NORTHERN VIRGINIA TRANSPORTATION COMMISSION

2022 Report on the Performance and Condition of the Washington Metropolitan Area Transit Authority

System Map

wmata.com
Information: 202-637-7000 | TTY: 202-962-2033
Metro Transit Police: 202-962-2121 | Text: MYMTPD (696873)

Legend

- RD **Red Line** • Glenmont / Shady Grove
- OR **Orange Line** • New Carrollton / Vienna
- BL **Blue Line** • Franconia-Springfield / Downtown Largo
- GR **Green Line** • Branch Ave / Greenbelt
- YL **Yellow Line** • Huntington / Greenbelt
- SV **Silver Line** • Ashburn / Downtown Largo

Station Features
- P Parking
- H Hospital
- Airport

Connecting Rail Systems
AMTRAK VRE MARC

Transfer Station
Station in Service
Future Station

Metro is accessible.

N
Map is not to scale

No Smoking
No Eating or Drinking
No Animals (except service animals)
No Audio (without earphones)
No Littering or Spitting
No Dangerous or Flammable Items

NORTHERN VIRGINIA TRANSPORTATION COMMISSION

December 15, 2022

On behalf of the Northern Virginia Transportation Commission (NVTC), I am pleased to submit the *2022 Report on the Performance and Condition of the Washington Metropolitan Area Transit Authority (WMATA)* as directed by Virginia code.

This year's report presses upon WMATA to improve service, safety and security, enforce fare payment, simplify the fare structure, increase non-fare revenues and manage labor costs. The year's report also directs NVTC staff to explore the implications of Northern Virginia local transit agencies assuming operations of Metrobus services and to examine and develop options for a new financial operating model for WMATA, including potential reforms and additional oversight. We expect these two efforts to start in the new year.

WMATA faces structural financial challenges that were accelerated by the COVID-19 pandemic and subsequent decline in ridership. New management at WMATA presents an opportunity to reevaluate current processes and systems. NVTC's strategies to WMATA offer recommendations to examine these challenges and work with funding partners and stakeholders – including the Commonwealth - to execute functional solutions and in turn restore rider confidence and provide safe and reliable service to Virginians.

Further, the report outlines the expenditures of the Commonwealth's WMATA Capital Fund, which provided $154 million in dedicated capital funding in FY 2022 as part of WMATA's $2.05 billion capital budget to support state of good repair improvements. The report also contains safety and reliability, financial performance and ridership data on Metrorail and Metrobus.

We look forward to working with our partners in the Commonwealth to help WMATA navigate a path toward its vision of the future while also ensuring transparency and accountability at WMATA.

Sincerely,

Canek Aguirre
Chair

2300 Wilson Boulevard, Suite 230 · Arlington, VA 22201
Tel (703) 524-3322 · Fax (703) 524-1756
www.novatransit.org · Twitter @novatransit · www.facebook.com/novatransit

Acknowledgements and Credits

NVTC WMATA Committee Members

Walter Alcorn, Chair

Canek Aguirre

Matt de Ferranti

Matt Letourneau

David Meyer

Paul Smedberg

David Snyder

NVTC Management Team

Kate Mattice, Executive Director

Allan Fye, Director of Programs and Policy

Scott Kalkwarf, Director of Finance and Administration

NVTC Project Team

Andrew D'huyvetter, WMATA Senior Program Manager

Ronnetta Zack-Williams, Program Analyst

Sophie Spiliotopoulos, Program Analyst

Monique Blyther, Marketing and Engagement Manager

Matt Friedman, Communications and Public Affairs Manager

Tenley O'Hara, Legislative & Administrative Assistant

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NVTC
NORTHERN VIRGINIA TRANSPORTATION COMMISSION

2022 *Report on the Performance and Condition of WMATA*

NVTC's 2022 *Report on the Performance and Condition of WMATA* includes strategies for Metro to improve operational efficiency and reduce the growth in costs, the uses of Virginia's dedicated capital funding, recent major accomplishments in the capital program, and reliability, ridership and financial performance data.

Photos courtesy of Metro

Highlights of NVTC's Recommendations to Metro:

Rebuild customer confidence by **continuing the return of the 7000-series railcars to service** and offering frequent and reliable rail service, improving the **physical safety and security** of customers and **reforming the management and safety culture.**

Work with partner jurisdictions **to enforce fare payment uniformly across the system** to address customer safety and security.

Implement a simple and convenient Metrorail fare structure and customer experience that makes it easy to pay fares, manage transit benefits and transfer to other systems.

Continue to increase non-fare revenues from real estate and advertising.

Seek to manage labor cost escalation in collective bargaining and seek amendments to the Wolf Act.

Recommendations for the Commission:

Explore the implications, challenges and opportunities of **local transit agencies assuming the operation of Metrobus services** in Northern Virginia.

Develop options for a new financial operating model for Metro that reflects Virginia's unique funding and modal relationship with Metro, examines existing and potentially new revenues and explores opportunities to reform federal, state and/or Metro laws or policies around Metro budget and subsidy.

Future Operating Budget Gaps

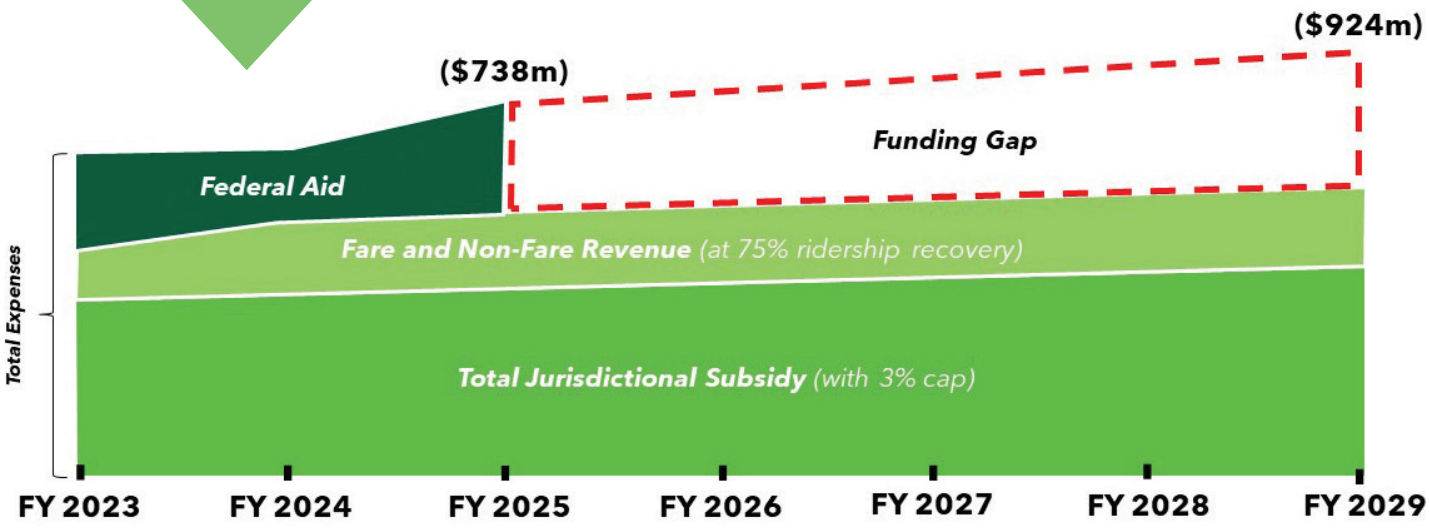
The pandemic has accelerated the structural challenges to Metro's financial operating model, which will result in future operating gaps as federal COVID aid is exhausted. This long-term operating funding gap is partially due to slow ridership recovery, but it will persist with a moderately smaller gap even if ridership recovered to 100% of pre-pandemic levels.

Solving these multi-year operating gaps will necessitate some difficult choices. NVTC is working with our local, Commonwealth and federal partners to support Metro as it evolves to meet the Northern Virginia transit needs of a post-pandemic transit world.

Operating Budget Outlook

Federal aid has acted as a temporary stopgap and will be exhausted in FY 2024.

Metro projects the FY 2025 operating budget gap at $738 million which grows to $924 million in FY 2029.



SILVER LINE
EXTENSION

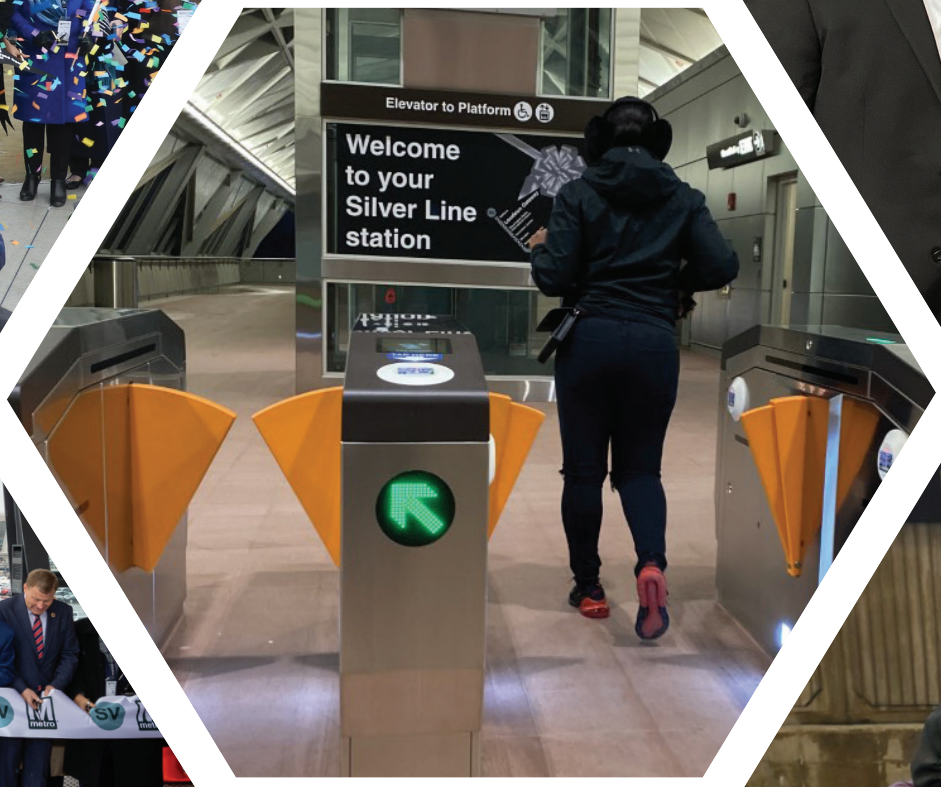
Photos courtesy of Metro

The Silver Line Extension opened on November 15. The extension includes six new stations in Loudoun and Fairfax Counties and provides the region with direct service to Washington Dulles International Airport.


Reston Town Center Station


Welcome to the
SV Silver Line
EXTENSION
Grand Opening


SV


Elevator to Platform
Welcome
to your
Silver Line
station


Herndon
Ashburn
Grand Opening
2022

Introduction

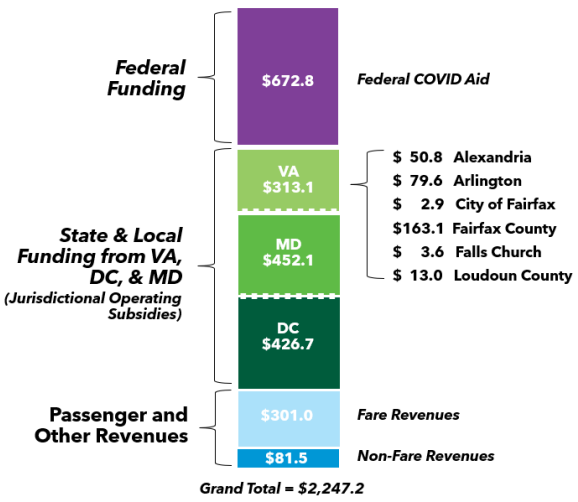
The Washington Metropolitan Area Transit Authority (WMATA) operates heavy rail (Metrorail), bus (Metrobus) and paratransit (MetroAccess) services across the Washington, D.C. region and in the Commonwealth of Virginia. WMATA is the third busiest rail transit system and the sixth busiest bus system in the United States. The COVID-19 pandemic resulted in a steep and sudden drop-off in both transit demand and ridership in Northern Virginia and the Washington, D.C. region. WMATA is highly dependent on farebox revenues - especially from Metrorail - to fund operations and reduce pressure on the growth of jurisdictional operating subsidies.

With the emergence of new post-pandemic travel patterns and teleworking in the Washington Metropolitan region remaining substantially higher than pre-COVID levels, both WMATA and transit systems across the United States face a gradual recovery of transit ridership and revenue. In addition, an extended period of reduced service on Metrorail due to the October 2021 Blue Line derailment and subsequent removal and gradual reintroduction of the 7000-series railcars from service has impeded both ridership and revenue recovery.

WMATA's FY 2023 operating revenues

WMATA's operating budget is mainly funded by fare revenues and jurisdictional operating subsidies. The largest category of funding that WMATA receives is the jurisdictional operating subsidies from Virginia, Maryland and the District of Columbia (Figure 1).[1] In Virginia, these jurisdictional operating subsidies are the responsibility of the six local governments encompassed by the Northern Virginia Transportation Commission – the counties of Arlington, Fairfax and Loudoun and the cities of Alexandria, Falls Church and Fairfax - who use a variety of funds, including the regional gas tax, state aid and their general funds to meet their obligations.

Figure 1: Approved FY 2023 Operating Budget Funding Sources *(in millions)*



Source: WMATA Approved FY 2023 Budget

Since FY 2020, federal COVID-19 aid from the Coronavirus Aid, Relief, and Economic Security Act (CARES), Coronavirus Response and Relief Supplemental Appropriations Act of 2021 (CRRSSA) and American Rescue Plan Act of 2021 (ARPA) has provided WMATA with over $2.6 billion[2] in federal COVID aid that is projected to be exhausted in WMATA's FY 2024 operating budget. WMATA is not the only major rail transit system experiencing a slow return of ridership and farebox revenues, transit systems across the United States are faced with difficult decisions, including service cuts, to close anticipated budget gaps at a critical time for ridership recovery.

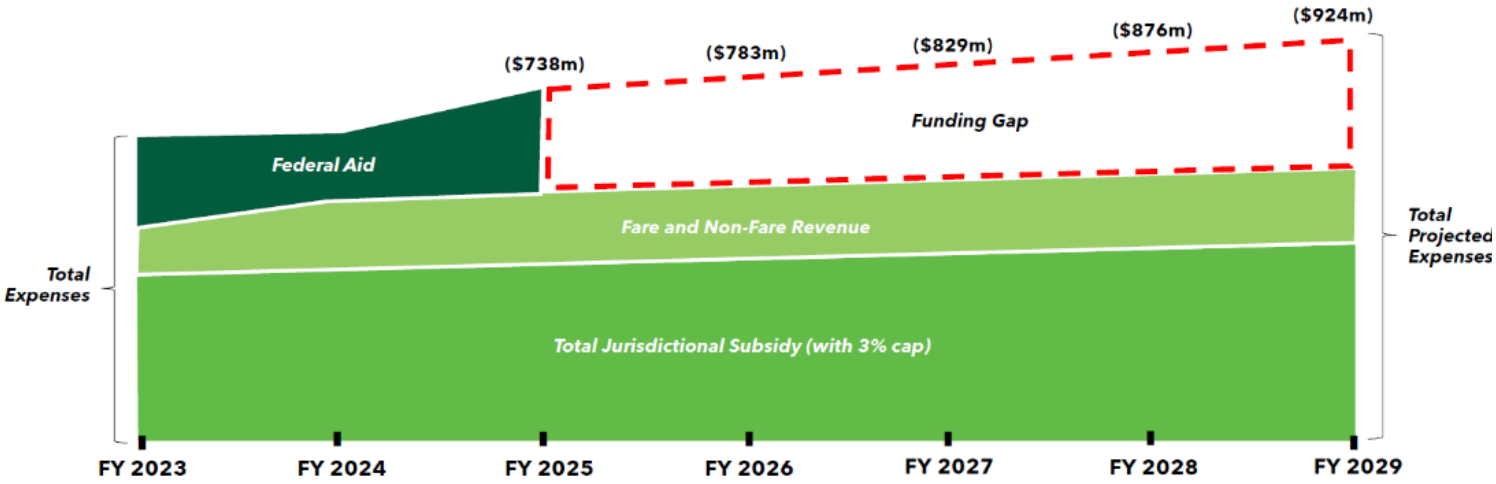
WMATA's FY 2024 operating funding gap

In FY 2024, WMATA will see a significant increase in expenses, primarily due to increasing costs and contractually obligated wage increases related to inflation. On the revenue side, ridership and revenues are expected to continue a gradual recovery (but not to pre-pandemic levels) and jurisdictional annual subsidy growth is constrained by the legislative 3% caps in Virginia and Maryland. This leaves an operating budget funding gap of approximately $184.7 million – which will largely have to be met through a combination of passenger and non-passenger revenue increases, fare increases, expense reductions, service reductions and shifting some operating expenses to the capital program for preventive maintenance.[3] By the time this report is published, the WMATA Board will have begun work sessions to further explore these issues in order to approve a budget in Spring 2023. The WMATA Compact requires that the WMATA Board adopt a balanced budget.[4]

WMATA's FY 2025 (and beyond) operating funding gaps

While the FY 2024 gap will be challenging, the operating budget still benefits from federal COVID aid, which will not be available in the FY 2025 budget. Assuming a limited long-term ridership recovery, WMATA currently projects the FY 2025 operating budget gap at $738 million which grows to $924 million by FY 2029 (Figure 2).[5] This long-term operating funding gap is partially due to slow ridership recovery, but it would persist with a moderately smaller gap even if ridership recovered to 100% of pre-pandemic levels. These long-term operating gaps are the result of structural challenges to WMATA's operating budget which have been accelerated by the pandemic. Federal aid has acted as a temporary stopgap, and these multi-year operating gaps will necessitate some difficult choices about how to balance expenses and revenues while maintaining momentum on a slow but steady ridership recovery.

Figure 2: WMATA's Long-Term Budget Outlook



Source: WMATA Finance and Capital Committee Meeting September 2022

WMATA's structural operating challenges

The passage of the landmark 2018 transit omnibus legislation in Virginia (and mirrored in Maryland and the District) created dedicated capital funding for WMATA and has provided the means to accelerate the capital program to address the state of good repair backlog.[6] While capital funding is currently on stable footing, WMATA's long-term operating financial model faces immediate challenges in its customer revenue structure, cost structure and subsidy structure - structural challenges which have all been accelerated by the pandemic.[7]

Customer revenue structure

In FY 2011, Metrorail had a farebox recovery of 70.2% that dropped to 51.6% in FY 2019. Metrobus had a similar decline, from 26.6% in FY 2011 to 18.7% in FY 2019.[8] [9] WMATA's pre-pandemic financial model was based on high farebox recovery on Metrorail which was itself based on collecting higher peak fares from long-distance commuters. WMATA's pre-pandemic FY 2021 budget assumed that 81% of a total $677.8 million in fare revenue was generated by Metrorail, 64% of which was estimated to come from Metrorail peak fares.[10] This financial model was gradually challenged during the 2010s as low gas prices, gradual increases to telework, fare evasion, the subsidized rise of transportation network companies like Uber and Lyft and Metrorail service reliability issues from deferred maintenance caused declines in ridership.[11] Benefiting from years of state of good repair investments, made possible by dedicated capital funding, Metrorail showed a ridership rebound in early 2020 that was cut short by the onset of the pandemic.[12]

Fare and parking revenues plummeted during the pandemic and have begun a slow and uneven recovery. WMATA's ridership and revenue profile in June 2020 showed a smaller share of ridership and revenue from long-distance and peak hour Metrorail trips when compared to pre-pandemic travel.[13] Teleworking, which was slowly increasing prior to the pandemic, now shapes commuting patterns. In the Washington region, teleworkers and professionals who work a compressed schedule rose from 10% in 2019 to 48% in 2022. Of returned riders, WMATA takes in less revenue than it previously did per ride. This is in part due to increasing fare evasion across the system, which is most notable in the District where fare evasion accounts for 42% of trips on Metrobus.[14]

Cost structure

Given the diverse array of available transportation options in Northern Virginia, customers and the community expect a high level of transit service. As a result, transit is a very labor-intensive operation and approximately 70% of WMATA's operating expenses are related to personnel. For context, in 2021 WMATA had 12,664 authorized positions, approximately 79% of which are covered by a collective bargaining unit.[15] At peak service, WMATA operates 991 buses, 720 MetroAccess vehicles and 998 railcars.[16]

On the expense side, WMATA's structural operating challenges are driven by inflation, contractually obligated and inflation-linked wage increases, substantial unfunded legacy commitments on pensions (net pension liability of $142.6 million in FY 2021) and other post-employment benefits (net OPEB liability of $2.2 billion in FY 2021) and high MetroAccess costs.[17] For FY 2023, the largest multi-year collective bargaining agreements include 2.5% wage increases, with additional increases tied to the rate of inflation as measured by the Consumer Price Index (CPI) each May.

Subsidy structure

WMATA has no dedicated operating revenues and relies on its funding jurisdictions to pay operating subsidies on an annual basis. High annual percentage increases in jurisdictional operating subsidies are unsustainable for Virginia jurisdictions to maintain as they are reliant on a limited number of fiscal tools and have many competing priorities as local governments. Between FY 2011 and FY 2019, increases in jurisdictional operating subsidies averaged approximately 10% per year for Virginia.[18] Most of the jurisdictional operating subsidy increases during this decade were to offset declining farebox recovery rates for Metrorail while maintaining service levels and bringing Silver Line Phase 1 online. Year-over-year, this structural disconnect was managed in the budget process via increased jurisdictional subsidy, fare increases, minor service reductions and management actions to find cost savings.

Since the implementation of the 3% cap on operating subsidies (which includes specific legislative exclusions), jurisdictional operating subsidy increases have been much more modest.[19] However, these fiscal year operating budgets were buoyed by significant pre-pandemic fare revenues and/or federal COVID aid. The 3% cap on the annual growth in operating subsidies simultaneously limits WMATA's ability to increase jurisdictional subsidies and protects our jurisdictions from subsidy increases they cannot afford. However, in the context of the larger structural challenges at play in the operating budget, it is one factor in the current fiscally unsustainable path forward.

<u>WMATA's post-pandemic future</u>

The COVID-19 pandemic accelerated teleworking trends and altered regional and commuting travel patterns in an unprecedented manner. WMATA has taken several immediate steps to re-align its services with post-pandemic travel patterns on Metrorail and Metrobus:

1) Established a frequent all-day Metrorail service plan, adopting rail service standards that set minimum train frequencies at 12 minutes for most lines (seven days a week from opening to 9:30 p.m.), with flexibility to increase frequencies during peak hours.[20]

2) Implemented a frequent Metrobus network of 12-minute headways on 20 lines and 20-minute headways on 16 lines from 7:00 a.m. to 9:00 p.m., seven days a week.

3) Started the multi-year Bus Network Redesign, which will collaboratively redesign the Metrobus, Fairfax City CUE, and Prince George's County bus networks – in coordination with other local transit providers - to be more efficient and customer friendly. This effort, like the network redesign of Richmond's bus network in 2018 and Alexandria's DASH in 2021, will better align service with travel patterns and realign the bus network to respond to post-pandemic travel patterns.

With new leadership and the gradual restoration of 7000-series trains to the Metrorail system, WMATA has the momentum to bring back riders and serve new customers along the Silver Line Phase 2 in Loudoun and Fairfax Counties and the Potomac Yard Station in Alexandria. WMATA is an essential driver of the region's prosperity, mobility, land use and economic growth, but the pandemic has accelerated structural trends present in WMATA's operating financial model to reach an inflection point over the next two years. Barring any additional federal operating support, the next two years will be critical in establishing what the WMATA of the future will look like, how

it will operate service and how it will be funded. NVTC looks forward to working with our jurisdictions, our partners in the General Assembly and the Youngkin Administration.

Safety, Reliability, Financial and Ridership Performance Data

A large portion of this report is dedicated to tracking the key safety, reliability, financial and ridership metrics shown in chapters 3-5. Data included in the report (Table 1) come from the National Transit Database (NTD) and WMATA Metro Performance Reports (MPR). Some data points have a lag of 12 to 18 months, meaning that for this report all current data sources will cover some time period that reflects the impacts of the COVID-19 pandemic, with some data sources covering more than others. The pandemic has impacted each metric in different ways which will be further discussed in chapters 3-5.

Table 1: Data Sources and Years Presented in this Report

Report Category	Latest Year for which Data is Publicly Available	Data Source
Safety	Calendar Year 2021 *(January 1, 2021 to December 30, 2021)*	NTD
Reliability	Fiscal Year 2022 *(July 1, 2021 to June 30, 2022)*	MPR
Financial Performance	Fiscal Year 2021 *(July 1, 2020 to June 30, 2021)*	NTD
Ridership	Fiscal Year 2021 *(July 1, 2020 to June 30, 2021)*	NTD

Legislative Requirement for this Report

This report fulfills the requirements of §33.2-3402 of the Code of Virginia, pursuant to Chapter 854 of the 2018 Virginia Acts of Assembly, specifying that NVTC report annually on the performance and condition of WMATA, for both Metrorail and Metrobus. Per statute, the report addresses six elements:

- Potential strategies to reduce the growth in costs and to improve the efficiency of WMATA operations
- Use of the dedicated capital funds authorized by the legislation to improve the safety and condition of the rapid heavy rail mass transportation system
- The safety and reliability of the rapid heavy rail mass transportation system and bus network
- The financial performance of WMATA related to the operations of the rapid heavy rail mass transportation system, including farebox recovery, service per rider and cost per service hour
- The financial performance of WMATA related to the operations of the bus mass transportation system, including farebox recovery, service per rider and cost per service hour
- Ridership of the rapid heavy rail mass transportation system and the bus mass transportation system

1. Strategies to Reduce the Growth in Costs and Improve Operational Efficiencies

This chapter offers policy recommendations that will help to reduce the growth in costs and improve operational efficiencies at WMATA, as directed by Virginia code. These strategies are generally aimed at either controlling expenses and/or boosting revenues, mostly through increased ridership. New to this year's report are two recommendations for NVTC, which are uniquely suited to the Commission's policy, funding and coordination role. These efforts could result in strategies directed at WMATA in future reports.

Strategy 1: WMATA should rebuild customer confidence

Continue the return of the 7000-series railcars to service and offer frequent and reliable rail service

Increasing ridership and revenue are dependent on WMATA's efforts to rebuild trust with riders and this starts with continuing the return of the 7000-series railcars to service and providing frequent and reliable rail service. Since the Blue Line derailment in October 2021, riders have been faced with greatly reduced service and declines in on-time performance and reliability, resulting in a drop in customer satisfaction. While efforts to restore 7000-series railcars are underway and showing positive momentum, Northern Virginia riders have experienced over a year of long waits between trains, all while offices started to implement their return to office plans and residents were eager to attend regional events. Restoring frequent and reliable rail service will rebuild rider confidence and attract new and returning riders.

Improve the physical safety and security of customers

Customers should feel safe on Metro. Rising crime, perceptions of crime and misconduct in and around our region is spilling onto Metrorail and Metrobus systems, deterring current and potential riders. Crimes against persons are higher than pre-pandemic levels and parallel with trends seen regionally and nationally, causing concerns for employees and riders.[21] WMATA should continue to enhance its safety and security efforts to engage the community, target enforcement efforts and increase police visibility on buses and trains and in stations.[22] [23]Another element related to improving the physical safety and security of riders is enforcing fare payment, which is detailed further in Strategy #2.

Reform the management and safety culture

In 2022, WMATA faced safety and management challenges including the restoration of the 7000-series railcars, lack of train operator recertification and unsafe third rail power operations.[24] [25] As a result of these setbacks, there is a broad lack of confidence that WMATA fosters an organization-wide safety culture. WMATA's own internal investigation into the lack of train operator certification found that WMATA's "independent oversight of the training and certification functions was immature" and that decisions were made within certain parts of the organization that were not shared more broadly.[26] With a new General Manager hired by the WMATA Board of Directors, WMATA needs to show real, sustained progress on overhauling WMATA's management and safety cultures.

Strategy 2: WMATA should enforce fare payment uniformly across the system

Work with partner jurisdictions to enforce fare payment to address customer safety and security

Riders who came back to WMATA in 2022 found a system that is less safe and secure than what they experienced pre-pandemic. When comparing the first two quarters of FY 2021 to the same time period in FY 2022, employee injuries due to stress and assault tripled. Seventy frontline staff were threatened or assaulted and over 30 more witnessed violence or a shooting.[27] Crimes against persons are higher than pre-pandemic levels and parallel with trends seen regionally and nationally, causing concerns for employees and riders.[28] The Metro Transit Police Department (MTPD), not bus operators or station managers, are responsible for enforcing fare payment, and MTPD must follow the fare evasion laws of each respective state or local government within which they operate. These laws vary from a civil or a criminal offense in Virginia and Maryland jurisdictions, depending on the city or county. In Washington, D.C., fare evasion was a criminal offense until the District decriminalized fare evasion to a civil offense in 2019. After nearly four years, the District only recently created an adjudication process to allow MTPD to enforce fare evasion as a civil fine. On October 4, WMATA announced the launch of a warning campaign aimed at deterring fare evasion, with enforcement efforts that began in November. [29]

This uneven enforcement shows up in the data. Estimates prior to the coronavirus pandemic show that for Metrobus systemwide, fare evasion was 17% in the first and second quarters of FY 2020 (pre-pandemic) and 34% in the first and second quarters of FY 2022.[30] The distribution of this increase is extremely uneven, with the District increasing from 22% to 42%, Maryland increasing from 16% to 34% and Virginia increasing from 2% to 6% during the same time period.[31] New faregates are capable of recording occurrences of fare evasion, and NVTC encourages WMATA to release their findings as soon as possible. WMATA is also piloting faregate designs that better deter fare evasion. WMATA conservatively estimates revenue losses due to fare evasion totaling $40 million in FY 2022.[32] Enforcing fare payment is critical to creating a safe, secure and financially sustainable transit system.

Engage partner jurisdictions to offer jurisdictionally sponsored low-income fare products

For riders who may be unable to afford their transit fare, funding jurisdictions have the option to enter into fare buy-down agreements with WMATA to provide a fare subsidy to specific groups of riders.[33] The District uses this model to offer free transit to all students who sign up for the DC Kids Ride Free Program, and Montgomery County and Fairfax County also offer similar programs to eligible students.[34] [35]Arlington County has a similar program for students to ride free on Arlington Transit, while the City of Alexandria and City of Fairfax are paying for fare free service for all riders on DASH and CUE. The District has also started a low-income fare pilot that offers fare subsidies to low-income riders.[36] Successful implementation of fare buy-down agreements, however, relies on riders tapping their cards when riding transit to secure accurate faregate ridership data. This is critical to ensuring that these programs are being appropriately billed to the sponsoring jurisdiction and that WMATA is accurately counting and submitting its ridership statistics to the FTA, which is an important factor in how much federal funding WMATA receives. WMATA should continue to engage its jurisdictional partners to conduct education and outreach on these programs and the importance of properly using subsidized fare media.

Strategy 3: WMATA should implement a simple and convenient Metrorail fare structure

Overhaul the fare structure and customer experience to be simple, customer-focused and built to drive ridership and revenue

WMATA should explore a flat or zone-based fare system to attract new riders and new types of riders in a changing transportation landscape. In 2021 and 2022, WMATA instituted a weekend rail and late-night (after 9:30 p.m.) flat rail fare of $2 and implemented free transfers between Metrobus and Metrorail.[37] The enactment of the $2 weekend and late-night flat fare provided a simple fare structure to attract riders back to the system and serve changing travel patterns; however, they required budgetary offsets to mitigate the lost revenue from enacting these fare discounts. While pursuing this strategy, WMATA must balance fare simplification with the need to generate enough fare revenue to maintain services.

Metrorail offers a distance-based fare system with rates that vary based on the day of the week and time of day. Fares range from $2.25 to $6.00 and from $2.00 to $3.85 during peak and off-peak hours, respectively.[38] This structure creates a confusingly large number of fare combinations, depending on which stations a rider is traveling to and from, and the time of day. While confusing, this fare structure historically created high levels of farebox recovery, as many long-distance riders have transit benefits through their employers (which is often the federal government). However, changing travel patterns and a significantly higher amount of telework during post-pandemic recovery severely undermines this model. In the Washington region, teleworkers and professionals who work a compressed work schedule rose from 10% in 2019 to 48% in 2022.[39]

Create a seamless and convenient customer experience that makes it easy to pay fares and manage transit benefits

In order for a new fare structure to be successful and drive ridership and revenue, it must be customer-friendly and seamless. As employees return to the office and come back to transit, WMATA should make their return as easy as possible, including how they receive and manage their transit benefits. Prior to the pandemic, 48% of riders were federal employees on an average weekday.[40] Making fare payment as frictionless as possible for all types of riders, including those using transit benefits and passes, is critical to bringing back ridership.

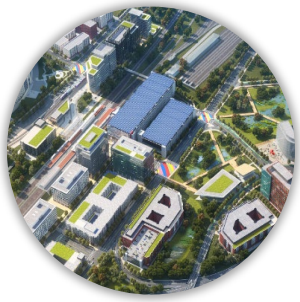
Integrate local and regional transit providers into WMATA's fare structure and fare payment systems

Beyond WMATA, all transit service providers in Northern Virginia are part of the regional fare collection SmarTrip system, except Virginia Railway Express (VRE), the Commonwealth's only commuter rail system. Riders, however, are agnostic to providers and WMATA should accelerate its efforts at creating revenue agreements and the appropriate fare policy infrastructure to integrate VRE (and MARC in Maryland) into a fully integrated fare and pass system.

Strategy 4: WMATA should continue to increase non-fare revenues from real estate and advertising

Continue to partner with local jurisdictions and maximize the transformative opportunities for joint development on WMATA land

Transit agencies across the U.S. rely on a host of funding sources to manage their operating budgets. Non-fare revenues are one of the tools used by transit agencies to increase revenues and make the system more efficient. In FY 2023, non-fare revenues were budgeted to account for 4% of operating expenses and totaled $81.4 million.[41] Non-fare revenue for WMATA includes joint development, advertising, parking, fiber optics and property leases. WMATA's joint development program involves private real estate development on WMATA owned property in conjunction with the construction and/or modernization of public transit facilities. The joint development program delivers valuable benefits such as increased ridership, new revenue from fares and real estate proceeds. New housing and business opportunities near transit generate new state and local taxes on formerly undeveloped and tax-exempt land. Since 1975, WMATA has completed 55 joint development projects on 17 million square feet of mixed-use development that generate $194 million in annual state and local tax revenue and close to five million additional Metro trips annually.[42] Completed joint development projects accumulate between $8-11 million in annual lease revenue to WMATA.[43]



In April of 2022, WMATA released its 10-Year Strategic Plan for Joint Development which seeks to implement 20 new joint development agreements by 2032.[44] The 10-year plan seeks to accelerate development that generates new Metro ridership and revenues, prioritizes Metro planning and investments, aligns WMATA and jurisdictional interests and attracts private sector investment. It is estimated that future joint development will produce 9 million new annual Metro trips, $40 million in new annual Metro fares and $50 million in new potential annual lease revenue.[45] WMATA should continue to partner with local jurisdictions and maximize the transformative opportunities for joint development on WMATA owned land.

Strategy 5: WMATA should seek to manage labor costs

Manage labor cost escalation in collective bargaining

Personnel costs account for 68% of WMATA's operating expenses.[46] Most WMATA employees are unionized and covered by a collective bargaining agreement (CBA). Collective bargaining agreements set forth the wage increases, benefits and other employment conditions with that specific bargaining unit. For FY 2023, the largest multi-year collective bargaining agreements include 2.5% wage increases, with additional increases tied to the rate of inflation as measured by the Consumer Price Index (CPI) each May. High levels of inflation required WMATA to amend the FY 2022 operating budget to account for an additional $20.9 million in wage increases beyond what was budgeted.[47] This increase was offset by using additional federal aid, which reduced WMATA's ability to manage future operating budget gaps.

Seek amendments to the National Capital Area Interest Arbitration Standard Act (Wolf Act) of 1995

Collective bargaining agreements (CBA) are negotiated between management and labor, and if both parties agree, the result is called a negotiated CBA. If both sides cannot agree, then the WMATA Compact calls for both parties to enter binding arbitration, where, if negotiations continue at an impasse, an arbitration panel will determine the outcome.[48]

The Wolf Act governs the actions of arbiters in the arbitration of labor disputes involving transit agencies operating in the national capital area.[49] WMATA has found that in prior cases the arbiter has not adequately considered WMATA's financial capacity and the ability of the jurisdictions to pay. Amending the Wolf Act to tighten these provisions to require consideration of WMATA's financial capacity and the ability of the jurisdictions to pay as part of the arbitration process is an important component of resolving the long-term structural operating gap that WMATA faces.

Strategy 6: NVTC should explore the implications of local transit agencies assuming the operation of Metrobus services in Northern Virginia

Identify the challenges and opportunities of local transit agencies assuming the operation of Metrobus services in Northern Virginia

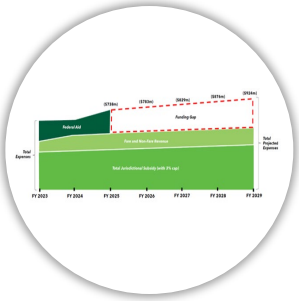
Five local transit operators (DASH, ART, CUE, Loudoun County Transit and Fairfax Connector) and Metrobus provide local bus service in the Northern Virginia Transportation District.[50] Local transit operators provide 62% of all local transit service in Northern Virginia[51] and each jurisdiction balances local and Metrobus service in different ways. Some jurisdictions, like Loudoun County, have no Metrobus service and rely on their local operator, while others, like the City of Falls Church, do not have a local operator and rely on Metrobus. The remaining NVTC jurisdictions fall somewhere in between. Over the last 10-20 years, Virginia has typically added transit service through local bus operators and/or through service takeovers from Metrobus, resulting in a steady increase in the overall share of local transit provided by Northern Virginia operators.

While the amount of local transit service provided in Northern Virginia has increased over time, the amount of Metrobus service provided to Virginia has decreased from FY 2016 to FY 2023. Historically, the amount of Metrobus service provided across the region has been largely stable, but the distribution of this service has shifted away from Virginia over time as service patterns have been changed to respond to post-pandemic travel patterns. The results of WMATA's Bus Network Redesign in late 2023 will inform the future direction of the allocation of Metrobus service within Virginia, Washington, D.C. and Maryland.[52]

With local transit agencies assuming the operation of Metrobus services, WMATA can reduce expenses while the jurisdictions could see reduced operating subsidies. Such a direction, however, may generate a host of intended or unintended policy implications that must be considered and explored. NVTC staff should evaluate the policy, funding, capital facility, governance, labor and other considerations of Northern Virginia local transit agencies assuming the operation of Metrobus services in Northern Virginia. The results of such an effort would help jurisdictions and NVTC chart a course on the role of Metrobus and local transit operators in Northern Virginia.

Strategy 7: NVTC should examine and develop options for a new financial operating model for WMATA

Evaluate WMATA's short-term and structural operating budget gaps within the context of Virginia's unique jurisdictional funding and modal relationship with WMATA



The pandemic has accelerated a structural disconnect between expense and revenue growth that was present before the pandemic. With a loss of fare and non-fare revenues due to the pandemic, federal COVID aid has balanced the operating budget since FY 2020 and will continue to be available until the FY 2024 budget, where it will only cover some of the operating funding gap. The FY 2024 operating budget funding gap of $184.7 million will entail some difficult decisions to resolve, which may involve service reductions. The gap grows to $738 million in FY 2025, and this magnitude of a funding gap would entail severe reductions to bus and rail service. These service reductions would be during a critical period in WMATA's recovery and are potentially devastating to ridership recovery and the economic health of Northern Virginia.

WMATA's pre-pandemic financial model, relying on high farebox recovery from peak-period, long-distance commuters, is gone, and WMATA, Virginia and the region must develop a new model and a sustainable approach to aligning WMATA's expense and revenues. Riders want frequent and reliable, high quality transit service that meets their needs in a competitive transportation landscape. NVTC wants WMATA to succeed given its role in mobility, congestion relief and economic development. The funding jurisdictions also need to be protected against unsustainable subsidy increases that cannot be maintained through existing general fund revenues. Given the complicated governance and funding relationship Virginia has with WMATA, NVTC will begin this conversation with the creation of a WMATA Operating Funding and Reform Working Group comprised of jurisdictional and DRPT staff experts and key stakeholders.

Examine existing and new operating revenues

The NVTC WMATA Operating Funding and Reform Working Group would examine how to align expenses with revenues at WMATA with a focus on existing and new revenue sources. As the operating budget continues to face long-term challenges, WMATA and the funding jurisdictions should look to develop a new financial operating model including the creation of a new stable funding stream to sustain the system. Local jurisdictions are reliant primarily on property taxes for generating local revenues, and they cannot sustain significant year-over-year subsidy increases.

Explore opportunities to reform WMATA policies and state and federal laws or policies around WMATA budget and subsidy

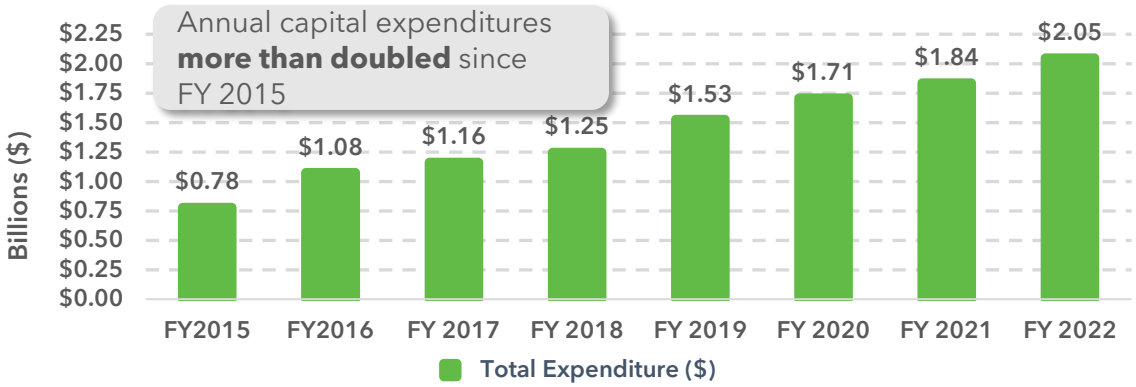
The NVTC WMATA Operating Funding and Reform Working Group would evaluate all related WMATA policies and state and federal laws or policies related to the WMATA budget, subsidy process and broader funding model. At the state level, this may include the 3% cap on the annual growth in operating subsidy and associated Commonwealth Transportation Board (CTB) policies. At WMATA, this may include the way Metrobus subsidies are allocated and how WMATA implements the 3% cap on the annual growth in operating subsidy. At the federal level, it may include federal support (directly or indirectly) for transit operations, most notably the role of transit benefits and the federal workforce.

2. Use of Dedicated Capital Funds

In 2018, the Commonwealth of Virginia, the State of Maryland and the District of Columbia worked together to commit $500 million a year in dedicated funding for capital investments at WMATA. Virginia's annual portion of this dedicated capital funding is approximately $154 million, with the District of Columbia and State of Maryland providing the remaining portions. This dedicated capital funding strengthens WMATA's ability to embark on large, multi-year capital investments designed to address significant state of good repair needs. Virginia's dedicated capital funding supports WMATA's capital investments and project delivery across the system and can be used for any capital purpose. Of the $154 million from Virginia, approximately $124.5 million per year is bondable.

Prior to securing dedicated capital funding, WMATA's state of good repair backlog was estimated at $7.1 billion in 2016. By FY 2019, WMATA's state of good repair backlog was estimated at approximately $5 billion, and if sufficient funding is made available could be reduced to $1.2 billion by FY 2032.[53] In FY 2015, WMATA spent $780 million on its capital program. Over the last seven years, WMATA has ramped up its annual capital expenditures to address this backlog and other modernization needs. With a sustained focus on capital renewal made possible by the ability to issue bonds backed by dedicated capital funding, WMATA has more than doubled its capital expenditures to a record high $2.05 billion in FY 2022 (Figure 1). Since the funding's inception, WMATA has authorized over $1.4 billion in dedicated capital funding bonds, which will be paid for with future dedicated capital funding revenues. Dedicated capital funding will continue to support the capital program in the upcoming FY 2024 to FY 2029 CIP, during which time WMATA will reevaluate the continuing availability of dedicated capital funding as a source for debt service.

Figure 1: WMATA Annual Capital Expenditures from FY 2015 to FY 2022



Source: WMATA FY 2015-2022 financial reports

WMATA uses several sources to fund its capital program including federal funding, regional dedicated funding, state and local contributions and other sources. As required by law, NVTC must include the uses of funds from the WMATA Capital Fund (Virginia's dedicated capital funding) from the prior fiscal year in this report. Table 2 shows the actual expenditures of the fund for FY 2022 by Capital Improvement Plan (CIP) Program Area. WMATA provides additional information on progress made in the overall capital program during FY 2022 in WMATA's Quarter 4 FY 2022 Capital Improvement Program Progress Report.[54]

Table 2: FY 2022 Expenditures from the Virginia WMATA Capital Fund by CIP Program

CIP Category	CIP Program	FY 2022 Actual Expenditures (millions)
Railcar Investments	Railcar Acquisition	$10.85
	Railcar Maintenance/Overhaul	$13.19
	Railcar Maintenance Facilities	$4.45
	Total	**$31.31**
Rail Systems Investments	Power	$7.42
	Signals & Communication	$10.49
	Total	**$17.91**
Track and Structures Rehabilitation Improvements	Fixed Rail	$9.98
	Structures	$15.81
	Total	**$25.79**
Stations and Passenger Facilities Investments	Platforms & Structures	$6.18
	Vertical Transportation	$2.85
	Station Systems	$27.28
	Total	**$36.30**
Bus and Paratransit Investments	Bus and Paratransit Acquisition	$1.19
	Bus Maintenance/Overhaul	$4.80
	Bus Maintenance Facilities	$2.13
	Bus Passenger Facilities/Investments	$2.89
	Total	**$11.01**
Business Support Investments	Information Technology	$13.23
	Metro Transit Police Department	$0.34
	Support Equipment/Services	$10.86
	Total	**$24.44**
Total Capital Programs		**$146.76**

Source: WMATA [55]

Note: Totals may not add due to rounding. Due to the timing of the publication of this report, these expenditures are preliminary and do not represent final audited expenditures. Approximately $6.8 million of debt service is obligated against this funding source but has not yet been recognized in Metro's accounting system. When this amount is added to the expenditures through June 30, 2022 approximately $153.6 million has been spent of the $154.5 million Virginia dedicated capital funding contribution.

In FY 2022, WMATA invested more than $2 billion in capital projects with a priority to invest in state of good repair projects. Significant FY 2022 capital accomplishments included:

Near completion of platform rehabilitation program

As of June 30, 2022, the four-year Platform Improvement Project was nearly complete with 17 outdoor stations rehabilitated and improved. In the first quarter of FY 2023, all 20 stations will be substantially completed, 11 of which were in Virginia. In FY 2022, WMATA also rehabilitated 6 elevators and 21 escalators and completely replaced 17 escalators.

CIP program category: Stations and Passenger Facilities Investments

Increased Metrobus fleet reliability

In FY 2022, WMATA acquired 119 new clean diesel 40-ft buses, completed 83 bus rehabilitations and rebuilt 230 fareboxes, 99 transmission assemblies and 65 engine assemblies. Metrobus fleet reliability has been above target for FY 2021 and FY 2022. [56]

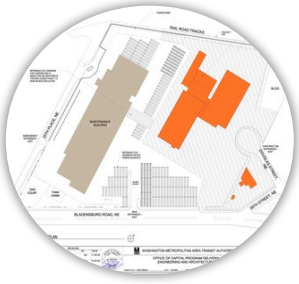
CIP program category: Bus and Paratransit Investments

Launched tunnel ventilation improvements pilot

WMATA began construction of mezzanine platforms over Metrorail tracks on the Red Line to support upgraded ventilation fans and electrical systems, which will increase station and tunnel safety in the event of a smoke or fire emergency. This pilot project and results will be used to inform designs for potential future tunnel ventilation improvements across the Metrorail system.

CIP program category: Track and structures rehabilitation

Advanced bus garage modernization program



WMATA is aggressively reconstructing and upgrading bus facilities. The Bladensburg bus maintenance and operations facility has advanced through demolition activities and will begin construction in FY 2023. When completed, the facility will accommodate up to 300 buses with capabilities to support electric vehicle charging infrastructure and equipment. Pre-construction activities have advanced at the Northern Bus Garage Facility, which will be rebuilt to accommodate up to 150 buses and will support electric bus operations and maintenance.

CIP program category: Bus and paratransit investments

Upgraded power and automatic train control systems

In FY 2022, WMATA completed the Rosslyn cable tray replacement and installation of additional switchgear equipment. This work will facilitate operation of more eight-car trains in passenger service, reduce potential speed restrictions and reduce the risk of safety incidents. The major replacement work of the Alexandria Yard Automatic Train Control (ATC) system was also completed. This system helps with the automatic control of train speed and spacing.

CIP program category: Rail systems investments

Addressed high priority track rehabilitation work

Using planned shutdowns and other forms of track availability, WMATA rehabilitated structural components, deck joints, concrete and grout pads that support the track structure, as well as replaced illegible roadway track signs, repaired leaks, rehabilitated drains and cleaned track beds. WMATA addressed structural issues at Minnesota Avenue aerial structure, the Grosvenor aerial structure, and at eight segmental bridges. The Yellow Line Tunnel and Bridge Rehabilitation project was awarded in Q4 2022 and will address the structural degradation of the Yellow Line tunnel and bridge.

CIP program category: Track and structures rehabilitation investments

Opened new headquarters at L'Enfant Plaza

In FY 2022, WMATA began use of its new headquarters in Washington, D.C. Completion of the Virginia and Maryland offices is expected in FY 2023 as part of the Office Consolidation Strategy. This will allow WMATA to downsize from ten office buildings to four, reducing operating expenses and improving operations.

CIP program category: Business and operations support investments

Continued railcar fleet rehabilitation and acquisition

Throughout FY 2022, WMATA rehabilitated two 2000-series, 52 3000-series and 28 6000-series railcars as part of its rail vehicle maintenance program. The investigation of the 7000-series wheelsets continued in FY 2022, and WMATA resumed work on other components of 7000-series railcar maintenance. WMATA also installed eight railcar training simulators and advanced conceptual design work on the 8000-series railcars, which will replace the aging 2000 and 3000-series railcars.

CIP program category: Railcar and railcar facilities investments

3. Safety and Reliability

Documentation of the safety and reliability of Metrorail and Metrobus is required by §33.2-3402 of the Code of Virginia, pursuant to Chapter 854 of the 2018 Virginia Acts of Assembly. Safety data are collected by each individual transit agency and reported to the National Transit Database (NTD) which provides common definitions, reporting definitions and has a robust data quality assurance and auditing process. Reliability data are collected and reported by each individual transit agency and reliability data in this report are from the FY 2022 Metro Performance Report.[57]

Safety

Transit systems seek to minimize the frequency of all safety events. The Safety & Security (S&S) Time Series present safety and security data reported to NTD, through the S&S-40 form (Major events) and the S&S-50 form (Non-Major events). NTD measures transit safety by summarizing the total occurrences, Major and Non-Major, of certain safety events for rail and bus operations that include collisions, derailments (for rail only), fatalities,[58] fire, injuries[59] and security events.[60]

The NTD provides safety data on a calendar year basis, unlike all other data presented in this report which is reported on a fiscal year basis. The counts represented in Table 3 and Table 4 are total counts for each category from when they were accessed from NTD. This time series data is subject to a validation process and current and previous years' data may be revised by transit agencies based upon additional data on its operations or upon request by NTD analysts.[61] The following tables show the data as it was accessed in August 2022 and may show slightly different results for past calendar years as shown in previous NVTC reports. It is important to note that safety data provided in this section includes 2020 and 2021, both of which reflect ridership and service impacts due to the COVID-19 pandemic.

Table 3 summarizes the total count of each type of Metrorail safety event for calendar years 2017, 2018, 2019, 2020 and 2021.

Table 3: Metrorail Safety

NTD Category	Safety Event	Count, CY 2018	Count, CY 2019	Count, CY 2020	Count, CY 2021
Events	Collision	14	12	10	9
	Derailment	6	2	2	4
	Security Event	52	78	49	70
	Fire	65	71	39	43
Fatalities[62]	Fatality	6	8	6	6
Injuries	Injury	350	389	188	205

Source: WMATA NTD Report, Form S&S-40 (Collision, Derailment and Security Event) and S&S-50 (Fire, Fatality and Injury).[63] Accessed August 30, 2022.

Table 4 summarizes the total count of each Metrobus safety event for calendar years 2017, 2018, 2019, 2020, and 2021.

Table 4: Metrobus Safety

NTD Category	Safety Event	Count, CY 2018	Count, CY 2019	Count, CY 2020	Count, CY 2021
Events	Collision	210	203	98	137
	Derailment	N/A	N/A	N/A	N/A
	Security Event	51	59	31	36
	Fire	1	4	1	4
Fatalities[64]	Fatality	0	0	1	6
Injuries	Injury	538	535	238	330

Source: WMATA NTD Report, Form S&S-40 (Collision, Derailment and Security Event) and S&S-50 (Fire, Fatality and Injury).[65] *Accessed August 30, 2022.*

Reliability

The reliability of a transit system may be measured by its punctuality and equipment dependability. Reliability metrics used by WMATA include:

1. **On-time performance (OTP)** is the rate at which a transit system carries passengers to their destination on time and is used to evaluate the timeliness of travel for both rail and bus operations.

2. **Mean distance between delays (MDBD)** is the average number of miles that are traveled between failures that delay rail service by four or more minutes. MDBD indicates the reliability of the railcar used to transport passengers.[66]

3. **Mean distance between failures (MDBF)** is the average number of miles that are traveled before a mechanical breakdown causes the bus to be removed from service during a trip or before the start of its next scheduled trip.[67]

Reliability data is obtained from the annual Metro Performance Reports, produced by WMATA, which report data on a fiscal year basis. The data included in this report is for fiscal years 2019, 2020, 2021 and 2022 and covers the entire relevant fiscal year (from July 1 to June 30 of that respective fiscal year) unless otherwise noted.

On-Time Performance

On-time performance (OTP) is reported for fiscal years 2019, 2020, 2021 and 2022. OTP is measured differently for Metrorail and Metrobus.

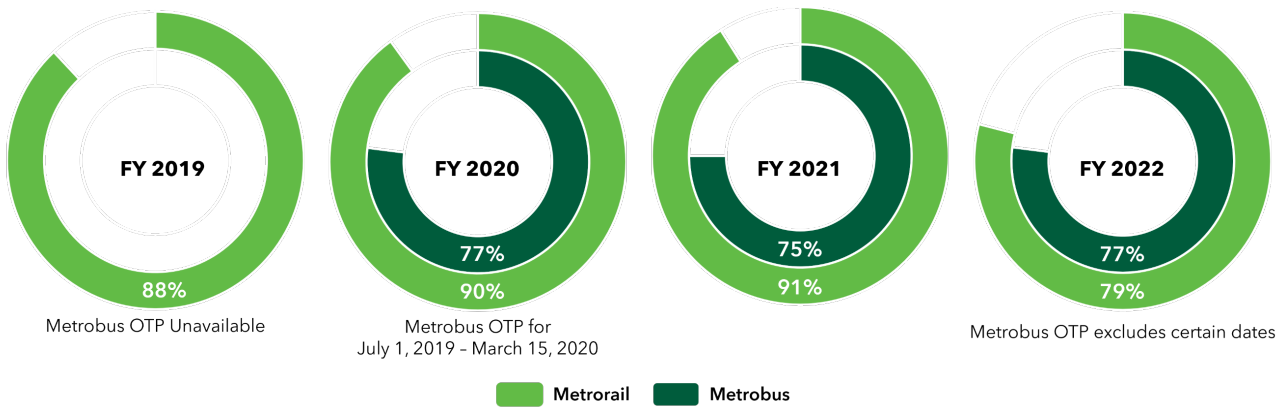
Metrorail customer OTP measures the percentage of customers who complete their journey within the maximum amount of time it should take per WMATA service standards. These standards vary by line, time of day and day of the week, and are informed by a customer's entry and exit from the system. Additional information on how this is measured is contained in the appendix.[68] Figure 2

summarizes Metrorail OTP in FY 2019, FY 2020, FY 2021 and FY 2022. Following the October 2021 derailment and removal of 7000-series trains from service, WMATA saw a decrease in Metrorail OTP from 91% in FY 2021 to 79% in FY 2022. Wait times were doubled as Metrorail service was cut in half, although on-time performance improved in February 2022 with increased service frequency as some of the 7000-series fleet was restored to service.

Metrobus OTP data is schedule and headway-based for FY 2020, FY 2021 and FY 2022. FY 2019 Metrobus OTP was not available due to data quality errors. FY 2020 Metrobus data are for a pre-pandemic period of July 1, 2019 to March 15, 2020. FY 2022 data excludes three days of data due to data collection errors[69] as well as data from January 1, 2022 to February 6, 2022 due to operator absences from the Omicron surge that required a quick move to a Saturday schedule during the week that prevented accurate measurement of on-time performance. All other data are reported for the full fiscal year. Additional information on how this is measured is contained in the appendix.

Figure 2 summarizes Metrobus OTP in FY 2019, FY 2020, FY 2021 and FY 2022. Metrobus OTP increased from 75% in FY 2021 to 77% in FY 2022. Effects of the pandemic have changed traffic conditions and staffing availability, both of which impact Metrobus OTP. Metro continues to adjust schedules and staffing plans to adapt to the changing environment.

Figure 2: On-Time Performance by Mode



Source: Metro Performance Report FY 2022

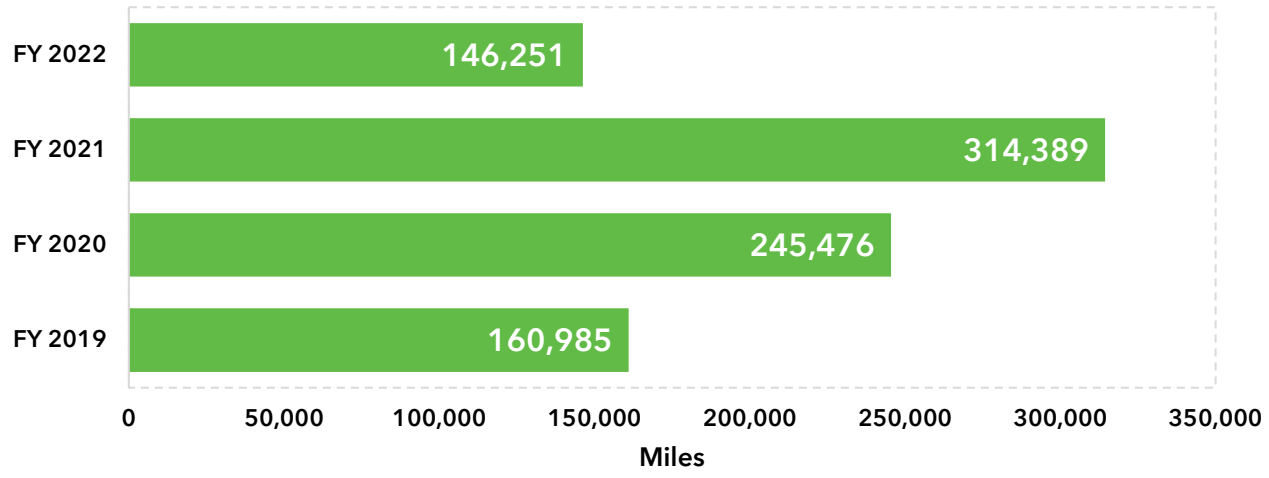
Mean Distance between Delays/Failures

Mean distance between delays (MDBD) or mean distance between failure (MDBF) indicates the average number of miles traveled between vehicle failures that delay rail or bus service. The Metro Performance Report presents MDBD only for Metrorail and the equivalent metric for Metrobus reliability is mean distance between failures (MDBF). Higher MDBD/MDBF indicates greater reliability of Metro railcar and bus equipment.

Figure 3 and Figure 4 summarize the Metrorail and Metrobus reliability figures for FY 2019, FY 2020, FY 2021 and FY 2022. Metrorail equipment reliability saw a decline in FY 2022 due to the Blue Line derailment and removal of 7000-series railcars. The older 2000- and 3000-series railcars have provided most of the Metrorail service since that incident, and although these railcars typically perform less reliably, they performed the best in decades in FY 2022. Metrobus

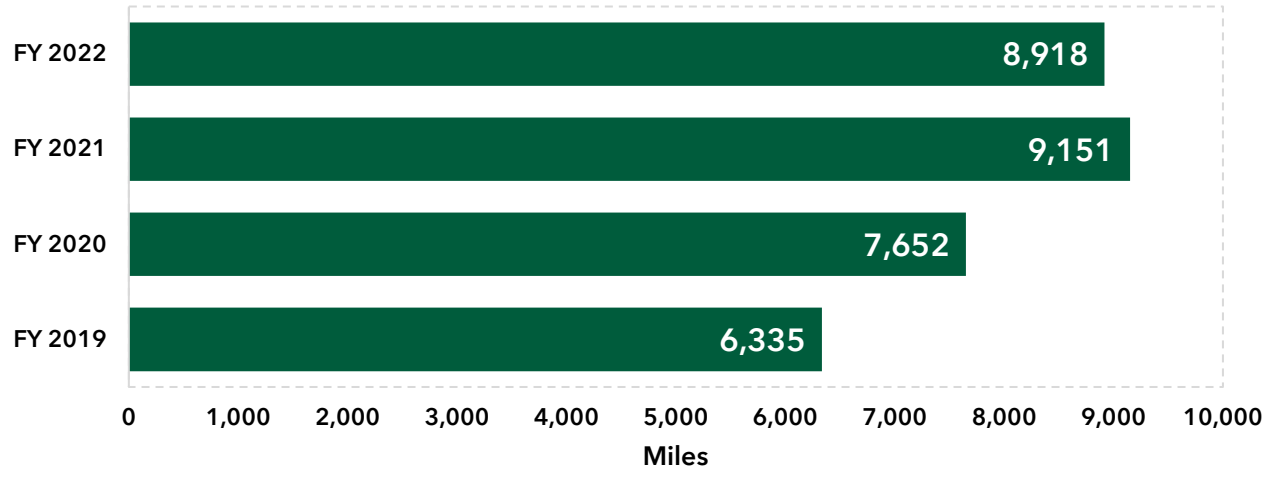
equipment reliability exceeded FY 2022 targets, in part due to the strong performance of the fleet procurement program to replace aging buses and overhaul vehicles to improve performance in the second half of their life.

Figure 3: Metrorail Equipment Reliability, MDBD



Source: Metro Performance Report FY 2022

Figure 4: Metrobus Equipment Reliability, MDBF



Source: Metro Performance Report FY 2022

4. Metrorail and Metrobus Financial Performance

Metrorail and Metrobus financial performance measures are required by §33.2-3401 of the Code of Virginia, pursuant to Chapter 854 of the 2018 Virginia Acts of Assembly. Financial and ridership data are collected by each individual transit agency and reported to the National Transit Database (NTD) which provides common definitions, reporting definitions, and has a robust data quality assurance and auditing process. Financial performance measures include the following three measures:

1. Metrorail Farebox Recovery and Metrobus Farebox Recovery
2. Metrorail Service per Rider and Metrobus Service per Rider
3. Cost per Metrorail Service Hour and Cost per Metrobus Service Hour

NTD FY 2021 data is reported for each of the above measures and includes calculations for both Metrorail and Metrobus. For Metrobus, data presented includes both services that are directly operated by WMATA and those which are operated by a contracted provider.[70] It is also important to note that due to robust auditing and review processes, NTD data is typically released at least one or more years after the fiscal year it represents. Data provided in this section is from the full FY 2021 (July 1, 2020 to June 30, 2021) and reflects impacts on service and ridership due to the COVID-19 pandemic.

The pandemic had a major impact on both Metrobus and Metrorail service in FY 2021. At various points during the pandemic, WMATA adjusted Metrorail and Metrobus service levels to respond to COVID safety protocols, workforce availability, and the demand for service amidst significantly reduced ridership. This resulted in a decline of Metrorail and Metrobus service hours in FY 2020 and 2021 when compared to pre-pandemic years.

Following the initial stay at home orders in March 2020, WMATA provided 35% of normal peak service for Metrorail and Metrobus. In August 2020, WMATA provided near-normal peak and off-peak service on Metrorail and restored Metrobus to 73% of pre-pandemic levels on weekdays. As additional COVID aid became available, WMATA gradually restored Metrobus service and normalized weekday peak and off-peak Metrorail frequencies in the remainder of FY 2021. In addition, WMATA waived Metrobus fares for over 10 months as part of early pandemic safety protocols. The data provided in this section represents the total of service provided for all of FY 2021 which includes numerous service changes and schedule adjustments due to the pandemic.

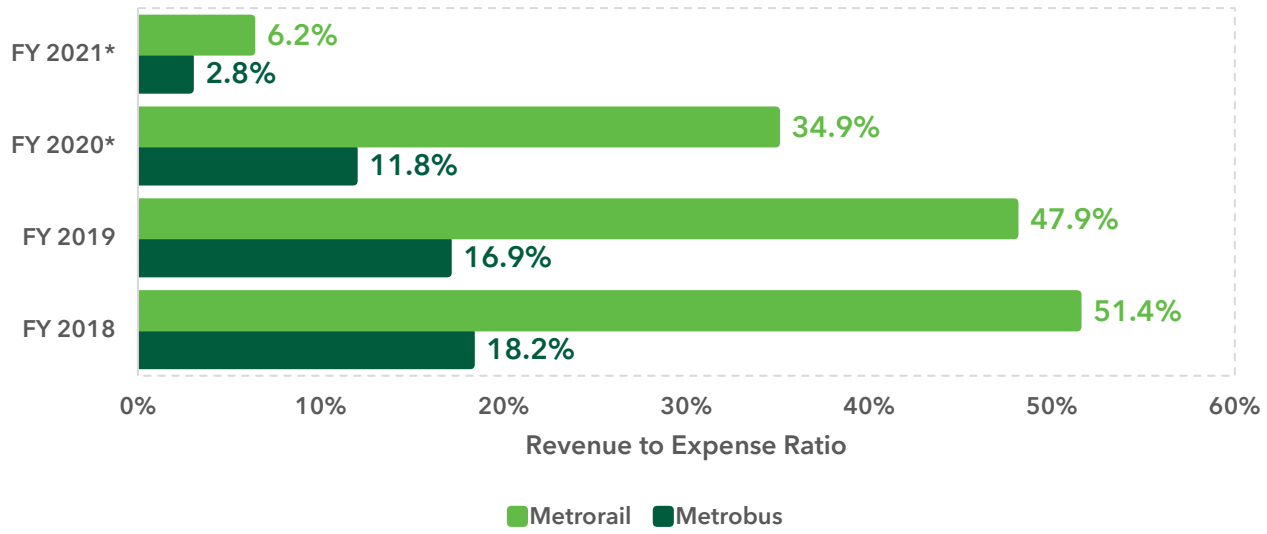
Metrorail and Metrobus Farebox Recovery

Farebox recovery indicates how much of an agency's operating costs are recovered through passenger fare revenues. A higher recovery ratio indicates that the transit agency recoups a larger share of its operating costs through passenger revenue. Because rail systems generally have higher fares and higher ridership than bus systems, farebox recovery tends to be higher for rail systems than for bus systems.

Per Figure 5, Metrorail farebox recovery was 6.2% in FY 2021 and Metrobus farebox recovery was 2.8% in FY 2021. The COVID-19 pandemic had a major impact on both Metrobus and Metrorail

passenger revenues in FY 2021, as WMATA utilized federal COVID aid to offset losses in fare revenues and provide service levels for most of the year to ensure the movement of essential workers while ridership remained low. Due to the pandemic, WMATA ridership was at its lowest point in FY 2021 at 26% of pre-pandemic levels. In FY 2021, Metrorail ridership declined more than Metrobus ridership, resulting in Metrobus carrying nearly twice as many riders as Metrorail.[71] Additionally, as a COVID safety precaution, Metrobus instituted rear-door boarding and waived fares from March 2020 until January 2021.[72] In FY 2021, revenues were also at their lowest point totaling $166.6 million (compared to $784.6 million in FY 2019).[73]

Figure 5: Metrorail and Metrobus Farebox Recovery



*In FY 2020 and FY 2021, Metrorail and Metrobus ridership, service and revenue were significantly impacted by the COVID-19 pandemic.

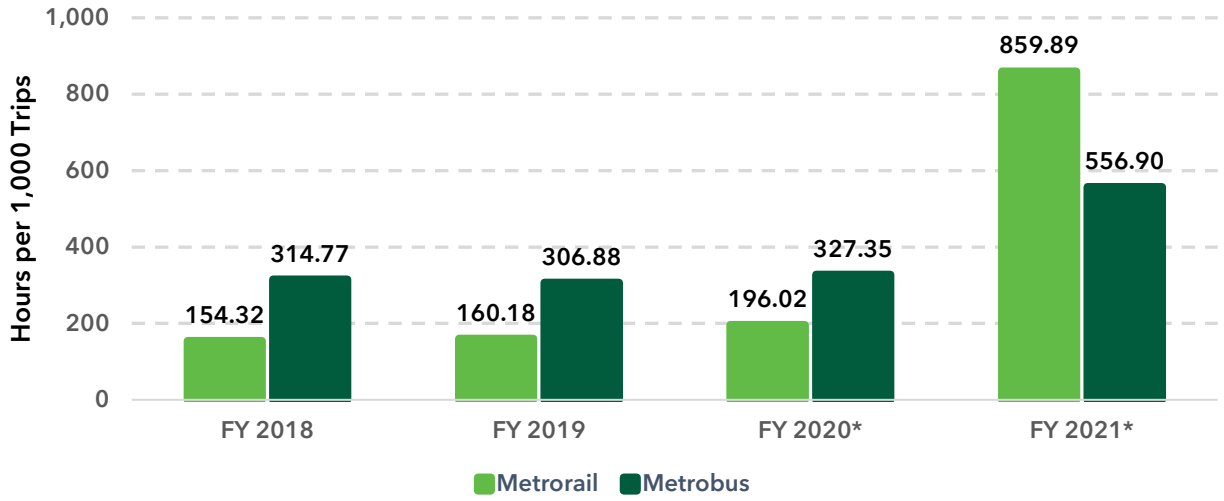
Source: WMATA NTD[74]

Metrorail and Metrobus Service Per Rider

Service per rider indicates the number of railcar or bus service hours offered per 10,000 passenger trips. This number summarizes how efficiently an agency is transporting passengers. Agencies strive to strike a balance between serving as many passengers as possible while providing service at a reasonable cost. A low service per rider number indicates that relatively few hours of service are required to serve 10,000 passengers, which indicates higher efficiency.

Per Figure 6, Metrorail service per rider was 859.89 hours per 10,000 trips in FY 2021 and Metrobus service per rider was 556.90 hours per 10,000 in FY 2021. The increase in service per rider in FY 2021 is a result of WMATA providing essential bus and rail service throughout the year even though ridership dropped significantly. Providing that level of service was a condition of WMATA utilizing federal COVID aid which required WMATA to avoid layoffs. It also ensured the reliable movement of essential workers during the peak of the pandemic. Due to the pandemic, WMATA ridership was at its lowest point in FY 2021.[75]

Figure 6: Metrorail and Metrobus Service per Rider



*In FY 2020 and FY 2021, Metrorail and Metrobus ridership, service and revenue were significantly impacted by the COVID-19 pandemic.

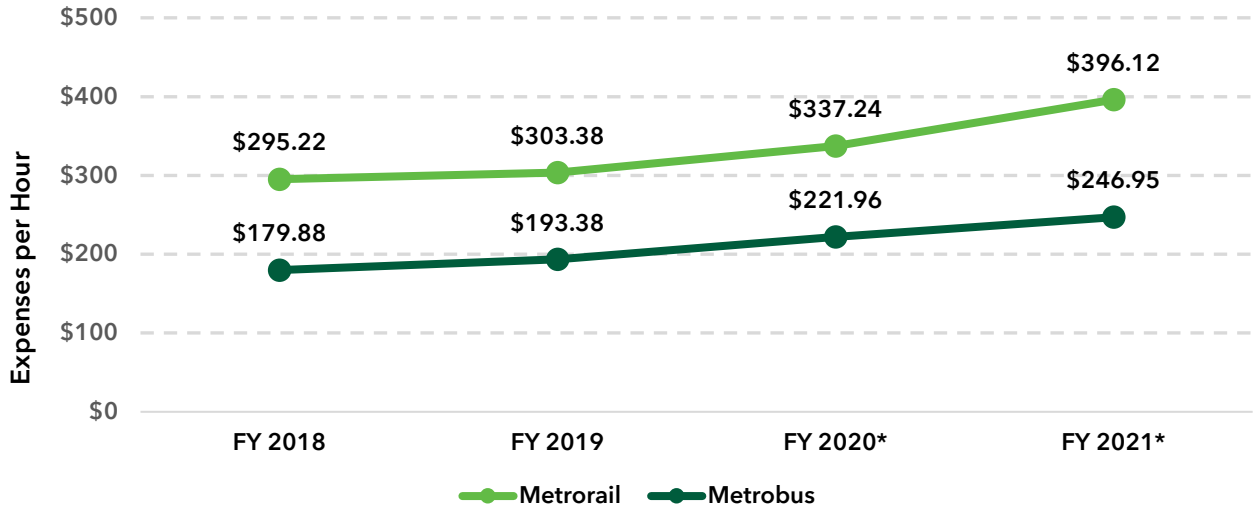
Source: WMATA NTD[76]

Cost Per Metrorail and Metrobus Service Hour

The cost per Metrorail service hour is the average cost associated with the operation and maintenance of one railcar for each hour of passenger revenue service. A lower number indicates a lower hourly cost to operate each railcar. Heavy rail services in the U.S. generally have a substantially higher cost per service hour than bus services because they use larger vehicles over shorter service miles.[77]The cost per Metrobus service hour is the approximate cost associated with the operation and maintenance of a vehicle for each hour of revenue service. A lower number indicates a lower average hourly cost to operate each bus.

Per Figure 7, the cost per Metrorail service hour was $396.12 in FY 2021 and Metrobus service hour was $246.95 in FY 2021. Metrorail and Metrobus costs per service hour rose in FY 2021 as expenses increased (due to additional expenses incurred from inflation, COVID safety efforts, and the need to avoid layoffs as a requirement of federal COVID aid) and service levels declined (when compared to pre-pandemic levels) due to the COVID-19 pandemic. The pandemic had a major impact on both Metrobus and Metrorail revenue service hours in FY 2021. At various points during FY 2020 and FY 2021, WMATA adjusted Metrorail and Metrobus service levels to respond to COVID safety protocols, workforce availability, and the demand for service amidst significantly reduced ridership. This resulted in a decline of Metrorail and Metrobus service hours in FY 2020 and 2021 when compared to pre-pandemic years. WMATA utilized federal COVID aid to provide service for most of the year to ensure the movement of essential workers and avoid layoffs.

Figure 7: Metrorail and Metrobus Cost per Service Hour



*In FY 2020 and FY 2021, Metrorail and Metrobus ridership, service and revenue were significantly impacted by the COVID-19 pandemic.

Source: WMATA NTD[78]

5. Metrorail and Metrobus Ridership

Documentation of Metrorail and Metrobus ridership is required by §33.2-3401 of the Code of Virginia, pursuant to Chapter 854 of the 2018 Virginia Acts of Assembly. Financial and ridership data are collected by each individual transit agency and reported to the National Transit Database (NTD) which provides common definitions, reporting definitions, and has a robust data quality assurance and auditing process. Because public transit services exist to transport passengers, transit systems seek to maximize patronage, measured in passengers. This section summarizes Metrorail and Metrobus ridership, which is measured by the NTD using:

1. Unlinked Passenger Trips (UPT)
2. Passenger Miles Traveled (PMT)

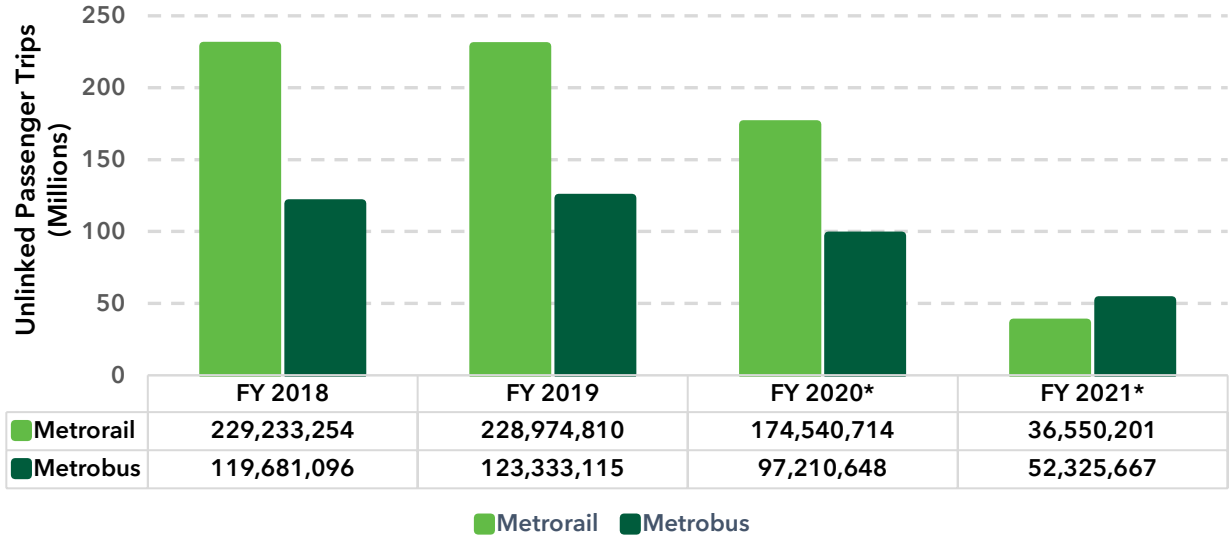
The meaning and significance of these two ridership measures are clarified in Chapter 5. For Metrobus, data presented includes both services that are directly operated by WMATA and those which are operated by a contracted provider.[79] It is also important to note that due to robust auditing and review processes, NTD data is typically released at least one year or more after the fiscal year it represents. Data provided in this section include FY 2020 and FY 2021 and reflect impacts on ridership due to the COVID-19 pandemic and implementation of safety protocols by WMATA beginning in March 2020.

Metrorail and Metrobus Unlinked Passenger Trips

Unlinked passenger trips (UPT) indicate the number of passengers boarding vehicles and demonstrates the overall number of passengers passing through the overall Metro system. A higher UPT reflects greater use of transit services. This section provides FY 2021 UPT data for Metrorail and Metrobus. The official NTD definition for this ridership metric is included in the Appendix.

There were 36,550,201 Metrorail unlinked passenger trips and 52,325,667 Metrobus unlinked passenger trips in FY 2021. Both Metrobus and Metrorail experienced steep declines in ridership due to the impacts of the COVID-19 pandemic.

Figure 8: Metrorail and Metrobus Ridership, UPT



	FY 2018	FY 2019	FY 2020*	FY 2021*
Metrorail	229,233,254	228,974,810	174,540,714	36,550,201
Metrobus	119,681,096	123,333,115	97,210,648	52,325,667

*In FY 2020 and FY 2021, Metrorail and Metrobus ridership, service and revenue were significantly impacted by the COVID-19 pandemic.

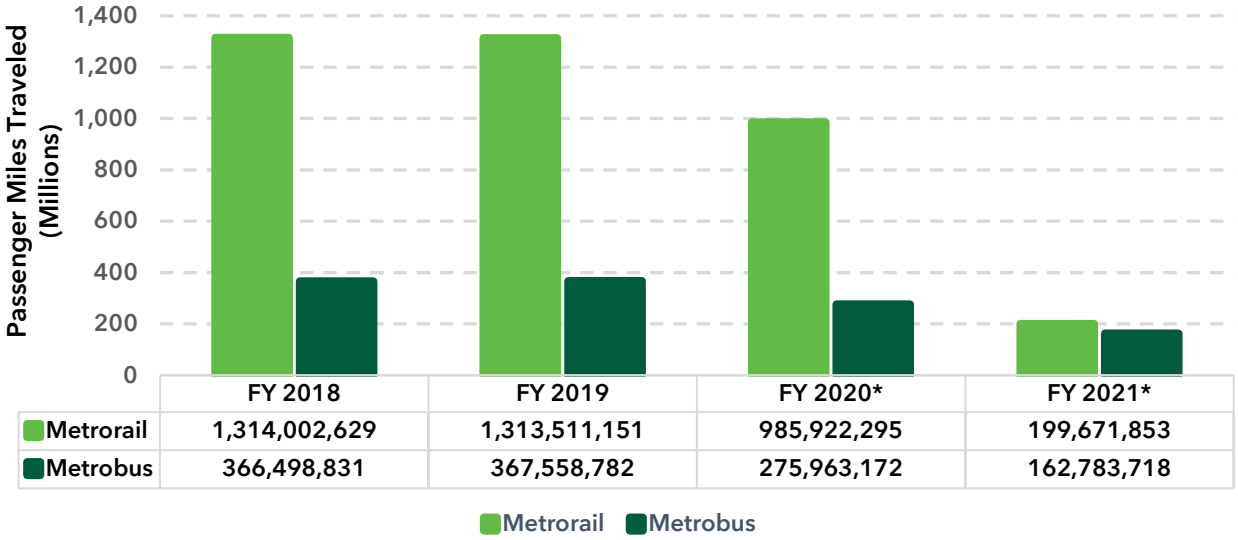
Source: WMATA NTD[80]

Metrorail and Metrobus Passenger Miles Traveled

Passenger miles traveled (PMT) indicates the total sum of miles traveled by all passengers aboard the transit service. A single passenger traveling 10 miles by bus would count as 10 passenger miles traveled. As with UPT, a higher PMT figure indicates greater patronage of transit services, providing insight into both UPT and distances traveled by passengers.

In FY 2021 the total passenger miles traveled for Metrorail was 199,671,853 and Metrobus was 162,783,718 as shown in Figure 9. Both Metrobus and Metrorail experienced steep declines in ridership due to the impacts of the COVID-19 pandemic.

Figure 9: Metrorail and Metrobus Ridership, PMT



	FY 2018	FY 2019	FY 2020*	FY 2021*
Metrorail	1,314,002,629	1,313,511,151	985,922,295	199,671,853
Metrobus	366,498,831	367,558,782	275,963,172	162,783,718

*In FY 2020 and FY 2021, Metrorail and Metrobus ridership, service and revenue were significantly impacted by the COVID-19 pandemic.

Source: WMATA NTD[81]

Appendix

This appendix includes definitions and sources for the terminology used throughout the report. To provide a holistic picture of WMATA's safety, reliability, financial and ridership performance, the definitions below have been aggregated from the following sources as indicated in the footnotes:

1. When not indicated otherwise, definitions are taken directly from the NTD Glossary.[82]

2. For metrics without an NTD definition, a definition is taken from WMATA's Metro Performance Report (MPR).[83] MPR definitions also include an explanation of what each metric mean[s] and why it is important to [their] strategy. These explanations are included along with the definitions.

3. To build a complete understanding of each MPR definition, WMATA provided NVTC with clarifications, which are denoted with the footnote "Provided by WMATA."

Collision
A vehicle/vessel accident in which there is an impact of a transit vehicle/vessel with: another transit vehicle, a non-transit vehicle, a fixed object, a person(s) (suicide/attempted suicide included), an animal, a rail vehicle, a vessel or a dock.

Cost per Service Hour[84]
The average cost to operate one vehicle/passenger car for one hour of passenger service. Calculated for each mode by taking the total operating expenses and dividing by total vehicle revenue hours.

Deadhead (Miles and Hours)
The miles and hours that a vehicle travels when out of revenue service. Deadhead includes leaving or returning to the garage or yard facility, changing routes and when there is no expectation of carrying revenue passengers. Deadhead does not include charter service, school bus service, operator training or maintenance training.

Derailments
Non-collision incidents in which one or more wheels of a vehicle unintentionally leaves the rails.

Failure, Metrobus
WMATA counts buses as failures due to mechanical problems that resulted in lost or interrupted trips. Therefore, only bus maintenance chargeables (BMCs) are counted.

- Major failures are BMCs that may leave the bus stranded on the street or result in grossly unsafe operation. Examples: brakes, door interlock, generator, smoke/fire, large fluid leaks, engine or transmission shutdown, broken wipers on rainy days. ("Accidents" caused by mechanical failure (i.e., brakes not engaging) are counted as major.)
- Minor failures are BMCs that may be deemed unsafe by the operator, manufacturer or engineers to protect the bus from irreparable damage. Examples: engine/transmission malfunction indicators, windshield, mirrors, unsafe interior or exterior body issues.

Failure, Metrorail
WMATA defines a railcar failure as a mechanical failure that requires corrective maintenance. Failures related to operator error or customer behavior, e.g., doors that fail because they were held open by customers, are not counted. Not all failures prevent vehicles from completing scheduled revenue trips or starting the next scheduled revenue trips. In some cases, corrective maintenance can be conducted after the scheduled trips are completed. A delay is a failure that causes a train to hold in place for more than four minutes.

Farebox Recovery Ratio[85]
The portion of operating expenses that are paid for by fare revenues. This metric is calculated as: *Fare Revenue ÷ Operating Expenses*.

Fare Revenue
All income received directly from passengers, paid either in cash or through pre-paid tickets, passes, etc. It includes donations from those passengers who donate money on the vehicle. It includes the reduced fares paid by passengers in a user-side subsidy arrangement.

Fatality
A death or suicide confirmed within 30 days of a reported incident. Does not include deaths in or on transit property that are a result of illness or other natural causes.

Fire
Uncontrolled combustion made evident by flame that requires suppression by equipment or personnel.

Headway
The time interval between vehicles moving in the same direction on a route.

Injury
Any damage or harm to persons as a result of an event that requires immediate medical attention away from the scene.

Linked Passenger Trips[86]
A linked passenger trip is counted when a customer enters through a faregate. In an example where a customer transfers between two trains to complete their travel one trip is counted. Metrorail reports linked passenger trips.

Labor (Cost)[87]
The pay and allowances due employees in exchange for the labor they provide on behalf of the transit agency. The labor allowances include payments made directly to the employee arising from the performance of a piece of work.

Major Event Report (S&S-40) [88]
The Major Event Report (S&S-40) captures detailed information on severe safety and security events that occur within a transit environment. Agencies must complete one S&S-40 per reportable event, regardless of how many thresholds an event meets. A reportable event is one that meets any NTD reporting threshold (detailed below) and occurs on transit right-of-way or infrastructure, at a transit revenue facility, at a maintenance facility or rail yard, during a transit-related maintenance activity, or involves a transit revenue vehicle.

Mean Distance between Delays[89]
The average number of miles traveled before a railcar experiences a failure that leads to a delay of four or more minutes. This is equivalently expressed as: *Total railcar revenue miles ÷ Number of failures during revenue service resulting in delays of four or more minutes*.

Some car failures result in inconvenience or discomfort but do not always result in a delay of service, such as hot cars. Mean distance between delays includes those failures that had an impact on customer on-time performance.

Mean Distance between Failures[90]
The average number of miles traveled before a mechanical breakdown requiring the bus to be removed from service or deviate from the schedule. This can also be expressed as: *Total revenue miles ÷ Total number of failures.*

Mean distance between failures is used to monitor trends in vehicle breakdowns that cause buses to go out of service and to plan corrective actions. Factors that influence fleet reliability include vehicle age, quality of maintenance program, original vehicle quality and road conditions affected by inclement weather and road construction.

Non-Major Monthly Summary (S&S-50)[91]
The Non-Major Monthly Summary Report captures monthly summary information on minor fires and other less severe safety events that are not reportable as Major Events.

Non-Labor Costs
The costs associated with operating expenses including fuel/lube, tires, tubes, utilities, casualty/liability costs, taxes and other materials.[92]

On-Time Performance (Metrobus)[93]
Bus on-time performance (OTP) communicates the reliability of bus service, which is a key driver of customer satisfaction and ridership. For schedule-based routes, OTP measures adherence to the published route schedule for delivered service. For headway-based routes, OTP measures the adherence to headways, or the time customers wait between buses. Headway-based routes include routes 70, 79, X2, 90, 92, 16Y and Metroway.

Metrobus measured OTP using schedule-based methodology until FY 2020. After a pilot in FY 2019, OTP was measured using a blended schedule- and headway-based methodology beginning in FY 2020 and continuing through September 2021. Beginning in October 2021, Metro returned to measuring all routes on a schedule-based methodology.

Factors that can affect OTP include traffic congestion, detours, inclement weather, scheduling, vehicle reliability, operational behavior or delays caused by passengers. Measurements are calculated as follows:

Percentage of bus service delivered on-time

Schedule-based routes = Number of time points delivered on time based on a window of 2 minutes early and 7 minutes late ÷ Total number of time points delivered

Headway-based routes = Number of time points delivered within the scheduled headway + 3 minutes ÷ Total number of time points delivered

Fiscal Year	Methodology	Data Availability
FY 2019	Schedule-based OTP*	Not available due to quality errors
FY 2020	Schedule- and Headway-based OTP	Available from July 1, 2019 until March 15, 2020, as the beginning of the pandemic significantly reduced service
FY 2021	Schedule- and Headway-based OTP	Available for entire fiscal year
FY 2022	Schedule and Headway-based OTP through September; Schedule-based from October - June	Excludes data from 9/6/2021, 1/1/2022 – 2/6/2022, 3/3/2022, and 5/30/2022

* WMATA piloted a new calculation for Metrobus on-time performance that introduced a headway-based measure for several Metrobus routes and modified the schedule-based OTP to include all timepoints (this previously had excluded all last timepoints).

On-Time Performance (Metrorail)[94]
Metrorail customer OTP measures the percentage of customers who complete their journey within the maximum amount of time it should take per WMATA service standards. Actual journey time is calculated from the time a customer taps a SmarTrip card to enter the system, to the time when a SmarTrip card is tapped to exit. Factors that can affect OTP include infrastructure conditions, missed dispatches, railcar delays (e.g., doors), or delays caused by sick passengers. Station stops are tracked system-wide, except for terminal and turn-back stations. Measurements are calculated as follows:

Number of customer trips with travel times less than or equal to expected travel times e ÷ number of customer trips

Operating Expenses
These expenses include labor and non-labor costs and services for operating and maintaining the mode, including general administration costs. Labor costs are fully loaded, meaning they include fringe benefit costs (directly paid to employees as well as indirectly, e.g., payments to pension funds) in addition to wages and salary costs.[95]

Passenger Miles Traveled (PMT)[96]
The cumulative sum of the distances ridden by each passenger.

Ridership
Ridership is a measure of total service consumed and an indicator of value to the region. Drivers of this indicator include service quality and accessibility.

Passenger trips are defined as follows:

- Metrorail reports passenger trips. A passenger trip is counted when a customer enters through a faregate. In an example where a customer transfers between two trains to complete their travel one trip is counted.
- Metrobus reports passenger boardings. A passenger boarding is counted via the onboard Automatic Passenger Counter (APC) when a customer boards a Metrobus. In an example where a customer transfers between two Metrobuses to complete their travel two trips are counted. Metrobus totals also include shuttles to accommodate rail station shutdowns and other track work.

Revenue Service (Hours)
The time when a vehicle is available to the public and there is an expectation of carrying passengers. These passengers either directly, pay fares, are subsidized by public policy, or provide payment through some contractual arrangement. Vehicles operated in fare-free service are considered in revenue service. Revenue service includes layover and recovery time and excludes deadhead,[97] vehicle maintenance testing, school bus service, and charter service.

Security Event
An occurrence of a bomb threat, bombing, arson, hijacking, sabotage, cyber security event, assault, robbery, rape, burglary, suicide, attempted suicide (not involving a transit vehicle), larceny, theft, vandalism, homicide, CBR (chemical/biological/radiological) or nuclear release or other event.

Service per Rider[98]
A performance metric that measures the ratio of vehicle revenue hours to unlinked passenger trips. Note that in this report, this ratio is scaled by a factor of 10,000 for readability. The metric is calculated as: (*Total Vehicle Revenue Hours ÷ Number of Unlinked Trips) × 10,000*.

Time Point
A time point is a bus stop where there are frequent boardings and alighting that has a scheduled time that the bus should arrive for each trip. The Metrobus schedule is built by calculating the running time between each time point. Adherence to schedule is measured as the bus leaves each time point except the last timepoint for each run. Time point is used in the definition of on-time performance for Metrobus.

Unlinked Passenger Trips (UPT)
The number of passengers who board public transportation vehicles. Passengers are counted each time they board vehicles no matter how many vehicles they use to travel from their origin to their destination.

Passenger trips are defined as follows:[99]

- Metrorail reports passenger trips. A passenger trip is counted when a customer enters through a faregate. In an example where a customer transfers between two trains to complete their travel two unlinked passenger trips are counted.
- Metrobus reports passenger boardings. A passenger boarding is counted via the onboard Automatic Passenger Counter (APC) when a customer boards a Metrobus. In an example where a customer transfers between two Metrobuses to complete their travel, two trips are counted. Metrobus totals also include shuttles to accommodate rail station shutdowns and other track work.

Vehicle Revenue Hours
Vehicle revenue hours are the amount of time the bus operates in revenue service. Vehicle revenue hours include layover and recovery time and exclude deadhead, operator training, vehicle maintenance testing, and school bus and charter services.

[1] Figure 1 includes reimbursables but does not include debt service from the jurisdictions.
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[75] Total WMATA ridership for Metrorail, Metrobus, and Metroaccess was at 26% of pre-pandemic levels in FY 2021. WMATA. "FY 2024 Budget Outlook." <https://wmata.com/about/board/meetings/board-pdfs/upload/4A-FY2024-Budget-Outlook.pdf>
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[78] WMATA NTD data from form TS2.1-Service Data and Operating Expenses time Series by Mode <https://www.transit.dot.gov/ntd/data-product/ts21-service-data-and-operating-expenses-time-series-mode-2>
[79] FY 2019 Metrobus data includes services operated by contracted provider.
[80] WMATA NTD data from form TS2.1-Service Data and Operating Expenses time Series by Mode <https://www.transit.dot.gov/ntd/data-product/ts21-service-data-and-operating-expenses-time-series-mode-2>
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[86] WMATA. "Metro Performance Report." Fiscal Year 2020.
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[88] Adapted from: National Transit Database. "NTD Safety & Security Reporting Manual." p. 16. 2020. <https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/ntd/146986/2020-ntd-safety-and-security-policy-manual.pdf >
[89] WMATA. "Metro Performance Report." p. 49. Fiscal Year 2020. <https://www.wmata.com/about/records/scorecard/upload/MetroPerformanceReport_Q3FY2020.pdf>
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[92] Categories under Operating Expenses are based on NTD Definition. Federal Transit Administration. "The 2020 Reporting Policy Manual for the National Transit Database." October 2020. <https://www.transit.dot.gov/sites/fta.dot.gov/files/2020-10/2020%20NTD%20Reporting%20Policy%20Manual_1.pdf>
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[97] Federal Transit Administration. "The 2020 Reporting Policy Manual for the National Transit Database." p. 114. October 2020. <https://www.transit.dot.gov/sites/fta.dot.gov/files/2020-10/2020%20NTD%20Reporting%20Policy%20Manual_1.pdf>
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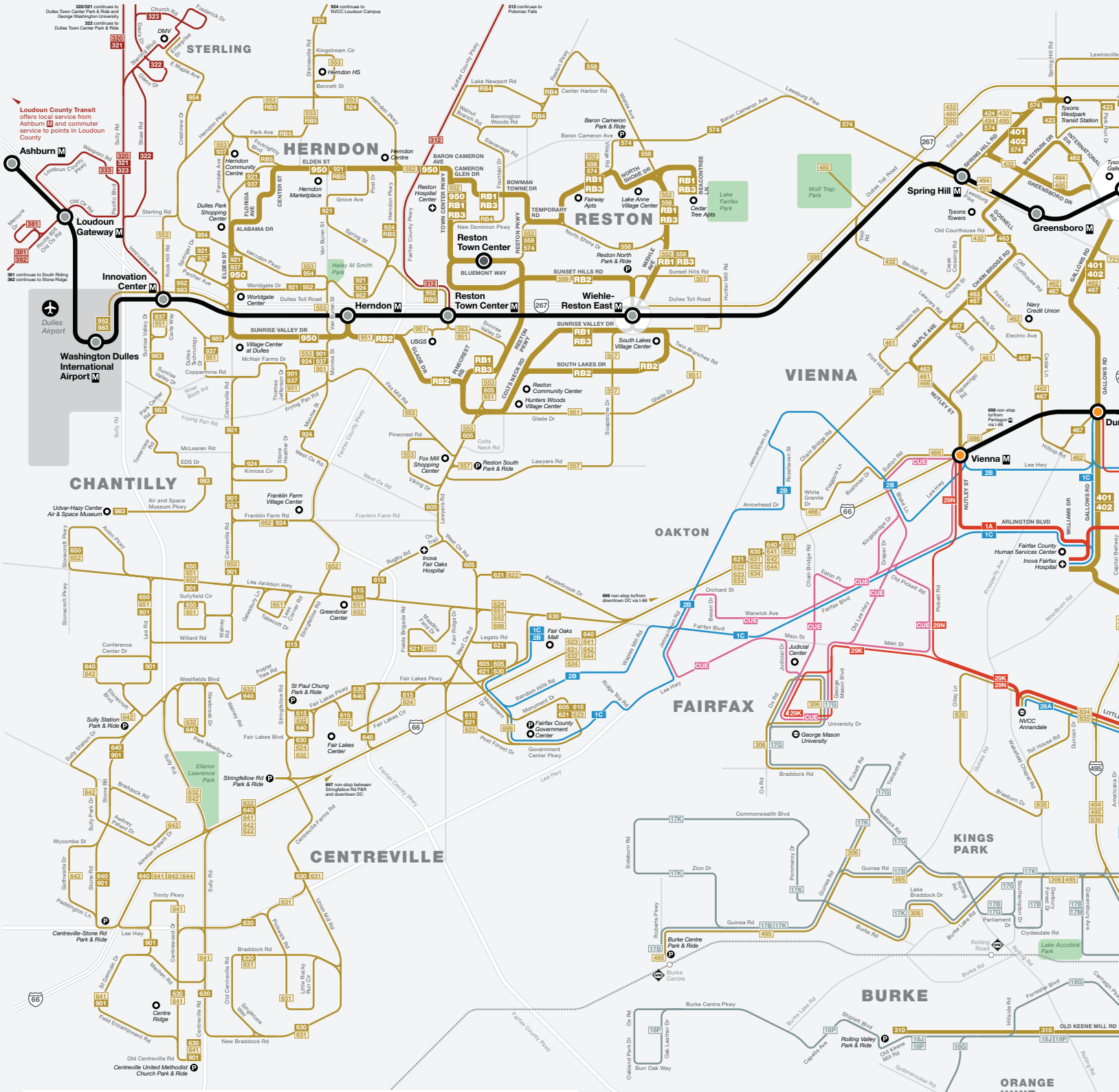


MAP LEGEND

Rail Lines

Metrorail Station and Line M

Commuter Railroad and Station

Map Symbols

- Transit Hub
- Park & Ride Lot
- Airport
- Hospital
- College/University
- Other Point of Interest

Metrobus Frequent Service

28A Runs Every **12 Minutes** or Better 7:00am to 9:00pm Every Day

1A Runs Every **20 Minutes** or Better 7:00am to 9:00pm Every Day

On most routes, less frequent service also operates during early morning and late night times.

Metrobus Routes

16A Metrobus Frequent Route Branch
Less frequent service. Times vary by route.

29K Metrobus Local Route
Less frequent service, with some evening and weekend service available.

18P Metrobus Commuter Route
Weekday peak-hour service linking residential areas to Metrorail stations and employment centers.

16Y MetroExtra Route
Limited stops for a faster ride. Days, times and service levels vary by route.

Bus Routes Operated by City/County Systems

Thicker line indicates frequent service.

55 45 ART - Arlington Transit

35 30 DASH - Alexandria Transit Co.

401 630 Fairfax Connector

DC Circulator

CUE City of Fairfax CUE Bus

312 Loudoun County Transit

2 334 all-day service

3 721 limited service

On all route types, a lowlighted badge indicates a route segment with limited or peak-only service hours.

schematic map not to scale

VIRGINIA

Metrobus System Map

September 2022

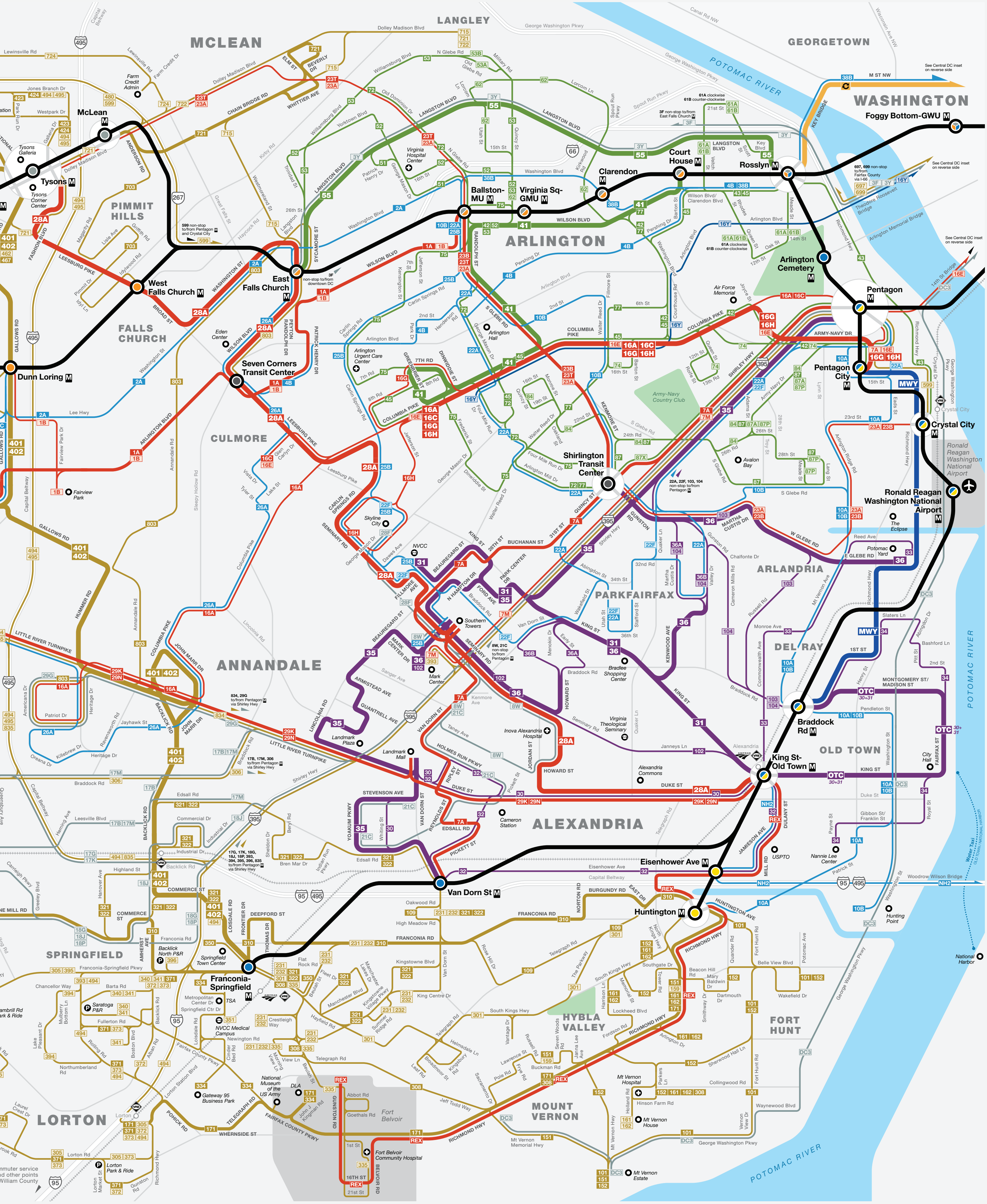
Consult other Metrobus System Maps for service in Montgomery County, MD, Prince George's County, MD and Washington, DC.

This map provides an overview of bus and rail services. For detailed information on each route, please refer to individual schedules.

wmata.com 202.637.7000

Designed by CHK America

PRTC OmniRide offers commuter ser from Dale City, Dumfries and other po in Prince William Cou



MCLEAN
LANGLEY
GEORGETOWN
WASHINGTON
POTOMAC RIVER
Foggy Bottom-GWU
McLean
Tysons
PIMMIT HILLS
Court House
Rosslyn
Clarendon
Ballston-MU
Virginia Sq-GMU
ARLINGTON
Arlington Cemetery
Pentagon
West Falls Church
East Falls Church
FALLS CHURCH
Dunn Loring
Seven Corners Transit Center
Pentagon City
Crystal City
CULMORE
Shirlington Transit Center
Ronald Reagan Washington National Airport
ARLANDRIA
PARKFAIRFAX
DEL RAY
ANNANDALE
Braddock Rd
King St-Old Town
OLD TOWN
ALEXANDRIA
Eisenhower Ave
Van Dorn St
Huntington
SPRINGFIELD
Franconia-Springfield
HYBLA VALLEY
FORT HUNT
MOUNT VERNON
LORTON
Fort Belvoir

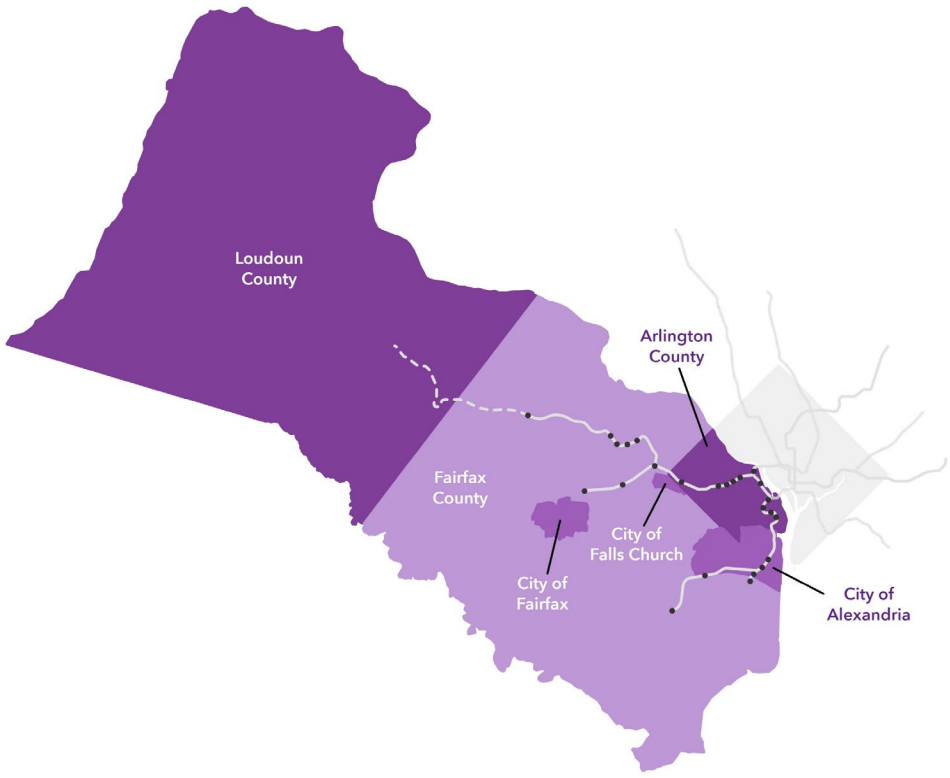
About NVTC

The Northern Virginia Transportation Commission (NVTC) was established to manage the Northern Virginia Transportation District and is charged with the funding and stewardship of the Washington Metropolitan Area Transit Authority (WMATA) on behalf of the jurisdictions of Arlington County, City of Alexandria, City of Falls Church, Fairfax County, City of Fairfax and Loudoun County. Founded in 1964, in part to represent the interests of the Commonwealth during the creation of Metrorail, NVTC continues to serve as Virginia's voice on the WMATA Board of Directors through its appointments to the panel. The WMATA Board determines the authority's policy and provides oversight for funding, operations and the expansions of transit facilities.

NVTC also manages more than $200 million in state assistance to WMATA on behalf of its jurisdictions. NVTC ensures that all its jurisdictions' voices are represented on the WMATA Board, coordinates regional transit efforts that directly affect systems serving Northern Virginia and engages in regional transportation planning, data analysis and reporting, which provides direct benefits to WMATA and the related Northern Virginia transit network.

NVTC also administers the Commuter Choice Program, which invests toll revenue into multi-modal and transit projects along the I-66 Inside the Beltway and I-395/95 corridors, and co-owns the Virginia Railway Express (VRE), which provides commuter rail service connecting Northern Virginia to the District of Columbia.

The Northern Virginia Transportation District



NORTHERN VIRGINIA TRANSPORTATION COMMISSION

NoVaTransit.org
2300 Wilson Blvd. Suite 230
Arlington, VA 22201
(703) 524-3322
@NoVaTransit

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Governor and
General Assembly
December 2022