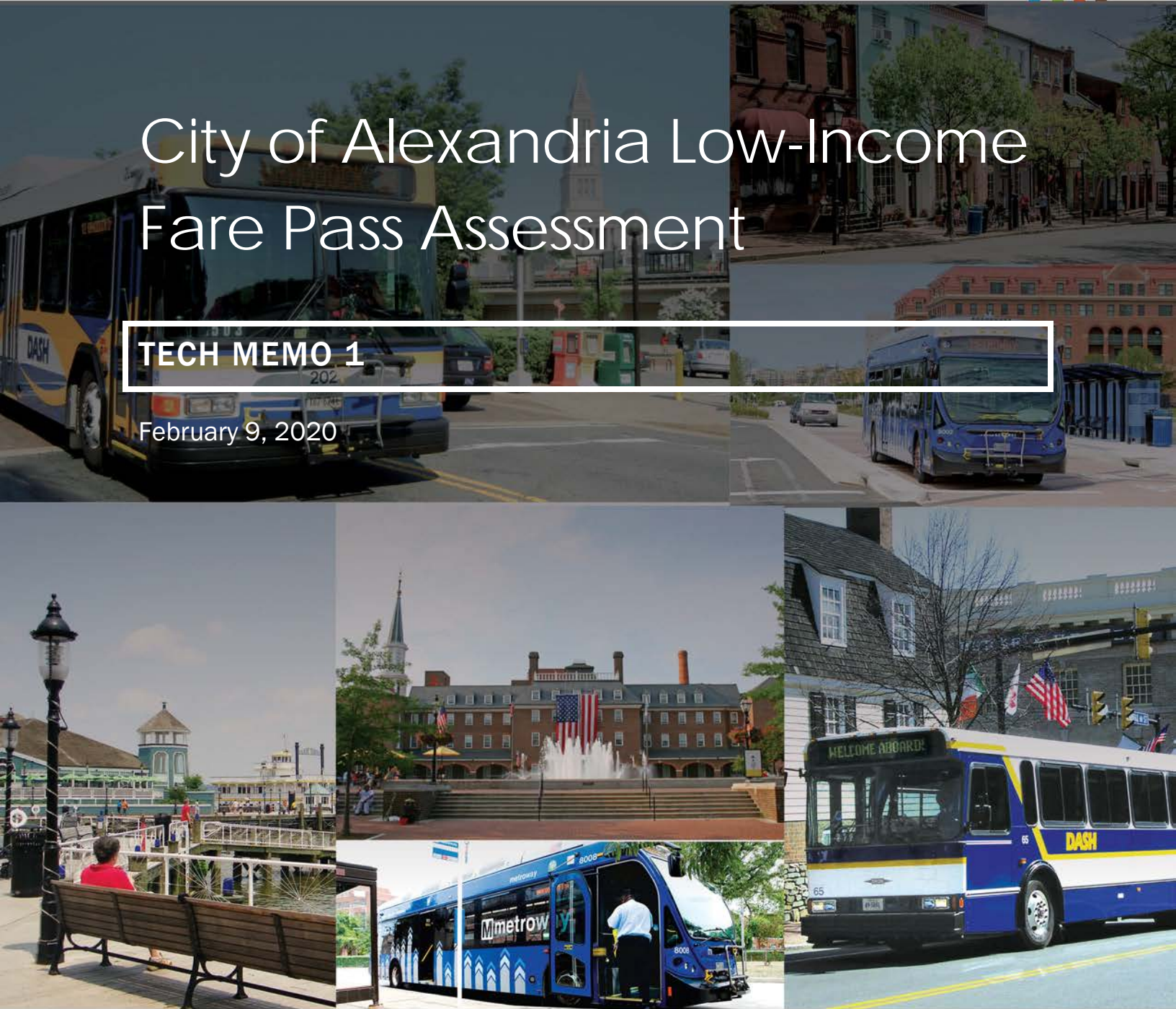




City of Alexandria Low-Income Fare Pass Assessment

TECH MEMO 1

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EXECUTIVE SUMMARY

Transit fares are often a large cost burden for low-income riders, especially in areas with higher costs of living like the City of Alexandria and Washington, DC. For many, this burden has increased because of the economic recession caused by the COVID-19 pandemic. This project was initiated by the City of Alexandria, in partnership with the Metropolitan Washington Council of Governments, to assess the feasibility and impact of a low-income transit fare pass program in the City.

This technical memo identifies current practices for reducing the impact of fares on low-income people from across the country and considers their implications for the City of Alexandria. The memo starts by developing goals to guide the establishment of a program that would make public transportation more affordable for residents with low incomes. These goals are:

- Make transit more accessible for City residents who struggle to afford the cost of fares.
- Enhance equity and access to opportunities in the City.
- Maintain or enhance operational performance of the DASH system while maintaining or increasing bus operator safety.
- Minimize the administrative burden of implementing and sustaining a fare program.
- Advance regional coordination to increase the affordability of public transportation for low-income residents throughout the region.

The options for a potential program in the City of Alexandria evaluated in this memo include:

- Free fares for everyone on the DASH system at all times;
- Free fares for everyone on the DASH system during off-peak hours;
- Free fares for eligible low-income residents on the DASH system at all times;
- Discounted fares and passes for eligible low-income residents on the DASH system;
- Free fares for eligible low-income residents ride on both DASH and WMATA services; and
- Discounted fares and passes for low-income residents on DASH and WMATA services.

Literature Review

This memo outlines the findings from a review of published research relating to low-income individuals' transit usage, low-income fare program design, the relationship between fares and ridership, key benefits to low-income transit riders when fares are removed or reduced, and operational impacts that a transit agency may experience from reducing or eliminating fares. The literature review includes academic research papers that explore quantitative relationships between fares and ridership as well as practically-minded research that examines real-world findings from pilot programs and surveys. The portion of the literature review related to the needs and behaviors of low-income riders indicated that these riders are more likely to:

- Pay for each ride rather than use an unlimited pass;
- Travel shorter distances;
- Take more frequent transit trips;
- Make more transfers; and
- Be unbanked or underbanked and rely on cash transactions.

In addition to being tailored to rider needs, any program in the City would also need to consider the impact of reduced or free fares on the affected operators. The literature review uncovered the following findings:

- In Boston, a pilot program found that low-income people who were given a 50 percent discount on fares took 30 percent more trips.
- A sample of ridership increases from agencies that went fare-free systemwide range from 32 to 205 percent, with most being below 60 percent.
- Not collecting fares allows for faster boarding, which in some cases can improve on-time performance, but can also lead to crowding. If the crowding is substantial, there is simultaneously the potential for free fares to worsen on-time performance.

Case Examples

The case examples in this memo, which build on the findings in the literature review, highlight specific programs across the country in more detail and demonstrate a range of possible options for a new program in the City of Alexandria. Some of the significant findings from these case examples are:

- **Travel period considerations** – Most agencies in the case examples did not distinguish between discounts for peak and off-peak periods. Instead, most riders enrolled in reduced fare programs paid one rate per trip regardless of their time of travel.
- **Fare media for program participants** – In most case examples in which low-income participants received a benefit, agencies used one of three methods to recognize admission into a reduced or fare-free program. Agencies either: issued a separate card after eligibility was verified that would allow passengers to purchase discounted fares/passes; issued a combination photo ID and fare card for free rides; or programmed the discount onto the riders' transit cards.
- **Eligibility thresholds** – The case examples that involved targeted assistance (as opposed to going fare-free systemwide) had different income limits as part of their criteria, with most requiring individuals to have incomes of no more than 150 percent to 200 percent of the federal poverty level to qualify.
- **Making eligibility determination and certification easy** – The application process can be significantly streamlined by requiring minimal supporting documentation and, where possible, using existing certification documents from other (often federal) financial assistance programs to verify eligibility, such as Temporary Assistance for Needy Families (TANF) approval letters or Electronic Benefit Transfer (EBT) cards, which function like debit cards and are given to recipients of TANF and Supplemental Nutrition Assistance Program (SNAP) (food assistance) benefits.
- **Building partnerships with community organizations** – Community organizations can play an important role in a fare discount program. The case examples show that community organizations, which have direct contact with clients, can identify who would benefit from a reduced fare program and inform these clients. These agencies can also help applicants prepare their applications, host sign-up events, and be trained (and resourced) to certify, issue, and register resulting ID cards or fare media.
- **Regional collaboration when possible** – The LIFE and Clipper START programs (in the Los Angeles and San Francisco Bay areas, respectively) are examples of successful interagency cooperation. The Clipper START program, for example, grew from four to ten participating agencies. The program could serve as a model not just for the City of Alexandria, but potentially the entire region.

After considering these findings, the project team and City staff decided to move three options forward for further ridership and cost analysis as part of this study. These are:

- Free fares for everyone on the DASH system at all times;
- Free fares for eligible low-income residents ride on both DASH and WMATA services; and
- Discounted (50 percent) fares and passes for low-income residents on DASH and WMATA services.

The latter two options will allow riders to use the transit options that work best for them regardless of operator and will demonstrate the difference in impact between free fares and reduced fares. They also leave open the possibility for the City to implement the program initially just on the DASH system and then expand to cover WMATA services as resources become available.

The second technical memo will include more detailed ridership and cost estimates as well as a discussion of potential administration options and operational impacts.

INTRODUCTION

Overview

Public transit fares can often represent a large burden for low-income passengers, especially in areas with higher costs of living like the City of Alexandria and Washington, DC. For many, this burden has increased as a result of the economic recession caused by the COVID-19 pandemic. Access to public transportation continues to be a critical need for low- and middle-income residents, who can have significant trouble getting to jobs, health care appointments, education opportunities, social service offices, and retail destinations without it. Access includes not only the availability of public transportation, but the ability to afford the service, and the cost of riding public transportation remains a barrier for many residents. The Washington Metropolitan Area Transit Authority (WMATA), for example, found that low-income riders often limit transit use due to cost and spend more than twice as much of their after-tax income on transit as riders who are not low-income.¹

Recognizing this issue, the City of Alexandria applied for, and was awarded, a grant through the Metropolitan Washington Council of Governments' (MWCOC) Transportation-Land Use Connections (TLC) Program to study and identify the best option for making public transportation more affordable to its residents, particularly those from low-income households. This Technical Memorandum describes the findings from the research conducted for this study as of January 2021.

This study is occurring as plans for a roll-out of the City's redesigned bus network are underway. Implementation of the new bus network is expected to begin in late 2021. The redesigned network, once fully implemented, will significantly increase the availability of higher-frequency transit for residents, particularly during off-peak periods and on weekends. The combination of an enhanced and improved network of bus services and more affordable fares represents a significant opportunity to enhance equity, increase access to opportunities, and improve quality of life in the City of Alexandria. There is also the potential for the implementation of free or more affordable public transportation fares for City residents to serve as a model for other jurisdictions in the Washington, DC region and in the Commonwealth of Virginia that are also currently considering how to address this challenge.

Goals for the Program

The City of Alexandria and the Metropolitan Washington Council of Governments have identified goals that they would like to achieve through establishment of a program that would make public transportation more affordable for residents with low incomes. These goals are:

- Make transit more accessible for City residents who struggle to afford the cost of fares.
- Enhance equity and access to opportunities in the City.
- Maintain or enhance operational performance of the DASH system while maintaining or increasing bus operator safety.
- Minimize the administrative burden of implementing and sustaining a fare program.
- Advance regional coordination to increase the affordability of public transportation for low-income residents throughout the region.

¹ WMATA, DC Low-Income Fare Pilot, Report to the WMATA Board Finance and Capital Committee, December 2019, <https://www.wmata.com/about/board/meetings/board-pdfs/upload/3C-DC-Low-Income-Fare-Pilot-v2.pdf>.

Options Under Consideration

The following potential options for making public transportation services more affordable for City of Alexandria residents were identified for evaluation under this study:

- Free fares for everyone on the DASH system at all times.
- Free fares for everyone on the DASH system during off-peak hours.
- Free fares for eligible low-income residents on the DASH system at all times.
- Discounted fares and passes for eligible low-income residents on the DASH system.
- Free fares for eligible low-income residents ride on both DASH and WMATA services.
- Discounted fares and passes for low-income residents on DASH and WMATA services.

These options are not necessarily mutually exclusive; multiple options could be progressively implemented as discussions between the City of Alexandria and WMATA continue. For example, discounts or waived fares for people from low-income households could be implemented in the short-term on the DASH system, with an expansion of the program to cover WMATA services in the future.

The **Key Findings and Scenario Recommendations** section at the end of this memo identifies the advantages, disadvantages, and potential considerations related to these options, and recommends three for further evaluation as part of this study.

EXISTING CONDITIONS

The City of Alexandria has nearly 160,000 residents and is located approximately five miles south of Washington, DC. This section outlines existing conditions in the City as they relate to the topic of public transportation access and affordability.

Population Information

Low-Income Population

In 2019, the City of Alexandria had a high median household income of \$100,900. This figure is higher than the Washington, DC region, which had a median household income of \$86,400, and significantly higher than the national median household income of \$62,800.² However, there are many residents in the City who have low incomes and struggle to have all of their basic needs (shelter, food, healthcare, clothing, etc.) met.

A total of 16,100 (10.3 percent) of Alexandria residents live below the federal poverty level (FPL).³ **Table 1** shows the number of individuals living below a variety of poverty ratios in Alexandria.⁴ In the City, 7,600 residents live below 50 percent of the FPL (about \$6,250 for an individual or \$12,900 for a family of four), while 33,000 live below 200 percent of the FPL (about \$25,000 for an individual or \$51,500 for a family of four).

² U.S. Census Bureau, Table S1903, ACS 5-year estimates, 2015-2019

³ U.S. Census Bureau, Table S1701, ACS 5-year estimates, 2015-2019. The federal poverty level in 2019 was \$12,490 for an individual and \$25,750 for a family of four.

⁴ U.S. Census Bureau. American Community Survey 5-year estimates, Table S1701

Table 1: Individuals Below Federal Poverty Level

Income Level	Number of Individuals
50 percent of FPL	7,632
100 percent of FPL	16,100
125 percent of FPL	20,579
150 percent of FPL	24,404
185 percent of FPL	30,651
200 percent of FPL	33,220
300 percent of FPL	48,817
400 percent of FPL	62,846
500 percent of FPL	75,839

Table 2 shows the number of households at various income levels in the City of Alexandria.⁵ Approximately one-third of households earn less than \$75,000, which is about 85 percent of the regional median household income.

Table 2: Number of Households by Income Level in Alexandria, 2019

Household Income	Number of Households	Percentage of Households
Under \$25,000	6,424	9.1%
\$25,000-\$49,999	8,684	12.3%
\$50,000-\$74,999	10,449	14.8%
\$75,000 and above	45,112	63.8%

In July of 2020, 4,743 households and 9,554 individuals in the City of Alexandria received Supplemental Nutrition Assistance Program (SNAP) (food assistance) benefits, with an average amount of \$352 of SNAP benefits per household.⁶ In most cases, a household must earn at or below 130 percent of FPL to be eligible for SNAP benefits.⁷ The number of individuals receiving SNAP benefits is about 46 percent of the population living below the 125 percent of FPL, indicating that there are many eligible residents who do not receive SNAP benefits.

Of DASH riders in 2013, 32.7 percent were from households earning less than \$30,000, while 51.2 percent were from households earning less than \$50,000.⁸ WMATA's 2016 Metrorail Ridership Survey indicates that a total of 5.8 percent of Metrorail riders in the City of Alexandria were from households earning less than \$30,000, while 13.1 percent of riders were from households earning less than \$50,000.⁹ WMATA's Metrobus survey in 2018 found that 31.5 percent of Metrobus riders in the City were from households earning less than \$30,000, 45.5 percent of riders were from households earning less than \$50,000, and 71 percent reported a household income of less than \$100,000.¹⁰ This indicates a relatively higher reliance on bus service vis-à-vis

⁵ U.S. Census Bureau. American Community Survey 5-year estimates, Table S1901

⁶ SNAP Participation by Household, 2005-2020, Department of Community and Human Services/CES.

⁷ SNAP Eligibility, USDA, <https://www.fns.usda.gov/snap/recipient/eligibility>.

⁸ DASH Demographic Database, 2013

⁹ WMATA Metrorail Ridership Survey, 2016.

¹⁰ WMATA Metrobus Ridership Survey, 2018.

rail among low-income residents. In the City of Alexandria, 6,600 households (about 9.4 percent of all households) do not own a vehicle.¹¹

Available Public Transportation Services

The City of Alexandria is served by the DASH bus system, which has 13 routes and 646 bus stops.¹² There are 47 WMATA Metrobus routes and 398 Metrobus stops (some of which coincide with DASH stops) in the City, as well as two WMATA Metrorail lines and four Metrorail stations.¹³ The City is also served by the Virginia Railway Express (VRE) and Amtrak rail services, which both stop at King Street, and the Capital Bikeshare system.

Public Transportation Ridership

In the City of Alexandria, 59 percent of workers commute by driving alone, 20 percent use transit, 8 percent carpool, 4 percent walk, and 1 percent bike.¹⁴ In FY 2019, DASH provided a total of 3.7 million trips, 3.1 million on the weekdays and 612,000 on the weekends, with an average weekday ridership of approximately 12,500. **Figure 1** shows DASH and WMATA boardings by route in FY 2019. The Trolley, which is free and connects the King Street Metrorail station to the waterfront along King Street, carried more riders than any other route in FY 2019 (760,000), and the AT8¹⁵ carried the most weekday passengers (650,000). In FY 2020, which included four months of service during the COVID-19 pandemic, DASH provided 2.8 million trips.

Figure 2 shows DASH ridership and service levels during the COVID-19 pandemic. DASH service levels decreased at the beginning of the pandemic in response to the drop in ridership, and have increase twice in response to rebounding ridership, although ridership was at around 40 percent of pre-pandemic levels in February 2021.

¹¹ U.S. Census Bureau. ACS 2019 5-year estimates, Table B08201.

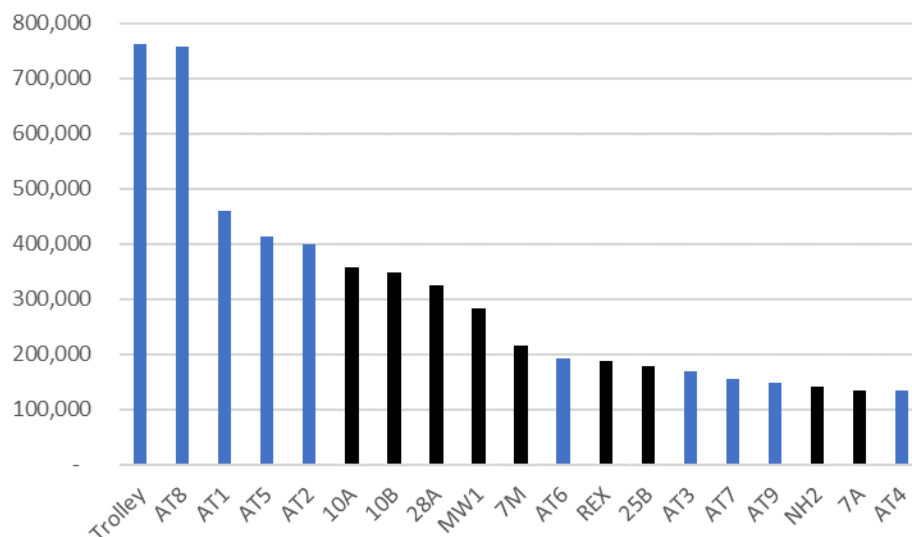
¹² During the COVID-19 pandemic, the DASH network has been operating 10 routes and providing service at 590 bus stops.

¹³ There will be five Metrorail stations in the City once the Potomac Yard station opens.

¹⁴ U.S. Census Bureau. ACS 2019 5-year estimates. Table S0801

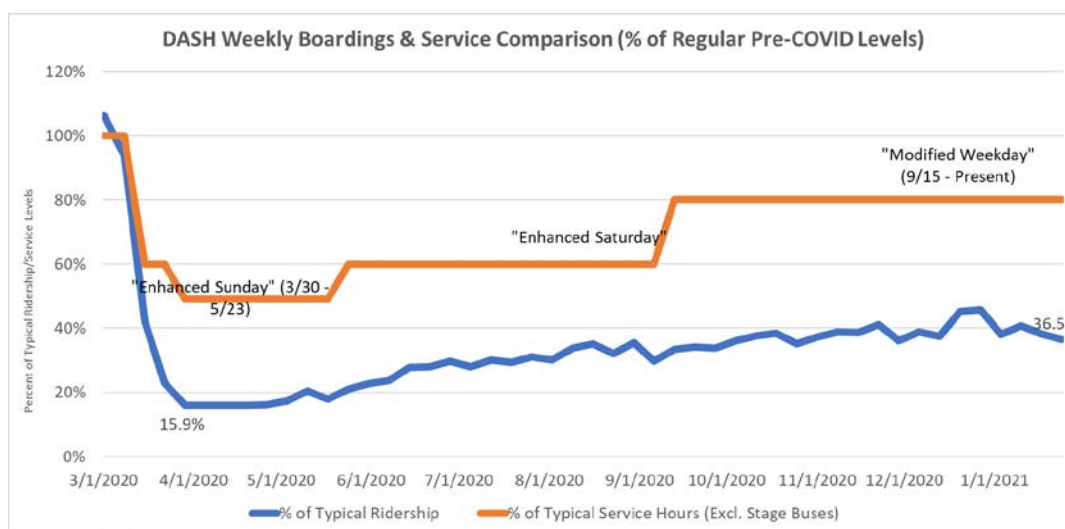
¹⁵ The AT8 connects the Old Town area with Landmark Mall and Van Dorn Metro station in the western part of the City. Between Old Town and Landmark Mall, it operates along Duke Street.

Figure 1: DASH and WMATA Boardings by Route, FY 2019



DASH routes are shown in blue; WMATA Metrobus routes are shown in black.

Figure 2: DASH Weekly Boardings and Service Hours



There were 3.1 million boardings on Metrobus bus routes in the City of Alexandria in FY 2019.¹⁶ The 10A, 10B, 28A, Metroway, and 7M were the most popular routes, each with over 200,000 boardings in FY 2019.¹⁷ WMATA’s most used bus stops in Alexandria are at the King Street Station, Mark Center Transit Station, Southern Towers Apartments and Braddock Road Station.¹⁸ Metrorail stops in the City of Alexandria include Braddock Road, King Street, Eisenhower Avenue, and Van Dorn Street. In FY 2019, these four stations had 3.82 million entries, with 3.35 million on weekdays.¹⁹ King Street was the most popular, with an average of

¹⁶ Bus Ridership Data Viewer: <https://www.wmata.com/initiatives/ridership-portal/Bus-Data-Portal.cfm>

¹⁷ WMATA PLAN Office using APC data, FY 2019.

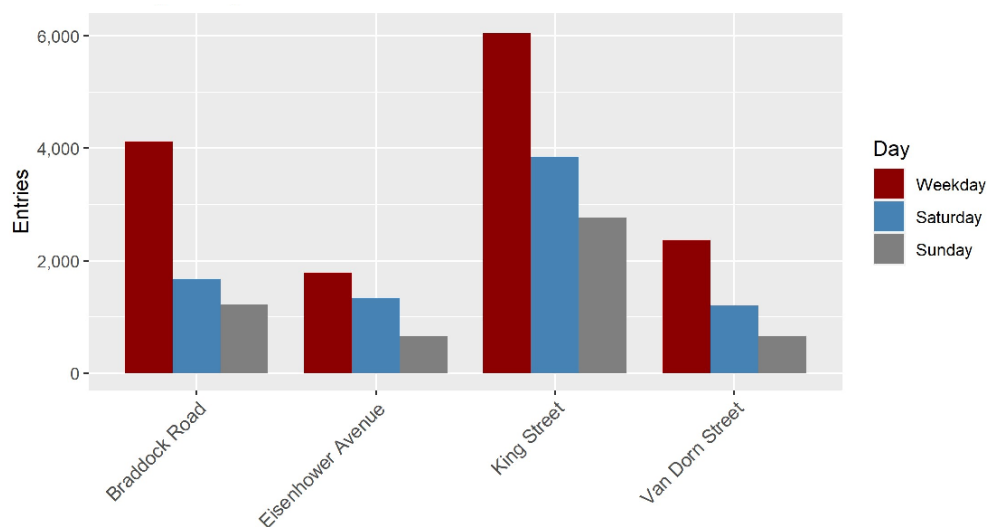
¹⁸ WMATA Automatic Passenger Counter (APC) data, 2019.

¹⁹ Rail Ridership Data Viewer: <https://www.wmata.com/initiatives/ridership-portal/Rail-Data-Portal.cfm>

6,000 daily weekday riders in FY 2019. **Figure 3** shows average daily entries by Metro stations in Alexandria.²⁰ **Figure 4** shows entries and exits at King Street station by time of day, indicating strong peak ridership and significantly lower off-peak ridership.²¹ **Figure 4** also shows entries in the morning exceeding exits in the evening, indicating that more people are departing the station via Metrorail in the morning peak than are arriving there. Of Metrorail riders who live in the City of Alexandria, 13 percent report an income below \$50,000, and 42 percent report an income below \$100,000.²²

VRE provided 4.4 million trips in FY 2019 across its service area, representing about seven percent of ridership in Northern Virginia across all transit modes.²³ Across VRE’s entire service area, VRE averaged about 18,500 in daily ridership in early 2020, and provided about 350,000 monthly trips.²⁴

Figure 3: Average Daily Entries by Metrorail Station, October 2019



²⁰ Metrorail Faregate Ridership Data.

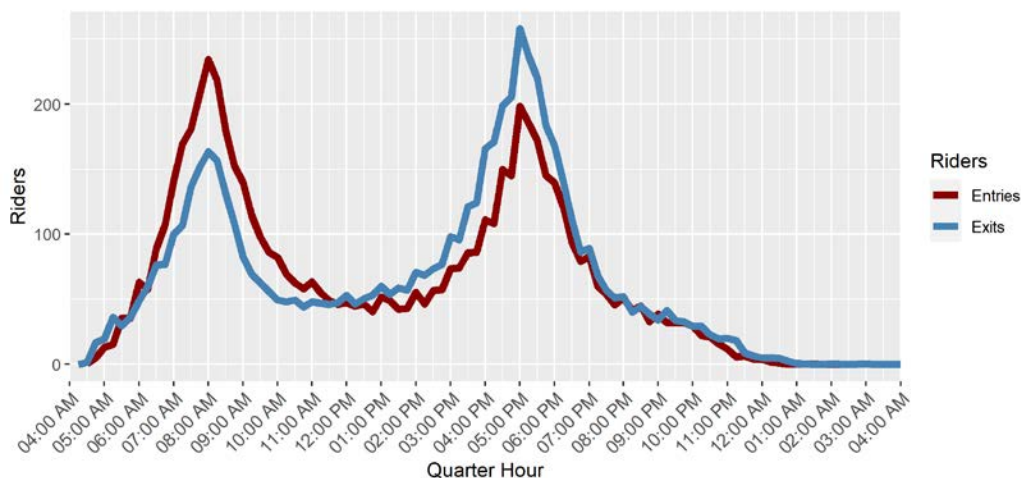
²¹ Id.

²² Metrorail Ridership Survey, 2016.

²³ Northern Virginia Transportation Commission (NVTc), FY 2019 Annual Transit Performance Report, <https://novatransit.org/uploads/data/quarterly/FY2019%20Annual%20Transit%20Performance%20Report.pdf>

²⁴ VRE, CEO Report March 2020. <https://www.vre.org/about/board/board-agenda-minutes/2020/March/2020-ceo-report-march-pdf/>.

Figure 4: King Street Metrorail Station Average Weekday Entries and Exits by Time of Day, October 2019



Current Public Transportation Fares

DASH and WMATA Fares

Table 3 provides an overview of regular (non-pandemic) DASH and WMATA fares, transfers, and payment methods. As indicated in **Table 3**, Metrorail fares are shown as a range since they vary by time of day and distance, whereas Metrobus fares are a flat \$2.00 on regular routes. This difference between Metrorail and Metrobus fares is believed to be a significant factor in many people’s decisions to take bus rather than rail within the region. WMATA has found that over half of Metrobus riders are low-income, as compared to only 18 percent of Metrorail passengers.²⁵

²⁵ WMATA, Bus Transformation Project Strategy and Recommendations, September 2019, https://bustransformationproject.com/wp-content/uploads/2019/09/Bus_Transformation_Strategy_and_Recommendations_2019-09-05.pdf.

Table 3: DASH and WMATA Regular Fares, December 2020

Service	Standard	Children	Seniors & People with Disabilities	Students	Transfers ²⁶	Unlimited Passes	Pass Storage Media	Other Fare Payment Methods
DASH ²⁷	\$2.00	Up to two children ages four and under free w/ adult	\$1.00 Senior SmarTrip® during off-peak hours and weekends	Free w/ valid Student ID during school year	Transfers to other DASH routes valid for 4 hours, honored on Metrobus and some other systems within two hrs.	Monthly: \$45	Paper or SmarTrip® card	Cash, Metrobus full fare token; DASH Bus mobile app
Metrobus ²⁸	\$2.00	Up to two children ages four and under free w/ adult	\$1.00 for Seniors and Persons w/ Disabilities	Free - DC Kids Ride Free Program (KRFP)	To Metrobus: free w/ unlimited transfers within two hrs. To Metrorail: \$0.50 discount within two hrs.	Monthly ²⁹ : \$72-\$216; 1-, 3-, and 7-Day Unlimited: \$13, \$28, \$58; 7-Day Short Trip: \$38 ³⁰ ; 7-Day Regional Bus Pass: \$15	SmarTrip® card; Apple Wallet (AW)	SmarTrip® app ³¹ ; cash; showing ID ³²
Metrobus Express routes (e.g., 5A/Airport)	\$4.25-\$7.50	Up to two children ages four and under free w/ adult	\$2.10-\$3.75	Free - DC KRFP	To Metrobus: free w/ unlimited transfers within two hrs. To Metrorail: \$0.50 discount within two hrs.	Monthly pass covers first \$2.00	n/a	Apple Wallet (AW); cash (on most routes)
Metrorail (peak)	\$2.25-\$6.00	Up to two children ages four and under free w/ adult	50% off peak fare	Free - DC KRFP	To Metrobus: \$0.50 discount within two hrs.	Monthly: \$72-\$216	SmarTrip® card; Apple Wallet (AW)	SmarTrip® app
Metrorail (off-peak)	\$2.00-\$3.85	Up to two children ages four and under free w/ adult	n/a	Free - DC KRFP	To Metrobus: \$0.50 discount within two hrs.	Monthly: \$72-\$216	SmarTrip® card; Apple Wallet (AW);	SmarTrip® app

²⁶ Transfers are only valid for those using SmarTrip® cards or other unlimited cards.

²⁷ DASH fare information comes from <https://www.dashbus.com/ride-dash/fares>.

²⁸ WMATA fare information comes from <https://www.wmata.com/fares/basic.cfm>.

²⁹ The monthly unlimited pass includes all rides on Metrorail and Metrobus for the month up to a maximum fare level based on time of travel and distance. If a rider makes a trip above their pass's fare, they pay the cost difference using stored value on their SmarTrip® card.

³⁰ Covers all trips in the Metrorail system during off-peak hours; unlimited trips on Metrorail up to a fare of \$3.85 when peak fares are in effect; and covers first \$2.00 of fare on Metrobus Express and Airport Express routes.

³¹ In September 2020, WMATA launched a touch-free payment system that links SmarTrip® information with a rider's iPhone and Apple Watch, allowing them to tap either device where a SmarTrip® card would be tapped. Riders with a Senior SmarTrip® card may transfer their card to the mobile app.

³² Certain riders may board fare-free by showing their ID or badge. Riders carrying badges from the Pentagon, Department of Defense (DOD) and contractor badges can ride fare-free on specific DOD routes. Those with US Coast Guard badges ride fare-free on two routes serving St. Elizabeth's. More information can be found at <https://www.wmata.com/business/procurement/solicitations/upload/Exhibit-P-Farebox-Training-Guide.pdf>.

In addition, riders transferring between modes and the services of different providers (e.g., WMATA, DASH, Fairfax Connector, ART, etc.) may be subject to additional transfer fares. For example, a DASH rider would have a free transfer to Metrobus and all other DASH lines, but would need to pay the full applicable fare, less a \$0.50 credit, when transferring to Metrorail. There is currently, however, a \$0.50 discount for transfers from Metrobus to Metrorail or from Metrorail to Metrobus within a two-hour transfer window. WMATA's FY21 budget proposed to increase the transfer discount to \$1.00, but this has not yet been implemented due to budget challenges.

WMATA offers one-, three-, seven-day Unlimited passes, "7-Day Short Trip" passes (covering unlimited travel for Metrobus trips, off-peak Metrorail trips, and shorter Metrorail trips during peak hours), monthly combined passes for both Metrorail and Metrobus, and a seven-day regional bus pass. The price of a monthly pass that is valid for both modes ranges from \$72-\$216. There is no single, stand-alone monthly pass valid on only Metrobus or only Metrorail, but there is a 7-Day Regional Bus Pass which is valid on Metrobus, ART, DC Circulator, CUE, DASH, Fairfax Connector, TheBus, and Ride On and costs \$15. Additional regional pass products were proposed in WMATA's FY 2021 budget but were ultimately removed as the scope of the pandemic budget impact became clear.

WMATA offers reduced fares for those ages 65 and over and for individuals with disabilities under 65. Special fare media (yellow Senior SmarTrip® cards (Figure 5) and Reduced Fare SmarTrip® Photo ID cards for individuals with disabilities) are issued to those who qualify, and the discounts are programmed on their cards.

For individuals with disabilities, their reduced fare cards include their photo and can be used for 50 percent off Metrobus, other regional buses, and trips made via Metrorail during peak hours. For seniors, these cards provide discounts of 50 percent off on trips made during peak periods via Metrorail and discounts on Metrobus, Express Metrobus, and Airport Express Metrobus routes.

Figure 5: Yellow SmarTrip® Card for Seniors



Figure 6: Reduced Fare SmarTrip® Photo ID



In addition, both SmarTrip® cards offer discounted fares for participating bus service providers in the region including DASH, ART, CUE, Fairfax Connector, Loudoun County Transit, OmniRide, Ride On, TheBus, and Maryland Transit Administration (MTA) bus. Applicants can only apply for the disability card (see Figure 6) in person at one of two WMATA offices, which are located in downtown DC or Silver Spring, MD. These offices have limited hours on specific days where they accept applications. Seniors can apply for their Senior SmarTrip® cards by visiting one of at least twenty locations throughout the region, including the Metro Center Sales Office; commuter stores; retail outlets; and select libraries in Montgomery County, Maryland.

Similar to Metrobus, DASH has one standard, \$2.00 base fare and a policy that up to two children ages four and under ride for free when accompanied by a fare-paying adult. DASH also offers reduced (\$1.00) fares for Senior/Disabled SmarTrip cardholders who ride during off-peak hours (anytime except 6:00 to 9:00 a.m. and 3:00 to 6:00 p.m. on weekdays). DASH offers free transfers between all DASH buses and most Metrobus routes. While most regional providers only provide a two-hour transfer window, DASH allows for free transfers within a four-hour window, enabling some riders to make their full trip (out and back) for the price of one fare.

The \$45 monthly DASH Pass covers unlimited trips on the DASH system and is also recognized on Fairfax Connector local routes, but additional charges may apply when transferring between systems.

Fare-Free Products in the Region

The types and availability of free fares across transit agencies operating within the Washington, DC region varies (prior to any pandemic-related changes to fare collection). **Table 4** provides an overview of fare-free programs for targeted populations. No reduced fare or free-fare program for low-income individuals currently operates among these providers.

Table 4: Fare-Free Transit Options Available in the Washington, DC Region

Agency	Seniors	Children	Students	People with Disabilities
ART	—	Children under 5	—	MetroAccess members
CUE	—	Children 3 and under, accompanied by adult	Fairfax secondary students GMU Students, faculty, and staff	MetroAccess members
DASH	—	Children under 4, accompanied by adult	Students from participating high schools during the school calendar year	MetroAccess members and City paratransit-eligible residents (DOT Program)
DC Circulator	—	Children under 5, accompanied by adult	Free with Kids Ride Free SmarTrip® card	—
Fairfax County Connector	—	Up to two Children ages four and under free w/ adult	Fairfax County high school and middle school students	—
Metrobus/ Metrorail	—	Up to two Children ages four and under free w/ adult	Free with Kids Ride Free SmarTrip® card	—
OmniRide	—	Up to two Children ages four and under free w/ adult	—	—
Ride On	Free off-peak	Free for all youth ages 18 and under	Free with Montgomery College student ID	Free off-peak with Metro Disability ID card Always fare-free for MetroAccess members
TheBus	Free for ages 60 and up	Free for all youth ages 5-18	Free for students with ID	Free
VRE	—	Children under 10, accompanied by adult	—	Attendants travel for free with an attendant pass

In 2019,³³ the DC Circulator experimented with fare-free for all service under Mayor Bowser's Fair Shot February program. Initially, the program provided fare-free rides on the system for the month of February. After this initial period, Mayor Bowser extended the program indefinitely and requested \$3.1 million dollars to provide fare-free service in the 2020 fiscal year. This request was denied by Council and fares were later

³³ DC Circulator, Mayor Bowser Announces Free Rides on DC Circulator During #FareShotFebruary, January, 2019, <https://www.dccirculator.com/mayor-bowser-announces-free-rides-on-dc-circulator-during-fairshotfebruary/>.

reinstated in October 2019.³⁴ Fares were then re-suspended in response to the COVID-19 pandemic starting in March 2020 and had not yet been reinstated as of January 2021.

Prior to the COVID-19 pandemic, The Lab @ DC developed a pilot project through which to study how providing discounted transit would impact low-income residents.³⁵ The pilot, whose implementation was on hold as of January 2021, is being organized through a partnership between The Lab @ DC, the District Department of Transportation (DDOT), the DC Department of Human Services (DHS), and WMATA. Under the pilot, 2,500 study participants will receive assistance with varying levels of transit fares on Metrobus and Metrorail. The fare options include no discount other than being given a SmarTrip® card with a \$10 credit (control group); half-price fares; and free unlimited trips. The research team will use surveys and other data to determine the impact of reduced or free fares on travel behavior and other outcomes related to economic mobility and participant well-being to inform future policy. Initial results, which could be used to inform similar initiatives for providers across the region, are expected in late 2022 at the earliest.

Current Public Transportation Fare Media

DASH currently offers several ways for riders to pay fares. These include cash, SmarTrip® cards, Metrobus full fare tokens, DASH Passes (both a paper version or loaded onto a SmarTrip® card), and mobile tickets purchased on the DASH Bus app. Of these options, fare payment via SmarTrip® is by far the most popular fare media for DASH riders, who used SmarTrip® cards to pay for 85 percent of trips from November 2019–November 2020.³⁶ Less commonly, DASH riders used cash (13 percent) and mobile tickets (2 percent) during that period. DASH launched a mobile ticketing pilot in June 2019³⁷ and viewed this effort as an opportunity to play a part in advancing the goal of having a regional mobile ticketing platform that would be accepted by all transit operators in the DC region. Despite relatively low adoption, the pilot received positive reviews from passengers and DASH operators and was extended through March 2021.

In September 2020, WMATA launched a touch-free payment system that links SmarTrip® information with a rider's iPhone and Apple Watch and allows them to tap either device where a rider can tap their SmarTrip® card.³⁸ Riders with a physical Senior SmarTrip® card may also transfer their card to the mobile app. These mobile-based fare payment options are included in **Table 3**.

Many employers in the Washington, DC region provide SmartBenefits,³⁹ tax-free commute benefits to their employees via SmarTrip® cards. These benefits allow employees to make pre-tax contributions that are applied to their SmarTrip® cards, allowing them to pay for fares anywhere SmarTrip® cards are accepted. For agencies such as MARC and VRE that are not on the SmarTrip® system, riders can set up a separate online account; transfer their SmartBenefits to the account; and then use the transferred benefits to pay for fares on these systems.

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- ³⁴ WAMU, D.C.'s Circulator Buses Will Charge Fares Again Oct. 1 At Council's Order, September 2019, <https://wamu.org/story/19/09/27/d-c-s-circulator-buses-will-charge-fares-again-oct-1-at-councils-order/>.
- ³⁵ The Lab @ DC, Can discounted transit improve mobility and well-being for low-income residents? Accessed January 2021, <http://thelabprojects.dc.gov/fare-subsidy>.
- ³⁶ DASH, November 2019-2020 Hour Ridership YOY Comparison.
- ³⁷ DASH, Dash Bus Mobile App Pilot Report, July 2020, <https://www.dashbus.com/sites/default/files/2020-09/DASH%20Bus%20Mobile%20App%20Pilot%20Report.pdf>.
- ³⁸ WTOP, Metro debuts 'touch-free' SmarTrip® payments with Apple Wallet, September 2020, <https://wtop.com/tracking-metro-24-7/2020/09/metro-debuts-touch-free-smartrip-payments-with-apple-wallet/>.
- ³⁹ WMATA, Take Advantage of SmartBenefits, accessed January 2021, <https://www.wmata.com/business/smartbenefits/>.

Costs Associated with Fare Collection

Prior to COVID-19, DASH collected about \$3.7 million in farebox revenue each year for a farebox recovery ratio of 17 percent in 2019 (just above the national average for all bus systems).⁴⁰ There are, however, expenses that are necessary to carry out the function of collecting fares. In the case of smaller operators, the cost of collecting fares can exceed the fare revenue that is generated from doing so, largely due to the cost of purchasing and maintaining fareboxes combined with a lack of economies of scale.

For DASH, the operating costs of collecting fares, which total an estimated \$256,000 annually, include contributions to the Regional SmarTrip® Budget; a farebox cash collection contract with an armored truck service; farebox maintenance and repair; and fees charged by its mobile app vendor for the sale of mobile tickets (five percent of revenue processed). There are also significant capital costs to DASH of maintaining and upgrading fareboxes. DASH's recent capital costs for additional fareboxes and mobile app platform development are about \$260,000. Planned future investments, including farebox upgrades to WMATA's new standard and electronic validation for DASH Bus Mobile App, are \$1.3 million, most of which will be funded by the City of Alexandria's Capital Improvement Program (CIP).

In a recent study, DASH found that it would lose an estimated \$2.2 million in fare revenue if off-peak fares were to be completely eliminated, which would decrease total annual fare revenues collected to \$1.5 million.⁴¹ After taking into account the operating (but not capital) costs associated with collecting fares, DASH's *net* fare revenue would be \$1.3 million if the agency were to go fare-free during off-peak periods. A total elimination of DASH fares would have resulted in a net loss of \$3.7 million in annual fare revenues prior to the COVID-19 pandemic, but would result in a significantly lower loss if implemented within the next 2-3 years – a period during which ridership is expected to be lower than 2019 levels.

Several additional benefits of a partial or full elimination of fares would be increased ridership (and therefore productivity) improved operating speeds and reliability due to reduced dwell times and faster passenger boarding, and less potential for conflict between passengers and operators.

The findings from the DASH fare collection study align with the most relevant case example in TCRP Synthesis 101 Report.⁴² Lane Transit in Eugene, Oregon, which could be considered a peer agency to DASH, found, in 2012, that it would lose \$5 million per year in fare revenues but save only \$100,000 - \$500,000 by not collecting fares.

Regional Fare-Related Developments

There are ongoing discussions in the Commonwealth of Virginia and the Washington, DC region related to changes to fare levels and technologies. Some of these may have implications for the City's efforts to enhance transit affordability and payment options. Examples of initiatives that are underway include:

- **Pandemic-related fare suspension** – DASH and many other operators in the region ceased fare collection in March 2020, at the beginning of the COVID-19 pandemic. Metrobus resumed fare collection and front-door boarding, and implemented the mobile payment option through ApplePay, on January 3, 2021. As of January 2021, DASH was continuing to operate fare-free and encouraging rear-door boarding, primarily to ensure the safety of bus operators.

⁴⁰ DASH 2019 NTD Submission; calculated by dividing total fares of \$4,477,441 (including organization-paid fares) by total operating expenses of \$25,976,670.

⁴¹ Fare Free and Fare Collection Costs Analysis FY 2020; This analysis took into account the assumption that approximately 15 percent of riders would switch from traveling during peak periods to traveling during off-peak periods.

⁴² TCRP Synthesis 101: Implementation and Outcomes of Fare-Free Transit Systems. 2012.

- **Virginia DRPT Transit Ridership Incentive Program (TRIP)** – TRIP is a new statewide grant program dedicated to improving transit’s regional connectivity in urban areas with a population above 100,000 and reducing barriers to transit use by supporting low-income and zero-fare programming. The TRIP application is predicted to open in Spring/Summer 2021, and is a potential funding source for the recommendations that emerge from this study.⁴³
- **Northern Virginia Transportation Commission (NVTC) 2021 Northern Virginia Regional Fare Collection Strategic Plan⁴⁴** – This Strategic Plan identifies various fare-related developments occurring in the region in the short, mid-, and long term, with a focus on the role that NVTC will play in representing the needs of operators in the Commonwealth, including DASH. Key initiatives underway or under discussion identified in the Plan include:
 - **WMATA’s Farebox State of Good Repair Project and New Farebox Procurement** – This project will mitigate end-of-life issues of the current bus fareboxes, and lead to implementation of new bus fareboxes with standalone SmarTrip® validators, enabling rear-door payment and all-door boarding.
 - **Mobile and contactless payment options** – Further implementation and promotion of the SmarTrip® App and mobile wallet, as new potential additional self-service payment options.
 - **Fare capping** – Regional discussions on implementing pay-as-you-go options that automatically issue a pass after meeting the fare payment equivalent of a daily, weekly, or monthly pass. Such options would require back office system upgrades across the region, as well as technology and policy changes.
 - **Retail network expansion** – Expansion of locations where customers can load money to fare payment cards or accounts using cash.
 - **Integration of VRE and SmarTrip®** – Implementation of new system and policies to enable VRE to offer option to pay using SmarTrip® card.

All of these initiatives will be taken into consideration in developing the recommendations of this study.

LITERATURE REVIEW

This section outlines the findings from a review of published research relating to low-income transit usage, reduced fare program design, the relationship between fares and ridership, benefits to low-income transit riders when fares are removed or reduced, and operational impacts that a transit agency may experience. This literature review includes academic research papers that explore quantitative relationships between fares and ridership as well as practically-minded research that examines real-world findings from pilot programs and surveys. The literature review involved a review of differing methods for determining and verifying eligibility for programs that offer fare discounts or waivers in a targeted manner.

Needs and Behaviors of Low-Income Transit Riders

Low-income riders, on average, use transit and pay for transit differently than other riders. Low-income riders are more likely to:

⁴³ DRPT, TRIP Transit Ridership Incentive Program, <http://www.drpt.virginia.gov/transit/trip-transit-ridership-incentive-program/>

⁴⁴ NVTC, 2021. <https://www.masstransitmag.com/technology/fare-collection/press-release/21205347/northern-virginia-transportation-commission-nvtc-nvtp-supports-enhanced-and-connected-train-and-bus-fare-collection>

- Pay for each ride rather than use an unlimited pass.⁴⁵
- Travel shorter distances.
- Take more frequent transit trips.⁴⁶
- Make more transfers.⁴⁷
- Be unbanked or underbanked and rely on cash transactions.⁴⁸

Low-income riders travel more often by transit and make more transfers.

For example, in New York City, only 18 percent of low-income riders with less than \$100 in savings bought a 30-day pass, compared with 33 percent of low-income riders with at least \$100 in savings, and 38 percent of non-low-income riders.⁴⁹ Low-income riders, especially those that are unbanked or have low savings, often have trouble paying the up-front cost of a pass, even if they would benefit from using the pass rather than paying per ride. The inability to pay up-front for a monthly pass, as seen in the New York City example, is likely a challenge that at least some low-income riders in the City of Alexandria also face.

Frequent, shorter trips with more transfers means that flat fares are less likely to benefit low-income riders⁵⁰ and that the cost of transfers is more burdensome for low-income riders. In the Washington, DC region, the cost of transfers is higher than in some other large urban areas and can only be paid with a SmarTrip, disproportionately negatively impacting low-income riders, especially if they pay with cash.⁵¹ WMATA proposed removing the charge for transfers between Metrorail and Metrobus in its FY 2021 budget,⁵² but implementation appears to be on hold due to the COVID-19 pandemic.

In an analysis of proposed fare changes, the Corpus Christi Regional Transportation Authority in Texas found that off-peak reduced fares and free transfers benefit low-income populations more than non-low-income populations, as the low-income populations were more likely to report off-peak travel (as well as more transfers).⁵³ One possible explanation for this finding is that low-income riders are more likely to work in retail and service industries and work shifts other than standard business work day hours. It is also important to note that all eligible low-income residents do not necessarily participate in programs for which they are eligible;

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- ⁴⁵ Rosenblum, J. 2019. How Low-Income Transit Riders in Boston Respond to Discounted Fares: A Randomized Controlled Evaluation. http://equitytransit.mit.edu/wp-content/uploads/2019/06/whitepaper_v8.pdf#page=5
- ⁴⁶ Nuworsoo, C., Golub, A., & Deakin, E. 2009. Analyzing Equity Impacts of Transit Fare Changes: Case Study of Alameda-Contra Costa Transit, California. *Evaluation and Program Planning* 32:4, p. 360-368.
- ⁴⁷ Rosenblum, J. 2019. How Low-Income Transit Riders in Boston Respond to Discounted Fares: A Randomized Controlled Evaluation. http://equitytransit.mit.edu/wp-content/uploads/2019/06/whitepaper_v8.pdf#page=5
- ⁴⁸ FDIC 2019 Survey: How America Banks: Household Use of Banking and Financial Services. <https://www.fdic.gov/analysis/household-survey/2019execsum.pdf>
- ⁴⁹ Community Service Society. 2016. The Transit Affordability Crisis: How Reduced MTA Fares Can Help Low-Income New Yorkers Move Ahead. https://issuu.com/cssnyorg/docs/the_transit_affordability_crisis_fi
- ⁵⁰ Regional Means-Based Transit Fare Pricing Study, San Francisco, 2016. https://mtc.ca.gov/sites/default/files/Summary_MTC_Mean_Based_Overview_DRAFT_FINAL.pdf
- ⁵¹ Murakami, K. 2019. Metro finally makes some transfers free, but will it help those who need it most? Washington Post: <https://www.washingtonpost.com/express/2019/07/10/metro-finally-makes-some-transfers-free-will-it-help-those-who-need-it-most/>
- ⁵² WMATA FY 2021 Budget: <https://www.wmata.com/about/news/FY2021-Budget-Public-Comment.cfm#main-content>
- ⁵³ Corpus Christi Regional Transportation Authority Fare Equity Analysis. 2019. <https://www.ccrta.org/wp-content/uploads/2019/09/FEA-2019-Report.pdf>

for example, in San Francisco, only 40.5 percent of eligible residents enrolled in the low-income fare discount program.⁵⁴

Reduced-Fare Program Design

A recent (2020) Transportation Research Board (TRB) paper reviewed the low-income reduced-fare programs of the largest 50 transit agencies in the U.S.⁵⁵ The authors found that only 17 have any type of low-income subsidy program. Fourteen are agency-administered, while three are administered by third-party social service organizations. Of self-administered programs, about half use an income requirement as a percent of the FPL, and half use qualification for some other program (which is often also based on a percent of the FPL). While there is significant variety in program design among the 17 programs, the most common discount was 50 percent reduced fare and an income eligibility threshold of at or below 125 percent to 200 percent of the FPL. Re-enrollment is required either yearly or every other year.

The most common program design among large agencies with low-income fare programs is a 50 percent reduction in fare for riders whose household incomes are at or below 125 to 200 percent of the federal poverty level.

Most of the 17 programs use a “smart” fare card with a discount automatically applied; only two programs use special identification cards for participants. The three agencies⁵⁶ that partner with third-party social services organizations to administer their programs tend to be smaller, and presumably have pursued such partnerships because fare discount programs are expensive to administer internally. In this type of program, the transit agency typically sells farecards to social service organizations at a discount, who handle qualification and distribution.

Benefits to Individuals

Programs that reduce or waive fares for low-income individuals have significant benefits for the participants. In Boston, a pilot program found that low-income residents who were given a 50 percent subsidy on transit fares took 30 percent more trips overall.⁵⁷ The same study found that low-income riders increased the trips that they took specifically to health and social services destinations, indicating that a lower fare allows low-income riders to take trips to access services to benefit their health and well-being that they might not have taken before.

In Boston, a pilot program found that low-income people who were given a 50 percent discount on fares took 30 percent more trips.

Similarly, the ORCA LIFT program in Seattle resulted in nearly half of low-income recipients of a reduced-cost fare card taking more trips than before, with 40 percent of all the recipients’ trips being to reach places other

⁵⁴ Regional Means-Based Transit Fare Pricing Study, San Francisco, 2016.

https://mtc.ca.gov/sites/default/files/Summary_MTC_Mean_Based_Overview_DRAFT_FINAL.pdf

⁵⁵ Darling, Carpenter, Johnson-Praino, Brakewood, Voulgaris. 2020. A Comparison of Reduced-Fare Programs for Low-Income Transit Riders. TRB.

⁵⁶ Agencies that partner with third parties to administer their fare discount programs may be underrepresented in the research for the paper, given that it focused on only the 50 largest transit agencies.

⁵⁷ Rosenblum, J. 2019. How Low-Income Transit Riders in Boston Respond to Discounted Fares: A Randomized Controlled Evaluation. http://equitytransit.mit.edu/wp-content/uploads/2019/06/whitepaper_v8.pdf#page=5

than work or school.⁵⁸ In a separate pilot program in Seattle that offered reduced-cost monthly passes to residents of affordable housing buildings, participants saved money on transportation and were able to take more trips, which they used to go to grocery stores, medical appointments, and make regional trips. With the money saved on transportation, participants reported buying more food and paying other household bills.⁵⁹ In addition, fare-free programs for youth can allow youth to explore their communities more freely and relieves parents from playing chauffeur.⁶⁰

Ridership Impacts

A number of studies have focused on fare-ridership elasticity estimates. Elasticities estimate how much ridership will change based on a change in fare. Fare-ridership elasticities are always expressed as a negative number because an increase in fare leads to a decrease in ridership, and vice versa. An elasticity of -0.30, for example, means that a 1 percent increase in fare leads to a 0.3 percent decrease in ridership. Elasticities can be used to extrapolate and estimate the impact of a wide range of fare changes, either positive or negative; a -0.30 elasticity can also be interpreted as a 100 percent decrease in fare leads to a 30 percent increase in ridership. However, there is some evidence that a fare increase will dissuade more ridership than the extent to which a fare decrease of the same magnitude will encourage it.⁶¹ The higher the absolute value of an elasticity, the more a change in price will result in a change in ridership; a lower elasticity indicates that a change in price will result in a smaller change in ridership.

The Simpson-Curtin Rule, which estimates the fare-ridership elasticity as -0.30, has long been cited as the rule of thumb when estimating ridership changes due to fare increases or decreases. A number of academics have attempted to test the validity of this rule. In a widely cited study by the American Public Transit Association (APTA), Pham and Linsalata found an average elasticity of -0.40, although they found the elasticity is lower in large urban areas (-0.36 compared with -0.43 in small urban areas) and during peak hours (-0.23 compared with vs. -0.42 in off-peak hours).⁶² This indicates that urban riders and peak hour riders—who are often commuters—are less sensitive to price changes. In a study to evaluate regional fare policies, MTC in the San Francisco Bay Area estimated elasticities for low- and non-low-income residents by mode, finding that low-income riders had slightly higher elasticities—i.e., are more sensitive to price increases.⁶³ Given that low-income individuals are more likely to ride the bus than rail in areas such as Washington, DC, it is not surprising that increases in train fares reduce ridership less, as the individuals riding this mode are more likely to be higher income. **Table 5** summarizes this information about estimated elasticities.

⁵⁸ First Survey of ORCA LIFT users confirms high satisfaction, more bus trips being taken. 2016. <https://kingcountymetro.blog/2016/05/26/first-survey-of-orca-lift-users-confirms-high-satisfaction-more-bus-trips-being-taken/>

⁵⁹ Brennan, A. & Becker, M. 2017. Affordable Housing Transit Pass Pilot: Program Evaluation. <https://stb.wp.s3.amazonaws.com/wp-content/uploads/2017/08/06141528/Affordable-Housing-Transit-Pass-Pilot-Report-with-Appendices.pdf>

⁶⁰ TCRP Synthesis 101: Implementation and Outcomes of Fare-Free Transit Systems. 2012.

⁶¹ Litman, T. 2020. Transit Price Elasticities and Cross-Elasticities. Victoria Transport Policy Institute. <https://www.vtpi.org/tranelas.pdf>

⁶² Pham & Linsalata. 1991. Fare Elasticity and Its Application to Forecasting Transit Demand. American Public Transit Association: https://www.apta.com/wp-content/uploads/Resources/resources/reportsandpublications/Documents/Pham_Linsalata_Fare_Elasticity_1991.pdf

⁶³ Metropolitan Transportation Commission. 2016. Technical Memorandum #3: Evaluate of Alternative Means-Based Transit Fare Scenarios. https://mtc.ca.gov/sites/default/files/3_MTC_Means_Based_TM_3_DRAFT_FINAL.pdf

Table 5: Fare-Ridership Elasticity Estimates

Source	Elasticity	Notes
Simpson-Curtin Rule	-0.30	“Rule of thumb” used for decades
Pham and Linsalata, published by APTA ⁶⁸	Average: -0.40 Large Urban Areas: -0.36 Small Urban Areas: -0.43 Peak Hours: -0.23 Off-Peak Hours: -0.42	
Metropolitan Transportation Commission, San Francisco ⁶⁹	Average: -0.33 Low-income train riders: -0.23 Non-low-income train riders: -0.20 Low-income bus riders: -0.33 Non-low-income bus riders: -0.30	

However, real-world ridership changes when systems convert to fare-free can be even more informative than using traditional elasticities in estimating the likely impact of going fare-free. This may be because reducing fares to zero not only removes the financial cost of the fare, but also removes the mental barrier of needing to have the right fare and knowing how to use (and pay to use) the transit system.⁶⁴

A sample of ridership increases from agencies that went fare-free range from 32 to 205 percent.

Ridership increases from a variety of examples of bus systems that went fare-free range from 32 percent for Advance Transit in New England to 205 percent for Hele-on-Transit in Hawaii. **Table 6** shows examples of transit agencies who went fare-free either temporarily or permanently, and the resulting increase in ridership.

Table 6: Fare-Free System Examples

System	Location	Year Fare-Free Implemented	Location Type	Ridership Increase	Notes
Advance Transit	VT/NH	2002	Small Urban	32%	In the first year after fare-free implementation
Asheville Rides Transit (ART)	Asheville, NC	2006	Urban	58%	
Corvallis Transit System	Corvallis, OR	2011	University	38% ⁶⁵	In the first year
Hele-on-Transit	HI	2005	Small Urban	205%	In the first year after fare-free implementation
InterCity Transit	Olympia, WA	2020	Small Urban	Pending	
Marion City Bus Department	Marion City, IN ⁶⁶	2008	Small Urban	200%	

⁶⁴ TCRP Synthesis 101: Implementation and Outcomes of Fare-Free Transit Systems. 2012.

⁶⁵ City of Corvallis. “Corvallis Transit System Celebrates 10 Years of Fareless Bus Service.” <https://www.corvallisoregon.gov/cts/page/corvallis-transit-system-celebrates-10-years-fareless-bus-service>.

⁶⁶ Marion City is a separate city from Marion County (Indianapolis).

System	Location	Year Fare-Free Implemented	Location Type	Ridership Increase	Notes
Mountain Line	Missoula, MT	2015	Small Urban	70%	

Source: TCRP Synthesis 101

Not surprisingly, there is also evidence that ridership gains exist even when the benefit is limited only to some individuals, rather than system-wide. In Boston, for example, as mentioned above, low-income riders took 30 percent more trips after receiving a 50 percent fare subsidy.⁶⁷

Some agencies, when considering going fare-free, become concerned about disruptive (often younger) passengers being attracted to the free service or people experiencing homelessness using buses as a form of shelter. The TCRP Synthesis 101 Report, which surveyed a variety of agencies who went fare-free, asked agencies about this problem. Most agencies reported that this was not a significant problem that they faced. In fact, bus operators reported that they considered not dealing with fare payments a fair tradeoff for dealing, in some cases, with a smaller number of more disruptive passengers.⁶⁸

Operational Impacts

Going fare-free removes the need to collect fares and also generates additional ridership, which can have both positive and negative impacts on operational performance. Going fare-free can help a larger number of passengers board more quickly, potentially improving on-time performance on system that do not generally experience high vehicle loads (passenger volumes). University towns in particular report time savings at very popular bus stops where there are “crush loads” of passengers; removing the fare allows boarding to occur through all doors and much more quickly.⁶⁹ Not collecting fares also reduces the number of questions or conflicts drivers must negotiate with passengers regarding fare payment.

Not collecting fares allows for faster boarding but can also lead to crowding and on-time performance issues.

With large enough ridership increases, crowding and on-time performance can become issues, however. Crowding may occur due to sheer numbers of riders, and on-time performance can become an issue if buses need to stop at more stops to allow passengers to board or alight (possibly necessitating schedule adjustments to reflect new conditions). In Asheville, North Carolina, schedule adherence became a problem after removing fares.⁷⁰

While the lack of fare revenue can increase the operating revenues needed from other sources for an agency, it also leads, not surprisingly, to improved performance with respect to metrics such as passengers per revenue hour and subsidy per passenger. In some cases, this has the potential to help secure funding. For example, Indiana state assistance is partially based on passenger mile. When Marion City Bus Department in that state removed fares in 2008, which increased ridership and passenger miles, this increased state funding

⁶⁷ Rosenblum, J. 2019. How Low-Income Transit Riders in Boston Respond to Discounted Fares: A Randomized Controlled Evaluation. http://equitytransit.mit.edu/wp-content/uploads/2019/06/whitepaper_v8.pdf#page=5

⁶⁸ TCRP Synthesis 101: Implementation and Outcomes of Fare-Free Transit Systems. 2012.

⁶⁹ Id.

⁷⁰ Id.

by more than the foregone fare revenue.⁷¹ As reported above, Mountain Line attributed its ability to qualify for capital grants to its high productivity.

CASE EXAMPLE REVIEW

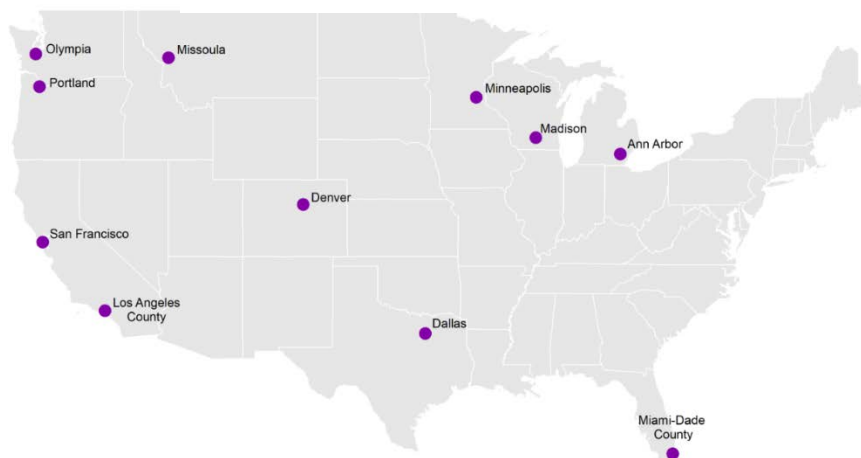
Overview

Across the U.S., many transit providers offer fare structures or programs that make riding public transportation more accessible from a cost perspective, particularly to people from low-income households. This section builds on the literature review by focusing on a set of practices from across the country in greater detail and demonstrating a range of possibilities for program logistics and administration.

The case example review

focused on identifying key information about specific agencies and/or regions that have some kind of fare discount or fare-free service. The review included identification of the types of discounts agencies offered; eligibility and the certification process; marketing and distribution strategies; program costs and funding sources; results, such as ridership and operational impacts; and lessons learned. Among case examples reviewed, ten were identified for further study; these are shown in **Figure 7** and **Table 7**. (The case studies identified during the review but not selected for further evaluation/research are listed in the **Appendix**.) These programs range from fare-free for all to targeted discounts for qualifying populations (such as individuals with low incomes, seniors, veterans, etc.) offered through a mix of reduced fares and/or discounted passes. Some involve single agencies while others involve regional collaboration across operators.

Figure 7: Case Example Locations



⁷¹ TCRP Synthesis 101: Implementation and Outcomes of Fare-Free Transit Systems. 2012.

Table 7: General Characteristics of Selected Case Examples

Location	Agency	Program Name	Type of Discount	Eligibility and Certification	Program Cost (if Available) and Funding Sources
Dallas, TX	Dallas Area Rapid Transit (DART)	Temporary Assistance for Needy Families (TANF) Cash Help Benefits and DART Passes	Discounted passes (50% discount)	Texans with Lone Star Cards who are TANF recipients (below poverty line) can purchase DART monthly passes using their TANF Electronic Benefit Transfer (EBT) card at reduced rates. No additional verification is required.	TANF funds are used for the purchase of the passes. The TANF program is mostly funded by federal block grants.
Denver, CO	Regional Transportation District (RTD)	LiVE	Reduced fares (40% discount)	Riders from households earning 185% or less of the FPL qualify. Applications are submitted through the Colorado State benefits website. State issues a LiVE eligibility card.	LiVE started in 2019 when RTD raised fares on buses and rail transit lines to the Denver International Airport, enabling expansion of a previously existing fare discount program.
Los Angeles County, CA	Los Angeles (LA) Metro and 12 local agencies	Low Income Fare is Easy Life (LIFE)	Discounted passes (\$6-\$24 off), varies by pass type and operator), free regional rides	Riders, who qualify if they earn 150% or less of the FPL, submit applications to one of two designated community organizations, which verify eligibility.	A 2018 Board Report requested \$3.6 million of Measure M funds to support the LIFE program. ⁷²
Madison, WI	Metro Transit	Low Income Pass	Discounted passes (over 40% discount on a monthly pass)	Riders at or below 150% of the FPL self-certify income in an application, which can be completed at the time they purchase their pass at one of three locations. A limited number of passes are available each month.	In 2009, \$100,000 from Metro's contingency fund was used to provide 3,600 low-income passes in response to a fare increase. Since then, the agency has maintained the program while aligning the number of passes with the available budget. -.
Miami-Dade County, FL	Miami-Dade Transit Metrobus and Metrorail	Commuter-Reduced Fare EASY Card	Reduced fares (50% discount)	Miami-Dade County residents earning \$19,140 to \$25,520 qualify. Applications processed by the department that issues Golden Passports to seniors and social security recipients and Patriot Passports to low-income veterans.	[Information not available from online search]

⁷² LA Metro Board, 2017-0813- New Low Income Fare Subsidy Program (LIFE) Program, 2018, <https://boardagendas.metro.net/board-report/2017-0813/>.

Minneapolis, MN	Metro Transit	Metro Transit Assistance Program (TAP)	Reduced fares (rides for \$1.00, 50%+ discount)	Individuals must have incomes at or below 185% of the FPL, below 50% of the area median income, and/or participate in an eligible assistance program. Qualifying document from other programs can verify eligibility (SNAP, WIC card, and other state, housing, and health care programs).	TAP was implemented in conjunction with a fare increase, as a way to minimize the negative impact to low-income riders.
Missoula, MT	Mountain Line	Zero Fare	Free fares for all	N/A	Started in 2015 as a three-year demonstration project funded by community and local government partners that covered lost fare revenues. ⁷³ In 2018, partners agreed to continue funding through the end of 2020. In November 2020, additional funding was approved by voters.
Portland, OR	TriMet	Low-income Honored Citizen	Reduced fares; discounted passes (50%-72% discount)	Applicants are automatically eligible if they qualify for other programs (SNAP, TANF, Medicaid, etc.) or earn at or below 200% of the FPL. TriMet issues a personalized Hop Card that automatically caps monthly fares at \$28.	This program started by expanding an existing fare (Honored Citizen). New payroll tax of 0.1% passed by state legislature (the Keep Oregon Moving Act of 2017, which provides an ongoing, stable source of transit funding)
San Francisco, CA	Several Bay-area agencies	Clipper START	Reduced fares (discount of 20% to 50%; varies between operators)	Fare discounts across regional agencies are centrally administered by MTC on behalf of participating operators. Participants must earn 200% or less of the FPL, which can be proven by providing documentation showing eligibility for other programs (e.g., SNAP) or tax returns.	The cost to implement the program was \$11 million, which came from a combination of state diesel fuel tax revenue and the state's Low-Carbon Transit Operations Program. ⁷⁴ Also, \$5 million in CARES funds will enable expansion to six additional agencies.
Olympia, WA	InterCity Transit	Zero-Fare Demonstration Project	Free fares for all	N/A	This project will provide fare-free transit for all for five years, starting in 2020 after Intercity Transit Authority approval in 2019.

⁷³ Current partners include educational institutions, hospital and medical facilities, local businesses, radio stations, and business improvement districts.

⁷⁴ By comparison, BART's budgeted fare revenue for FY21 is \$148.4 million (<https://www.bart.gov/sites/default/files/docs/FY21%20Adopted%20Budget%20Manual%20Final%2009.23x.pdf>). SFMTA's FY21-22 budgeted fare review is \$188.8 million (https://www.sfmta.com/sites/default/files/reports-and-documents/2020/06/6-30-20_item_9_fy21_and_fy22_budget.pdf).

Although each case example is unique, together the case examples offer insights on how to address common questions and decisions that the City of Alexandria will face in implementing steps to make transit more affordable. Some of the key take-aways from the review of case examples include:

- **Travel period considerations** – Most agencies in the case examples did not distinguish between discounts for peak and off-peak periods. Instead, most riders enrolled in reduced fare programs paid one rate per trip regardless of their time of travel.
- **Fare media for program participants** – In most case examples in which low-income participants received a benefit, agencies used one of three methods to recognize admission into a reduced or fare-free program. Agencies either: issued a separate card after eligibility was verified that would allow passengers to purchase discounted fares/passes; issued a combination photo ID and fare card for free rides; or programmed the discount onto the riders' transit cards
- **Eligibility thresholds** – The case examples that involve targeted assistance have different income limits as part of their criteria, with most requiring individuals to have incomes of no more than 150 percent to 200 percent of the FPL to qualify.
- **Making eligibility determination and certification easy** – The application process can be significantly streamlined by requiring minimal supporting documentation and, where possible, using existing certification documents from other financial assistance programs to verify income, such as TANF approval letters or EBT cards (used for TANF and SNAP benefits). Initial certifications tend to be valid between six months to one year, after which riders will need to undergo a recertification process.
- **Building partnerships with community organizations** – Community organizations can play an important role in a fare discount program. The case examples show that community organizations, which have direct contact with clients, can identify who would benefit from a reduced fare program and inform these clients. These agencies can also help applicants prepare their applications, host sign-up events, and be trained (and resourced) to certify, issue, and register resulting ID cards or fare media.
- **Regional collaboration when possible** – The LIFE and Clipper START programs are examples of successful interagency cooperation. The Clipper START program, for example, grew from four to 10 participating agencies. The program could serve as a model not just for the City of Alexandria, but potentially the entire region.

Certification can be simplified by using proof of membership in other benefit programs to determine eligibility.

The following sections identify highlights from each of the case examples, organized by topic area, and explain different agency approaches in detail. Case examples with multiple noteworthy elements appear under multiple topics.

Efficiency in Eligibility Determination

For the case examples that involved targeted fare payment assistance (i.e., not those that are fare-free for all), many of the agencies found ways to determine eligibility utilizing existing processes or methods to simplify the process for both the agency and the applicants.

Regional

Transportation District (RTD) in Denver, Colorado and Dallas Area Rapid Transit (DART) in Dallas, Texas relied on proof of eligibility for existing state-level programs in

their states to verify eligibility. In RTD's example, applicants complete an online application through a larger statewide benefits portal to receive an eligibility card without the need for any certification done directly by RTD, its discounted fare program is incorporated directly into the state's portal and eligibility for LiVE is reviewed just like any other state benefit. The program launched in July 2019, and by April 2020 it had over 5,000 participants.⁷⁵

DART's program allows users that are currently receiving TANF benefits to use TANF funds on their EBT card to purchase discounted passes. In Miami-Dade County, the same office that processes Golden Passport (free transit for seniors and social security beneficiaries) and Patriot Passport (free transit for veteran residents with disabilities and an annual income of \$30,721 or less) applications also reviews applications for the Commuter-Reduced Fare EASY Card, which grants low-income riders 50 percent off bus and rail fares. Other programs in Portland, Minneapolis, and the San Francisco Bay Area also ask applicants to provide proof of enrollment in other programs as a key determinant of their eligibility.

These approaches simplify the process for agencies when it comes to determining eligibility, and they also limit the time applicants need to invest to gather supporting documentation. Self-certification, which Madison's Metro Transit uses, is an easy process for both applicants and agencies. New applicants can complete a self-certification form that is valid for six months at the time they purchase a discounted pass.

Figure 8: RTD on Colorado PEAK Portal



⁷⁵ Mass Transit, Denver RTD's LiVE Program provides income-based fares for those in need during difficult times, April 2020, <https://www.masstransitmag.com/management/press-release/21132826/regional-transportation-district-rtd-denver-rtds-live-program-provides-incomebased-fares-for-those-in-need-during-difficult-times>.

Funding Reduced Fare and Fare-Free Service

The case example agencies followed different paths in developing and implementing their programs (either fare-free service or discounts for low-income individuals). In some cases, the introduction of a new reduced fare program was implemented in conjunction with a fare increase as a way to offset some of the negative equity implications of the fare increase. RTD's program was paid for by raising fares on buses and rail lines to the Denver International Airport. Metro Transit (in Minneapolis) also started its Transit Assistance Program in conjunction with a fare increase.

Agencies in the case examples funded programs with fare increases, voter referendums, sales and property taxes, and/or contributions from public and private sector partners.

Other programs were supported by voters. In Missoula, Montana, a fare-free pilot project was started in 2015 at the same time the agency added bus service as part of a previous 2013 voter-approved mill (local property tax) levy. The 2013 levy grew Mountain Line's budget by \$1.7 million and was the first referendum to improve Mountain Line in 35 years.⁷⁶ While the 2013 mill levy allowed Mountain Line to expand service in 2015, the agency's fare-free pilot began at the same time with the support of funding partners from local businesses, educational institutions, healthcare facilities, and business improvement districts. These partners helped cover lost fare revenues when the agency's \$1.00 fares were eliminated. In 2017, the partners agreed to continue funding the program through the end of 2020. As of 2021, the agency had 26 partners.⁷⁷

The Mountain Line fare-free pilot became a successful, and now permanent, program that provides over 1.5 million rides per year. In 2014, the last year before the fare-free program began, the agency provided over 900,000 rides.⁷⁸ The program enjoys public support, as evidenced by the fact that voters continued to support Mountain Line's fare-free service by agreeing to a \$3 million dollar mill levy by a 20 percent margin in November 2020.⁷⁹ The agency cites numerous benefits to going fare-free: a ridership increase of almost 70 percent since 2015; ridership gains that have helped the agency secure millions of dollars in federal grants allowing for the purchase of 12 electric buses because increased ridership made the agency more competitive; and being able to adapt faster to Centers for Disease Control and Prevention (CDC) recommendations during COVID-19, since the program already limited contact between riders and drivers. A Mountain Line survey indicated that 48 percent of riders said they had started to ride more frequently since the program was introduced.⁸⁰

The Clipper START pilot program has brought several Bay-area agencies together to provide discounts to riders with low incomes with the support of state and federal funding. Although the pilot started in 2020 with four participating agencies, at least 17 other agencies have expressed interest.⁸¹ The twelve- to eighteen-month pilot was initially funded with about \$11 million, including \$8 million in State Transit Assistance (STA) funds generated by the state sales tax on diesel fuel plus \$3 million from the statewide Low-Carbon Transit Operations Program. MTC (the region's Metropolitan Planning Organization) provided a one-time commitment

⁷⁶ Missoulia, Mountain Line putting \$1.7M levy increase on ballot, September 2013, https://missoulia.com/news/local/mountain-line-putting-1-7m-levy-increase-on-ballot/article_f2284cfe-e8f4-11e2-ac70-001a4bcf887a.html.

⁷⁷ Mountain Line, Mountain Line Benefits Us All, Accessed January 2021, <https://mountainline.com/zero-fare>.

⁷⁸ NTD, 2014 Annual Agency Profile of Missoula Urban Transportation District (Mountain Line), https://cms7.fta.dot.gov/sites/fta.dot.gov/files/transit_agency_profile_doc/2014/80009.pdf.

⁷⁹ KPAX, Mountain Line mill levy moving toward wide voter passage, November 2020, <https://www.kpax.com/news/missoula-county/mountain-line-mill-levy-moving-toward-wide-voter-passage>.

⁸⁰ Mountain Line, Mountain Line Benefits Us All, accessed January 2021, <https://mountainline.com/zero-fare>.

⁸¹ MTC, Six Transit Agencies Join Clipper START Program, November 2020, <https://mtc.ca.gov/whats-happening/news/six-transit-agencies-join-clipper-start-program>.

of \$5 million dollars in CARES funding in July 2020 to expand the number of participating agencies, and six more joined in November 2020.

As noted above, for some smaller agencies, the cost of charging fares is comparable or close to total fare revenue, leading them to consider going fare-free due to the modest financial impact. InterCity Transit in Olympia, Washington found that fares accounted for less than two percent of the agency's net revenue after the cost of fare collection was considered. Its new zero fare program, which started in 2020, began with the 2018 approval of Intercity Transit Proposition 1. After the proposition passed, InterCity Transit conducted a two-year public engagement process called IT Road Trip. One outcome of public engagement was that communities asked the agency to begin exploring ways to make fare collection faster and easier while reducing delays and making access simpler for riders. The agency ultimately found that going fare-free was the fastest and most effective option to achieve these goals.

Fare Media

The agencies that offer targeted benefits (as opposed to going fare-free) typically use “smart” fare cards (like SmarTrip®) to administer and distribute the benefits to qualifying individuals. In the case examples, these agencies are Miami-Dade Transit; Metro Transit in Minneapolis; LA Metro and participating agencies; TriMet; and several agencies in the San Francisco Bay area. By utilizing the same fare media, the Clipper START pilot program joins several Bay-area agencies together to provide varying fare reductions across agencies (between 20 and 50 percent) – programmed onto and available all on one card.

Discounts Offered in Conjunction with Fare Capping

In Portland, all riders benefit from TriMet's daily and monthly fare caps. However, riders enrolled in the Low-Income Honored Citizens Fares program pay a lower cost (\$28) to reach their monthly fare cap as opposed to the \$100 standard monthly pass. The agency estimates this saves participating riders over \$850 annually.⁸²

Innovative Partnerships

Agencies employed several innovative methods for working among themselves and partnering with community organizations and human services agencies to administer their programs. RTD even created a partner toolkit that includes videos in English and Spanish, bilingual brochures, sample communications, and a web banner.⁸³

Administration

Minneapolis's Metro Transit approves partner organizations that can certify application documents and distribute and register cards on the agency's behalf,⁸⁴ making the application process easier for the applicant and the agency, and bringing services directly to the people who need them. The program started in 2017, and as of November of that year, 7,000 riders were using the card monthly – a small portion of the more than 500,000 residents who could qualify.⁸⁵

Community partners can market programs, help riders enroll, certify applications, and distribute and register cards.

⁸² TriMet, Transit cost savings add up with TriMet's reduced fare for riders living on a low income, May 2019, <https://news.trimet.org/2019/05/transit-cost-savings-add-up-with-trimets-reduced-fare-for-riders-living-on-a-low-income/>.

⁸³ RTD, Partner Tool Kit, Accessed January 2021, <https://www.rtd-denver.com/LiVE#partnertoolkit>.

⁸⁴ Metro Transit, Transit Assistance Program Partner Information, Accessed January 2021, <https://www.metrotransit.org/tap-partners>.

⁸⁵ MinnPost, TAP is a lifesaver for many Metro Transit riders, November 2019, <https://www.minnpost.com/cityscape/2019/11/tap-program-is-a-lifesaver-for-many-metro-transit-riders/>.

LA Metro and 12 other local agencies banded together for the Low- Income Fare is Easy Life (LIFE) program, which uses two community organizations to certify people's eligibility for the LIFE program.

Marketing

There are also examples of community partners spreading the word about reduced fare programs. Approved partners in Minneapolis's Metro Transit's TAP program receive promotional materials in a variety of languages, in addition to certifying applicants. For the LIFE program, according to a 2018 board report, over 600 non-profit, faith-based, or governmental agencies conducted outreach about the LIFE program with their clients and the general public as a result of a December 2017 marketing plan and strategy.⁸⁶

INSIGHTS FROM CITY STAFF

The project team conducted two interviews with staff from the City of Alexandria's Department of Community and Human Services (DCHS) to better understand current programs and practices in the City, including those for determining how individuals are determined to be eligible for income-based programs. Staff from the City's Workforce Development Center, Office of Community Services, and the Benefits Programs departments were interviewed. The SNAP Employment and Training Program and the VIEW Program (Virginia Initiative for Education and Work), both run by DCHS, can provide bus tokens or SmarTrip® cards to clients on a temporary basis. However, the ability to support clients in meeting their transportation needs varies greatly between programs, and many low-income residents who qualify for other assistance programs do not qualify for transportation assistance.

These interviews produced several key takeaways:

- There is a **need for affordable transportation to connect low-income residents to community resources, workforce development, and employment opportunities**. City staff explained that some clients had difficulties paying the fare to arrive at the DCHS office to receive benefits, with some walking long distances because they could not afford the bus fare. Most of the City's human services programs are tied to eligibility criteria (using income-based guidelines), with income being verified by DCHS staff.
- Some individuals go through a **transition period** during which they no longer qualify for certain financial benefits due to earning more than a certain threshold, but still struggle to afford transportation.
- When asked about low-income clients' access to technology, **City staff recommended that physical (paper/plastic) passes may be better for some low-income populations; they also added that, while most clients may not have computer access, many have a smartphone** through another City program so app-based fare products could also work for a large number of program participants.
- Although most applicants also have email addresses, they **may require assistance from others to access a computer or complete any application or other mandatory paperwork**.
- **Providing information about the program to individuals with limited English proficiency** will be important for success of an income-targeted program.
- The DCHS staff had the impression that their clients who qualify for financial assistance **are more likely to use the DASH system as opposed to Metrobus or Metrorail**, since the City tends to pair job seekers with jobs at Alexandria-based businesses and employers.

⁸⁶ Metro Board, 2017-0813- New Low Income Fare Subsidy Program (LIFE) Program, 2018, <https://boardagendas.metro.net/board-report/2017-0813/>.

As part of this study, at least one additional interview, either with WMATA or another organization, will be conducted to gather additional information to assess the best options for the City of Alexandria.

KEY FINDINGS AND SCENARIO RECOMMENDATIONS

The findings from the case example review, literature review, and interviews provide an indication of how the options under consideration for the City of Alexandria would compare with respect to the goals for the City's low-income fare initiative. **Table 8** shows a high-level or screening evaluation of how these options compare with respect to both the goals as well as other important considerations.

Table 8: Summary Evaluation of Options for the City of Alexandria

Option	Impact for Intended Beneficiaries	Ridership Increase*	Administrative Complexity for the City	Estimated Relative Cost*	Other Considerations
Free fares for everyone on the DASH system at all times	Highest,** but less targeted	Highest	Lowest	Highest	<ul style="list-style-type: none"> Greatest improvement to DASH operational performance (OTP, reduced conflicts over fares, all-door boarding) (+) Potential operational cost increases with ridership increases (-) Heightens need for Automatic Passenger Counters (APCs) (+/-) Potential additional savings from avoided capital costs (+) Large environmental benefit by increasing ridership (+)
Free fares for everyone on the DASH system during off-peak runs only	Moderate, but less targeted	High	Low	High	<ul style="list-style-type: none"> Significant improvement to operational performance (during off-peak) (+) Would increase productivity during the off-peak, one of DASH's operational goals; less likely to have challenges associated with ridership increase due to off-peak being less busy (+) Heightens need for APCs (+/-)
Free fares for low-income residents on DASH	High	Low-Moderate	Moderate	Low	<ul style="list-style-type: none"> Same impact as free DASH fares for all residents, but requires a (likely inconvenient) administrative process; fewer intended beneficiaries will take advantage of program. (-)
Discounted DASH fares and passes for low-income residents	Lowest	Lowest	Moderate-High	Lowest	<ul style="list-style-type: none"> Requires fare capping to effectively address the needs of riders who may not be able to afford a monthly pass upfront and/or moderate-frequency riders who are not sure whether paying fares or buying a pass is their most economical option. (+/-)
Free fares for low-income residents on DASH and WMATA services	Highest**	Moderate-High	High	Moderate-High	<ul style="list-style-type: none"> Benefit of giving people access to all services, allowing them to get more places and choose the service that works best for them. (+) Requires more coordination with WMATA (+/-) Large environmental benefit by increasing ridership (+)
Discounted passes and fares for low-income residents on DASH and WMATA services	Low	Low	Highest	Low	<ul style="list-style-type: none"> Benefit of giving people access to all services, allowing them to get more places and choose the service that works best for them. (+) Requires more coordination with WMATA (+/-) Requires fare capping to cover both passes and fares on SmarTrip® cards in a streamlined way (as described above) (+/-)

*To be further evaluated in Tech Memo 2, incorporating estimated administration costs and ridership impacts into the estimates.

**Both options are rated "highest." One is highest due to free access to both services (DASH and WMATA), the other due to being more accessible because of the lack of a certification process, which creates a barrier to entry for potential participants.

Comparison and Evaluation of Options

The summary in **Table 8** shows the inherent trade-offs in seeking to achieve all of the goals for a low-income fare program in the City of Alexandria. In general, a greater investment in the program and in broader regional initiatives that would support this program and have long-term benefits (e.g., fare capping, expanding the POS retail network) will produce greater gains with respect to the program goals. This investment would be in terms both of direct monetary resources as well as prioritization of staff time to move implementation forward (e.g., communicating the value of the program to cultivate political support and galvanizing cross-departmental and cross-agency cooperation).

After considering the evaluation findings, free fares for all on the DASH system and both free and discounted fares on both DASH and WMATA services were identified for further study. There are a few reasons for this choice for the direction for the study:

- Free fares for all on the DASH system would remove an administrative process for being able to access the benefit (i.e., it would be most accessible in terms of lowering participation barriers), which would result in the lowest administrative cost and would significantly increase transit ridership on DASH. This would significantly enhance equity and quality of life in the City and potentially result in environmental benefits as well. This option would be the easiest and quickest to implement, given that it would not require establishment of an internal income verification/certification process and that it would require less cross-agency coordination and cooperation. (The latter of these, while beneficial and valuable for many reasons, would likely increase the amount of time associated with implementation.)
- Selecting options that cover both DASH and WMATA services would enable riders to access a wider range of services to meet their travel needs, which is also supportive of a broader regional goal of having a transit network that works relatively seamlessly across providers and jurisdictional boundaries.
 - There remains potential for the City to proceed with applying the program first to the DASH system and then, over time, expanding it to cover WMATA services based on lessons learned, new information about the operational impacts from an incremental roll-out, and updated information about available resources. In this way, the options to apply free fares or discounted fares for low-income residents just on the DASH system will remain.
- There is value in the City considering a variety of discount levels, as funding for the program is not guaranteed and it may be most effective and sustainable for the City to proceed more incrementally and conservatively to ensure the program is financially secure over the long-term. Based on the findings from the literature review that a 50 percent discount is the most common discount level, and that this discount level would be the easiest for participants to comprehend and calculate, 50 percent will be the discount level studied.
- While the option to make fares free on DASH during off-peak periods would benefit low-income people disproportionately compared to all riders (given that low-income riders are more likely to ride during the off-peak), it would not give low-income riders flexibility to travel when it is most convenient for them, or when they may be required to travel (e.g., depending on the time of a shift or a doctor's appointment) to receive the benefit. In other words, the impact for intended beneficiaries would not be as high for some low-income riders. It would effectively create an additional barrier for some people to accessing the program's benefits.
- The cost implications of the option to make fares free on DASH during off-peak periods were already identified in the DASH fare collection study.

Other Considerations

This evaluation, of course, does not account for many of the other, sometimes qualitative, considerations, some of which are identified in **Table 8**. These are described in further detail below.

- **Operational costs** – It is likely that operational efficiency will improve on the DASH system if fares are eliminated due to less dwell time at each stop since passengers will not need to stop at a farebox. Although the dwell time savings will be minor on a stop-by-stop basis, the aggregate time savings across and entire route and for the entire network could result in real operational cost savings.
- **Potential Crowding** – In the short-term, the potential for a fare decrease or fare elimination to cause a level of ridership increase that would cause crowding and necessitate major increases in service does not seem highly likely. However, in the long run, it is possible that DASH would need to increase its level of service to meet the increased demand that lower fares would generate. This will largely depend on the rate at which passengers return to transit once the COVID-19 pandemic has largely ended.
- **Automated Passenger Counters (APCs)** – Currently, approximately half of the DASH fleet is equipped with APCs and a project is underway to install additional APC's that will result in 90 percent of the fleet being APC-enabled. If DASH were to eliminate fares completely, either at all times or just during the off-peak, having 100% APC coverage would be especially important for maintaining accurate ridership counts without asking the operator to manually push a button for every boarding, which could be occurring at multiple doors This is a potential additional cost associated with going fare-free.
- **Need for fare capping to enable both pass and fare discounts** – For options involving discounts on fares and passes to be beneficial both for occasional riders (for whom purchasing a monthly pass does not make sense) as well as for regular riders, fare capping would be needed to ensure that low-income riders using SmarTrip® cards do not over-pay simply because they cannot afford the cost (even if discounted) of an unlimited pass. While the study team has not looked into this question yet, it is possible that fare capping could be more easily implemented on the DASH system for those who use the DASH app.
- **Significant benefit to making barriers to participation as low as possible** – There is a significant, difficult to quantify, benefit of making barriers to riding transit, and/or to accessing a low-income fare program as, as few and minimal as possible. For this reason, there is a significant benefit associated with going fare-free as a way to reduce the cost burden for low-income residents. A means-tested program, even if designed to be as streamlined as possible, will place an administrative burden on both the City as well as riders, resulting in many individuals (particularly those with limited English proficiency) who would benefit from the program simply not taking advantage of it. If the fare reduction associated with undergoing a certification process is not significant enough, even some people who are aware of the program (which is highly dependent on investing in marketing and partnerships) may even delay or avoid completing it.
- **Potential to access more funding sources** – The case example review indicated that some agencies found that increased ridership and productivity made it easier for them to receive some incentive- and/or productivity-based funding sources. This could potentially be the case for DASH, given that state-level operating assistance in Virginia is based in part on ridership.
- **SmartBenefits types and usage** – In the region, many large employers provide SmartBenefits in the form of pre-tax transit benefits or direct credit for transit on SmarTrip® cards, which works on WMATA and the local systems. In 2019, about 10 percent of DASH revenue came from SmartBenefits. Transit benefits are usually provided for full-time employees, federal government employees, and generally those with higher incomes. Therefore, SmartBenefits will likely play less of a role in impacting low-income fare pass programs, but would result in a shift in subsidy from an employer and the Federal government to the City if the City were to subsidize DASH fares for everyone.

Recommendations for Targeted Program

If the City selects to provide a targeted (as opposed to fare-free-for-all) approach, there are several recommendations the research supports, regardless of which specific option is chosen:

- **Building on existing eligibility thresholds** – All programs (except fare-free, all-day or just during off-peak) will require some kind of income verification/certification process to confirm individuals' eligibility. The

case examples, as well as basic logic, illustrate that streamlining this process by building on existing programs for awarding targeted assistance has proven to be most successful.

- **Effective marketing to reduce barriers** – As discussed on this page, for all options except those involving free fares for all riders, keeping barriers to participation as low as possible is important. Examples from the Minneapolis and San Francisco regions indicate that some programs have relatively low adoption rates, especially depending on how well a program is marketed. Given how many barriers low-income people already face in meeting their basic needs, there is considerable value in making barriers to receiving the benefits of the program as low as possible.
- **Forming or strengthening partnerships** – In a similar vein, reducing the administrative burden and enhancing public awareness of a fare program that is based on income levels will be best achieved through partnerships, both across departments within the City as well as with potential partners such as community-based organizations.
- **Making the program easy to understand, convenient, and allowing riders flexibility in scheduling their travel** – The more complicated the program is, the more difficult it will be for intended beneficiaries to understand it and, ultimately, take advantage of its benefits. The more “clauses” added to the program, such as discounts only applying during certain hours, on certain routes, for certain distances, or on certain days of the week, the more intended beneficiaries may be inconvenienced by having to shift their schedules or travel patterns to take advantage of the benefits. A program that provides users with maximum flexibility will result in greater benefits for those it is intended to help.
- **Expanding the retail network for purchasing fares and passes** – In line with the NVTC 2021 Northern Virginia Regional Fare Collection Strategic Plan, expanding the locations where people can purchase Senior SmarTrip® cards would reduce the burden on travelers of having to travel to Metro Center station in DC. In addition, more locations where people can add value to their SmarTrip® cards would significantly benefit cash-dependent populations. Mobile ticketing platforms also present opportunities for passengers to use cash to add funds to their accounts using point-of-sale (POS) retail networks that are widely available at convenience stores, and pharmacies. These are particularly helpful for low income riders who do not have bank accounts or credit cards.

Conclusion and Next Steps

Research shows that recipients of fare discounts or free fares will take more trips, enabling them to access more opportunities, and freeing up money in their limited budgets to meet other critical life needs (shelter, food, health care, etc.). The options identified for further evaluation would all have a significant impact for the intended program beneficiaries in the City of Alexandria. In the next phase of this study, the project team will develop: more detailed estimates related to costs, ridership, and operational impacts; administrative process recommendations; performance metrics for tracking success of a low-income fare program; and a more detailed summary of marketing strategy recommendations.

APPENDIX: FULL CASE EXAMPLE REVIEW FINDINGS

Table A-1 shows basic information about all of the fare discount and fare-free programs that were identified in the process of selecting case examples.

Table A-1: List of Other Fare Discount and Fare-Free Programs Identified in Selection of Case Examples

Location	Agency	Program Name	Type of Discount	Eligibility and Certification	Program Cost (if Available) and Funding Sources
Ann Arbor, MI	TheRide	Fare Deal and GoldRide	Discounted fares (50% discount), discounted passes (50% discount), free fares for seniors 65+	Fare Deal provides seniors ages 60-64 and people with disabilities a 50% discount. Applicants provide a valid proof of Medicare, Medicaid, or an authorization form from a participating agency. With GoldRide, seniors ages 65 and over ride fare-free after completing an application and providing a photo.	<i>[Information not available from online search]</i>
Boston, MA	MBTA	Youth Charlie Pass Card	Discounted fares (50% discount), discounted pass (65% discount on monthly LinkPass)	Applicants must live in a participating city or town; be between 18 and 25 years old; and be enrolled in an MBTA-approved benefits, education, or job training program. ⁸⁷	<i>[Information not available from online search]</i>
Chapel Hill, NC	Chapel Hill Transit	N/A	Free fares for all	Chapel Hill Transit went fare-free in 2002. In 2015, the agency conducted a fare implementation analysis, but no fares were subsequently implemented. ⁸⁸	The recommended FY 2020-2021 transit budget is \$25,232,504. ⁸⁹
Corvallis, OR	Corvallis Transit System	N/A	Free fares for all	The agency went fare-free in February 2011 because a Transit Operations Fee (TOF) replaced fares. The TOF replaced the previous transit funding from the City's General Fund.	Service is funded by a Transit Operations Fee that was approved by Corvallis Council in 2011, which also provides a stable local match.

⁸⁷ A list of MBTA-approved programs and participating cities and towns can be found at <https://www.mbta.com/fares/reduced/youth-pass>.

⁸⁸ Nelson\Nygaard Consulting Associates, Inc., Chapel Hill Transit – Fare Implementation Analysis, 2015, <https://www.townofchapelhill.org/home/showdocument?id=29776>.

⁸⁹ Town of Chapel Hill, Transit Fund, May 2020, <https://www.townofchapelhill.org/home/showpublisheddocument?id=45885>.

Location	Agency	Program Name	Type of Discount	Eligibility and Certification	Program Cost (if Available) and Funding Sources
Indian River County, FL	Indian River Transit/ GoLine	N/A	Free fares for all	GoLine provides fare free service for all along 15 fixed routes.	2019 operating funds expended were \$4.1 million. ⁹⁰
Kansas City, MO	RideKC	To be determined	Free fares for all	Kansas City became the first US city to approve of free fares on buses in 2019, but the program has not yet moved toward implementation due to questions of funding.	Estimated annual cost is \$8 million. ⁹¹
Lincoln, NE	StarTran	Low-income Bus Pass	Discounted passes (50% discount)	Riders at or below 200% of the FPL can self-certify their incomes and purchase passes at the agency or community centers.	<i>[Information not available from online search]</i>
New York, NY	MTA	Fair Fares NYC	Discounted fares (50% discount)	All adults below the FPL are eligible. Applicants complete an online screening and if eligible, complete a full application.	In June 2020, \$65 million was cut from the estimated \$200 million program. ⁹²
Puget Sound Area, WA	Sound Transit and participating agencies	Regional Reduced Fare Permit (RRFP)	Reduced fares (varies by agency and mode)	People 65 and over, with disabilities, and/or who are Medicare-eligible can apply by completing an application and providing proof of enrollment documentation in a benefits program.	<i>[Information not available from online search]</i>
Seattle, WA	King County Metro and other participating agencies	ORCA LIFT	Reduced fares (varies between agency and mode)	Households with an income of less than 200% of the FPL can apply. Applicants can apply online and must provide proof of enrollment in defined benefits programs or paystubs.	<i>[Information not available from online search]</i>
Seattle, WA	King County Metro and other participating agencies	ORCA Opportunity	Free fares for select riders	This pilot program gave 1,600 free, unlimited use ORCA cards to Seattle Housing Authority tenants with a household income of 30% of the Area Median Income (AMI). The 12-month pilot started in 2019 and has been extended through 8/31/2020. ⁹³	Funded through the Seattle Transportation Benefit District. ⁹⁴

⁹⁰ NTD, Indian River County 2019 Annual Agency Profile, Accessed January 21, 2020, https://cms7.fta.dot.gov/sites/fta.dot.gov/files/transit_agency_profile_doc/2019/40104.pdf.

⁹¹ Smart Cities Dive, Who will pay for Kansas City, MO's free transit?, March 2020, <https://www.smartcitiesdive.com/news/who-will-pay-for-kansas-city-mos-free-transit/572980/>.

⁹² Streetsblog NYC, The Budget Pain: Mayor's Fair Fares Cut Falls Heavily on Lower-Income Transit Riders, June 2020, <https://nyc.streetsblog.org/2020/06/30/the-budget-pain-mayors-fair-fares-cut-falls-heavily-on-lower-income-transit-riders/>.

⁹³ Seattle.gov, ORCA Opportunity for SHA Tenants, August 2020, <https://www.seattle.gov/transit/orca-opportunity/seattle-housing-authority-sha-pilot>.

⁹⁴ Seattle.gov, ORCA Opportunity FAQ, July 2018, <http://www.seattle.gov/Documents/Departments/Transit/ORCAFAQ7.26.pdf>.

Location	Agency	Program Name	Type of Discount	Eligibility and Certification	Program Cost (if Available) and Funding Sources
Tucson, AZ	Sun Tran	Low-Income	Discounted fares (50%+ discount), discounted pass (50% discount)	Riders that meet the US Department of Labor's Lower Living Standard Income Levels may apply. Applicants must provide proof of income.	<i>[Information not available from online search]</i>
Wasatch Region, Utah	UTA	Monthly Horizon Pass	Discounted pass (50% discount)	A discounted pass can only be sold to riders with an active Utah State Horizon Card. The State completed the Horizon Card certification.	<i>[Information not available from online search]</i>
Washington, DC	WMATA	Fare Subsidy Pilot	Discounted fares (50% discount) and free transit for select riders	For this pilot project, The Lab @ DC, DDOT, DC DHS, WMATA, and other partners will provide select riders, with 2,500 riders receiving public benefits with SmarTrip® cards with varying discounts. There will also be a control group.	The District of Columbia will reimburse WMATA up to \$500,000 for foregone fare revenue due to the pilot. ⁹⁵
Washington, DC	DC Circulator	Fair Shot February	Free fares for all	The District first offered free rides for all on the DC Circulator as part of its #FairShotFebruary initiative in 2019. Fares were later reinstated in October 2019 (until the start of the COVID-19 pandemic).	The Mayor's budget proposed \$3.1 million for FY 2020, but this request was rejected by Council. ⁹⁶

⁹⁵ WMATA Finance and Capital Committee, DC Low-Income Fare Pilot, December 2019, <https://www.wmata.com/about/board/meetings/board-pdfs/upload/3C-DC-Low-Income-Fare-Pilot.pdf>.

⁹⁶ DC Curbed, \$1 D.C. Circulator fares return next Tuesday, September 2020, <https://dc.curbed.com/2019/9/27/20886834/dc-circulator-fare-returns-transportation-public-transit>.