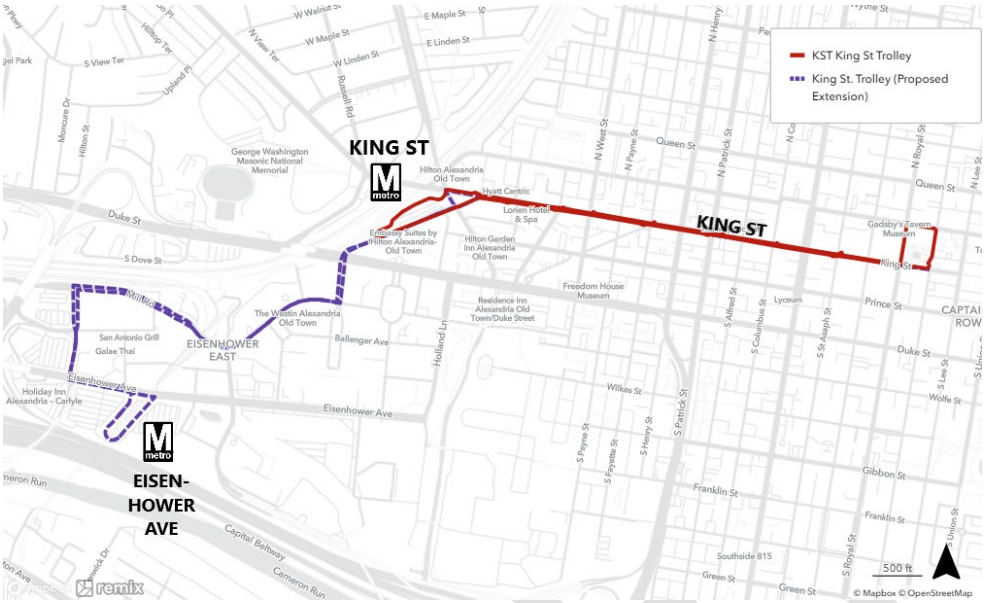
Plans, Opportunities, Needs or Standards Addressed by Above Change:
ATV Plan, Underserved Area

The iconic King Street Trolley runs back-and-forth between the King Street Metro and City Hall/Market Square from 11:00 AM to 11:00 PM seven days a week, 365 days per year. The service runs every 15 minutes along King Street in Old Town providing access to restaurants, shopping and tourist attractions to residents, workers and visitors.

As part of the ATV Plan, DASH and the City of Alexandria are planning to extend the Trolley routing from King Street Metro to Eisenhower Avenue Metro. This extension would provide better transit connectivity between Old Town and the Carlyle and Eisenhower East districts. Eisenhower East is the fastest-growing neighborhood in the City of Alexandria with many new high-rise residential, commercial and hotel developments, but it is relatively underserved by fixed-route bus service. As an additional improvement, DASH Is seeking to better integrate the King Street Trolley with the bus network in Old Town by introduce morning operating hours on the King Street Trolley. With this change, Trolley service would begin its daily operations at 6:00 AM instead of 11:00 AM. This improvement was recommended by the ATV Plan.

These trolley changes and any further changes to Trolley service will require additional funding, further coordination with city leadership, and approval by City Council.

Figure 3-8 / Proposed King Street Trolley Improvements

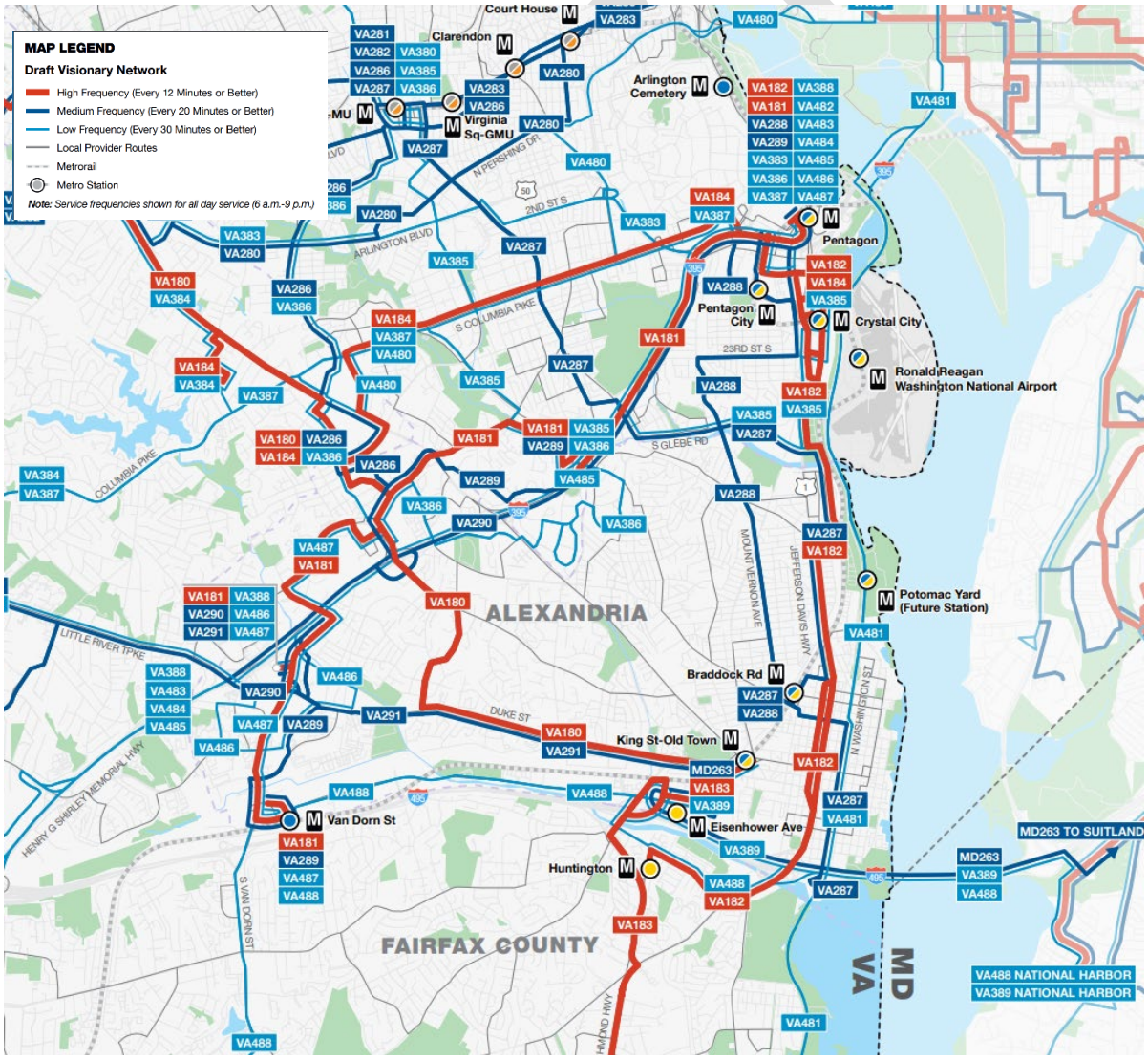


WMATA Metrobus Service Changes

As outlined in Chapter 2, the City of Alexandria is also served by a series of Metrobus routes that provide regional connections to Northern Virginia, Washington DC, and Maryland. WMATA is in the process of developing a final plan for its Better Bus Network project that would restructure its bus network over the next decade.

A map of the draft long-term recommendations for the Better Bus Network is included in Figure 3-9. This map will be revised and updated over the next year based on public outreach and guidance from the WMATA Board of Directors. The final Better Bus Network recommendations will be outlined in more detail in the FY 2026 update to this document.

Figure 3-9 / Draft Map of Better Bus Network Changes



3.2 / Prioritization of Planned Service Improvements

3.2.1 / Near-Term Service Recommendations (FY 2025 – FY 2027)

For its FY 2025 service recommendations, this document outlines two scenarios: (1) a "Baseline" or "Current Services" scenario which includes no increases or reductions to DASH service and is based on the preliminary FY 2025 budget; and (2) an "Unfunded ATV Improvements" scenario which essentially includes all the remaining service improvements that were recommended by the 2022 ATV Plan but have not yet been implemented.

Both scenarios include the existing enhanced service on Lines 35 and 36A/B, which are currently funded via the FY 2024 – FY 2025 NVTC I-95/395 Commuter Choice Program. This program requires that agencies who are receiving funding must reapply every two years through a competitive award process. DASH has been awarded funding to continue operating enhanced service on both routes but will need to re-apply for the FY 2026 – FY 2027 program cycle in late 2024.

FY 2025 "Baseline" Current Services Scenario

The FY 2025 baseline scenario assumes no changes from current FY 2024 service levels but does include a minor increase in service hours and mileages due to ambient traffic growth. Under this scenario, DASH projects to operate approximately 329,000 platform hours and 3.09 million platform miles of service in FY 2025.

These baseline service totals also include the Line 35 and 36A/B service enhancements from the I-395 Commuter Choice program that were implemented with the launch of the New DASH Network.

FY 2025 "Unfunded ATV Improvements" Scenario

DASH launched the New DASH Network and transitioned to fare-free operations in September 2021. This transition represented the first phase of the 2022 Alexandria Transit Vision Plan but did not include all of the service improvements that were identified by the 2022 ATV Plan due to budget constraints.

The "Unfunded" FY 2025 ATV Improvements Scenario includes a series of service increases that were recommended as part of the 2022 Alexandria Transit Vision Plan but have not yet been implemented due to funding constraints. These unfunded improvements represent approximately 14,000 additional annual platform hours and would require an additional $2,100,000 of annual operating funding that is not included in the preliminary FY 2025 DASH budget.

Under the FY 2025 Unfunded ATV Improvements scenario, DASH would operate approximately 343,000 platform hours and 3.22 million platform miles. These totals represent a 4.2 percent increase from the baseline FY 2025 scenario. These service totals also include the Line 35 and 36A/B service enhancements from the I-395 Commuter Choice program that were discussed in previous sections.

FY 2025 Unfunded ATV Improvements

The following unfunded service improvements are included in the 2022 Alexandria Transit Vision Plan that was adopted by the ATC Board of Directors in 2019 but have not yet been implemented. DASH is

proposing to implement the following service improvements in FY 2025 if supplemental funding was identified by City Council and made available to DASH. These improvements are listed in priority order in the event that some additional funding is available but not enough for all the service increases to be implemented.

1. **Line 32 (Landmark Transit Center – King Street Metro via Eisenhower Avenue).** DASH is proposing to improve midday, evening, and weekend service to run every 30 minutes instead of every 60 minutes.

2. **Line 34 (Potomac Yard-VT Metro – Lee Center via Old Town).** DASH is proposing to improve Sunday headways from every 60 minutes to every 30 minutes.

3. **Line 31 (NVCC Alexandria – Braddock Road Metro via King Street).** DASH is proposing to extend weekend and off-peak short trips on Line 31 from King Street Metro to Braddock Road Metro so that Line 31 service in Old Town would run every 15 minutes instead of every 30 minutes.

A summary table of the proposed improvements that would be included in the FY 2025 Unfunded ATV Improvements scenario is included as Table 3-2 and Table 3-3. Maps of each improvement may be found in Section 3.1.

FY 2025 Bus Stop Consolidations & Improvements

DASH is working with City staff to inventory, assess, and consolidate bus stops in numerous locations throughout the service area and to improve access and passenger amenities for the remaining stops. In many locations in Old Town and throughout the City, DASH bus stops are currently spaced extremely close together – often within one block or less – which can increase overall travel times and make the service less useful to the average rider. DASH will review ridership data collected since the launch of the New DASH Network to identify stops for potential consolidation. If a bus stop is identified for potential consolidation or removal, any affected passengers will be notified at least two weeks in advance and will be provided an opportunity to provide feedback.

In conjunction with the bus stop consolidation project, DASH will work with the City of Alexandria to identify bus stop improvements at consolidated stops, high ridership stops, stops with poor pedestrian accessibility, and stops that lack amenities. Potential improvements include shelter/bench installations, parking space removals, and passenger pad or “bulb out” construction. Bus “bulb-outs” or curb extensions can be particularly useful in congested urban areas like Old Town because they provide safe, accessible bus stops with minimal impact on parking spaces. Based on a recent survey, DASH and the City of Alexandria have prioritized bus stop accessibility and the provision of basic amenities like shelters, benches, and lighting in the coming year.

DASH has applied for DRPT funding through the Transit Ridership Incentivization Program (TRIP) to implement some of the bus stop improvement projects that will be identified through the process outlined above.

Table 3-2 / Cost Estimates for Unfunded ATV Improvements for FY 2025

Priority Order (1 = top priority)	Line #	Areas Served	Proposed Improvement	Net Annual Platform Hours	Net Annual Cost
1	Line 32	Eisenhower Valley, Landmark Mall, Van Dorn Metro, Carlyle	Improve midday, evening and weekend service from every 60 minutes to every 30 minutes.	6,005	$850,000
2	Line 34	Potomac Yard, Old Town North, City Hall, Lee Center	Sunday service improved to run every 30 minutes instead of every 60 minutes to provide better connectivity to new Potomac Yard Metro	1,044	$150,000
3	Line 31	NVCC, King Street, Old Town	Extend offpeak/weekend short trips from King Street Metro to Braddock Road Metro for 15 minute service in Old Town; extend weekday evening hours.	7,196	$1,100,000
FY 2024 DASH Supplemental Requests				***14,245***	***$2,100,000***

Table 3-3 / Service Planning Analyses of Unfunded ATV Improvements for FY 2025

DASH FY 2025 UNFUNDED ATV IMPROVEMENTS				DASH Service Planning Decision Framework (1)				
				Ridership	Equity (2)		Impact/Alternatives	Cost Efficiency
Priority Order (1 = top priority)	Line #	Areas Served	Proposed Improvement	Net Change in Annual Boardings (Projected)	Low Income Residents within 1/4 mile (City Avg = 10.3%)	Minority Residents within 1/4 mile (City Avg = 48.1%)	Description of Benefit / Cost of Not Improving	Annual Cost Per Add'l Boarding (Lower = Greater Rider Impact)
FY 2025 DASH Supplemental Requests								
1	Line 32	Eisenhower Valley, Landmark Mall, Van Dorn Metro, Carlyle	Improve midday, evening and weekend service from every 60 minutes to every 30 minutes.	67,000	9%	54%	Shorter waits for buses on Eisenhower Avenue during middays, evenings and weekends. Improved connections to new Landmark development.	$12.69
2	Line 34	Potomac Yard, Old Town North, City Hall, Lee Center	Sunday service improved to run every 30 minutes instead of every 60 minutes to provide better connectivity to new Potomac Yard Metro	9,000	9%	31%	Shorter waits for buses on Sundays in Old Town; better Sunday service to new Potomac Yard Metro	$16.67
3	Line 31	NVCC, King Street, Old Town	Extend offpeak/weekend short trips from King Street Metro to Braddock Road Metro for 15 minute service in Old Town; extend weekday evening hours.	83,000	7%	39%	More one-seat trips from King St to Old Town; better connections to West End; more frequent OTC	$13.25

Notes:
(1) DASH Service Planning Decision Framework includes a list of factors that inform service planning decisions, in order of their importance. The framework is based on the goals defined by the Alexandria Transit Vision Plan, and was adopted by the ATC Board in January 2021.
(2) Equity analysis uses census block data to determine the minority and low income percentages of the groups that would be affected by proposed changes, per DASH Title VI Service Equity Analysis policy. Aggregate impact of changes should be +/- 10% of service area average.

DASH Service Improvements for FY 2026 – FY2027

For FY 2026 and FY 2027, DASH will continue working to implement the recommendations of the Alexandria Transit Vision Plan, including any "Unfunded ATV Improvements" from the 2022 ATV Plan that could not be implemented in earlier years. Ultimately, DASH will be seeking to fully realize the 2030 ATV Plan that was approved by the ATC Board of Directors in 2019. Additional information on the Alexandria Transit Vision Plan project, process, outcomes, and final report can be found at the ATV project website: www.dashbus.com/transitvision.

The full list of proposed FY 2026 DASH service changes includes:

- **Unfunded FY 2025 Improvements.** The three "unfunded" improvements from FY 2025 on Lines 32, 34, and 31 outlined in the previous section would be the top priority for FY 2026 and beyond if not implemented in FY 2025.

- **Line 30.** DASH is proposing to implement major off-peak service enhancements on the route so that it would run every 15 minutes during weekday middays, evenings, and weekends. *(Unfunded)*

- **Line 32.** DASH proposes to increase weekday peak service on Line 32 from every 30 minutes to every 15 minutes between Van Dorn Metro and King Street Metro. *(Unfunded)*

- **Line 103.** DASH is proposing to improve weekday peak headways to run every 20 minutes instead of every 30 minutes, similar to AT-3 peak service prior to the COVID pandemic. *(Unfunded)*

- **Line 104.** DASH is proposing to improve weekday peak headways to run every 20 minutes instead of every 30 minutes, similar to AT-4 peak service prior to the COVID pandemic. *(Unfunded)*

For FY 2027, DASH proposes the following additional service change:

- **King Street Trolley.** DASH proposes to extend the King Street Trolley from the King Street Metro to the Eisenhower Metro. DASH is also proposing to expand morning service hours so that Trolley service begins at 6:00 AM instead of 11:00 AM. *(Unfunded)*

- **Line 102.** DASH is proposing to increase weekday midday headways on Line 102 from every 60 minutes to every 30 minutes.

- **West End Transitway.** The City of Alexandria is actively 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. The West End Transitway would replace significant portions of the DASH Line 35 with a modified routing pattern, more service during weekday peak periods, and more investment in bus prioritization and stop amenities. Additional route adjustments to the New DASH Network

structure along Beauregard Street near Lincolnia and King Street will be required in conjunction with the start of West End Transitway service, which is expected to begin in FY 2027.

Although a specific transit provider has not been identified to operate this service, DASH is well-positioned for this opportunity due to its other nearby services and cost efficiency. Some operating funding for the West End Transitway has been secured through CMAQ/RSTP, but additional funding may be needed. The I-395/95 Commuter Choice program and other state and regional funding sources will be actively pursued. Additional information will be included in updates to this document in subsequent years.

WMATA Better Bus Network Project.

DASH and the City of Alexandria will also continue to work closely with WMATA and other regional partners in the ongoing development of the "Better Bus Network" regional bus network redesign project, which could have major impacts for future bus service in Alexandria and the greater Washington D.C. region.

The first phase of route changes resulting from this project could be implemented as early as FY 2026 with subsequent changes for FY 2027 and beyond based on available funding. The final "Year One" bus network will be determined based on a public outreach process in early 2024 and WMATA FY 2026 budget discussions in late 2024. DASH and the City of Alexandria will be able to incorporate the final recommendations from the Better Bus Network into subsequent updates to this document for FY 2026 and beyond.

More information about WMATA's "Bus Transformation Project" and "Better Bus Network" can be found at: https://bustransformationproject.com/.

3.2.2 / Mid-Term Service Recommendations (FY 2028 – FY 2030)

For FY 2028, FY 2029, and FY 2030, additional service change proposals will be made to advance the implementation of the 2030 Alexandria Transit Vision Plan network based on available funding. An overview of the 2030 ATV Plan network is provided below. Additional potential service improvements related to the West End Transitway and Duke Street BRT are also described at the end of this section.

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 New DASH Network, but with additional frequency improvements. Figures 3-11 and 3-10 show the new 2030 network during peak and midday time periods, respectively, while Table 3-4 shows the service frequencies and hours of operations for all DASH and WMATA routes. Many of these routes and service levels are subject to change based on the recommendations from the West End Transitway Operations Plan that will be finalized by FY 2025.

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 2026 – FY 2030 period covered by this TSP if funding is available.

Full information about the 2030 ATV Plan can be found at www.dashbus.com/transitvision.

Duke Street Bus Rapid Transit (BRT)

The City of Alexandria was recently recommended to receive $75 million in NVTA grant funding for the design and construction of the first phase of the "Duke Street in Motion" BRT project, which is scheduled for completion by FY 2028. This project could provide dedicated transit lanes, bus prioritization, and other capital improvements that will increase bus speeds, reliability and convenience between Landmark Mall and King Street Metro. These improvements could greatly benefit the future operations of the DASH and Metrobus service along this corridor.

DASH and City staff are currently working on developing a service plan and timeline for how future bus service along this corridor will be designed and what the timeline for the service improvements will be.

Based on the projects summarized above, DASH and the City of Alexandria are assuming the following timeline for mid-term (FY 2028 – FY 2030) service improvement projects:

FY 2028

- Any proposed near-term improvements that were identified in the previous section will be proposed for implementation in FY 2028.

- Line 31 is proposed to be extended from its current terminus at NVCC Alexandria to Skyline via Seminary Road in FY 2028 *(Unfunded).*

FY 2029 - FY 2030

- No additional service improvement projects have been identified for these years.
- Any remaining near- or mid-term improvements that have not yet been implemented by 2030 will be proposed for implementation in FY 2030

Figure 3-10 / 2030 ATV Plan (Midday)

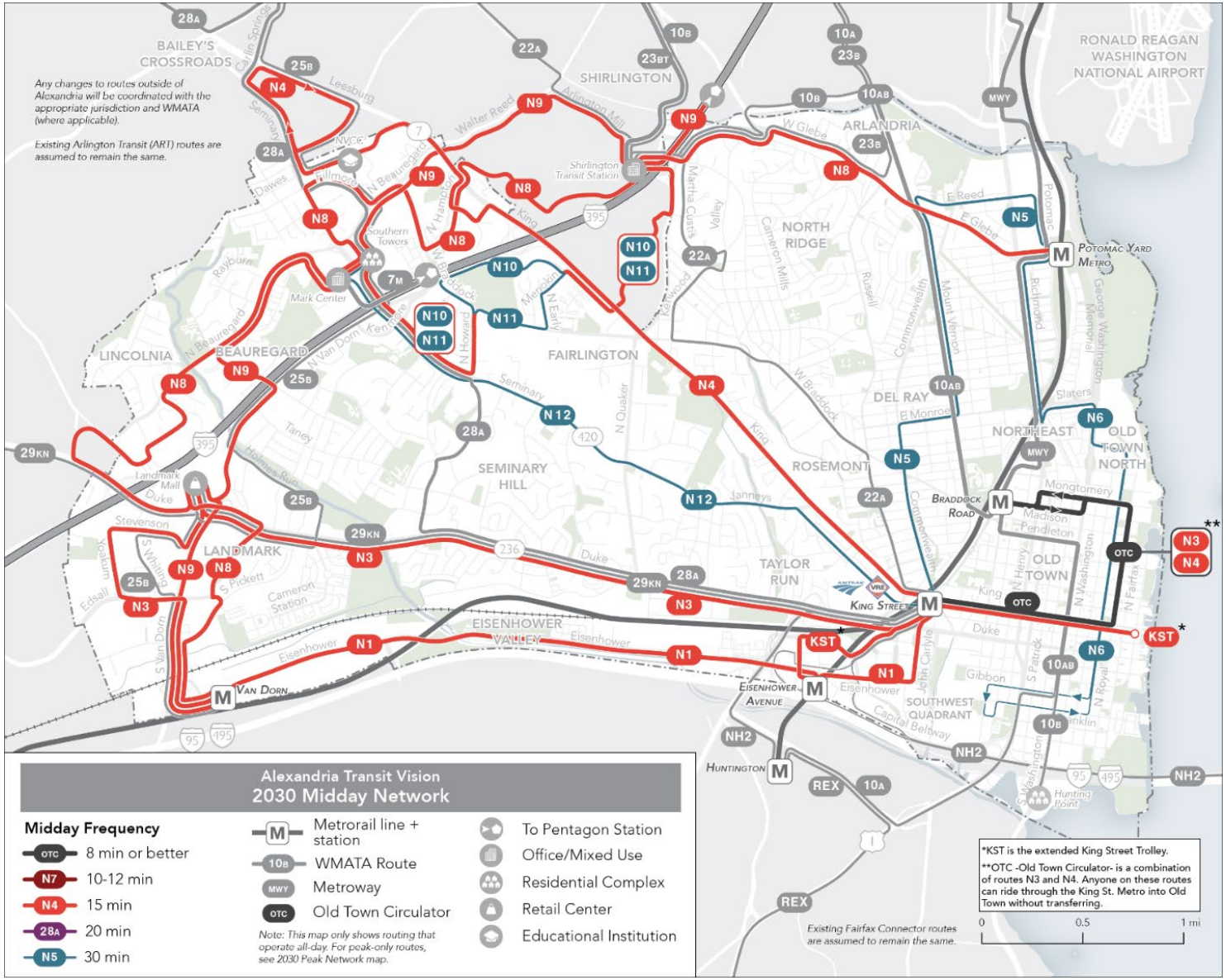


Figure 3-11 / 2030 ATV Plan (Peak)

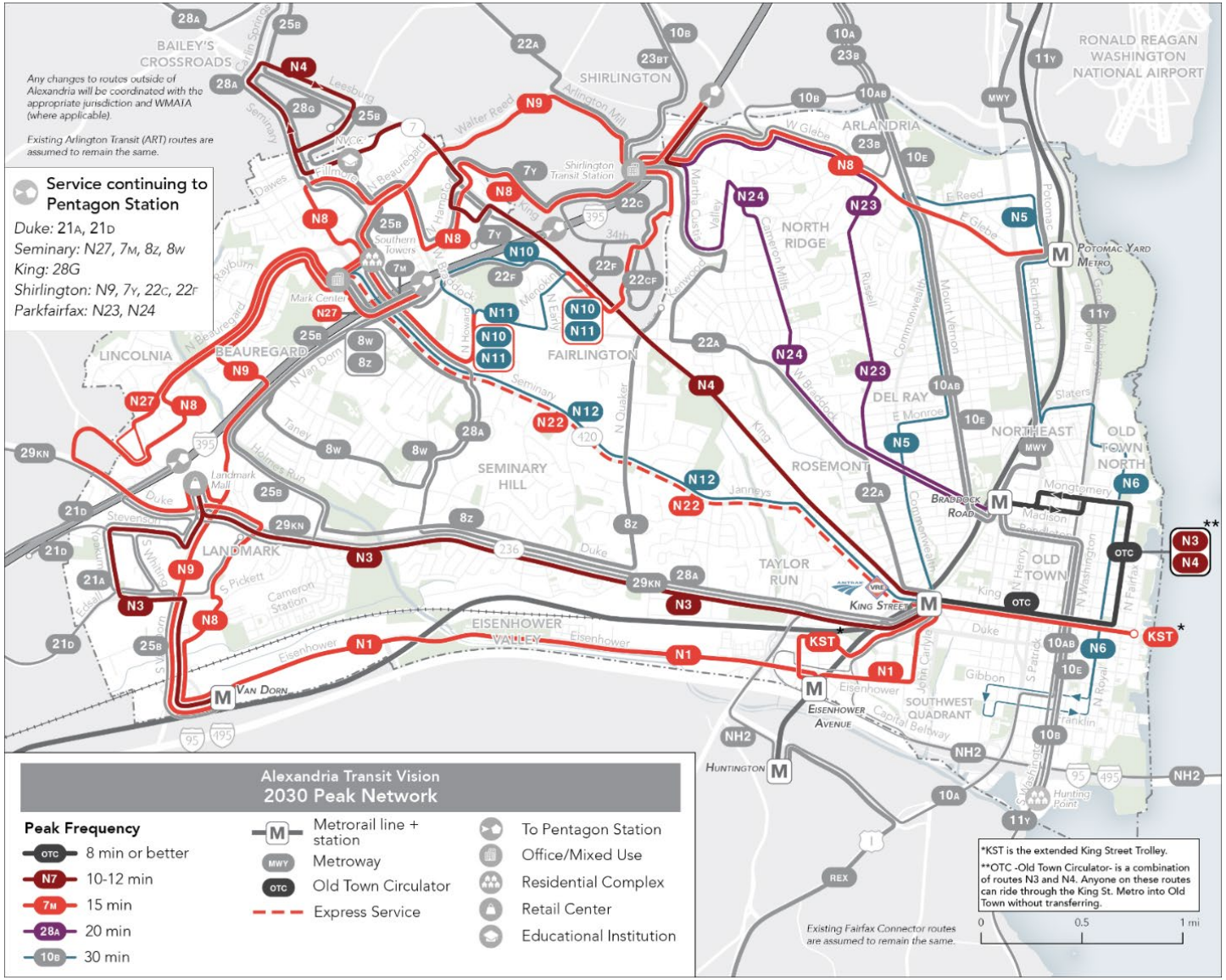
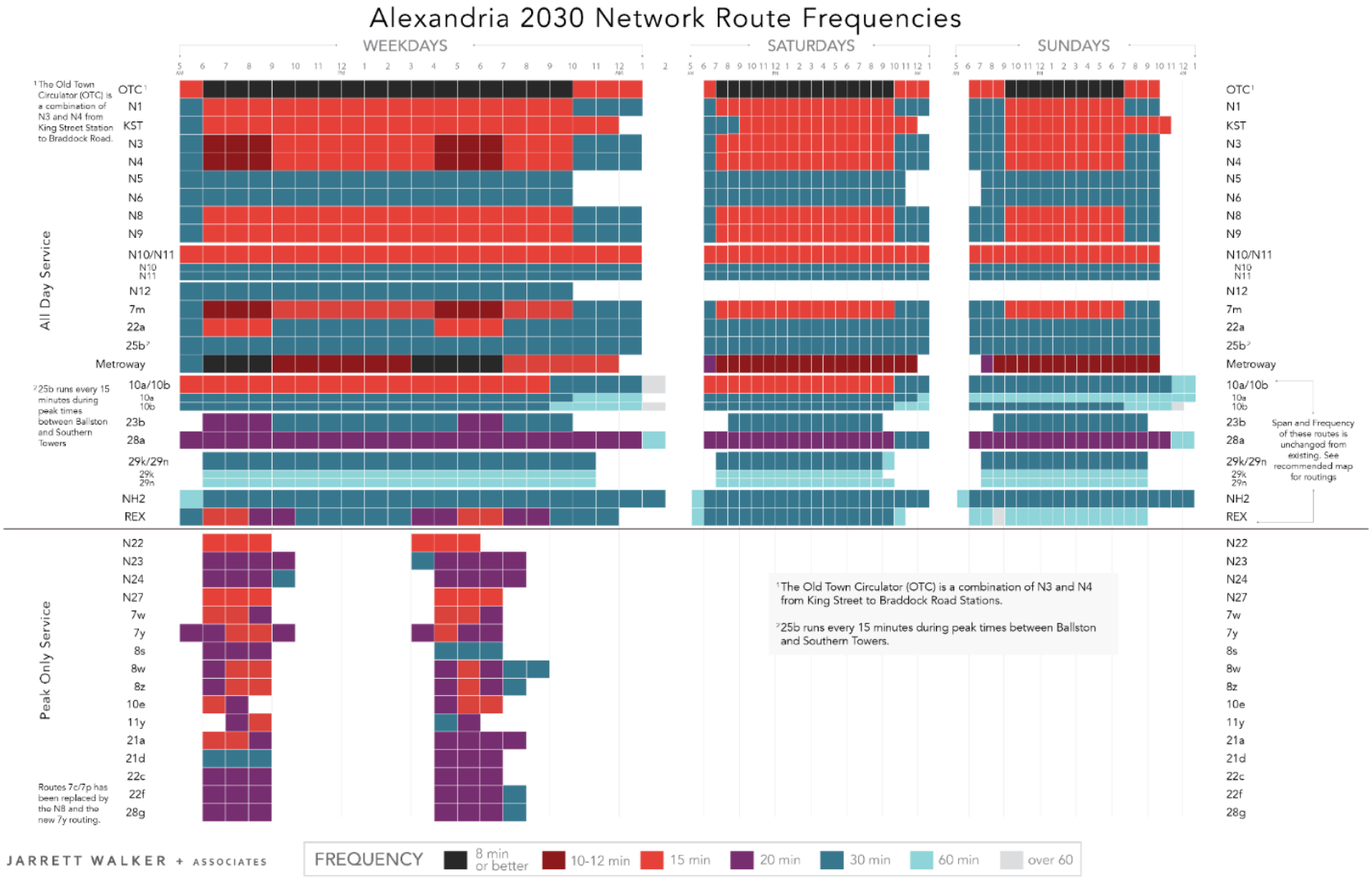


Table 3-4 / 2030 ATV Plan (Frequency Table)



3.2.3 / Long-Term Service Recommendations (FY 2031 – FY 2034)

DASH and City have focused on realizing the 2022 and 2030 Alexandria Transit Vision Plan recommendations so no specific service changes have been planned for FY 2031 or beyond. If any near- or mid-term service recommendations are not implemented by FY 2030, they would be proposed for implementation during these years.

Additional adjustments to DASH service will also be implemented as needed to support the continued transition of the DASH fleet to 100% electric buses.

A summary of the operating costs of the route improvements identified in previous sections is included below as Table 3-5. Additional capital costs are outlined in the Fleet Expansion section in Chapter 4.

Table 3-5 / DASH Projected Operating (FY 2025 – FY 2034)

DASH Service Cost Projects for Unfunded Improvements (FY 2025 - FY 2034) (*in thousands*)

Route	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Line 30	$ -	$ 2,149	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Line 31	$ 1,100	$ -	$ -	$ 2,477	$ -	$ -	$ -	$ -	$ -	$ -
Line 32	$ 850	$ 857	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Line 33	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Line 34	$ 150	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Line 35	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Line 36A/B	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Line 102	$ -	$ -	$ 222	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Line 103	$ -	$ 429	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Line 104	$ -	$ 429	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
King St. Trolley	$ -	$ -	$ 1,652	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Increases	$ 2,100	$ 3,864	$ 1,874	$ 2,477	$ -	$ -	$ -	$ -	$ -	$ -

DASH Systemwide Operating Cost Projections (FY 2025 - FY 2034) *(in thousands)*

Service Projections	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Operating Costs (Baseline)	$ 38,772	$ 40,734	$ 43,003	$ 45,398	$ 47,927	$ 50,596	$ 53,414	$ 56,390	$ 59,530	$ 62,846
Operating Costs (w/ Unfunde	$ 40,452	$ 46,363	$ 50,819	$ 56,127	$ 59,253	$ 62,554	$ 66,038	$ 69,716	$ 73,599	$ 77,699

3.3 / Service Development

The following table identifies the changes in service levels for each route based on the improvements described earlier in this section. No service reductions are proposed for any routes.

As noted above, additional service changes are likely to be proposed for FY 2027 and beyond based on the recommendations in the West End Transitway Operating Plan that will be completed by Summer 2024. This will likely include a significant reduction or discontinuation of Line 35, since it will be largely replaced by the new West End Transitway service.

Table 3-6 will be updated for next year's ATSP to reflect any changes.

Table 3-6 / DASH Projected Platform Hours & Miles (FY 2025 – FY 2034)

DASH Service Level Projections (No Unfunded Improvements) (FY 2025 - FY 20234)

Service Projections	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Platform Hours	328,697	335,271	341,977	348,816	355,793	362,908	370,167	377,570	385,121	392,824
Platform Miles	3,090,109	3,151,911	3,214,949	3,279,248	3,344,833	3,411,730	3,479,964	3,549,564	3,620,555	3,692,966

DASH Service Level Projections with Unfunded Improvements (FY 2025 - FY 2034)

	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Platform Hours			0	0	0	0	0	0	0	0
Line 30	0	17,688	0	0	0	0	0	0	0	0
Line 31	7,196	0	0	19,032	0	0	0	0	0	0
Line 32	6,005	7,056	0	0	0	0	0	0	0	0
Line 33	0	0	0	0	0	0	0	0	0	0
Line 34	1,044	0	0	0	0	0	0	0	0	0
Line 35	0	0	0	0	0	0	0	0	0	0
Line 36A/B	0	0	0	0	0	0	0	0	0	0
Line 102	0	0	1,764	0	0	0	0	0	0	0
Line 103	0	3,528	0	0	0	0	0	0	0	0
Line 104	0	3,528	0	0	0	0	0	0	0	0
King St. Trolley	0	0	13,140	0	0	0	0	0	0	0
Total Increases	**14,245**	**31,800**	**14,904**	**19,032**	**0**	**0**	**0**	**0**	**0**	**0**
Platform Miles										
Line 30	0	182,976	0	0	0	0	0	0	0	0
Line 31	66,823	0	0	114,192	0	0	0	0	0	0
Line 32	56,353	84,672	0	0	0	0	0	0	0	0
Line 33	0	0	0	0	0	0	0	0	0	0
Line 34	9,521	0	0	0	0	0	0	0	0	0
Line 35	0	0	0	0	0	0	0	0	0	0
Line 36A/B	0	0	0	0	0	0	0	0	0	0
Line 102	0	0	10,584	0	0	0	0	0	0	0
Line 103	0	49,392	0	0	0	0	0	0	0	0
Line 104	0	49,392	0	0	0	0	0	0	0	0
King St. Trolley	0	0	78,840	0	0	0	0	0	0	0
Total Increases	**132,696**	**366,432**	**89,424**	**114,192**	**0**	**0**	**0**	**0**	**0**	**0**
Total System Platform Hours	**342,942**	**381,601**	**404,137**	**431,252**	**439,877**	**448,674**	**457,648**	**466,801**	**476,137**	**485,660**
Total System Platform Miles	**3,222,805**	**3,653,693**	**3,816,191**	**4,006,707**	**4,086,841**	**4,168,578**	**4,251,950**	**4,336,989**	**4,423,728**	**4,512,203**

Chapter 4

Implementation Plan

ALEXANDRIA TRANSIT COMPANY
DASH

Chapter 4.0 / Implementation Plan

This section outlines policies and steps that are required by DASH to maintain current operations and implement the improvements or modifications described in Section 3, including asset management, fleet maintenance and capital improvement projects.

4.1 / Transit Asset Management (TAM) Plan

As a Tier II agency, DASH participates in the DRPT-sponsored group plan for Transit Asset Management. The current TAM Group Plan runs from FY 2022 – FY 2025 and is available on the DRPT website (https://drpt.virginia.gov/guidelines-and-requirements/transit-asset-management-plan/).

The purpose of the TAM Plan is to assist participating transit agencies to develop a comprehensive plan for acquiring, maintaining and replacing any and all transit assets necessary to operate their service. The plan also helps agencies to ensure that all assets are maintained in a State of Good Repair (SGR), per Federal Transit Administration (FTA) guidelines.

The DRPT TAM Group Plan contains a detailed inventory of all assets for each agency, including vehicles, facilities and equipment. The TAM also identifies useful life benchmarks for each asset class, summarizes the findings of asset condition assessments, sets performance targets, and informs future investment priorities.

4.1.1 / Vehicle Fleet Policies

DASH provides fixed route transit services for the community of Alexandria, Virginia utilizing a fleet of 116 heavy duty fixed-route transit buses which are all stored in the William B. Hurd DASH Transit Facility. The type, size and number of vehicles required to meet service needs and advance city mobility goals are identified by the DASH Chief Infrastructure & Development Officer with input from Maintenance, Operations, Safety and Planning & Scheduling staff. Vehicle propulsion types are determined based on recommendations from the recent DASH Zero-Emission Bus Implementation Plan, which sets a target of 2037 for full transition to a 100% electric bus fleet.

DASH Maintenance staff follow practices and procedures outlined in the *DASH Fleet & Facility Maintenance Program* ensure that all vehicles are properly maintained to promote safety, reliability and cleanliness. The vehicle maintenance procedures identified in the *DASH Fleet & Facility Maintenance Program* are summarized below:

1. Each bus undergoes a pre-trip and post-trip safety inspection by each operator which operates the vehicle, this may occur multiple times per day per vehicle.

2. Each bus is serviced by the Fleet Maintenance Service department once per day, typically at the end of the day. Through this process, the following is performed:

    - Full safety inspection is conducted, defects are noted for repair;
    - All fluids and lubricants are checked and filled to appropriate levels if necessary;

- Interior of bus is cleaned;
- Farebox is probed and dumped, if required;
- Mileage data is downloaded from Fleetwatch system which imports into Fleetio, Fleet Management System;
- DEF and Diesel Fuel is fueled;
- Bus is washed through exterior bus wash; and
- Battery electric buses are charged at depot charging stations within garage.

3. Each bus undergoes a preventative maintenance (PM) program that meets all manufacturer recommendations for service intervals for each tasks and items to meet State of Good Repair. The details of the overall Preventative Maintenance Program is detailed and outlined in

4. The Maintenance department uses the program Fleetio to track and manage the Preventative Maintenance Program and to ensure that all capital assets have the appropriate service tasks performed per the schedule outlined by the program. The Fleetio program receives dynamic data from Fleetwatch on the current live odometer readings of all buses, which is used to schedule and define the required preventative maintenance timelines of most PM programs.

5. All safety and mechanical defects identified through any of the processes above or elsewhere are promptly addressed and rectified by the Maintenance department. Defects and issues are entered, tracked, and rectified in the Fleetio software system. Additionally, safety defects result in the bus being removed from service until the issues are fully rectified and the bus can pass a pre-trip safety inspection.

Wheelchair Lift, Ramp, and Securement Devices are inspected as part of the pre-trip and post-trip safety inspections. In addition, they are inspected and serviced appropriately as part of all levels of the Preventative Maintenance Program, beginning with a PM-A level inspection. The satisfactory inspection of wheelchair lift, ramp, and securement devices are a mandatory requirement to pass the respective inspection. Any failures in these systems and devices are promptly rectified by the Maintenance department.

DASH utilizes and exercises Original Equipment Manufacturer (OEM) Warranty coverage for rolling stock and systems. Warranty work is tracked and notated appropriately for all applicable issues and work orders as managed in the Fleetio system. DASH submits for Warranty work requests or reimbursements through various OEM portals for Warranty Claims, such as New Flyer, Gillig, Thermoking, etc. As buses begin work for defects and is identified to be a component under warranty, it will trigger this process to utilize, request, and track warranty claims.

Complete vehicle history files are available at any given time. They are tracked and archived in the Fleetio Fleet Management System and/or any subsequent system. The vehicle history files consist of:

- All current and historic fleet inventory
- Service records, work orders, and issues for all vehicles
- Preventative maintenance work completed for all vehicles
- Labor utilized on all vehicles
- Parts utilization on all vehicles

As required by DRPT, DASH uses the Transit Economic Requirements Model (TERM) to assess the condition of assets such as buses, support vehicles and equipment. The TERM model assumes that each asset will be assigned a value for its current condition from 1.0 to 5.0 based on the following scale.

- 1.0 – 1.94 = Asset is in "poor" condition.
- 1.95 – 2.96 = Asset is in "marginal" condition.
- 2.95 – 3.95 = Asset is in "adequate" condition.
- 3.96 – 4.75 = Asset is in "good" condition.
- 4.75 – 5.0 = Asset is in "new" or "excellent" condition.

The condition of each asset is updated regularly and recorded in TransAM, which serves as the agency's primary asset inventory database. Based on FTA guidance, any asset rated below 2.5 or beyond its useful life span – typically 12 years for buses – is considered to be beyond a State of Good Repair (SOGR) and in need of replacement.

The DASH Director of Fleet Maintenance is held accountable to the DASH Chief Operating Officer on the satisfactory performance of the Fleet Maintenance Program. The Chief Operating Officer reports to the General Manager and is responsible for the overall State of Good Repair of DASH's Fleet and Facilities Assets.

Fixed-Route Bus Fleet

The DASH bus fleet is comprised of 101 buses that are available for daily revenue service and five contingency spares. Due to the recent arrival of ten replacement buses, the total fleet size has temporarily increased to 116 buses. A summary of the DASH fixed-route bus fleet is shown in Table 4-7.

The bus fleet is comprised of mostly 35-foot buses (59%), but also includes 40-foot buses (33%) and several articulated 60-foot buses (4%). The DASH fleet includes a mix of clean diesel (41%), hybrid electric (47%), and battery electric buses (13%). DASH also operates six hybrid electric trolley replica buses.

The FY 2024 peak service requirement for weekdays is 77 vehicles, so the spare ratio is roughly 31%, or 28% if Trolleys are excluded. DASH also has six emergency contingency spare buses, which are not included in the spare ratio calculation.

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 summary of the bus fleet replacement is included in Section 4.2 of this document.

Table 4-1 / Existing DASH Fixed-Route Bus Fleet

DASH REVENUE BUS FLEET

Vehicle ID's	Year	Make	Type	Length	# of Vehicles
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	2020	New Flyer	Clean Diesel	35'	3
701-705	2020	New Flyer	Clean Diesel	40'	5
706-715	2023	New Flyer	Clean Diesel	40'	10
801-803	2020	New Flyer	Electric	40'	3
804-806	2021	Proterra	Electric	40'	3
807-810	2021	Proterra	Electric	40'	4
901-904	2021	New Flyer	Electric	60'	4
TOTAL ACTIVE FLEET					**111**

CONTINGENCY BUS FLEET

Vehicle ID's	Year	Make	Type	Length	# of Vehicles
101-102	2007	Gillig	Diesel	35’	2
103-105	2002	MCI	Diesel	40'	3
TOTAL CONTINGENCY FLEET					**5**
TOTAL FLEET SIZE (ACTIVE + CONTINGENCY)					**116**

Support Vehicle Fleet

In addition to its fixed-route bus fleet, DASH also owns and maintains a fleet of 17 support vehicles that are used for supervision of operations, operator relief movements, and administrative functions like Planning, Safety and Training. Funding for the maintenance and purchase of these vehicles is included in the annual DASH operating budget.

Paratransit Fleet

The City of Alexandria’s DOT Paratransit Service is operated by National Express Transit/Diamond Transportation. Diamond Transportation maintains of a fleet of 20 paratransit vehicles that are available for DOT paratransit service. Since the City of Alexandria does not own or maintain the paratransit fleet, no capital investments are needed or planned from the City for its DOT paratransit program.

4.1.2 / Maintenance & Operations Facilities Policies

The William B. Hurd DASH Maintenance Facility is located at 3000 Business Center Drive in Alexandria, Virginia and supports all DASH operations, maintenance and administrative functions. The 160,000 square foot facility was opened in 2009 and is owned by the City of Alexandria and maintained by the City's Department of General Services. The City of Alexandria also owns the adjacent undeveloped parcel, which contains an impound parking lot but will be incorporated into the DASH Facility footprint as part of a project to expand the existing DASH Facility that is outlined in Section 4.2.

Based on FTA and DRPT guidelines, DASH provides an annual assessment of the condition of its facility in the agency's TransAM database. This assessment follows the same condition ratings scale of 1-5 that was summarized earlier in this section. The most recent assessment was conducted in January 2024 with the DASH Facility being assessed to be in "adequate" condition with a 3.0 rating. The assessment noted that the facility "has reached midlife and is experience some deterioration, particularly on parking deck," and that "damages resulting from recurring flooding have also taken a toll, although several recent facility improvements have been made that are expected to significantly mitigate flooding risk."

The City of Alexandria's Department of General Services is onsite for regular maintenance needs, including regular inspections of all aspects of the DASH Facility. The City typically identifies necessary funding needs for regular facility maintenance and upgrades through its annual Capital Improvement Program (CIP).

4.1.3 / Passenger Facilities & Amenities Policies

The City of Alexandria is responsible for the installation and maintenance of the more than 700 bus stops within the city limits in close coordination with DASH and WMATA staff. This includes ensuring that the bus stops and amenities are regularly cleaned and maintained to meet basic standards of safety, accessibility, comfort and cleanliness. The City utilizes the Alex 311 system for the reporting and resolution of bus stop maintenance issues, including overflowing trash receptacles, broken shelter glass, overgrown foliage, and graffiti. DASH and WMATA staff also work closely with City staff during winter weather events to prioritize snow removal from bus stops and passenger facilities.

New or improved bus stops, such as those upgraded as part of redevelopment projects, are subject to review by City and DASH staff to ensure that the stop is safe, comfortable, accessible and is consistent with City and DASH standard bus stop design practices. Sta

The bus facilities located at the Van Dorn Street, Eisenhower Avenue, and Braddock Road Metrorail stations are maintained by WMATA; however, the bus facilities at the King Street-Old Town and Potomac Yard-VT Metrorail stations are maintained by the City of Alexandria.

The City of Alexandria provides a wide array of transit amenities such as bus shelters, benches, trash cans, lighting, and real-time bus arrival displays. These amenities are distributed throughout the service area based on ridership data, income/ethnicity/disability status demographics, staff analysis, funding opportunities, development conditions and customer requests. General policies for the distribution of bus shelters, benches, trash cans, lighting fixtures and posted schedule information are outlined below. ATC/DASH and City staff monitor the locations of all transit amenities to ensure that they are equitably distributed to minority and low-income areas.

- **Bus Shelters.** Bus shelters are provided at roughly 65 stops throughout the City of Alexandria. The installation of bus shelters is generally based upon ridership data and staff input, but many shelters have been installed as part of developer agreements on construction projects. Generally, bus shelters are prioritized for bus stops with at least 50 average boardings per weekday.

- **Benches.** Benches are provided at nearly 200 stops throughout the City of Alexandria. The installation of benches is based upon ridership, customer requests and staff input. Stops located near medical and senior facilities are also furnished with benches as much as possible. Generally, bus shelters are prioritized for bus stops with at least 20 average boardings per weekday, however, stops located near significant populations of seniors, the disabled, students, or other special uses (e.g., hospitals, medical offices, tourist attractions) may receive special consideration.

- **Trash Cans.** Trash cans are installed at roughly 150 stops in the City of Alexandria. Trash cans are typically installed at stops where there is a demonstrated issue with littering, but ridership data, customer requests, maintenance trends and staff input are also considered. Trash cans are regularly maintained by the City of Alexandria's Department of Transportation & Environmental Services (T&ES).

- **Lighting**. As part of its focus on passenger safety, the City of Alexandria installs lighting at many of its bus stop locations, including those with bus shelters. The distribution of lighting fixtures is primarily based upon ridership, customer requests, safety considerations, and staff recommendations.

- **Real-Time Information Displays.** ATC/DASH have installed real-time information displays at more than 60 stops across the City of Alexandria. These displays provide customers with information on when the next buses will arrive based on real-time bus locations. Most of the displays are solar-powered tablets mounted on bus stop poles, but several larger TV screens or real-time kiosks have been installed at major transit hubs or transfer locations across the City.

  Installation decisions on real-time information displays is generally based upon ridership, transfer activity, grant opportunities, developer considerations, operating factors, sunlight exposure, and staff input. In addition to these real-time information displays, DASH also makes real-time bus arrival information available via the DASH Tracker website, third-party real-time apps, SMS text message, and an interactive voice response (IVR) on the DASH Customer Service telephone hotline. A static display featuring QR Codes with links to the "Schedules" page on the DASH website is also provided at several dozen bus stop locations.

Finally, the City of Alexandria and DASH work closely to maintain a bus stop inventory that includes detailed information about stop locations, routes served, accessibility, and various amenities. Staff are currently developing a bus improvement prioritization index that will help to guide future bus stop improvement projects. Factors such as stop utilization (ridership), socioeconomic data, geographic equity, and the cost and difficulty of improvements are among the main factors that will be included in the index criteria.

4.1.4 / DASH Technology & Intelligent Transportation Systems (ITS) Policies

In recent years, DASH has implemented a wide range of transit technology on its buses, at its bus stops, and at its facility. The goal of these ITS programs is to improve day-to-day operations, promote safety/security, and to enhance overall rider experience by finding ways to make DASH faster, more reliable, more accessible, and easier to use. Examples of recent DASH technology programs include Computer-Aided Dispatch (CAD)/Automated Vehicle Location (AVL) systems, Automated Passenger Counters (APC's), and Scheduling Software.

DASH is known for its innovative approach to transit, and often conducts pilot projects to find new and better ways to solve typical transit problems. New ITS pilot projects are typically identified through ongoing discussions with multiple DASH departments, agencies and vendors to identify the need and potential tools or systems that could address it before applying for grants or initiating procurement. Through these pilots, the agency is able to evaluate new technologies in real-life applications, and to ultimately be more methodical in their adaptation to ensure that each new system fits into a larger, integrated ITS program. DASH staff also work closely with City staff – particularly in the T&ES Smart Mobility team - and regional transit partners to compare findings on new technology projects and to identify best practices.

Additional information on current DASH Technology and ITS projects can be found in Section 4.2 and Appendix B.

4.2 / Capital Implementation Plan

This section is based on DASH capital needs that are identified in the City of Alexandria's FY 2025 – FY 2034 Capital Improvement Program (CIP). The CIP is updated each year with major updates every other year. Its main purpose is to identify the funding and timelines for all capital projects that will be implemented by the City of Alexandria and DASH over the next ten years. Additional details on the City's Capital Improvement Program can be found at https://www.alexandriava.gov/Budget.

A summary of the DASH projects in the draft FY 2024 – FY 2033 Capital Improvement Program (CIP) is provided in Table 4-2. These numbers will be updated once the draft FY 2025 – FY 2034 CIP is released.

Table 4-2 / DASH Capital Improvement Program (CIP) Summary

Item	Project Description	FY 2025 CIP Funding Request	FY 2025-2034 Total CIP Funding Request
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. It also includes funding for repairs and replacements related to vehicle batteries, and powertrain components. 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.	$14,358,000	$153,324,800
2	**DASH Fleet Expansion & Electrification.** This project provides for additional buses that are needed to maintain and expand bus service levels, consistent with the Alexandria Transit Vision Plan and the Alexandria Mobility Plan. This project will also facilitate the transition of the entire DASH fleet to 100% electric buses by 2037.	$10,492,000	$30,279,500
3	**DASH 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. (Note: Most of the funding appropriated for this project is from prior years).	$9,944,700	$20,944,700
4	**DASH Electric Bus On-Route Charging.** This project will provide funding for "on-route" bus charging stations that will support the DASH electric bus fleet. On-route charging stations are installed at strategic bus terminals across the service area for shorter charging sessions that can be performed between trips during layover periods without returning to the garage. These stations are critical for extending the battery range of electric buses so that they can operate for longer periods of timewithout returning to the garage depot.	$0	$9,349,600
5	**DASH Technologies.** This project funds future technology initiatives that allow DASH to incorporate new innovations into their day-to-day operations to improve ridership, cost efficiency and customer satisfaction. Such technologies include onboard equipment, transit signal prioritization, 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.	$150,000	$5,423,300
6	**Transit Signal Priority.** DASH and the City of Alexandria are working together to prioritize buses on city streets with technology that provides extra green time for buses as they travel through signalized intersections.	$1,736,000	$1,736,000
7	**Transit Strategic Plan.** DASH and the City are including additional funding for future updates to the new Transit Strategic Plan, which is required by DRPT.	$0	$100,000
	TOTALS	**$36,680,700**	**$221,157,900**

Table 4-3 / DASH Fleet Replacement Plan (FY 2025 – FY 2034)

Funding Year	Type	Quantity	Retire Date	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Delivery Year			Retire Date	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35
2011 Gilligs	Hybrid	10	Due 2023										
2011 Gilligs (Trolley)	Hybrid	5											
2012 Gilligs	Hybrid	10	Due 2024										
2014 Gilligs	Hybrid	7	Due 2026		7								
2015 Gilligs	Hybrid	13	Due 2027			13							
2015 Gillig (Trolley)	Hybrid	1				1							
2017 Gilligs	Hybrid	6	Due 2029					6					
2018 Gilligs	Clean Diesel	14	Due 2030						14				
2019 New Flyers	Clean Diesel	13	Due 2031							13			
2019 New Flyers	Clean Diesel	8	Due 2031							8			
2020 Electric Buses (NF/Proterra)	Electric	6	Due 2032								6		
2021 Electric Buses (NF/Proterra)	Electric	8	Due 2033									8	
2023 Replacement Buses	Clean Diesel	10	Due 2035										
2024 Replacement Buses	Electric	10	Due 2036										
2024 Replacement Trolleys	Electric	5	Due 2036										
2024 Smart Scale Buses	Clean Diesel	6	Due 2036										
2024 Comm. Choice Buses	Electric	2	Due 2036										
Total Retirements				*0*	*7*	*14*	*0*	*6*	*14*	*21*	*6*	*8*	*0*
Replacement Buses (Clean Diesel)				0	0	0	0	0	0	0	0	0	0
Replacement Buses (Electric)				0	7	14	0	6	14	21	6	8	0
Total Replacement Buses				**0**	**7**	**14**	**0**	**6**	**14**	**21**	**6**	**8**	**0**
Expansion Buses (Clean Diesel)				0	0	0	0	0	0	0	0	0	0
Expansion Buses (Electric)				14	4	4	0	0	0	0	0	0	0
Total Expansion Buses				**14**	**4**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: The dashed line represents the point at which each sub-fleet reaches the end of its useful life (12 years). Buses that are retired in yellow cells are being kept beyond this useful life.

4.2.1 / Rolling Stock

Fleet Replacement

The DASH Fleet Replacement Plan is based on the assumption that buses should be retired once they reach the end of their useful 12-year life to ensure that DASH service may be operated with the highest standards of safety, comfort and reliability. Based on the FY 2025 – FY 2034 Capital Improvement Program, the following replacement buses will be purchased during the next 10 years:

- FY 2025 – No replacement buses will be purchased.
- FY 2026 - 7 battery electric replacement buses will be purchased.
- FY 2027 – 13 electric replacement buses and 1 electric replacement Trolley will be purchased
- FY 2028 – No replacement buses will be purchased.
- FY 2029 – 6 battery electric replacement buses will be purchased.
- FY 2030 – 14 battery electric replacement buses will be purchased.
- FY 2031 – 21 battery electric replacement buses will be purchased.
- FY 2032 – 6 battery electric replacement buses will be purchased.
- FY 2033 – 8 battery electric replacement buses will be purchased.
- FY 2034 – No replacement buses will be purchased.

Table 4-3 shows the DASH Fleet Replacement Plan for FY 2025 – FY 2034. Though not shown in the table, DASH received $24 million in FTA Low/No Emission Bus Funding for the purchase of 13 replacement electric buses in FY 2024 and is expecting these buses to be purchased in the coming months for delivery in late FY 2025 or early FY 2026.

Fleet Expansion & Electrification

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 includes 101 active vehicles, not counting vehicles that are in the process of being decommissioned and retired. With a planned peak pull-out requirement of 77 buses in FY 2025, DASH will be able to maintain its spare ratio at 31%, which is above the industry standard of 20%. Excluding trolleys, the DASH fleet spare ratio is currently 28%.

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

- **FY 2022 – FY 2023 Smart Scale Funding.** DASH secured roughly $11.1 million in state 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 expansion buses to be used towards improved DASH bus service in major development corridors throughout the city. Though these buses are currently scoped as clean diesel buses, DASH may apply for additional funding through the FTA Low/No Emission Vehicles grant program to upgrade some or all of these buses to 100% electric propulsion. These six expansion buses are scheduled for FY 2025 delivery and will support the service expansions described in Section 5.3.

- **FY 2024 – FY 2025 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. Due to unit cost increases for buses, DASH will be working with DRPT staff to determine if additional funding will be needed to purchase these buses or if the number of buses will need to be reduced.

- **FY 2024 – FY 2025 I-395 Commuter Choice.** DASH secured funding through the NVTC I-395 Commuter Choice Program to purchase two 100% electric articulated buses that will be used to expand passenger capacity on Line 35. These buses are scheduled for purchase in FY 2025 and delivery in FY 2025.

With these planned expansions, DASH will be increasing its active fleet size from 101 buses to roughly 121 buses over the next five years. Though currently unfunded, DASH is also seeking to increase its fleet size by 8 buses over the next three years through the City's Capital Improvement Program (CIP) to increase service levels and maintain service reliability as more and more of the fleet transitions to 100% zero emission vehicles.

The corresponding facility expansion that is needed to accommodate the growing DASH bus fleet is detailed later in this section.

Zero Emissions Fleet

In 2018, the City and the ATC Board of Directors adopted a new fleet goal to transition to a 100% zero-emission fleet by the year 2037. In 2020, DASH became the first transit agency in Northern Virginia to operate electric buses when it took delivery of three New Flyer electric buses as part of the state's VW Mitigation Trust. The transition continued in 2021 with the arrival of three Proterra electric buses in January, and eight more electric buses through the NVTA grant. These recent additions bring the total DASH electric bus fleet size to 14 buses, which represents 14% of the active bus fleet. With additional plans to increase the electric bus fleet, DASH expects that more than one-third of its bus fleet will be 100% electric by FY 2025.

This movement towards zero-emission buses is supported by the City of Alexandria's 2021 Alexandria Mobility Plan, and Eco-City Alexandria, which both seek to improve the quality of life and sustainable transportation options.

Other DASH efforts towards a zero-emission fleet have included:

- 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 2026. DASH anticipates that all buses purchased after FY 2025 will be battery electric to achieve the agency goal of full fleet transition by 2037.

- DASH has secured multiple regional and state grant funding opportunities through Virginia Smart Scale 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 five years;

- DASH has requested CIP funding for on-route charging stations to maximize the service range of its electric bus fleet. DASH is working with the City of Alexandria, local developers, and other local entities to identify future locations for on-route bus charging stations that will allow DASH to operate a 100% electric bus fleet in the future. Potential locations include Landmark Mall, Potomac Yard Metro, Eisenhower Avenue Metro, Braddock Road Metro, Van Dorn Metro, Mark Center and NVCC Alexandria.

- In 2023, DASH and the City of Alexandria were awarded$24 million in Low/No Emission Bus grant funding from the Federal Transit Administration (FTA) for the purchase of 13 new 100% electric buses as well as facility upgrades and charging equipment needed to support the new vehicles.

- DASH was recently awarded $3.5 million from the NVTC I-395 Commuter Choice Program for the purchase of two 60-foot electric buses with electric charging equipment that will deployed on Line 35 to boost ridership capacity in the I-395 corridor.

The above programs will allow DASH to continue to work towards it goal of a 100% fleet transition to battery electric buses by 2037.

4.2.2 / Facility Expansion

As part of the $11 million Smart Scale project mentioned above, DASH has secured funding to expand its existing garage facility to increase vehicle capacity from 96 buses to 134 buses to meet anticipated service demand in the coming decades. The existing William B. Hurd Transit Facility was opened in 2009 but has since exceeded its maximum bus capacity.

Upon completion of the current William B. Hurd Transit Facility, the land located directly adjacent to the west of the facility was identified and committed for DASH to expand onto for future growth as needed. This parcel, which is currently used as a temporary impound lot, will be regraded and integrated into the existing facility. The design process for the facility expansion began in late 2021 and is expected to be completed in 2024. As outlined by the Zero-Emission Bus Implementation Plan (Phase 1), the facility expansion is expected to include up to 40 electric bus chargers.

Construction of the facility expansion is scheduled to begin by FY 2025, and the new expanded facility would likely open by FY 2026 or FY 2027.

4.2.3 / DASH Technology

Over the last few years, DASH has continued to leverage various technologies to improve its customer experience, enhance passenger safety, collect better performance data and gain internal efficiencies. Recent projects have included Automated Passenger Counter (APC) retrofits, a web-based ridership data analysis tool (Hopthru) and a web-based dashboard tool for better performance data reporting (Geckoboard).

Additional technology projects that are either ongoing or will be started in FY 2025 are listed below:

- **Electric Bus Charge Management Pilot.** In FY 2024, DASH was awarded DRPT "Demonstration Project" grant funding to implement an Electric Bus Charge Management System Pilot project that allows DASH to monitor electric bus charging status of individual buses. The project includes the installation of hardware equipment on the charging dispensers as well as software that will be used by DASH staff in the Operations, Maintenance and Planning Departments to better understand bus charging profiles and to deploy the electric buses more efficiently.

- **Automated Wheelchair Securement Pilot.** DASH also secured a second FY 2024 DRPT "Demonstration Project" grant to install a state-of-the-art automated wheelchair securement system on up to five DASH buses. This system is designed to allow passengers with mobility devices to safely secure themselves in the designated ADA seating area without operator involvement. When compared with current manual securement practices, this system will reduce potential liability for accidents due to operators incorrectly securing mobility devices and speed up the boarding process to reduce overall travel times and improve overall service reliability. Lastly, this system will also eliminate the need for close contact between operators and passengers which greatly reduces the risk of viral transmission or other conflicts. If this pilot is successful, DASH would potentially begin ordering this system on future bus orders.

- **Thru Vision Blind Spot Camera Pilot.** DASH is applying to DRPT for FY 2025 Demonstration Grant funding to install and test new "Thru Vision" blind spot cameras on up to 20 DASH buses. Each bus would be equipped with two exterior cameras on the front of the bus and two screens inside the bus on the two front pillars. The screens will provide bus operators with a view of the areas that would normally be obscured by the two front pillars and would effectively remove the driver's two biggest blind spots. These cameras are expected to improve safety and reduce the likelihood of pedestrian strikes, which are most often caused by pedestrians crossing the street in the driver's blind spots. If this pilot is successful, DASH would potentially begin ordering this system on future bus orders.

- **Onboard Passenger Information Screen Pilot.** DASH is applying to DRPT for FY 2025 Demonstration Grant funding for an Onboard Passenger Information Screen Pilot project that would allow DASH to install and test information screens on up to 10 buses. Each bus would be equipped with two infotainment screens that would display information including stop names for the next 3-5 stops, route transfer information for passengers connecting to other routes, service alerts, and real-time information for upcoming transfer points. The screens could also be used for advertising and other DASH promotional efforts. Customers will be able to use these screens for better information on when they need to get off the bus, transfers and service disruptions. DASH installed infotainment screens on one of its buses (#703) last month and has received positive customer feedback so far. If the pilot is successful, DASH would consider installing similar screens on all future bus orders.

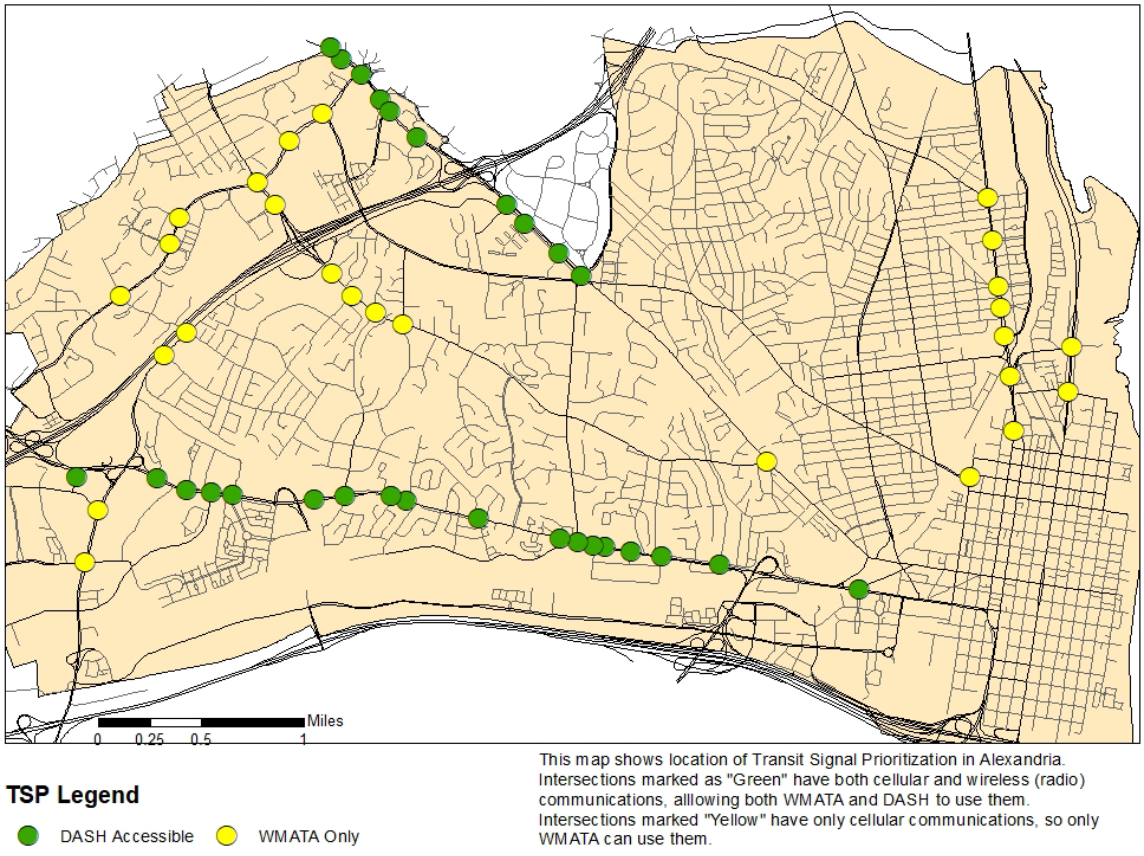
- **Bus Speed & Reliability Data Improvements.** DASH is exploring technology platforms that will provide better visibility into bus speeds and reliability metrics. This will allow DASH and City staff to better understand where schedule adjustments and street or stop improvements could be implemented to prioritize buses over other modes and improve speeds and reliability.

- **Transit Signal Prioritization.** DASH and the City of Alexandria T&ES staff have been working over the last five years to install Transit Signal Prioritization (TSP) technology at key intersections on transit corridors throughout the City. This technology enables traffic signals to sense when a bus is approaching so that it can extend the green phase to allow the bus to move through more quickly. This leads to increased bus speeds and greater service reliability, particularly for bus routes that operate on more congested corridors.

  To date, the City of Alexandria has installed TSP technology at 54 intersections and has plans to expand to most intersections used by Metrobus or DASH buses by 2026. DASH buses are currently benefiting from TSP at 28 intersections, including 18 on the Duke Street corridor and 10 on the King Street Corridor. By the end of FY 2023, several additional intersections along Beauregard Street and Van Dorn Street are anticipated to be available for DASH buses. A map of TSP locations is included as Figure 4-1.

  Over two-thirds of the of the DASH revenue fleet (71 buses) are currently equipped with TSP, including all new DASH buses purchased since 2018, and all 40- and 60-foot buses. All new bus builds will include TSP equipment, and additional retrofits will be completed as funding becomes available.

Figure 4-1 / Transit Signal Prioritization (TSP) Location in City of Alexandria



4.2.4 / Other Capital Projects

A summary of other capital projects related to public transportation that the City of Alexandria is undertaking as part of its 10-year Capital Improvement Plan are summarized below. Since the draft FY 2025 – FY 2034 Capital Improvement Program is not yet available, the projects and numbers shown below reflect the approved FY 2024 – FY 2033 CIP projects.

Table 4-4 / City of Alexandria Capital Improvement Program (CIP) Summary*

Item	Project Description	FY 2025 CIP Funding Request	FY 2024-2033 Total CIP Funding Request
1	**Transit Corridor 'A' – Route 1.** The Route 1 Transitway is a 5-mile-long, high-capacity transit corridor connecting the Pentagon City and Braddock Road Metrorail stations. The initial segment of the corridor was completed in the summer of 2014. Remaining funding from the original construction project will be used to design the final extension of the dedicated transit lanes on Richmond Highway between East Glebe Road and Evans Lane and provide the environmental analysis required for this project. In FY 2020, $5 million of funding was added as part of the Amazon Incentive Package to help complete the planning and design as well as the right-of-way acquisition and construction of the Transitway north of East Glebe Road to Evans Lane. The City plans to apply for future grant funding for the construction of this project. Timing of project construction and right-of-way acquisition will depend on the timing and phasing of phase two of the North Potomac Yard development project and proposed Entertainment District at Potomac Yard.	**$0**	**$10,000,000**
2	**Transit Corridor 'B' – Duke Street.** This project will construct a 4.5-mile segment of high-capacity transitway along Duke Street between the former Landmark Mall Site and the King Street Metrorail Station. Based on Council direction, staff sought and obtained $87 million of regional transportation NVTA 70% funds to use for planning, design, right-of-way, construction, and asset acquisition such as buses and shelters. Design will occur in FY 2024 - 2025 with construction anticipated to begin in FY 2026. Construction of an ultimate build condition will likely be phased depending on the results of the outreach findings as well as adjacent private redevelopment projects. Once completed, this project will support development approved in the Eisenhower West, Eisenhower East and Landmark/Van Dorn Small Area Plans (including the redeveloped	**$55,800,000**	**$75,000,000**

	Landmark Mall), while increasing transit options for local and through trips emphasizing inter-jurisdictional coordination.		
3	**Transit Corridor 'C' – West End Transitway. T**his project will take a phased approach toward construction of a high-capacity Transitway between the Van Dorn Metrorail station and the Pentagon. The City was awarded $57.2 million for FY 2024 - FY 2025 SMART SCALE for the design, right-of-way, construction and bus purchases for the first phase of this project. Phase I is focused on Transportation Systems Management (TSM) improvements, such as Transit Signal Priority, queue jump lanes, new bus stations, pedestrian and, bicycle improvements, and intersection improvements. Design of the Phase I (TSM) is funded through $4.6M in NVTA 70% grants and began in FY 2023. West End Transitway is anticipated to begin operation by FY 2027. Phase II of this project includes dedicated transit lanes on portions of Van Dorn Street and Beauregard Street. Additional funding and right-of-way will be required to implement the Phase II plan, and the City will continue to work with private developers for the additional right-of-way and seek other funding sources including federal funds. The City was awarded $5 million in NVTA 70% funds to design the roadway, including two bridges, along Van Dorn Street, south of Edsall Road in FY 2026.	**$32,613,000**	**$32,613,000**
5	**Landmark Transit Center.** As part of the redevelopment of the former Landmark Mall site, the existing transit center will be moved from the back of the existing mall to a central location in the new mixed-use development and one central block will be a dedicated transit center with up to six bus bays. The conceptual site plan has been approved, and it is anticipated to be refined and finalized in the next few years as individual blocks are designed with more detail. The centrally located transit center is a key component of the transportation network of the redevelopment. The new transit center will service existing WMATA and DASH bus service to, and through, the redeveloped mall site and hospital, as well as the West End Transitway and Duke Street Transitway lines. The project allows for capacity for additional future routes, electric bus charging facilities, and operator restroom and break facilities.	**$0**	**$11,497,000**
7	**Capital Bikeshare.** Stations are located in areas identified in the Alexandria Mobility Plan through a demand model and with input from the community. Capital costs for stations and bicycles are dependent on size of the station and number of docks and are funded by development or federal grants. Capital Bikeshare is a regional system that has stations in the District of Columbia; Arlington County, VA; Fairfax County, VA; Falls Church, VA; Prince George's County, MD; and Montgomery County, MD. Developer funded stations will continue to be added to the network as new buildings come online.	**$50,000**	**$507,000**

8	**Complete Streets-Vision Zero.** The Complete Streets Program funds a variety of capital infrastructure improvements and initiatives to make it easier, safer, and more comfortable for residents and visitors to walk, bike, and take public transit. This program also funds projects to advance the City's Vision Zero goal of eliminating traffic fatalities and severe injuries by 2028.	**$840,500**	**$8,782,000**
9	**Bus Shelter Maintenance.** This project supports the ongoing maintenance, cleaning, repairs, and reconstruction of bus shelters within the city of Alexandria. With free fares on DASH and the expansion of both DASH and WMATA bus routes, more people will be encouraged to use transit and utilize bus shelters. Bus shelters are a vital visual indicator and provide shelter during inclement weather, and the greater use will require additional maintenance. Being able to properly maintain the bus shelter is the critical first impression between the customer and the transit service. Performance of the transit service and the bus shelter maintenance is often factored into the rider's satisfaction with the overall service.	**$119,900**	**$1,218,000**
10	**WMATA Capital Contributions.** This project funds capital infrastructure improvements by participating governments including the City of Alexandria for the Washington Area Metropolitan Transit Authority (WMATA). In addition, this project also funds the newly mandated local match for the dedicated funding source created by the Virginia General Assembly to support the WMATA Capital Program.	**$16,920**	**$168,520,000**

Table figures include Approved FY 2024-2033 figures. These figures will be updated when the DRAFT FY 2025-2034 City of Alexandria CIP is released in late February 2024.

Chapter 5

Financial Plan

ALEXANDRIA TRANSIT COMPANY
DASH

Chapter 5.0 / Financial Plan

5.1 / Operating and Maintenance Costs and Funding Sources

The funding source and cost data outlined below are broken our separately for Alexandria Transit Company (DASH) and the DOT Paratransit Services. Funding Sources and Operating Costs for the two services are wholly separate.

Federal Funding

Neither DASH nor Alexandria DOT receive federal operating assistance.

State Funding

From FY22 through FY24 DASH received state funding through the Transit Ridership Incentive Program (TRIP) via the Virginia Department of Rail and Public Transportation (DRPT). These funds were used to support DASH's transition to a fare-free structure and obligated DASH to remain fare free for four (4) years, while providing funding for three years. The total amount of state funding related to the TRIP funding over the FY22-FY24 period was $7,236,171.

DASH receives additional state funding through the Northern Virginia Transportation Commission's I-395 Commuter Choice program to run enhanced service on lines 35 and 36. This funding supports regular, frequent, service on those lines with headways of at least 15 minutes or better.

DOT Paratransit does not receive state operating assistance.

Farebox Revenue

Since September of 2021, DASH has operated a fare-free structure and no longer collects fares. Through the state funding TRIP grant, DASH is required to remain fare free through the end of calendar year 2025. This TSP assumes that DASH remains fare-free through FY34.

DOT Paratransit received $40,861 in fare revenue in FY 2023.

Local Revenue

DASH receives the majority of its operating revenue from local funds by way of appropriated subsidy from the City of Alexandria. Since the transition to a fare-free structure, the contribution by the City of Alexandria to DASH has increased and will continue to increase as state funding from TRIP ends. Over the period of this TSP, the local contribution for DASH's subsidy will rise in parallel with increasing operating costs.

DOT Paratransit receives funding from the City of Alexandria's General Fund.

Other Revenue Sources

DASH collections a small portion of additional revenue from various sources. These include advertising programs and charter services. DOT Paratransit does not receive funding from any other revenue sources.

Operating and Maintenance Cost Summary

A summary of DASH Operating and Maintenance costs and projections are provided below. All information provided below includes the service enhancements that are funded by

Alexandria DOT cost information is also provided, but the City of Alexandria does not operate or maintain the vehicles and instead pays the annual amounts listed below for a third-party (Diamond Transportation) to for these responsibilities.

Table 5-1 / Operating and Maintenance Cost History (in $1,000s)

Operating Cost History	FY21	FY22	FY23
DASH	**$25,712**	**$31,180**	**$34.396**
Paratransit	**$774**	**$1,200**	**$1,600**

Table 5-2 / Operating and Maintenance Cost Projections (in $1,000)

Operating Cost Projections	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
DASH	$ 37,873	$ 38,772	$ 40,734	$ 43,003	$ 45,398	$ 47,927	$ 50,596	$ 53,414	$ 56,390	$ 59,530	$ 62,846

Table 5-3 / Operating and Maintenance Revenue Projections (in $1,000)

Revenue Sources	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
DASH											
Local Subsidy	$30,249	$ 34,512	$ 36,250	$ 38,075	$ 39,992	$ 42,008	$ 44,124	$ 46,347	$ 48,681	$ 51,131	$ 53,704
State Funding (TRIP)	$ 1,783	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
State Funding (NVTC)	$ 5,532	$ 3,916	$ 4,135	$ 4,574	$ 5,048	$ 5,559	$ 6,110	$ 6,704	$ 7,344	$ 8,032	$ 8,773
Charter Services	$ -	$ 130	$ 133	$ 137	$ 140	$ 140	$ 140	$ 140	$ 140	$ 140	$ 140
Advertising	$ 250	$ 154	$ 154	$ 154	$ 154	$ 154	$ 154	$ 154	$ 154	$ 154	$ 154
Other Misc	$ 60	$ 60	$ 62	$ 63	$ 65	$ 66	$ 68	$ 70	$ 71	$ 73	$ 75
TOTAL DASH	**$37,873**	**$ 38,772**	**$40,734**	**$43,003**	**$45,398**	**$47,927**	**$50,596**	**$53,414**	**$56,390**	**$59,530**	**$62,846**

Paratransit operating costs are primarily spent on the operator, Diamond Transportation, with some smaller operating costs being spent on Senior Services and VIA transportation software. Maintenance is the responsibility of Diamond Transportation.

Table 5-4 / Operating and Maintenance Cost Projections Including Service Improvements (in $1,000)

Operating Cost Projections	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
DASH (with Improvements)	$ 40,452	$ 46,363	$ 50,819	$ 56,127	$ 59,253	$ 62,554	$ 66,038	$ 69,716	$ 73,599	$ 77,699	$ 81,584

5.2 / Capital Costs and Funding Sources

The following tables outline the costs and funding sources for DASH and City capital projects that are necessary to support DASH services and the improvements identified in the previous chapter. Table 5-5 shows all costs and funding associated with DASH replacement and expansion buses as highlighted in Chapter 4. Table 5-6 shows all costs and funding associated with DASH and City capital projects.

Additional information on the City of Alexandria's Draft CIP for FY 2025 – FY 2034 Capital Improvement Program will be available when the plan is made public in late February. The final version of this document will be updated to include this information.

Table 5-5 / Vehicle Replacement and Expansion Costs and Funding Sources (in $1,000)

	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Replacement Buses	0	7	14	0	6	14	21	6	8	0
Expansion Buses	14	4	4	0	0	0	0	0	0	0
TOTAL Buses	**14**	**11**	**18**	**0**	**6**	**14**	**21**	**6**	**8**	**0**
Cost of Replacements	$14,358	$11,571	$23,237	$ 245	$10,664	$24,921	$38,851	$12,064	$16,311	$1,103
Cost of Expansion	$10,492	$ 7,188	$ 6,200	$6,400	$ -	$ -	$ -	$ -	$ -	$ -
Total Cost ($1,000s)	**$24,850**	**$18,759**	**$29,437**	**$6,645**	**$10,664**	**$24,921**	**$38,851**	**$12,064**	**$16,311**	**$1,103**
Funding Sources:										
Local Funds	$ 154	$ 2,291	$ 4,342	$ -	$ 2,108	$ 4,819	$ 7,371	$ -	$ 4,209	$ -
NVTA 30% Funds	$ 164	$ 4,092	$ 1,791	$ 164	$ 1,851	$ 1,883	$ 1,824	$ 1,610	$ 1,791	$ -
State Funds	$24,532	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Unsecured State Funds		$12,376	$23,304	$6,481	$ 6,705	$18,220	$29,655	$10,454	$10,311	$1,103
Total Funding	**$24,850**	**$18,759**	**$29,437**	**$6,645**	**$10,664**	**$24,921**	**$38,851**	**$12,064**	**$16,311**	**$1,103**

Appendix A

Agency Profile & System Overview

ALEXANDRIA TRANSIT COMPANY
DASH

Appendix A: Agency Profile and System Overview

A.1 History

In 1984, the City of Alexandria founded a non-profit public service agency known as the Alexandria Transit Company, or "DASH", to help meet the growing demand for public transportation within the City. DASH began operating revenue service on five routes with 18 buses in March 1984 and grew steadily over the subsequent decades.

In 1993, DASH took over several Metrobus routes as a means of cost savings for the City of Alexandria. The next service expansion occurred in 2011 with the introduction of the "AT-2X" Mark Center Express to serve the new Department of Defense facility on Seminary Road. In 2012, DASH began operating the King Street Trolley, a free daily service that runs from the King Street Metro Station to the Potomac River waterfront. In 2014, DASH launched its first crosstown route, which helped enhance connections with other regional providers like Metrobus and ART.

The original DASH Facility was located on South Quaker Lane and housed all DASH Operations, Maintenance and Administrative functions for just over 25 years. In 2009, DASH opened a new Gold LEED Certified operating and maintenance facility on nearby Business Center Drive. This new, larger, state-of-the-art facility allowed opportunities to pursue service expansion and to introduce newer types of environmentally friendly vehicles such as the hybrid electric buses that began revenue service in 2011 and the 100% electric buses that began operating in 2020. Additional grant funding has been secured for a Facility Expansion project that will allow DASH to provide additional bus service and to support a larger zero-emission bus fleet.

In 2021, DASH unveiled the "New DASH Network", which represented the first phase of the Alexandria Transit Vision Plan and the largest and most comprehensive single-day service change in agency history. The network expanded frequent, all-day service across the City in a bid to make transit more relevant for more people. The launch of the new network also coincided with a transition to 100% fare-free operations on all DASH buses.

A.2 Governance

The Alexandria Transit Company is a non-profit corporation organized under Chapter 1, Title 13.1 of the Code of Virginia, for the purpose of providing mass transportation services as a public service corporation. The entire capital stock of the corporation – seven shares at a par value of $1.00 a share – is owned by the City of Alexandria. This arrangement provides means by which the transit system may be run as a business-type enterprise with City Council retaining overall policy control and the ATC Board of Directors managing the day-to-day operation of the transit system.

ATC is governed by a Board of Directors elected annually by the Alexandria City Council, acting in the capacity of the sole stockholders. Board Members serve without compensation and for one-year terms (re-appointment is permissible). Regular monthly Board meetings are held the second Wednesday of every month, except for a summer recess in July and August. ATC operates under the direction of its

Chief Executive Officer and General Manager, Josh Baker. Mr. Baker is the principal staff advisor to the Board on transit matters.

The current members of the ATC Board of Directors are listed below:

- David Kaplan, *Chairperson*
- Stephen Klejst, *Vice Chairperson*
- Matt Harris, *Board Member*
- Ajashu Thomas, *Board Member*
- Jesse O'Connell, *Board Member*
- Murat Omay, *Board Member*
- Hillary Orr, *Board Member* (City T&ES Designee)
- Kendel Taylor, *Board Member* (City Finance Designee)

In 2020, the DASH Advisory Committee (DAC) was founded as an independent advisory committee of bus riders who meet on a quarterly basis to provide advocacy to the DASH General Manager from a rider perspective. The committee is wholly independent of the ATC Board of Directors, and DAC members are appointed by the DASH CEO/General Manager and provide a diverse set of perspectives from different backgrounds, demographics, and communities. Committee members serve two-year terms but are eligible for reappointment.

The current members of the DASH Advisory Committee are listed below:

- Ross Simons, *Chairperson*
- Jim Durham, *Vice Chairperson*
- Arish Gajjar, *Committee Member*
- Eric Van Horn, *Committee Member*
- Yvette Jiang, *Committee Member*
- Bonnie O'Day, *Committee Member*
- Jim Maslanka, *Committee Member*
- Jason Kunik, *Committee Member*
- Abel-Rahman Elnoubi, *Committee Member*
- Matthew McManus, *Committee Member*
- Nawful Kulam, *Committee Member*
- Kursten Phelps, *Committee Member*
- Salma El Gourchal, *Committee Member* (Student Representative)

A.3 Organizational Structure

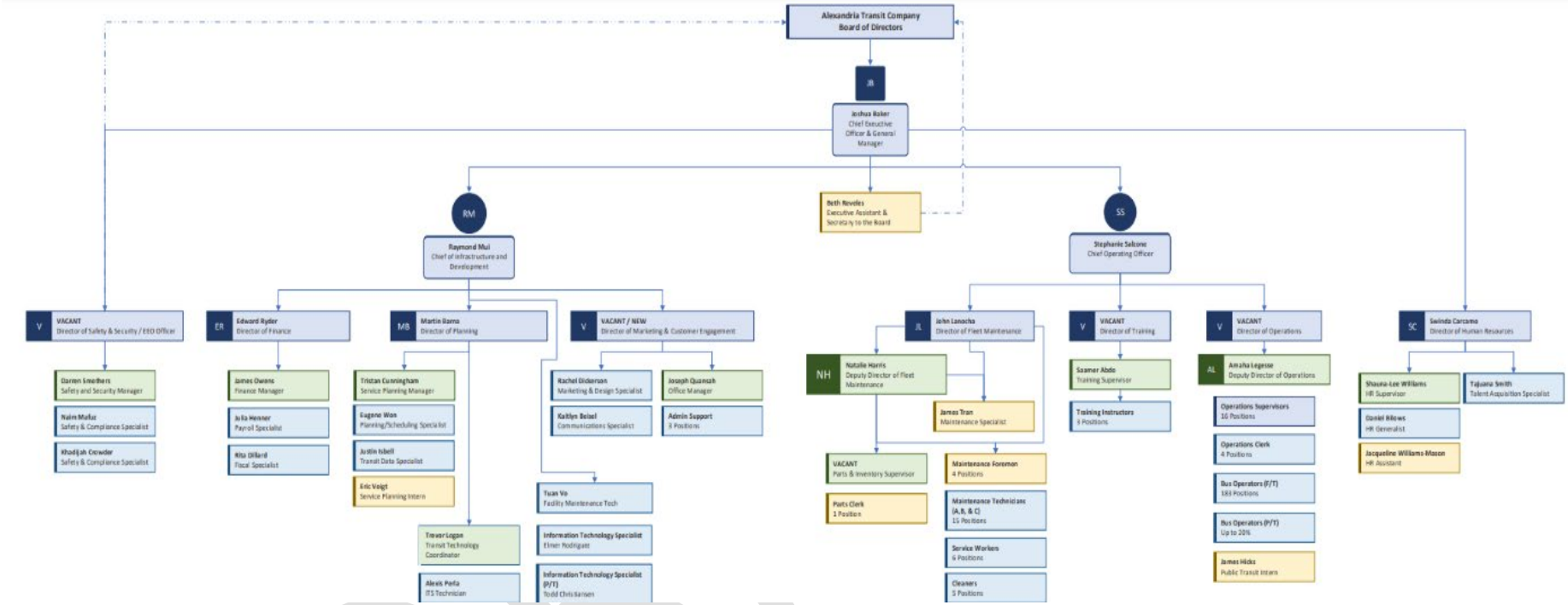
DASH is led by a CEO/General Manager, Josh Baker, who reports to the ATC Board of Directors. The full organizational structure is included in Table A-1 below. All DASH employees are employed by Transit Management of Alexandria (TMA).

Bus operators and mechanics are represented by the Amalgamated Transit Union (ATU, Local 689). The most recent DASH-ATU Collective Bargaining Agreement (CBA) took effect on July 1, 2023 and will

remain in effect until June 30, 2026. DASH Maintenance staff have recently joined ATU Local 689, but no formal labor agreement has been approved.

The operation of Alexandria DOT Paratransit service is contracted by National Express Transit/Diamond Transportation Services. The current contract term runs from December 2021 to December 2026.

Table 5-6 / DASH Organizational Structure (2024)



A.4 Services Provided and Areas Served

The following section summarizes the transportation services that are provided by the City of Alexandria. Additional information can be found in Chapters 1 and 2.

Alexandria Transit Company (DASH)

The Alexandria Transit Company (DASH) currently operates traditional fixed-route bus service on ten regular bus routes, and the King Street Trolley. The primary 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 A-1. An inset map depicting bus service in Old Town Alexandria is shown as Figure A-2. The majority of DASH service operates within the City of Alexandria, however, three routes – Lines 35, 103, and 104 – also provide service along Interstate 395 between Alexandria and the Pentagon. DASH utilizes 77 buses for its current weekday peak service needs. In addition to its regular bus services, DASH also operates the iconic King Street Trolley, a free tourist-oriented service running between the King Street Metro and City Hall/Market Square via King Street in Old Town. The trolleys typically run every 15 minutes from 11:00 AM to 11:00 PM, 365 days per year.

All DASH buses are fully ADA accessible with low floor, wheelchair lifts or ramps, and priority seating. All buses have onboard announcement systems that provide both audio announcements as well as digital displays with the name of the upcoming stop. All new bus stops within the City of Alexandria are required to be compliant with ADA access standards. DASH and the City of Alexandria estimate that nearly 60 percent of current stops are ADA compliant but are actively working to increase that share. Additional information the DASH fleet and bus stop amenities is provided in Chapter 4.

Figure A-1 / DASH System Map

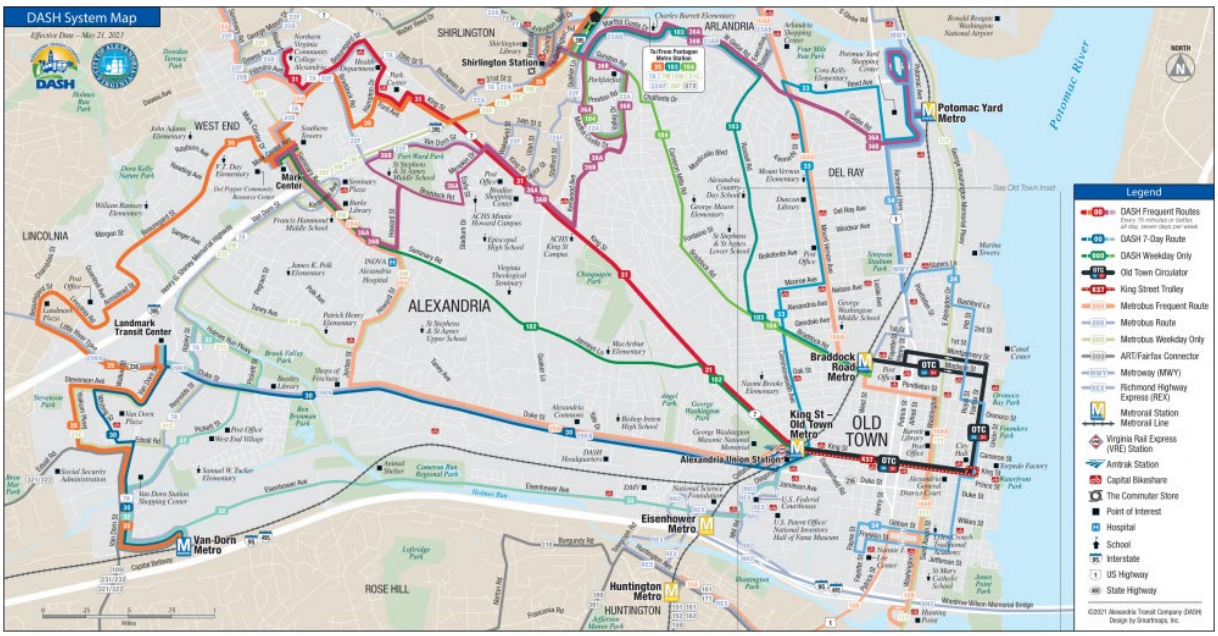
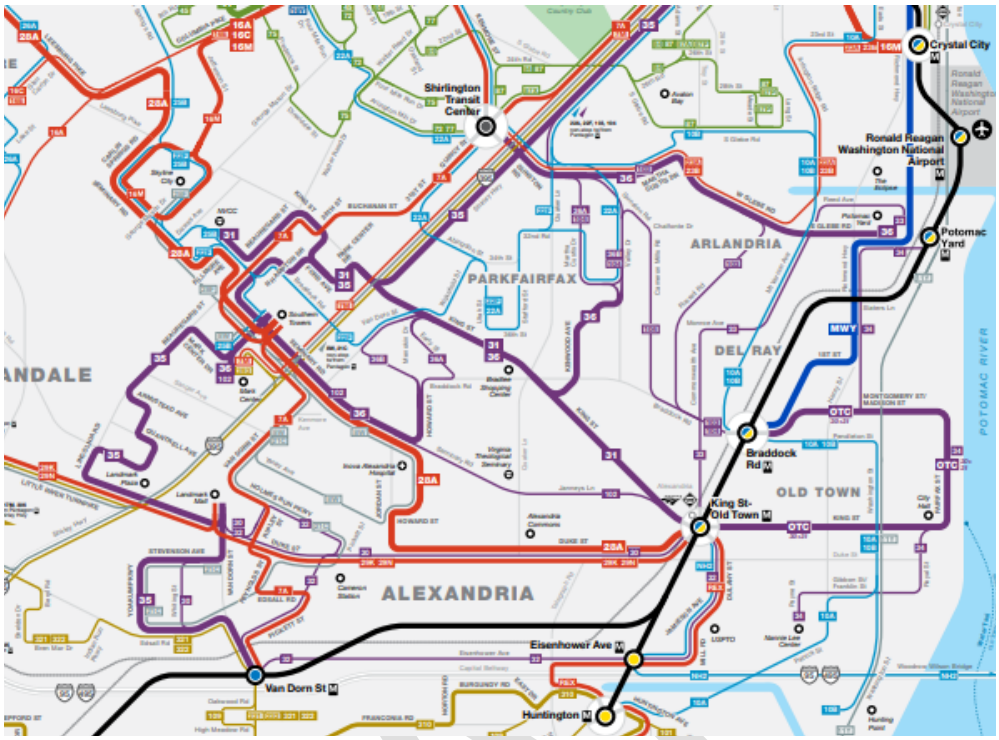


Figure A-2 / DASH System Map (Old Town Inset)

Figure A-3 / Metrobus & Metrorail Service Map



WMATA (Metrobus/Metrorail)

Washington Metropolitan Area Transit Authority (WMATA) serves as the regional transit operator for the Washington, DC metropolitan region and operates two (2) Metrorail lines and 17 Metrobus routes within the City of Alexandria. The City of Alexandria is served by five (5) Metrorail stations, including the Potomac Yard-VT Metrorail Station that was opened in May 2023. WMATA service is funded in part by contributions from the City of Alexandria.

Fairfax Connector

In addition to WMATA, the Fairfax Connector also provides limited bus service in West Alexandria with routes connecting to the Van Dorn Metro and Mark Center Transit Center. More information on Fairfax Connector service in Alexandria is provided in Chapter 2.

Amtrak/VRE

Amtrak and VRE operate regional passenger rail service serving Union Station in the City of Alexandria. A map of the VRE System is included in Chapter 2.

Alexandria DOT & MetroAccess

The City of Alexandria's Department of Transportation and Environmental Services (T&ES) manages the City's *DOT* ADA paratransit service. The City uses a contractor, National Express Transit/Diamond Transportation, to provide the transportation service with dispatching software from VIA Mobility, Inc. to maintain client information and manage reservations. The DOT ADA paratransit service is available

within the cities of Alexandria, Fairfax and Falls Church, counties of Arlington and Fairfax, along with the District of Columbia. DOT paratransit service is available Monday-Friday from 5 – 1 a.m., Saturday from 6 – 1 a.m., and Sunday from 7 – 1 a.m. DOT operates approximately 17 paratransit vehicles during maximum service and recording approximately 33,635 passenger trips in FY 2023.

Additional paratransit service for regional trips is available with WMATA's MetroAccess service.

A.5 Fare Structure, Payments, and Purchasing

DASH

In September 2021, DASH transitioned to 100% fare-free operations on all DASH buses. The fare-free program will continue at least through FY 2025 as funded by the Transit Ridership Incentive Program (TRIP) from the Virginia Department of Rail and Public Transportation (DRPT) with local support from the City of Alexandria. No additional fare adjustments are proposed for FY 2025.

Prior to the elimination of fare collection in 2021, the DASH base fare was $2.00 with free interagency transfers, discounts for Senior/Disabled SmarTrip cardholders and free rides for local high school students. DASH Passes provided unlimited monthly rides for $45 per month and the DASH Bus app provided customers with the ability to purchase and validate fares on their smartphone devices.

Alexandria DOT

Paratransit trips within the City of Alexandria are provided at no cost through the DOT program. DOT passengers who are traveling outside of the City but within 5 miles are charged a one-way fare of $4.00. Trips that extend beyond five miles of the City or any trips to/from Washington, DC require a one-way fare of $6.00. DOT fares may be paid in cash at the time of the trip or by credit card in advance. Certified Personal Care Attendants (PCA) may ride with the DOT passenger at no cost.

Metrobus

As shown in Table A-X, Metrobus and Metrorail fares vary by service type, rider class, time of day, and distance traveled. WMATA also offers free or discounted transfers for riders requiring multiple buses or trains in a single trip, and a range of passes for unlimited use of Metrorail and Metrobus. Reduced fares are available for Seniors and Persons with Disabilities. Children under the age of five ride WMATA for free, and elementary, middle and high school students in Washington, DC also are able to ride at no cost under the "DC Kids Ride Free" Program.

Customer payment methods include cash (exact change), SmarTrip cards, and the SmarTrip app with Google Pay or Apple Wallet. Customers may purchase fares online, on the SmarTrip app, or in-person at fare vending machines provided at each Metrorail station, the Metro Center Sales Office, Commuter Stores, or selected retail outlets.

Table 5-7 / Metrorail, Metrobus & MetroAccess Fares

Metrorail		
	Regular Fare	**Reduced Fare***
Weekday (5:00 a.m. - 9:30 p.m.)	$2.00 - $6.00	$1.00 - $3.00
Weekday (After 9:30 p.m.) Weekends	$2.00	$1.00
Metrobus		
	Regular Fare	**Reduced Fare***
Regular Routes	$2.00	$1.00
Express Routes	$4.25	$2.10
MetroAccess		
	Regular Fare	
Regular Routes*	Up to $4.00	

Table 5-8 / Metrorail/Metrobus Passes

Passes		
Metrorail & Metrobus	**Regular Price**	**Reduced Price***
1-Day Unlimited Pass	$13.00	
3-Day Unlimited Pass	$28.00	
7-Day Unlimited Pass	$58.00	
7-Day Short-Trip Pass	$38.00	
Monthly Unlimited Pass	$64.00 - $192.00	
Regional Bus Pass		
7-Day Pass	$12.00	$6.00

Source: www.wmata.com/fares

A.6 Transit Asset Management – Existing Fleet and Facilities

The DASH bus fleet is currently comprised of 101 buses for use in daily revenue service, not including buses that have been replaced and are in the process of being decommissioned and retired. The FY 2024 peak service requirement for weekdays is 77 vehicles, so the spare ratio is roughly 31%, or 28% if Trolleys are excluded. DASH also has six emergency contingency spare buses, which are not included in the spare ratio calculation. A summary of the active and contingency bus fleets are shown in Table 4-1 in Chapter 4.

The bus fleet is comprised of mostly 35-foot buses (63%), but also includes 40-foot buses (27%) and several articulated 60-foot buses (4%). The DASH fleet includes a mix of clean diesel (35%), hybrid electric (51%), and battery electric buses (14%). DASH also operates six hybrid electric trolleys. 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.

Maintenance, storage, and parking for all DASH buses is located the William B. Hurd Transit Facility, a 160,000 square foot LEED Silver building, which is located at 3000 Business Center Drive, Alexandria, VA, 22314. Electric charging and gas refueling takes place within the DASH facility.

A.7 Transit Safety & Security Programs

DASH has recently developed its first draft Agency Safety Plan (ASP), which outlines all policies and procedures relating to maintaining the safety and security of DASH staff and customers. It includes safety management policies, safety risk management/mitigation strategies, safety assurance monitoring, and safety promotion. This plan will be presented to the ATC Board of Directors in 2024 for their review.

DASH also strives to prepare its employees to respond effectively to potential security threats through training that includes how to prepare, observe, assess, and respond; the use of good judgment; application of due diligence; and capability to build on best practices identified in drills, training, rules, and procedures if confronted with a security incident or emergency. DASH is also developing a Transit Security Template and Assessment Review Toolkit (TSTART) Plan which includes the following provisions:

- Management and Supervisors communicate the DASH security plan and procedures to all employees and cultivate a culture of security awareness.
- DASH staff safeguards business and sensitive security information from release or dissemination to unauthorized persons.
- Management and security personnel maintain awareness of current National Terrorism Advisory System (NTAS) advisories, including bulletins and alerts, and communicate updates to all DASH personnel.
- DASH staff respond to security threats, which may be sourced from federal, state, and local government agencies or private sector resources, by implementing additional or altered security procedures, measures, and/or policies.
- New employees receive security training within 30 days of beginning employment. All employees receive periodic refresher security training every year. DASH Training staff provide

additional training to select employees based on their role within the agency and trains all employees to observe, assess, and report security threats and/or incidents.

Lastly, DASH also participates in the voluntary Baseline Assessment for Security Enhancement (BASE) program that is sponsored by the Transportation Security Administration (TSA). This program involves periodic assessments of agency policies and practices as well as unannounced testing of staff adherence to agency policies and best practices.

A.8 Intelligent Transportation Systems (ITS) Programs

The following section outlines several current ITS programs and projects that seek to improve DASH operations, efficiency and customer experience.

Computer Aided Dispatch (CAD)/Automated Vehicle Locator (AVL) | Clever Devices

DASH has used Clever Devices for its CAD/AVL systems since 2015. CAD/AVL systems allow transit agencies to track the locations of their buses at all times and assign buses to specific runs or trips. The system provide information to CAD/AVL maps that are used by dispatch staff, as well as real-time bus arrival information to customer-facing websites, apps, and real-time displays through a RT-GTFS Feed. A separate scheduling software platform (e.g. Optibus) creates the route schedules and work assignments. This data is then imported into CleverWorks and reconfigured into the GTFS (General Transit Feed Specification) and Real-Time GTFS feeds that are used by CAD/AVL, DASH Tracker and third-party apps and websites.

These CAD/AVL systems also provide information to the bus drivers about their location, work assignment and if they are on time or not via a touch screen. Onboard hardware required for CAD/AVL includes a router, onboard computer, and interactive "TCH" display for operators. In addition to supporting CAD/AVL, the onboard computer also controls external headsigns or destination signs, internal LED signs and the onboard audio announcements.

Fixed-Route Scheduling Software | Optibus

DASH currently uses scheduling software from Optibus. Although the CAD/AVL System is critical for daily transit operations, it relies entirely upon schedule information that is provided by a fixed-route scheduling software platform. Optibus allows the DASH Planning & Scheduling team to create route schedules, vehicle blocks, operator runs and weekly roster assignments that ensure that all trips are covered as efficiently as possible. Optibus uses advanced algorithms to reduce costs while maintaining service reliability and operator satisfaction. It also allows for real-time scenario planning so that DASH staff can quickly evaluate potential changes and understand their impact on agency budget, staffing and fleet needs.

Automated Passenger Counters | Hella APC's

For its automated passenger counters (APC's), DASH utilizes Hella APC equipment on its buses, supporting by Ridecheck Plus (Clever Devices) and Hopthru ridership analysis software. APC's are video sensors mounted above each door on every bus that use advanced 3-D video technology to accurately track passenger boardings and alightings. Daily ridership data is stored on the onboard computer which

uploads the data when the bus returns to the garage. Ridership data is then aggregated by Ridecheck Plus and fed into the Hopthru ridership analytics platform that allows staff to see graphics and visualizations of ridership trends.

Garage Management | SmartYard (Clever Devices)

DASH uses Smartyard, a Clever Devices software product, to monitor buses within the DASH Facility. This platform includes a garage map so that the dispatch team is able to view the status and locations of all buses within the garage. Smartyard relies on sensors placed around the garage to be able to identify the exact location, including row and parking spot, of every DASH bus in the garage. It is also integrated with Fleetio so that bus statuses may be shown and buses that are deadlined are not put into service.

Headsigns | Luminator, Hanover Displays

All DASH buses are equipped with exterior headsigns, or destination signs, that provide information on the bus route and direction, including the final route terminus and any important "via" points that will help customer determine if the bus is going where they need it to go. These signs are also used for additional customer communications and service alerts.

Most DASH buses are equipped with one large destination sign on the front of the bus, one smaller LED sign on the curb side and a small rear LED sign. Newer and larger DASH buses may be equipped with additional signs on the driver side or a second sign on the curb side. Most DASH destination signs are provided by Luminator but the most recent DASH order was outfitted by Hanover Dispays with signs that have higher resolutions and colors. Destination sign content is managed

Surveillance Cameras | Apollo RSM

All DASH buses are equipped with interior/exterior video surveillance equipment from Apollo RSM that allows Operations and Safety staff to monitor live feeds from up to 8 different cameras. Video recordings are stored on a large hard drive on each bus and can be downloaded later for review, usually for accidents or other events. The current system requires manually removal of hard drives so that video history may be uploaded onto a desktop computer.

Real-Time Displays | CHK/Connectpoint, Redmon Group

In 2018, DASH began installing real-time bus arrival information kiosks and tablets at various high-ridership locations throughout the city. Major real-time displays from Redmon Group were funded by a DRPT Demonstration Grant and installed at City Hall, Southern Towers, NVCC-Alexandria, King Street Metro, Mark Center, NSF and other key stop locations. Smaller, solar-powered table displays provided by CHK/Connectpoint have also been installed in dozens of key stops across the City, many of which were funded by the NVTC I-395 Commuter Choice grant program. By the end of FY 2024, DASH expects to have real-time information displays at 70 stop locations, which combined account for over 50 percent of DASH average weekday ridership.

DASH Tracker | Cambridge Systematics

DASH launched a new real-time arrival website in 2021 called the DASH Tracker which can be viewed at www.dashbus.com/tracker. This DASH Traker website provides real-time bus arrival information directly from the DASH and WMATA RT-GTFS feeds with a higher degree of accuracy than most other third-party websites and apps. It also features route-level service alerts for major service disruptions. The DASH Tracker is prominently featured on the DASH website and is supported by Cambridge Systematics. Although DASH Tracker is the main real-time platform that is supported by DASH, other third-party platforms like the Transit App, Citymapper, Google maps, and Moovit are also able to display DASH real-time information on their respective platforms.

Trip Planning | Moovit

DASH also recently upgraded the trip planning tool that is featured on the DASH website. The new Moovit trip planner is embedded on the agency website and provides highly-accurate trip planning information on DASH, WMATA and all other regional transit providers. Although the main DASH trip planner is provided by Moovit, DASH has an open feed for its RT-GTFS so other platforms such as Apple Maps, Google Maps, and the WMATA Smartrip app are able to provide DASH trip planning information to their customers.

Fleet Management | Fleetio, Fleetwatch

For fleet management needs, DASH utilizes Fleetio and Fleetwatch. Fleetio allows DASH Maintenance staff to track maintenance needs and efforts for preventative maintenance, parts orders, and general repairs. This platform keeps a detailed fleet inventory for each bus and allows staff to easily update bus status so that Operations knows which buses are available for revenue service and which are not. Fleetwatch, which relies upon data that is automatically uploaded from buses in the service lane each night, is also used for tracking fluid consumption and vehicle mileages.

Support Fleet Management | Samsara

DASH recently has deployed the Samsara system to its fleet of support vehicles. This system will be used to track vehicle usage, see real-time vehicle locations, and to support video surveillance on the support fleet.

Transit Signal Priority | GTT Opticom

DASH and the City of Alexandria T&ES staff have been working over the last five years to install Transit Signal Prioritization (TSP) technology at key intersections on transit corridors throughout the City. This technology enables traffic signals to sense when a bus is approaching so that it can extend the green phase to allow the bus to move through more quickly. This allows for increased bus speeds and greater service reliability, particularly for bus routes that operate on more congested corridors. To date, the City of Alexandria has installed TSP technology at 54 intersections and has plans to expand to most intersections used by Metrobus or DASH buses by 2026.

Electric Bus Charge Management Pilot | WideSense

DASH secured a FY 2024 DRPT "Demonstration Project" grant to implement a Charge Management System Pilot project that will allow DASH to monitor electric bus charging status of individual buses and actively manage the distributing of electrical charging across multiple charging stations to better align with real-time service needs. This includes the installation of hardware equipment on the charging dispensers as well as software that will be used by DASH staff in the Operations, Maintenance and Planning Departments to better understand bus charging profiles and to deploy the electric buses more efficiently. DASH will be the first transit agency in the state to deploy this type of platform, which will improve reliability, and reduce charging costs by decreasing the number of buses charging during peak utility pricing periods. Furthermore, this technology will enable the DASH team to support a greater number of battery electric buses with less charging infrastructure, thus minimizing capital needs and achieve full fleet conversion to zero-emission buses.

Automated Wheelchair Securement Pilot | Q'Straint

DASH was also awarded funding for an FY 2024 DRPT "Demonstration Project" grant to install a state-of-the-art automated wheelchair securement system on up to five DASH buses. This system is designed to allow passengers with mobility devices to safely secure themselves in the designated ADA seating area without operator involvement. When compared with current manual securement practices, this system will reduce potential liability for accidents due to operators incorrectly securing mobility devices and speed up the boarding process to reduce overall travel times and improve overall service reliability. Lastly, this system will also reduce the need for close contact between operators and passengers which greatly reduces the risk of viral transmission or other conflicts. If this pilot is successful, DASH would potentially begin ordering this system on future bus orders.

Bus Speed & Reliability Data Improvements

DASH is exploring technology platforms that will provide better visibility into bus speeds and reliability metrics. This will allow DASH and City staff to better understand where schedule adjustments and street or stop improvements could be implemented to prioritize buses over other modes and improve speeds and reliability.

A.9 Data Collection and Ridership/Revenue Reporting Method

DASH ridership data is currently collected using farebox data with operators manually pressing a button each time a passenger boards the bus. DASH Is currently in the process of validating the automated passenger counters (APC's) that have been installed or retrofitted on all DASH buses. These buses are equipped with 3-D video sensors that are mounted above each door to automatically count passengers as the board and alight. The APC validation effort will earn National Transit Database (NTD) certification with the Federal Transit Administration (FTA) by the end of FY 2024 such that DASH will be able to transition to using APC data for FY 2025 and discontinue farebox-based ridership data collection.

A.10 Coordination with Other Transportation Service Providers

City of Alexandria and DASH staff closely coordinate on the planning and provision of transit service with regional providers like WMATA Metrobus and Metrorail that operate within the City. DASH and the City

are also in regular communication with other providers in adjacent jurisdictions such as ART (Arlington County) and the Fairfax Connector (Fairfax County). Alexandria will continue coordination efforts with regional agencies to support ATC's mission into the future, and to provide connecting service Metrorail stations, giving convenient access to the regional transit system.

Additional information on other regional transit providers that operate within the City of Alexandria is included in Chapter 2.

A.11 Public Outreach/ Engagement/ Involvement

The City of Alexandria and DASH both have comprehensive programs for soliciting public engagement for key transit service planning decisions, which have been used to for community outreach for the Alexandria Transit Vision Plan, Alexandria Mobility Plan, and the Alexandria Transit Strategic Plan.

Methods that are typically used for public engagement by DASH and City staff include:

- Website (Multilingual)
- Social Media Posts
- Email Distribution Lists
- Newspapers (Multilingual)
- Flyers at Bus Stops (Multilingual)
- Alerts on Real-Time Information Displays
- Onboard Posters (Multilingual)
- Onboard Announcements (Multilingual)
- Pop-Up Events at Bus Stops
- Bus Ride-A-Longs
- Community Meetings/Open Houses (Multilingual)
- Public Hearings (Multilingual)
- Outreach to Community Groups representing non-traditional outreach participants
- Staff Presentations at Community Group Meetings
- Tabling at Major City Events

Feedback collected through outreach processes is carefully documented and reviewed by staff. Staff incorporates feedback into final decisions when appropriate, but includes all public comments in the materials that are presented to the ATC Board of Directors prior to their consideration of adoption.

A.12 Current Initiatives

Information on Current City and DASH Initiatives is provided in Chapter 1.

Appendix B

DASH Route Profiles

ALEXANDRIA TRANSIT COMPANY
DASH

Line 30 / Old Town Circulator (OTC)

(a.k.a. "Line N3" in 2022 ATV Plan)

Route Description: **Van Dorn Metro to Braddock Metro via Duke Street**

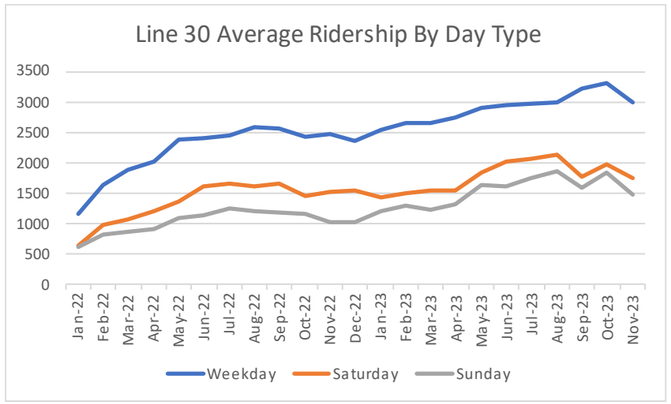
Residents within ¼ Mile: **49,600 residents**
- *Low Income Residents:* *5,952 (12.0 percent)*
- *Minority Residents:* *25,395 (51.2 percent)*
- *Senior Residents:* *6,115 (12.3 percent)*

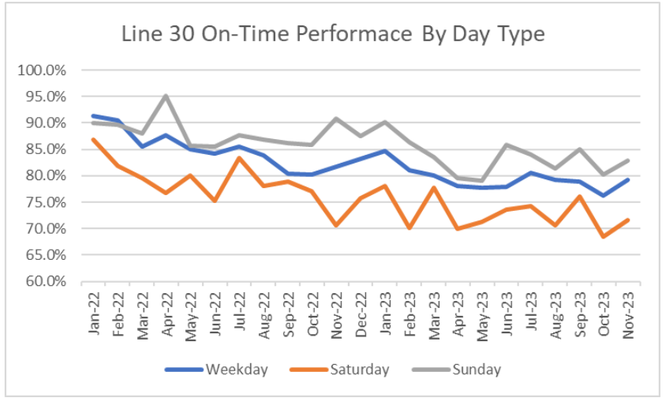
Jobs within ¼ Mile: **39,446 jobs**

Current Service Levels:

	Frequency	Span (Approx.)
Weekday		5am – 12am
AM/PM Peak	10-20 min.*	
Midday	30 min.	
Evening	30 min.	
Saturday	30 min.	6am – 12am
Sunday	30 min.	6am – 12am

**Peak service between Van Dorn Metro and Landmark only runs every 20 minutes due to short trips.*



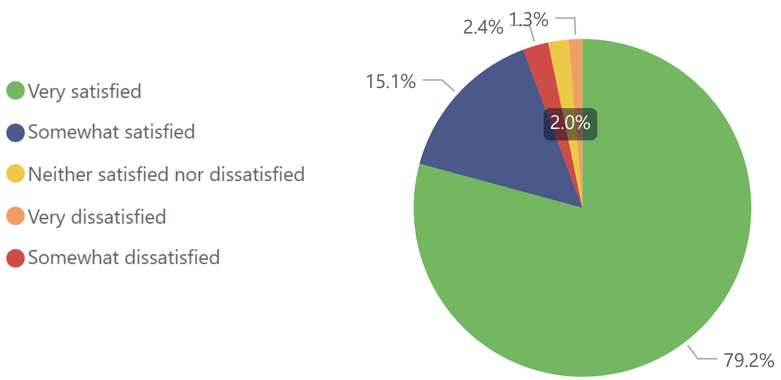


Line 30

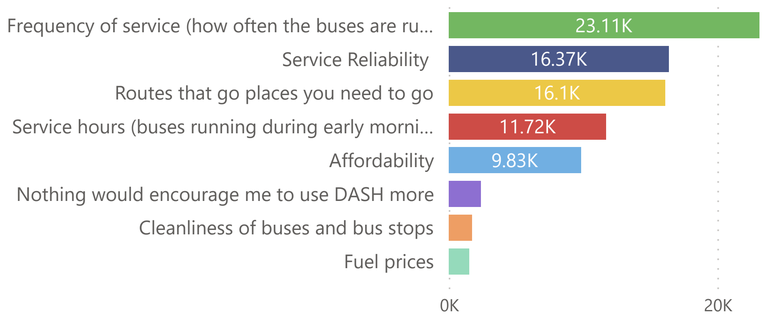
Low-Income	Minority	Over 65	Zero Vehicle
42.1%	75.7%	5.9%	46.0%

ALEXANDRIA TRANSIT COMPANY DASH

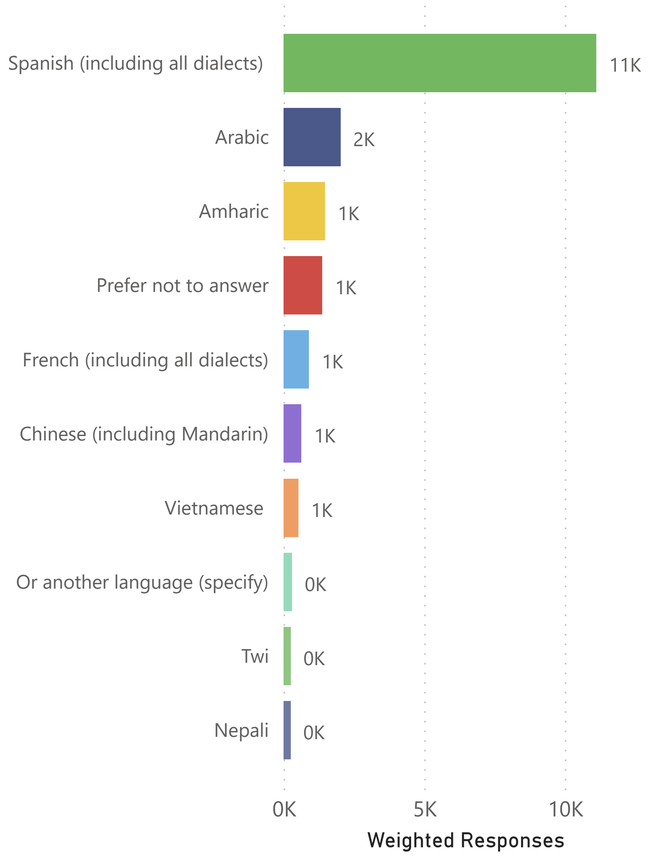
Overall Satisfaction



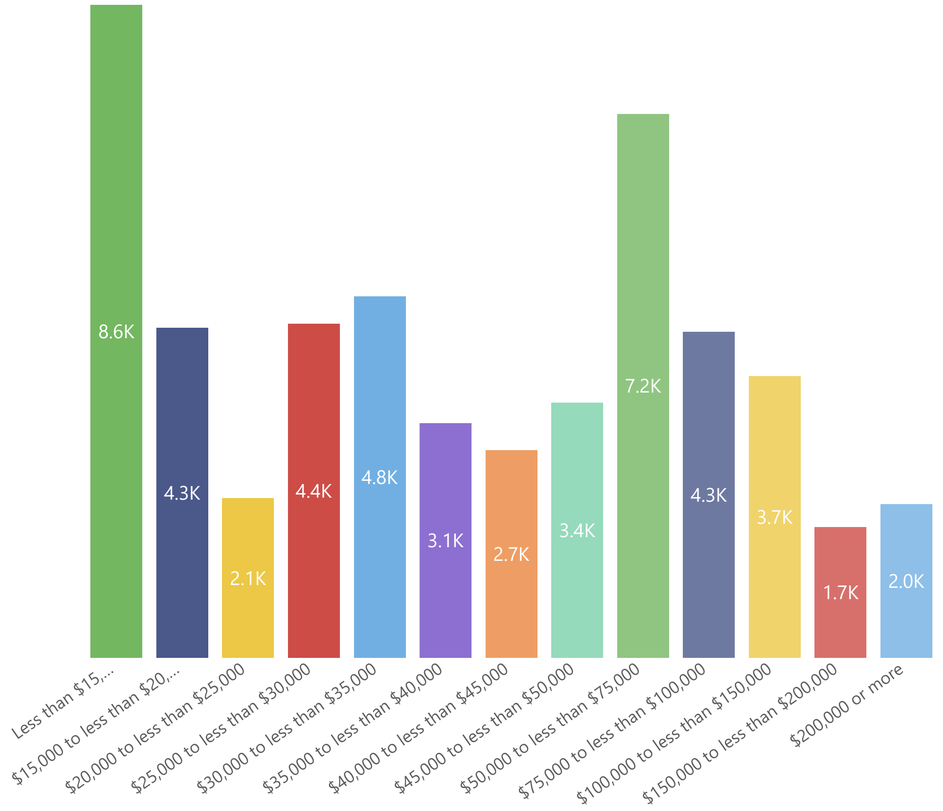
Most Important Reason for Riding



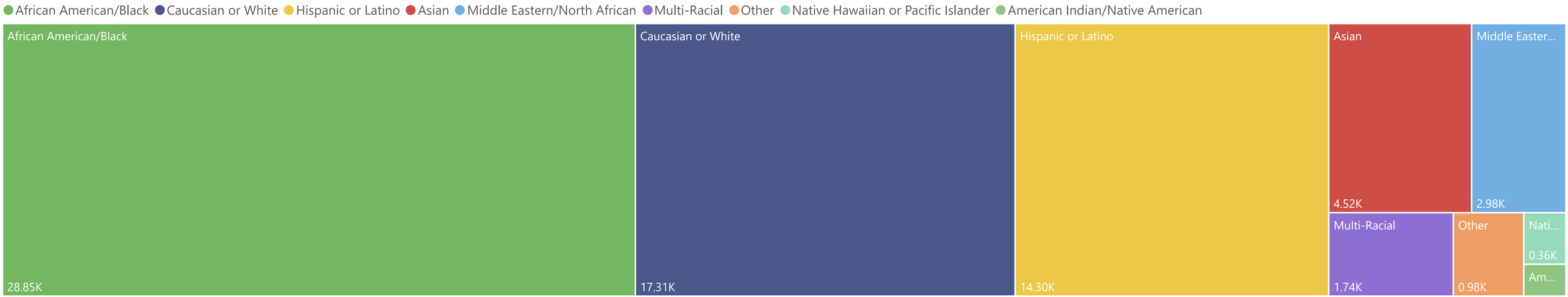
Primary Language Spoken (Other than English)



Household Income



Race and Ethnicity



Line 31 / Old Town Circulator (OTC)

(a.k.a. "Line N4" in 2022 ATV Plan)

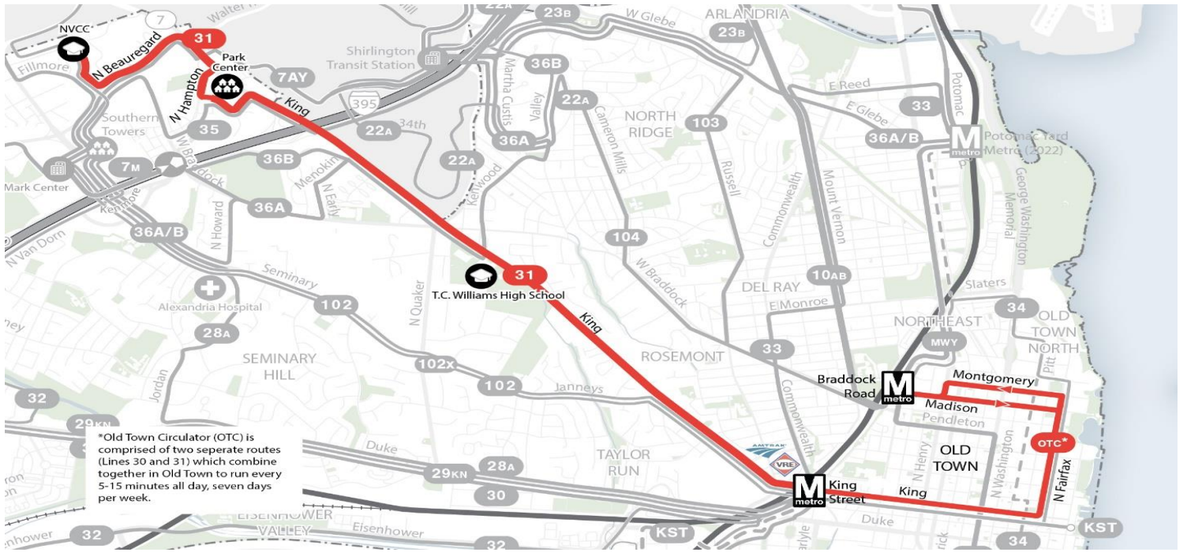
Route Description: **NVCC-Alexandria to Braddock Metro via King Street**

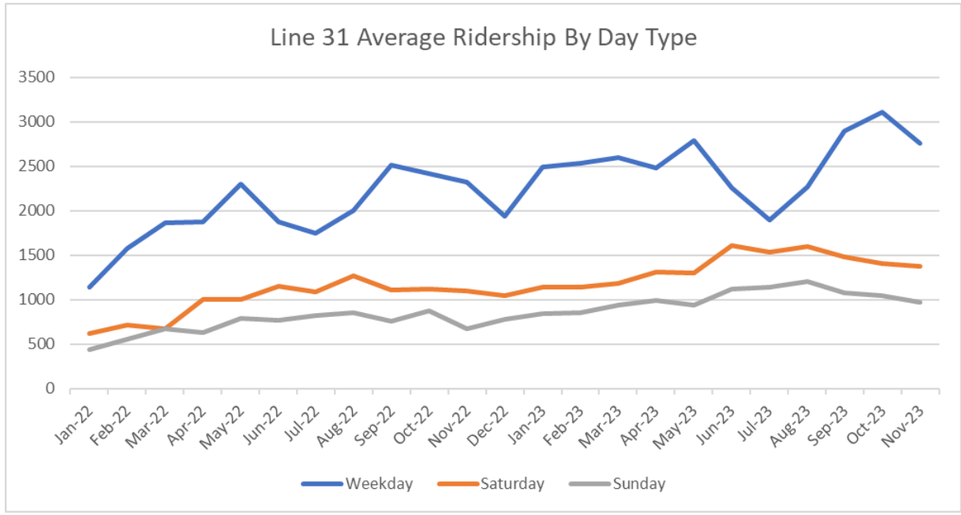
Residents within ¼ Mile: **38,900 residents**
Low Income Residents: *3,618 (9.3 percent)*
Minority Residents: *12,215 (31.4 percent)*
Senior Residents: *5,856 (15.2 percent)*
Jobs within ¼ Mile: **27,200 jobs**

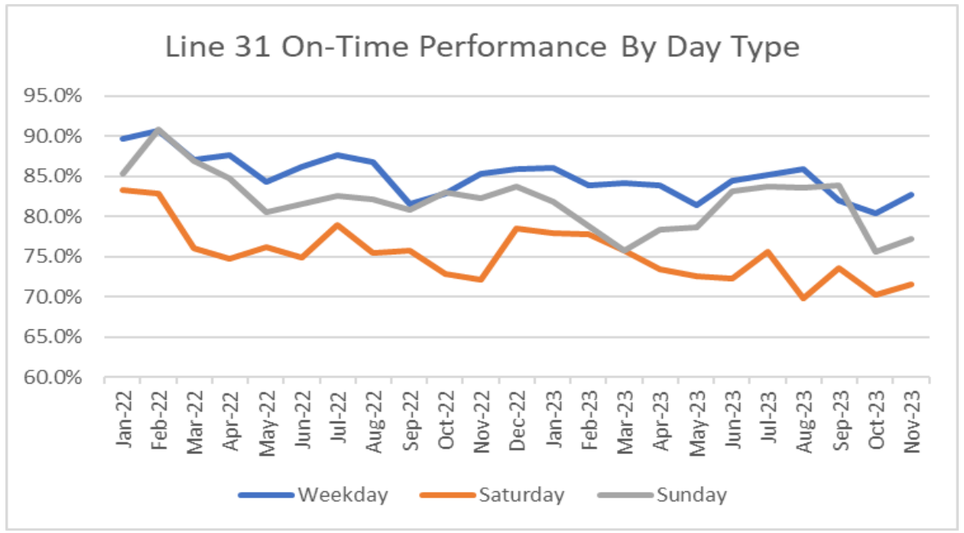
Current Service Levels:

	Frequency	Span (Approx.)
Weekday		5am – 12:30am
AM/PM Peak	10 min.	
Midday	15 - 30 min.	
Evening	30 min.	
Saturday	15 - 30 min.	6am – 12am
Sunday	15 - 30 min.	6am – 12am

**Line 31 to run every 15 minutes from NVCC to King Street Metro during off-peaks and weekends.*





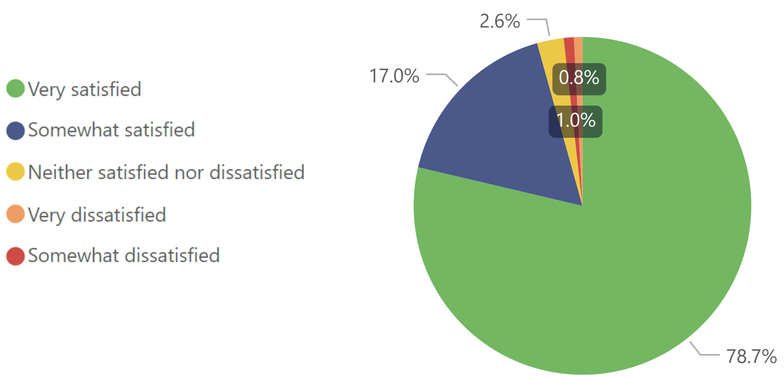


Line 31

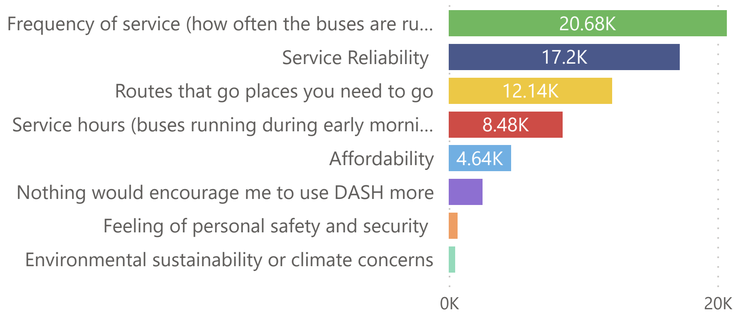
Low-Income	Minority	Over 65	Zero Vehicle
30.6%	72.2%	4.0%	39.6%

ALEXANDRIA TRANSIT COMPANY DASH

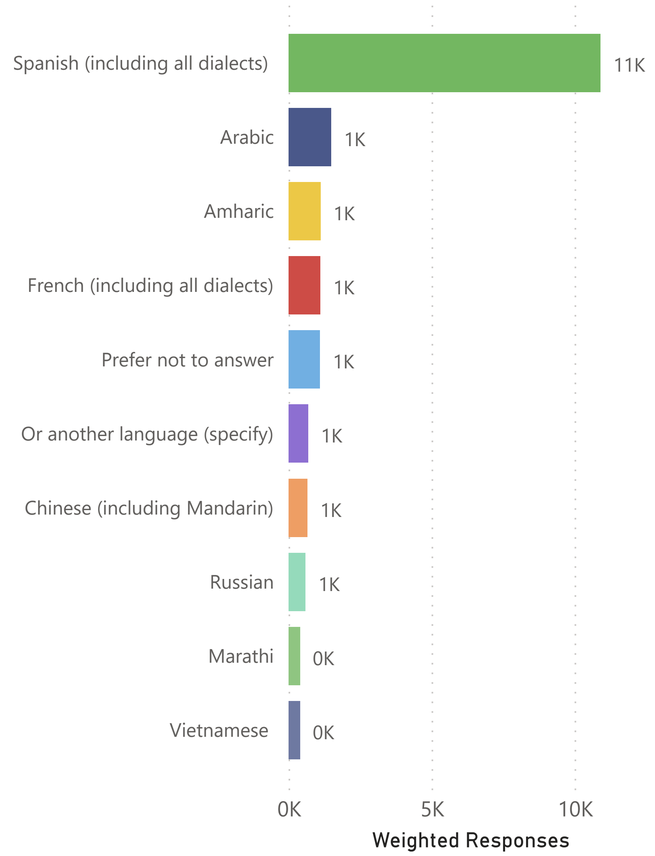
Overall Satisfaction



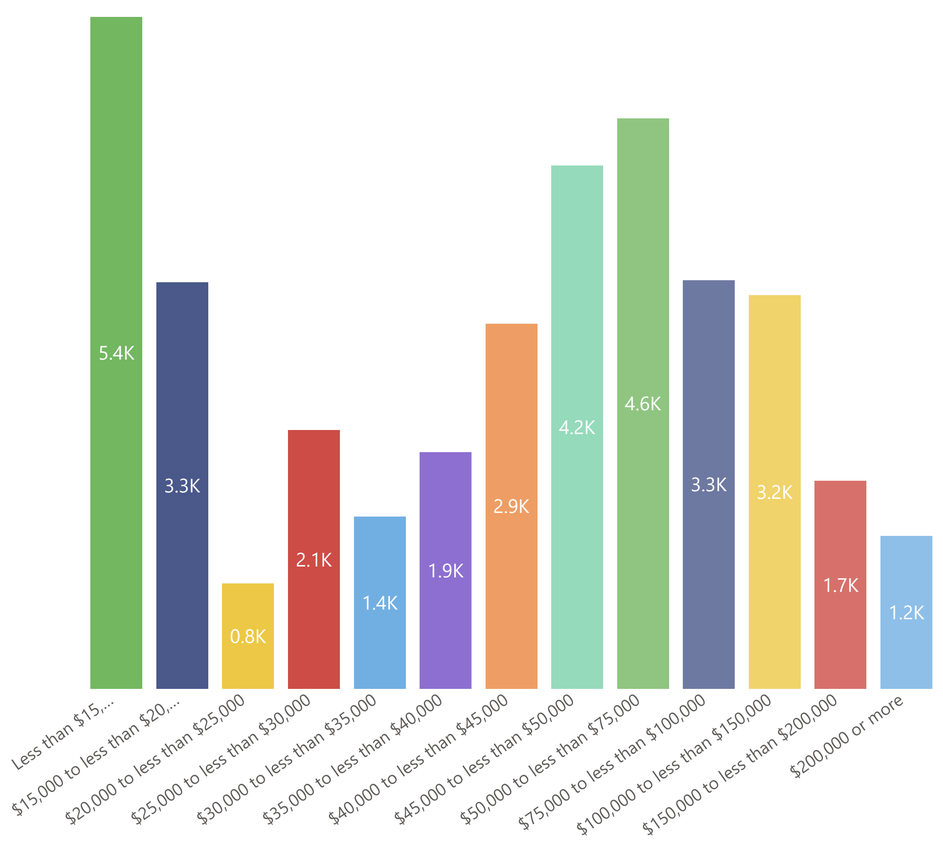
Most Important Reason for Riding



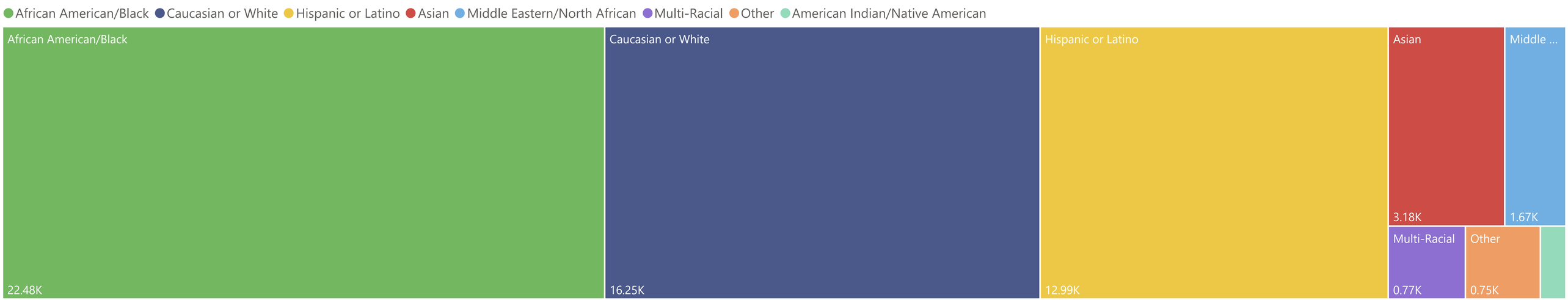
Primary Language Spoken (Other than English)



Household Income



Race and Ethnicity



Line 32

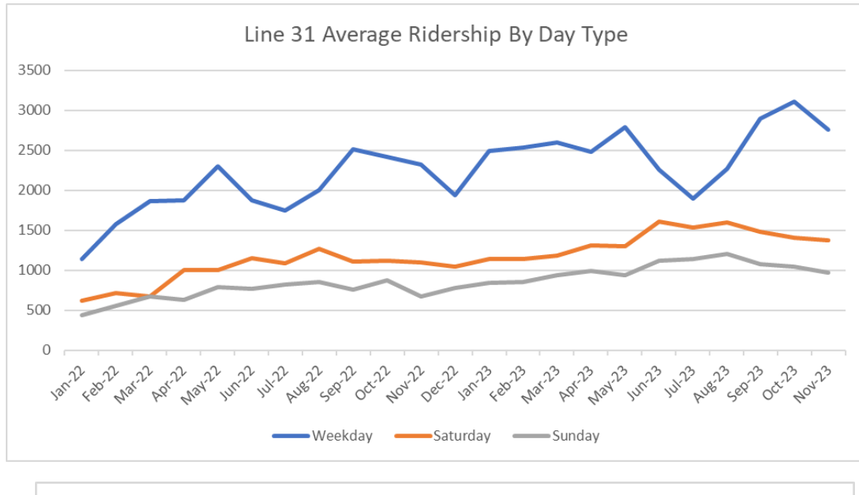
(a.k.a "Line N1" in 2022 ATV Plan)

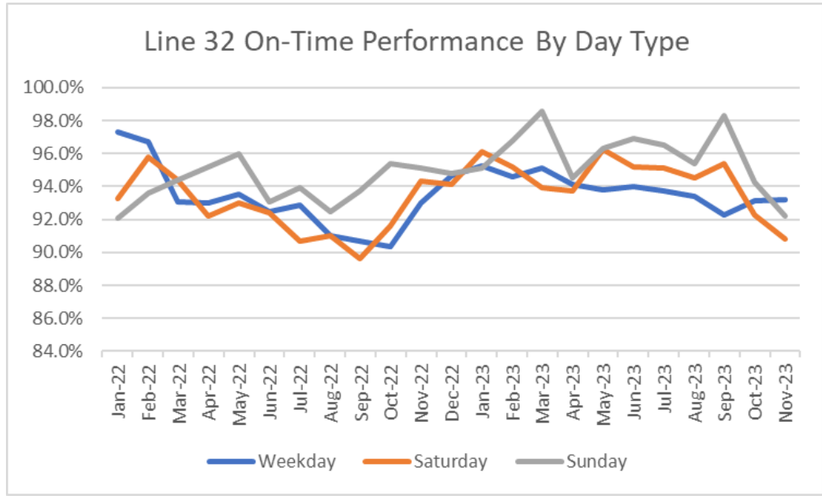
Route Description: **Landmark Mall to King Street Metro via Eisenhower Avenue**

Residents within ¼ Mile: **40,100 residents**
- *Low Income Residents:* *4,932 (12.3 percent)*
- *Minority Residents:* *15,960 (39.8 percent)*
- *Senior Residents:* *5,252 (13.3 percent)*

Jobs within ¼ Mile: **39,900 jobs**

	Frequency	Span (Approx.)
Weekday		5am – 10pm
AM/PM Peak	30 min.	
Midday	60 min.	
Evening	30 min.	
Saturday	60 min.	7am – 10pm
Sunday	60 min.	7am – 10pm



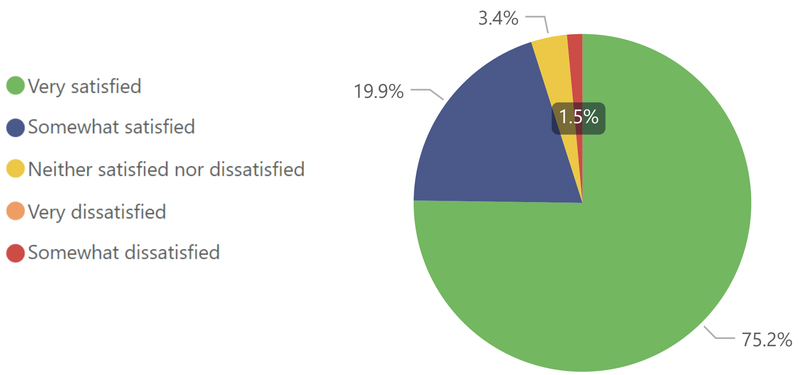


Line 32

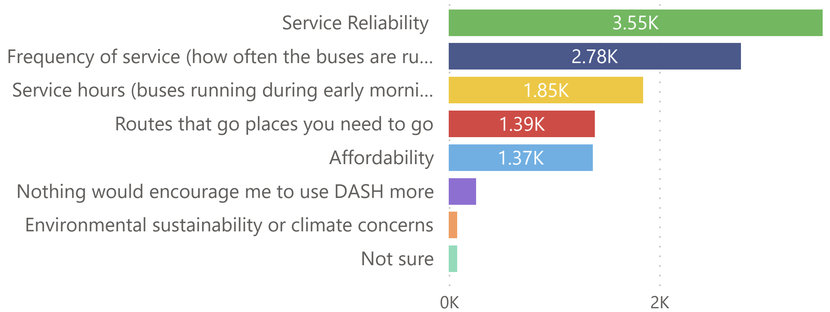
Low-Income	Minority	Over 65	Zero Vehicle
33.5%	76.1%	7.9%	53.4%

ALEXANDRIA TRANSIT COMPANY DASH

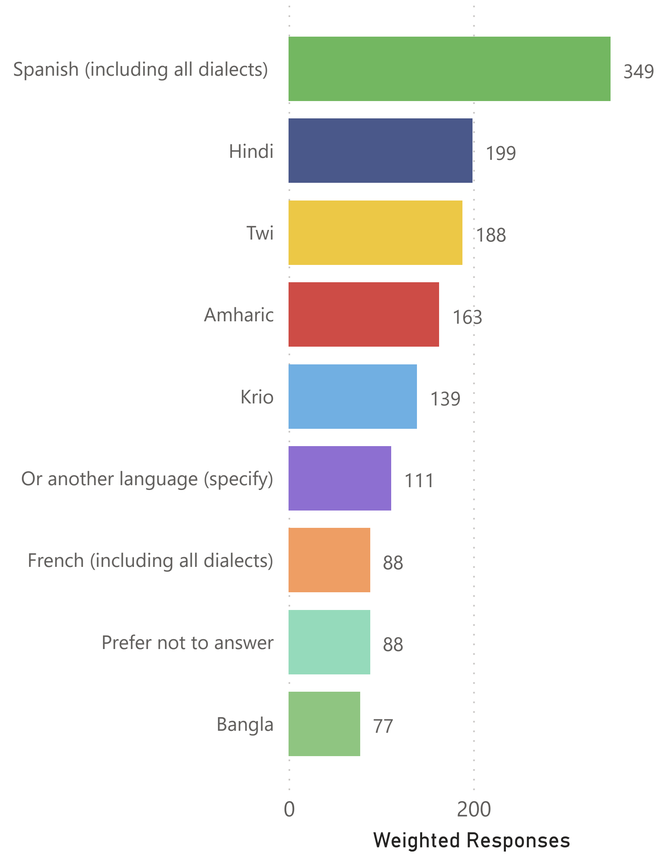
Overall Satisfaction



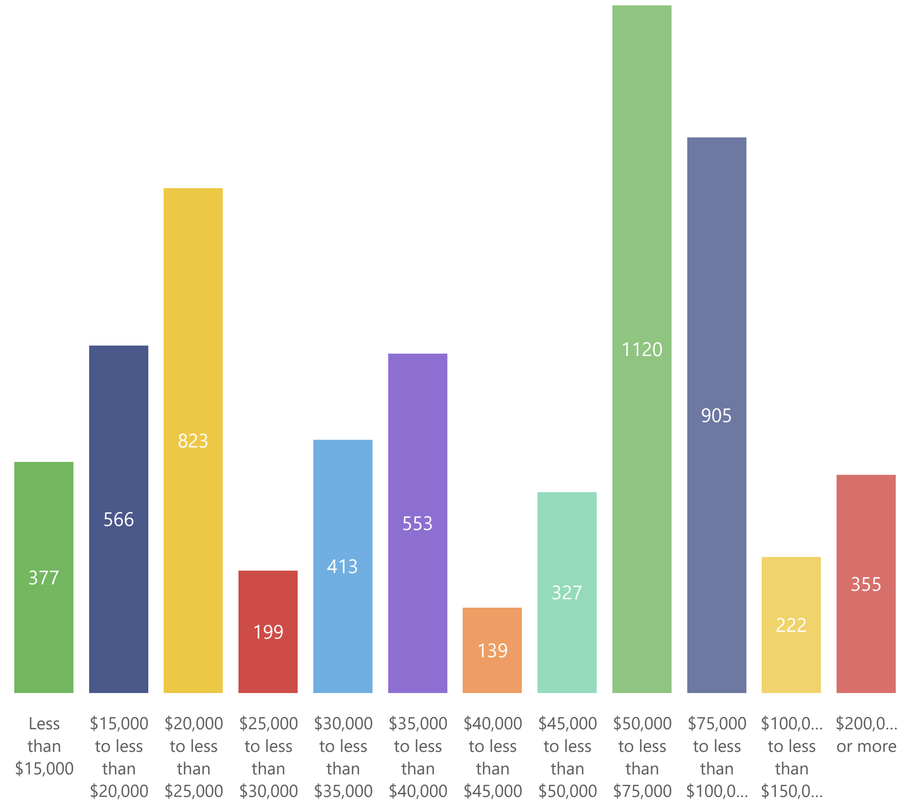
Most Important Reason for Riding



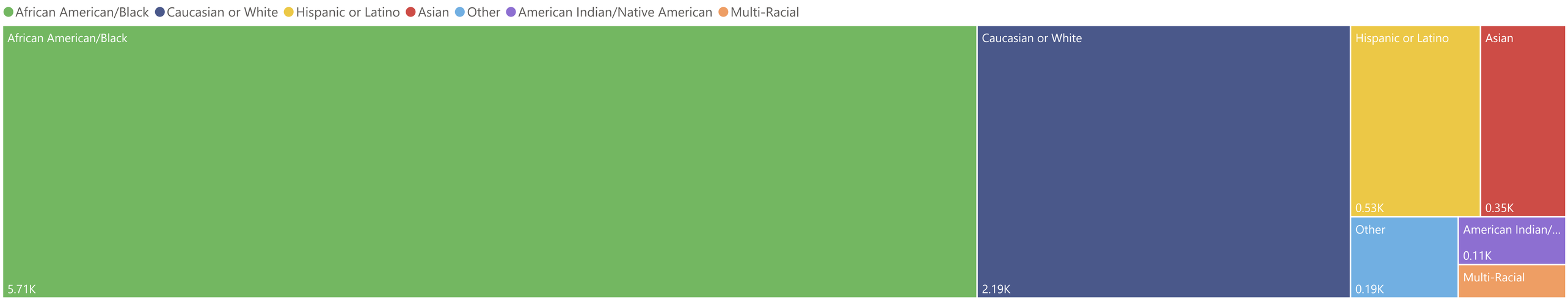
Primary Language Spoken (Other than English)



Household Income



Race and Ethnicity



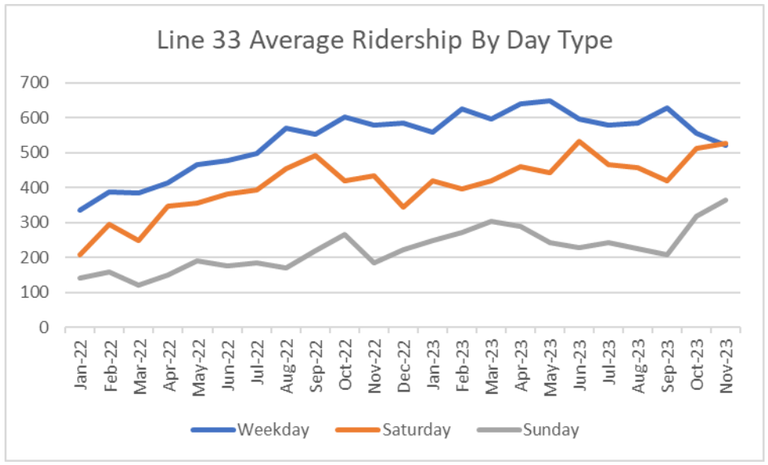
Line 33

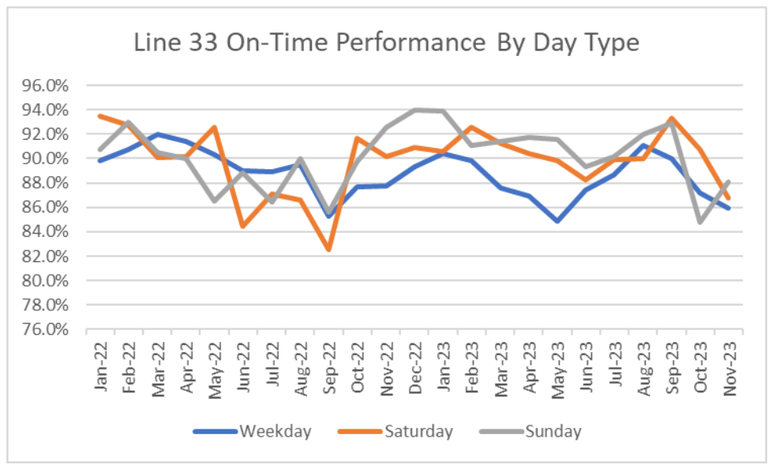
(a.k.a "Line N5" in 2022 ATV Plan)

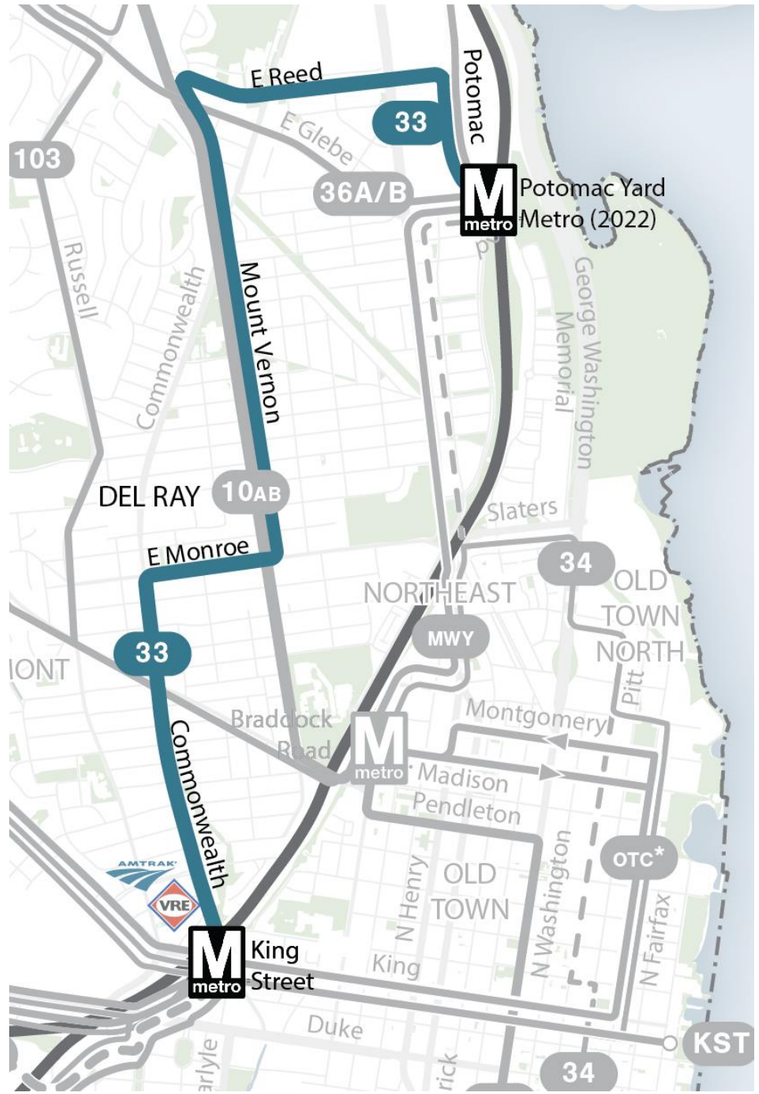
Route Description: **King Street Metro to Potomac Yard via Mount Vernon Avenue**

Residents within ¼ Mile: **20,600 residents**
Low Income Residents: *1,586 (7.7 percent)*
Minority Residents: *5,892 (28.6 percent)*
Senior Residents: *2,101 (10.2 percent)*
Jobs within ¼ Mile: **7,400 jobs**

	Frequency	Span (Approx.)
Weekday		6am – 10pm
AM/PM Peak	30 min.	
Midday	30 min.	
Evening	60 min.	
Saturday	30 min.	7am – 10pm
Sunday	60 min.	7am – 10pm





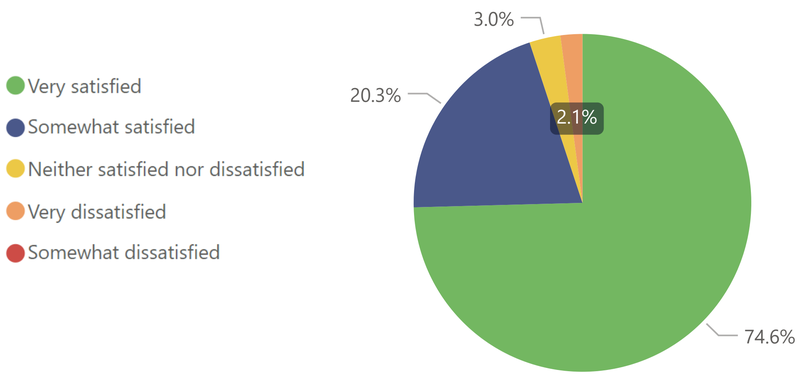


Line 33

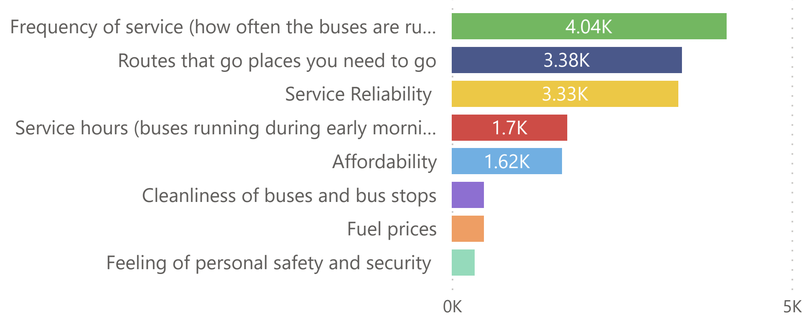
Low-Income	Minority	Over 65	Zero Vehicle
38.6%	70.9%	6.4%	46.5%

ALEXANDRIA TRANSIT COMPANY DASH

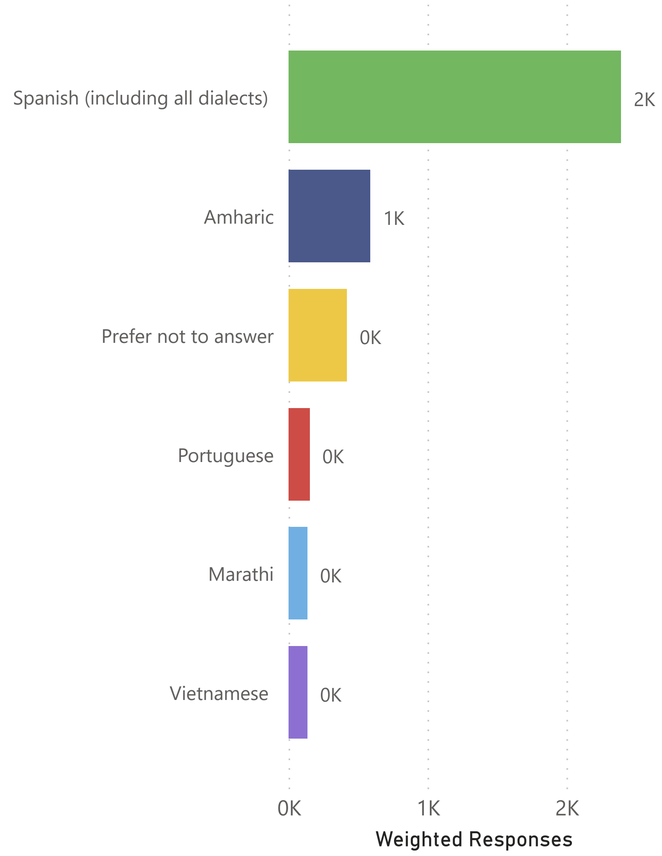
Overall Satisfaction



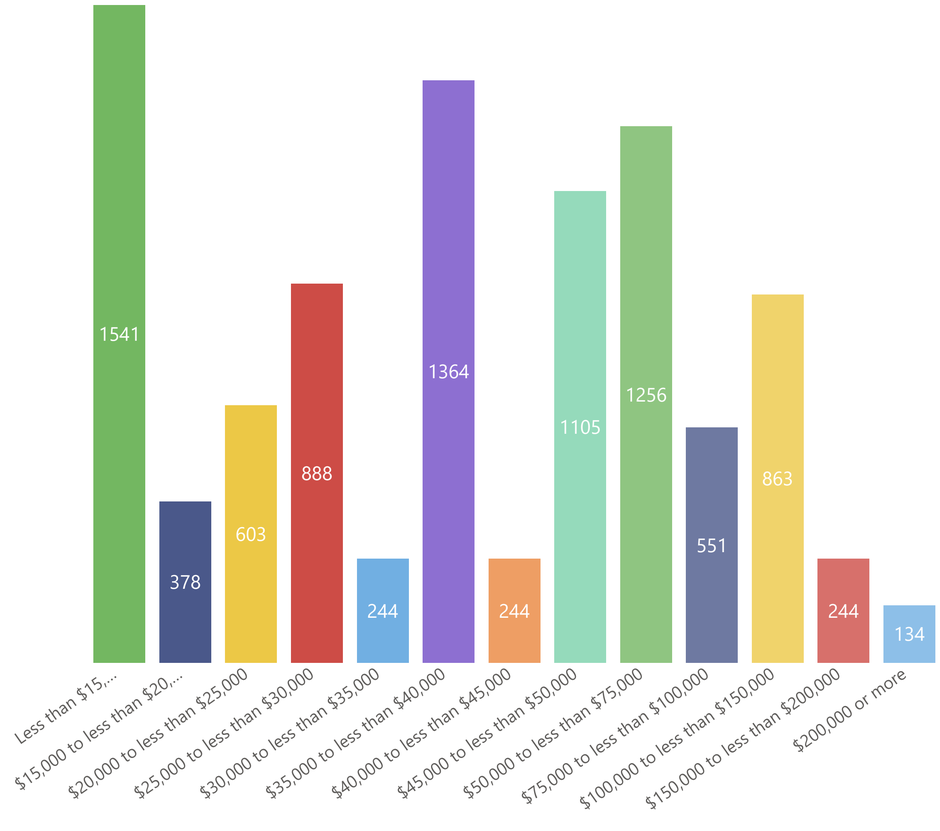
Most Important Reason for Riding



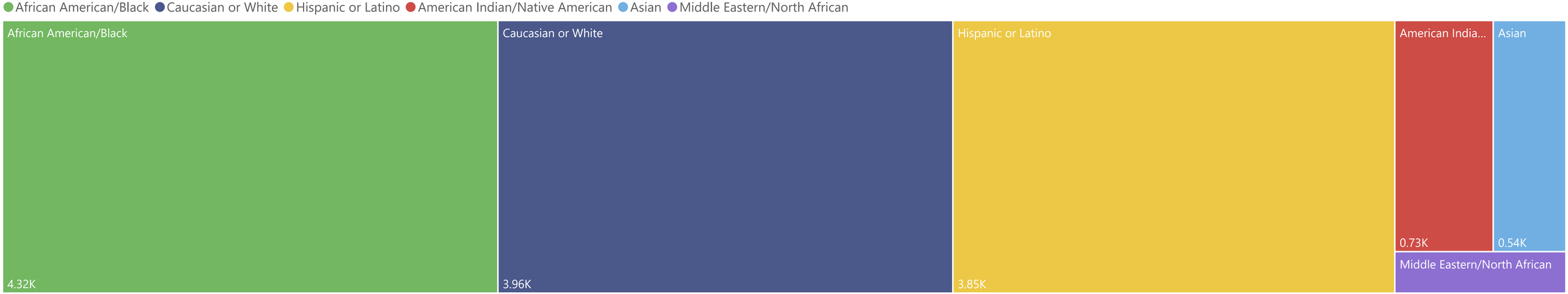
Primary Language Spoken (Other than English)



Household Income



Race and Ethnicity



Line 34

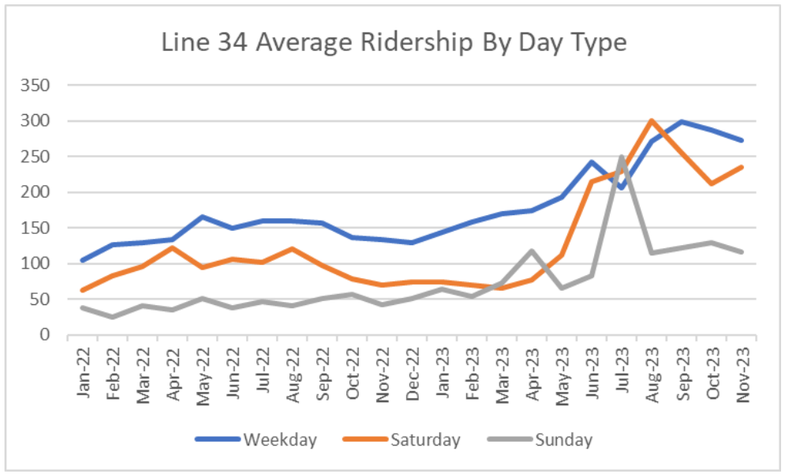
(a.k.a "Line N6" in 2022 ATV Plan)

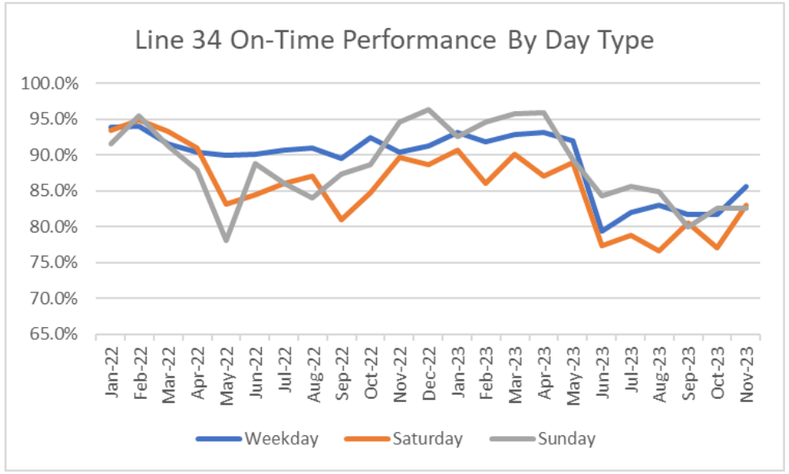
Route Description: **Lee Center to Braddock Road Metro via City Hall**

Residents within ¼ Mile: **19,241 residents**
- *Low Income Residents:* *1,963 (10.2 percent)*
- *Minority Residents:* *4,598 (23.9 percent)*
- *Senior Residents:* *3,021 (15.7 percent)*

Jobs within ¼ Mile: **14,600 jobs**

	Frequency	Span (Approx.)
Weekday		5am – 10pm
AM/PM Peak	30 min.	
Midday	30 min.	
Evening	30 min.	
Saturday	30 min.	6:30am – 10:11pm
Sunday	60 min.	7am – 10pm



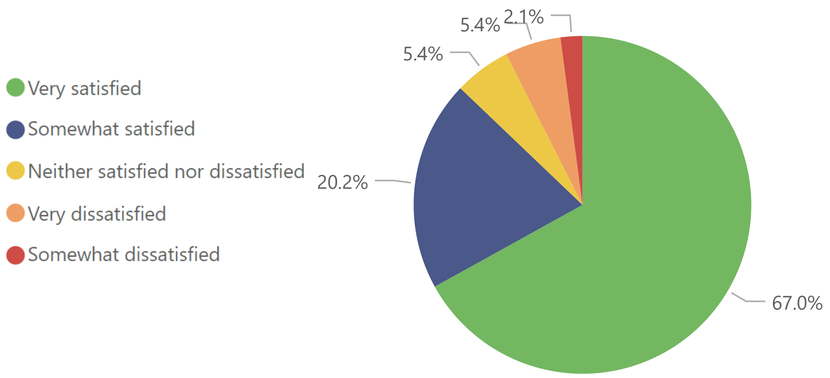


Line 34

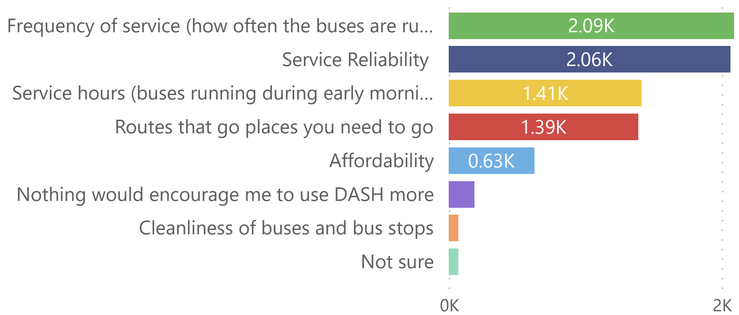
Low-Income	Minority	Over 65	Zero Vehicle
23.1%	52.3%	22.2%	58.0%

ALEXANDRIA TRANSIT COMPANY DASH

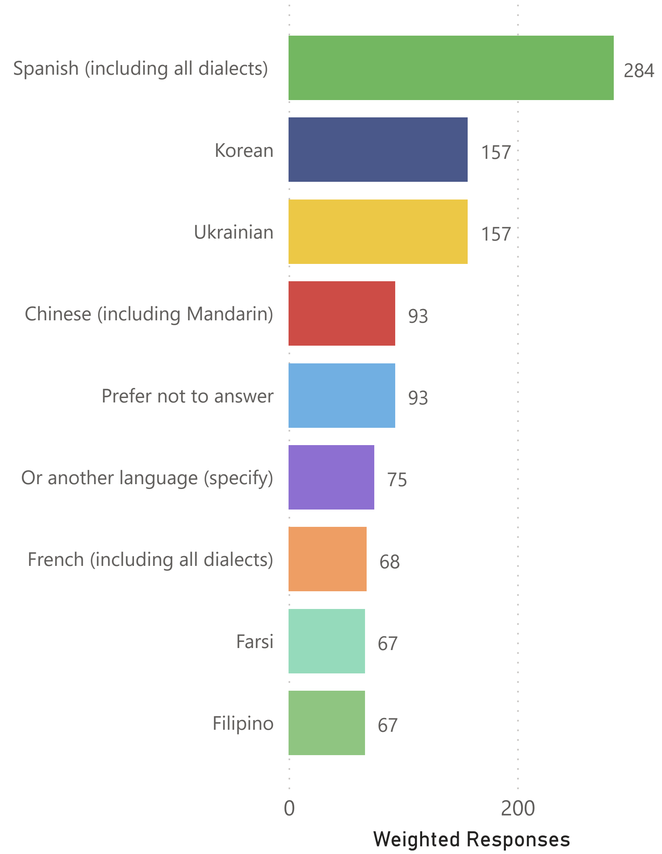
Overall Satisfaction



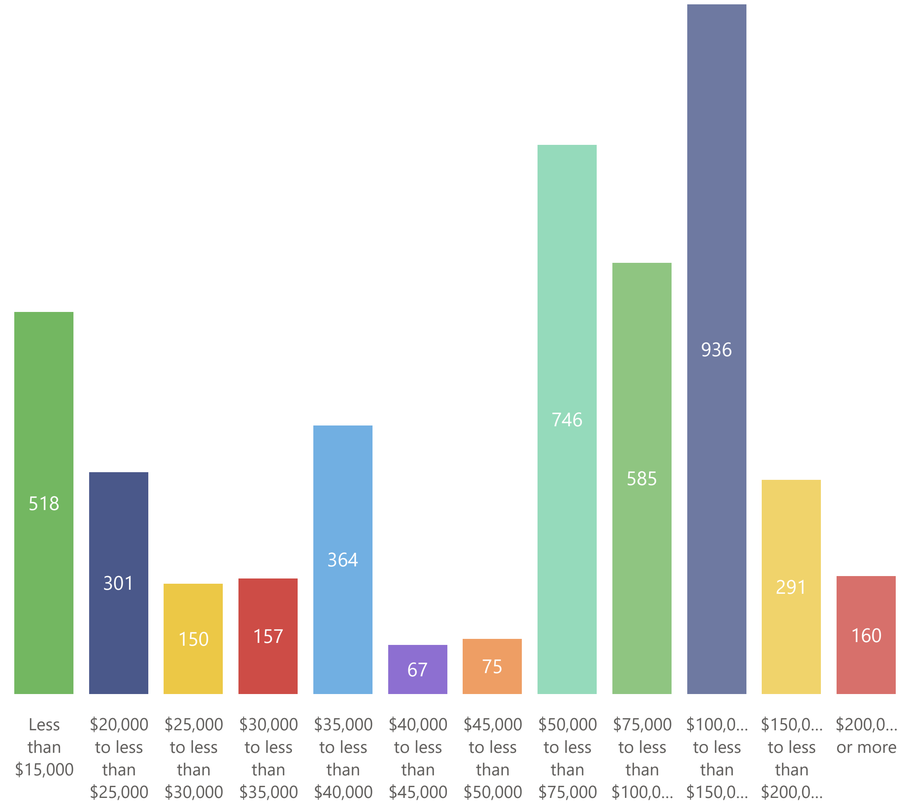
Most Important Reason for Riding



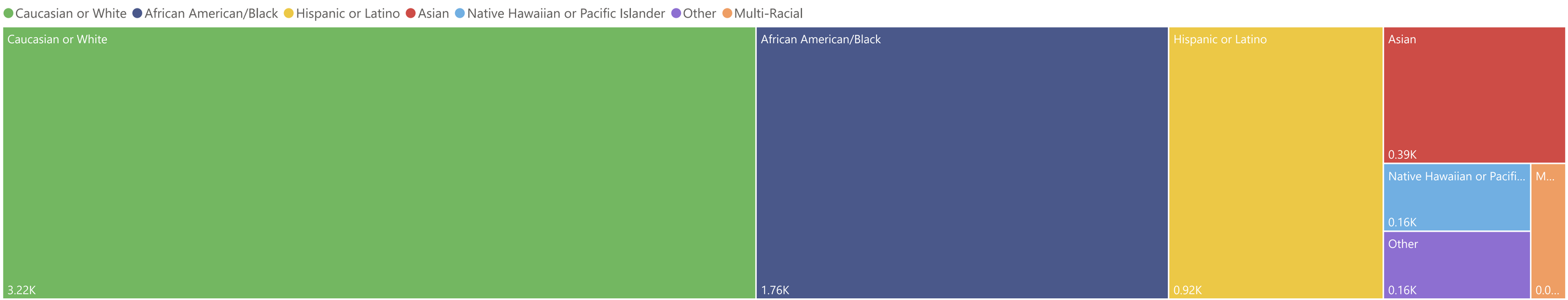
Primary Language Spoken (Other than English)



Household Income



Race and Ethnicity



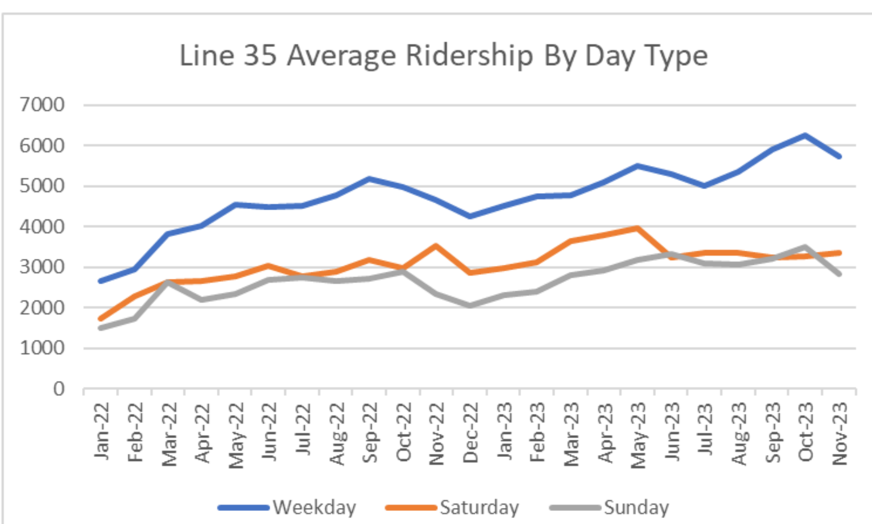
Line 35

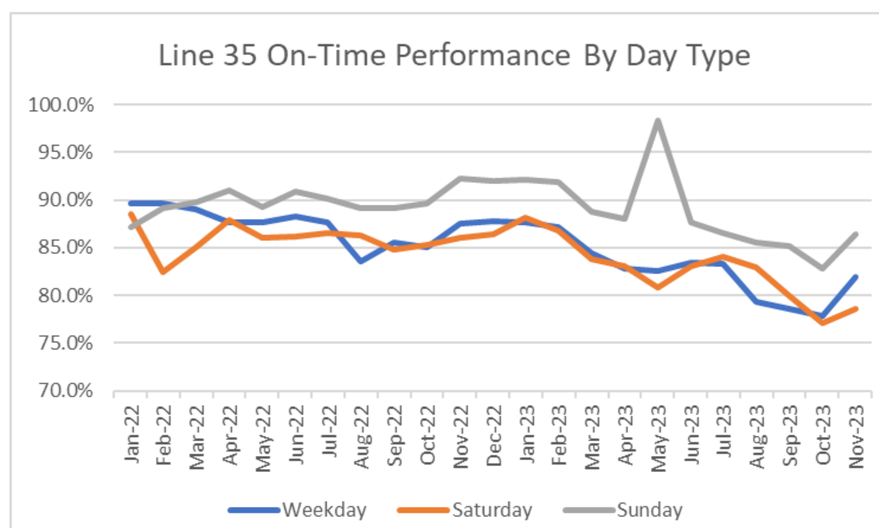
(a.k.a “Line N7” in 2022 ATV Plan)

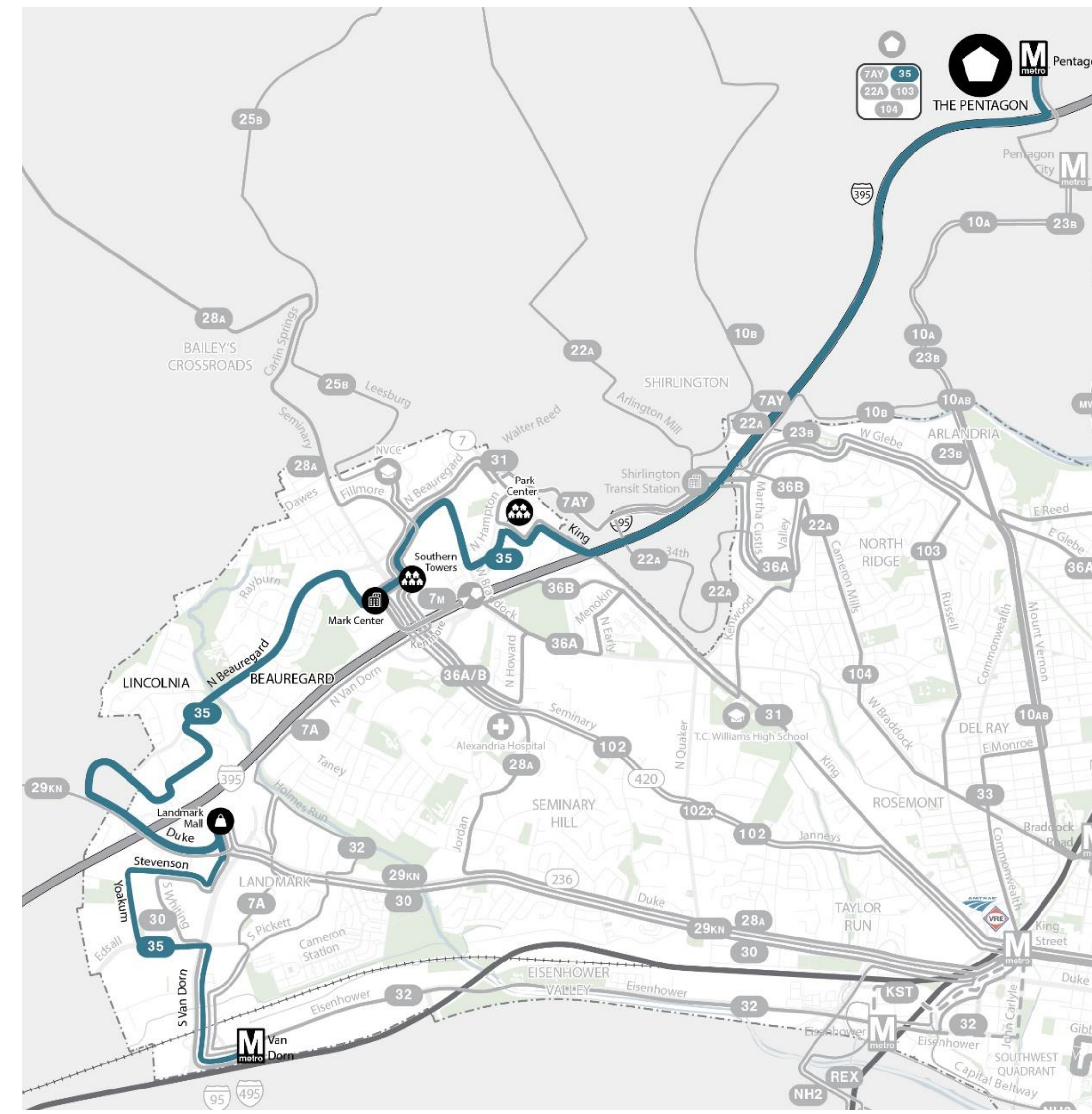
Route Description: **Van Dorn Metro to Pentagon via Beauregard Street**

Residents within ¼ Mile: **45,647 residents**
Low Income Residents: *7,805 (17.1 percent)*
Minority Residents: *25,928 (56.8 percent)*
Senior Residents: *4,747 (10.4 percent)*
Jobs within ¼ Mile: **14,600 jobs**

	Frequency	Span (Approx.)
Weekday		4am – 1am
AM/PM Peak	10 min.	
Midday	10 min.	
Evening	30 min.	
Saturday	15 min.	6am – 12:30am
Sunday	15 min.	6am – 11:30pm





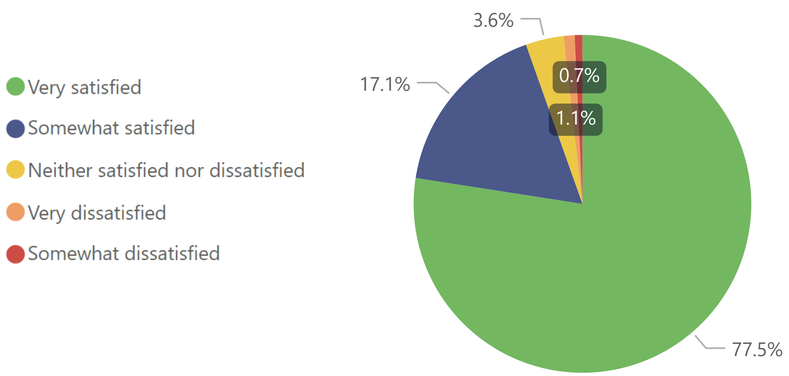


Line 35

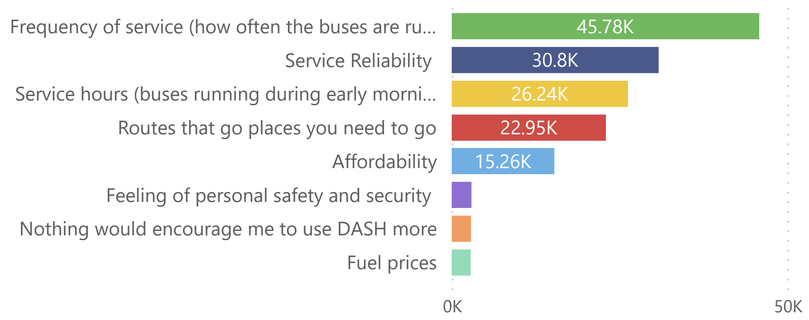
Low-Income	Minority	Over 65	Zero Vehicle
46.2%	85.4%	4.6%	39.0%

ALEXANDRIA TRANSIT COMPANY DASH

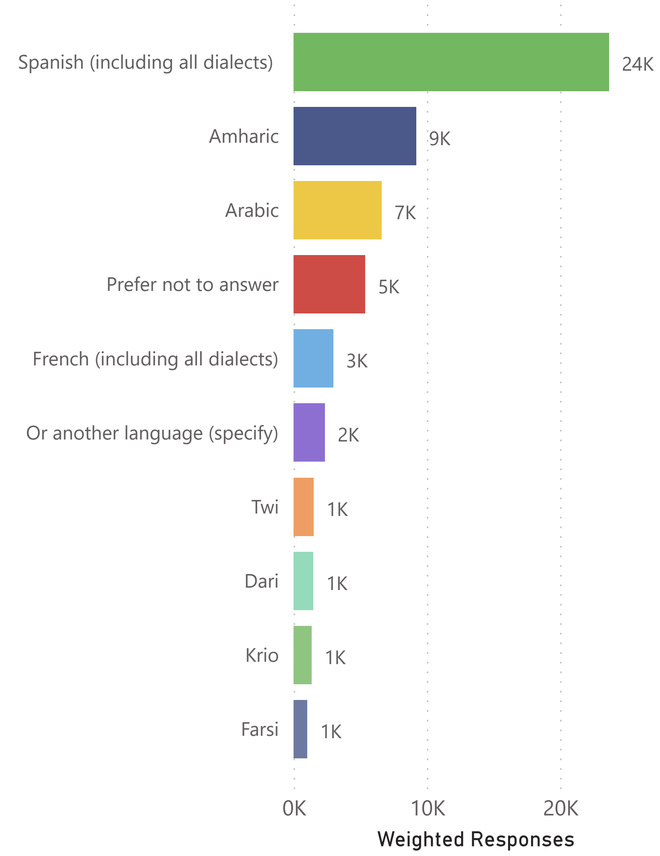
Overall Satisfaction



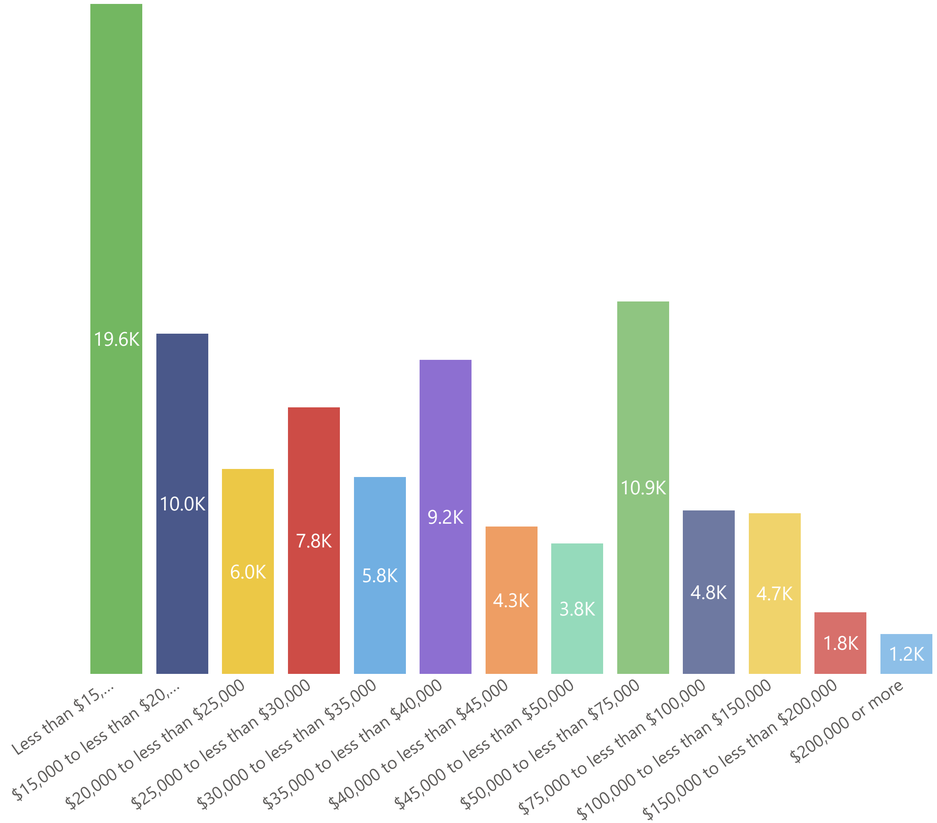
Most Important Reason for Riding



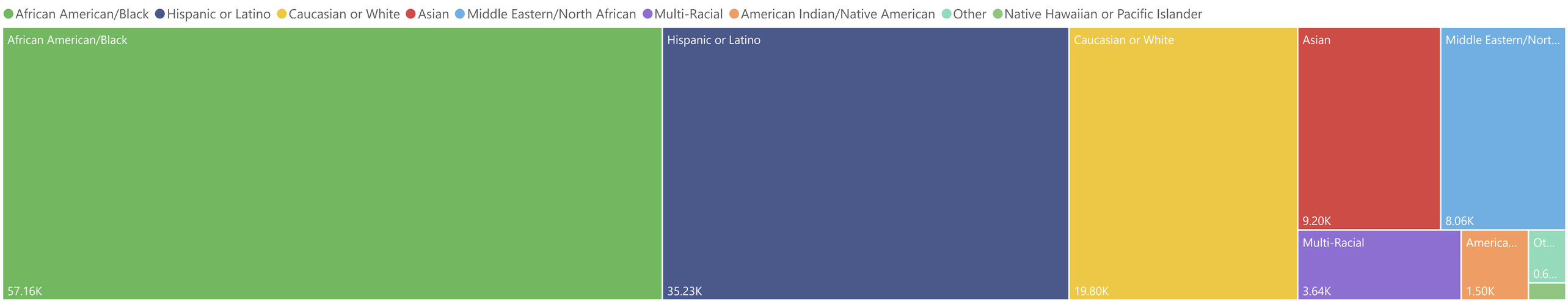
Primary Language Spoken (Other than English)



Household Income



Race and Ethnicity



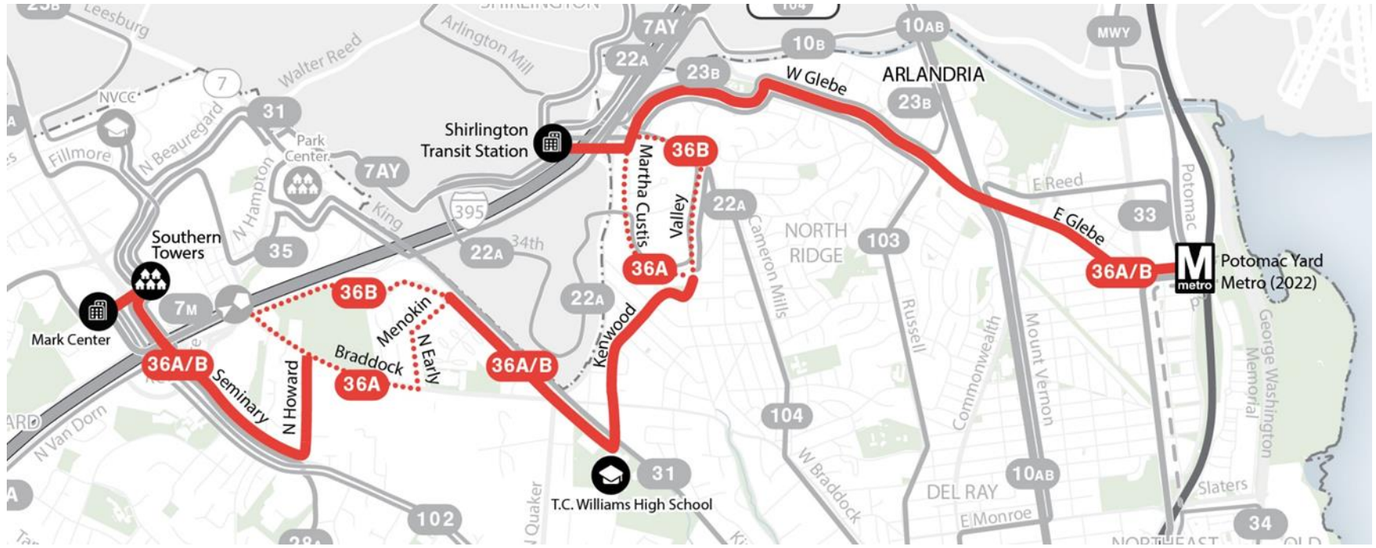
Line 36A/B

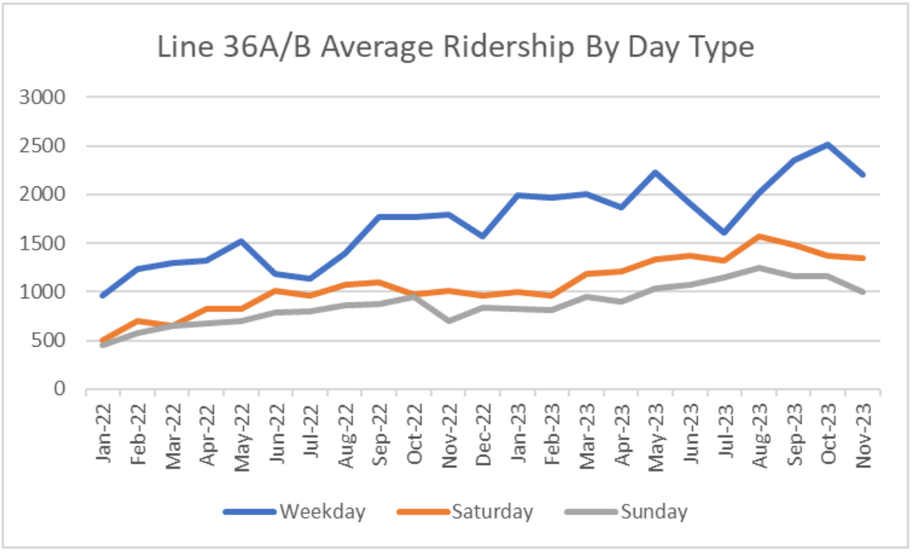
(a.k.a "Line N10/N11" in 2022 ATV Plan)

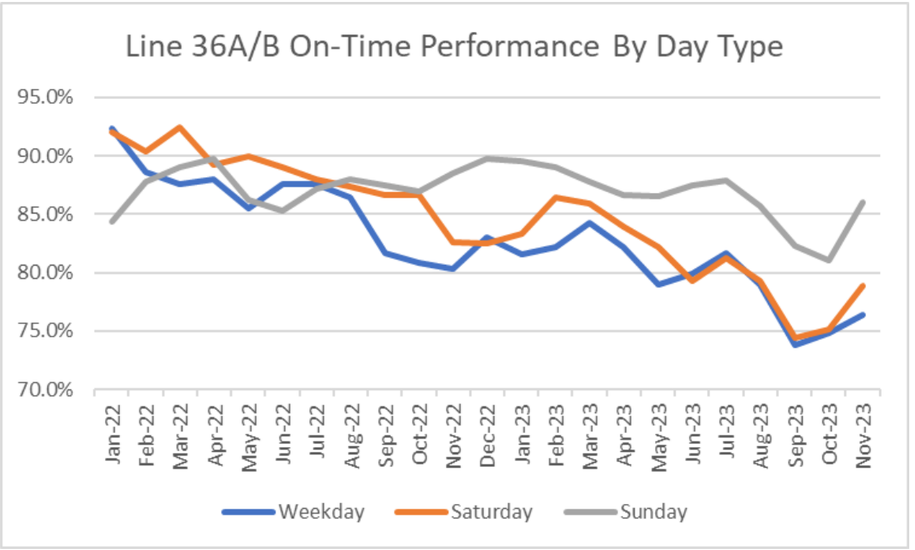
Route Description: **Mark Center to Potomac Yard via Shirlington**

Residents within ¼ Mile: **39,400 residents**
Low Income Residents: *5,083 (12.9 percent)*
Minority Residents: *16,351 (41.5 percent)*
Senior Residents: *3,782 (9.6 percent)*
Jobs within ¼ Mile: **11,300 jobs**

	Frequency	Span (Approx.)
Weekday		6am – 11pm
AM/PM Peak	15 min./30 min.	
Midday	15 min./30 min.	
Evening	15 min./30 min.	
Saturday	15 min.	7am – 10:30pm
Sunday	15 min.	6:58am – 10:32pm





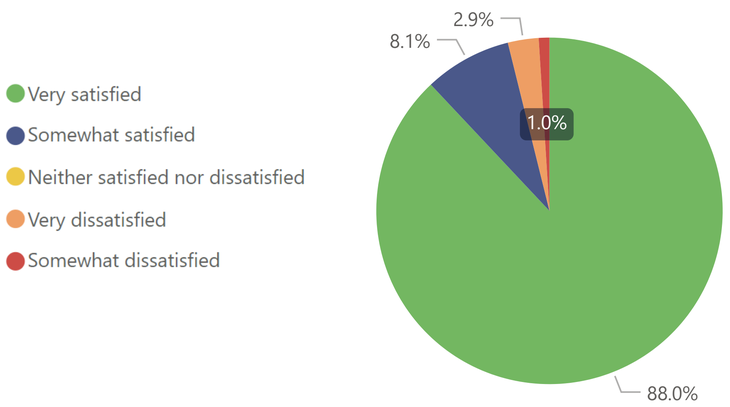


Line 36A

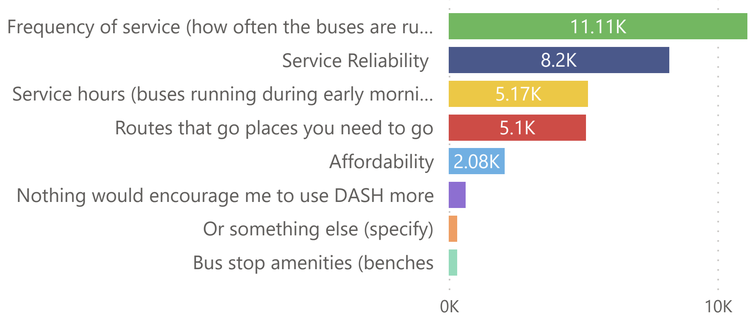
Low-Income	Minority	Over 65	Zero Vehicle
27.6%	80.6%	5.9%	50.9%

ALEXANDRIA TRANSIT COMPANY DASH

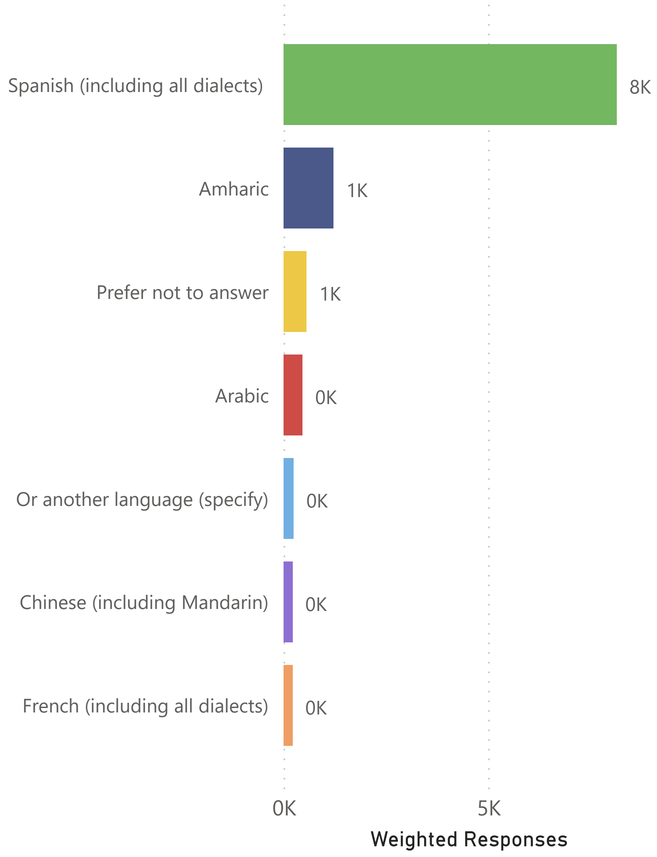
Overall Satisfaction



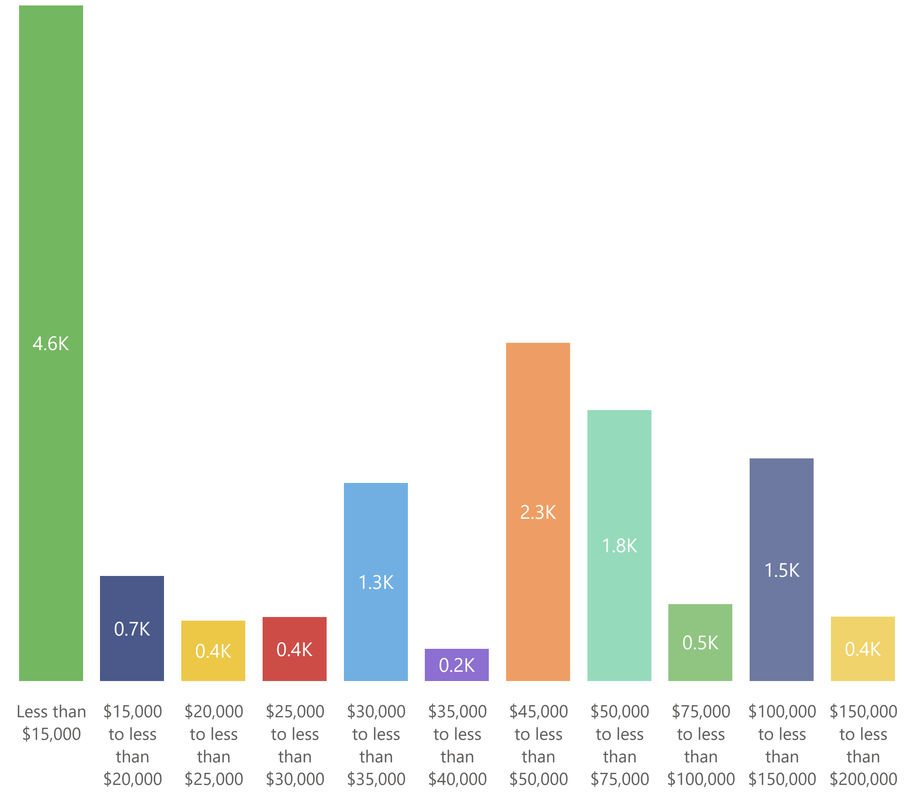
Most Important Reason for Riding



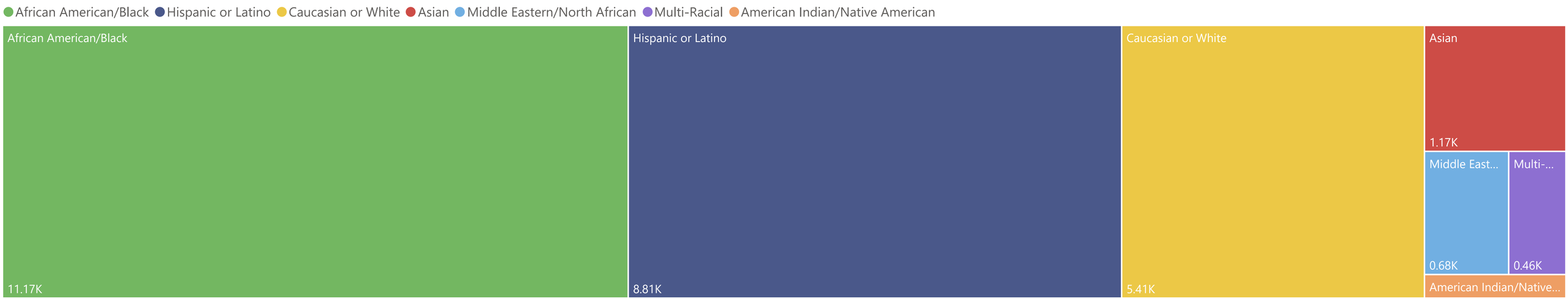
Primary Language Spoken (Other than English)



Household Income



Race and Ethnicity

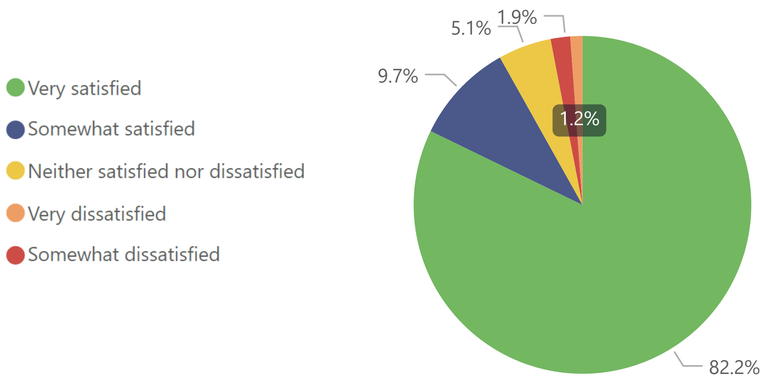


Line 36B

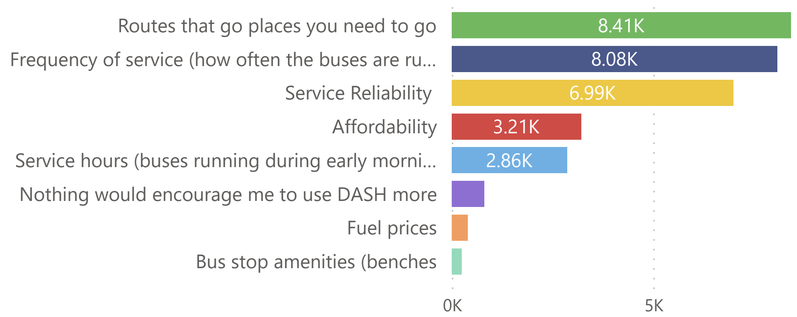
Low-Income	Minority	Over 65	Zero Vehicle
31.1%	78.3%	9.2%	41.9%

ALEXANDRIA TRANSIT COMPANY DASH

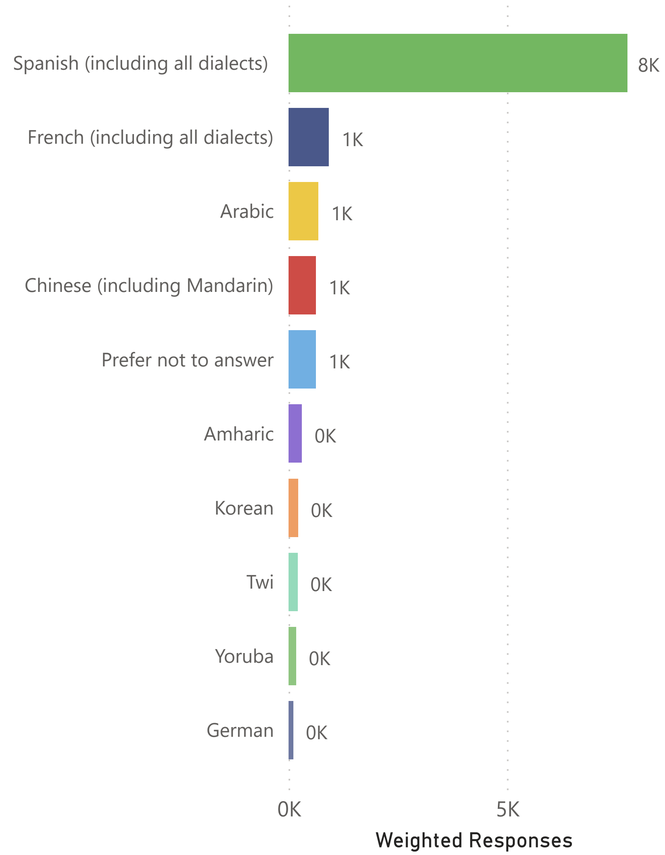
Overall Satisfaction



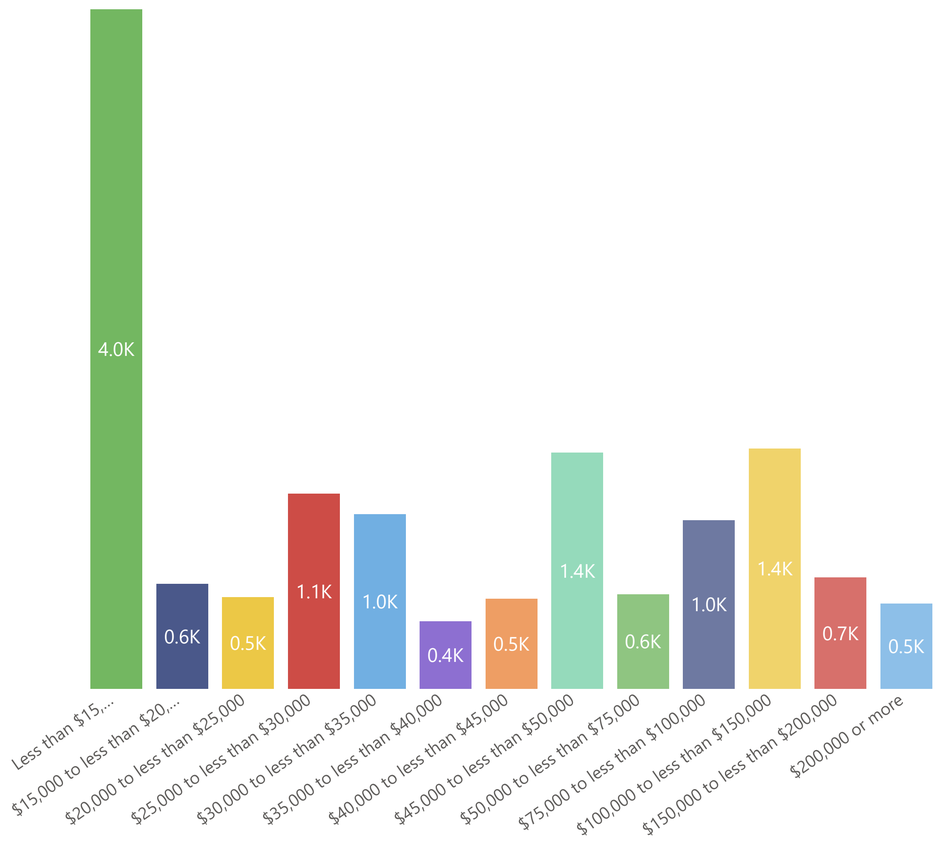
Most Important Reason for Riding



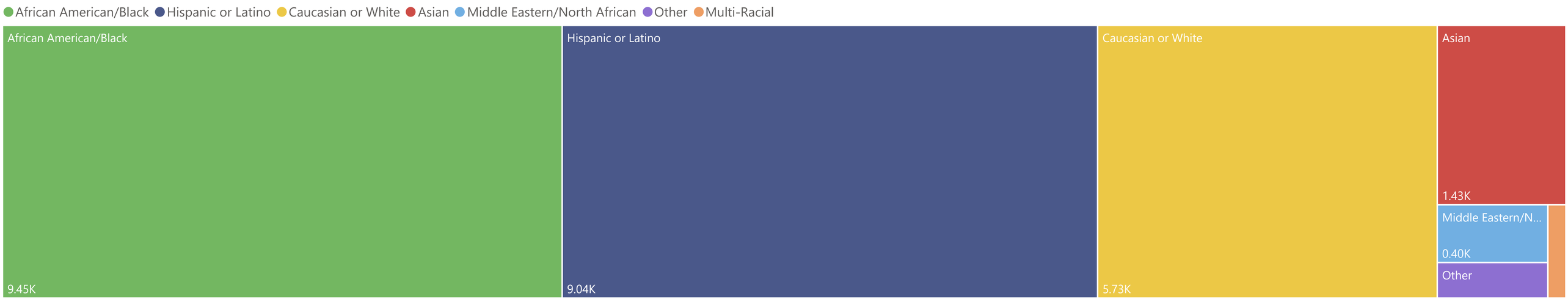
Primary Language Spoken (Other than English)



Household Income



Race and Ethnicity



Line 102

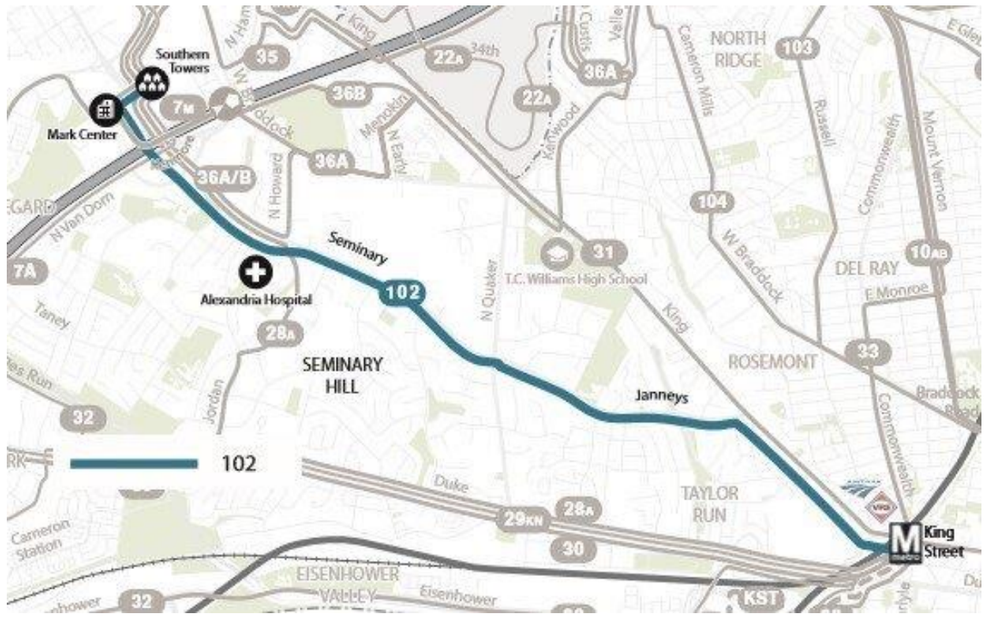
(a.k.a "Line N22" in 2022 ATV Plan)

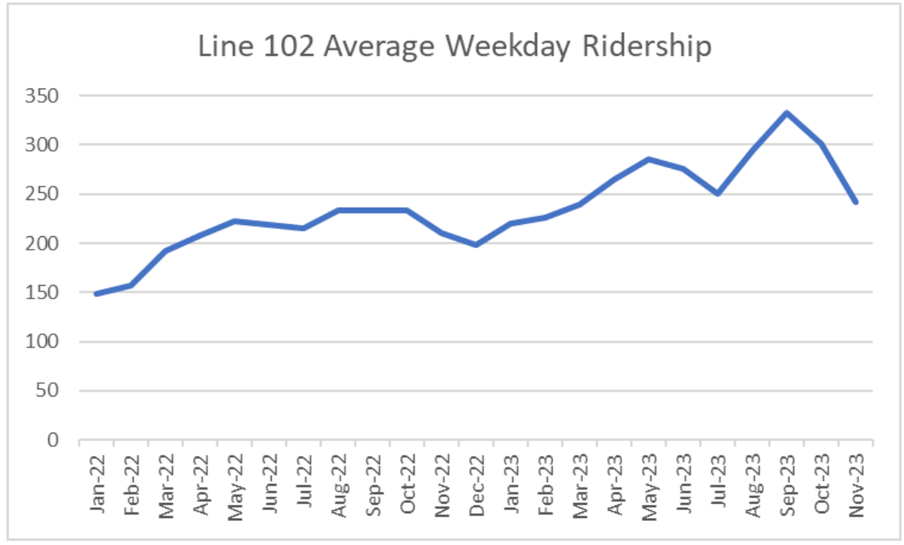
Route Descriptions: **Mark Center to King Street via Seminary & Mark Center Express**

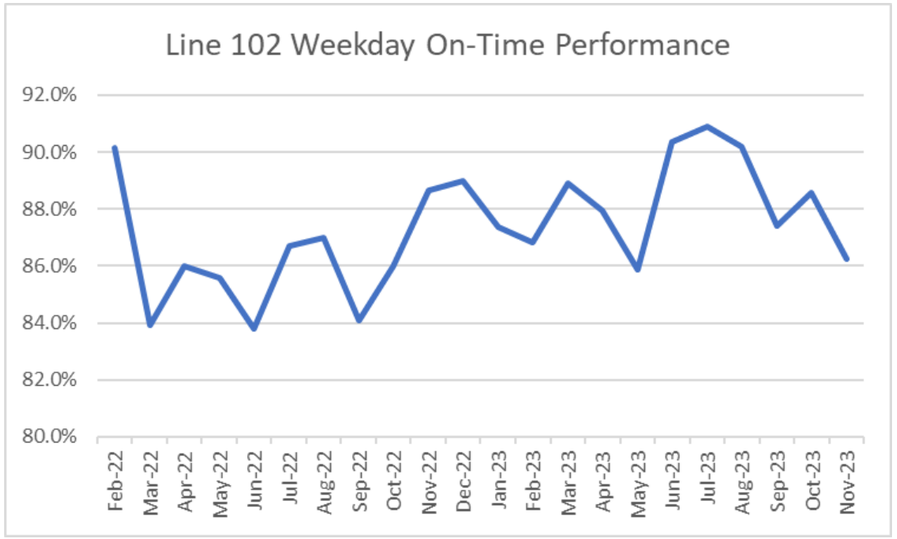
Residents within ¼ Mile: **17,800 residents**
- *Low Income Residents:* *2,100 (11.8 percent)*
- *Minority Residents:* *8,793 (49.4 percent)*
- *Senior Residents:* *2,172 (12.2 percent)*

Jobs within ¼ Mile: **9,200 jobs**

	Frequency	Span (Approx.)
Weekday		5am – 8pm
AM/PM Peak	30 min/15 min.	
Midday	60 min/No Service	
Evening	No Service	
Saturday	No Service	No Service
Sunday	No Service	No Service





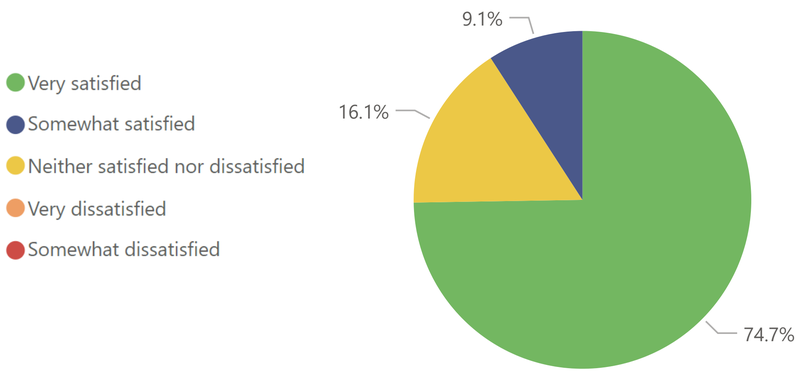


Line 102

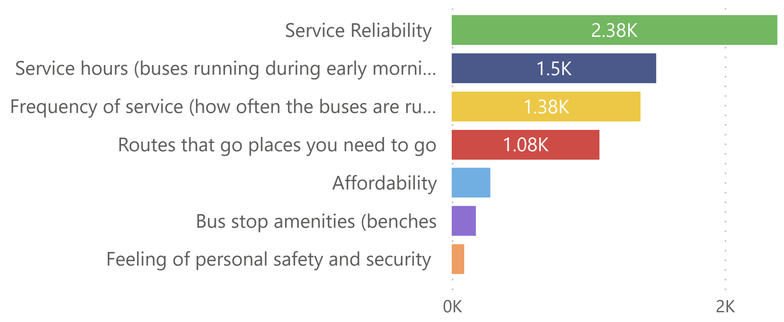
Low-Income	Minority	Over 65	Zero Vehicle
48.0%	63.4%	3.3%	39.6%

ALEXANDRIA TRANSIT COMPANY DASH

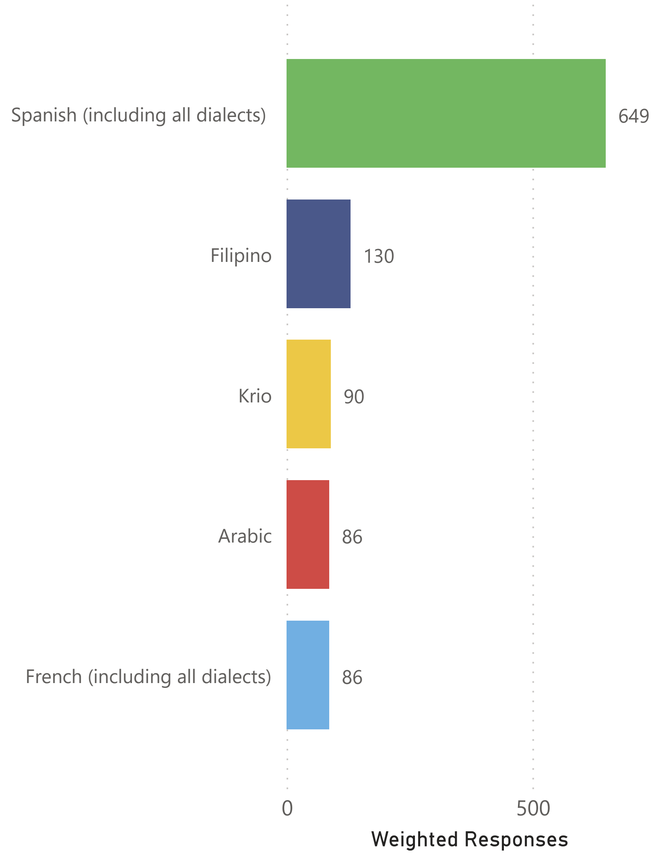
Overall Satisfaction



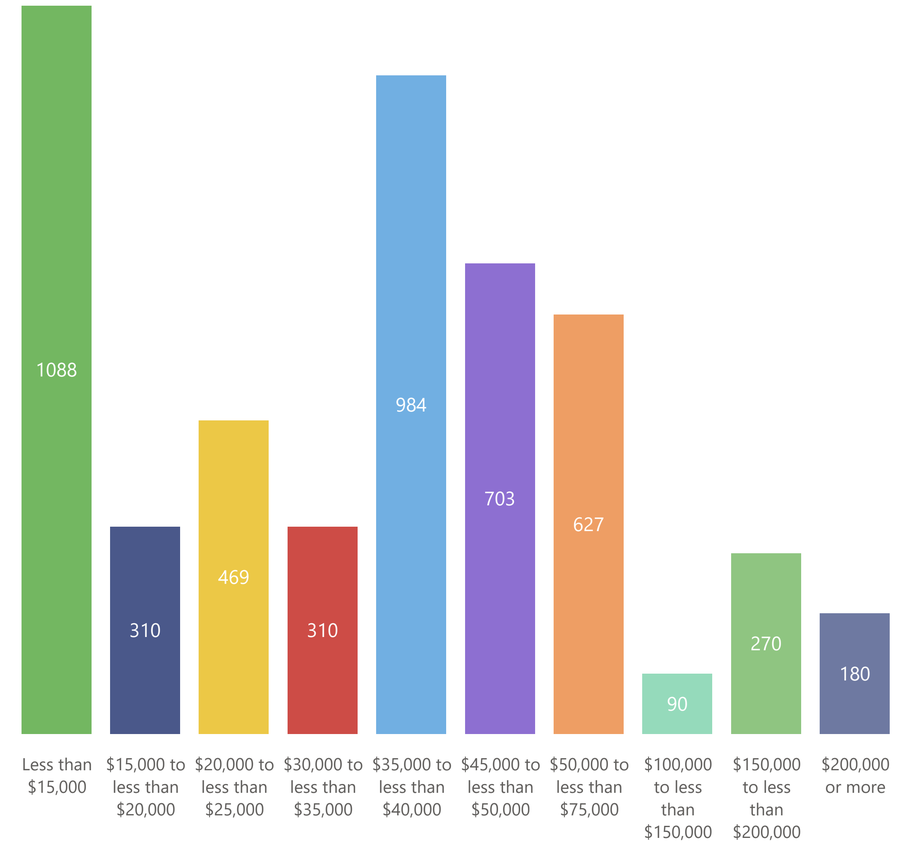
Most Important Reason for Riding



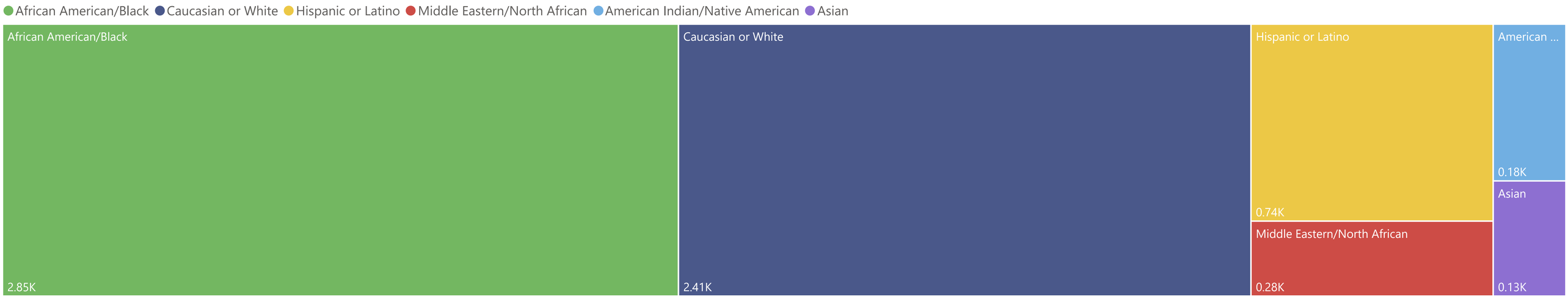
Primary Language Spoken (Other than English)



Household Income



Race and Ethnicity



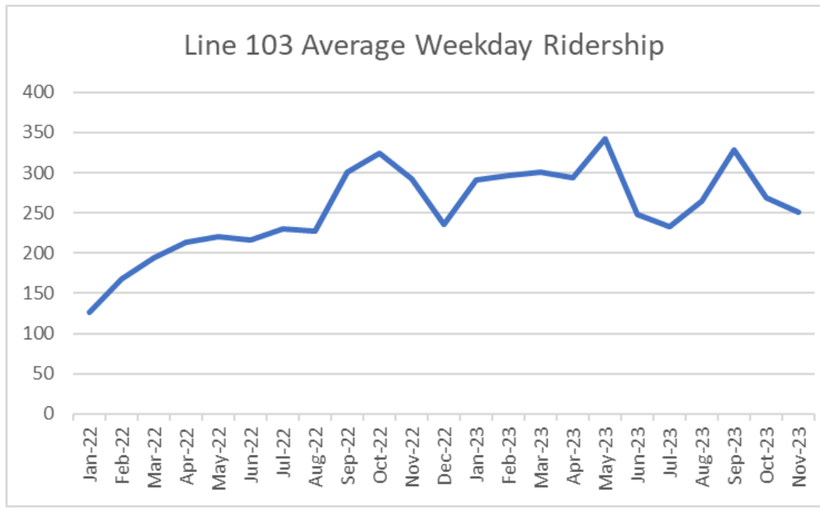
Line 103

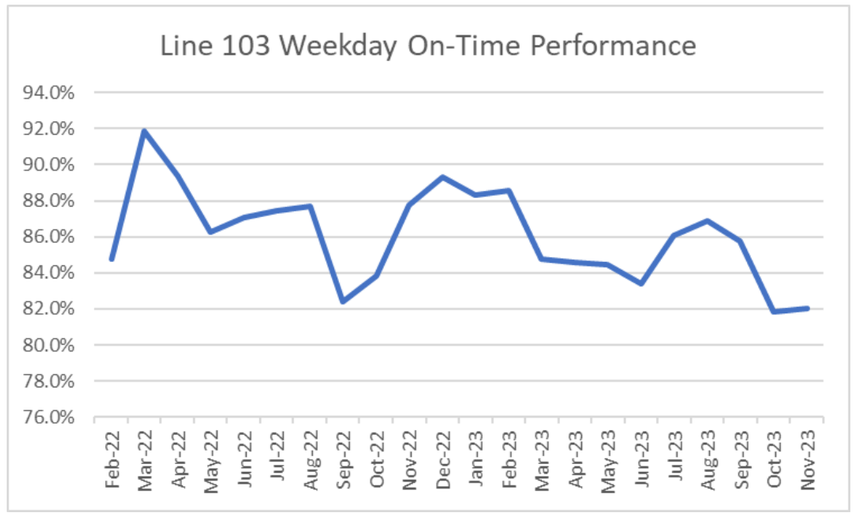
(a.k.a "Line N23" in 2022 ATV Plan)

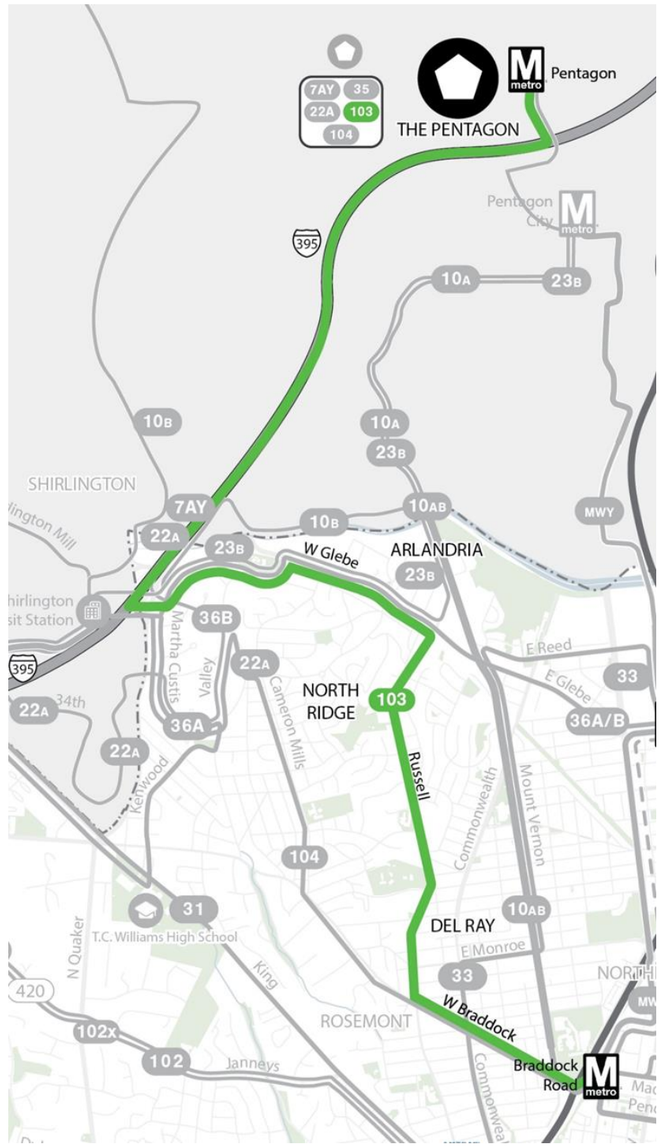
Route Description: **Braddock Road to Pentagon via Parkfairfax**

Residents within ¼ Mile: **21,900 residents**
Low Income Residents: *2,672 (12.2 percent)*
Minority Residents: *6,198 (28.3 percent)*
Senior Residents: *2,190 (10.0 percent)*
Jobs within ¼ Mile: **3,200 jobs**

	Frequency	Span (Approx.)
Weekday		6am – 8pm
AM/PM Peak	30 min.	
Midday	No Service	
Evening	No Service	
Saturday	No Service	No Service
Sunday	No Service	No Service





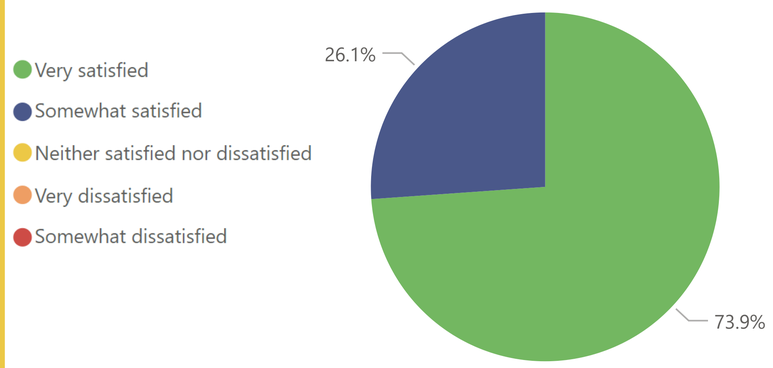


Line 103

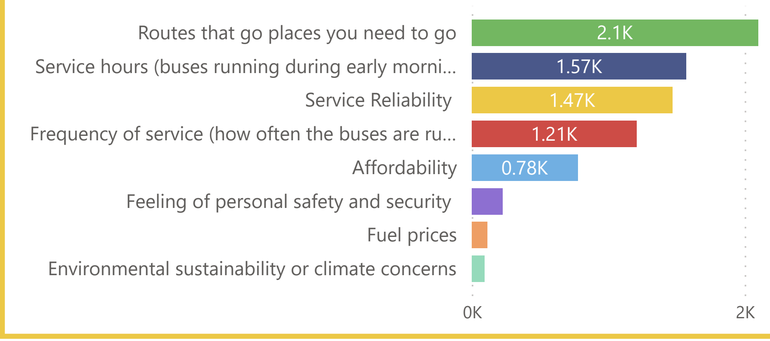
Low-Income	Minority	Over 65	Zero Vehicle
32.5%	57.0%	6.5%	33.8%

ALEXANDRIA TRANSIT COMPANY DASH

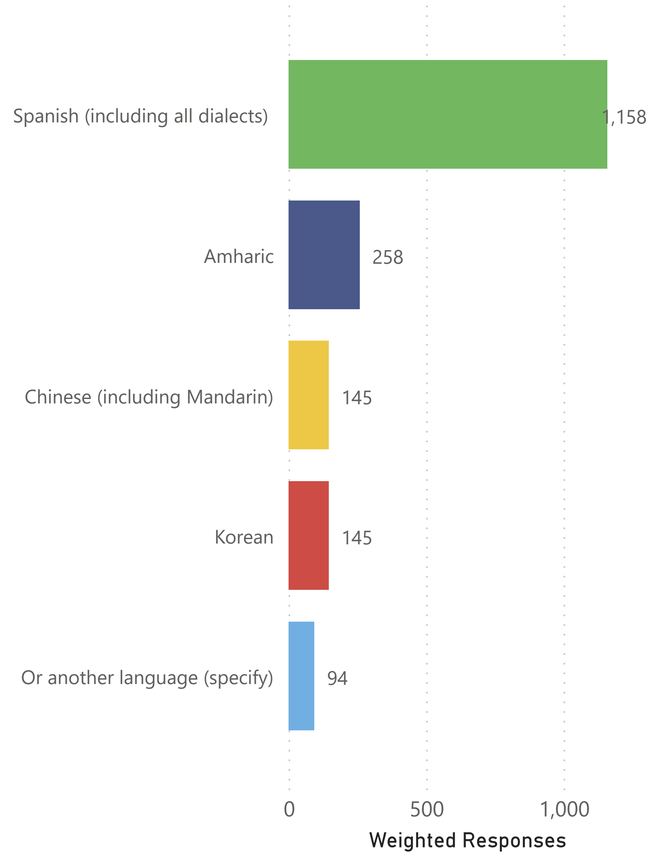
Overall Satisfaction



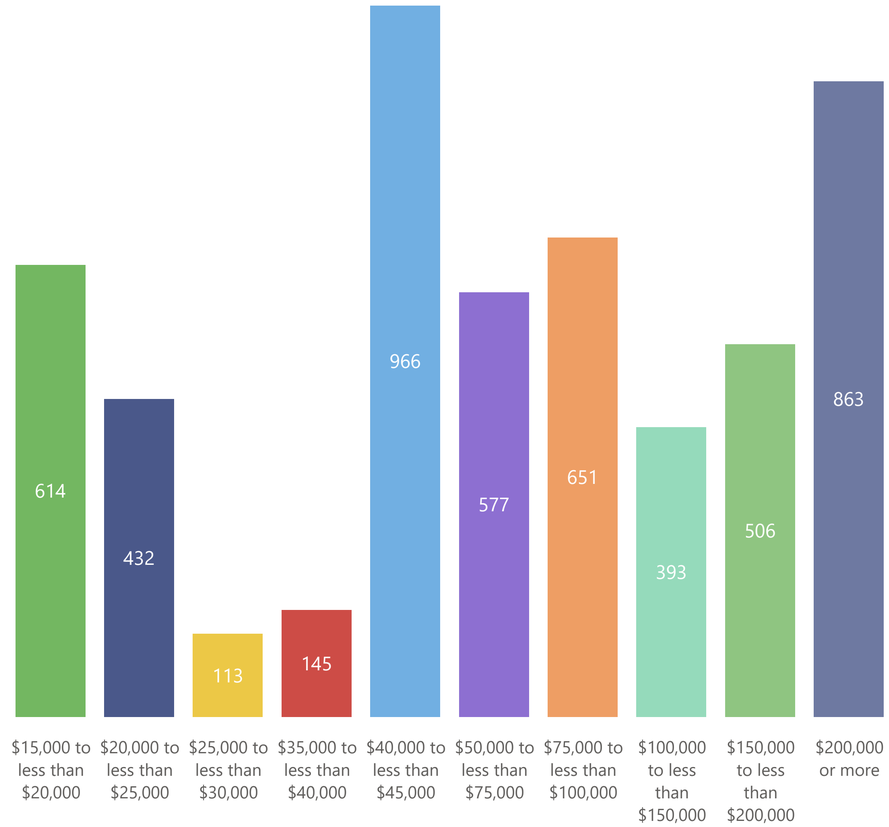
Most Important Reason for Riding



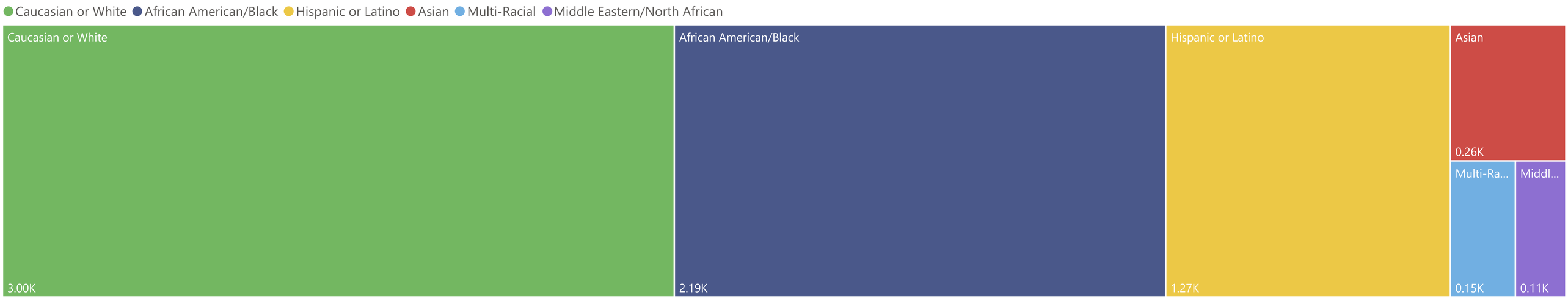
Primary Language Spoken (Other than English)



Household Income



Race and Ethnicity



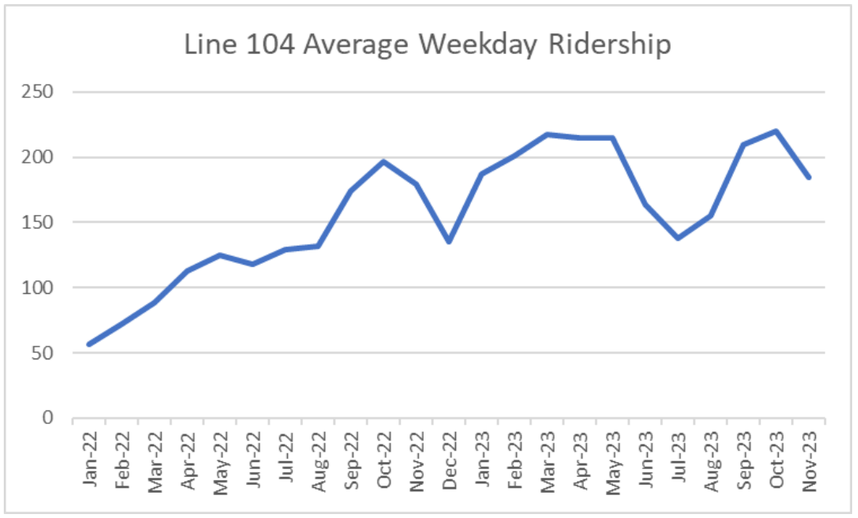
Line 104

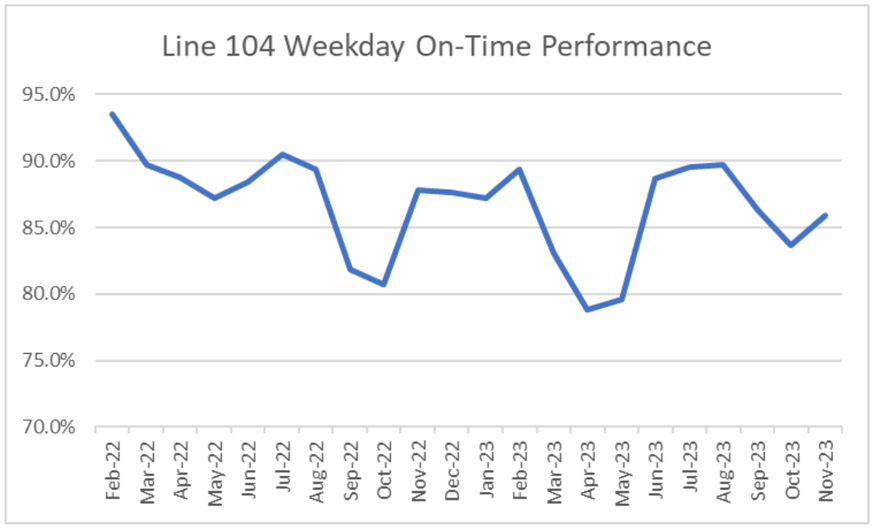
(a.k.a "Line N24" in 2022 ATV Plan)

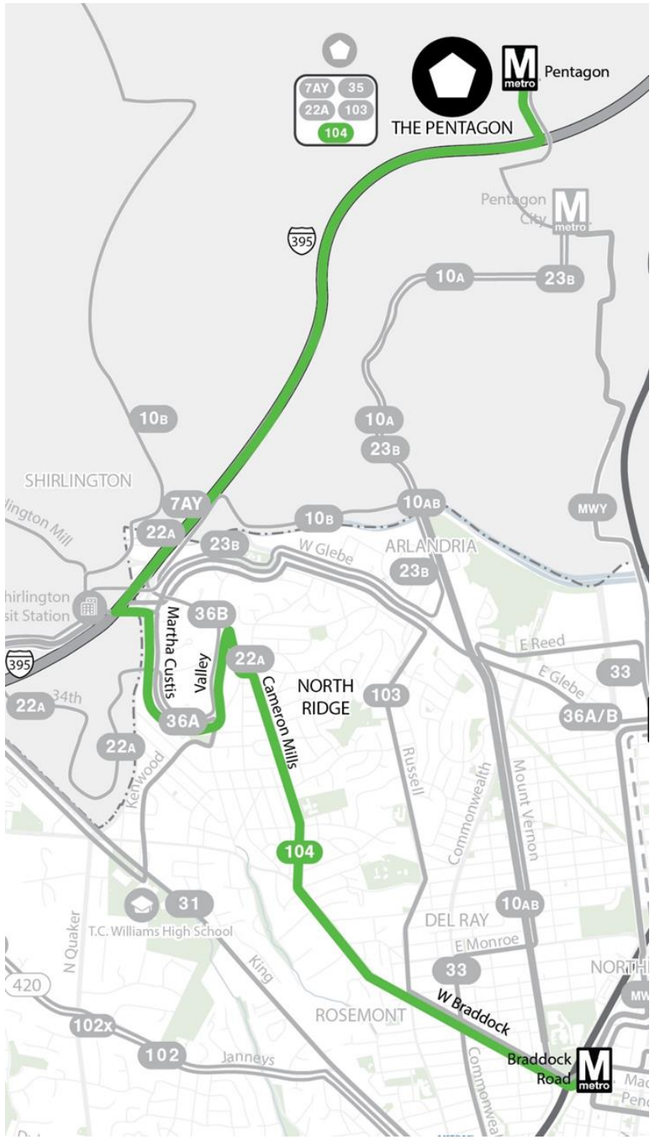
Route Description: **Braddock Road to Pentagon via Parkfairfax**

Residents within ¼ Mile: **17,367 residents**
Low Income Residents: *1,059 (6.1 percent)*
Minority Residents: *3,560 (20.5 percent)*
Senior Residents: *2,275 (13.1 percent)*
Jobs within ¼ Mile: **3,300 jobs**

	Frequency	Span (Approx.)
Weekday		6:15am – 8:15pm
AM/PM Peak	30 min.	
Midday	No Service	
Evening	No Service	
Saturday	No Service	No Service
Sunday	No Service	No Service





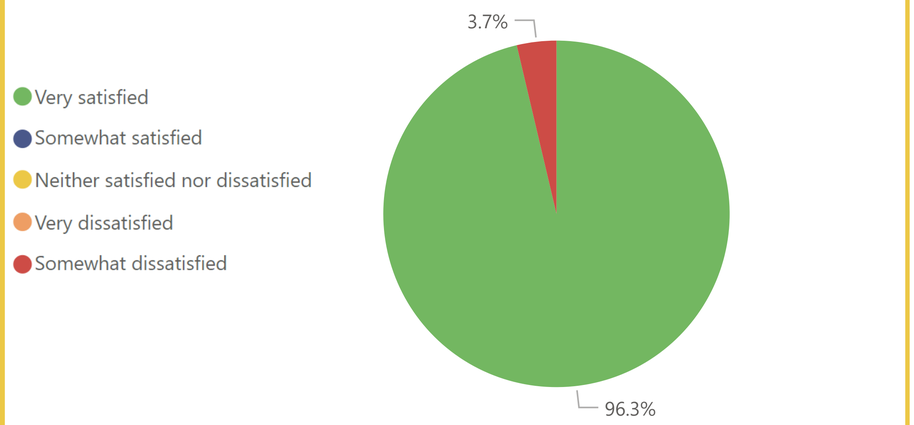


Line 104

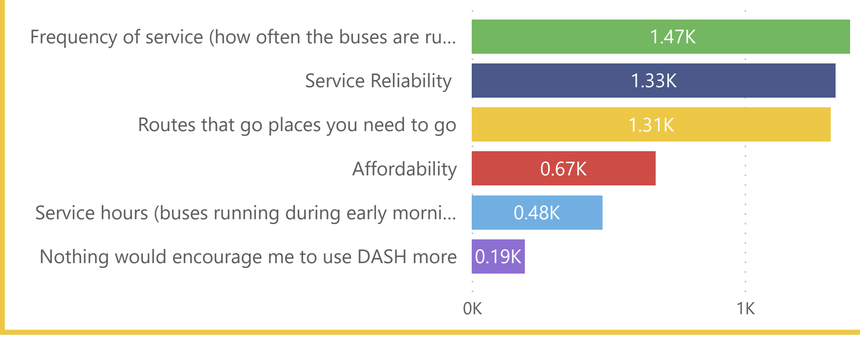
Low-Income	Minority	Over 65	Zero Vehicle
15.8%	30.3%	3.1%	13.4%

ALEXANDRIA TRANSIT COMPANY DASH

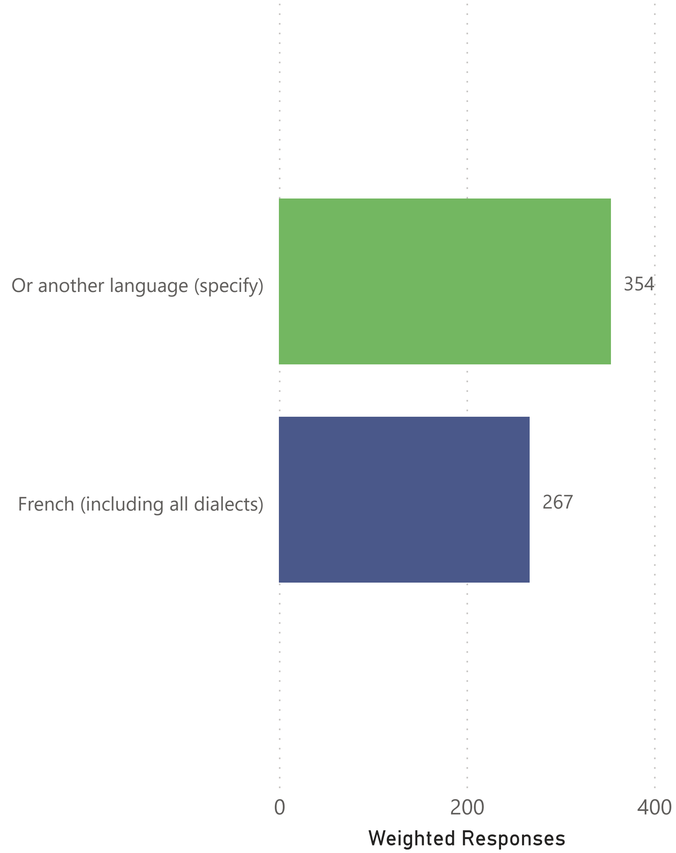
Overall Satisfaction



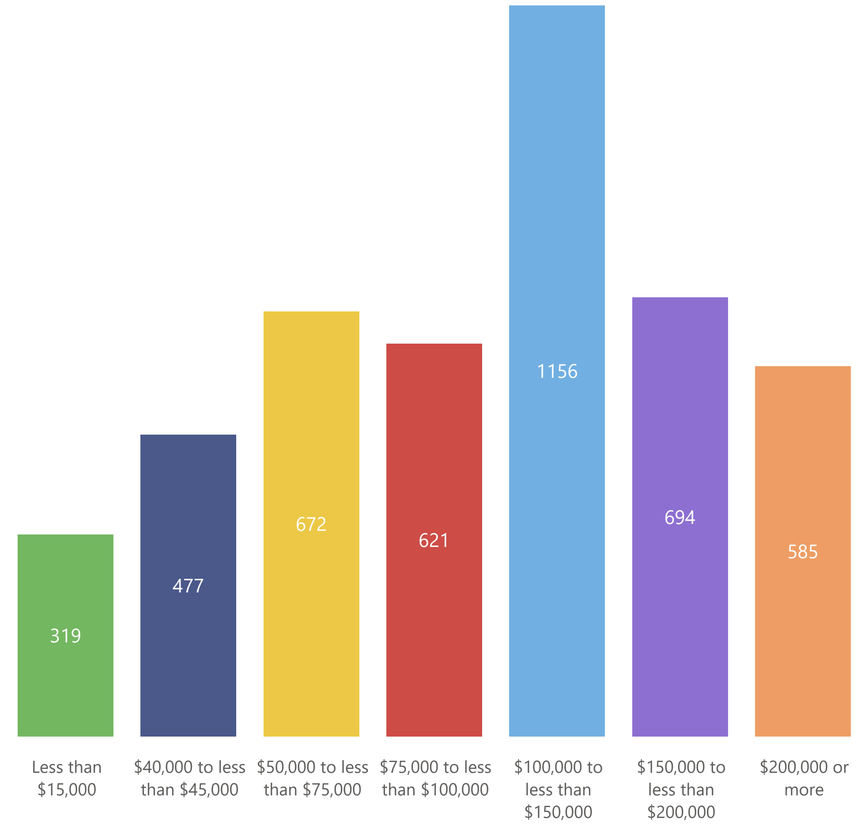
Most Important Reason for Riding



Primary Language Spoken (Other than English)



Household Income



Race and Ethnicity

King Street Trolley (KST)

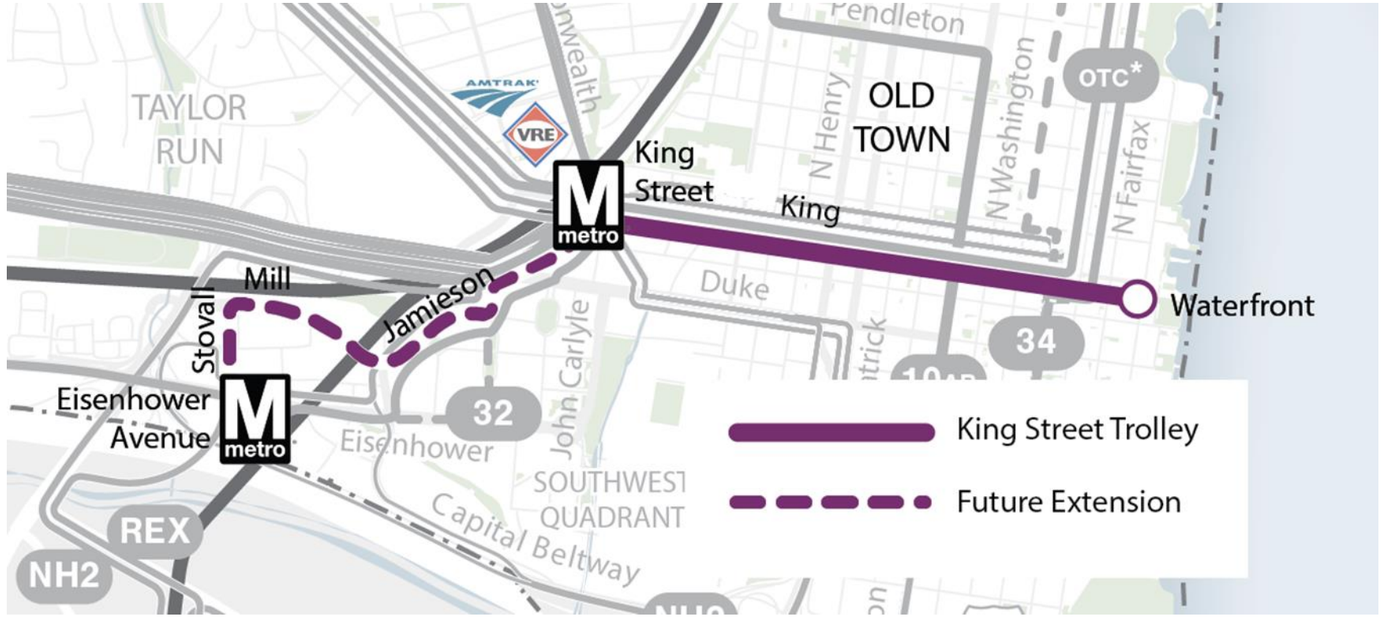
(a.k.a "Line KST" in 2022 ATV Plan)

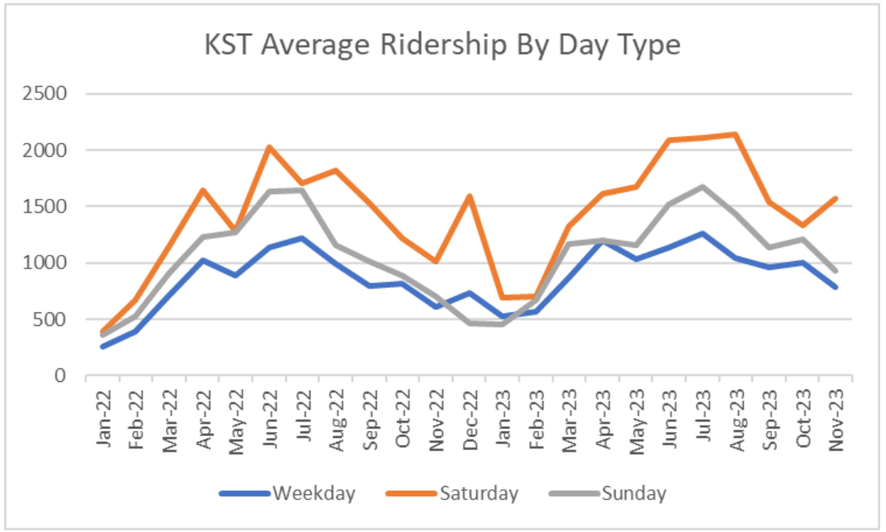
Route Description: **King Street Metro to Old Town Waterfront**

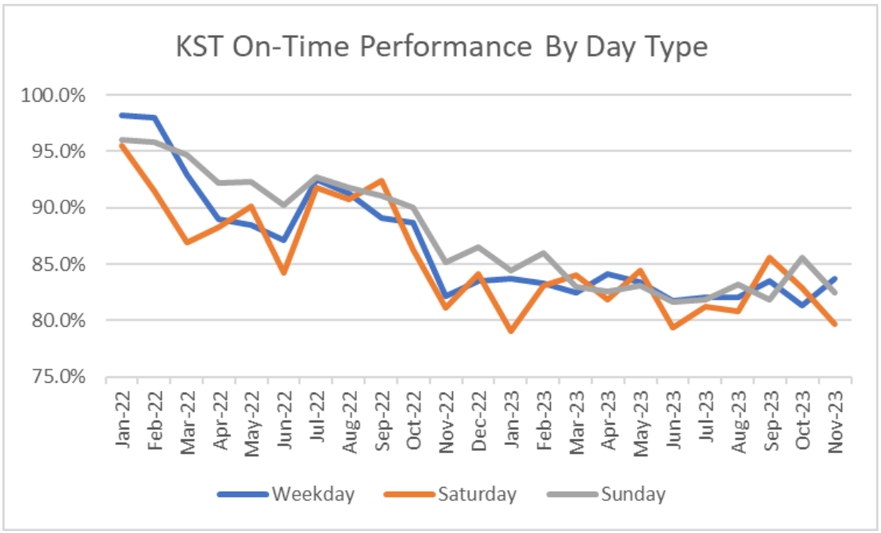
Residents within ¼ Mile: **6,627 residents**
- *Low Income Residents:* *524 (7.9 percent)*
- *Minority Residents:* *1,160 (17.5 percent)*
- *Senior Residents:* *1,213 (18.3 percent)*

Jobs within ¼ Mile: **13,400 jobs**

	Frequency	Span (Approx.)
Weekday		11am – 11pm
AM/PM Peak	15 min. (No AM Peak Service)	
Midday	15 min.	
Evening	15 min.	
Saturday	15 min.	11am – 11pm
Sunday	15 min.	11am – 11pm





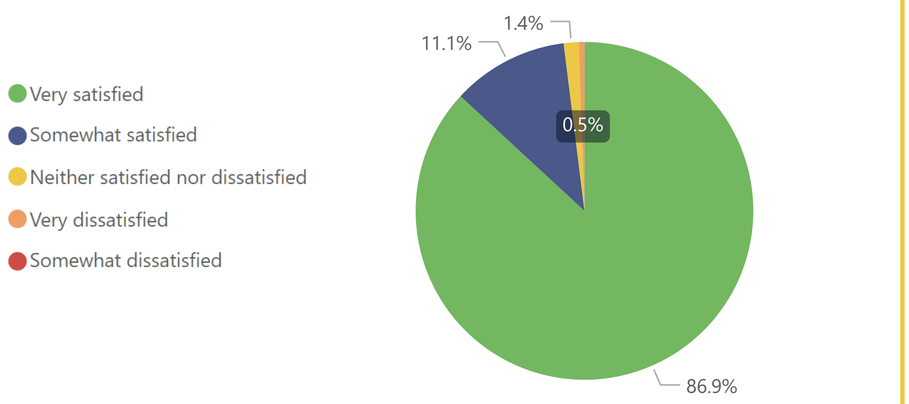


King Street Trolley

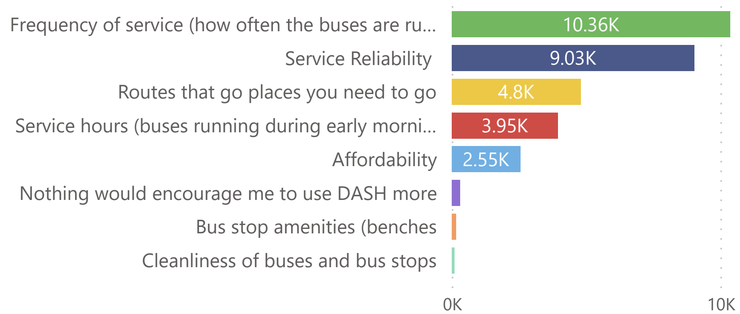
Low-Income	Minority	Over 65	Zero Vehicle
19.8%	32.0%	13.6%	32.6%

ALEXANDRIA TRANSIT COMPANY DASH

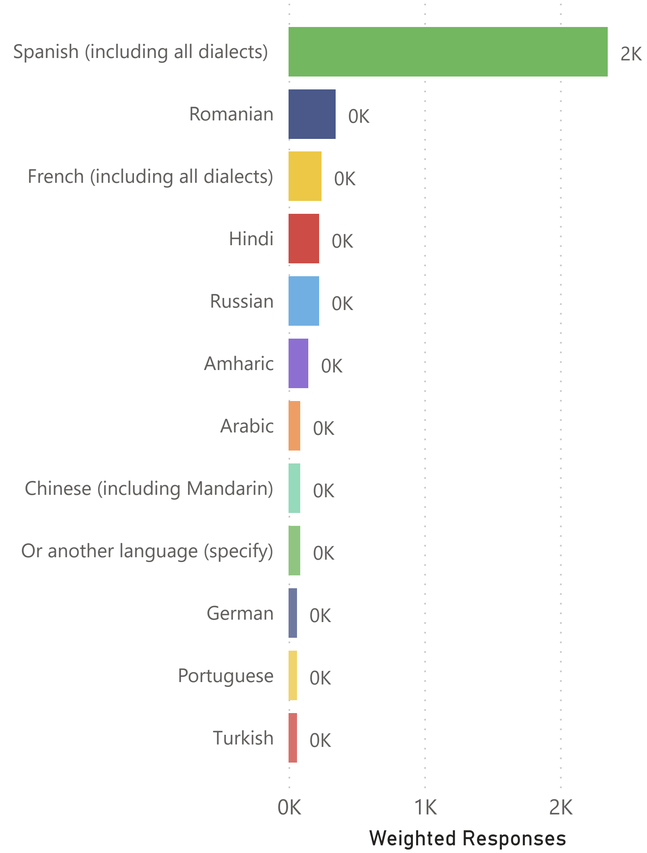
Overall Satisfaction



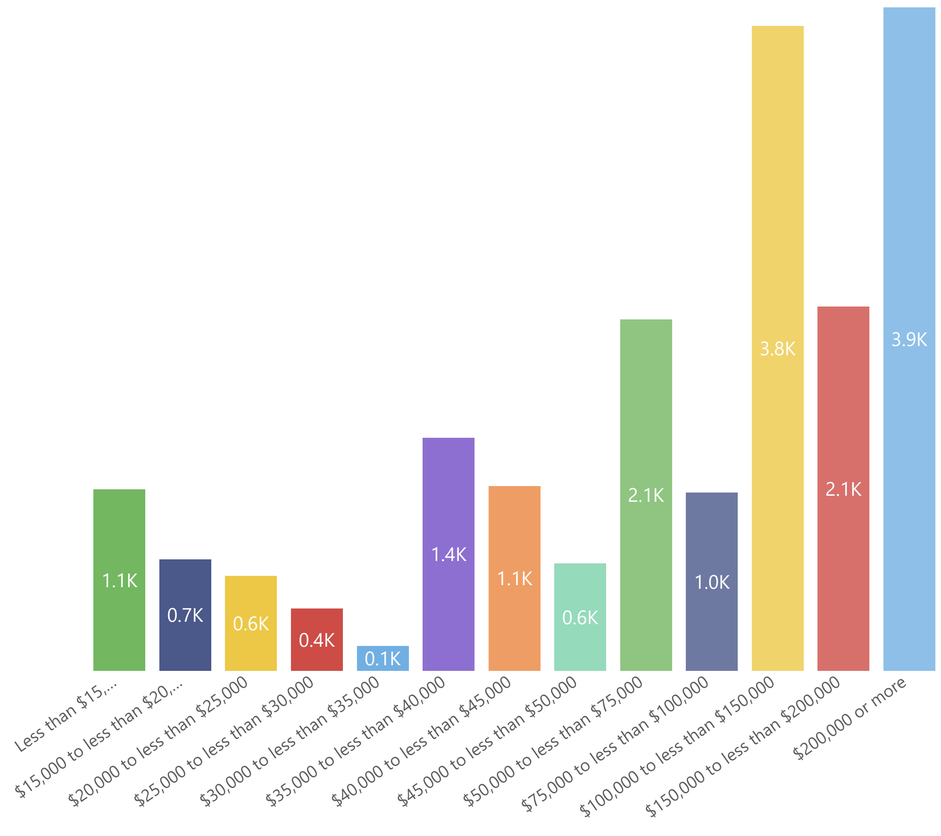
Most Important Reason for Riding



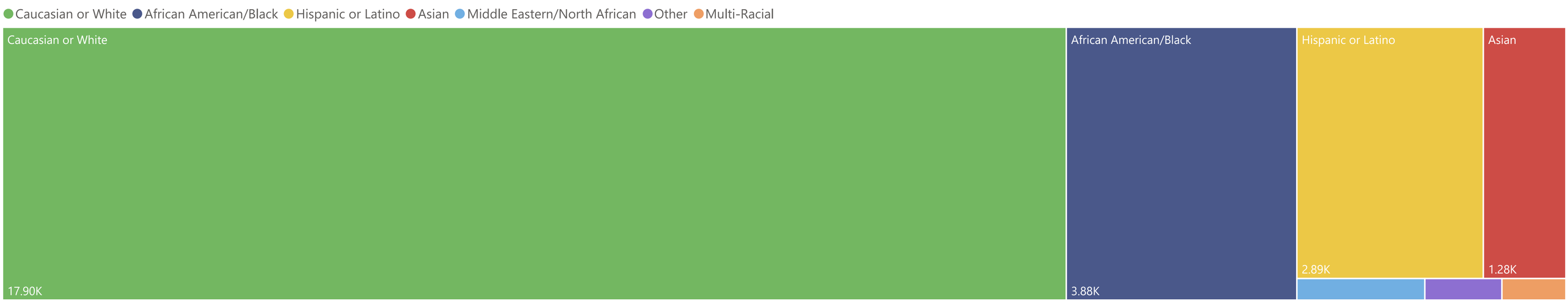
Primary Language Spoken (Other than English)



Household Income



Race and Ethnicity



Appendix C

DASH Onboard Survey Final Report (2023)

DASH On-Board Customer Survey Summary Report

February 1, 2024

ALEXANDRIA TRANSIT COMPANY
DASH

CITY OF ALEXANDRIA VIRGINIA

Table of Contents

Background and Purpose

In 2023, the Alexandria Transit Company, or DASH, conducted a comprehensive customer intercept survey to provide information on customer demographics, travel patterns, and overall satisfaction with DASH services. This origin and destination (O-D) study was conducted on all DASH bus lines and the King Street Trolley. Interviewers administered intercept surveys via tablet computers, asking riders questions specific to their current trip, as well as questions regarding DASH services overall and additional sociodemographic questions. In total, 2,983 surveys were completed during the fielding period of October 11 to November 19[1].

Large scale O-D surveys can provide detailed information about travel patterns within the DASH system, including origin to destination trip data, boarding and alighting stops, modes of access and egress, number of transfers and transfer points, and the impact of fare-free service. Additionally, findings from O-D surveys can help DASH make decisions and service changes while ensuring rider populations protected under Title VI of the Civil Rights Act of 1964 are not negatively impacted.

This document summarizes the findings of this survey. Specifically, it will review:

- **Summary of Findings**, including the entirety of the survey in total and broken out by mode, and key questions by demographic categories;
- **Methodology**, including the timeline and process from launch to reporting, covering survey and sampling plan development, training procedures, data collection, trip validation, and weighting and data processing;
- **Lessons Learned**, reviewing areas of potential methodological improvement when conducting future DASH O-D studies;
- **Appendix 1**, Tables for Minority and Geographical Areas
- **Appendix 2,** Rider Profiles for rider groups of interest and detailed demographic figures;
- **Appendix 3**, Mode and Line Profiles for lines;
- **Appendix 4**, a copy of the final intercept questionnaire;
- **Appendix 5**, a copy of the sampling plan; and
- **Appendix 6**, a detailed outline of the weighting plan with the final weighting tables.

[1] Note that data collection was not conducted on November 11, due to the holiday schedule for Veterans Day.

Summary of Findings

This section summarizes the results of the O-D survey conducted from October 11 to November 19 at the systemwide and mode levels. All statistics, unless otherwise stated, represent responses weighted up to an average month of ridership. The majority of these findings are presented systemwide and by:

- Bus
- King Street Trolley

Additionally, where applicable, Census data for Alexandria City has been used for demographic comparison, using the ACS 1-Year Estimate PUMS Microdata sample, vintage 2022.

Due to rounding, all columns may not add up to exactly 100 percent. Please note that in the cases of a small sample size (n<50), statistical significance is not shown.

DASH Customer Base

Table 1 shows the highest proportions of home ZIP codes by system overall, by bus, and by King Street Trolley, with the subsequent maps showing an overlay of these regions of operation.

Table 1: Home or Local Zip Code

ZIP Codes					
System (A) (n=2,596)		Bus (B) (n=2,327)		King St Trolley (C) (n=269)	
ZIP CODE	%	ZIP CODE	%	ZIP CODE	%
22304	17%	22304	18%	22314	22%
22314	17%	22314	16%	22301	9%
22311	13%	22311	14%	22304	6%
22302	9%	22302	9%	22302	3%
22312	7%	22312	7%	All others*	60%

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)
*No other single ZIP code represented >2% of riders

Figure 1 - Home ZIP Code by Weighted Response

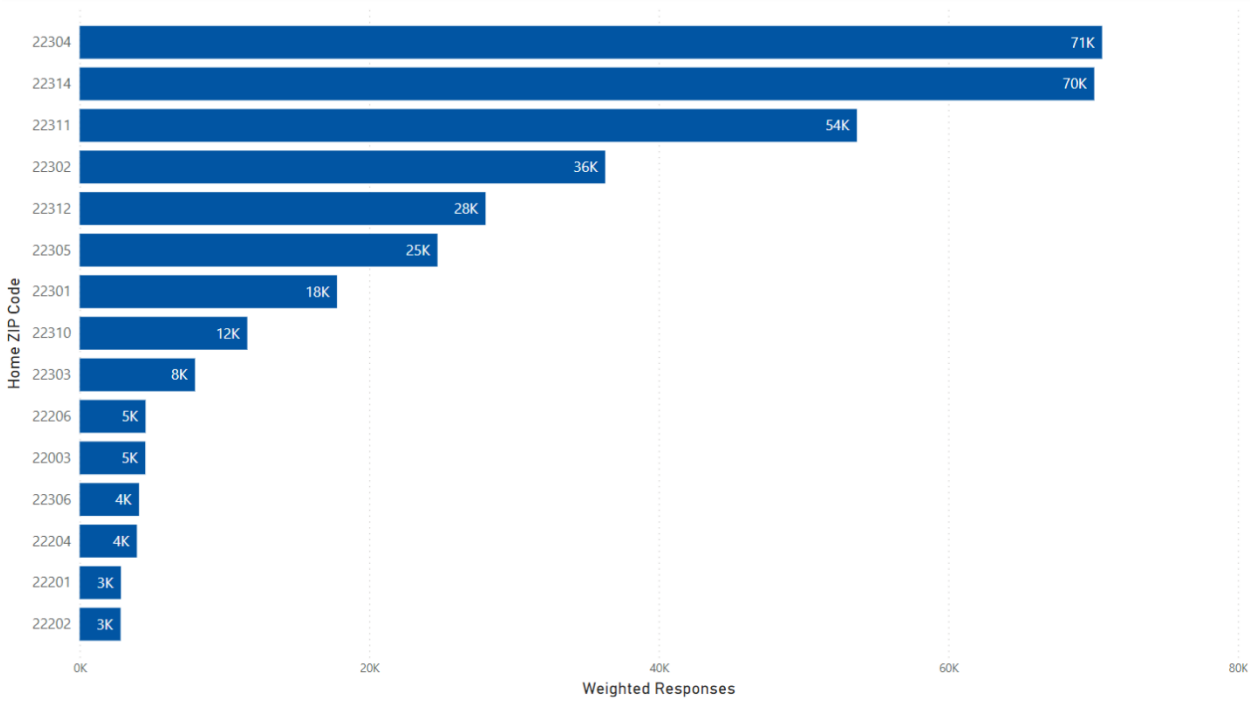


Figure 2 - Weighted Responses by Home ZIP Code (System)

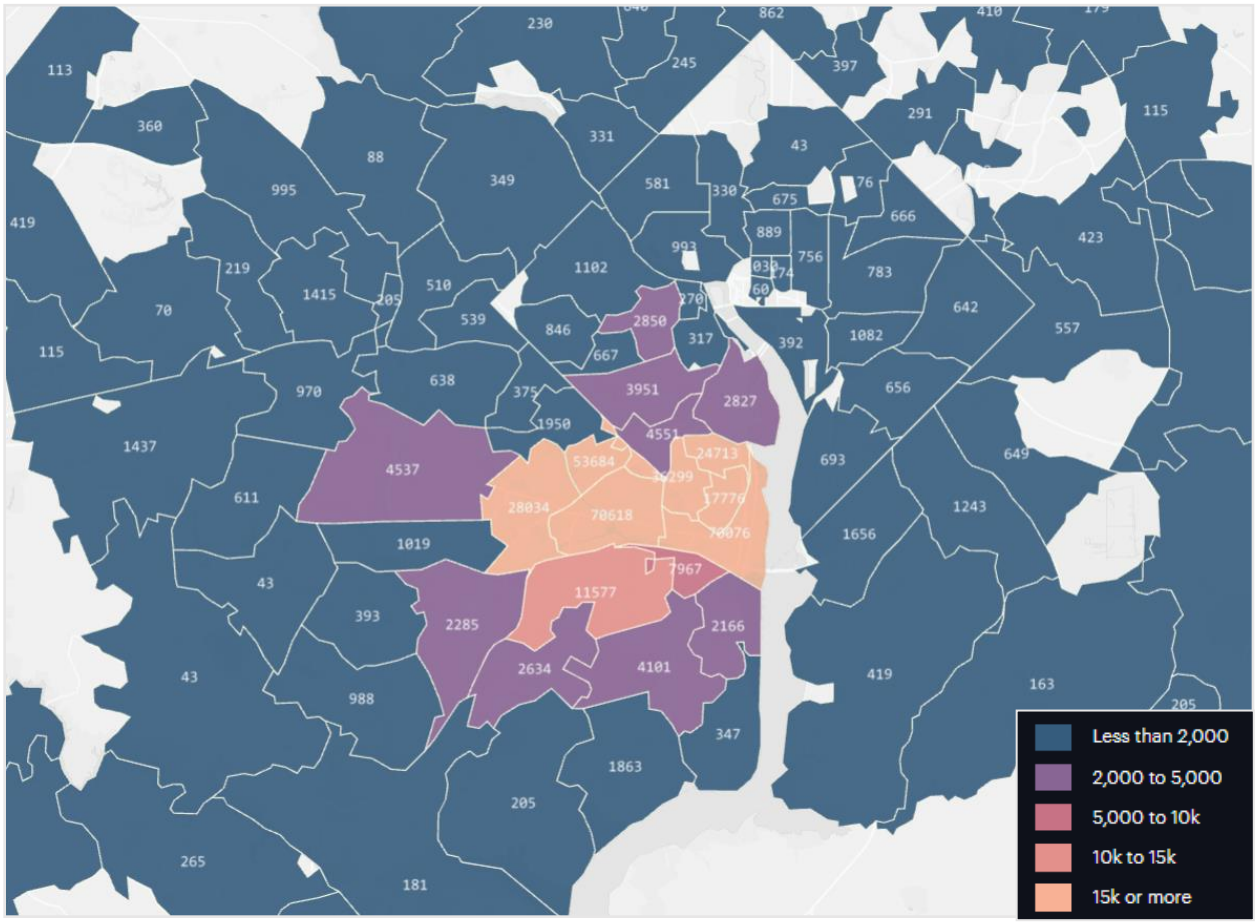


Figure 3 - Weighted Responses by Home ZIP Code (Bus)

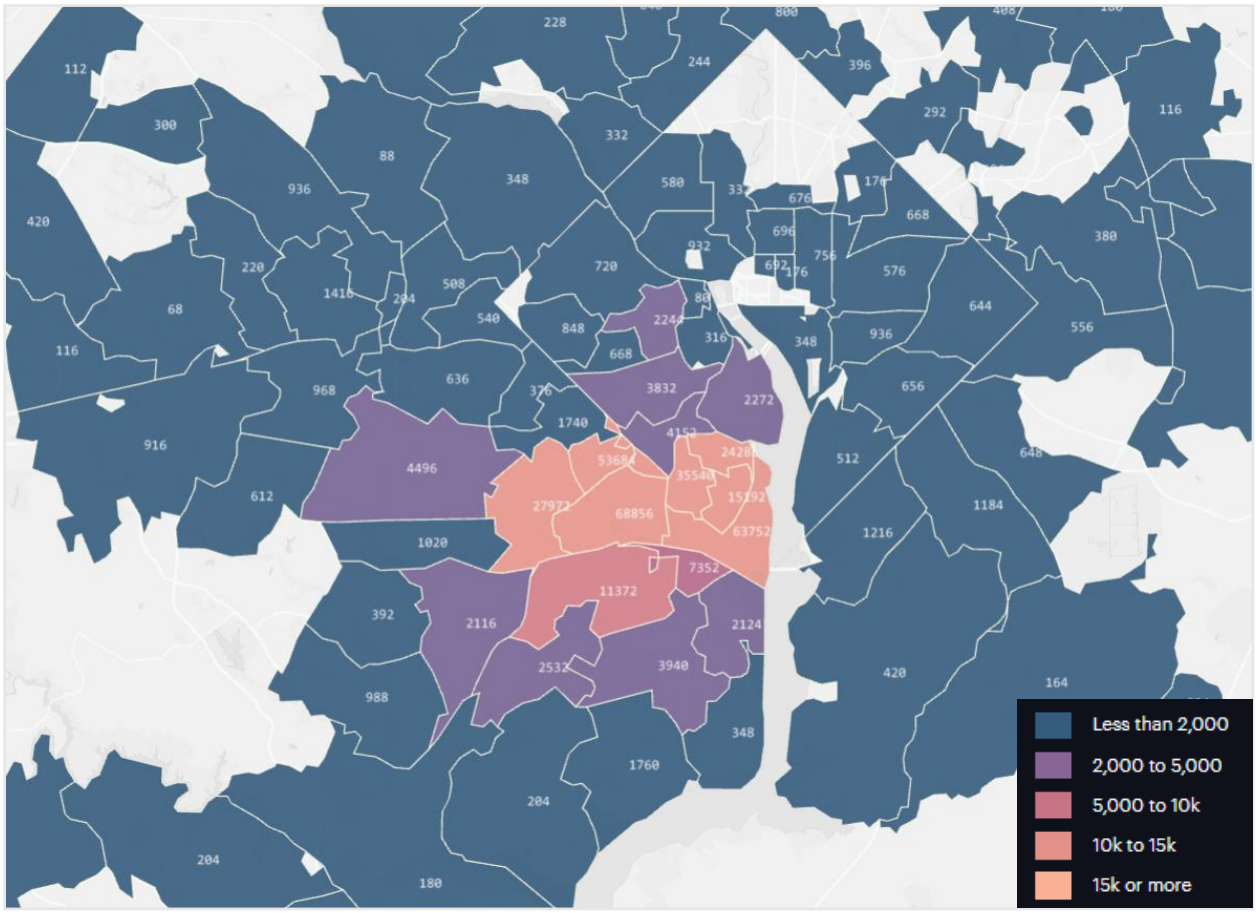
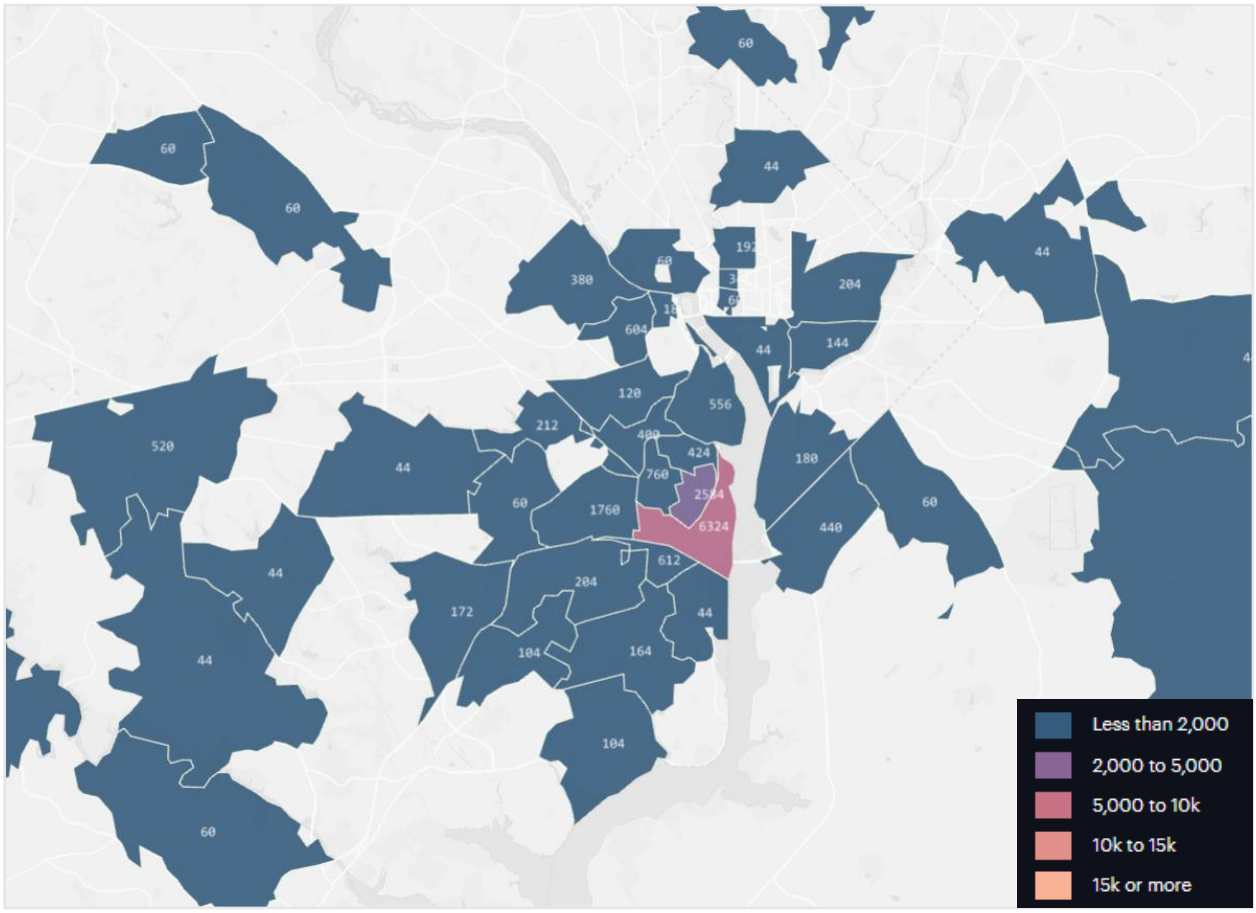


Figure 4 - Weighted Responses by Home ZIP Code (Trolley)



Trip Demographics

Overall, around three-fourths of customers were POC or non-white (74%); however, this proportion was greater among Bus customers (77%) than King Street Trolley customers (32%). Riders were asked to identify their race and ethnicity. Overall, the largest proportion of DASH customers are African American or Black (38%), although bus customers were significantly more likely to be Black or African American (40%) than King Street Trolley customers (15%). Similarly, bus customers were more likely than King Street Trolley customers to identify as Hispanic or Latino (24%, compared to 11%), Middle Eastern or North African (4%, compared to 1%), or multi-racial (2%, compared to <1%).

Table 2: Race and Ethnicity

Q22. What is your race or ethnicity?	Census (Alexandria City PUMS) (n=155,460)*	System (n=2,436)	Bus (B) (n=2,185)	King St Trolley (C) (n=251)
African American or Black	20%	38%	40%[C]	15%
Caucasian or White	50%	26%	23%	68%[B]
Hispanic or Latino	17%	23%	24%[C]	11%
Asian	6%	6%	6%	5%
Middle Eastern/North African	NA	4%	4%[C]	1%
Multi-racial	6%	2%	2%[C]	<1%
American Indian or Alaska Native	0%	1%	1%	-
Native Hawaiian or other Pacific Islander	0%	<1%	<1%	-
Other	1%	1%	1%	<1%
Net: POC/Non-white	50%	74%	77%[C]	32%

Base=Those answering
Responses are tabulated to match Census format. Categories shown do not overlap as a result.
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Census data is formatted as Hispanic/Latino alone, then by other solo codes.

Figure 5 - Race and Ethnicity by Weighted Response

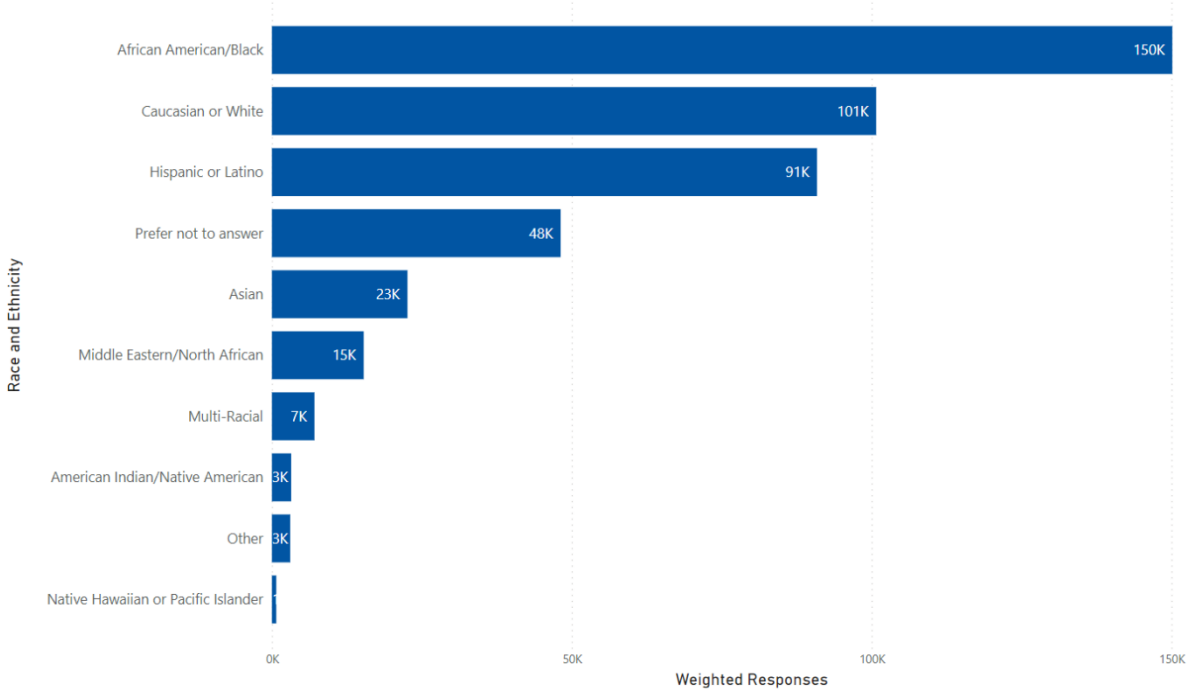
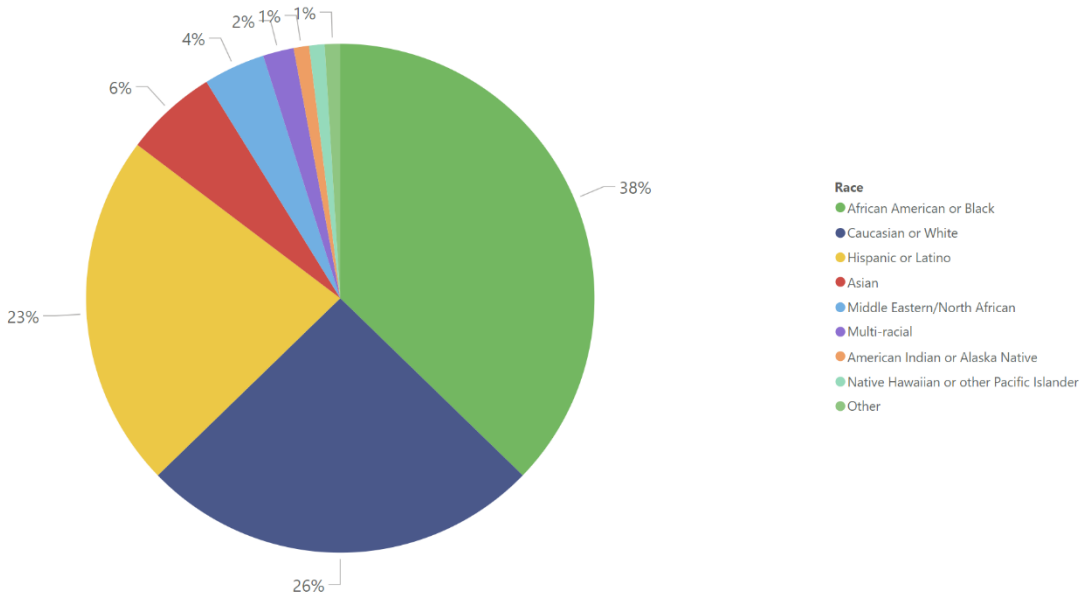


Figure 6 - Race and Ethnicity by Weighted Responses and Percentage



When asked their gender identity, customers systemwide were roughly evenly split between male (51%) and female (48%), with an additional 1% stating they were nonbinary. While bus customers had the same near even split (51% male, 48% female), King Street Trolley had significantly more male customers (61%, compared to 51% for bus).

Table 3: Gender

Q23. What is your gender identity?	Census (Alexandria City PUMS) (n=155,460)	System (n=2,545)	Bus (B) (n=2,285)	King St Trolley (C) (n=260)
Male	49%	51%	51%	61%[B]
Female	51%	48%	48%[C]	39%
Nonbinary	NA	1%	1%	-

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Figure 7 - Gender Identity by Weighted Response

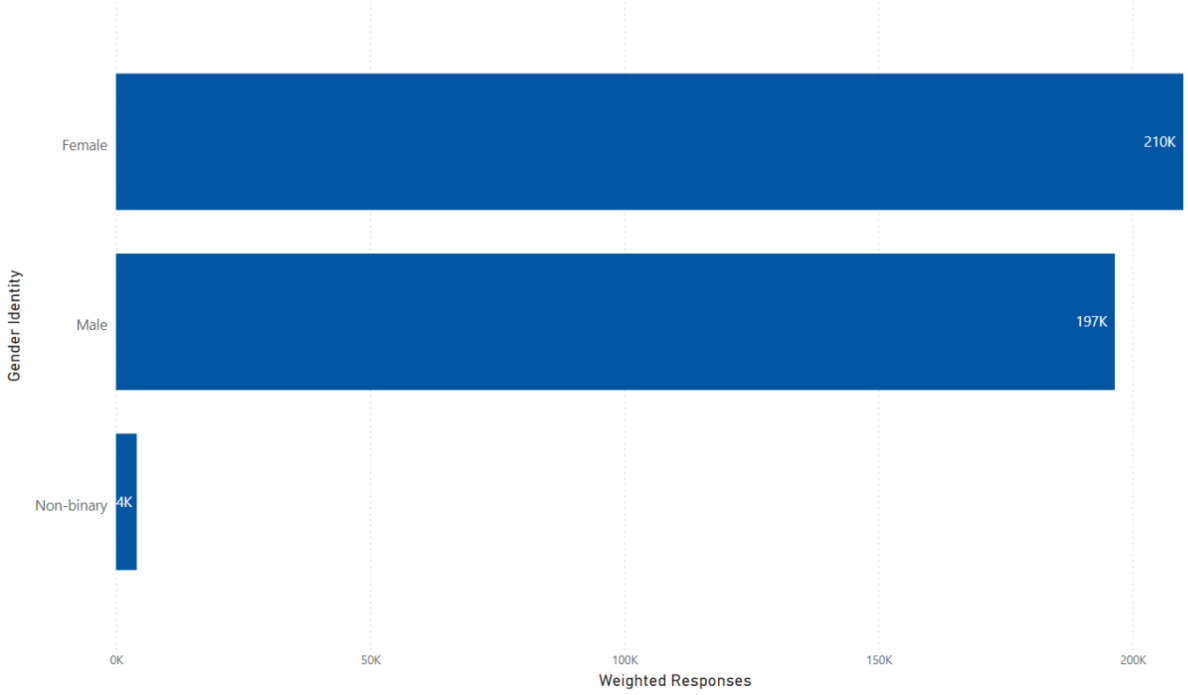
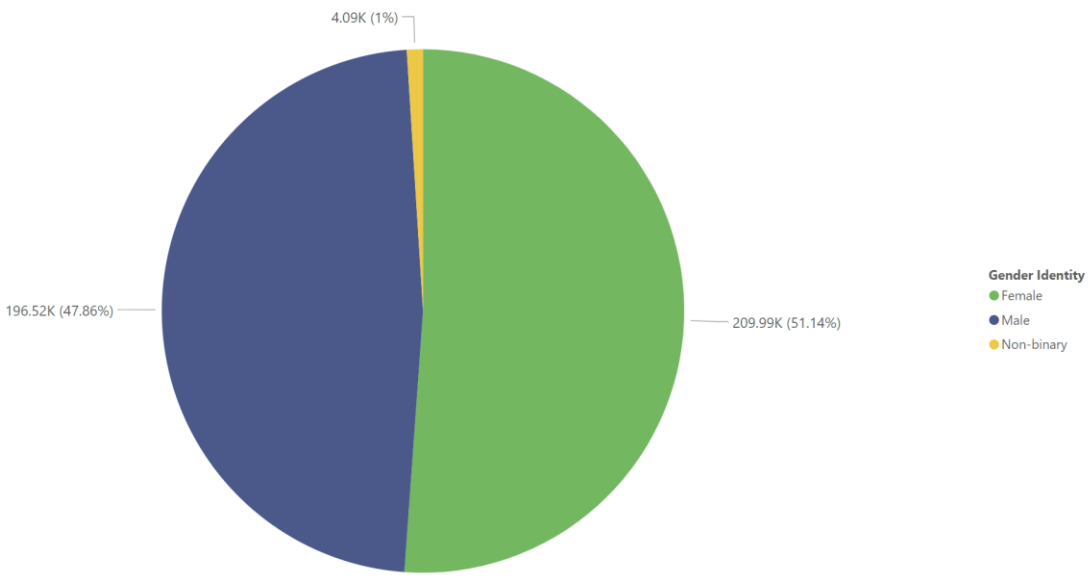


Figure 8 - Gender Identity by Weighted Responses and Percentage



Customers, on average, were 37 years of age. However, customers on the King Street Trolley tended to be slightly older (44.2 years of age on average) compared to bus customers (36.7 years of age on average). Reflecting this, bus customers were more likely to fall into the 23-34 age range (26%, compared to 18%), while King Street Trolley customers were more likely to fall into the 55-64 (19%, compared to 11%) and 65-74 (12%, compared to 4%) age ranges.

Table 4: Age

Q24. What is your age?	Census (Alexandria City PUMS) (n=)	System (n=2,432)	Bus (B) (n=2,187)	King St Trolley (C) (n=245)
Under 16	16%	1%	1%	-
16-17	2%	7%	7%	-
18-24	6%	19%	19%	16%
25-34	19%	26%	26%[C]	18%
35-44	20%	20%	20%	18%
45-54	13%	12%	11%	15%
55-64	11%	11%	11%	19%[B]
65-74	7%	5%	4%	12%[B]
75 or over	6%	1%	1%	2%
Average	*NA*	*37.1*	*36.7*	*44.2[B]*
Median	*NA*	*33.4*	*33.0*	*42.6*

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Figure 9 - Age by Weighted Responses

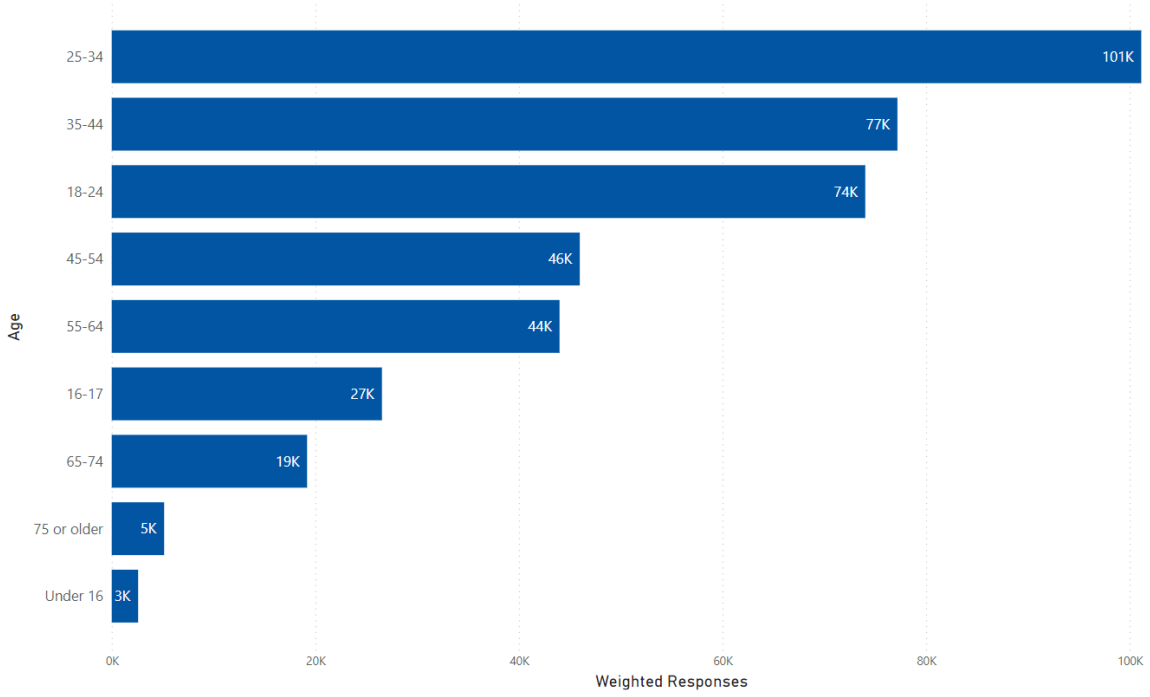
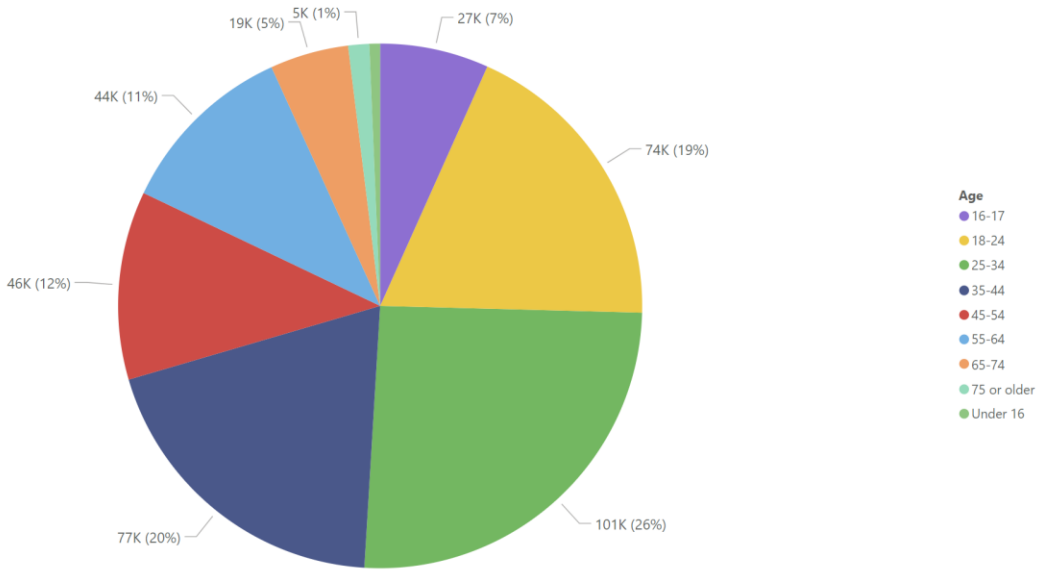


Figure 10 - Age by Weighted Responses and Percentage



While DASH system riders overall represent a broad range of educational attainment levels, King Street Trolley customers are significantly more likely than bus customers to have a Bachelor's degree or higher (70% vs. 34%).

Table 5: Level of Education

Q25. What is your highest level of education?	Census (Alexandria City PUMS) (n=155,460)	System (n=2,335)	Bus (B) (n=2,098)	King St Trolley (C) (n=237)
Less than high school	22%	11%	12%	-
High school diploma or GED	9%	26%	27%[C]	6%
Some college	9%	20%	21%[C]	13%
Associate's or technical school degree	4%	7%	7%	10%
Net: Bachelor's Degree or more	**56%**	**36%**	**34%**	**70%[B]**
Bachelor's or undergraduate degree	28%	18%	18%	26%[B]
Some graduate school	NA	4%	4%	9%[B]
Graduate or professional degree	28%	14%	12%	35%[B]

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Figure 11 - Level of Education by Weighted Responses

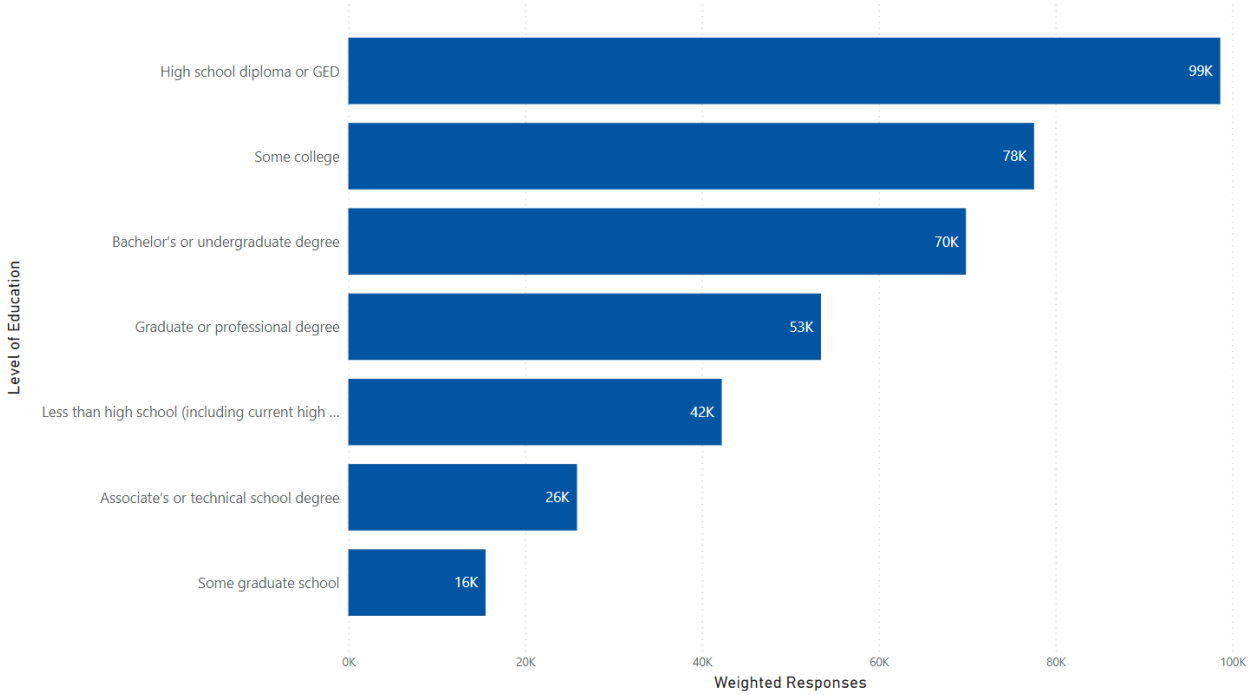
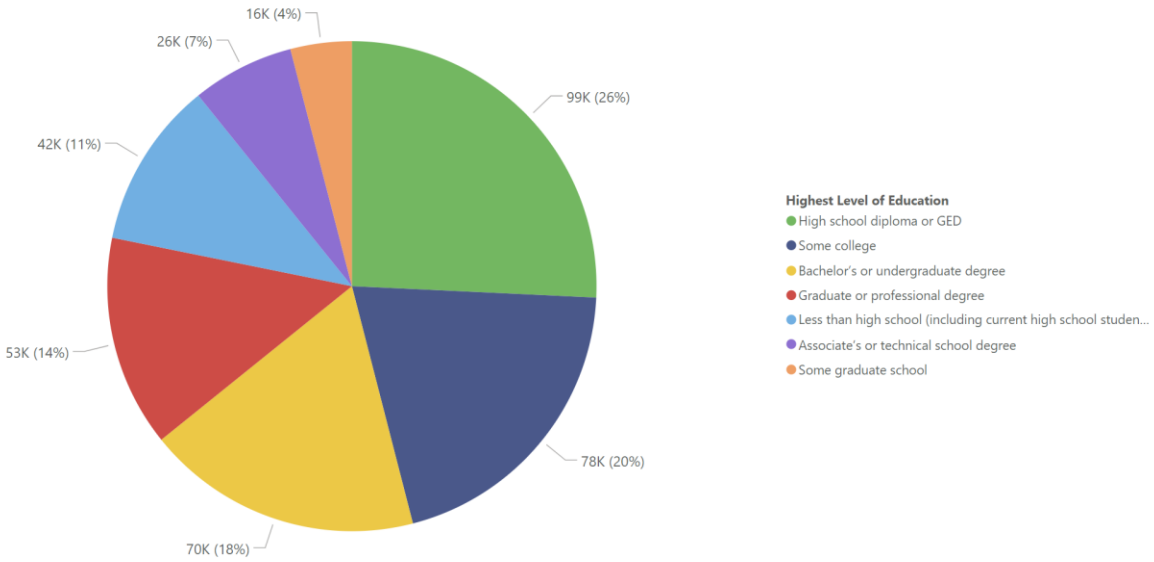


Figure 12 - Level of Education by Weighted Responses and Percentage



The median household income reported by DASH customers is $38,800. However, King Street Trolley customers reported a significantly greater average household income (median of $105,600) compared to bus customers ($37,300). Unsurprisingly, then, King Street Trolley customers were more likely than bus customers to report a household income of $100,000 or more (52% vs. 14%). In comparison, around two-thirds of all DASH customers (64%) were below 100% of the poverty level[2], with this being significantly greater among bus customers (66%) than King Street Trolley customers (31%).

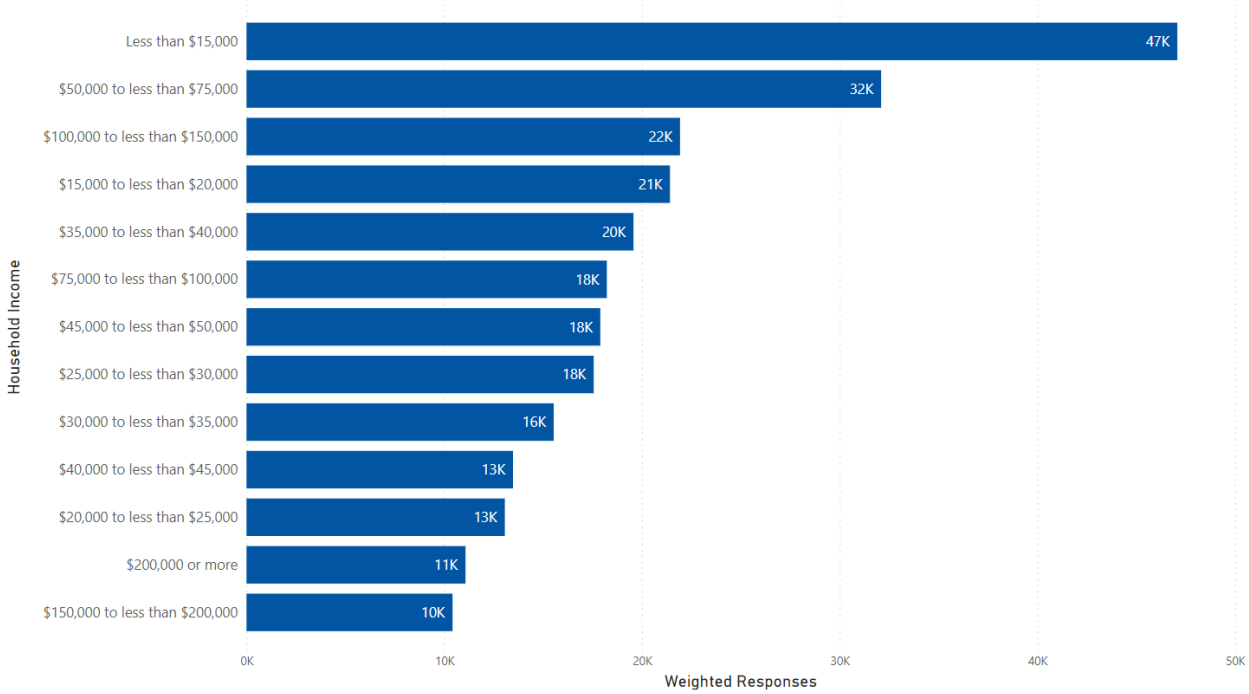
[2] Calculated as two times the federal poverty threshold, or 2*$29,950 = $59,900. The closest comparable income break was Q26(09), $50,000 to less than $75,000. Any customer who responded Q26(01-08) was therefore considered under 100% of Poverty Level, and any who responded Q26(09-13) was considered above 100% of the Poverty Level.

Table 6: Household Income

Q26. Which of the following BEST describes your TOTAL ANNUAL HOUSEHOLD INCOME in 2022 before taxes?	Census (Alexandria City PUMS) (n=80,342)	System (A) (n=1,587)	Bus (B) (n=1,416)	King St Trolley (C) (n=171)
Less than $15,000	4%	18%	19%[C]	6%
$15,000 to less than $20,000	2%	8%	9%[C]	3%
$20,000 to less than $25,000	2%	5%	5%	3%
$25,000 to less than $30,000	2%	7%	7%[C]	2%
$30,000 to less than $35,000	3%	6%	6%[C]	1%
$35,000 to less than $40,000	1%	8%	8%	7%
$40,000 to less than $45,000	2%	5%	5%	6%
$45,000 to less than $50,000	2%	7%	7%	3%
$50,000 to less than $75,000	13%	12%	12%	11%
$75,000 to less than $100,000	12%	7%	7%	6%
$100,000 to less than $150,000	19%	8%	8%	20%[B]
$150,000 to less than $200,000	12%	4%	3%	11%[B]
$200,000 or more	21%	4%	3%	21%[B]
Average	*NA*	*$58.2K*	*$53.9K*	*$113.0K[B]*
Median	*NA*	*$38.8K*	*$37.3K*	*$105.6K*
Below 100% of Poverty Level	NA	64%	66%[C]	31%

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Figure 13 - Household Income by Weighted Responses



Nearly eight in ten (79%) trips are taken by customers who report they are employed. This was similar across both bus and King Street Trolley (79% and 77%, respectively). However, King Street Trolley did see a greater percentage of customers who were retired (17%, compared to 5% bus), while a greater percentage of bus customers were students, either employed (8%, compared to 4% King Street Trolley) or unemployed (9%, compared to 5% King Street Trolley). Additionally, bus customers were more likely to report being unemployed, retired, or furloughed (5%) compared to King Street Trolley customers (1%). Other employment breakouts are shown in Table 7.

Table 7: Employment Status

Q21. What is your current employment status?	Census (Alexandria City PUMS) (n=155,460)	System (A) (n=2,465)	Bus (B) (n=2,208)	King St Trolley (C) (n=257)
Net: Employed	**63%**	**79%**	**79%**	**77%**
Employed full-time	NA	59%	58%	64%
Employed part-time	NA	13%	13%	9%
Student and also employed	NA	8%	8% [C]	4%
Self-Employed	NA	<1%	<1%	1%
Net: Not Employed	**37%**	**21%**	**21%**	**23%**
Student and not employed	NA	9%	9%[C]	5%
Retired	NA	6%	5%	17%[B]
Unemployed, furloughed, or disabled	NA	5%	5% [C]	1%
Homemaker	NA	2%	2%	1%

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

As mentioned, a higher percentage of bus customers were students (17%) compared to King Street Trolley customers (8%). Overall, fewer than two in ten DASH customers were students (16%).

Table 8: Student Status

Q21. What is your current employment status? (Student Status)	Census (Alexandria City PUMS) (n=155,460)	System (A) (n=2,465)	Bus (B) (n=2,208)	King St Trolley (C) (n=257)
Net: Student	20%	16%	17%[C]	8%
Net: Not a student	80%	84%	83%	92%[B]

Base=Full-time students and answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Customers who were employed were asked to report which days of the week they worked from home, rather than in an office. Roughly four in ten DASH customers (39%) reported ever working from home. This proportion is significantly greater among King Street Trolley customers than bus customers (52% vs. 38%). For King Street Trolley customers, between two to three in ten reported working from home any of the days Monday through Friday (22%-27%). For Bus customers, only one to two in ten reported the same (14%-18%).

Table 9: Commuter/Hybrid/Work from Home Status

Q21A. On which days of the week, Sunday through Saturday, when your workplace is open do you typically work from home?	System (A) (n=1,879)	Bus (B) (n=1,689)	King St Trolley (C) (n=190)
Sunday	6%	6%	5%
Monday	18%	17%	27%[B]
Tuesday	15%	14%	25%[B]
Wednesday	16%	16%	22%
Thursday	15%	15%	23%[B]
Friday	18%	18%	24%
Saturday	6%	6%	5%
It varies	12%	11%	20%[B]
Ever work from home	39%	38%	52%[B]
Never work from home	61%	62%[C]	48%

Base=Those who are employed and answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Three questions were asked to identify Limited English Proficiency (LEP) customers. First, customers were asked whether they predominantly speak a language other than English at home. One-third of DASH customers overall (34%) do primarily speak a language other than English at home. This proportion is greater among bus customers than King Street Trolley customers (36% vs. 15%).

Table 10: English Fluency

Q18. Do you predominantly speak a language other than English at home?	Census (Alexandria City PUMS) (n=145,686)	System (A) (n=2,514)	Bus (B) (n=2,251)	King St Trolley (C) (n=263)
Yes	31%	34%	36%[C]	15%
No	69%	66%	64%	85%[B]

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Next, customers were asked how well they speak English. Customers who responded that they predominantly speak English at home were coded as speaking English "Very well". Overall, the vast majority of DASH customers indicated they speak English "Very well" (86%). However, bus customers were more likely than King Street Trolley customers to report speaking English less than very well (14% vs. 5%).

Table 11: English Proficiency

Q18/Q20. How well do you speak English?	Census (Alexandria City PUMS) (n=44,757)	System (A) (n=2,505)	Bus (B) (n=2,242)	King St Trolley (C) (n=263)
Very well	64%	86%	86%	95%[B]
Well	23%	9%	9%[C]	4%
Not well	10%	5%	5%[C]	1%
Not at all	3%	<1%	<1%	-
Net: Less than very well	**36%**	**14%**	**14%[C]**	**5%**

Base= Those Answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)
Customers who reported not speaking a language other than English at home [Q18(02)] are included in "Very well"

Customers who predominantly spoke a language other than English at home were then asked what language. Overall, about two in ten (18%) DASH customers reported speaking Spanish (including all dialects). Amharic (4%) and Arabic (3%) were the next two most frequent primary languages. Other languages are shown in Table 12 below.

Table 12: Primary Language

Q18/Q19. Which language?	Census (Alexandria City PUMS) (n=80,342)	System (A) (n=2,361)	Bus (B) (n=2.107)	King St Trolley (C) (n=254)
English	67%	70%	69%	88%[B]
Spanish (including all dialects)	11%	18%	19%[C]	9%
Amharic	4%	4%	4%[C]	1%
Arabic	3%	3%	3%[C]	<1%
French (including all dialects)	1%	2%	2%	1%
Chinese (including all dialects)	1%	1%	1%	<1%
Korean	1%	<1%	1%	-
Vietnamese	<1%	<1%	<1%	-
Russian	<1%	<1%	<1%	1%
Other	11%	1%	1%	<1%

Base=Those who speak another language and answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

As part of the access and egress questions, customers could report the use of a mobility aid to access public transit. Overall, only 1% of customers reported using a mobility aid to access public transit, which was relatively consistent across both modes. Please note that this is for bus and trolley specifically – paratransit was not surveyed as part of this study.

Table 13: Disability Status

Q3/Q10. Used a mobility aid to access public transit	System (A) (n=2,672)	Bus (B) (n=2,394)	Trolley (C) (n=278)
Yes	1%	1%	<1%
No	99%	99%	100%

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

About three in four customers (77%) live with at least one other person, with the median number of people in the household being 3. Bus customers were more likely to have 5 or more people in their household (17%) compared to King Street Trolley customers (8%).

Table 14: Household Size

Q17. Including YOU, how many people live in your household?	Census (Alexandria City PUMS) (n=80,342)	System (A) (n=2,307)	Bus (B) (n=2,062)	King St Trolley (C) (n=245)
1	56%	23%	23%	19%
2	24%	25%	24%	37%[B]
3	10%	21%	20%	22%
4	8%	16%	16%	15%
5	3%	9%	10%[C]	3%
6	<1%	3%	3%[C]	1%
7	<1%	1%	1%	2%
8 or more	<1%	3%	3%	2%
Net: 2 or more	**44%**	**77%**	**77%**	**81%**
Average	*NA*	*2.9*	*2.9*	*2.7*
Median	*NA*	*3.0*	*3.0*	*2.0*

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

The largest proportion of DASH customer households have two adults (41%), which is greater for King Street Trolley customers (52%) than for bus customers (40%), where three in ten customers are living in a household with only one adult (31%). The median number of adults in each household is 2.

Table 15: Number of Adults

Q17/Q17AA. How many of these people living in your household are 18 years of age or older?	System (A) (n=2,257)	Bus (B) (n=2,015)	King St Trolley (C) (n=242)
1	31%	31%[C]	22%
2	41%	40%	52%[B]
3	18%	18%	16%
4	7%	7%	7%
5	2%	2%[C]	<1%
6	1%	1%	1%
7	<1%	<1%	1%
8 or more people 18 years of age or older	1%	1%	1%
Net: 2 or more	**69%**	**69%**	**78%[B]**
Average	*2.2*	*2.2*	*2.2*
Median	*2.0*	*2.0*	*2.0*

Base= Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Almost four in ten DASH customers (38%) reported having children in their household, with bus customers reporting this significantly more (39%) than King Street Trolley customers (27%). The average number of children per household was just below 1 (0.1).

Table 16: Number of Children

Q17/Q17A. Number of children in household	System (A) (n=2,257)	Bus (B) (n=2,015)	King St Trolley (C) (n=242)
0	62%	61%	73%[B]
1	16%	17%	12%
2	15%	15%[C]	9%
3	5%	5%	5%
4	1%	1%	-
5	1%	1%	<1%
6	<1%	<1%	-
7	<1%	<1%	-
Net: 1 or more	**38%**	**39%[C]**	**27%**
Average	0.7	0.7[C]	0.5

Base= Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Transit Reliance

Transit reliance is the level of reliance on public transportation that an individual has in order to travel. The questions used to determine transit reliance for this study were:

- Q11, "If DASH had not been available today, how would you have made this trip?";
- Q14, "Do you have access to a vehicle you could have used to make this trip?";
- Q15, "Do you have a valid driver's license?"; and
- Q17B, "How many cars, motorcycles, or vehicles do you have access to in your household?"

Depending on the responses to these questions, resident customers were categorized as being either::

- Extremely Reliant – would not have made the trip if DASH was not available,
- Highly Reliant – would have made the trip another way, but do not have a valid driver's license,
- Moderately Reliant – do have a driver's license, but do not have access to a working vehicle,
- Slightly Reliant – have a working vehicle but would not have been able to use it for this trip, and
- Not Reliant – would have driven themselves to make this trip were DASH not available.

The full logic for the coding of responses can be found in the footnotes of Table 17.

Overall, one-half of DASH customers are not transit reliant (50%). However, 38% of Bus customers are highly or extremely reliant (28% highly, 10% extremely), significantly greater than King Street Trolley customers (13% and 6%, respectively).

The lines that had the greatest proportion of extremely reliant customers were Line 34 (17%), Line 36 (15%), Line 32 (13%) and Line 33 (13%).

Table 17: Transit Reliance

Transit Reliance	System (A) (n=2,895)	Bus (B) (n=2,591)	King St Trolley (C) (n=304)
Extremely Reliant	9%	10%[C]	6%
Highly Reliant	27%	28%[C]	13%
Moderately Reliant	11%	11%	7%
Slightly Reliant	3%	3%	7%[B]
Not Reliant	50%	48%	67%[B]

Base=Those answering
Levels of transit reliance are defined as follows:
Extremely: [Q11(96)]
Highly: [Q11(02-95,99,NA) AND Q15(02)]
Moderately: [Q11(02-03,05-95,98-99,NA) AND Q17B(0) AND Q15(01,98,NA)]
Slightly: [Q11(02-95,NA) AND ((Q17B(1-5,98) AND Q14(02) AND Q15(01,98,NA)) OR (Q17B(98,NA) AND Q15(01,98,NA))]
Not: [Q11(01,04) OR (Q11(02-95,99) AND Q17B(1-5,98) AND (Q14(01,98) OR Q15(01,98)))]
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

One in ten customers (10%) stated that they would not have made this trip if DASH had not been available, a proportion that is greater for bus customers (10%) than for King Street Trolley customers (6%). The primary backup mode was a rideshare service, such as Uber or Lyft (30%), followed by another transit provider (26%). The latter was an option for a larger percentage of bus customers (27%) than King Street Trolley customers (14%). However, King Street Trolley customers were more likely to report that they would have walked to their destination (54%) than bus customers (19%), which makes sense given the King Street Trolley is often used to move around Oldtown, rather than making long trips. Lastly, bus customers were far more likely to report riding with someone to their final destination (14%) compared to King Street Trolley customers (2%).

Table 18: Alternate Mode of Transportation

Q11. If DASH had not been available today, how would you have made this trip?	System (A) (n=2,811)	Bus (B) (n=2,511)	King St Trolley (C) (n=300)
Rideshare service such as Uber, Lyft, or Taxi	30%	30%	25%
Other transit provider (that is, Metrobus, Metrorail)	26%	27%[C]	14%
Walk	21%	19%	54%[B]
Ride with someone to your final destination	13%	14%[C]	2%
Drive a vehicle directly to your final destination	10%	10%	6%
Bike or scooter to your final destination	3%	3%	3%
Would not make this trip	10%	10%[C]	6%

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Customers were also asked about the number of buses, trains, or trollies they would take to reach their final destination. The majority of customers only used one route and did not transfer (61%). As expected, very few customers took three or more routes as a part of their trip (6%).

Table 19: Number of Routes

Q4. How many buses, trains, or trollies will you take to get to your FINAL DESTINATION?	System (A) (n=2,905)	Bus (B) (n=2,602)	King St Trolley (C) (n=303)
1 route	61%	61%	56%
2 routes	33%	33%	35%
3 routes	6%	5%	8%
4 routes	<1%	<1%	-
5 or more routes	<1%	<1%	-
Net: Transferred	**39%**	**39%**	**44%**
Net: 3 or more routes	**6%**	**6%**	**8%**
Average number of routes	*1.5*	*1.5*	*1.5*
Median number of routes	*1.0*	*1.0*	*1.0*

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

As part of travel demographics and transit reliance, riders were asked about their access to working vehicles. Almost four in ten customers (37%) did not have access to a personal vehicle in their household. This was significantly greater for bus customers (38%) compared to King Street Trolley customers (19%), whereas the majority of King Street Trolley customers had two vehicles available (37%, significantly greater than bus customers' 19%). Unsurprisingly, this highlights the importance of the DASH bus as a mode of transit, especially considering that those who are extremely, highly, or moderately transit reliant had were significantly more likely to report not having a vehicle in their household (67%), compared to those who are not transit reliant (5%).

Table 20: Household Vehicle Access

Q17B. How many cars, motorcycles, or vehicles do you have access to in your household?	System (A) (n=2,292)	Bus (B) (n=2,049)	King St Trolley (C) (n=243)
0	37%	38%[C]	19%
1	38%	38%	34%
2	20%	19%	37%[B]
3	3%	3%	7%
4	1%	1%	3%
5 or more	1%	1%	-
Net: 2+	**25%**	**24%**	**47%[B]**

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Additionally, they were asked if they had access to a vehicle they could have used to make the trip they were surveyed on. Only about four in ten (38%) had access to a vehicle that could have been used to make this trip. Findings were similar regardless of mode.

Table 21: Trip Vehicle Access

Q14. Do you have access to a vehicle you could have used to make THIS TRIP?	System (A) (n=2,702)	Bus (B) (n=2,412)	King St Trolley (C) (n=290)
Yes	38%	37%	43%
No	62%	63%	57%

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

When asked whether they had a valid driver's license, about four in ten customers said they do not (41%). This is significantly higher for bus customers, however (42%, compared to King Street Trolley's 17%).

Table 22: Valid Driver's License

Q15. Do you have a valid driver's license?	System (A) (n=2,682)	Bus (B) (n=2,396)	King St Trolley (C) (n=286)
Yes	59%	58%	83%[B]
No	41%	42%[C]	17%

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Trip-Making Characteristics

Roughly four in ten trips began at home (41%), and about three in ten (28%) started from work. This was significantly greater for bus than for King Street Trolley for both home (43% bus, 22% King Street Trolley) and work (29% bus, 16% King Street Trolley). However, King Street Trolley had the largest proportion of trips coming from recreation, social, or personal locations (44%, compared to bus's 12%).

Table 23: Origin

Q1. Where are you coming from now?	System (A) (n=2,906)	Bus (B) (n=2,599)	King St Trolley (C) (n=307)
Home	41%	43%[C]	22%
Work	28%	29%[C]	16%
Recreation, social, or personal	14%	12%	44%[B]
Shopping or errands	8%	8%	11%
School or college (students only)	6%	6%[C]	1%
Doctor, medical service, or hospital (non-work only)	1%	1%	<1%
Net: Not coming from home	**59%**	**57%**	**78%[B]**
Net: Recreation, social, or personal/church/restaurant	**14%**	**12%**	**44%[B]**
Net: Home/hotel/temporary lodging	**42%**	**43%[C]**	**26%**

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Home was the most common destination of trips (44%) followed by work (24%). These proportions were again greater for the bus (45% for home and 25% for work or work-related) than for King Street Trolley (37% and 6%). Again, King Street Trolley had the largest proportion of customers heading to recreation, social, or personal locations (39%, compared to 13% for buses).

Table 24: Destination

Q8. What type of place is your final destination on this one-way trip?	System (A) (n=2,863)	Bus (B) (n=2,557)	King St Trolley (C) (n=306)
Home	44%	45%[C]	37%
Work	24%	25%[C]	6%
Recreation, social, or personal	15%	13%	39%[B]
Shopping or errands	8%	9%	6%
School or college (students only)	5%	5%[C]	2%
Doctor, medical service, or hospital (non-work only)	1%	1%	<1%
Hotel/Temporary lodging	1%	<1%	8%[B]
Net: Not going to home	56%	55%	63%[B]
Net: Recreation, social, or personal/church/restaurant	15%	14%	40%[B]
Net: Home/hotel/temporary lodging	45%	45%	45%

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Trips were also categorized by their combined origin and destination into the following categories:

- Home-Based Work – trips that have an O-D combination of home and work;
- Home-Based Other – trips that have an O-D combination of home and another location;
- Work-Based Work – trips that have an O-D combination of work and another work or job related location;
- Work-Based Other – Trips that have an O-D combination of work and another location; and
- Other-Based Other – Trips that have an O-D combination of two non-work, non-home locations.

The majority of trips were either home-based work (43%) or home-based other (42%). For bus, the most frequent trips were home-based work (45%, significantly greater than King Street Trolley customers' 14%), while for King Street Trolley the most frequent were home-based other (43%), followed by other-based other (35%, significantly higher than bus customers' 6%). To see trips by trip-type mapped out on the Alexandria area, please see the maps in Appendix 2.

Table 25: Trip Type

Trip Type	System (A) (n=2,851)	Bus (B) (n=2,546)	King St Trolley (C) (n=305)
Home-Based Work	**43%**	**45%**[C]	14%
Home-Based Other	42%	42%	**43%**
Work-Based Work	3%	3%[C]	1%
Work-Based Other	4%	4%	7%[B]
Other-Based Other	8%	6%	35%[B]

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

On average, three in four customers reported that they are a frequent rider (75%), riding three or more days per week. Bus customers were significantly more likely to report being frequent riders (78%) compared to King Street Trolley customers (31%). Notably, one-third of King Street Trolley customers reported it was their first time riding (34%), considerably higher than bus customers (3%).

Table 26: Trip Frequency

Q12. How frequently do you ride dash?	System (A) (n=2,816)	Bus (B) (n=2,521)	King St Trolley (C) (n=295)
Net: Frequent Rider	75%	78%[C]	31%
6 or 7 days per week	29%	31%[C]	11%
5 days per week	27%	28%[C]	5%
3 or 4 days per week	18%	19%	15%
Net: Infrequent Rider	25%	22%	69%[B]
1 or 2 days per week	11%	11%[C]	7%
Less than once a week, but at least once a month	4%	4%	10%[B]
Less than once a month	5%	4%	19%[B]
This is your first time riding	6%	3%	34%[B]
Average	4.3	4.4[C]	2.5
Median	4.7	4.8	1.7

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Access and Egress to Transit

Customers primarily walked to access public transit (91%). This was true across both DASH modes.

Table 27: Mode of Access

Q3. How did you get FROM your origin to the FIRST BUS, TRAIN, OR TROLLEY on THIS ONE-WAY TRIP?	System (A) (n=2,737)	Bus (B) (n=2,453)	King St Trolley (C) (n=284)
Walked only	91%	91%	90%
Rode with someone who drove	3%	3%[C]	1%
Rideshare service such as Uber, Lyft, or Taxi	3%	3%	3%
Drove a car	2%	2%	4%
Mobility aid (cane, walker, wheelchair, etc.)	1%	1%	<1%
Personal bicycle or scooter	<1%	<1%	1%
Bikeshare or scootershare	<1%	-	1%
Some other way	<1%	<1%	1%

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Walking is also the primary mode of egress from public transit (94%), which speaks to the area's public transit system's ease of accessibility.

Table 28: Mode of Egress

Q10. When you GET OFF the bus or train, how will you get to your destination	System (A) (n=2,833)	Bus (B) (n=2,533)	King St Trolley (C) (n=300)
Walk only	94%	94%	92%
Will ride with someone who will drive	2%	2%	1%
Rideshare service such as Uber, Lyft, or Taxi	2%	2%	2%
Drive a car	1%	1%	2%
Bikeshare or scootershare	1%	1%	2%
Personal bicycle or scooter	<1%	<1%	1%
Mobility aid (cane, walker, wheelchair, etc.)	<1%	<1%	<1%
Some other way	<1%	<1%	1%

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Transfers

While the majority of trips did not involve a transfer (61%), those that did had customers report their trip chain with all routes taken from their boarding to their alighting stop. These unlinked trips were then turned into transfer pairs, with any directly linked routes creating a single pair (e.g., if a customer took the 30 to the 31 to the 32, that trip would be assigned the transfer pairs 30-31 and 31-32, signifying the routes that directly connected to one another). When categorizing trip pairs, route order is not taken into consideration, so trip pairs are always listed with the lower numbered route first.

Transfer pair analyses were run for all lines to identify the most frequent transfer pairs for any given line.

Table 29: Riders by Number of Transfers

Q4. How many buses, trollies, and/or ferries will you take to get to your FINAL DESTINATION?	System (A) (n=2,905)	Bus (B) (n=2,602)	King St Trolley (C) (n=303)
0 transfers	61%	61%	56%
1 transfer	33%	33%	35%
2 transfers	6%	5%	8%
3 transfers	<1%	<1%	-
4 or transfers or more	<1%	<1%	-
Net: Transferred	**39%**	**39%**	**44%**
Average number of transfers	0.5	0.5	0.5

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Those who made a transfer as part of their trip were assigned trip pairs, the linked lines they took as a part of their trip[3]. The most common transfer pair for DASH overall and bus specifically was 35-Metrorail (11% and 12%, respectively). For King Street Trolley, it was King Street Trolley-Metrorail (65%).

Table 30: Most Frequent Transfer Pairs (Top 5)

Most Used Route					
System (A) (n=839)		Bus (B) (n=764)		King St Trolley (C) (n=75)	
Trip Pair	%	Trip Pair	%	Trip Pair	%
35-Metrorail	11%	35-Metrorail	12%	King Street Trolley-Metrorail	65%
30-35	8%	30-35	9%	King Street Trolley-Metrobus	7%
31-35	7%	31-35	8%	30-King Street Trolley	5%
35-Metrobus	6%	35-Metrobus	6%	30-Metrobus	5%
31-Metrorail	5%	31-Metrorail	6%	32-King Street Trolley	5%

Base=Those answering

Overall, the line with the highest proportion of customers (including lines transferred to/from) was line 35 (37%), which was also true for bus customers, specifically (40%). King Street Trolley customers had a greater proportion of trips connecting to Metrorail (16%) compared to bus customers (9%).

[3] Note that these transfer pairs do not account for directionality, and as such, trips that went from route 30-31 would be identified the same as route 31-30. Transfer pairs are always listed with the lower numbered route first. Additionally, as records could have multiple transfer pairs, the weighting was adjusted for each record when running analyses on transfer pairs. For information on how transfer pairs were weighted, please see **Appendix 5: Weighting Methodology**.

Table 31: Most Used Route (Top 5)

Most Used Route					
System (A) (n=2,920)		Bus (B) (n=2,612)		King St Trolley (C) (n=308)	
Route	%	Route	%	Route	%
Line 35	37%	Line 35	40%[C]	King St Trolley	100%[B]
Line 30	21%	Line 30	22%[C]	Metrorail	16%[B]
Line 31	18%	Line 31	19%[C]	Metrobus	4%
Line 36	16%	Line 36	17%	Line 30	1%
Metrorail	9%	Metrorail	9%	Line 33	1%

Base=Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

DASH Free Fare, Attributes, and Satisfaction

In September 2021, DASH implemented the New Network, offering free fares across all its services. DASH wanted to examine the impact free fares and the New Network had on customers' decision to ride DASH, and whether customers made more trips as a result of free fares.

To start, customers were asked whether they rode DASH before September 2021, when free fares and the New Network were implemented. Slightly less than one-half of the surveyed customers reported that they had (46%), although this was higher for bus customers (47%) than for King Street Trolley customers (26%), unsurprising given the higher proportion of King Street Trolley customers who were riding for the first time.

Table 32: Riding Before September 2021

Q12/13. How frequently do you ride DASH/Did you ride DASH before September 2021 when free fares and the New Network were implemented?	System (A) (n=2,779)	Bus (B) (n=2,392)	King St Trolley (C) (n=196)
Yes	46%	47%[C]	26%
No	54%	53%	74%[B]

Base= Those answering, with new riders coded as "No"
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Those who did not ride DASH before free fares were then asked if it impacted their decision to start riding DASH services. Almost two-thirds of customers (62%) said yes.

Table 33: Impact of Free Fares on Decision to Start Riding DASH

Q13A. Did free fares impact your decision to start riding DASH?	System (A) (n=1,513)	Bus (B) (n=1,299)	King St Trolley (C) (n=214)
Yes	62%	62%	54%
No	38%	38%	46%

Base= Those who did not ride DASH before free fares and answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Those who did ride DASH before free fares were asked *how* free fares impacted how often they ride DASH. The majority (53%) stated that they ride more frequently than they did before free fares, although about four in ten (41%) said they ride the same amount as before free fares. This proportion was similar across modes.

Table 34: Impact of Free Fares on Frequency of Riding DASH

Q13B. How did free fares impact how often you ride DASH?	System (A) (n=1,234)	Bus (B) (n=1,157)	King St Trolley (C) (n=77)
I ride more frequently than before free fares	53%	53%	46%
I ride the same amount as before free fares	41%	41%	48%
I ride less frequently than before free fares	6%	6%	6%

Base= Those who rode before free fares and answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Riding DASH

Several questions were asked pertaining to how customers get information regarding transit services, important attributes in their decision to ride DASH, and their opinions on DASH overall, in order to identify where DASH can focus efforts to improve their service and disseminate information and updates.

When asked where they primarily received transit service information, about four in ten customers said by smartphone app (i.e., SmarTrip app, Transit app, Google maps, etc.) (44%), while one-third said they received transit information from the DASH website or trip planner (34%). Bus customers were significantly more likely to utilize DASH sources, such as the website (36%, compared to King Street Trolley 12%), DASH social media (4%, compared to King Street Trolley 1%), DASH Telephone Information Center (3%, compared to King Street Trolley <1%), and DASH email or text alerts (2%, compared to King Street Trolley <1%). King Street Trolley customers, however, were far more likely to simply wait at the bus stop (27%, compared to bus customers 1%). Again, given the large proportion of first time and low-frequency King Street Trolley riders, this makes sense.

Table 35: Primary Transit Service Information

Q27. Where do you primarily get transit service information?	System (A) (n=2,272)	Bus (B) (n=2,041)	King St Trolley (C) (n=231)
Smartphone app (i.e., SmarTrip app, Transit app, Google maps, etc.)	44%	44%	40%
DASH website or trip planner	34%	36%[C]	12%
Printed Ride Guide brochure	5%	5%	8%
DASH social media	4%	4%[C]	1%
Another transit agency website (e.g., WMATA Trip Planner)	3%	3%	6%
Just wait at the bus stop	3%	1%	27%[B]
DASH Telephone Information Center	3%	3%[C]	<1%
DASH e-mail/text alerts	1%	2%[C]	<1%
Word of mouth/Friends/Family	1%	1%	2%

Base= Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Customers were then asked to pick up to three attributes that were most important in making their decision to ride or not ride DASH. Of those who could be encouraged to ride DASH more often (98%), the primary importance attribute was free fares (58%), followed by routes that go places they need to go (49%) and service reliability (36%), consistent across all modes.

Table 36: Trip Distribution by Attribute of Importance

Q13C. Please pick which three of the following are the most important in your decision to ride or not ride DASH.	System (A) (n=2,776)	Bus (B) (n=2482)	King St Trolley (C) (n=294)
Affordability, that is, free fares	58%	58%	59%
Routes that go places you need to go	49%	49%	52%
Service reliability	36%	36%	42%
Frequency of service (how often the buses are running)	29%	29%	33%
Service hours (buses running during early mornings, late nights, and weekends)	21%	21%	18%
Feeling of personal safety and security	15%	15%	15%
Cleanliness of buses and bus stops	13%	12%	15%
Environmental sustainability or climate concerns	11%	12%[C]	7%
Bus stop amenities (benches, shelters, lighting, real-time information)	7%	7%	5%
Fuel prices	6%	6%	5%
Other	1%	<1%	1%

Base= Those answering who could be encouraged to ride DASH more often
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Overall, the majority of customers are satisfied with DASH (95%), with more than three in four (79%) reporting being very satisfied. This is higher for King Street Trolley customers (98% satisfied and 87% very satisfied) compared to bus customers (94% satisfied and 79% very satisfied), but as King Street Trolley is mostly used for home-based other and other-based other trips, is a system that runs simply and frequently, and is often used for leisure rather than commuting, it makes sense that satisfaction would be higher.

That said, this does not detract from the fact that DASH customers are generally satisfied with the service they receive. Customers who stated they were dissatisfied (2%) listed their most important attributes they consider in riding DASH to be routes going to places they need to go (45%), service reliability (36%), and affordability (32%).

Table 37: Overall Satisfaction with DASH

Q13D. How would you rate your overall satisfaction with DASH service?	System (A) (n=2,784)	Bus (B) (n=2,489)	King St Trolley (C) (n=295)
Net: Satisfied	95%	94%	98%[B]
Very satisfied	79%	79%	87%[B]
Somewhat satisfied	15%	16%	11%
Neither satisfied nor dissatisfied	3%	3%	1%
Net: Dissatisfied	2%	2%[C]	1%
Somewhat dissatisfied	1%	1%	-
Very dissatisfied	1%	1%	1%

Base= Those answering
Superscript letters (e.g., A, B, or C) indicate that the labeled percentage is significantly higher than the percentage in the corresponding segment (i.e., B for Bus, C for King St Trolley, etc.)

Methodology

The interviewer administered survey was developed between DASH staff and the research team. It contained 37 questions for customers and took approximately ten minutes to complete. The survey was conducted in English, Spanish, and Amharic, and was conducted entirely through a tablet with assistance from the interviewer.

In order to capture short trips, where an interviewer would not have time to conduct the full survey, the survey was also converted to web and paper formats. The paper survey allowed customers to complete the survey after leaving the bus and was marked with pre-paid postage. Once the survey was completed, it could be dropped into any USPS mailbox for delivery to the research team. In total, 1,100 English paper surveys, 675 Spanish surveys, and 450 Amharic surveys were printed (2,225 printed surveys in total) for interviewer use to capture these short trips if it was not possible to complete a tablet survey. Additionally, the web version allowed customers to use a unique ID from the paper copy of the survey to complete the survey online via a QR code or web link, both printed on the paper survey. Those completing online were required to enter the unique ID from their paper survey. This unique ID allowed the research team to link paper and web surveys back to the trip on which it was received.

The survey covered the following key topics:

- Residency,
- Trip origin and destination,
- Mode of access and egress,
- Number of transfers and trip chain information,
- Impact of New Network and free fares on customers' decision to ride DASH,
- Frequency of DASH use,
- Overall satisfaction with DASH,
- Transit reliance, and
- Demographics and Title VI information.

Once the survey was completed, customers were invited to enter a drawing to win one of several $50 gift cards as a thank you for participating. This incentive was also advertised by interviewers to help improve response rates.

The survey was programmed to minimize invalid responses, such as invalid routes, out of range responses, or illogical responses. For example, route questions included a drop-down list of all possible routes, and stop questions included a drop-down list of all possible stops limited by the route(s) used, reducing invalid responses.

For questions where an address was needed, the tablet- and online based surveys incorporated a mapping feature, allowing address data to be collected in a cleaner and more efficient manner. For paper surveys, they were asked to provide an address or nearest intersection manually, which was then entered into the data through the online mapping feature by the research team. This allowed the team to collect more precise geocoding data in real time, rather than relying on riders' ability to provide accurate addresses or intersections.

Sampling Plan

A sampling plan was designed based on ridership from June 2023 to determine the target number of completed surveys for each line by weekday, Saturday, and Sunday, and the estimated number of interviewer shifts needed to collect those surveys. Additionally, once the sampling plan was approved, the research team further divided each quota by time period (Early AM, AM Peak, Midday, PM Peak, and Evening).

The sampling plan is located in **Appendix 5: Sampling Plan**.

Survey Methodology

Survey data was collected between October 11 and November 19[4]. Interviewers boarded buses and trolleys and conducted surveys via tablets, or handed out paper surveys to those who were taking a short trip.

[4] Note that data collection was not conducted on November 11, due to the holiday schedule for Veterans Day.

Data Cleaning and Quality Control

Data Cleaning and Geolocation Validation

The survey team reviewed the intercept data daily, reviewing the previous day's data to identify outliers or errors, and worked with interviewers to improve the quality of incoming data. Additionally, these datafiles were used to track quotas set by the sampling plan.

The mapping software used in the intercept study made it possible to verify the geocoded location of the origins, destinations, and boarding and alighting stops. Any stop that was part of DASH or a linking system had its geocoded position programmed into the system, based on the GTFS files, and any origins, destinations, or unlisted stops or stations were geocoded through the mapping software in real time as the survey was conducted. Interviewers were instructed to include the city and state when entering these addresses, to ensure the locations were accurate. Supervisors also reviewed this geocoded data to ensure there were no outliers.

Following the end of data collection, initial tabs were run to examine the data in total and identify any remaining outliers or entry errors.

Survey Expansion

In order to adjust the data to be representative of the system as a whole, expansion weights were created and applied to each record to make them representative of the system at the line and day of week (Weekday by time period, Saturday, and Sunday) levels. These weights were calculated using October 2023 average ridership data provided by DASH. An additional adjustment was then applied to these weights to account for the proportion of weekdays to weekend days within an average month. A full explanation of the process and the final weights can be found in **Appendix 6: Weighting Methodology**.

Data Limitations

While the data collected has valuable use to DASH, there are several limitations to be aware of. Firstly, while customers in the intercept study were not given an explicit opportunity to opt out of questions, if they refused to answer, interviewers were instructed to move on in order to collect as much information as possible without alienating the respondent. Additionally, for paper or web surveys, participants could opt out of questions they did not feel comfortable answering. As a result, response rates vary by question. The same weights were applied to all responses in a survey, such that the weighted sums of a specific question do not necessarily equal the weighted sum of trips the survey represents. Because of this, percentages provide a more accurate reflection of what the data represents, rather than the absolute total weighted counts.

Additionally, due to differing response rates, the standard error varies from question to question and from segment to segment. The systemwide standard error is ±1.8 percentage points at the 95% confidence level, but that will increase for individual questions or segmented analyses with smaller base sizes.

Lastly, although efforts were taken to reduce bias as much as possible, there are still likely some underrepresented groups in the sample. For example, the survey team has limited ability to gather surveys from minors, so statistics for riders under 18 years of age are not representative of the rider

population. In addition, while the survey was translated into English, Spanish, and Amharic in order to reduce possible language barriers, the Alexandria area is very diverse, and it is possible that there were respondents who do not speak English, Spanish, or Amharic, and were therefore unable to respond.

Final Survey Totals

In total, 2,920 surveys were completed. The disposition breakout of intercept surveys and total surveys by paper and web is below. Qualified intercept responses are defined as surveys that are fully completed. Qualified partial intercept responses are defined as surveys that meet the minimum question threshold to be counted as "complete", that is that they have finished the trip chain questions and reached Q10. An unqualified partial intercept response started the survey but did not reach the minimum question threshold. Responses removed by data cleaning reflect records that, due to errors in entry, suspected satisficing, or other data irregularities, could not be fixed, and were therefore removed to preserve the validity of the data. In total, there were 2,898 completed intercept responses, 5 completed paper responses, and 17 completed web responses, for a total of 2,920 qualified responses.

Table 38: Final Response Rates

	Response Count	Response Percentage
Qualified Intercept Responses	2,655	66.3%
Qualified Partial Intercept Responses	243	6.1%
Unqualified Partial Intercept Responses	1,040	26.0%
Responses Removed By Data Cleaning	68	1.7%
Total Qualified Intercept Responses	**2,898**	**72.3%**
Total Paper Completes	5	
Total Web Completes	17	
Total Qualified Responses	**2,920**	

Lessons Learned

- Typically, Saturday and Sunday daypart quotas are not calculated or considered when collecting O-D data, as it does not impact final weighting schemes. However, in order to improve the validity of this data, soft daypart quotas were added in order to ensure the collected surveys were representative of Saturday and Sunday across the whole day, rather than one specific daypart. This proved beneficial to fielding, as it allowed for a wider range of possible shifts available over the weekend, and ensured the majority of minimum Saturday and Sunday quotas were hit in an attempt to cover dayparts.
- There was a limited window for fielding, to ensure the study would not overlap with holidays. Additional lead time prior to the next O&D study could expand possible fielding dates without overlapping holidays.
- For the next O&D, DASH may consider asking a follow-up question to determine why customers are satisfied or not satisfied to help determine what is driving customer satisfaction.
- Internal and external outreach was conducted at the beginning of data collection, with operators being made aware of interviewers on board buses and trolleys and ads running on the buses to alert customers that a survey was in progress. These are beneficial, but the effectiveness can wane as the study progresses. WBA recommends additional outreach to operators initially to explain why interviewers are on board, and follow-up outreach to operators and customers to continue to encourage survey engagement.